Chapter 9

Air Toxics Control Strategy

There has been substantial progress in reducing air toxic exposure in the Basin. However, risks are still unacceptably high and risk reduction efforts continue. This chapter discusses the future SCAQMD control strategy for air toxic emissions.

In This Chapter

Background

Since 2000, the SCAQMD has prepared Air Toxics Control Plans to outline the overall strategy for the SCAQMD's air toxics control program. The first Air Toxics Control Plan was approved by the SCAQMD Governing Board in 2000 with an Addendum in 2004. The 2000 Air Toxics Control Plan was an outgrowth of Environmental Justice Initiatives (Initiatives) adopted by the SCAQMD Governing Board in October 1997. The Initiatives included a call to conduct enhanced air toxics monitoring and analysis, and to commence air toxics rulemaking for new and existing sources. These efforts highlighted the need for a more systematic approach to reducing airborne toxics emissions, culminating in the 2000 plan – the first local district air toxics control plan in the nation. As a continued outgrowth of the Initiatives, the SCAQMD Governing Board directed staff to report back on the feasibility of rulemaking to address the cumulative impacts of air toxics. In September 2003, the SCAQMD Governing Board approved a *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution*. The white paper included 25 cumulative impact reduction strategies including rules, policies, funding, education, and coordination with other agencies.

In 2010, the SCAQMD staff expanded the existing Air Toxics Control Plan into a "Clean Communities Plan" (CCP), which put greater emphasis on the cumulative effects of air toxics on neighborhoods and communities, and included 23 measures that utilized traditional source-specific measures and a variety of different implementation approaches such as community participation, increased outreach and communication, additional agency coordination, and enhanced monitoring and compliance programs. The CCP is the continuing effort and update to both the Air Toxics Control Plan and its Addendum. Figure 9-1 is a timeline of the agency's evolving policy and scientific efforts to date in addressing air toxics, including the umbrella rules and the Multiple Air Toxics Exposure Studies (MATES) discussed later in this chapter.

Previous Air Toxic Control Plans, including the CCP, focused on developing a broad policy document for reducing air toxics. This consisted of developing potential control concepts and programs that went beyond current ongoing programs and efforts to implement the existing AQMP. This chapter presents areas of focus for the SCAQMD's air toxics control strategy over the next several years and its relationship to the 2016 AQMP.

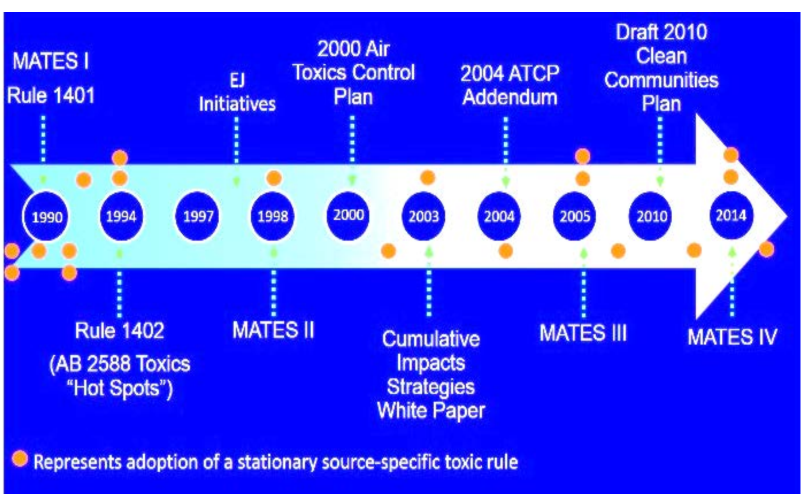


FIGURE 9-1
SCAQMD'S AIR TOXICS PROGRAM TIMELINE

Current Air Toxics Regulatory Program for Stationary Sources

The SCAQMD has a robust, multifaceted, and comprehensive air toxics regulatory program consisting of rules to address new and modified toxic sources through permitting, the AB2588 program (existing toxic sources), and source-specific toxics rules. The SCAQMD has three air toxics "umbrella" rules addressing new and modified, and existing sources with air toxic emissions. Rule 1401 sets health risk thresholds for air toxic emissions from new, modified, and relocated sources. Rule 1401 lists toxic air contaminants (TACs) that are evaluated during the SCAQMD's permitting process for new, modified or relocated sources. Rule 1401.1 sets more stringent risk thresholds than Rule 1401 for new and relocated facilities that are located near schools. The requirements are more stringent than Rule 1401 in order to provide additional protection to school children. The third umbrella rule is Rule 1402 which implements the Air Toxics Hot Spots (AB2588) program and establishes health risk thresholds for existing facilities. These umbrella rules include evaluation of nearly 300 TACs for existing, new, modified, or relocated sources. During the past decade, more than 80 TACs have been added or had risk values amended.

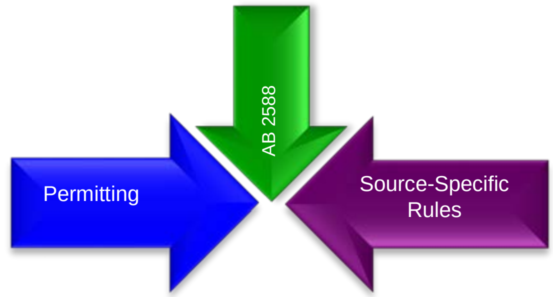


FIGURE 9-2
SCAQMD'S AIR TOXICS PROGRAM IS MULTI-

In addition to the above described umbrella toxics rules, the SCAQMD's regulatory program includes over fifteen source-specific toxics rules regulating specific equipment or industry categories such as chrome plating, asbestos remediation, lead-acid battery recycling, perchloroethylene dry cleaners, metal melting facilities, and diesel internal combustion engines. The SCAQMD's air toxics regulatory program for source-specific categories is as stringent as, or more stringent than, state Air Toxic Control Measures (ATCMs) and federal National Emission Standards for Hazardous Air Pollutants (NESHAPs). Many of the SCAQMD toxics rules incorporate requirements from state ATCMs and federal NESHAPs, and in some cases the state and federal programs have incorporated the more stringent requirements already established in SCAQMD toxic rules. Table 9-1 lists source-specific toxic rules that have been adopted or amended in the last several years, the number of affected sources, and emission reductions, if quantified.

TABLE 9-1

SCAQMD Air Toxic Rules Recently Amended or Adopted

Rule	Source Category	Key Adoption/ Amendment Dates	TAC	Number of Facilities	Estimated Emission Reductions	Final Emission Limit	Final Ambient Limit
1156	Cement Manufacturing	3/6/2009 *(amended)* 11/6/2015 *(amended)*	Hexavalent Chromium	2	32 lbs/yr (Cr^{+6})	N/A	0.2 ng/m^3 (Cr^{+6})
1401	New Source Review of Toxic Air Contaminants	6/5/2015 *(amended)*	Multiple TACs	All permitted facilities	N/A	N/A	N/A
1401.1	Requirements for New and Relocated Facilities Near Schools	6/5/2015 *(amended)*	Multiple TACs	All permitted facilities	N/A	N/A	N/A
1402	Control of Toxic Air Contaminants from Existing Sources	6/5/2015 *(amended)*	Multiple TACs	All permitted facilities	N/A	N/A	N/A
1420.1	Lead-acid Battery Recycling	11/5/2010 *(adopted)* 1/10/2014 *(amended)* 3/6/2015 *(amended)* 9/4/2015 *(amended)*	Lead Arsenic Benzene 1,3-Butadiene	2	31 lbs/yr (Arsenic) 3,673 lbs/yr (Benzene) 485 lbs/yr (1,3-Butadiene)	0.00114 lb/hr (Arsenic) 0.003 lb/hr (Lead)	10.0 ng/m^3 (Arsenic) 0.100 µg/m^3 (Lead)
1420.2	Metal Melting Facilities	10/2/2015 *(adopted)*	Lead	13	N/A	99% control efficiency or 0.0003 lb/hr (Lead)	0.100 µg/m^3 (Lead)
1470*	Stationary Diesel-Fueled Engines*	5/4/2012 *(amended)*	Diesel PM	~4900	N/A	0.01 to 0.15 g/bhp-hr for new engines near a sensitive receptor	N/A

*Implements ATCM for Stationary Compression Ignition Engines

Current Air Toxics Regulatory Approach for Mobile Sources

Mobile sources include both on- and off-road sources such as passenger cars, motorcycles, trucks, busses, heavy-duty construction equipment, recreational vehicles, marine vessels, lawn and garden equipment, and small utility engines. The existing control program for mobile sources is primarily under the jurisdiction of CARB. CARB's current mobile source control program consists of new on-road and off-road vehicle and equipment emission standards, in-use fleet wide emission reduction regulations, and mobile source incentive programs.

The on-road new vehicle emission standards began in 1970 when CARB required new light-duty vehicles to meet NOx and reactive organic gases (ROG) standards to reduce ozone. CARB gradually lowered the standards over the years such that new light-duty vehicles are now over 90 percent cleaner than vehicles produced in the 1970's. For the on-road heavy-duty sector, CARB has adopted increasingly tighter new engine emission standards affecting NOx, non-methane hydrocarbon (NMHC), and, most relevant to air toxic risk, PM emission reductions. These standards and their accompanying inspection, monitoring , and low sulfur fuel program effectively reduce NOx, PM, and sulfur emissions, including diesel particulate matter (DPM) which is responsible for over 70 percent of the associated air emission cancer risk in the Basin.

The very first emission standards for new off-road diesel engines were adopted for 1995 and later small off-road engines less than 19 kW. In 1992, CARB approved standards for off-road diesel engines 130 kW and greater. These standards, which were implemented beginning in 1996, targeted NOx emission reductions without an increase in NMHC or PM emissions. More stringent Tier 4 emission standards were added to the existing regulation in 2004 while also being harmonized with the new non-road federal emission standards. These engine standards for off-road diesel engines had toxic pollutant co-benefits in further reducing DPM emissions in the Basin.

Beginning in 2007, CARB also developed in-use fleet regulations for compression ignited engines powering on-road and off-road vehicles, and portable and mobile equipment that reduce DPM and NOx emissions. These off-road in-use fleet regulations require existing fleets to reduce their emissions by retiring, replacing, or repowering older engines. The off-road categories subject to in-use fleet regulations include off-road construction vehicles, portable equipment and engines, cargo handling equipment, commercial harbor craft, and fishing vessels. In addition to the off-road fleet regulations, regulations targeting at-berth emissions from marine vessels, truck and off-road and marine low-sulfur fuel, and off-road vehicle idling were also adopted.

The SCAQMD also has a mobile source program that is designed to reduce both toxic and smog-forming air pollutants. Beginning in 2000, the SCAQMD adopted seven rules that gradually shifted public agencies and certain private entities under contract or exclusive franchise to public entities to use lower emitting and alternative fuel vehicles whenever a fleet operator with 15 or more vehicles replaced or purchased new vehicles. All seven fleet rules are now in effect and include fleet rules for sweepers, light and medium-duty public fleet vehicles, transit buses, refuse vehicles, airport ground access vehicles, school buses, and heavy-duty public fleet vehicles. Together, they have helped reduce the impacts to local communities from DPM and other air toxic emissions from motor vehicles.

The existing mobile source control strategy also includes a number of incentive programs which are designed to incentivize the turnover of equipment and fleets to cleaner technologies either through the introduction of compliant vehicles and equipment earlier than would be required by regulation or through the introduction of zero-, near- zero, or ultra-low emission technologies that go beyond the existing regulatory control programs. Incentive programs include such statewide programs as the Carl Moyer Memorial Air Quality Standards Attainment Program, Goods Movement Emission Reduction Program (Prop 1B), and On-Road Voucher Incentive Program (VIP), which are funded through the State of California and SCAQMD programs such as, the Mobile Source Air Pollution Reduction Review Committee (MSRC) and special SCAQMD grant funding initiatives.

2015 OEHHA Revised Health Risk Assessment Guidelines

The SCAQMD relies on the Health Risk Assessment Guidelines developed by the Office of Environmental Health Hazard Assessment (OEHHA) in various aspects of its toxics regulatory program including the permitting program, the AB2588 Hot Spots Program as required by statute, and existing regulatory programs. In 2003, OEHHA developed and approved its Health Risk Assessment Guidance document (2003 OEHHA Guidelines) and prepared a series of Technical Support Documents, reviewed and approved by the Scientific Review Panel (SRP), that provided new scientific information showing that early-life exposures to air toxics contribute to an increased estimated lifetime risk of developing cancer and other adverse health effects, compared to exposures that occur in adulthood. As a result, OEHHA developed the Revised OEHHA Guidelines in March 2015 which incorporated this new scientific information. The new method utilizes higher estimates of cancer potency during early life exposures. There are also differences in the assumptions on breathing rates and length of residential exposures. When these revisions are combined, estimated cancer risks for the same inhalation exposure level are about 2.3 times higher using the proposed updated methods, and approximately up to six times higher for toxic air contaminants with multi-pathway exposures.

Since some source-specific toxics rules are based on health risk estimates, the SCAQMD has and will continue to re-evaluate these rules to determine whether amendments are necessary to provide consistency with the Revised OEHHA Guidelines and/or if new requirements are needed to provide adequate protection to public health in light of the higher health risk estimates. In addition, during amendments to Rule 1402 to incorporate the Revised OEHHA Guidelines in 2015, some industry representatives had requested that the SCAQMD incorporate a program to allow early risk reductions in lieu of traditional public noticing. SCAQMD staff is working on proposed amendments to Rule 1402 to incorporate a Voluntary Early Risk Reduction Program and streamline Rule 1402.

Multiple Air Toxics Exposure Study (MATES)

In 1986, the SCAQMD conducted the first Multiple Air Toxics Exposure Studies (MATES) study to determine the Basin-wide risks associated with major airborne carcinogens. Since then, the SCAQMD has conducted three further MATES studies, each of enhanced scope. Results of the MATES studies have helped guide the SCAQMD’s air toxics regulatory program. In 1998, MATES II was conducted and represented one of the most comprehensive air toxics measurement programs conducted in an urban environment. MATES II included a monitoring program of 40 known air toxic compounds, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize health risks from hazardous air pollutants. MATES III was conducted between 2004 and 2006 and consisted of a two-year monitoring program as well as updates to the air toxics emissions inventory and a regional modeling analysis of exposures to air toxics in the Basin. In May 2015, the SCAQMD released the final report for MATES IV which was conducted as a one-year study between June 2012 and June 2013. This study consisted of a monitoring program at 10 fixed sites, an updated emissions inventory of TACs, and a modeling effort to characterize risk across the Basin.

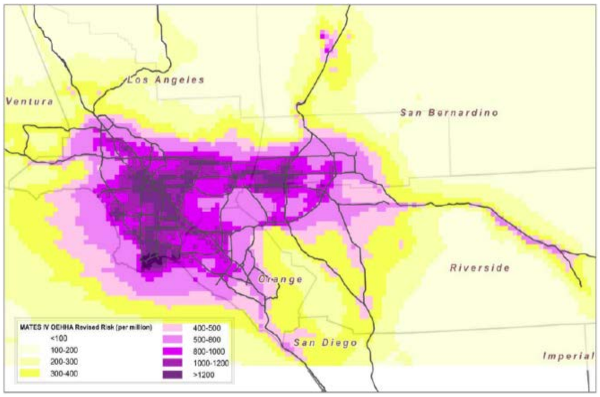


FIGURE 9-4
MATES IV MODELED AIR TOXICS RISKS ESTIMATES USING REVISED OEHHA HEALTH RISK GUIDELINES

Results of MATES IV showed a dramatic 70 percent reduction in the average level of diesel particulate emissions compared to MATES III. Additionally, the population weighted carcinogenic risk from air toxics in the Basin, based on the average concentrations monitored, was nearly 60 percent lower as compared to carcinogenic risk determined in MATES III. It should be noted that a majority of the risk was attributed to emissions associated with mobile sources, with the remainder attributed to toxics emitted from stationary sources, which include large industrial operations such as refineries and metal processing facilities, as well as smaller businesses such as gas stations and chrome platers. Although the Revised OEHHA Guidelines change the estimated cancer risk values in Figure 9-4, this does not change the fact that estimated cancer risks have been significantly reduced, between 75 to 86 percent over the last couple decades, depending on the location within the Basin.

Although the results of MATES IV have shown a significant regional reduction in exposure to key TACs and reduced cancer risk throughout the Basin, more needs to be done to reduce cancer risk levels regionally. Applying the revised OEHHA methodology to the modeled air toxics levels, the MATES IV estimated population weighted cancer risk is 897 per million. Additional toxics measures are necessary in order to further reduce toxic emissions and associated regional health risk levels.

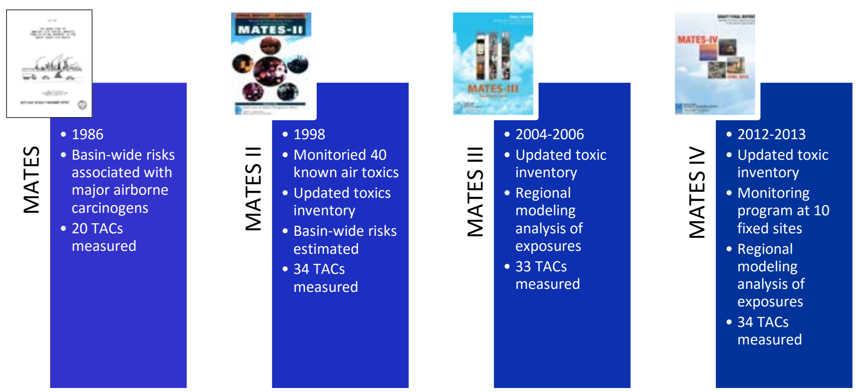


FIGURE 9-5
SUMMARY MATES STUDIES

Localized Air Toxics (Hot Spots)

Even with regional reductions in air toxics, there are areas throughout the Basin where communities are in close proximity to toxic emitting sources, resulting in an elevated health risk. Air toxics are often referred to as having "localized impacts," as the health risk is highest where the toxic emitting source is close to those communities and decreases substantially further out from the facility. Modeling data has shown that health risks generally decrease about 90 percent at 1,500 feet from the source. As such, the calculated local health risks at a residences in close proximity to a toxic emitting facility is expected to be elevated compared to the overall health risk for an entire community. The SCAQMD's regulatory program relies on source-specific rules to reduce localized health risks from toxic emitting stationary source facilities combined with facility-specific requirements to reduce facility-wide toxic emissions that are required through implementation of the Hot Spots Act and Rule 1402.

Within the past five years, the SCAQMD staff has become more aware of stationary source facilities that have posed elevated health risks to neighboring communities, highlighting the importance of rules and regulations that can address these elevated health risks. Additionally, recent ambient air monitoring in communities surrounding air toxic sources indicate that toxic emissions in the form of fugitive emissions have the potential to migrate out of some facilities and into nearby neighborhoods (see section below – *Recent Air Toxic Findings*). Any health risk impacts resulting from these types of fugitive emission issues will be localized and are unlikely to be revealed by regional modeling or monitoring.

Environmental Justice

The 2016 AQMP has identified the need for nitrogen oxide (NOx) emission reductions as the most significant air quality challenge in meeting the upcoming ozone standard deadlines. Total Basin emissions of NOx must be reduced an additional 45 percent by 2023, and an additional 55 percent by 2031. While the Basin's challenges for criteria pollutant reductions such as NOx emission reductions are significant, the Basin also contains numerous communities experiencing disproportionate environmental impacts from toxic air contaminants.

Since 1997, the SCAQMD has focused on Environmental Justice and methods to improve the air quality in specific communities. The purpose of SCAQMD's Environmental Justice program is to ensure that everyone has the right to equal protection from air pollution and fair access to the decision-making process that works to improve the quality of air within their communities. Environmental Justice, has been defined by SCAQMD as: "equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution." SCAQMD's Environmental Justice program began in 1997. The programs and initiatives have been continually reviewed to keep the Environmental Justice programs current and moving forward. One important component of that review process is the Environmental Justice Advisory Group (EJAG), which serves as an advisory group to the SCAQMD Governing Board. The mission of EJAG is to advise and assist SCAQMD in protecting and improving public health in SCAQMD's most impacted communities through the reduction and prevention of air pollution. It is anticipated that the EJAG will continue to provide input prioritizing strategies, regulations, and investments during the implementation period of the 2016 AQMP.

The 2016 AQMP control measures, including mobile source measures to reduce emissions from goods-movement vehicles and facilities, as well as the defined air toxic control measures described in this chapter, will help these communities by accelerating clean air efforts in Environmental Justice areas because many of the facilities targeted by the proposed control measures are located in disproportionately impacted communities. In addition to the toxic control measure defined in this chapter, the 2016 AQMP contains many incentive measures which will also help residences and organizations that may be more economically challenged by offsetting some of the costs of pollution reduction strategies while also promoting more livable neighborhoods and helping local businesses incorporate newer equipment and technologies.

In addition, the 2016 AQMP Socioeconomic Report will contain an enhanced impact analyses on Environmental Justice communities as a way to determine the impacts of the 2016 AQMP control strategy on Environmental Justice communities.

Recent Air Toxics Findings

Since the adoption of the 2010 CCP, more information has become available regarding fugitive toxic particulate emissions, indicating that more controls are needed for certain source categories. Ambient monitoring at a chrome plating facility, a metal forging facility with a metal grinding operation, a steel mini mill, and at two large lead-acid battery recycling facilities have shown that additional controls are needed to address fugitive toxic particulate emissions, particularly metal particulates. Heavy metals, such as arsenic, nickel, cadmium, and hexavalent chrome have high relative risks compared to other toxics. In addition to risks from inhalation, toxic metals can create health problems from ingestion, dermal exposure, and through consumption of breast-milk.

Traditionally, source-specific control strategies have focused on reducing stack emissions. Many of the SCAQMD source-specific rules reduce stack emissions by over 98 percent. In addition, some existing rules include housekeeping provisions to minimize fugitive toxic emissions. However, staff has become increasingly aware based on data from ambient monitors that certain operations with fugitive toxic dust may require an enclosure and more robust housekeeping provisions to contain fugitive emissions and minimize the release of metal particulate emissions into the air.

Fugitive metal particulate emissions can be difficult to quantify. The primary method to quantify fugitive metal particulate is using ambient monitors, which can measure both fugitive and point (or stack) emissions from a facility. The SCAQMD currently has very few rules that require ambient monitoring. Recent ambient monitoring in communities surrounding metal melting and metal finishing facilities indicate that fugitive toxic metals have the potential to migrate out of the facilities and into neighborhoods. At one large lead-acid battery recycling facility, nearly 98 percent of emissions found on ambient monitors were attributable to fugitive emissions rather than stack emissions. Air monitoring conducted by the SCAQMD staff at a chrome plating facility has shown high levels of hexavalent chromium in the ambient air due to cross-draft conditions affecting the emission collection potential of control equipment. Results of sampling data collected by SCAQMD staff at multiple forging facilities have shown that fugitive metallic dust generated from grinding activities includes TACs such as cadmium, chromium, cobalt, and nickel. The health impacts of many of these toxic metal particulate emissions warrant developing control measures to minimize exposure. Better control of fugitive emissions and improvements to housekeeping and maintenance are necessary to reduce potential impacts in surrounding communities.

Relationship of Air Toxics Control Strategy to the 2016 AQMP

Reducing air toxics in the region has been a long-term goal of the SCAQMD and has resulted in significant reduction of local risk from toxic air pollutants throughout the Basin. To the extent feasible, the 2016 AQMP is capturing co-benefit opportunities in achieving multi-pollutant reductions to meet ambient air quality standards having multiple deadlines. Some criteria pollutant control measures will concurrently reduce air toxics and some air toxics control measures will reduce criteria pollutants. The following sections discuss the emission reductions targeted from air toxic control strategies and concurrent criteria pollutant emission reductions.

Concurrent PM Reductions

Efforts to reduce PM2.5 and its precursors will reduce particulate emissions that are toxic air contaminants, such as DPM, in the region. There have been significant decreases in air toxics exposure over the past couple of decades, primarily due to the reduction in DPM from mobile sources and stationary sources. Concurrent reductions in particulate emissions (the majority of which is DPM) have occurred from implementation of Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines, and Rule 1472 – Requirements for Facilities with Multiple Stationary Emergency Standby Diesel-Fueled Internal Combustion Engines. As a result of CARB's Diesel Risk Reduction Plan, a significant number of mobile source regulations were adopted for a variety of diesel sources including: Cargo Handling Equipment; Commercial and Charter Fishing Vessels; Commercial Harbor Craft; School Buses; Port (Drayage) Trucks; Stationary Engines and Portable Equipment; Transport Refrigeration Units (TRU) and TRU Generators. Reduction in PM emissions and DPM will continue with the turnover of existing stationary diesel engines and mobile sources.

As warranted by data and analysis, SCAQMD staff will add and strengthen requirements to reduce toxic metal emissions and exposure from various metal industry sources. These measures, although not developed for SIP attainment purposes, will achieve concurrent reductions in directly emitted PM2.5 and may be quantified and credited toward needed SIP reductions. A control strategy that reduces particulate emissions from metal grinding operations, for example, provides a means of achieving concurrent particulate and air toxic emission reductions.

Concurrent VOC Reductions

Additional VOC controls are helpful for attainment of air quality standards and one 2016 AQMP approach is to prioritize controls that will focus on VOC that are most reactive in ozone and/or PM2.5 formation. In addition to contributing to the formation of PM2.5 and ozone, many VOCs, such as benzene, are also considered air toxics.

In the past, the SCAQMD has developed source-specific controls under Regulation XI – Source Specific Rules, to reduce or eliminate the use of coatings and solvents that contain air toxics. This includes rules that require the phase-out of air toxics where alternatives exist, such as Rule 1168 – Adhesive and Sealant Applications, which required the elimination of emissions of methylene chloride, perchloroethylene, ethylene dichloride, and trichloroethylene from the application of adhesives, adhesive bonding primers, sealants, sealant primers, or any other primers. Another example is Rule 1124 - Aerospace Assembly and Component Manufacturing Operations where facilities decreased toxicity-weighted emissions of methylene chloride, perchloroethylene, and trichloroethylene when Rule 1402 levels were exceeded. A third example is the prohibition of the use of perchloroethylene in operations subject to Rule 1171 - Solvent Cleaning Operations.

Potential Tradeoffs

Unlike with PM, reducing organic air toxic emissions will not necessarily result in concurrent VOC emission reductions. A tradeoff can occur when the resulting alternative to the toxic solvent or coating is replaced with a VOC-containing compound. An example of this is Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems. The goal of Rule 1421 was to reduce perchloroethylene, a carcinogen, from dry cleaning operations through a gradual transition to non-perchloroethylene alternatives. One of the primary non-perchloroethylene alternatives included the use of halogenated solvents, some of which are classified as VOCs.

In addition, in an effort to meet more stringent federal ozone standards, the SCAQMD continues to seek further VOC emission reductions from stationary and area sources in the Basin. Manufacturers of coatings, solvents, adhesives, sealants, lubricants, ink, and other VOC-containing products often respond by reformulating their products using solvents that are exempt from the definition of VOC. Exemptions are based primarily on evidence that the solvent negligibly contributes to ozone formation, but may also consider other factors such as toxicity. Exempting VOCs has the potential to create unforeseen health impacts by increasing the use of the exempt substances that may have toxic characteristics. The SCAQMD staff is continually encouraging the use of materials that are low in reactivity (and not considered a VOC) and not considered toxic.

Air Toxics Control Strategy

The 2016 AQMP air toxics control strategy is composed of two components. The first consists of the mobile source control strategies that are designed to reduce NOx, ROG, and PM emissions in order to meet the SIP commitments in the 2016 AQMP, while also producing co-benefits for a variety of TACs. The second component includes those stationary source control strategies that are implemented by the SCAQMD in order to primarily reduce TACs that can create localized impacts to nearby communities. The second component will not be submitted as part of the SIP.

Table 9-2 shows the baseline and projected key TAC emissions from the 2016 mobile source control strategies and estimated baseline and projected TAC emissions with the control strategies in place. In addition to reductions in criteria pollutant emissions, implementation of mobile source strategies will result in significant reductions in TACs. From the 2012 baseline, implementation of mobile source control strategies is expected to reduce seven key mobile source related TACs by more than 70 percent by 2031.

TABLE 9-2

Key Toxic Air Contaminant Emissions from 2016 AQMP Mobile Source Control Measures; Baseline and Projected Annual Average Day Emissions (pounds/day)

Toxic Air Contaminant	2012 Baseline	2023 Baseline	2023 Controlled	2031 Baseline	2031 Controlled
Naphthalene	547	305	167	264	131
Benzene	13,403	6,995	3,994	5,792	3,130
1,3-Butadiene	2,122	1,209	588	1,081	508
MTBE	311	126	102	80	62
Formaldehyde	16,120	9,315	4090	8,793	3,640
Acetaldehyde	7,113	3,969	1747	3722	1,532
Diesel particulate	20,750	6,864	6,428	5,873	5,708

Mobile Source Control Strategies

Mobile sources are responsible for approximately 90 percent of DPM emissions in the Basin, as well as other toxic air contaminants related to fuel combustion and evaporation. The 2016 AQMP mobile source component contains strategies which will reduce DPM and other TACs by deploying both zero-emission and cleaner combustion technologies. Zero-emission technologies are critical to reducing near-source exposure to air toxics, especially around freight hubs and networks such as ports, rail yards, and distribution centers. The 2016 AQMP mobile source control strategies include actions to deploy zero-emission technologies across a broad spectrum of sources, including passenger vehicles, truck and bus applications, forklifts, transport refrigeration units, and airport ground support equipment. The mobile source control strategies call for internal combustion engine technology that is effectively 90 percent cleaner than today’s current standards. The introduction of zero-emission technologies in heavy-duty applications will be critical to the overall effort. Actions to promote ZEVs in these heavy-duty applications are underway and are important to further reduce regional and near-source toxics exposure, especially as it relates to reducing risk from DPM. In the off-road sector, the 2016 AQMP mobile source control strategies stress the need to reflect this same type of transformation to a mix of zero and near-zero technologies operating on renewable fuels. A summary list of CARB mobile source strategies is shown in Table 9-3.

TABLE 9-3

2016 AQMP CARB Mobile Source Control Measures
and Concurrent Key Toxic Air Contaminants (TACs) Reduced

On-Road Light-Duty	Key TACs Reduced
More stringent engine performance standards and increased fuel efficiency	Naphthalene, Benzene, 1,3-Butadiene, MTBE, Formaldehyde, Acetaldehyde
Requirements to ensure durability of passenger vehicle technologies	
Incentive funding to achieve further ZEV deployment beyond vehicle regulations	
Electricity grid representing 50 percent renewable energy generation	
Increased use of renewable fuels	
Reductions from passenger vehicle miles traveled and intelligent transportation systems	
On-Road Heavy-Duty	**Key TACs Reduced**
More stringent engine performance standards reflecting technology that is 90 percent cleaner than today's standards and increased fuel efficiency	Benzene, Formaldehyde, Acetaldehyde, Diesel Particulate Matter
Deployment of near-zero and zero-emission technologies into focused heavy-duty applications such as transit buses and last mile delivery	
Requirements to ensure durability of heavy-duty vehicle technologies	
Incentive funding to achieve further deployment of cleanest engine technologies	
Increased freight transport system efficiencies and use of intelligent transportation systems	
Increased use of renewable fuels	
Off-Road Federal and Intermodal Sources	
Call for federal and international action to set more stringent standards for ocean going vessels, locomotives, and aircraft, as well as cleaner technologies for older locomotives	Naphthalene, Benzene, Formaldehyde, Acetaldehyde, 1,3-Butadiene, Diesel Particulate Matter
Decreased emissions from ocean going vessels at berth	
Increased freight transport system efficiencies	
Incentive funding to achieve further deployment of cleanest engine technologies	
Increased use of renewable fuels	
Off-Road Equipment Sources	
Deployment of ZEV technologies into targeted equipment categories such as forklifts and airport ground support equipment	Naphthalene, Benzene, Formaldehyde, Acetaldehyde, 1,3-Butadiene, Diesel Particulate Matter
Cleaner engine technology transfer from on-road to off-road applications	
Incentive funding to achieve further deployment of cleanest engine technologies	
Increased worksite efficiencies	
Increased use of renewable fuels	

Stationary Source Toxics PM Control Strategies

The 2016 stationary source air toxic control strategy represents the overarching direction for the SCAQMD's air toxics control program. The stationary source air toxic control strategy is not required by state or federal law, and thus will not represent a commitment under the SIP. However, the stationary source air toxic control strategy are considered strategies for future agency action. As with all of SCAQMD's pollution control efforts, development and implementation of air toxics control strategies involve partnerships with other agencies, the regulated community, environmental groups, and the public, along with the systematic assessment of potential socioeconomic impacts.

Control strategies include the reduction of air toxic metal emissions from a variety of sources including metal grinding and metal melting operations; chrome plating and spraying; nickel, cadmium and other metal plating operations; lead facilities (other than facilities subject to Rules 1420.1 and 1420.2); soil containing toxic metal that is undergoing remediation; DPM from stationary engines, and non-vehicular lead sources (Rule 1420). Table 9-4 summarizes the control measures targeting stationary source TACs.

TABLE 9-4

Summary of Stationary Source Measures to Reduce Toxic Air Contaminants

Source	Objective	Potential Toxic Air Contaminants and Co-Benefits	Control Approaches
Control of Metal Particulate from Metal Grinding Operations (TXM-01)	Reduce metal particulate emissions from metal grinding activities at forging facilities, metal foundries, and plating operations	• Cadmium • Hexavalent Chromium • Cobalt • Nickel • Particulate (metal)	• Enclosures • Pollution controls • Housekeeping measures
Control of Toxic Metal Particulate Emissions from Plating and Anodizing Operations (TXM-02)	Further reduce fugitive metal particulate emissions from electroplating and chromic acid anodizing processes	• Hexavalent Chromium • Nickel • Cadmium • Copper • Arsenic • Lead • Particulate (metal)	• Enclosures • Pollution controls • Enhanced housekeeping measures • Physical modifications to increase capture efficiency and reduce fugitive emissions
Control of Hexavalent Chromium from Chrome Spraying Operations (TXM-03)	Further control hexavalent chromium emissions from spraying of paints and coatings containing hexavalent chromium	• Hexavalent chromium • Particulate (metal)	• Increased housekeeping and best management practices
Control of Toxic Metal Particulate Emissions from Contaminated Soil (TXM-04)	Control toxic metal particulates during soil cleanup/remediation activities	• Lead • Hexavalent chromium • Cadmium • Nickel • Arsenic • Possibly other metal TACs • Particulate (metal)	• Soil covering • Chemical treatment • Barriers • Wheel knockout and cleaning stations • Other dust suppression techniques
Control of Toxic Metal Particulate Emissions from Laser and Plasma Cutting (TXM-05)	Control toxic metal particulates from Laser and Plasma Cutting	• Nickel • Cadmium • Hexavalent chromium, and possibly other metal TACs	• Filter technology including HEPA filters • Alternative technologies such as flame and water jet cutting
Control of Toxic Emissions from Metal Melting Facilities (TXM-06)	Further reduce metal toxic emissions from melting, pouring, casting, degating, heat treating, surface cleaning, and finishing operations at foundries	• Arsenic • Cadmium • Nickel • Other toxic metals • Particulate (metal)	• Particulate filter technologies for furnaces • Enclosures • Increased housekeeping and best management practices • Possibly ambient air monitoring

TABLE 9-4 (CONCLUDED)

Summary of Stationary Source Measures to Reduce Toxic Air Contaminants

Source	Objective	Potential Toxic Air Contaminants and Co-Benefits	Control Approaches
Control of Lead Emissions from Stationary Sources (TXM-07)	Further control lead emissions from non-vehicular sources	• Lead • Particulate (Metal)	• Reduce ambient lead concentration • Increased housekeeping and best management practices
Control of Emissions from Chemical Stripping of Cured Coatings (TXM-08)	Reduce methylene chloride emissions from chemical stripping operations	• Methylene Chloride	• Reformulation • Activated carbon • Point of sale restrictions
Control of Emissions from Oil and Gas Well Activities (TXM-09)	Reduce toxic emissions during well drilling, maintenance, and stimulation activities at oil and gas production sites	• Benzene • Toluene • Ethylbenzene • Xylene • Diesel Particulate Matter • Particulate Matter	• Pollution control and best management practices to minimize BTEX emissions from portable storage tanks, circulation tanks, and portable totes with particulates • Use of the cleanest diesel equipment available for off-road engines • Housekeeping provisions

The following sections provide additional detail on the individual control strategies that are planned to be developed to reduce exposure and impacts from air toxics. Each individual section includes a:

- General background and description of the source;
- Control objective and specifics about the source category's potential air toxic emissions;
- General control approach; and
- Implementation approach

Control of Metal Particulate from Metal Grinding Operations (TXM-01)

Background: The objective of this control measure is to control fugitive toxic metal particulate emissions at forging facilities, metal foundries, and plating operations. In general, there are no current SCAQMD regulatory requirements for metal grinding operations, and this activity is exempt from permitting. Metal grinding is a material removal and surface preparation process used to shape and finish metal parts. Grinding employs an abrasive product, usually a rotating wheel brought into controlled contact with the metal surface that removes tiny pieces of metal from the part generating metallic chips and dust. This activity is common in both heavy and light industrial processes such as metal foundries and forging and plating operations that commonly produce parts for the aerospace, automotive, and oil and gas industry.

Control of Metal Particulate from Metal Grinding Operations (TXM-01)

Objective:
Reduce metal particulate emissions from metal grinding activities at forging facilities, metal foundries, and plating operations

Potential TACs:
- Cadmium
- Hexavalent Chromium
- Cobalt
- Nickel
- Particulate (Metal)

Control Approaches:
- Enclosures
- Pollution controls

Potential TACs: Results of sampling data collected by SCAQMD staff at multiple forging facilities have shown that fugitive metallic dust generated from metal grinding activities include TACs such as cadmium, hexavalent chromium, cobalt, and nickel. Additionally, extensive ambient air monitoring conducted at one forging facility has confirmed elevated concentrations of nickel in the ambient air due to metal grinding activities.

Affected Facilities: The SCAQMD has identified at least 24 forging facilities in the Basin that conduct metal grinding operations. SCAQMD staff is assessing metal grinding operations and foundries and other metal working facilities to identify the need for pollution controls and other requirements to contain metal TACs from those operations.

Control Approach: Potential metal particulate emission control approaches include conducting grinding within permanent enclosures, capture and control through add-on controls, and housekeeping measures. Examples of add-on controls include, cyclones, baghouses, scrubbers, and HEPA filters. Effective housekeeping measures may include routine wet washing or vacuuming, proper material storage and disposal, and routine maintenance of emission control devices.

Implementation Approach: This measure will be implemented as individual source-specific rules are adopted or amended. SCAQMD staff is working on a proposed metal grinding rule for forging facilities. Staff will be also be developing a proposed source-specific rule for foundries and amending existing rules for plating operations. During those rule development efforts, staff will establish requirements to address metal particulates from grinding operations, if needed.

Control of Toxic Metal Particulate Emissions from Plating and Anodizing Operations (TXM-02)

Background: The purpose of this control measure is to further control metal (hexavalent chrome, nickel, cadmium, copper, arsenic, and lead) emissions from plating operations. Hexavalent chromium electroplating and chromic acid anodizing are processes currently regulated under Rule 1469 – Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid and Anodizing Operations. Other non-hexavalent chromium plating operations are regulated under Rule 1426 – Emissions from Metal Finishing Operations. Electroplating processes involve the creation of desired metal surfaces or substrates. Both nickel and copper plating are commonly performed prior to chrome plating in order to provide a substrate for the chrome to adhere to or to add additional properties such as strength. In many cases, nickel plating is performed as the only or final stage of plating where appearance is the primary desired quality of the end product. Other sources of fugitives can come from air sparging, openings or cross-draft conditions within buildings or enclosures, poor housekeeping, improper handling of waste, and improper handling of raw products.

Control of Toxic Metal Particulate Emissions from Plating and Anodizing Operations (TXM-02)

Objective:
Further reduce fugitive metal particulate emissions from electroplating and acid anodizing processes

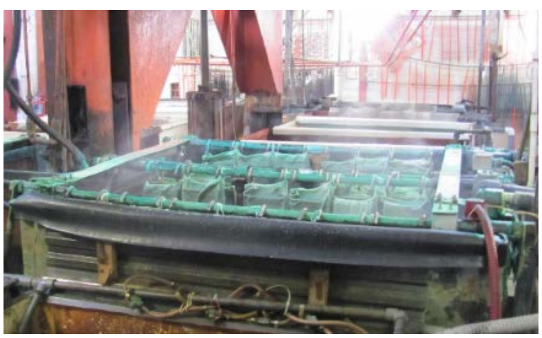
Potential TACs:
Hexavalent Chromium, Nickel, Cadmium, Copper, Arsenic, Lead

Control Approaches:
- Enclosures
- Pollution controls
- Enhanced housekeeping measures
- Physical modifications to increase capture efficiency and reduce fugitive emissions

Potential TACs: Point and fugitive source emissions of hexavalent chromium, nickel, cadmium, copper, arsenic, and lead can be generated from electroplating or anodizing processes.

Affected Facilities: Hexavalent chromium electroplating and chromic acid anodizing processes are used in various industries including aerospace, automotive, computer electronics, machinery, and industrial equipment. There are 34 hard chrome plating facilities, 50 decorative chrome plating facilities, and 32 anodizing facilities for a total of 116 facilities in the Basin. These facilities may also do non-hexavalent chromium metal plating. Additionally, there are approximately 200 more facilities in the Basin that do metal plating other types of metal plating or anodizing.

Control Approach: Current point source control approaches include chemical or mechanical methods to control surface tension of the baths in the tank, or capture of emissions using add-on air pollution controls such as scrubbers, mesh pads, and HEPA filters. Fume suppressants are extremely effective at minimizing process fugitive emissions from the tank, especially in situations where facilities have cross draft conditions in buildings where tanks are located, or conduct operations around tanks that may affect the release or behavior of the emissions. When used in combination with add-on air pollution control equipment, fume suppressants serve as the primary control of both point source and fugitive emissions prior to collection by the control device, and optimizes the overall emission reduction potential of the system. Facilities also can utilize best housekeeping and best management practices to mitigate fugitive emissions. In some cases, facilities may use alternative materials or plating processes. Additionally, alternative methods of applying a metal coating may be used such as aluminum ion vapor deposition, physical vapor deposition, or metal spray coating.



Implementation Approach: This measure would be implemented through amendments to Rules 1426 and 1469.

Control of Hexavalent Chromium from Chrome Spraying Operations (TXM-03)

Background: The objective of this control measure is to further control hexavalent chromium emissions from spraying of paints and coatings. Spraying of paints and coatings containing chromium or hexavalent chromium is currently regulated under Rule 1469.1 – Spraying Operations Using Coatings Containing Chromium. During the uncontrolled application of coatings, hexavalent chromium emissions are generated by the inefficient transfer of paint to the part or from overspray. Emissions from spraying operations are typically conducted within a paint spray booth and exhaust through a wall of filter media or stack, assuming the facility has a properly designed booth and ventilation system. However, there is also a potential for fugitive emissions to occur from an open booth face, if capture into the ventilation system is not complete. Additionally, fugitive hexavalent chromium emissions can be generated by poor housekeeping, improper use of control equipment, and improper handling of waste or painted products. Rule 1469.1 currently includes requirements for spray enclosures, transfer efficiency, and housekeeping practices within spray enclosures.

Potential TACs: The source of air toxics from these facilities is hexavalent chromium, which is present in paint particles.

Affected Facilities: Paints and coatings containing hexavalent chromium occurs in a variety of industries including aerospace, electroplating, and coating facilities. There are approximately 70 facilities identified in the Basin that perform chrome spraying operations.

Control of Hexavalent Chromium from Chrome Spraying Operations (TXM-03)

Objective:
Further control hexavalent chromium emissions from spraying of paints and coatings

Potential TACs:
Hexavalent chromium

Control Approaches:
- Increased housekeeping and best management practices

Control Approach: Current housekeeping requirements of Rule 1469.1 include general measures and best management practices for the clean-up, handling, storage, and disposal of waste generated within spray booth enclosures. The existing provisions for enclosures can be enhanced by requiring routine and periodic housekeeping inspections, in addition to new housekeeping and work practice requirements outside of spray enclosures in order to comprehensively reduce fugitive emissions from the facility.

Implementation Approach: This measure would be implemented through amendments to Rule 1469.1.

Control of Toxic Metal Particulate Emissions from Contaminated Soil (TXM-04)

Background: Currently the SCAQMD has a rule regulating VOC emissions from contaminated soil that establishes requirements to ensure the release of VOC emissions are minimized. There is currently no rule to address metal particulate emissions that can become airborne during the handling and disturbance of soils contaminated with toxic metals. Examples of metal toxic air contaminants that can be in contaminated soil include, but are not limited to, hexavalent chromium, lead, nickel, cadmium, and arsenic. This control strategy would establish specific requirements to ensure that fugitive toxic air contaminant emissions from soils contaminated with toxic metals are minimized during the excavation, storage, and/or transportation.

Potential TACs: Potential fugitive toxic metals include, but are not limited, to hexavalent chromium, lead, nickel, cadmium, and arsenic.

Affected Facilities: Currently, the number of expected sources cannot be estimated since the activities are intermittent in nature.

Control Approach: Possible control approaches include soil covering, watering, chemical treatment, barriers, tire and wheel knockout and cleaning stations, and other dust suppression techniques. Air monitoring of the site may also be a part of the control strategy.

Implementation Approach: This measure will be implemented through a new SCAQMD rule.

Control of Toxic Metal Particulate Emissions from Laser and Plasma Cutting (TXM-05)

Background: The control measure would control metal particulate emissions from laser and plasma cutting operations. New or modified laser plasma cutting operations are currently permitted by the SCAQMD and are subject to Rule 1401 which establishes risk thresholds for permitted sources. Laser and plasma cutting technologies are used for cutting and fabricating large sheets of metal goods. Laser cutting directs a laser onto most metals (except reflective metals including aluminum, brass and copper) which melts or vaporizes the metal. Plasma cutting uses electrically conductive gas to transfer energy from an electrical power source through the plasma to the metal being cut. The high temperature of the plasma melts the metal. The intense energy of both the laser and plasma cutting process creates fumes and smoke from

vaporizing the molten material from the bottom of the cut (kerf). Uncontrolled vaporized metals such as cadmium and nickel present environmental and health concerns. Additionally, high energy processes, such as laser and plasma cutting, can oxidize the elemental chrome in stainless steel into hexavalent chrome.

Potential TACS: Potential TACs from laser and plasma cutting include nickel, cadmium, hexavalent chromium, and possibly other metals.

Affected Facilities: Approximately 150 to 200 facilities utilize laser or plasma cutting equipment on metal substrates.

Control of Toxic Metal Particulate Emissions from Contaminated Soil (TXM-04)

Objective:
Reduce fugitive emissions from soils contaminated with toxic metals

Potential TACs:
Lead, hexavalent chromium, cadmium, nickel, arsenic, and possibly other metal TACs

Control Approaches:
- Soil covering
- Chemical treatment
- Barriers
- Wheel knockout and cleaning stations
- Other dust suppression techniques

Control of Toxic Metal Particulate Emissions from Laser and Plasma Cutting (TXM-05)

Objective:
Control toxic metal particulates from laser and plasma cutting operations

Potential TACs:
Nickel, cadmium, hexavalent chromium, and possibly other metal TACs

Control Approaches:
- Filter technologies such as HEPA filters
- Alternative processes

Control Approaches: Filter technologies such as high efficiency particulate arrestors (HEPA) filters or possibly other pollution controls could be used to reduce emissions. Staff will investigate alternative approaches that may result in less fugitive metal particulate emissions. Some alternative approaches include: flame cutting, water jet cutting, welding, and conventional machining.

Implementation Approach: Implementation would be through development of a proposed source-specific rule for laser and plasma cutting operations to control fugitive toxic metal emissions.

Control of Toxic Emissions from Metal Melting Facilities (TXM-06)

Background: This control measure seeks to further reduce metal toxic emissions such as arsenic, cadmium, and nickel from foundries and other metal melting facilities. Other metal melting operations include smelting, tinning, galvanizing, and other miscellaneous processes where metals are processed in molten form. Metal foundries are facilities which produce metal castings. The process involves melting metal into a liquid, pouring the liquid metal into a mold or casting, allowing the metal to cool and solidify, removing the mold or casting, degating, heat treating, surface cleaning, and finishing. Possible emission sources from such operations include, but are not limited to, fume, particulate, or dust from the melting, pouring, casting, degating, heat treating, coating, brazing, finishing, or surface cleaning processes, leftover metal or slag, and poor housekeeping.

Control of Toxic Emissions from Metal Melting Facilities (TXM-06)

Objective:
Further reductions of toxic emissions from foundries and other metal melting facilities

Potential TACs:
Arsenic, cadmium, nickel, cadmium, and possibly other toxic metals

Control Approaches:
- Filter technologies such as HEPA filters
- Increased housekeeping and best management practices
- Ambient air monitoring

Potential TACs: The proposal is anticipated to further reduce toxic and particulate emissions from metal melting facilities.

Affected Sources: Within the Basin, there are approximately 200 foundries serving industries such as aerospace, aircraft, automotive, industrial gas turbine, medical, and military. There are approximately another 50 other metal melting facilities that would be subject to this control measure.

Control Approaches: Emissions can potentially be reduced through venting operations to an emission collection system or improvements to existing collection systems, such as the addition of high efficiency filters. Fugitive emissions can be reduced through housekeeping measures which may include, but are not limited to, sweeping, mopping or filtered vacuuming, and enclosed material storage. Equipment may require new or updated source testing and potentially new or updated permits. Additionally, an ambient air monitoring requirement is under consideration.

Implementation Approach: This measure would be implemented through amendments to Rule 1407 and possibly through a new SCAQMD rule.

Control of Lead Emissions from Stationary Sources (TXM-07)

Background: The objective of this control measure is to further control lead emissions from non-vehicular sources. Lead and arsenic emissions from large lead-acid battery recycling facilities are regulated by Rule 1420.1. Emissions of lead from large (>100 ton per year) metal melting facilities are regulated by Rule 1420.2. All other non-vehicular sources of lead are regulated by Rule 1420. Lead is found in metals and aggregate processed either as an alloy or as a contaminant. Facilities process lead in aggregate processing, metal melting, metal finishing, metal machining operations, and also use lead solder for electronic circuit boards. Possible emission sources from such operations include, but are not limited to, fume, particulate, or dust from the mining, melting, finishing, or surface cleaning processes, leftover metal or slag, and poor housekeeping. Control of lead emissions often occurs concurrently with the control of other toxic metals.

Potential TACs: Lead is the primary metal of concern. Other toxic metals can be concurrently reduced such as hexavalent chromium, nickel, cadmium, and arsenic.

Affected Facilities: Within the Basin, there are approximately 500 stationary sources such as aerospace, computer, metal melting, mining, and roofing that process lead-containing materials.

Control of Lead Emissions from Stationary Sources (TXM-07)

Objective:
Further control lead emissions from non-vehicular sources

Potential TACs:
Lead

Control Approaches:
- Reduce ambient lead concentration
- Increased housekeeping and best management practices

Control Approach: Reduce the ambient lead concentration limit to be consistent with the federal lead NAAQS. Further reductions in the ambient lead concentration limit will also be considered. In addition, improved housekeeping requirements and best management practices similar to those included in Rule 1420.1, including provisions for general cleaning, rooftop cleaning, and handling, storage, and disposal of waste generated to comprehensively reduce fugitive lead emissions.

Implementation Approach: This measure would be implemented through amendments to Rule 1420.

Toxic VOCs

Control strategies focusing on VOCs will include the reduction of air toxic VOC emissions from a variety of sources including furniture stripping, oil and gas well maintenance and stimulation activities, and solvent and coating sources using recently delisted non-VOC containing materials. Each source and control strategy is discussed in the following sections.

Control of Emissions from Chemical Stripping of Cured Coatings (TXM-08)

Control of Emissions from Chemical Stripping of Cured Coatings (TXM-08)

Objective:
Restrict uncontrolled methylene chloride usage in chemical stripping operations

Potential TACs:
Methylene chloride

Control Approaches:
- Reformulation
- Air pollution control equipment (i.e., carbon Adsorbers)
- Point of sale restrictions

Background: The proposed control measure would restrict the use of methylene chloride during chemical stripping operations. Methylene chloride is a suspected carcinogen and is classified as a Hazardous Air Pollutant by U.S. EPA and as a Toxic Air Contaminant by the State of California. A typical chemical stripping product contains between 70 and 85 percent methylene chloride by weight. Methylene chloride is the active ingredient that penetrates the coating film and lifts the coating off the surface. Most chemical stripper usage is done without any equipment or controls. The chemical stripper is applied by brush and

then rinsed off afterwards. Larger users of chemical strippers are usually furniture stripping shops which sometimes utilize tanks and flow trays to use the chemical stripper. Other uses include automobile rim coating operations and residential furniture restoration.

Potential TACs: The proposal would reduce methylene chloride emissions from chemical stripping operations.

Affected Sources: There are approximately 40 facilities in the Basin that would be considered larger users.

Control Approaches: Reformulation is the preferred method for reducing methylene chloride emissions. The use of control equipment may also be a consideration. The control measure would potentially address both the commercial users of chemical strippers and the methylene chloride strippers sold at retail stores for home restoration projects.

Implementation Approach: This measure will be implemented through a new SCAQMD rule restricting the uncontrolled use of methylene chloride in commercial and residential chemical stripping applications.

Control of Emissions from Oil and Gas Well Activities (TXM-09)

Background: Existing oil and gas field production facilities are required to notify the SCAQMD of a planned well maintenance or stimulation event under Rule 1148.2 – Notification and Reporting Requirements for Oil and Gas wells and Chemical Suppliers. In addition to the notification requirements, Rule 1148.2 also requires operators to report chemical usage during each operation, although trade secret chemicals are not revealed to the public. Oil and gas field production well maintenance and stimulation activities release emissions such as DPM, fugitive dust, and other air toxic emissions such as BTEX compounds. This control measure seeks to develop a series of Best Management Practices (BMP) to reduce the emission impact from the well maintenance and stimulation activities. The implementation of the BMPs specified may be contingent upon the proximity to sensitive receptors.

Potential TACs: The proposal would reduce DPM and benzene, toluene, ethylbenzene, and xylene emissions from well maintenance and stimulation activities such as well drilling, redrilling, maintenance acidizing, matrix acidizing, gravel packing, and hydraulic fracturing.

Affected Sources: There are 242 facilities operating approximately 4,320 onshore oil and gas wells in the District. An analysis of data collected in 2015 under Rule 1148.2, showed that there were 275 unique well events occurring in 2015.

Control Approaches: This control measure seeks to develop a series of BMPs to reduce the emission impact from the well maintenance and stimulation activities. The BMPs may include: (1) reduction of BTEX compounds from return fluids during gravel packing and hydraulic fracturing events by using carbon absorbers to control emissions venting from portable storage tanks, covering circulation tanks, and closing access hatches on portable storage tanks; (2) reduction of BTEX compounds from drilling mud return processing equipment by covering areas open to atmosphere; (3) reduction of fugitive silica dust from the use of portable plastic totes (known as Rigid Intermediate Bulk Containers (RIBC)) in lieu of canvas or cloth bags (known as Flexible Intermediate Bulk Containers (FIBC)); (4) reduction of DPM from the use of Tier 3 and 4 off-road engines, or engines equipped with a CARB certified Level 3 diesel particulate filter (DPF); and (5) work area plastic ground coverings to collect spills and reduce fugitive dust.

Control of Emissions from Oil and Gas Well Activities (TXM-09)

Objective:
Reduce emission impacts from well maintenance and stimulation activities

Potential TACs:
Diesel particulate matter, benzene, toluene, ethylbenzene and xylene compounds

Control Approaches:
- Best Management Practices
- Minimize fugitive dust
- Use of cleaner diesel engine

Implementation Approach: This measure will be implemented through a rule making process in one of the Rule 1148-series rules.

Conclusion

Implementation of the 2016 AQMP Mobile Source strategies is expected to concurrently reduce air toxics by more than 70 percent depending on the toxic air contaminant. Over the next five years, the SCAQMD is planning to propose a suite of air toxics rules that will specifically address fugitive metal particulates that will also concurrently reduce particulate emissions. Implementation of these measures will help the Basin achieve and maintain regional air quality goals while also having significant benefits to local communities that live and work near these sources.