SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report
Proposed Amended Rule 1420 – Emissions Standard for Lead

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EXECUTIVE SUMMARY

Rule 1420 was adopted approximately twenty-five years ago in September 1992 with the purpose of reducing lead emissions from non-vehicular sources. At the time of rule adoption, the National Ambient Air Quality Standard (NAAQS) for lead, previously established in 1978, was 1.5 $\mu g/m^3$ averaged over a calendar quarter. However, in 2008, the lead NAAQS was reduced ten-fold to 0.15 $\mu g/m^3$ averaged over 90 days based on more than 6,000 new health studies that were conducted since 1990. These studies identified lead as a probable carcinogen and showed that adverse health effects occurred at much lower levels than previously recognized. Studies also showed that children were found to be most vulnerable to lead exposure with low levels of exposure linked to poor IQ, learning, and memory in children. A broad range of health effects are also associated with lead exposure for both children and adults. In children, lead affects the nervous system and weakens their immune systems; whereas in adults lead exposure was found to cause increased blood pressure, cardiovascular disease and decreased kidney function.

On December 31, 2010, EPA designated a portion of Los Angeles County as nonattainment for the 2008 lead NAAQS based on exceedances at two (2) source-specific monitors located in Vernon and the City of Industry. These exceedances along with the revision of the lead NAAQS resulted in the SCAQMD Governing Board amending Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants at Large Lead-Acid Battery Recycling Facilities and adoption of a 2012 lead State Implementation Plan (SIP), which committed to a control measure to amend Rule 1420, lowering the lead concentration limit to 0.15 $\mu g/m^3$, and retaining a more stringent averaging period of a 30-day rolling average. Subsequently, SCAQMD staff was faced with the task of revising Rule 1420 to address a universe consisting of several different types of industries. To simplify the rulemaking task and to address the major lead contributors, staff adopted Rule 1420.2 in 2015 to address a subset of the Rule 1420 universe consisting of 13 large metal melting facilities, that each melt greater than 100 tons of lead per year.

Since the adoption of Rule 1420 and subsequent adoptions of Rules 1420.1 and 1420.2, there has been a considerable amount of source testing and monitoring conducted at lead processing and lead melting facilities. Stack testing has shown that lead emission control equipment has improved considerably to the point that achieving lead control efficiencies of 99 percent or greater is standard. It has also been discovered that fugitive emissions are a far greater contributor to lead emissions monitored at or beyond the fence line of lead processing and lead melting facilities. This factor has triggered a greater need for Proposed Amended Rule (PAR) 1420 to place more emphasis on expanding housekeeping requirements and for lead operations to be conducted in total enclosures.

In order to maintain consistency with Rules 1420.1 and 1420.2, PAR 1420 will require facilities to maintain ambient lead concentration limits below 0.150 $\mu g/m^3$ averaged over 30 consecutive days, upon rule adoption until December 31, 2020. On and after January 1, 2021, facilities will be required to maintain ambient lead concentration below 0.100 $\mu g/m^3$ averaged over 30 consecutive days. Establishing an ambient air lead concentration limit that is even less than the lead NAAQS is more health protective for communities that live around lead processing facilities, particularly for younger children. A detailed discussion with substantial scientific information and data is

presented in Chapter 1, Section "Justification for Lowering Ambient Air to 0.100 μg/m^3". This discussion is based on EPA's development of the 2008 Lead NAAQS and the 2016 Final Decision to Retain the Current Lead NAAQS evidence-based framework and supports the SCAQMD policy decision to set the ambient lead concentration limit at 0.100 μg/m^3\effective January 1, 2021.

Unlike Rules 1420.1 and 1420.2, PAR 1420 will not require mandatory ambient air monitoring, although conditional ambient air monitoring will be required if SCAQMD monitors detect an exceedance of the lead ambient concentration limit of 0.150 ug/m^3 averaged over any 30 days or applicable facilities fail two point source tests over a 36 month period. Source testing will be required on a biennial basis with testing frequency further reduced to quadrennial (from the date of the test) if a test determines that outlet emissions are less than 0.00015 pounds per hour. The rule amendment provides additional incentives for facilities by allowing owners or operators to test the stack outlet only to demonstrate lead emissions of less than 0.0003 pounds per hour, subsequent to the initial performance test of the control equipment. In addition, PAR 1420 establishes requirements for total enclosures where lead processing occurs, enhanced housekeeping measures, air pollution control device monitoring, and recordkeeping requirements.

PAR 1420 applies to lead processing and metal melting facilities as defined in the rule, in the SCAQMD that process materials that contain greater than 0.05% lead content by weight on average, calculated on a monthly basis. All requirements of PAR 1420 will apply to lead processing and metal melting facilities that process greater than 2 tons of lead per year. However, owners or operators that process 2 tons of lead per year or less will only be subject to the conditional ambient monitoring and sampling, housekeeping and recordkeeping requirements of the rule amendment. A summary of the applicability thresholds and rule amendment requirements are provided in Table ES-1, below:

Table ES-1. Summary of Applicability Thresholds and Requirements

Applicability Thresholds		Requirements
% Lead [(1)]	**Processing Rate (tons of lead per year)**	
< 0.05%	Any	• Exempt from all rule requirements
> 0.05%	2 tons or less	• Housekeeping • Recordkeeping • Conditional Ambient Monitoring and Sampling ○ Executive Officer Determination to Conduct Ambient Air Monitoring
> 0.05%	Greater than 2 tons	• Housekeeping • Recordkeeping • Conditional Ambient Monitoring and Sampling ○ Executive Officer Determination to Conduct Ambient Air Monitoring • Lead Point Source Emissions Control • Source Testing • Total Enclosures • Emission Control Device Monitoring

(1): A facility will be subject to the rule if the 0.05% lead content threshold is exceeded for any raw material during one month of the year and the lead processing rate for that year will be based on all raw materials used during the year

PAR 1420 will address lead emissions from lead smelters, foundries, smaller lead-acid battery manufacturers and recyclers, lead-oxide, brass, and bronze producers, and metal melting facilities. Of the 107 known facilities subject to PAR 1420, 92 facilities are associated with the manufacture of printed circuit boards, semiconductors, and other electronic components. Based on initial estimates these facilities are expected to process less than 2 tons of lead per year and will only be subject to the conditional ambient monitoring and sampling, housekeeping and recordkeeping provisions. Also, at the majority of the electronic-related businesses, the temperatures to which lead is heated are not substantial enough to promote vaporization and facilities in this category that were visited were found to already exercise good housekeeping practices.

The proposed amendments will implement the 2016 Air Quality Management Plan Control Measure TXM-07 (Control of Lead Emissions from Stationary Sources) and will be incorporated into the State Implementation Plan.

CHAPTER 1: BACKGROUND

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INTRODUCTION

On October 15, 2008, the U.S. Environmental Protection Agency (EPA) amended both the primary (health-based) and secondary (welfare-based) NAAQS for lead from a level of 1.5 µg/m^3 averaged over a calendar quarter to 0.15 µg/m^3 averaged over a rolling 3-month period based on studies that demonstrate health effects at much lower levels of lead exposure than previously believed. The purpose of Proposed Amended Rule 1420 – Emissions Standard for Lead (PAR 1420) is to protect public health by reducing lead emissions from lead processing facilities which will minimize exposure to lead emissions from these facilities and ensure attainment and maintenance of the National Ambient Air Quality Standard (NAAQS) for lead. The new standard provides increased protection for children and other at-risk populations against an array of health effects, most notably neurological effects in children, including neurocognitive and neurobehavioral effects.

REGULATORY HISTORY

Rule 1420 was adopted in September 1992 and has not been amended since its adoption. Rule 1420 applies to facilities that process or use lead-containing materials. These include, but are not limited to, primary or secondary lead smelters, foundries, lead-acid battery manufacturers or recyclers, and lead-oxide, brass and bronze producers. Rule 1420 includes an ambient air quality standard of 1.5 µg/m^3 averaged over a 30-day period. As a result, the rule needs to be updated to reflect the current NAAQS of 0.15 µg/m^3. The rule includes requirements for point source controls, monitoring, sampling, recordkeeping, and reporting. Rule 1420 currently requires facilities that process more than two tons of lead per year to submit a Compliance Plan that provides information on how the facility will conduct monitoring, conduct air dispersion modeling, and implement requirements to install and implement point source controls.

Since the adoption of Rule 1420 in 1992, an abundance of new and updated information including, but not limited to, lead emissions data, ambient air monitoring data and emissions control techniques has become available. Ambient air quality data from 2007-2009 indicated a violation of the 2008 NAAQS near a large lead-acid battery recycling facility, and highlighted the need to establish stricter requirements for lead sources that were regulated under Rule 1420. Rule 1420 applied to a broad category of lead emitting sources where the control requirements would be generally the same, but larger sources with the potential of greater lead emissions needed additional requirements. As a result, two rules that represented the two largest subcategories of Rule 1420 were developed: Rule 1420.1 – Emission Standards for Lead and Large Lead-Acid Battery Recycling Facilities was adopted on November 5, 2010 and Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities was adopted on October 2, 2015. Rule 1420.1 applies to large lead-acid battery recycling facilities. However, currently there is only one such facility operating in the Basin. Rule 1420.2 addresses 13 of the largest metal melting facilities that each melt in excess of 100 tons of lead per year. Proposed Amended Rule (PAR) 1420 applies to the remaining lead emitting sources where the lead content of the material processed is greater than 0.05 percent by weight on average.

Lead sources have also been regulated by the California Air Resources Board and U.S. EPA. In January 1993, CARB adopted the Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting. The state regulation requires control devices for lead and other toxic metal emission point sources, control efficiency requirements for control devices, fugitive

emission control, and recordkeeping. In June 1997, the U.S. EPA adopted the National Emissions Standards for Hazardous Air Pollutants (NESHAP) from Secondary Lead Smelting. The federal regulation requires lead emission concentration limits for lead control devices, control of process fugitive emissions, monitoring, recordkeeping, and reporting. On July 16, 2007, EPA finalized a regulation affecting lead emissions from all lead-acid battery manufacturing facilities, several of which are regulated under Rule 1420.2. The federal regulation requires lead emission concentration limits, testing, monitoring, recordkeeping, and reporting requirements.

COMPLIANCE WITH THE LEAD NAAQS

In 1970, the California Air Resources Board (CARB) established a state ambient air quality standard for lead of 1.5 µg/m3 averaged over 30 days. In October 1978, the U.S. EPA adopted the NAAQS for lead, requiring attainment with a lead ambient concentration of 1.5 µg/m^3 averaged over a calendar quarter. Thirty years after promulgation of lead NAAQS, U.S. EPA lowered the lead NAAQS to 0.15 µg/m^3 averaged over a rolling 3-month period.

On December 31, 2010, the EPA designated a portion of Los Angeles County as non-attainment for the 2008 NAAQS for lead based on monitored air quality data from 2007-2009 that indicated a violation of the NAAQS near a large lead-acid battery recycling facility. SCAQMD Rule 1420.1 – Emission Standards for Lead from Large Lead-acid Battery Recycling Facilities was adopted on November 5, 2010 to control emissions of lead from large lead-acid battery recycling facilities in order to reduce lead emissions and help ensure and maintain attainment with the 2008 NAAQS for lead of 0.150 µg/m^3.

In 2012, the SCAQMD Governing Board adopted the lead State Implementation Plan (SIP) and committed to a control measure to amend Rule 1420, which was adopted in September 1992, in addition to a more stringent averaging period of a 30-day rolling average. The SCAQMD partially addressed the control measure commitment through the adoption of Rule 1420.2 in October 2015, which addressed 13 of the largest metal melting facilities that each melt in excess of 100 tons of lead per year and the amendments to Rule 1420.1 in 2014 and 2015. Rules 1420.1 and 1420.2 combined, addressed 15 of the largest lead sources in the SCAQMD, but there are other smaller sources that have not been addressed under the new lead NAAQS. Although existing federal and state regulations also control lead emissions from this source category, additional requirements similar to those that have effectively reduced emissions from large lead-acid battery recyclers and metal melting facilities would more adequately protect public health. Therefore, PAR 1420 seeks to address these facilities with the objective to further protect public health by minimizing public exposure to lead emissions and preventing exceedances of the 2008 lead NAAQS in the Basin.

PUBLIC PROCESS

PAR 1420 is being developed through a public process. A working group was formed to provide the public and stakeholders an opportunity to discuss the proposed rule amendment and provide the SCAQMD staff with important input during the rule development process. The working group and interested parties are comprised of a variety of stakeholders including representatives from industry, consultants, environmental groups, community groups, and public agency representatives. The SCAQMD staff has held four (4) working group meetings. To date, the working group has convened on March 8, 2017, May 31, 2017, July 6, 2017, and September 20, 2017. A Public Workshop was held on September 7, 2017 to present the proposed rule and

receive public comment. Response to comments that were received can be found in Appendix A of this document.

LEAD

Lead is a naturally occurring metal found in the earth's crust. The metal is grayish in color and is soft, malleable, and ductile. It is also a limited electrical conductor and highly impervious to corrosion. This unique combination of physical properties has made it desirable for many uses in industries such as construction, piping, roofing, and lead-acid storage battery manufacturing. As a result, some business operations solely recover lead from lead-bearing materials through secondary smelting operations for use in the abovementioned industries. For some industries, lead is undesirable and considered an impurity to its final product. Lead for these industries results from the melting of recycled scrap metal that either contains trace amounts of lead, or inadvertently enters the process even after inspection to identify scrap metal that may contain lead.

Lead can be released into the ambient air in the form of particles that fall out onto the ground or other surfaces by rain or gravitational settling. Lead is strongly adsorbed in the soil and is generally retained in the upper layers where it does not leach appreciably into the subsoil and groundwater. Lead compounds can be converted to other lead compounds in the environment; however, lead is an element and cannot be destroyed. Because lead does not degrade, previous uses of lead and its releases into the ambient air result in high concentrations of lead that persist in the environment.

Lead is a persistent pollutant, and once deposited out of the air, lead can subsequently be resuspended in the ambient air. In addition, because of the persistence of lead, lead emissions contribute to, in sufficient concentrations across multiple pathways, and cause impacts for some years into the future (73 FR 66971). This cycling of lead in the environment means people can be exposed to lead that was emitted just yesterday or emitted years ago (EPA, 2014). Furthermore, lead emitted into the air is predominantly in particulate form, which can be transported over long or short distances depending on particle size (73 FR 66971).

Thus, lead can affect communities surrounding lead melting facilities as well as those not immediately adjacent to these facilities. Reducing the ambient lead concentration limit to 0.100 $\mu g/m^3$ will minimize lead emissions from lead melting facilities from being directly inhaled as lead particulates, and further reduce the accumulation of lead dust on surfaces and in the soil that can over time re-enter the air through re-suspension.

HEALTH EFFECTS OF LEAD

Lead is classified as a "criteria pollutant" under the federal Clean Air Act. The OEHHA also identifies it as a carcinogenic TAC. Chronic health effects include problems such as nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer. Lead is a multipathway toxic air contaminant. Exposure to lead emitted into the ambient air (air-related lead) can occur directly by inhalation, or indirectly by ingestion of lead-contaminated food, water or other materials including dust and soil. These exposures occur as lead emitted into the ambient air is distributed to other environmental media such as water or land. The emissions can contribute to human exposures via indoor and outdoor dusts, outdoor soil, and food and drinking water, as well as inhalation of air (73 FR 66971). Multiple studies of the

relationship between lead exposure and blood lead in children have shown young children's blood lead levels to reflect lead exposures from ambient air levels, as well as exposure due to lead in surface dust (EPA, 2014). Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

JUSTIFICATION FOR LOWERING AMBIENT AIR TO 0.100 µg/m^3

SCAQMD staff is proposing that the final ambient concentration be set at 0.100 µg/m^3 for Proposed Amended Rule 1420, consistent with the ambient lead concentration limit in Rules 1420.1 and 1420.2. During the rulemaking for Rules 1420.1 and 1420.2, SCAQMD staff provided the justification for an ambient concentration lead limit of 0.100 µg/m^3. As discussed below, the SCAQMD staff relied on the EPA's 2008 review of the Lead NAAQS and the EPA's 2016 Final Decision to Retain the National Ambient Air Quality Standards (NAAQS) for Lead (Pb) (EPA, 2016) to retain the current Lead NAAQS as the basis for establishing the 0.100 µg/m^3 ambient lead limit. An ambient concentration limit of 0.100 µg/m^3 is supported by scientific information presented during the development of the 2008 Lead NAAQS and the EPA's Final Decision to Retain the Current Lead NAAQS. The following discusses the general approach and key assumptions that were the basis of EPA's evaluation of the Lead NAAQS. As explained in more detail below, establishing an ambient concentration limit of 0.100 µg/m^3, the SCAQMD made policy decisions that are more protective of human health than the choices made by EPA in proposing to retain an ambient concentration limit of 0.15 µg/m^3. In particular, the SCAQMD staff proposes a more prophylactic approach for protecting the health of children, particularly those under five years of age, that live in communities near lead metal facilities in the Basin.

Establishing the 2008 Lead NAAQS and EPA's 2016 Final Decision to Retain the Current Lead NAAQS

The 2008 Lead NAAQS and EPA's 2016 Final Decision to Retain the Current Lead NAAQS reflect an evidenced-based framework that took into consideration the much-expanded evidence on the neurocognitive health effects of lead in children. EPA focused on the developmental neurotoxicity in children, with IQ decrement as the risk metric. After examining the wide variety of health endpoints associated with lead exposures, EPA concluded that "there is general consensus that the developing nervous system in young children is the most sensitive and that neurobehavioral effects (specifically neurocognitive deficits), including IQ decrements, appear to occur at lower blood levels than previously believed (i.e., at levels <10 µg/dL)" (EPA, 2008).

In establishing the lead NAAQS, the EPA used an evidence-based framework, referred to as the air-related IQ loss framework, which shifts focus from identifying an appropriate target population mean blood lead level and instead focuses on the magnitude of effects of air-related lead on neurocognitive functions such as IQ loss (73 FR 66971). The two primary inputs to EPA's evidence-based, air-related IQ loss framework are air-to blood ratios and concentration-response (C-R) functions for the relationship between blood lead and IQ response in young children. The framework derives estimates of mean air-related IQ loss through multiplication of the following factors:

- Ambient lead standard level (µg/m^3),

- Air-to-blood ratio in terms of µg/dL blood lead per µg/m^3 air concentration, and
- Slope for the concentration-response (C-R) function in terms of points IQ decrement per µg/dL blood lead.

Application of the framework also entailed consideration of an appropriate level of protection from air-related IQ loss to be used in conjunction with the framework, such as an average level of IQ loss and an adequate margin of safety. The framework provides for estimation of a mean air-related IQ decrement for young children in the high end of the national distribution of air-related exposures. It does so by focusing on children exposed to air-related lead in those areas with elevated air lead concentrations equal to specific potential standard levels (EPA, 2014).

Air-to-Blood Level Ratio

The air-to-blood level ratio represents the relationship between the lead concentration in the air measured in µg/m^3 and the associated blood lead level measured in µg/deciliter (µg/dL). A ratio of 1:5 means that 1 µg/m^3 increase of lead in the air will result in a blood lead level of 5 µg/dL for a given population. In the 2008 Lead NAAQS and EPA's 2016 Rule to Retain the Current Lead NAAQS, EPA concluded that for each µg/m^3 increase of lead in air, children's blood lead levels increase by 5–10 µg/dL, i.e., the air-to-blood ratio ranged from 1:5 to 1:10. EPA selected an air-to-blood ratio of 1:7 "as a generally central value within this range." (73 FR 67002-67004).

Concentration-Response Functions

In establishing the 2008 Lead NAAQS and the EPA's 2016 Final Decision to Retain the Current Lead NAAQS, EPA considered the evidence regarding the quantitative relationships between IQ loss and blood lead levels. EPA focused on those concentration-response functions that are based on blood lead levels which most closely reflect today's population of children in the U.S., although recognizing that the evidence does not include analyses involving mean blood lead levels as low as the mean blood lead level for today's children. EPA identified four analyses that have a mean blood lead level closest to today's mean for U.S. children; these yielded four slopes ranging from -1.56 to -2.94, with a median of -1.75 IQ points per µg/dL. In addition, the EPA Administrator determined that it is appropriate to give more weight to the central estimate for this set of functions, which is the median of the set of functions, and not to rely on any one function (73 FR 67003-67004).

IQ Decrement

EPA also concluded that the concentration-response relationship between blood level and IQ loss is nonlinear, with greater incremental IQ loss occurring at lower blood lead levels. Accordingly since studies show that the average lead blood levels for children in the United States has decreased over the years, and that even at these lower levels there are significant neurocognitive impacts such as IQ loss, the analyses of children with blood lead levels closest to those of children in the United States today were most relevant. In selecting the lead NAAQS, the EPA Administrator concluded that, "an air-related IQ loss of 2 points should be used in conjunction with the evidence-based framework in selecting an appropriate level for the standard." (73 FR 67002 - 67005).

Establishing the 2008 Lead NAAQS

Table 1-1 summarizes the estimates of air-related mean IQ loss for children exposed to various ambient air lead concentrations and was used in establishing the 2008 Lead NAAQS. As previously discussed, EPA's evidence-based air-related IQ loss framework found that the air-to-

blood ratio ranged from 1:10 to 1:5 and the EPA Administrator selected a 1:7 air-to-blood ratio as a generally central value within this range. Based on an air-to-blood ratio of 1:7 and use of a mean air-related IQ loss of no more than 2 points, EPA selected an ambient lead concentration limit of 0.15 µg/m^3 (see highlighted box in Table 1-1). At this level, children's IQ levels would be decreased by 1.8 points, assuming a 1:7 air to blood ratio. At an ambient lead concentration of 0.10 µg/m^3, children's IQ level would be decreased by 1.2 points using the same 1:7 air to blood level ratio assumption.

Table 1-1
Estimates of Air-Related Mean IQ Loss for the Subpopulation of Children Exposed at the Level of the Standard – Highlighting an Ambient Lead Concentration Limit of 0.150 µg/m^3 (Source: 73 FR 67005 and 67006)

Potential level for standard (µg/m^3)	Air-related mean IQ loss (points) for the subpopulation of children exposed at level of the standard		
	IQ loss estimate is based on median slope of 4 C–R functions with blood Pb levels closer to those of today's U.S. children (range shown for estimates based on lowest and highest of 4 slopes)		
	Air-to-blood ratio		
	1:10	1:7	1:5
0.50	>5*	>5*	4.4 (3.9–7.4)
0.40		4.9 (4.4–8.2)	3.5 (3.1–5.9)
0.30	5.3 (4.7–8.8)	3.7 (3.3–6.2)	2.6 (2.3–4.4)
0.25	4.4 (3.9–7.4)	3.1 (2.7–5.1)	2.2 (2.0–3.7)
0.20	3.5 (3.1–5.9)	2.5 (2.2–4.1)	1.8 (1.6–2.9)
0.15	2.6 (2.3–4.4)	1.8 (1.6–3.1)	1.3 (1.2–2.2)
0.10	1.8 (1.6–2.9)	1.2 (1.1–2.1)	0.9 (0.8–1.5)
0.05	0.9 (0.8–1.5)	0.6 (0.5–1.0)	0.4 (0.4–0.7)
0.02	0.4 (0.3–0.6)	0.2 (0.2–0.4)	0.2 (0.2–0.3)

*For these combinations of standard levels and air-to-blood ratios, the appropriateness of the C–R function applied in this table becomes increasingly uncertain such that no greater precision than ">5" for the IQ loss estimate is warranted.

At a level of 0.15 µg/m^3, the Administrator recognized that use of a 1:10 ratio produces an estimate greater than 2 IQ points and use of a 1:5 ratio produces a lower IQ loss estimate. Given the uncertainties and limitations in the air-related IQ loss framework, the Administrator decided to place primary weight on the results from this central estimate (1:7 ratio) rather than estimates derived using air-to-blood ratios either higher or lower than this ratio (73 FR 67005).

The 2014 Policy Assessment concluded that, "The limited amount of new information available in this review has not appreciably altered the scientific conclusions reached in the last review regarding relationships between Pb in ambient air and Pb in children's blood or with regard to the range of ratios." As a result, the EPA Administrator is recommending to maintain the central estimate of 1:7 rather than estimates derived using higher air-to-blood ratios.

Selecting a 0.100 µg/m^3 Ambient Lead Limit for PAR 1420

PAR 1420 requires an ambient lead concentration limit of 0.150 µg/m^3 and then to 0.100 µg/m^3 effective January 1, 2021. This is a policy decision that is supported by the same evidence-based framework used to establish the 2008 Lead NAAQS and EPA's 2016 Rule to Retain the Current Lead NAAQS.

In developing the 2008 Lead NAAQS, EPA recognized that policy judgments must be made regarding the level of health protection and margin of safety. The available evidence supports a range of choices in setting that level. In reviewing all of the scientific information through the

development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS, the EPA Administrator made a series of policy decisions. For example, a "central value" between 1:10 and 1:15 to represent the air-to-blood lead ratio and a decrement of 2 IQ points, all within the evidence-based framework for establishing a "national" standard for ambient lead were used. The 2014 Policy Assessment for Review of the Lead NAAQS maintained the same approach and range of ratios stating that, "The limited amount of new information available in this review has not appreciably altered the scientific conclusions reached in the last review regarding relationships between lead in ambient air and lead in children's blood or with regard to the range of ratios. The currently available evidence continues to indicate ratios relevant to the population of young children in U.S. today, reflecting multiple air-related pathways in addition to inhalation, to be generally consistent with the approximate range of 1:5 to 1:10 given particular attention in the 2008 NAAQS decision, including the "generally central estimate" of 1:7." In doing so, the EPA Administrator recognized that:

> "…there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004).

EPA further acknowledged that "different public health policy judgments could lead to different conclusions regarding the extent to which the current standard provides projection of public health with an adequate margin of safety." (EPA, 2014).

The NAAQS is a national standard for lead which applies uniformly to all parts of the United States, whereas PAR 1420 is a source-specific rule that regulates specific lead processing facilities. By establishing an ambient lead limit of 0.100 $\mu g/m^3$, and implementing other requirements in PAR 1420, the rule amendment is designed to minimize the release of point source and fugitive lead emissions from lead processing facilities, thereby minimizing the accumulation of lead on soil surface and in soil dust, which will potentially be more health protective. The proposed level considers communities with children living in close proximity to lead processing facilities, and it provides additional protection for the population most at-risk from lead emissions: pre-school children under the age of five. EPA has specifically recognized the significant health risks posed in this instance: "…situations of elevated exposure, such as residing near sources of ambient lead can also contribute to increased blood lead levels and increased risk of associated health effects from air-related lead." (73 FR 66976).

As discussed below, the EPA Administrator made a series of policy decisions based on evidenced-based air-related IQ loss framework. Two policy decisions that the SCAQMD staff has focused on are the air-to-blood lead ratio and the IQ decrement, particularly as these issues relate to PAR1420 as a source-specific rule. In addition, as discussed below, SCAQMD staff further considered the vulnerability of children to lead and is recommending a more preventative approach with an ambient lead limit of 0.100 $\mu g/m^3$ to provide greater health protection for communities, and more specifically for young children, that live near lead processing facilities.

1:10 Air-to-Blood Lead Ratio

An air-to-blood lead ratio of 1:10 would support a more protective standard for children (CHPAC, 2008b). As discussed above, EPA's evidence-based air-related IQ loss framework found that the air-to-blood lead ratio ranges from 1:10 to 1:5, and the EPA Administrator selected a 1:7 air-to-blood ratio as a "generally central value within this range." (73 FR 67005 and 67006). As we now explain, the ambient lead concentration limit of 0.100 $\mu g/m^3$ under PR 1420.2 is supported by EPA's evidence-based air-related IQ loss framework, assuming EPA's judgment of air-related IQ loss of 2 points and an air-to-blood ratio of 1:10. The SCAQMD's policy decision to use an air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective, particularly for young children living near lead melting facilities.

An air-to-blood ratio of 1:10 is supported by comments made by scientists, physicians, and researchers. During the development of the 2008 Lead NAAQS, EPA received scientific recommendations from the Clean Air Scientific Advisory Committee (CASAC), a federal advisory committee independently chartered to provide extramural scientific information and advice to the EPA Administrator and other officials of the EPA[1]. The CASAC recommended that EPA consider an air-to-blood ratio ''closer to 1:9 to 1:10 as being most reflective of current conditions.'' (73 FR 67001). The higher attained blood lead concentrations that are modeled with a ratio of 1:10 would support a more protective standard for children (CHPAC, 2008b). Similar to the advice from CASAC, many commenters, including EPA's Children's Health Protection Advisory Committee, the Northeast States For Coordinated Air Use Management (NESCAUM) and the Michigan Department of Environmental Quality recommended that EPA consider ratios higher than the upper end of the range used in the proposal (1:7), such as values on the order of 1:9 or 1:10 or somewhat higher. They also rejected the lower ratios used in the proposal as being inappropriate for application to today's children. Commenters supporting such higher ratios cited ratios resulting from a study noted by CASAC (Schwartz and Pitcher, 1989), as well as others by Hayes et al. (1994) and Brunekreef et al. (1983) They also cited air-to- blood ratio estimates from the exposure/risk assessment (73 FR 67001). The exposure/risk assessment evaluated the quantitative human exposure and health risk assessments in order to inform EPA during the 2008 review of the NAAQS for lead.

As shown in Table 1-2, when EPA's same evidence-based framework is employed using an air-to-blood ratio of 1:10, with a loss of less than 2 IQ points, the corresponding ambient limit of 0.100 $\mu g/m^3$ is necessary to protect public health.

[1] The CASAC for the 2008 NAAQS is made up of the following members: Rogene Henderson, Ph.D., Chair, Clean Air Scientific Advisory Committee, Scientist Emeritus, Lovelace Respiratory Research Institute; Donna Kenski, Ph.D., Director of Data Analysis, Lake Michigan Air Directors Consortium, (LADCO); Ellis Cowling, Ph.D., University Distinguished Professor At-Large, Emeritus, North Carolina State University; Armistead (Ted) Russell, Ph.D., Gerogia Power, Distinguished Professor of Environmental Engineering, Georgia Institute of Technology; James D. Crapo, M.D., Professor, Department of Medicine, National Jewish Medical and Research Center; Jonathan M. Samet, M.D., Professor and Chairman, Department of Epidemiology, Bloomberg School of Public Health, John Hopkins University; Douglas Crawford-Brown, Ph.D., Director, Institute for Environment; and Professor, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill

Table 1-2
Estimates of Air-Related Mean IQ Loss for the Subpopulation of Children Exposed at the Level of the Standard – Highlighting an Ambient Lead Concentration Limit of 0.100 µg/m^3 (Source: 73 FR 67005 and 67006)

Potential level for standard (µg/m³)	Air-related mean IQ loss (points) for the subpopulation of children exposed at level of the standard		
	IQ loss estimate is based on median slope of 4 C–R functions with blood Pb levels closer to those of today's U.S. children (range shown for estimates based on lowest and highest of 4 slopes)		
	Air-to-blood ratio		
	1:10	1:7	1:5
0.50	>5*	>5*	4.4 (3.9–7.4)
0.40		4.9 (4.4–8.2)	3.5 (3.1–5.9)
0.30	5.3 (4.7–8.8)	3.7 (3.3–6.2)	2.6 (2.3–4.4)
0.25	4.4 (3.9–7.4)	3.1 (2.7–5.1)	2.2 (2.0–3.7)
0.20	3.5 (3.1–5.9)	2.5 (2.2–4.1)	1.8 (1.6–2.9)
0.15	2.6 (2.3–4.4)	1.8 (1.6–3.1)	1.3 (1.2–2.2)
0.10	1.8 (1.6–2.9)	1.2 (1.1–2.1)	0.9 (0.8–1.5)
0.05	0.9 (0.8–1.5)	0.6 (0.5–1.0)	0.4 (0.4–0.7)
0.02	0.4 (0.3–0.6)	0.2 (0.2–0.4)	0.2 (0.2–0.3)

*For these combinations of standard levels and air-to-blood ratios, the appropriateness of the C–R function applied in this table becomes increasingly uncertain such that no greater precision than ''>5'' for the IQ loss estimate is warranted.

Population Significance of Loss of IQ Points

Communities that are near metal melting facilities can suffer a significant loss of IQ points. In its July 2008 advice to EPA, CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' CASAC further emphasized its view that an IQ loss of 1–2 points should be ''prevented in all but a small percentile of the population—and certainly not accepted as a reasonable change in mean IQ scores across the entire population.'' Recommendations from several commenters, including the American Academy of Pediatrics (AAP) and state health agencies commenting on this issue, generally agreed with the view emphasized by CASAC that air-related IQ loss of a specific magnitude, such as on the order of 1 or 2 points, should be prevented in a very high percentage (e.g., 99.5%) of the population. (73 FR 67000).

The issue of individual-level versus population-level risk also pertains to the implications of the magnitude of decrease in cognitive function or increase in behavioral problems per unit increase in blood lead level. Although fractional changes in Full Scale Intelligence Quotient (FSIQ), memory, or attention may not be consequential for an individual, they may be consequential on a population level. At that level, small lead-associated decreases in cognitive function could increase the number of individuals at additional risk of educational, vocational, and social failure. It could also decrease the number of individuals with opportunities for academic and later-life success (EPA, 2013). Small shifts in the population mean IQ can be highly significant from a public health perspective. Such shifts could translate into a larger proportion of the population functioning at the low end of the IQ distribution, as well as a smaller proportion of the population functioning at the high end of the distribution (EPA, 2013). Additionally, small lead-associated increases in the population mean blood pressure could result in an increase in the proportion of the population with hypertension that is significant from a public health perspective (EPA, 2013).

Ambient Limit of 0.100 µg/m^3 is More Health Protective for Children

Establishing an ambient limit of 0.100 µg/m^3 will be more protective of children that live around facilities subject to PAR 1420, particularly younger children. Lead poisoning is a preventable disease. No safe blood level of lead in children has been identified (CDC, 2012a). Preventing lead exposure rather than responding after the exposure has taken place is consistent with recommendations from the Centers for Disease Control and Prevention's (CDC) Advisory Committee for Childhood Lead Poisoning Prevention, which recommends that the CDC as well as other local, state, and federal agencies "shift priorities to primary prevention." (CDC, 2012b).

Neurocognitive health effects in young children are recognized as the most sensitive endpoint associated with blood lead concentrations. Evidence continues to indicate that neurocognitive effects in young children may not be reversible and may have effects that persist into adulthood (EPA, 2014). In addition, in a letter to EPA in 2008 the Academy of Pediatrics stated that, "No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible." (AAP, 2008). Similarly, EPA states in its 2013 Integrated Science Assessment for Lead that, "Evidence suggests that some lead-related cognitive effects may be irreversible and that the neurodevelopmental effects of lead exposure may persist into adulthood." (EPA, 2013).

Among the wide variety of health endpoints associated with lead exposures, there is general consensus that the developing nervous system in children is among the sensitive-- if not the most sensitive-endpoints (73 FR 66976). Multiple epidemiologic studies conducted in diverse populations of children consistently demonstrate the harmful effects of lead exposure on cognitive function. The effects can be measured by IQ decrements, decreased academic performance and poorer performance on tests of executive function (EPA, 2013). Lead-associated decline of several points might be sufficient to drop that individual into the range associated with increased risk of educational, vocational, and social failure (EPA 2008). In addition, a study found that in a group of 7-year old children exposed to lead before the age of 3 years old, IQ continued to fall, even after the blood lead level had declined (AAP, 2008; Chen et al, 2005).

Compounding the effects of lead on developing children are studies indicating that children are more vulnerable than adults when exposed to lead. Air-to-blood ratios are generally higher for children than those for adults, and they are higher for young children than older children (EPA, 2014). Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population. Higher blood lead levels in pre-school aged children compared to the rest of childhood are related to behaviors that increase environmental exposure, such as hand-to-mouth activity. Children may have increased exposure to lead compared with adults because of children's behaviors and activities (including increased hand-to-mouth contact, crawling, and poor hand-washing), differences in diets, and biokinetic factors (absorption, distribution, metabolism, and excretion) (EPA, 2013).

In addition, younger children absorb substantially more lead than adults, especially children below 2 years of age. These children have a faster metabolic rate, resulting in a proportionately greater daily intake of lead through food. They also have a less developed blood-brain barrier and therefore greater neurological sensitivity; a faster resting inhalation rate; and a rapidly developing nervous system (OEHHA, 2009). As previously referenced, multiple studies of the relationship

between lead exposure and blood lead in children have shown young children's blood lead levels reflect lead exposures from ambient air levels as well as exposure due to lead in surface dust (EPA, 2014).

Blood lead levels are extensively used as an index or biomarker of exposure by national and international health agencies, as well as in epidemiological and toxicological studies of lead health effects and dose-response relationships. Blood lead concentrations, even those below 10 µg/dL, are inversely associated with children's IQ scores at three and five years of age, and associated declines in IQ are greater at these concentrations than at higher concentrations (Canfield, et al, 2003). Based on a growing body of studies concluding that blood lead levels <10 µg/dL harm children, the Centers for Disease Control and Prevention (CDC) Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP) recommends a reference level of 5 µg/dL to identify children with blood lead levels that are much higher than most children's levels. This level is based on the 97.5th percentile of the National Health and Nutrition Examination Survey (NHANES)'s blood lead distribution in children. This recommendation is grounded on the weight of evidence that includes studies with a large number and diverse group of children with low blood lead levels and associated IQ deficits. Effects at blood lead levels < 10 µg/dL are also reported for other behavioral domains, particularly attention-related behaviors and poorer academic achievement. Furthermore, new findings suggest that the adverse health effects of blood lead levels at less than 10 µg/dL in children extend beyond cognitive function to include cardiovascular, immunological, and endocrine effects (CDC, 2012a).

The SCAQMD staff believes that the CDC's action to establish a reference level of 5 µg/dL, in lieu of the previous "level of concern" of 10 µg/dL, further substantiates the policy decision to establish an ambient lead concentration limit of 0.100 µg/m^3. EPA's 2014 Policy Assessment states that, "The CDC decision, while emphasizing the critical importance of primary prevention of lead exposure, provides no new guidelines or criteria with regard to the significance of specific IQ decrements…" (EPA, 2014). However, the Academy of Pediatrics cautioned against focusing solely on IQ loss or gain stating, "There are ramifications of lead exposure on other endpoints that have societal and individual implications of great importance." In addition, CASAC member Dr. Susan Korrick, stated that, "the discussion of health policy judgments needs to be carefully considered in light of the fundamental and far reaching public health value of childhood cognitive and neurobehavioral health." (CASAC, 2013).

EPA's Children's Health Protection Advisory Committee[2] (CHPAC) is a body of external researchers, academicians, health care providers, environmentalists, state and tribal government employees, and members of the public who advise EPA on regulations, research, and communications related to children's health. CHPAC stated in a letter to USEPA Administrator McCarthy that "lead affects children's IQs at exposure levels appreciably lower than recognized…" (CHPAC, 2015). In addition, in a letter to the EPA Administrator on June 16, 2008 regarding the Proposed Rulemaking for the National Ambient Air Quality Standards for Lead, CHPAC stated there is clear scientific evidence to support an ambient lead concentration of

[2] The legal authority for CHPAC is the Federal Advisory Committee Act (FACA), 5 USC App 2. CHPAC acts in the public interest and supports EPA in performing its duties and responsibilities under Executive Order 13045 of April 21, 1997 (62 Fed Reg 19885; April 23, 1997). CHPAC provides advice on topics such as air and water pollution regulations, chemical safety programs, risk assessment policies, and research, which reflect the wide ranging environmental issues which affect the health of children.

0.100 μg/m^3. The letter specifically referenced the special relevance of such a standard to children because there is a steeper dose-response curve for children's neurological effects at lower levels of exposure. This is due to the fact that a higher ratio of lead air-to-blood lead ratios has been observed in children at lower air lead concentrations (CHPAC, 2008b).

Summary Conclusion

An ambient lead concentration limit of 0.100 μg/m3 will be more health protective for communities that live, work, or recreate around metal melting facilities, particularly younger children. There is substantial scientific justification provided through EPA's development of the 2008 Lead NAAQS and EPA's Final Decision to Retain the Current Lead NAAQS evidence-based framework to support the policy decision to establish an ambient limit of 0.100 μg/m^3. The above discussion provides a description of EPA's evidence-based framework to establish the 2008 Lead NAAQS of 0.15 μg/m^3 and key policy judgments made regarding the level of health protection and margin of safety for the national standard. As previously stated, "…there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004). As a regional air agency developing a source-specific-rule for lead processing facilities, the SCAQMD is recommending policy decisions that are more health protective for communities, particularly young children that are affected by lead emissions from lead processing facilities that will be regulated under PAR 1420. The above discussion substantiates the policy decision to establish an ambient lead concentration limit of 0.100 μg/m^3, with some key points of the above discussion highlighted below:

- No safe blood level of lead in children has been identified (CDC, 2012a)
- The developing nervous system in children is among the sensitive, if not the most sensitive-endpoints (73 FR 66976)
- Lead affects children's IQs at exposure levels appreciably lower than recognized (CHPAC, 2105)
- Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population (EPA, 2013)
- Younger children absorb substantially more lead than adults, especially children below 2 years of age (OEHHA, 2009)
- No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible (AAP, 2008)
- CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' (EPA, 2008)
- Air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective (CHPAC, 2008b)

Based on all the foregoing, the evidence supports the SCAQMD's policy decision to establish a final lead limit in ambient air at 0.100 μg/m^3.

CHAPTER 2: SUMMARY OF PROPOSED AMENDED RULE 1420

OVERALL APPROACH

PROPOSED AMENDED RULE 1420

OVERALL APPROACH

PAR 1420 establishes requirements for lead processing facilities, which include compliance with ambient air lead concentration limits, point source control requirements, housekeeping and maintenance requirements, and source testing. Many of the provisions in PAR 1420 are based on similar types of provisions for Rules 1420.1 and 1420.2. Although ambient monitoring is not required as a core requirement, there are triggers where a facility may be required to conduct ambient lead monitoring as discussed in more detail below.

PROPOSED AMENDED RULE 1420

PAR 1420 will reduce lead emissions generated from lead smelters, foundries, smaller lead acid battery manufacturers and recyclers, lead oxide, lead platers, brass and bronze producers, and metal melting facilities where the lead content of the material processed is greater than 0.05 percent by weight. The purpose of PAR 1420 is to reduce point and fugitive lead emissions, reduce public health impacts by reducing the exposure to lead, and to help maintain attainment of the NAAQS for lead. As a result, the rule proposes requirements for point source lead emission controls and an ambient air lead concentration limit. Fugitive lead emissions are addressed through housekeeping and maintenance activity requirements, and total enclosures of areas where lead processing and metal melting operations and associated processes are conducted. Additionally, periodic source testing, capture efficiency testing, conditional ambient air monitoring, and reporting and recordkeeping requirements are also being proposed to ensure continuous compliance. Lead processing and metal melting facilities that exceed the ambient air lead concentration limits of PAR 1420 will be subject to additional requirements to mitigate an exceedance of the ambient lead concentration limit established in PAR 1420.

Applicability

PAR 1420 applies to metal melting facilities and lead processing facilities, as defined in the rule, in the SCAQMD that process materials that contain greater than 0.05% lead content by weight on average. Facilities using materials with less than or equal to 0.05% lead content by weight are not subject to any requirements of the rule. Based on staff analysis of compliance and permitting data, there are approximately 107 facilities in the SCAQMD that meet the applicability requirements of the proposed rule amendment. The larger emitters such as large lead-acid battery recyclers and the metal melting facilities that melt greater than 100 tons of lead per year were addressed under Rules 1420.1 and 1420.2 respectively. All provisions of PAR 1420 will apply to lead processing facilities that process greater than 2 tons of lead per year of raw materials that contain greater than 0.05 percent lead by weight. However, owners or operators that process 2 tons of lead per year or less will be subject to conditional ambient air monitoring, housekeeping and recordkeeping requirements. These reduced requirements will also apply to facilities that previously processed greater than 2 tons of lead per year, but will reduce the amount of lead processed to below the 2 tons per year threshold, provided the owner or operator accepts a permit condition limiting the annual quantity of lead processed. A summary of the applicability thresholds and rule amendment requirements are provided in Table 2-1.

Table 2-1. Summary of Applicability Thresholds and Requirements

Applicability Thresholds		Requirements
% Lead (1)	**Processing Rate (tons of lead per year)**	
< 0.05%	Any	Exempt from all rule requirements
> 0.05%	2 tons or less	• Housekeeping, • Recordkeeping • Conditional Ambient Air Monitoring and Sampling o Executive Officer Determination to Conduct Ambient Air Monitoring
> 0.05%	Greater than 2 tons	• Housekeeping • Recordkeeping • Conditional Ambient Air Monitoring and Sampling o Executive Officer Determination to Conduct Ambient Air Monitoring • Lead Point Source Emissions Control • Source Testing • Total Enclosures • Emission Control Device Monitoring

(1): A facility will be subject to the rule if the 0.05% lead content threshold is exceeded for any raw material during one month of the year and the lead processing rate for that year will be based on all raw materials used during the year

The universe of facilities affected by PAR 1420 was determined by review of the SCAQMD's permitting databases, which allowed staff to identify industry categories based on North American Industry Classification System (NAICS) codes. In addition, for facilities in each NAICS category, equipment lists were identified based on both basic equipment and control equipment. A breakdown of applicable facilities by industry classification is provided in Table 2-2.

Table 2-2: Types of Facilities Subject to PAR 1420

NAICS Code	Facility Type	# of Facilities
331314	Secondary Smelting and Alloying of Aluminum	1
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	1
331511	Iron Foundries	2
331524	Aluminum Foundries (except Die-Casting)	5
331529	Other Nonferrous Metal Foundries (except Die-Casting)	5
332813	Electroplating, Plating, Polishing, Anodizing and Coloring	8
334413	Semiconductor and Related Device Manufacturing	1
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	70
334419	Other Electronic Component Manufacturing	9
336411	Aircraft Manufacturing	1
336413	Developing and Manufacturing of Prototypes for Aircraft Parts and Auxiliary Eqpt.	1
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	2
423930	Recyclable Material Merchant Wholesalers	1
Total Number of Facilities		107

Definitions

PAR 1420 includes definitions of the following terms used in the proposed rule. Please refer to subdivision (c) of PAR 1420 for the definitions:

- Bag Lead Detection System*
- Capture Velocity*
- Duct Section*
- Dust Suppressant*
- Emission Collection System
- Emission Control Device*
- Foundry
- Fugitive Lead-Dust Emissions
- Furnace*
- Lead
- Lead-Acid Battery Manufacturer
- Lead-Acid Battery Recycler
- Lead-Oxide Producer

- Lead Point Source*
- Lead Processing Facility
- Maintenance Activity*
- Metal*
- Metal Melting Facility*
- Primary Lead Smelter
- Repair
- Ringelmann Opacity
- Secondary Lead Smelter
- Slag*
- Smelting*
- Smelting Furnace*
- Total Enclosure*

*: Definitions added

Requirements

Subdivision (d) and subdivisions (f) through (l) of PAR 1420 establish the "core" requirements including ambient lead concentration limits, point source emissions controls, total enclosures, housekeeping measures, air pollution control device maintenance activity requirements, and source testing. Subdivision (e) includes requirements for conditional ambient air monitoring; subdivision (i) specifies recordkeeping requirements; subdivision (k) specifies emission control device monitoring requirements and subdivision (m) includes exemptions.

Subdivision (d) – Ambient Air Lead Concentration Limit

Upon adoption of PAR 1420 until December 31, 2020, facilities subject to PAR 1420 will be required to meet an ambient air lead concentration limit of 0.150 µg/m^3 averaged over any 30 consecutive days. On and after January 1, 2021, facilities subject to PAR 1420 will not be allowed to discharge into the atmosphere emissions which contribute to ambient air concentrations of lead that exceed 0.100 µg/m^3 averaged over any 30 consecutive days. The ambient concentration limits are consistent with Rules 1420.1 and 1420.2. The implementation time period for the final ambient air lead concentration limit of 0.100 µg/m^3 is based on the implementation time period under Rule 1420.2. Measurements may be obtained and recorded from an ambient air lead monitor installed by a facility or one that is installed by the SCAQMD. The visible emission standard will be retained.

Subdivision (e) – Executive Officer Determination to Conduct Ambient Air Monitoring

Rules 1420.1 and 1420.2 require ambient lead monitoring for all facilities affected by those rules. Since PAR 1420 applies to smaller lead emitting sources, PAR 1420 does not require ambient lead monitoring as a base requirement. Under PAR 1420, ambient lead monitoring is only required if a facility triggers specified criteria. The basis of the criteria is to identify those PAR 1420 facilities where the SCAQMD staff has information that there is, or there is the potential for exceedance of the ambient lead concentration. A facility that contributes to an ambient air lead concentration that exceeds 0.150 µg/m^3 averaged over any 30 consecutive days, or one that exceeds the lead point source emission limit based on two source tests over a rolling 36-month period, may be notified by the Executive Officer that ambient air monitoring may be required. However, within 30 days of the date of initial notification by the Executive Officer, the owner or operator may provide any additional information to substantiate that a monitoring trigger has not been met. Prior

to final determination, the Executive Officer will consider any additional information provided by the owner or operator, including any emissions data, updates from site visits, and findings from investigation of surrounding sources. The Executive Officer will notify the owner or operator in writing of the final determination. If ambient lead monitoring is required by the Executive Officer, the owner or operator will be required to prepare and submit a Lead Ambient Air Monitoring and Sampling Plan pursuant to subdivision (l) – Ambient Monitoring and Sampling Requirements for review and approval by the Executive Officer within 120 days of notification. Information required in the plan includes:

- Source test results of all lead point sources;
- Map of facility identifying the location of all lead emission sources, air pollution control devices, stacks, enclosures, openings of enclosures, storage of lead-containing materials, roadways where vehicles carrying lead-containing materials travel within the facility, vehicle egress and ingress locations, the property line of the facility, the fence line of the facility if it differs from the property line of the facility, and any areas within the property line of the facility that are publicly accessible; and
- Number and locations for sampling sites that meet the requirements of paragraph (l)(2).

Subdivision (f) – Lead Point Source Emissions Control

A lead point source is defined by the proposed rule as any process or equipment used at a metal melting or a lead processing facility that emits lead emissions that pass through a stack or a vent designed to direct or control its release into the ambient air. Proposed requirements for lead point sources that are vented to existing lead emissions control devices will be effective June 1, 2018. For lead point sources that are not currently vented to control, the owner or operator has six months after a Permit to Construct for the lead emissions control device is issued by the Executive Officer, to begin venting the lead point source to the control device for which compliance with paragraph (f)(1) is demonstrated. This allows enough time to secure permits and complete all the construction associated with getting the lead control devices into operation.

PAR 1420 requires that lead point source emission controls meet a minimum lead reduction efficiency of 99 percent or meet an outlet mass lead emissions rate of less than 0.0003 pounds per hour. Currently, Rule 1420 has a lead reduction efficiency of 98 percent or greater. The proposed 0.0003 pound per hour limit will apply to both uncontrolled and controlled lead point sources. Upon review of SCAQMD-approved source tests for lead point sources subject to Rule 1420.2, SCAQMD staff has determined that the more stringent 99 percent lead reduction efficiency being proposed for this source category is achievable with lead control devices that are currently available.

SCAQMD staff recognizes that some lead point sources with very low uncontrolled emissions may have difficulty demonstrating the 99 percent lead reduction efficiency requirement due to low inlet loading. Therefore, in lieu of complying with the 99 percent lead reduction efficiency, PAR 1420 will allow the owner or operator of a lead processing facility to demonstrate an outlet mass lead emission rate of less than 0.0003 pounds per hour. This allows owners or operators to better manage source-testing costs since a mass emissions limit will eliminate the cost associated with inlet sampling and testing.

Subdivision (g) – Total Enclosures

The owner or operator of a lead processing or metal melting facility will be required to conduct operations within a total enclosure that minimizes cross draft conditions. The areas may be enclosed individually or in groups. The intent of this requirement is to provide maximum containment and minimize fugitive lead-dust emissions generated in areas where lead processing, metal grinding, handling or storage of lead-containing materials occur.

A total enclosure is a permanent containment structure, completely enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, and run-off), with limited openings to allow access and egress for people and vehicles, that are free of breaks, cracks, gaps, or deterioration that could cause or result in fugitive metal dust.

Cross-draft conditions of a total enclosure shall be minimized by closing any openings that result in a decrease in the efficiency of an emission collection system, including, but not limited to, vents, windows, passages, doorways, bay doors, and roll-ups during lead processing operations. Alternative methods to closing openings, including use of automatic roll-up doors and installation of plastic strip curtains and vestibules may be used if the owner or operator can demonstrate to the Executive Officer equivalent or more effective ways to minimize cross-draft conditions.

The completion schedule for total enclosure will depend on whether the owner or operator is processing lead in a structure existing as of the date of adoption of PAR 1420 or if a new structure must be constructed. In the case of lead processing that is conducted in an existing structure that will be modified to a total enclosure to meet the provisions of paragraph (d)(2), construction should be completed by June 1, 2018. If, however, a new structure must be constructed to satisfy the requirements of paragraph (d)(2) the construction completion date is no later than 12 months after the date of adoption of PAR 1420. In addition, the owner or operator will also be required to provide the Executive Officer with a written notice that a new total enclosure will be constructed, within 60 days after the adoption of PAR 1420. A new facility starting operations after the date of adoption of PAR 1420 will be required to complete the construction of the total enclosure prior to starting operations. Any enclosure type will also be required to be designed in a manner that does not conflict with federal OSHA or Cal-OSHA worker safety guidelines.

PAR 1420 will require at least monthly inspection of any total enclosure and require the owner or operator to stop lead processing or metal melting activities that are conducted within a total enclosure if an inspection reveals any breaks, cracks, gaps, or deterioration that could result in fugitive lead dust releases. Lead processing or metal melting may not be resumed until the enclosure is repaired or until temporary measures are implemented to ensure that no fugitive lead dust results from the break, crack, gap or point of deterioration. Repairs are required to be completed within 72 hours of discovery and in the event that an extension is required, the Executive Officer may grant one provided the request is submitted before the 72-hour time limit has expired.

Subdivision (h) – Housekeeping Requirements

The following housekeeping requirements are proposed to minimize fugitive lead-dust emissions. All requirements will be effective within 30 days of rule adoption with the exception of the

requirement to conduct annual rooftop cleaning of structures, the prohibition for dry sweeping, and use of compressed air for housekeeping purposes. The existing requirements to conduct weekly cleaning of areas and surfaces that have lead-containing waste or dust and to store lead-containing materials and debris in closed containers will remain in effect upon adoption of PAR 1420. Only facilities that process greater than 10 tons of lead per year are required to conduct rooftop cleaning, which should be completed at least once annually and scheduled during the months of July through September.

- Cleaning by wet wash, wet mop or use of a vacuum in a manner that does not generate fugitive lead-dust of the areas listed below is required at the specified frequencies, unless located within a total enclosure vented to a lead emission control device. For mechanical sweepers, a dry vacuum recovery system shall be employed for all contact points to avoid creation of fugitive dust from rotating brushes.
- Weekly cleaning by wet wash, vacuum, wet-mop, or stabilization with a dust suppressant of all areas where lead-containing wastes generated from housekeeping activities are stored, disposed of, recovered, or recycled, and surfaces that accumulate lead-containing dust subject to foot or vehicular traffic.
- Quarterly cleaning of collection vents, ducting, and openings for lead emission control devices to prevent dust from building up and clogging.
- Removal of weather caps on any stack that is a lead emissions source.
- Storage of all materials capable of generating any amount of fugitive lead-dust in sealed, leak-proof containers, or stabilization of such materials with a dust suppressant approved in writing by the Executive Officer, unless located within a total enclosure. Examples of materials capable of generating fugitive lead dust, include slag, spent filters used in lead control devices, and lead-containing waste generated from housekeeping requirements.
- Transport of all materials capable of generating any amount of fugitive lead-dust emissions within closed conveyor systems or in sealed, leak-proof containers, or stabilization of such materials using a dust suppressant approved in writing by the Executive Officer, unless conducted within a total enclosure.
- Cleaning of paved areas where construction or maintenance occurs no later than one hour after completion unless located within a total enclosure vented to a lead emission control device.
- Except when inside a total enclosure, all lead-containing trash and debris shall be placed in covered containers that remain covered at all times except when trash or debris is actively deposited. Trash and debris containers shall be free of liquid or dust leaks.
- Posting of signs at all entrances and truck loading and unloading areas, indicating a facility speed limit of 5 miles per hour or less on any roadway located within 75 feet of the perimeter of a total enclosure.
- For any of the housekeeping requirements listed above, an alternative housekeeping measure can be used if the owner or operator demonstrates and receives written Executive Officer approval that the alternative (housekeeping) measure meets the same objective and effectiveness of the housekeeping requirement that it is replacing.
-
- An owner or operator that conducts grinding of metal that contains lead is required to conduct daily wet cleaning or vacuuming of:
  - Areas within 20 feet of a work station or work stations dedicated to the grinding operations;

- Floors within 20 feet of any entrance or exit points of a temporary enclosure, building or total enclosure that houses the grinding operations; and
- Floors within 10 feet of an emission control device dedicated to the grinding operations

Subdivision (i) – Recordkeeping

PAR 1420 will require records be kept to indicate that facilities comply with the recordkeeping requirements. Owners and operators will be required to maintain records for the following:

- Monthly amounts of lead-containing raw materials processed at a facility, including but not limited to purchase records;
- Results of lead content analyses of feedstock, including ingots and scrap, of materials charged, baghouse catch analyses, or other SCAQMD-approved verification methods used to determine the monthly average weight percentage of lead;
- Ambient air lead monitoring and wind monitoring;
- Housekeeping pursuant to subdivision (h);
- Total enclosure construction, inspection and maintenance, including information related to repair activities;
- Lead control device inspection and maintenance;
- Bag Leak Detection Systems;
- Source test data;
- Air pollution control device monitoring and inspections; and
- Hot wire anemometer data collected including capture velocities, dates of measurement, and calibration documentation.

The annual amount of lead processed by the facility is calculated by summing the monthly amounts of lead processed for all lead point sources over a calendar year. The monthly amount of lead processed is determined by multiplying the monthly average weight percentage of lead content by the quantity of raw material processed each month at each lead point source.

Facilities may determine the amount the lead content of material processed by analyzing the feedstock, including ingots and scrap, used at each lead point source. Alternatively, a facility may analyze the baghouse catch, utilize methods approved by the EPA or any combination of these methods to determine lead content. An alternative method approved by the Executive Officer to demonstrate the lead content of materials processed, may also be used. All records shall be maintained for three years, with at least the two most recent years kept onsite.

Subdivision (j) – Source Tests

Effective upon the date of adoption of PAR 1420, the proposed rule amendment will require an initial source test and then biennial source tests afterwards to demonstrate compliance with the facility mass lead emissions standard of 0.0003 pound per hour specified in subdivision (f). This lead mass emission limit is consistent with limits in Rule 1420.2. If a biennial source test to demonstrate compliance with the lead point source standard results in a stack outlet mass lead emission of less than 0.00015 pounds per hour, then the next test for the lead point source control device shall be performed no later than 48 months after the date of the most recent test.

Prior to conducting the initial performance test or the subsequent biennial source tests on an existing or a new or modified lead control device, an owner or operator will be required to submit

a source test protocol at least 60 calendar days prior to conducting the source test. Existing lead control devices in operation before the adoption date of the rule amendment will require a source test no later than June 1, 2018, while a new or modified lead control device will require an initial source test no later than six (6) months after a Permit to Construct is issued. A source test for an existing lead control device, conducted on or after January 1, 2014 may be used as the initial source test, provided the test:

- Is the most recent conducted since January 1, 2014;
- Demonstrated compliance with the control requirements of subdivision (f);
- Is representative of a method used to test emissions from control devices currently in use; and
- Was conducted using applicable and approved test methods specified in paragraph (j)(6) through ((j)(8).

Source tests shall be conducted while the equipment is operating at a minimum of 80 percent of the equipment's permitted capacity and lists the following applicable test methods for testing for inorganic lead from stationary sources:

- SCAQMD Method 12.1;
- CARB Method 12;
- CARB Method 436; and
- EPA Method 12.

Use of an alternative or equivalent test method will be allowed as long as it is approved in writing by the Executive Officer, in addition to the California Air Resources Board, or the U.S. EPA, as applicable. Facilities will be required to submit a source test protocol to the Executive Officer at least 60 calendar days prior to conducting the source test. The source test protocol shall contain target lead mass emission standards, planned sampling parameters and information regarding equipment, logistics, personnel, and other resources necessary that facilitate an efficient test. The owner or operator is also required to provide written notification to the Executive Officer one week prior to conducting source tests required by paragraphs (j)(1) and (j)(2).

Subdivision (k) – Air Pollution Control Device Monitoring

Proposed Amended Rule 1420 includes parametric monitoring to ensure proper operation of the pollution control device. Operational parameters are generally expressed as a range of parametric measurements within which the air pollution control device functions best and realizes optimum efficiency. Parametric monitoring is conducted separate from source testing and provides a good indicator when there is an issue with the pollution control device during the period between source testing events.

Bag Leak Detection System

The owner or operator of a lead processing facility shall apply for a permit to install, operate, calibrate and maintain a Bag Leak detection System (BLDS) pursuant to SCAQMD Rule 1155.

Pressure Across a Filter

The pressure across the filter of an emission control device shall be continuously measured with a mechanical gauge that is visible and in clear line of sight of the operator or maintenance personnel. The reading from the gauge provides an indication of whether the filters are operating within the

proper range of pressure differential or the filters may be clogged or have leaks, thereby compromising their effectiveness. The monitoring device shall be required to:

- Be equipped with ports that allow for periodic calibration in accordance with manufacturer's specifications;
- Be maintained in accordance with manufacturer's specifications;
- Be calibrated according to manufacturer's specifications at least once every calendar year;
- Be equipped with a continuous data acquisition system (DAS). The DAS shall record the data output from the monitoring device at a frequency of at least once every sixty (60) minutes; and
- Generate a data file from the computer system interfaced with each DAS each calendar day. The data file shall be saved in electronic Microsoft Excel (xls or xlsx) format as approved by the Executive Officer. The file shall contain a table of chronological dates and time and the corresponding data output value from the monitoring device in inches of water column. The operator shall prepare a separate data file each day showing the 4-hour rolling average pressure readings recorded by this device each calendar day.

If the pressure across the filter (associated with the emission control device) is not maintained within the range specified in the Permit to Construct or Permit to Operate or the range specified by the manufacturer or the Executive Officer, based on hourly or more frequent recordings by the DAS for the averaging periods specified below, the owner or operator shall require additional source testing as discussed in source testing section of this chapter.

- A 4-hour time period on 3 or more separate days over 60 continuous days; or
- Any consecutive 24-hour period.

The acceptable range of pressure across the filter may be specified in the Permit to Construct or the Permit to Operate or shall be determined by the Executive Officer based on supporting documentation such as manufacturer specifications and source test results.

Verification of Air Flow to the Air Pollution Collection System

The corresponding duct static pressure for the minimum hood induced capture velocity for emission control devices shall be accurately measured once per operating day using the measurement procedures specified in the most current edition of the *Industrial Ventilation, A Manual of Recommended Practice for Operation and Maintenance*, published by the American Conference of Governmental Industrial Hygienists, at the time a permit application is deemed complete with the SCAQMD, or any more stringent methods required by OSHA or CAL-OSHA.

In addition, for each emission collection system required to be monitored under PAR 1420, confirmation of the capture velocity shall be conducted at least once monthly, pursuant to paragraphs (k)(4) and (k)(6). A smoke test shall be conducted during source testing and at least once every 3 months. The periodic smoke test provides a qualitative test for owners and operators to help determine whether cross draft conditions or other activities conducted at the facility are affecting the ability of the emission collection system or hood to effectively capture emissions. It also serves to verify that the airflow is moving towards the air pollution collection system, which in turn improves the effectiveness of the air pollution control device. Smoke test procedures are outlined in Appendix 1 of the proposed rule.

Hot Wire Anemometer

The capture velocity of each emission collection system shall be measured at least monthly using a calibrated hot wire anemometer. The emission collection system designed with a hood or enclosure shall maintain a capture velocity of at least 200 feet per minute as measured at the face of the enclosure or the minimum slot velocity measured in the most recent source test that verified complete collection efficiency as measured at the face of the enclosure. An emission collection system with slots, but without an enclosure or hood shall maintain a capture velocity of at least 2,000 feet per minute or the minimum slot velocity measured in the most recent source test that verified complete collection efficiency.

Subdivision (l) – Ambient Monitoring and Sampling Requirements

PAR 1420 facilities subject to Lead Ambient Air Monitoring and Sampling requirements will be required to collect and analyze ambient air lead samples to determine compliance with the ambient air quality lead concentration limits of the rule. This subdivision provides the requirements for submittal of an ambient air monitoring and sampling plan, the number of monitors, placement of monitors, and installation of monitors.

No later than 90 days after approval of a Lead Ambient Air Monitoring and Sampling Plan, facilities will be required to install monitors and conduct ambient air lead monitoring and sampling. Samples must be collected from a minimum of two sites with locations of the sampling sites based on maximum expected ground level lead concentrations, at or beyond the property line, as determined by Executive Officer-approved air dispersion modeling calculations and emission estimates from all lead point sources and fugitive lead-dust sources, and other factors including, but not limited to, population exposure and seasonal meteorology.

The Executive Officer may require a facility to relocate existing monitors or install additional monitors to those required as specified above in order to measure ambient air lead concentrations at locations that may contribute to the exceedance of an ambient air lead concentration limit specified in subdivision (d). The basis for relocating existing monitors or requiring installation of additional monitors shall be based on information showing:

- A new or existing lead source that was not previously identified or fully disclosed;
- An increase in lead emissions from an existing source where existing monitors are not capturing the potential ambient air lead concentration; or
- Inability of the existing monitors to capture the maximum expected ground level lead concentrations.

A facility that is required to conduct ambient air monitoring will be required to collect a valid 24-hour, midnight-to-midnight sample at all sites based on a sampling frequency of 1-in-6 days. Current ambient monitors are designed with timers that can be programmed to automatically begin and end sample collection and therefore they eliminate the concerns regarding the inconvenience associated with midnight-to-midnight sample collection. Facilities will also be required to continuously monitor wind speed and direction as described in the approved plan for the ambient air quality monitoring system at all times to supplement data analysis of the samples collected. Approval shall be based on guidelines for wind and speed direction monitoring as provided in the "*SCAQMD Rule 403 Implementation Handbook – Chapter 6: On-Site Wind Monitoring*

Equipment," or other relevant EPA reference documents such as the "*Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV, Meteorological Measurements*."

Only personnel approved by the Executive Officer, or facility personnel trained and certified to conduct ambient air monitoring demonstrated through successful completion of a course offered or approved by the Executive Officer will be allowed to conduct ambient air quality monitoring. Monitoring and sampling equipment shall be operated and maintained in accordance with U.S. EPA-referenced methods. An owner or operator of lead processing facilities will also be required to submit samples to laboratories within five calendar days of collection to allow sufficient time to submit samples. Facilities required to conduct ambient monitoring pursuant to subdivision (e) will be required to submit reports for monthly ambient air monitoring results for lead and wind data measured at each sampling location on a monthly basis. Beginning no later than 90 days after receiving Executive Officer approval of a Lead Ambient Air Monitoring and Sampling Plan, reports must be submitted by the 15th of each month for the preceding month, and must include the results of individual 24-hour samples and 30-day averages for each day within the reporting period.

Any exceedance of the ambient air quality concentration shall be reported to the Executive Officer (1-800-CUT-SMOG) within seven (7) days of receipt of completed sample analysis, followed by a written report to the Executive Officer no later than three (3) days after the notification.

Any existing ambient air monitoring network currently in use for Rule 1420 shall be used for compliance with PAR 1420 as long as all rule requirements for sampling and monitoring have been met. Monitoring may cease only when the conditions specified in (l)(2) are met.

Subdivision (m) – Exemptions

Facilities that process materials with a monthly weighted average lead content of 0.05 percent or less are exempt from the requirements of the rule. The provision encourages facilities to use low-lead alloys where possible.

All hand soldering operations are exempt from the requirements of the proposed rule amendment. In addition, the proposed amendments also exempts any maintenance or repair activities conducted at a metal melting or a lead processing facility, except for maintenance and repair activities associated with emission collection systems and emission control devices, and except housekeeping and total enclosure activities that are capable of generating lead dust.

Provisions have been incorporated into PAR 1420 to allow the owner or operator of a lead processing or metal melting facility to accept permit conditions limiting the amount of lead processed to limit the applicability of rule requirements. Facilities may accept a facility-wide limit of processing two tons per year or less of lead to only be subject to housekeeping, recordkeeping, and conditional ambient air monitoring and sampling, pursuant to subdivision (l). In the instance where a facility previously using materials with a lead content below 0.05 percent by weight subsequently processes materials with a lead content greater than 0.05 percent by weight, that facility would be subject to some or all provisions of the rule indefinitely. However, such a facility may accept a permit limit for a lead point source of 0.05 percent by weight or less, which will exempt them from PAR 1420. Such a permit condition is not necessary if the facility can

demonstrate that the lead content of a lead point source has not exceeded 0.05 percent by weight since the adoption of PAR 1420.

Paragraph (m)(3) provides an off-ramp for facilities that have been required to conduct ambient monitoring pursuant to subdivision (e). If the facility can demonstrate ambient lead concentration levels of less than or equal to 0.070 µg/m^3 averaged over 30 consecutive days for 365 days when measured during normal operating conditions representative of the facility then the facility shall be granted exemption upon Executive Officer approval of an air monitoring relief plan that contains all of the following:

- Air dispersion modeling analysis that demonstrates an ambient air lead concentration of $\leq$ 0.070 µg/m^3 averaged over 30 consecutive days representative of normal facility operations; and
- One (1) year of ambient air lead monitoring data without a single 30 consecutive day average exceeding an ambient air lead concentration of 0.070 µg/m^3; and
- The facility's most recent source tests approved by the SCAQMD demonstrate that total facility mass lead emission rate from all lead point source control devices of less than 0.04 pound per hour. Total facility mass lead emissions are to be determined based on the sum of the average of triplicate samples for each lead point source located at the facility.

The proposed amendments also exclude facilities subject to the more stringent requirements of Rules 1420.1 and 1420.2 to avoid duplicative requirements.

Appendix 1 – Periodic Smoke Test

Appendix 1 specifies the requirements for periodic smoke tests to demonstrate capture efficiency for ventilation systems of add-on air pollution control device(s) pursuant to paragraph (j)(5). The periodic smoke test requirement of PAR 1420 will not be required if performing such test presents an unreasonable risk to safety. An example of such unreasonable risk to safety includes having to conduct a smoke test at collection sites that would be extremely dangerous, if not deadly, for somebody to work in that collection zone. Smoke test procedures are outlined in Appendix 1 of the proposed amended rule (PAR 1420).

CHAPTER 3: IMPACT ASSESSMENT

AFFECTED FACILITIES

PAR 1420 affects approximately 107 lead processing facilities. Source categories include lead smelters, foundries, smaller lead acid battery manufacturers and recyclers, lead oxide, brass, and bronze producers, and metal melting facilities.

The majority of affected facilities conduct lead soldering or tin/lead plating. Of the 107 facilities estimated to be impacted by the proposed rule, 92 are subject to the rule solely because of their lead soldering or tin/lead plating operations. Based on initial estimates these facilities are expected to process less than 2 tons of lead per year and will only be subject to conditional ambient monitoring and sampling, and housekeeping and recordkeeping provisions. Also, at the majority of the electronic-related businesses the temperatures to which lead is heated are not substantial enough to promote vaporization, and facilities in this category that were visited were found to already exercise good housekeeping practices.

EMISSIONS IMPACT

Implementation of PAR1420 will reduce point and fugitive emissions, resulting in reduced ambient air lead concentrations. Quantifying point and fugitive source emission reductions is difficult, as many sources do not have current source tests. PAR 1420 will require an ambient air lead concentration of 0.150 $\mu g/m^3$ averaged over any 30 consecutive days from the date of adoption through December 31, 2020 and an ambient lead concentration of 0.100 $\mu g/m^3$ averaged over any 30 consecutive days beginning January 1, 2021.

SOCIOECONOMIC IMPACT ASSESSMENT

The purpose of PAR 1420 is to protect public health by minimizing public exposure to lead emissions from point and fugitive lead emissions sources at metal melting and lead processing facilities, which would also ensure and maintain attainment of the National Ambient Air Quality Standard (NAAQS) for lead within the South Coast Air Basin. PAR 1420 proposes an initial ambient air lead concentration limit of 0.150 micrograms per cubic meter ($\mu g/m^3$) averaged over any consecutive 30 days which would be lowered to a final limit of 0.100 $\mu g/m^3$ by January 1, 2021. PAR 1420 also proposes requirements for point source lead emission controls, along with periodic source testing, capture efficiency testing, enhanced housekeeping requirements, and recordkeeping requirements to ensure continuous compliance.

Affected Facilities and Industries

The universe of facilities affected by PAR 1420 was determined by a review of the SCAQMD's permitting database, which allowed staff to identify industry categories based on the North American Industry Classification System (NAICS). In addition, staff identified equipment lists for facilities in each NAICS category based on both basic, and control equipment that could be lead-related. Based on this database, there are approximately 107 facilities in the SCAQMD that meet the applicability requirements of the proposed rule amendments.

PAR 1420 would affect existing metal melting and lead processing facilities that process raw materials with an average lead content greater than 0.05 percent by weight. The larger emitters such as large lead-acid battery recyclers and the metal melting facilities that melt greater than 100 tons of lead per year were addressed under Rules 1420.1 and 1420.2, respectively. All provisions of PAR 1420 will apply to lead processing and metal melting facilities that process greater than 2 tons of lead per year of raw materials that contain greater than 0.05 percent lead by weight. However, owners or operators that process 2 tons of lead per year or less will be subject to fewer requirements such as- conditional ambient air monitoring and sampling, and housekeeping and recordkeeping provisions.

Table 3-1 lists the industry classifications of potentially affected facilities based on NAICS, and the number of such facilities. Among the 107 facilities that could be potentially affected by PAR 1420, one is classified as a Recyclable Material Merchant Wholesaler (NAICS 423930), with the remaining 106 facilities falling under the Manufacturing sector (NAICS 331-336). Out of the 107 affected facilities, 43 are in Los Angeles, 57 in Orange, four in Riverside and the remaining three are located in San Bernardino County.

Table 3-1:
PAR 1420 Affected Facilities

Facility Type (NAICS Codes)	# of Facilities
Secondary Smelting and Alloying of Aluminum (331314)	1
Nonferrous Metal (except Aluminum) Smelting and Refining (331410)	1
Iron Foundries (331511)	2
Aluminum Foundries (except Die-Casting) (331524)	5
Other Nonferrous Metal Foundries (except Die-Casting) (331529)	5
Electroplating, Plating, Polishing, Anodizing and Coloring (332813)	8
Semiconductor and Related Device Manufacturing (334413)	1
Printed Circuit Assembly (Electronic Assembly) Manufacturing (334418)	70
Other Electronic Component Manufacturing (334419)	9
Aircraft Manufacturing (336411)	1
Developing and Manufacturing of Prototypes for Aircraft Parts and Auxiliary Eqpt. (336413)	1
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing (336419)	2
Recyclable Material Merchant Wholesalers (423930)	1
Total	**107**

Small Businesses

SCAQMD defines a "small business" in Rule 102 for purposes of fees as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. SCAQMD also defines “small business” for the purpose of qualifying for access to services from SCAQMD’s Small Business Assistance Office (SBAO) as a business with an annual receipt of $5 million or less, or with 100 or fewer employees. In addition to SCAQMD's definition of a small business, the federal Clean Air Act Amendments (CAAA) of 1990 and the federal Small Business Administration (SBA) also provide definitions of a small business.

The CAAA classifies a business as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA. The SBA definitions of small businesses vary by six-digit NAICS codes. In general terms, a small business must have no more than 500 employees for most manufacturing industries, and no more than $7 million in average annual receipts for most nonmanufacturing industries.[1] A business classified under NAICS codes beginning with 331-336 is considered a small business by SBA if it has no more than 750 to no more than 1,250 employees, depending on the specific NAICS code. A business classified under NAICS 423930 is considered a small business by SBA when it has no more than 100 employees.

Information on employees and sales for 90 out of 107 facilities is available, based on the 2017 Dun and Bradstreet data. Based on SCAQMD permit data, only 11 of the 90 facilities were determined to be small businesses as defined under SCAQMD Rule 102. These facilities will only be subject to the housekeeping and recordkeeping requirements. Using the SBA definition of small business, all 90 facilities are classified as small businesses. Under the CAAA definition of small business, all 90 facilities are small businesses assuming that all the facilities without the annual emission data emit less than 10 tons of VOC or NOx.

Compliance Cost

Of the 107 facilities in SCAQMD’s jurisdiction that are subject to PAR 1420, only 15 facilities would incur cost impacts related to one or more of the following requirements: total enclosure, data acquisition systems, source tests, smoke and hot wire anemometer tests, and housekeeping and maintenance requirements. Out of these 15 facilities, 10 that conduct grinding operations would be required to make changes that satisfy the total enclosure requirements. Eight of these 10 facilities, are expected to make building improvements by constructing one wall at each facility, while the remaining two facilities are only expected to install strip curtains.

At the 15 facilities (including the 10 with grinding operations), all of the existing emission control devices currently operating would be required to install data acquisition systems and anemometers and undergo periodic source and smoke testing to demonstrate that the emission control devices meet minimum control efficiency or outlet mass emission rate limit, along with ensuring ongoing compliance.

[1] See the SBA website (http://www.sba.gov/community/blogs/community-blogs/small-business-matters/what-small-business-what-you-need-know-and-wh).The latest SBA definition of small businesses by industry can be found at http://www.sba.gov/content/table-small-business-size-standards.

The annual compliance costs due to PAR1420 are estimated to range from $273,000 to $280,000, depending on the real interest rate assumed (1%-4%).[2] The source test requirement alone contributes to about 80% of the total annual cost. Table 3-2 presents average annual compliance cost of the PAR 1420 by requirement categories.

Table 3-2
Annual Compliance Cost of PAR 1420 by Category
(2017 Dollars)

One-Time Cost Category	One-Time Cost	Annualized at 4% Real Interest Rate	Annualized at 1% Real Interest Rate
Enclosures*	$402,000	$28,442	$22,056
Acquisition Data Systems**	$22,500	$4,860	$4,590
Anemometer **	$6,375	$1,377	$1,300
Recurring Cost Category			
	First Year	**Average Annual**	
Source Test***	$765,000	$223,500	
Smoke Test	$3,154	$3,154	
Housekeeping (Rooftop Cleaning)	$18,000	$18,000	
Total**		**$280,000**	**$273,000**

*Cost is annualized over 20 years
**Cost is annualized over 5 years
***The cost of source test is lower in subsequent (biennial) year, as such this cost was annualized over two years, then averaged over (2018-2035) for calculating the annual total.
****Numbers do not sum up due to rounding.

The remaining 92 facilities would only be subject to the housekeeping, recordkeeping, and conditional ambient monitoring and sampling requirements. These facilities already have housekeeping practices in place and they may only be expected to make very minor upgrades to their recordkeeping at nominal costs. In addition, since these facilities process very small amount of lead containing materials, they would not be expected to trigger any ambient lead exceedances that would require ambient air monitoring.

[2] In 1987, SCAQMD staff began to calculate cost-effectiveness of control measures and rules using the Discounted Cash Flow method with a discount rate of 4 percent. Although not formally documented, the discount rate is based on the 1987 real interest rate on 10-year Treasury Notes and Bonds, which was 3.8 percent. The maturity of 10 years was chosen because a typical control equipment life is 10 years; however, a longer equipment life would not have corresponded to a much higher rate-- the 1987 real interest rate on 30-year Treasury Notes and Bonds was 4.4 percent. Since 1987, the 4 percent discount rate has been used by SCAQMD staff for all cost-effectiveness calculations, including BACT analysis, for the purpose of consistency. The incremental cost reported in this assessment was thus annualized using a real interest rate of four percent as the discount rate. As a sensitivity test, a real interest rate of one percent will also be used, which is closer to the prevailing real interest rate.

Total Enclosures

PAR 1420 requires that no later than June 1, 2018, furnaces, refining, casting, grinding, and lead oxide production areas be located within a total enclosure. The areas may be enclosed individually or in groups. The intent of this requirement is to provide maximum containment and minimize fugitive lead-dust emissions generated in areas where melting, processing, handling and storage of lead-containing materials occur. In Rule 1420.2, SCAQMD staff assumed that it would cost $110[3] per square foot to construct a new total enclosure of about 4,300 square feet. However, no facilities are expected to construct a new total enclosure. Under PAR 1420, only eight facilities would need to make building improvements by constructing one wall at each facility to achieve the required total enclosure. Based on discussions with facilities potentially requiring building improvements and cost estimates for constructing one wall in Rule 1420.2, staff is estimating a cost of $18,000 for small enclosures, $80,000 for a medium-sized enclosure, and $140,000 for a large enclosure. Compared to Rule 1420.2 facilities, the enclosure construction for the PAR 1420 facilities is expected to fall into the small and medium size ranges. The total one-time cost of enclosures is estimated at $402,000.

Data Acquisition Systems

An emission control device subject to the requirements of PAR 1420 must have the pressure across its filter measured continuously with a mechanical gauge when it is in operation. The gauge reading provides an indication of whether the filters are operating within the proper range of pressure differential recommended by the manufacturer or whether they may be clogged or have leaks. The gauge is required to be equipped with a Data Acquisition System (DAS) that is capable of recording the data output from the gauge. This allows the pressure differential across the filter to be monitored and documented, and provides an indication of the effectiveness in which the emission control device is being operated. Based on the cost estimated by Omega Engineering (www.omega.com), the capital cost of each DAS is estimated to be $450, while the cost of installation is expected to be approximately $1,050. The total one-time cost of installing DAS systems for all the affected 15 facilities is estimated at $22,500.

Anemometer

The capture velocity of each emission collection system shall be measured at least monthly using a calibrated hot wire anemometer. An emission collection system designed with a hood or enclosure shall maintain a capture velocity of at least 200 feet per minute as measured at the face of the enclosure. An emission collection system with slots, but without an enclosure or hood shall maintain a capture velocity of at least 2,000 feet per minute or the minimum slot velocity measured in the most recent source test that verified complete collection efficiency, whichever is greater. According to estimates used in Rule 1420.2 each anemometer is estimated to cost approximately $425. The total one-time cost of anemometers is estimated to be $6,375.

[3] http://www.cmdgroup.com/market-intelligence/articles/rsmeans-dollar-per-square-foot-construction-costs-for-four-industrial-type/

Source Tests

The proposed amended rule will require biennial source tests for all lead control devices in order to demonstrate compliance with the lead control reduction efficiency for any lead point source emission control device of 99 percent or the mass outlet limit of 0.0003 pounds per hour. Initial source tests for new and modified lead control devices with an initial start-up date on or after the adoption date of the proposed rule will be required to be conducted within six (6) months after a Permit to Construct has been issued. Existing lead control devices in operation before the adoption date of the rule will require a source test no later than June 1, 2018. An existing source test for a lead control device, conducted on or after January 1, 2014 may be used as the initial source test if it meets certain criteria identified in the rule amendment.

It is further assumed that the initial source testing will consist of both stack inlet and outlet testing for each emission control device. Operators will only be required to test stack outlets in subsequent biennial or quadrennial source tests. Based on costs of inlet and outlet testing provided by Almega Testing (http://www.almegaenv.com/), the initial cost is estimated to range from $15,000 to $120,000 per facility, while the cost for the biennial source testing is estimated to range from $7,500 to $60,000 due to the fact that only outlet testing would be required to demonstrate compliance.

However, the proposed rule provides an incentive for lead control devices that demonstrate exemplary lead emission rate source test results. If an annual source test to demonstrate compliance with the lead point source emission standards of subdivision (f) is able to demonstrate an outlet concentration of 0.00015 pounds per hour or less, then the next test for all lead point sources shall be performed no later than 48 months after the date of the most recent source test. SCAQMD staff assumed that all facilities would be able to take advantage of this incentive, resulting in a combined first year source test cost totaling $765,000 and $382,500 every other year thereafter.

Smoke Test

PAR 1420 would also require a periodic smoke test at least once every 3 months to demonstrate capture efficiency for ventilation systems of add-on air pollution control devices. The periodic smoke test provides a qualitative test for owners and operators to help determine whether cross draft conditions or other activities conducted at the facility are affecting the ability of the emission collection system or hood to effectively capture emissions. It also serves to verify that the airflow is moving towards the air pollution collection system, which in turn improves the effectiveness of the air pollution control device. The 15 affected facilities that are expected to be subject to all of the requirements of the rule amendment will be expected to be currently operating with emission collection systems. As such, these facilities will be required to conduct smoke tests during source testing, and also at least once every three months. The total annual cost of smoke testing is estimated to be $3,154. The annual cost is based on estimates used in Rule 1420.2 and on the number of emission collection systems at each facility that are subject to the subdivision (k).

Recordkeeping

PAR 1420 would require owners and operators of all the 107 affected facilities to maintain records for three years, with at least the two most recent years kept onsite. Upon surveying many facilities subject to PAR 1420, SCAQMD staff concluded that all facilities currently conduct recordkeeping that is consistent with the proposed requirements and no additional costs are expected.

Housekeeping (Roof Cleaning)

PAR 1420 includes housekeeping requirements that are proposed to minimize fugitive lead-dust emissions. All requirements will be effective within 30 days of rule adoption with the exception of the requirements to conduct annual rooftop cleaning, which will be effective in July 2018 and are expected to be conducted during the months of July through September. The prohibition for dry sweeping and the use of compressed air for housekeeping will be effective upon adoption of PAR 1420. Only facilities that process greater than 10 tons of lead per year are required to conduct rooftop cleaning, which should be completed at least once annually. The cost of rooftop cleaning is estimated to be $1,250 based on estimates from Rule 1420.2.

Overall Compliance Costs

In order to compile the annual compliance costs for the additional enclosures and other equipment needed to comply with the PAR 1420, staff amortized the enclosures and other capital costs of control equipment at a real interest rate of four percent over the equipment life; as a sensitivity test, a real interest rate of one percent was also applied which is closer to the prevailing real interest rate. Table 3 reports the projected compliance costs, by potentially affected industries, due to the additional requirements needed for the 15 affected facilities. Each year, the compliance costs due to PAR1420 are estimated to range from $273,000 to $280,000, depending on the real interest rate assumed (1%-4%). The majority of the estimated annual compliance costs (93%) would be incurred by the industry identified as Primary Metal manufacturing (NAICS 311) where most of the affected metal melting or lead processing facilities fall under. The remaining costs (7%) are expected to be incurred by a recycler of auto and industrial scraps (NAICS 423930).

All of the costs discussed in this section are expressed in 2017 dollars. For the purpose of projecting future compliance costs, it was assumed that these costs would remain the same in the foreseeable future and may increase only with inflation.

Table 3-3
Projected Compliance Costs by Facility that Potentially Could Need Additional Pollution Controls
(2017 Dollars)

Industry that Typically Uses the Equipment (6-Digit NAICS Code)	Projected Annual Compliance Costs	
	4% Real Interest Rate	1% Real Interest Rate
Smelting and Refining Nonferrous Metal (except Aluminum) Smelting and Refining (331410)	$10,846	$10,823
Scrap Metal Recyclers Secondary Smelting and Alloying of Aluminum (331314)	$43,133	$41,839
Cast Iron Manufacturing Iron Foundries (331511)	$27,537	$27,125
Aluminum Product Manufacturing Aluminum Foundries (except Die-Casting) (331524)	$103,678	$101,720
Other Lead Product Manufacturing Other Nonferrous Metal Foundries (except Die-Casting) (331529)	$73,250	$71,498
Recycling of Auto and Industrial Scraps Recyclable Material Merchant Wholesalers (423930)	$20,889	$19,595
All 15 Affected Facilities*	**$280,000**	**$273,000**

*Numbers do not sum up due to rounding.

Table 4 shows the projected compliance costs by facility due to the additional requirements of the PAR 1420. The Aluminum Product Manufacturing classification (NAICS 331524) where five of the affected facilities belong, would bear about 37% of the compliance costs. On a per facility basis, it is estimated that each of the 15 affected facilities could incur an annual cost ranging from $4,800 to $43,000 depending on the number of lead point sources at the facility, and the level of construction necessary to enclose the buildings housing their lead processing areas.

Table 3- 4
Projected Compliance Costs by Industry for Affected Facilities that Potentially Could Need Additional Pollution Controls (2017 Dollars)

Facilities	Industry that Typically Uses the Equipment (6-Digit NAICS Code)	Projected Annual Compliance Costs	
		4% Real Interest Rate	1% Real Interest Rate
A	Smelting and Refining (331410)	$10,846	$10,823
B	Scrap Metal Recyclers (331314)	$43,133	$41,839
C	Cast Iron Manufacturing (331511)	$6,735	$6,632
D	Cast Iron Manufacturing (331511)	$20,802	$20,493
E	Aluminum Product Manufacturing (331524)	$20,968	$20,659
F	Aluminum Product Manufacturing (331524)	$28,542	$28,519
G	Aluminum Product Manufacturing (331524)	$43,133	$41,839
H	Aluminum Product Manufacturing (331524)	$6,155	$5,846
I	Aluminum Product Manufacturing (331524)	$20,889	$19,595
J	Other Nonferrous Metal Foundries (331529)	$10,846	$10,823
K	Other Nonferrous Metal Foundries (331529)	$20,048	$19,945
L	Other Nonferrous Metal Foundries (331529)	$10,846	$10,823
M	Other Nonferrous Metal Foundries (331529)	$10,620	$10,311
N	Other Nonferrous Metal Foundries (331529)	$4,881	$4,858
O	Recyclable Material Merchant Wholesalers (423930)	$20,889	$19,595
	All 15 Affected Facilities	**$280,000**	**$273,000**

*Numbers do not sum up due to rounding.

Macroeconomic Impacts on Regional Economy

It has been a standard socioeconomic practice that, when the annual compliance cost is less than one million current U.S. dollars, the Regional Economic Models Inc. (REMI)'s Policy Insight Plus Model is not used to simulate jobs and macroeconomic impacts, as is the case here. This is because the resultant impacts would be diminutive relative to the baseline regional economy.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

PAR 1420 is considered a "project" as defined by the California Environmental Quality Act (CEQA), and the SCAQMD is the designated lead agency. Pursuant to CEQA Guidelines Sections 15252 and 15070 and SCAQMD Rule 110, the SCAQMD has prepared an Environmental Assessment (EA) for PAR 1420. The environmental analysis in the Draft EA concluded that PAR 1420 would not generate any significant adverse environmental impacts and therefore, no alternatives or mitigation measures are required. The Draft EA was released for a 30-day public review and comment period from September 19, 2017 to October 19, 2017. Two comment letters were received from the public relative to the Draft EA and responses to the comments have been prepared. The comment letters and the individual responses to the comments have been included in Appendix D of the Final EA.

Subsequent to release of the Draft EA, modifications were made to the proposed project. SCAQMD staff has reviewed the modifications to the proposed project and concluded that none of the modifications constitute significant new information or a substantial increase in the severity of an environmental impact, nor provide new information of substantial importance relative to the Draft EA. As a result, these revisions do not require recirculation of the document pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA is now a Final EA and is included as an attachment to the Governing Board package. The SCAQMD Governing Board must review the adequacy of the Final EA, including responses to comments, prior to certification of the Final EA and adoption of PAR 1420.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the SCAQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

PAR 1420 is needed to further protect public health by reducing lead emissions from lead processing facilities. For a toxic air contaminant, such as lead, for which there is no level of exposure that can yet be identified with confidence, as clearly not being associated with some risk of deleterious health effects, the intent of this proposed rule is to reduce emissions to the lowest level achievable through the most effective feasible control method. The proposed rule will reduce

ambient lead emissions from point sources as well as fugitive emissions from facility operations. In addition, the proposed rule will help ensure that violations of the NAAQS do not occur.
An ambient lead concentration limit of 0.100 μg/m^3 will be more health protective for communities that live, work, and recreate around metal melting facilities, particularly younger children. There is substantial scientific justification provided through EPA's development of the 2008 Lead NAAQS and the 2016 Final Decision to Retain the Current Lead NAAQS evidence-based framework to support the policy decision to establish an ambient limit of 0.100 μg/m^3. The above discussion provides a description of EPA's evidence-based framework to establish the 2008 Lead NAAQS of 0.15 μg/m^3 and key policy judgments made regarding the level of health protection and margin of safety for the national standard. As previously stated, there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004). As a regional air agency, developing a source-specific-rule for lead processing facilities, the SCAQMD staff is recommending policy decisions that are more health protective for communities, particularly young children, that are affected by lead emissions from lead processing facilities regulated under Proposed Amended Rule 1420. The above discussion substantiates the policy decision to establish an ambient lead concentration limit of 0.100 μg/m^3, with some key points of the above discussion highlighted below:

- No safe blood level of lead in children has been identified (CDC, 2012a)
- The developing nervous system in children is among the sensitive-- if not the most sensitive-endpoints. (73 FR 66976)
- Lead affects children's IQs at exposure levels appreciably lower than recognized. (CHPAC, 2105)
- Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population. (EPA, 2013)
- Younger children absorb substantially more lead than adults, especially children below 2 years of age. (OEHHA, 2009)
- No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible. (AAP, 2008)
- CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' (EPA, 2008)
- Air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective (CHPAC, 2008b)

Based on all the foregoing, the evidence supports the SCAQMD's policy decision to establish a final lead limit in ambient air at 0.100 μg/m^3.

Authority
The SCAQMD Governing Board has authority to adopt PAR 1420 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, 41700 and 41706.

Clarity
PAR 1420 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency
PAR 1420 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication
PAR 1420 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

Reference
By adopting PAR 1420 the SCAQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 40001 (rules to achieve and maintain ambient air quality standards), 41700 (nuisance), 41706(b) (emission standards for lead compounds from non-vehicular sources), Federal Clean Air Act (CAA) Section 112 (Hazardous Air Pollutants), and CAA Section 116 (more stringent state standards).

COMPARATIVE ANALYSIS

Health and Safety Code section 40727.2 requires a comparative analysis of the proposed rule with any Federal or SCAQMD rules and regulations applicable to the same source. See Table 3-5.

Table 3-5: Comparison of PAR 1420 with SCAQMD Rule 1420, SCAQMD Rule 1420.2, the CARB 1998-12-30 Non-Ferrous Metal Melting ATCM, the 2008 Lead NAAQS, and the NESHAP for Secondary Lead Smelters

Rule Element	PAR 1420	SCAQMD Rule 1420	SCAQMD Rule 1420.1	SCAQMD Rule 1420.2	CARB 1998-12-30 Non Ferrous Metal Melting ATCM	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
Applicability	Facilities that process materials lead content greater than 0.05 percent by weight	Facilities that use or process lead-containing materials	Lead-acid battery recycling facilities that have ever processed more than 50,000 lead-tons/year	Facilities that melt 100 tons or more of lead in any calendar year	Facilities that melt non-ferrous metals including lead	All States	Secondary lead smelters
Ambient Air Quality Standard	Date of Adoption - 12/31/20: 0.15 µg/m^3 averaged over 30 consecutive days; On or after 1/1/2021: 0.10 µg/m^3 averaged over 30 consecutive days;	1.5 µg/m^3 averaged over 30 days	January 1, 2016, to December 31, 2016 meet 0.110 µg/m^3 averaged over 30 consecutive days. On and after January 1, 2017 meet 0.100 µg/m^3 averaged over 30 consecutive days.	10/2/15 to 3/31/18: 0.150 µg/m^3 averaged over 30 consecutive days. facilities must meet the initial limit no later than 90 days after approval of ambient air monitoring and sampling sites by the Executive Officer. On and after January 1, 2018, all facilities must meet 0.100 µg/m^3 averaged over 30 consecutive days.	None	0.15 µg/m^3: 3-month rolling average Demonstrated over a 3-year period.	None

Total Enclosures Total Enclosures continued	Total enclosure required for lead processing areas	None	Total enclosures for main areas where processing, handling and storage of lead-containing materials occur	Total enclosure for furnace, refining, casting, lead oxide production and pasting areas	Enclosed storage area for dust-forming material including, but not limited to, dross, ash, or feed material	None	Total or partial enclosures for: - Smelting furnace and dryer charging hoppers, chutes, and skip hoists; - Smelting furnace lead taps, and molds during tapping; - Refining kettles; - Dryer transition pieces; and Agglomerating furnace product taps
Emission Standard and Requirements for Lead Control Devices	99% control efficiency for lead or meet an outlet mass lead emission rate of less than 0.00030 lb/hr	99% control efficiency for particulate matter; or 98% control efficiency for lead	Total facility mass emission rate of 0.003 lb/hour of lead from all lead point sources; Use of filters or bags that are rated by the manufacturer to achieve 99.97 percent control efficiency on 0.3 micron particles or made of PTFE membrane material	99% control efficiency for lead or meet an outlet mass lead emission rate of less than 0.00030 lb/hr	99% control efficiency	None	Concentration of 2.0 mg/dscm

			Secondary lead controls on dryer				
Compliance Plan	None Required	Specifies general facility information	Only required if a facility exceeds ambient lead concentration limit of 0.110 µg/m^3 from January 1, 2016 to December 31, 2016 or 0.100 µg/m^3 on or after January 1, 2017 identifies additional lead control measures beyond the rule. Additional Compliance Plan for Closure Activities required to address emissions during closure	Only required if a facility exceeds ambient lead concentration limit of 0.120 µg/m^3 from July 1, 2016 to December 31, 2017 or 0.100 µg/m^3 on or after January 1, 2018, or total facility point source emissions greater than 0.080 lb/hour after July 1, 2016. Identifies additional lead control measures beyond the rule.	None	None	None
Ambient Air Monitoring Requirements	Conditionally required if ambient air concentration exceeds 0.15 µg/m^3 as determined by SCAQMD monitor or lead point source limit exceeded two times over a rolling 36 month period. Samples collected every six days	Minimum of two monitors at facility locations approved by the Executive Officer Samples collected every six days Results reported quarterly	- Daily sampling for lead and arsenic - Provisions included for monitor failure - One year sample retention - Minimum of four monitors at facility locations approved by the	- Minimum of three monitors at facility locations approved by the Executive Officer - Provisions included for monitor failure - One year sample retention - Samples collected once every three days or daily depending on the exceedance of	None	For states, a minimum of: - One source-oriented monitor at all facilities emitting 1.0 tons of lead/year; and - One non-source-oriented monitor in urban areas with a population of at least 500,000 people	None

			Executive Officer - Samples collected at least once every three days - Results reported monthly - Daily sampling if 0.120 µg/m^3 is exceeded after January 1, 2015 - Monitoring required during facility closure activities	ambient air concentration limits, and the severity. Provisions included to cease monitoring if lead concentration is below 0.070 µg/m^3 average over 30 consecutive days, no single day exceeding 0.070 for one full, and total facility mass lead emissions are less than 0.040 lb/hour. - Results reported monthly		- Samples collected every six days	
Housekeeping and Maintenance Requirements	- Requirements for storage of dust-forming material - Daily cleaning of surfaces subject to vehicular traffic - Storage and disposal of lead or lead-containing wastes in closed containers - Posted facility vehicle speed limit of 5 miles per hour on any	- Requirements for storage of dust-forming material; weekly cleaning of surfaces subject to vehicular or foot traffic; and storage, disposal, recovery, and recycling of lead or lead-containing wastes generated from housekeeping activities	- Prescribed requirements for cleaning frequencies of specific areas; maintenance activity; building integrity inspections; storage and transport of lead-containing materials; onsite mobile sweeping; and surface	- Requirements for storage of dust-forming material - Daily cleaning of surfaces subject to vehicular traffic - Storage and disposal, lead or lead-containing wastes in closed containers - Posted facility vehicle speed limit of 5 miles per hour on any roadway located within 75 feet of	Surfaces subject to vehicular or foot traffic shall be vacuumed, wet mopped or otherwise maintained	None	Periodic wash down of plant roadways (lower frequency than Rule 1420.1); wet suppression of battery breaking area storage piles; vehicle wet washing of vehicles exiting the materials handling and storage areas

	roadway located within 75 feet of total enclosure - Prohibits use of compressed air for any housekeeping activities		impoundment cleanings	total enclosure; 15 miles per hour speed limit for roadways located more than 75 feet from total enclosure - All outside concrete or asphalt cutting performed under 100% wet conditions - Grading of soil only on soils sufficiently wet to prevent fugitive emissions			
Reporting Requirements	- Monthly ambient air monitoring reports - Exceedances of ambient air concentration to be reported within 7 days of receipt of collected sample - Failure to collect 24 hour sample to be reported within 2 hours of knowing the sample was not collected - Source test results to be	Ambient air lead and wind monitoring for any lead-processing facility that is required or elects to do ambient air monitoring	- Reporting to Executive Officer within 72 hours of daily ambient air lead concentration of 0.300 $\mu g/m^3$ with the following information: Date of the occurrence; Name of the monitor; Ambient lead concentration at the monitor for the 24 hour sample;	- Monthly ambient air monitoring reports - Exceedances of ambient air concentration to be reported within 24 hours - Failure to collect 24 hour sample to be reported within 2 hours of knowing the sample was not collected - Source test results to be reported within 90 days	- Source test results Amount of metal processed if requesting exemption	For states: - State Implementation Plan submittal; - Periodic emissions reports from stationary source monitors; - Ambient air quality data and associated assurance data	- Lead control alarm/failure reports including fugitive dust control measures performed during failures

	reported within 90 days		Potential cause or causes of the occurrence; and Potential remedies to prevent the reoccurrence. Caution signs posted at entrances and perimeter Notification of breach of total enclosure				
Exemptions	- Facilities that process materials with lead content less than 0.05 percent by weight - Facilities processing less than two tons per year subject only to conditional ambient monitoring, housekeeping, and recordkeeping	Facilities that process materials with lead content less than 0.5 percent by weight Facilities processing less than two tons per year subject to compliance plan, housekeeping, and recordkeeping	- Permanently closing facilities exempt from rule except for monitoring, housekeeping and closure provisions	- Facilities that process less than 50 tons per year of lead	- Facilities that process less than 200 tons per year of lead	- None	- Facilities that emit less than 10 tons per year of lead

REFERENCES

REFERENCES

AAP, 2005. Lead Exposure in Children: Prevention, Detection, and Management. *Pediatrics* Vol. 116 No. 4. American Academy of Pediatrics Committee on Environmental Health, October 2005

AAP, 2008. Letter to Administrator Stephen L. Johnson. American Academy of Pediatrics Committee on Environmental Health, January 16, 2008.

AAP, 2012. "AAP Commends CDC for Recognizing That for Children, There is No Safe Level of Lead Exposure", AAP Press Room, American Academy of Pediatrics Committee on Environmental Health, May 16, 2012. https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/AAP-Statement-CDC-Revised-Lead-Exposure-Guidelines.aspx

"Air Quality Criteria Document for Lead, Volumes I-II," Environmental Protection Agency, Office of Air Quality Planning And Standards, October 2006.

"AP 42, Fifth Edition, Volume I; Chapter 12: Metallurgical Industry," Environmental Protection Agency, Office of Research and Development, October 1996.

Bergeson & Campbell, 2013. Letter from Bergeson & Campbell on behalf of RSR Corporation to the Officer of Air and Radiation Docket, United States Environmental Protection Agency. Re: Docket ID No. EPA-HQ-OAR-2010-0108. February, 2013

Brunekreef, et. al., 1983. Blood lead levels of Dutch city children and their relationship to lead in the environment. J. Air Pollut. Control Assoc. 33: 872-876. Brunekreef, B.; Noy, D.; Biersteker, K.; Boleij, J. (1983).

Budtz-Jorgensen, et. al., 2013. "An International Pooled Analysis for Obtaining a Benchmark Dose for Environmental Lead Exposure in Children," Risk Analysis, Vol. 33, No. 3, 2013. DOI: 10.1111/j.1539-6924.2012.01882.x. Budtz-Jorgensen E, Bellinger D, Lanphear B, and Grandjean P., 2013.

Canfield, et. al., 2003a. "Intellectual impairment in children with blood lead concentrations below 10 ug per deciliter," New England Journal of Medicine 348: 1517-1526. Canfield RL, Henderson CR, Cory-Slechta DA, Cox C, Jusko TA, and Lanphear BP, 2003.

Canfield, et. al., 2003b. Intellectual impairment in children with blood lead concentrations below 10 micrograms per deciliter. *N Engl J Med*. 2003;348(16):1517-1526. Canfield RL, Henderson CR, Jr., Cory-Slechta DA, Cox C, Jusko TA, Lanphear BP, 2003.

CASAC, 2013. CASAC Review of the EPA's "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards (External Review Draft – January 2013," (CASAC) Environmental Protection Agency, June 4, 2013.

CDC, 2012a. "Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention, Report of the Advisory Committee on Childhood Lead Poisoning Prevention of the

Centers for Disease Control and Prevention," Centers for Disease Control and Prevention (CDC), January 2012.

CDC, 2012b. "CDC Response to Advisory Committee on Childhood Lead Poisoning Prevention Recommendations in "Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention," Centers for Disease Control and Prevention (CDC), January 2012.

CDC, 2012c. CDC Response to Advisory Committee on Childhood Lead Poisoning Prevention Recommendations in "Low Level Lead Exposure Harms Children: A Renewed Call of Primary Prevention", Centers for Disease Control and Prevention, June 7, 2102. Page 5.

CHPAC, 2008b. Letter to Stephen L. Johnson, Administrator of United States Environmental Protection Agency Regarding Proposed Rulemaking for the National Ambient Air Quality Standard for Lead. Children's Health Protection Advisory Committee, (CHPAC), June 16, 2008.

CHPAC, 2008b. Letter to Stephen L. Johnson, Administrator of United States Environmental Protection Agency Regarding OAQPS Final Staff Paper/Policy Assessment of Scientific and Technical Information and Advanced Notice of Proposed Rulemaking for Lead NAAQS, Children's Health Protection Advisory Committee, (CHPAC), January, 2008.

CHPAC, 215. Letter to Gina McCarthy, Administrator of United States Environmental Protection Agency. RE: National Ambient Air Quality Standards for Lead, Children's Health Protection Advisory Committee, (CHPAC), January 2015.

Chen, et. al., 2005. IQ and blood lead from 2 to 7 years of age: are the effects in older children the residual of high blood lead concentrations in 2-year-olds? *Environ Health Perspect*. 2005;113(5):597-601. Chen A, Dietrich KN, Ware JH, Radcliffe J, Rogan WJ, 2005.

EPA, 2001. "Prioritization of Toxic Air Contaminants Under the Children's Health Act," United States Environmental Protection Agency, Office of Environmental Health Hazard Assessment, October 2001.

EPA, 2006. "Air Quality Criteria Document for Lead, Volumes I-II," United States Environmental Protection Agency, Office of Research and Development, October 2006.

EPA, 2007. "Lead: Human Exposure and Health Risk Assessments for Selected Case Studies." United States Environmental Protection Agency, October 2007.

EPA 2008a. "Responses to Significant Comments on the 2008 Proposed Rule on the National Ambient Air Quality Standards for Lead." United States Environmental Protection Agency, May 2008.

EPA, 2008b. "National Ambient Air Quality Standards for Lead; Final Rule," 40 CFR Parts 50, 51, 53, and 58, Federal Register Volume 73, No. 219, 66964-67062, United States Environmental Protection Agency, November 2008.

EPA, 2009. "Lead in Air," United States Environmental Protection Agency, (*http//www.epa.gov/air/lead.html*), June 12, 2009.

EPA, 2013. "2013 Final Report: Integrated Science Assessment for Lead." United States Environmental Protection Agency, June 2013.

EPA, 2014. "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards." United States Environmental Protection Agency, May 2014

EPA, 2015. "National Ambient Air Quality Standards for Lead." United States Environmental Protection Agency, January 2015.

EPA, 2016. "Final Decision to Retain the National Ambient Air Quality Standards (NAAQS) for Lead (Pb)." United States Environmental Protection Agency, October 2016

Hayes, et. al., 1994. "Long-term trends in blood lead levels among children in Chicago: Relationship to air lead levels," Pediatrics 93: 195-200. Hayes, EB, McElvaine, MD, Orbach HG, Fernandez AM, Lyne, S, and Matte, TD, 1994.

Henderson, R., 2008. Letter from Dr. Rogene Henderson, Chair, Clean Air Scientific Advisory Committee, to Administrator Stephen L. Johnson. Re: Clean Air Scientific Advisory Committee's (CASAC) Review of the Notice of Proposed Rulemaking for the NAAQS for lead. July 18, 2008.

"Integrated Science Assessment for Lead," United States Environmental Protection Agency, June 2013.

Lanphear, et. al. 2005a.) "Low-level environmental lead exposure and children's intellectual function: An international pooled analysis," Environmental Health Perspectives 113: 894-899. Lanphear BP, Hornung R, Khoury J, Yolton K, Baghurst P, Bellinger DC, Canfield RL, Dietrich KN, Bornschein R, Greene T, Rothenberg SJ, Needleman HL, Schnaas L, Wasserman G, Graziano J, and Roberts R, 2005.

Lanphear, et. al. 2005b. Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. *Environ Health Perspect*. Jul 2005;113(7):894-899. Lanphear BP, Hornung R, Khoury J, et. al., 2005.

"Lead in Air," Environmental Protection Agency, (*http//www.epa.gov/air/lead.html*), June 12, 2009.

Lubischer, 2015. Letter from James T. Lubischer to Gina McCarthy, Administrator of United States Environmental Protection Agency, M.D., Pediatrician to , RE: Docket ID No. EPA-HQ-OAR-2010-0108 (40 CFR Part 50, National Ambient Air Quality Standards
for Lead; Proposed Rule - Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015, p 278-324.), March, 2015.

"National Ambient Air Quality Standards for Lead; Final Rule," 40 CFR Parts 50, 51, 53, and 58, Environmental Protection Agency, November 2008.

"National Ambient Air Quality Standards for Lead, Proposed Rule, 40 CFR 50" United States Environmental Protection Agency, January 2015.

OEHHA, 2009. "Revised California Human Health Screening Levels for Lead," Office of Environmental Human Health (OEHHA). September 2009.

"Policy Assessment for the Review of the Lead NAAQS," United States Environmental Protection Agency, May 2014.

"Prioritization of Toxic Air Contaminants Under the Children's Health Act," Environmental Protection Agency, Office of Environmental Health Hazard Assessment, October 2001.

RSR, 2015. Letter from RSR Corporation to the Office of Air and Radiation Docket, United States Environmental Protection Agency. Re: Docket ID No. EPA-HQ-OAR-2010-0108. April, 2015.

Schwartz, J., and Pitcher, H. (1989). The relationship between gasoline lead and blood lead in the United States. J Official Statistics 5(4):421-431. Schwartz, J., and Pitcher, H., 1989.

South Coast Air Quality Management District, SCAQMD's Annual Emission Reporting (AER) program, AER/AB2588 - Search, Reporting Years 2010 – 2013. <http://www3.aqmd.gov/webappl/aersearch/search.aspx>.

"STAFF Report for BAAQMD Regulation 12, Rule 13: Foundry and Forging Operations," Bay Area Air Quality Management District, February 2013.

"Staff Report for Proposed Rule 1420: Emissions Standards for Lead," South Coast Air Quality Management District, September 1992.

"Staff Report for Rule 1420.1: Emission Standards for Lead from Large Lead-Acid Battery Recycling Facilities," South Coast Air Quality Management District, November 2010.

"Toxicological Profile for Lead," U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, August 2007.

WHO, 2015. , "Lead poisoning and health", http://www.who.int/mediacentre/factsheets/fs379/en/, World Health Organization, Media Centre, Fact Sheet, 2015

APPENDIX A: COMMENTS AND RESPONSES

PROMOTING EH&S COMPLIANCE BY ACHIEVING IMPROVED COMMUNICATION BETWEEN INDUSTRY AND GOVERNMENT

September 19, 2017

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Subject: Proposed Amended Rule 1420 Comments

Dear Mr. Ellis:

The Industrial Environmental Coalition of Orange County (IEC/OC) appreciates the opportunity to provide comments to the South Coast Air Quality Management District (SCAQMD) on Proposed Amended Rule (PAR) 1420, Emissions Standards for Lead. The IEC/OC represents diverse industrial businesses in Orange County, including aerospace companies, metal processing facilities, pharmaceutical companies, general manufacturing, and public utilities. Our mission is to facilitate communication between industry and government agencies on environmental issues impacting our member's business operations.

In pursuing rule developments and other actions under the Initiative, the IEC/OC requests that SCAQMD consider reasonable, fair, and cost-effective emission control requirements that will properly achieve the health protection goals of the SCAQMD's Air Toxic Initiative.

In general, IEC/OC's finding on PAR 1420 is that SCAQMD needs to tailor the emission reductions depending on the current emissions from the facilities covered. Where existing lead emissions are already very small and controls are not necessary for SCAQMD to achieve objectives, it is not equitable, and a substantial burden to small facilities, to require expensive measures such as high efficiency dust collectors, total enclosures, monitoring and extensive housekeeping requirements, that the much larger facilities are required to do. The compliance requirements in PAR 1420 should be scaled back substantially in fairness, and to reduce the burden on these small facilities.

IEC/OC has the following specific comments on PAR 1420.

1. **Comment 1 - The 0.05% by weight lead applicability threshold is not justified and should be stricken from PAR 1420.** In the *Preliminary Draft Staff Report*, the SCAQMD has not provided any explanation or scientific justification on why a 0.05% by weight lead content in materials processed should be utilized to support meeting the 0.1 $\mu g/m^3$ 30-day average concentration lead standard. The SCAQMD needs to provide a scientific analysis to support this threshold. In addition, the approach to use a lead content threshold for applicability is inconsistent with Rules 1420.1 and 1420.2. We suggest the changes in PAR 1420 should focus on the actual emissions from these facilities. 1-1

2. **Comment 2 – If a lead content threshold is used in PAR 1420, the value should be based upon no less than a 30-day weighted average.** The proposed 0.05% by weight threshold could be triggered by a single piece of melted material. If SCAQMD will use a lead content 1-2

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threshold, this threshold should be reflective of the ambient lead standard, which is based upon a 30-day average concentration. Therefore, the lead content should be a weighted average based upon no less than a 30-day period. 1-2 cont'd

3. **Comment 3 - The 2 tons/year threshold lead processed in PAR 1420 is not justified by SCAQMD.** The SCAQMD has not provided any explanation or scientific justification on why a 2 tons/year throughput should be utilized to support meeting the 0.1 $\mu g/m^3$ 30-day average concentration lead standard. The SCAQMD needs to provide a scientific analysis to support this threshold. 1-3

4. **Comment 4 - Facilities should have the incentive and opportunity to be exempted from rule applicability.** PAR 1420 triggers initial applicability based upon a 5-year lookback. There should be a provision for the facility to provide representative data to capture scenarios where a facility has recently install control equipment or modified operations going forward. In addition, SCAQMD should provide clear language that facilities can be exempted from rule applicability should the lead processed fall below the applicability thresholds. 1-4

5. **Comment 5 - The lead air monitoring requirement in PAR 1420 is unnecessary and should be removed.** Given the stringent point source emissions control and housekeeping requirements in PAR 1420, the ambient lead monitoring provisions should be removed. The lead emissions from these facilities will be substantially reduced through emission controls and housekeeping. 1-5

6. **Comment 6 - Building enclosures for small lead sources can be very costly and burdensome and may not be necessary to meet the lead standards.** The provisions in PAR 1420 such as point source emission controls and housekeeping measures are likely sufficient to address SCAQMD's concerns about meeting the 0.1 ug/m3 ambient lead standard. SCAQMD should provide scientific justification on the need to provide total enclosure for all lead melting sources. IEC/OC suggests considering a threshold, on a lbs of lead melted/hr basis, where such enclosures would be required. 1-6

The IEC/OC supports an open dialogue on SCAQMD's Air Toxics Initiative, PAR 1420, and other actions, to effect beneficial rule developments. If you have any questions, please do not hesitate to contact me at 858-774-2009.

Sincerely,

James A. Westbrook
IEC/OC Regulatory Committee Chair

Mission Statement: Our goal is to provide a forum for Orange County businesses to remain current on emerging issues and to exchange views with environmental and safety agencies in an open and informal setting.

Response to Comment 1-1:
The concentration of lead that can result from emissions released from lead processing and lead melting facilities is directly proportional to both the amount of raw materials processed and the lead content of the raw materials. Therefore, by limiting the lead content of materials and tracking the amounts processed, PAR 1420 will be able to reduce public health impacts by reducing the exposure to lead and to ensure the continued attainment and maintenance of the lead NAAQS. In addition, PAR 1420 does focus on actual emissions from these facilities. The 0.05% weight combined with the total amount of lead processed is an applicability threshold. Those facilities processing 2 tons per year or less are subject to lesser requirements which include conditional monitoring provisions, housekeeping, and recordkeeping requirements. Facilities that are processing more than 2 tons per year are subject to all requirements which include conditional monitoring provisions, housekeeping, recordkeeping, point source, periodic source testing, and enclosure requirements.

It should be noted that during site visits staff was made aware that some industries were moving away from products that contained lead and as such, manufacturers were making a conscious effort to minimize and in some cases eliminate the use of alloys containing lead. This was substantiated by Safety Data Sheets which indicated that there were alloys used that were in fact below 0.05% lead weight content.

Response to Comment 1-2:
The proposed lead content threshold of 0.05% is based on a monthly weighted average. Facilities are required to maintain records of both the quantities of raw materials processed monthly and the lead content of these raw materials. This data will used to calculate the weighted average of materials used.

Response to Comment 1-3:
Refer to Response to Comment #1

Response to Comment 1-4:
A provision has been added to PAR 1420 to allow a facility that has reduced its lead processing rate to two tons of lead per year or less, if the owner or operator accepts a permit condition limiting the amount of lead processed. A facility that elects to utilize this option would only be subject to the housekeeping, recordkeeping and conditional ambient lead concentration limits.

Response to Comment 1-5:
PAR 1420 does not require mandatory monitoring for lead as is the case in Rules 1420.1 and 1420.2. However, if SCAQMD monitoring detects lead concentrations from a facility that exceed the 0.150 $\mu g/m^3$ ambient air lead concentration limit, or if a facility fails to demonstrate compliance with the point source requirement twice within a 36-month period, monitoring and sampling requirements may be triggered. Ambient monitors provide an overall measurement of all emissions from a facility which include point and fugitive emissions. PAR 1420 has an ambient monitoring requirement as it is designed to ensure compliance with the lead NAAQS. The ambient concentration limits established in PAR 1420 are consistent with Rules 1420.1 and 1420.2.

Response to Comment 1-6:
Lead sources processing less than two tons per year are not subject to the building enclosure requirements. The majority of lead sources affected by PAR 1420 already operate in total enclosures, which are defined as a permanent containment structure, completely enclosed with a floor, walls and a roof with limited openings to allow ingress and egress of people and vehicles. Monitoring results from Rules 1420.1 and 1420.2 have also shown the importance of total enclosures in minimizing lead emissions. Also, since ambient monitoring is not a mandatory requirement of PAR 1420, it is important that both stack and fugitive lead emissions from facilities be minimized.

MFASC
METAL FINISHING ASSOCIATION OF SOUTHERN CALIFORNIA, INC.

September 22, 2017 *Via Email to kellis@aqmd.gov*

Mr. Kennard Ellis
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments - Proposed Amended Rule [PAR] 1420 – Emissions Standard for Lead

Mr. Ellis:

This is to follow-up on the conversations in yesterday's Working Group Meeting #4 to provide the comments of the Metal Finishing Association of Southern California [MFASC] on the Proposed Amended Rule [PAR] 1420 – Emissions Standard for Lead.

The lead plating activities of metal finishing companies will be specifically addressed by the provisions of the amended rule. The phrases "lead platers" and "lead plating" are being added to the Applicability and Definition subdivisions [b] and [c] [15]. In addition, the existence of eight electroplating, plating, polishing, anodizing and coloring facilities [NAICS Code 332813] is noted in the list of the types of facilities subject to PAR 1420 in Table 2-1, on Page 2-2 of the Preliminary Draft Staff Report.

Our association offers the following comments:

- The district should address emissions from lead plating within its update to Rule 1426 [Emissions from Metal Finishing Operations]. This would be consistent with, and in furtherance of, the District's stated objective of addressing metal finishing operations in a comprehensive rule. This would also be helpful to the industry's effort to comply with the emission limits and housekeeping provisions. 2-1
- The district should clarify the text of subdivision [h][2] of the Housekeeping Requirements, so that the prohibition against dry sweeping and the use of compressed air is limited, as intended, to housekeeping. 2-2
- The district should clarify the text of subdivision [h][4] of the Housekeeping Requirements, so that it is clear that the prohibition against the use of "weather caps", as intended, does not prohibit other alternatives to prevent rain from entering into stacks. 2-3

Thank you for this opportunity to provide comments in this rulemaking and for the District's consideration. We recognize that the rulemaking is proceeding towards a potential adoption later this year, and that a number of other revisions were identified in yesterday's Working Group Meeting #4. I can be reached at 310-639-1621.

Sincerely,

Wesley Turnbow

Wesley Turnbow, MFASC President and E.M.E., Inc. CEO

MFASC • PO Box 6547 • Burbank CA 91510-6547 • 877-238-9490

Response to Comment 2-1:
PAR 1420 is intended to apply to lead processing and metal melting facilities excluding those subject to Rules 1420.1 and 1420.2. Facilities conducting lead plating operations have traditionally been subject to Rule 1420 depending on daily emissions of lead. More lead plating operations will likely be subject to PAR 1420 because the daily emission exemption has been replaced by exemptions for low-lead content and small quantities processed. Because lead plating operations are likely to process less than two tons per year of lead, PAR 1420 will only require housekeeping, recordkeeping, and conditional ambient air monitoring.

Early this year, SCAQMD staff initiated rulemaking for Rule 1426 with Rule 1469 for chrome electroplating and chromic acid anodizing operations, but decided to bifurcate the rulemaking to focus on Proposed Amended Rule 1469. Staff anticipates re-initiating rulemaking for Proposed Amended Rule 1426 in 2018. It is expected that requirements under Rule 1426 will be more comprehensive than PAR 1420. With the exception of lead, metals that will be covered under Proposed Amended Rule 1426 do not have national ambient air quality standards, so it is appropriate to keep lead plating in Rule 1420 to provide assurance these sources will not interfere with the Basin's lead attainment status.

Response to Comment 2-2:
The provisions of paragraph (h)(2) have been clarified to apply only to housekeeping activities.

Response to Comment 2-3:
Weather caps that restrict the flow of air exhausting from ventilation stacks are prohibited as they concentrate stack emissions. An exhaust cap that does not restrict the flow of exhaust air, such as a butterfly cap, is acceptable.