SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report
Proposed Amended Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations

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INTRODUCTION

Proposed Amended Rule 1407 – Control of Emissions of Arsenic, Cadmium and Nickel from Non-Chromium Metal Melting Operations (PAR 1407) establishes requirements to reduce arsenic, cadmium, and nickel emissions from metal melting operations. PAR 1407 applies to facilities that are melting metals that contain no more than 0.5% chromium content, including, but not limited to aluminum, brass, bronze, carbon steel, and zinc. Potential metal melting operations include smelting, tinning, galvanizing, and other miscellaneous processes where metals are processed in molten form, since these operations have the potential to emit such metal emissions in the form of toxic air contaminants and particulate matter. PAR 1407 establishes control efficiency requirements, mass emission limits, and emission control device monitoring requirements to control point source emissions, housekeeping and building enclosure provisions to limit fugitive emissions, and source testing and recordkeeping requirements.

In March 2017, the South Coast AQMD adopted the Final 2016 Air Quality Management Plan (2016 AQMP)[1]. Control of Toxic Emissions from Metal Melting Facilities (TXM-06) is a control measure in the 2016 AQMP that seeks to further reduce arsenic, cadmium, nickel, other toxic metals, and particulates from foundry operations. This stationary source air toxic control strategy is not required to attain state or federal ambient air quality standards, and thus is not a commitment under the State Implementation Plan.

REGULATORY HISTORY

In 1983, the California Legislature established Assembly Bill 1807, a two-step process to identify toxic air contaminants and to propose air toxic control measures (ATCMs) for the identified toxic air contaminants from specific sources. In January 1993, California Air Resources Board adopted the non-ferrous metal melting ATCM[2] and established January 6, 1994 as the effective date of the ATCM. The South Coast AQMD was given a May 9, 1994 deadline to implement and enforce the ATCM or to propose regulations implementing the ATCM. On July 8, 1994, the South Coast AQMD adopted Rule 1407 – Control of Emissions of Arsenic, Cadmium and Nickel from Non-Ferrous Metal Melting Operations (Rule 1407) to address the control of emissions of arsenic, cadmium, and nickel from non-ferrous metal melting operations by the installation of air pollution control equipment, parametric monitoring, and housekeeping practices. At the time of rule adoption, there was a focus on non-ferrous metal melting operations because of a known presence of arsenic and cadmium associated with this source category. Both Rule 1407 and the ATCM excluded ferrous metal melting since it was beyond the scope of the investigation. It was the intention of California Air Resources Board to evaluate the need for proposed controls for ferrous metal melting operations in the future.

[1] Final 2016 Air Quality Management Plan, South Coast AQMD, March 2017 http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan

[2] Non-Ferrous Metal Melting ATCM, California Air Resources Board, December 30, 1998 https://arb.ca.gov/toxics/atcm/metaatcm.htm

During the rule development process for Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities[3], it was seen that fugitive emissions were a contributing factor to ambient lead concentration. Feasibility studies found that emission controls greater than 99 percent reductions would not be expected to further reduce ambient lead content. Thus Rule 1420.1 contains comprehensive housekeeping and building enclosure provisions to address fugitive emissions as do the other lead rules, Rule 1420 – Emissions Standard for Lead, and Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities. As the non-lead metal melting companion rule, Rule 1407 also will focus on addressing fugitive emissions.

In 2013, South Coast AQMD staff began ambient air monitoring in response to burning metallic odor and metal particulate complaints[4]. Based on the monitoring results, there were two metals of concern: hexavalent chromium and nickel. In 2016, staff deployed monitors and found elevated hexavalent chromium levels.

Staff initiated the rule development process to amend Rule 1407 to address toxic air contaminant emissions from ferrous metal melting operations and to further reduce arsenic, cadmium, and nickel from non-ferrous metal melting operations (currently regulated under Rule 1407). After several working group meetings, industry stakeholders recommended that the rulemaking process be separated into non-ferrous (PAR 1407) and ferrous metal melting rules (Proposed Rule 1407.1 – Emissions of Toxic Air Contaminants from Chromium Alloy Melting Operations (PR 1407.1)). Industry stakeholders had commented that there was insufficient evidence that hexavalent chromium was emitted from metal melting operations and were concerned about a "one-size-fits-all" approach since they believe the type of toxic air contaminants emitted from non-ferrous and ferrous metal melting operations would differ and provisions to address the different toxic air contaminants should also differ. Additionally, although implementation of Rule 1407 would concurrently reduce hexavalent chromium emissions from ferrous metal melting operations, the level of control is probably not sufficient since hexavalent chromium is a more potent toxic air contaminant than arsenic, cadmium, and nickel which are the focus of Rule 1407. In April 2018, staff decided to bifurcate Rule 1407 into two rules to address non-chromium and chromium melting operations instead of non-ferrous and ferrous melting operations because certain ferrous alloys do not contain chromium and some non-ferrous alloys contain chromium. This decision has resulted in the development of PAR 1407 and PR 1407.1.

PAR 1407 expands the applicability of Rule 1407 beyond the ATCM by including steel as well the non-ferrous metals previously covered. The scope of the exemptions will also be limited, resulting in more facilities subject to the requirements of the rule. The requirements are strengthened by including building enclosure requirements as well as enhancing housekeeping and parametric monitoring. The point source controls initially will remain the same; in 2021, the facilities will be required to either reduce arsenic, cadmium, and nickel by 99 percent by weight or meet hourly mass emission rates rather than controlling particulate matter (PM) to 99 percent

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3 Final Staff Report Proposed Amended Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, South Coast AQMD, February 2015 http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-mar6-028.pdf?sfvrsn=12

4 Paramount – Ongoing Air Monitoring Activities, South Coast AQMD, accessed June 2019, http://www.aqmd.gov/home/news-events/community-investigations/air-monitoring-activities

by weight. Controlling specific contaminants, rather than PM will further reduce arsenic trioxide which can vaporize in addition to controlling the particulate form of the contaminants at the same or more stringent levels. PAR 1407 will exempt equipment subject to Rule 1420 – Emissions Standard for Lead, Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities, and Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities. Except for the requirement to control arsenic by 99 percent if the exhaust temperature to the emission control device is greater than 360 degrees Fahrenheit, the other requirements in Rules 1420, 1420.1 and 1420.2 are more stringent than those in PAR 1407. The requirement to control arsenic by 99 percent if the exhaust temperature to the emission control device is greater than 360 degrees Fahrenheit will remain until Rules 1420 and 1420.2 are amended to include the same requirement. Rule 1420.1 already specifically controls arsenic. Thus, in all respects PAR 1407 is equally or more stringent than the ATCM.

HEALTH EFFECTS OF ARSENIC, CADMIUM, AND NICKEL

Metal melting operations that are subject to Rule 1407 have the potential to emit toxic air contaminants such as arsenic, cadmium, and nickel based on the composition and volumes of the raw materials processed at these facilities. These elements are air pollutants that may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health[5]. Table 1-1 summarizes the United States Environmental Protection Agency (U.S. EPA) classification for these toxic air contaminants and their associated potential health effects.

Table 1-1: Toxicity of Metals

Metal	U.S. EPA Carcinogenicity Classification[6]	Target Organs for Health Effects with Chronic Exposure[7]
Arsenic	Carcinogenic to Humans	Inhalation & oral: Development; cardiovascular system; nervous system; respiratory system; skin
Cadmium	Likely to be Carcinogenic to Humans	Inhalation: Kidney; respiratory system Oral: Kidney
Nickel	Carcinogenic to Humans	Inhalation: Respiratory system; hematologic system Oral: Development

[5] California Health and Safety Code Section 39655

[6] California Office of Environmental Health Hazard Assessment, https://oehha.ca.gov/media/downloads/crnr/appendixa.pdf

[7] California Office of Environmental Health Hazard Assessment, https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary

NEED FOR PROPOSED AMENDED RULE 1407

Rule 1407 has a Metal or Alloy Purity Exemption that exempts facilities from most provisions of Rule 1407 if they meet the criteria. Most facilities currently subject to Rule 1407 are exempt from most of the provisions due to the Metal or Alloy Purity Exemption in paragraph (i)(2) and the Clean Aluminum Scrap Exemption in paragraph (i)(3). The Metal or Alloy Purity Exemption has no throughput limitation. Therefore, facilities melting very large amounts of relatively low contaminant metals have the potential to pose a risk to the surrounding community. Likewise, the Clean Aluminum Scrap exemption does not include limitations for arsenic, cadmium, or nickel content. The scrap may contain toxic air contaminants that increase risk to the surrounding community. These overly broad exemptions are addressed in Proposed Amended Rule 1407 (PAR 1407).

AFFECTED INDUSTRIES

Approximately 54 facilities are expected to be impacted by PAR 1407. Table 1-2 breaks down the number of facilities by North American Industry Classification System (NAICS) code. The facilities are foundries or metal casting businesses generally classified under the NAICS code 331XXX, including:

- 3312XX – Steel Product Manufacturing from Purchased Steel;
- 3313XX – Alumina and Aluminum Production and Processing; and
- 3315XX – Foundries.

Table 1-2: Types of Facilities Subject to PAR 1407

NAICS Code	Facility Type	Number of Facilities
331221	Galvanizing of metal (steel) tubing	1
331222	Drawing steel wire and galvanizing	3
331314	Aluminum alloys made from scrap or dross/ Secondary smelting and alloying of aluminum	5
331511	Iron Foundry	5
331513	Steel Casting	1
331523	Non-ferrous metal die-casting foundries (except Aluminum)	12
331524	Aluminum foundries/castings (except die-casting)	24
331529	Other non-ferrous metal foundries, including brass and bronze (except die-casting) – zinc ingot manufacturing	2
332111	Melting of alloy steel to manufacture die forgings	1
Total Number of Facilities		**54**

Secondary smelting of aluminum is the process of recovering aluminum from aluminum scrap and making aluminum billets or ingots. Foundries produce metal castings in which the molten metal is poured into a mold and allowed to solidify. Operations that cast molten metal into various parts and products are often classified by the type of part they manufacture.

Mills and foundries melt and cast metal alloys. These alloys are a combination of metals and elements that provide qualities such as corrosion resistance or mechanical strength. Common aluminum alloying elements include copper, magnesium, manganese, silicon, tin, and zinc. Common steel alloying elements include molybdenum, silicon, manganese, nickel, boron, and vanadium. Another common steel alloy material is chromium. However, materials with greater than 0.5% chromium will be subject to Proposed Rule 1407.1 – Emissions of Toxic Air Contaminants from Chromium Alloy Melting Operations (PR 1407.1).

Even when a pure metal is melted, it often contains trace contamination of other metals or elements. The metal, alloy, or contamination can consist of toxic air contaminants. Arsenic, cadmium, and nickel may be found as an alloyant or as contaminants. Metal emissions may occur during metal melting, transferring, pouring, and sand reclamation. Metal emissions may also occur during casting shakeout when the casting is freed from the mold. Mechanical finishing operations, including cutting and grinding, may emit particulates possibly containing toxic air contaminants. Fugitive emissions may result from crushing, grinding, handling of materials, melting, and poor or improper housekeeping methods. Other potential sources of emissions are re-entrainment of surface dust by foot and vehicle traffic in areas of the facility where metal-containing particulate matter has been deposited. Lastly, emissions may occur from the collection points of an emission control device or from the exhaust of an emission control device.

The 54 facilities subject to PAR 1407 were identified by reviewing South Coast AQMD permits for furnaces, reviewing South Coast AQMD inspection reports for metal melting facilities, searching websites for facilities that offer metal melting services. Facilities that conduct heat treating or other metalworking operation but do not melt the metal were excluded. Additionally, facilities that melt metals containing chromium were excluded as they will be subject to PR 1407.1. Likewise, facilities that melt metals containing lead were excluded as they are subject to Rule 1420 – Emissions Standard for Lead, Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities, or Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities.

PUBLIC PROCESS

PAR 1407 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 to provide the South Coast AQMD staff with input during the rule development process. The Working Group is comprised of representatives from industry, consultants, agency representatives, environmental groups, and community groups. The Working Group originally met under Proposed Amended Rule 1407 and had four Working Group Meetings. Based on industry stakeholder input, Proposed Amended Rule 1407 was separated into two rulemakings: Proposed Amended Rule 1407 and Proposed Rule 1407.1. Staff has held five additional PAR 1407 Working Group Meetings since the rulemaking effort has been bifurcated into PAR 1407 and PR 1407.1. The nine Working Group Meetings for PAR 1407 were all held at the South Coast AQMD Headquarters in Diamond Bar on the following dates: September 5, 2017, November 9, 2017, January 30, 2018, April 25, 2018, July

19, 2018, August 30, 2018, March 12, 2019, May 23, 2019, and July 17, 2019. A Public Workshop was held on June 19, 2019. Staff also conducted site visits to 30 of the 54 affected facilities.

CHAPTER 2: SUMMARY OF PROPOSED AMENDED RULE 1407

INTRODUCTION

PROPOSED AMENDED RULE 1407

- Purpose (Subdivision (a))
- Applicability (Subdivision (b))
- Definitions (Subdivision (c))
- Emission Control Requirements (Subdivision (d))
- Housekeeping Requirements (Subdivision (e))
- Building Enclosure Requirements (Subdivision (f))
- Source Testing Requirements (Subdivision (g))
- Material Testing Requirements (Subdivision (h))
- Emission Control Device Monitoring (Subdivision (i))
- Recordkeeping Requirements (Subdivision (j))
- Exemptions (Subdivision (k))
- Digestion of Metal Aluminum Sample (Attachment A)
- Periodic Smoke Test (Attachment B)

INTRODUCTION

Proposed Amended Rule 1407 (PAR 1407) establishes requirements for controlling emissions of arsenic, cadmium, and nickel from non-chromium metal melting operations, including point source control requirements, housekeeping and building enclosure requirements, in addition to source testing and recordkeeping requirements. Many of the provisions in PAR 1407 are based on similar types of provisions used for Rules 1420 – Emissions Standard for Lead, 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, 1420.2 – Emission Standards for Lead from Metal Melting Facilities, and 1430 – Control of Emissions from Metal Grinding Operations at Metal Forging Facilities, which were recently adopted or amended. The majority of the current Rule 1407 exemptions will be revised or deleted. These exemptions are overly broad and do not take into consideration facility throughput or concentrations of arsenic, cadmium, and nickel which are the focus of Rule 1407.

PROPOSED AMENDED RULE 1407

Purpose (Subdivision (a))

The purpose of PAR 1407 is to reduce process and fugitive emissions of arsenic, cadmium, and nickel, thereby minimizing public health impacts by reducing exposure to toxic air contaminants. Facilities and operations subject to PAR 1407 include non-chromium metal melting operations at smelters, foundries, die-casters, galvanizing and tinning coating operations and also from processes that conduct dip soldering, brazing and aluminum powder coating production.

Applicability (Subdivision (b))

Rule 1407 currently applies only to non-ferrous metal melting applications. Initially, during the rule development process, one approach was to expand Rule 1407 to apply to all metal melting operations (non-ferrous and ferrous) and include hexavalent chromium as a toxic air contaminant of concern. Industry requested separating the rules because there was insufficient evidence that hexavalent chromium was emitted from metal melting operations and that the type of toxic air contaminants emitted from non-ferrous and ferrous metal melting operations could differ significantly.

Staff agreed to bifurcate the proposed rules, but did so based on the chromium content in the metal or alloy. Hexavalent chromium has a cancer potency factor that is one or more orders of magnitude higher than arsenic, cadmium, or nickel. Thus emissions of hexavalent chromium would likely need more stringent controls than other metal toxic air contaminants. Iron content (ferrous and non-ferrous) is not an indicator of chromium content, as superalloys are non-ferrous alloys with high levels of chromium, while iron and carbon steel have high iron content, but are expected to have only trace chromium content as impurities.

Staff reviewed the composition of metal alloys. Staff determined that aluminum alloys have less than 0.4% chromium content with Aluminum 6066 being the aluminum alloy with the highest chromium content. Brass, bronze, and lead alloys are expected to have only trace contaminant quantities of chromium. Carbon steel and iron have no minimum specifications for chromium, but are also expected to have only trace contaminants. Alloy steel, stainless steel, and superalloys are expected to have a chromium content greater than 0.4%. Therefore, PAR 1407 will apply to non-chromium alloys, which is defined as any metal that contains less than 0.5% chromium by weight as determined on a monthly weighted average. Equipment or operations that have greater than 0.5

percent by weight on average will be subject to PR 1407.1 and shall be exempt from all of the requirements of PAR 1407. Chromium alloys will be addressed in a separate rule, PR 1407.1,

With the adoption of Proposed Rule 1407.1 and Proposed Amended Rule 1407, metal melting operations will be regulated by metal or alloy as depicted in Figure 2-1 below.

Figure 2-1: South Coast AQMD Rules by Metal Type

The proposed applicability for PAR 1407 is as follows:

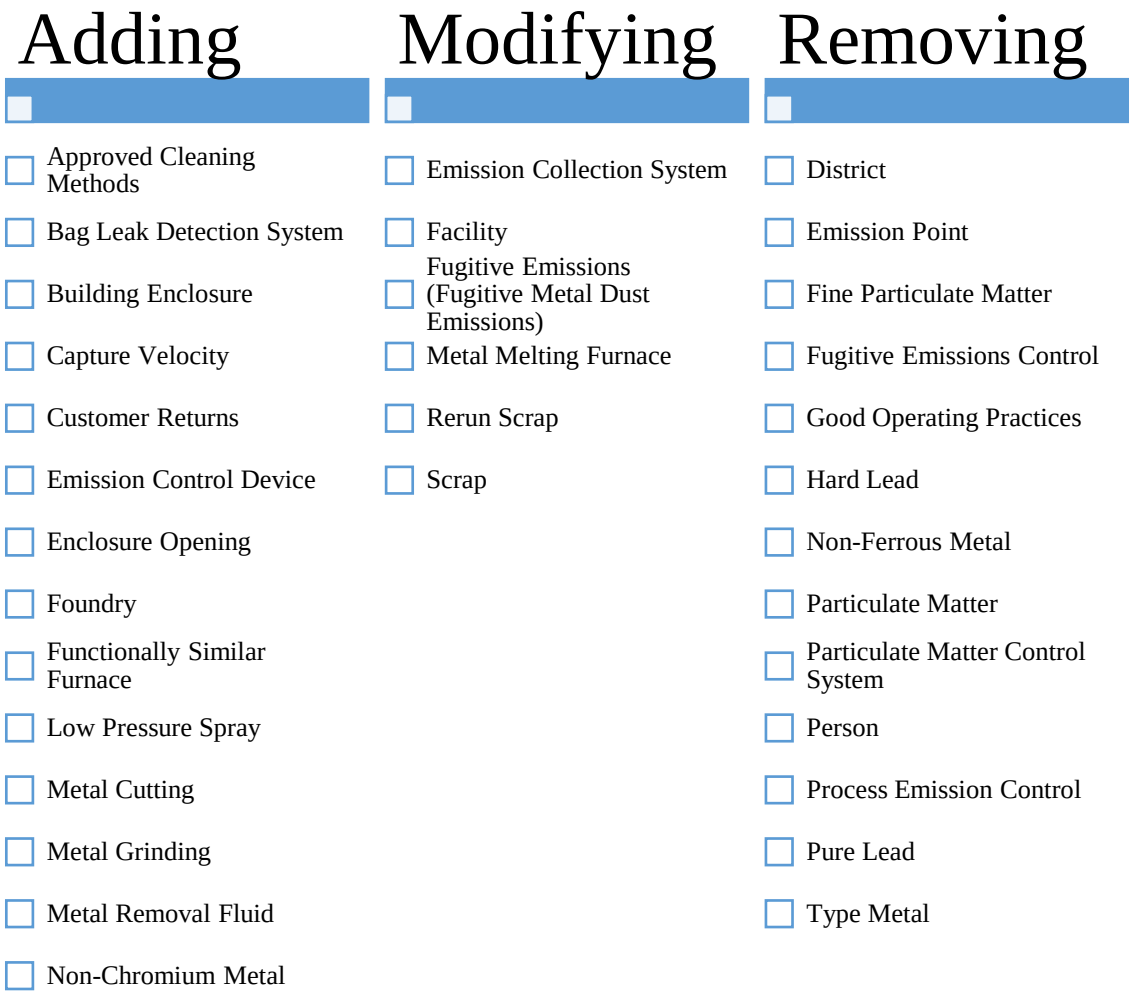
> *This rule applies to an owner or operator of a facility conducting non-chromium metal melting operation(s) including, but not limited to, smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning), and other miscellaneous processes such as dip soldering, brazing, and aluminum powder production.*

Definitions (Subdivision (c))

PAR 1407 includes new or modified definitions. The definitions used maintain consistency with other South Coast AQMD toxics rules. The definition for *non-chromium metal*, as *any metal that contains less than 0.5 percent by weight total chromium content as determined on a monthly weighted average*, has been included to address the revision in applicability from "non-ferrous" metal melting operations to "non-chromium" metal melting operations.

Currently, Rule 1407 emission control requirements are based on particulate matter. PAR 1407 will establish emission standards specifically for arsenic, cadmium and nickel, rather than particulate emissions, therefore, definitions referencing particulate matter and particulate matter control outlined in the current rule have been revised to reflect these changes. Please refer to subdivision (c) of PAR 1407. Figure 2-2 lists the new, modified, and deleted definitions.

Figure 2-2: Definition Revisions



Emission Control Requirements (Subdivision (d))

Rule 1407 currently includes a provision that requires the gas stream from an emission collection system be vented to a control device that reduces particulate emissions by 99 percent or more by weight. Additionally, if the temperature of the gas stream exceeds 360 degrees Fahrenheit, then the control device must have a control efficiency of 99 percent or more for controlling arsenic and cadmium emissions. These requirements will be retained until the facility meets the new emission control requirements in paragraph (d)(3) or (d)(4) on or before January 1, 2021. This ensures that facilities subject to Rule 1407 will either be subject to the existing requirements or be subject to the new requirements.

PAR 1407 will place specific emphasis on the control of arsenic, cadmium, and nickel. The new emission control requirement will require emissions from a non-chromium metal melting furnace to either meet a control efficiency per furnace or an aggregate mass emission limit for each toxic air contaminant individually. Owner or operators must be at or below:

- 99% control efficiency of arsenic or aggregate mass emission limit from all non-chromium metal melting furnaces and associated emission control devices of 0.000066 pounds per hour of arsenic;

- 99% control efficiency of cadmium or aggregate mass emission limit from all non-chromium metal melting furnaces and associated emission control devices of 0.000514 pounds per hour of cadmium; and
- 99% control efficiency of nickel or aggregate mass emission limit from all non-chromium metal melting furnaces and associated emission control devices 0.00848 pounds per hour of nickel.

The arsenic, cadmium, and nickel aggregate mass emission rates were developed from determining the cancer risk from available source testing data for stack height, building parameters, and exhaust flow rates that yield the least amount of dispersion resulting in higher health risks. The analysis assumes the nearest receptor is located downwind. The emission rates are a conservative estimate based on a screening cancer risk of 25 in one million for a receptor located 100 meters from the source.

The facility has the option to demonstrate compliance for each pollutant individually. For example, a furnace can have a control device that limits cadmium and nickel by 99 percent each and demonstrate that aggregate mass emission of arsenic from all non-chromium metal melting operations are below 0.000066 pounds per hour. Likewise, a facility may install a pollution control device that has a control efficiency less than 99 percent but reduces aggregate mass emissions below the limits for a specific toxic air contaminant. This provides flexibility for facilities to control larger sources of toxic air contaminants as opposed to all sources. Additionally, some pollutants may be at such low levels that control equipment may have difficulty demonstrating 99 percent control. The aggregate mass emissions limit has the added benefits: it is less expensive to demonstrate compliance because only an outlet test is required; units that have low concentrations of arsenic, cadmium, or nickel may have difficulty meeting the 99 percent control, but can demonstrate compliance meeting the specific aggregate mass emissions limit; and it does not require air pollution control equipment for furnace operations with very low levels of arsenic, cadmium, and/or nickel.

Based on experience with facilities subject to Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities, staff has determined[1] that arsenic trioxide, a toxic that is also subject to this regulation, may vaporize at room temperature. It has a boiling point of 869 degrees Fahrenheit; well below typical furnace operating temperatures. Typical particulate control methods used to control cadmium and nickel, such as a baghouse, may not be appropriate for controlling arsenic or arsenic trioxide in vapor form. A wet scrubber or a wet electrostatic precipitator may be required to control arsenic or arsenic trioxide in vapor form. Where the aggregate mass emissions of arsenic are greater than 0.000066 pounds per hour r additional control equipment will be required. However, a facility may avoid having to install a second control device to limit vapors from arsenic if it can demonstrate that aggregate arsenic emissions are below 0.000066 pounds per hour.

This subdivision will maintain the provision limiting visible emissions previously contained under fugitive emission control. Additionally, this subdivision will include a provision which prohibits visible emissions from non-chromium metal melting operations to leave the direct path to the

[1] Source Test Report 13-307 and 13-308, South Coast AQMD, October 2013, accessed June 2019 http://www.aqmd.gov/docs/default-source/exide/exide-sourcetestaug-sept.pdf?sfvrsn=2

collection location of an emission collection system. This provision allows South Coast AQMD enforcement to visually observe emission collection systems that are not functioning properly.

In order to ensure adequate time for permit applications to be processed, PAR 1407 requires that permit applications for additional emission control devices that will be used for existing furnaces are submitted by July 1, 2020.

Source testing requirements are being moved to subdivision (g). The maintenance program provisions will be split into Housekeeping Requirements (subdivision (e)) and Emission Control Device Monitoring (subdivision (i)). A comparison of current emission control requirements and proposed emission control requirements is provided in Table 2-1 below.

Table 2-1: Comparison of Emission Control Requirements

Requirement	Rule 1407	PAR 1407
Control particulate matter emissions by 99%	Yes	Until January 1, 2021
Control As and Cd by 99% if exhaust temperature > 360°F	Yes	Yes
Control As, Cd, and Ni by 99% or meet mass emission limits at all times	No	Yes (effective January 1, 2021)
One-time source test	Yes	Yes, and periodic source testing (Moved to Source Testing Requirements (subdivision (g))
Maintenance program	Yes	Yes. Moved to Housekeeping Requirements (subdivision (e)) and Emission Control Device Monitoring (subdivision (i))
Limit visible emissions	Yes	Yes
Limit visible emissions escaping emission control device	No	Yes

Housekeeping Requirements (Subdivision (e))

Housekeeping requirements are proposed to minimize fugitive emissions resulting from non-chromium metal melting operations. Proposed Amended Rule 1407 clarifies requirements for enclosed storage of dust-forming metal-containing material, such as dross, ash, or feed materials to include trash or debris. In addition to an enclosed storage area, the provision will allow dust-forming metal-containing material to be stored in a building enclosure or covered containers; the covered containers must only be opened when material is being deposited and must be free of leaks. Additionally, the provision which requires enclosed containers for material collected by emission control devices will be retained. Two other housekeeping measures will become effective upon rule adoption: 1.) Clean weekly in floor areas within 20 feet of where furnace and casting

operations are conducted; and 2.) Prohibition of dry sweeping and compressed air cleaning where furnace, casting, metal cutting, and metal grinding operations occur.

The following housekeeping provisions will be effective within 30 days of rule adoption:

- Quarterly inspection, and cleaning if necessary, of collection vents, openings, and ducting of emission control devices to prevent dust building up and clogging;
- Removal of weather caps that restrict the flow of exhaust on any stack that is a source of emissions from non-chromium metal melting operations; acceptable exhaust caps include butterfly dampers which provide a clear path for air movement when the exhaust fan is operating
- Transport dust-forming slag and waste generated during housekeeping and building enclosure construction and maintenance within closed conveyor systems or in covered containers, unless conducted within a building enclosure or an enclosed storage area. This provision is not applicable to transporting materials exceeding 500 degrees Fahrenheit;
- Weekly cleaning by an approved cleaning method in floor areas near work stations, openings of building enclosures, and transfer points of emission control devices utilized for metal cutting or metal grinding operations not conducted under a continuous flood of metal removal fluid;
- Dust-forming metal-containing materials generated from housekeeping, construction, or maintenance shall be stored in an enclosed storage area, in a covered container, or in a building enclosure except when material is actively being deposited into or actively removed from a receptacle. Active means depositing or removing materials with no more than a 15 minute delay; and
- Clean by an approved cleaning method within one hour of construction or maintenance that results in the deposition of fugitive metal dust emissions.

A comparison of current housekeeping requirements and proposed housekeeping requirements is provided in Table 2-2 below.

Table 2-2: Comparison of Housekeeping Requirements

Requirement	Rule 1407	PAR 1407
(e)(1)(A) – Store dust-forming metal-containing materials in an enclosed storage area, building enclosure, or covered container	Yes	Yes
(e)(1)(B) – Discharge materials from emission control device into closed containers or an enclosed system	Yes	Yes
(e)(1)(C) – Weekly floor cleaning	No	Yes
(e)(1)(D) – Prohibition of dry sweeping or compressed air cleaning	No	Yes
(e)(2)(A)* – Quarterly inspection, and cleaning if necessary, of collection vents, openings, and ducting of emission control devices	No	Yes
(e)(2)(B)* – Remove weather caps from stacks	No	Yes
(e)(2)(C)* – Transport of slag, housekeeping waste, and building enclosure construction and maintenance materials within closed conveyer systems, in covered containers, or within a building enclosure	No	Yes
(e)(2)(D)* – Weekly floor cleaning of cutting and grinding operations,	No	Yes
(e)(2)(E)* – Store slag, housekeeping waste, and building enclosure construction and maintenance materials in an enclosed storage area, building enclosure, or covered container	No	Yes
(e)(2)(F)* – Clean within one hour after construction or maintenance	No	Yes

* Applicable 30 days after rule adoption

Building Enclosure Requirements (Subdivision (f))

Paragraph (f)(1) requires the owner or operator of a non-chromium metal melting operation to conduct operations within a building enclosure that minimizes cross draft conditions by July 1, 2020. The enclosure may consist of a structure within a building that encloses metal melting, casting, or metal cutting and grinding not conducted under a continuous flood of metal removal fluid operations. The intent of these requirements is to provide containment, impede cross-drafts, and minimize fugitive emissions generated in areas where metal melting operations, including grinding and cutting, occur.

A building enclosure, as defined in paragraph (c)(4), is a structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation or wind), with limited openings to allow access and egress for people, vehicles, equipment, or parts. Cross-draft conditions of a building enclosure shall be minimized by not allowing openings on opposite ends of the building

to be open simultaneously. Minimizing cross-draft conditions will help prevent a loss in the efficiency of an emission collection system. Openings are vents, windows, passages, doorways, bay doors. Methods to close openings, include use of automatic doors, installation of overlapping plastic strip curtains, vestibules, and airlock systems. Barriers, such as large pieces of equipment may also be used to block openings or prevent cross-drafts inside an enclosure near processes. Additionally, the owner or operator can demonstrate to the Executive Officer equivalent or more effective ways to minimize cross-draft conditions.

Illustrations of example building enclosure configurations are provided in Figures 2-3 through 2-10 below.

Figure 2-3: Acceptable Building Enclosures

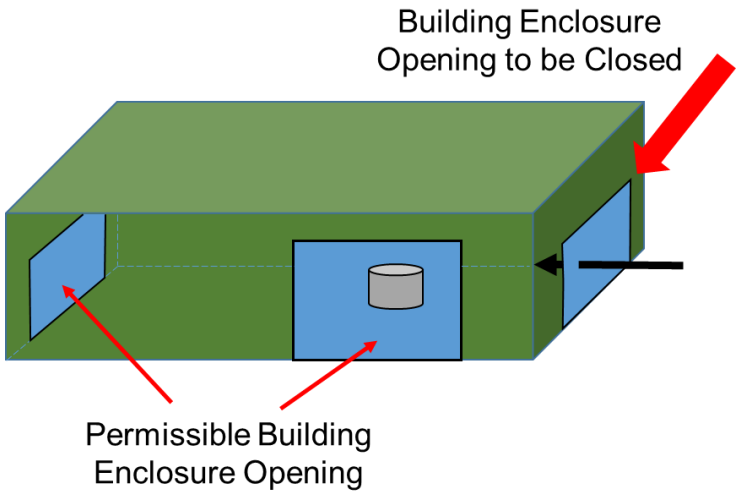


Figure 2-4: Acceptable Building Enclosures

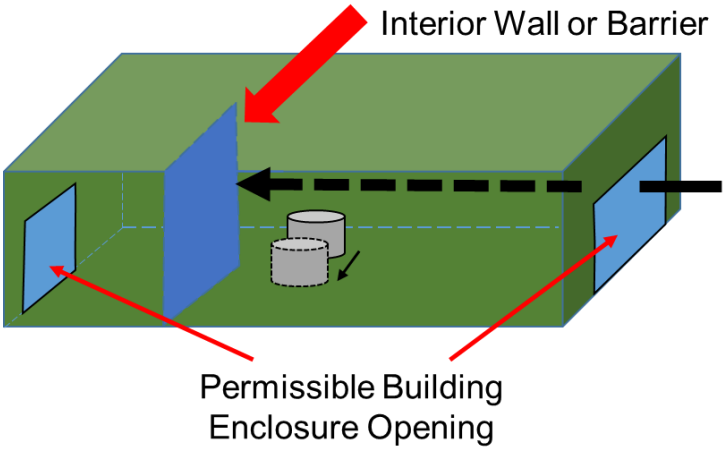


Figure 2-5: Acceptable Building Enclosures

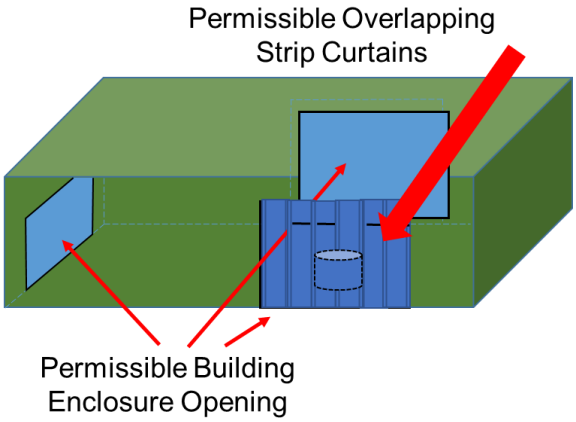


Figure 2-6: Acceptable Building Enclosures

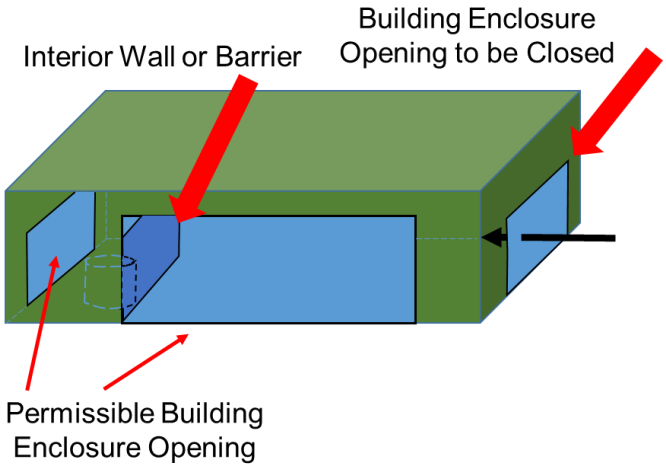


Figure 2-7: Unacceptable Building Enclosures

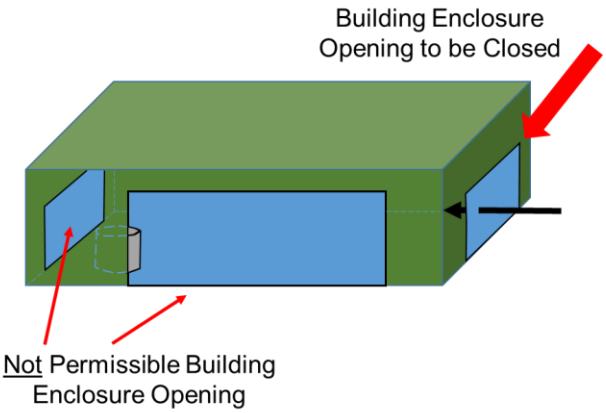


Figure 2-8: Unacceptable Building Enclosures

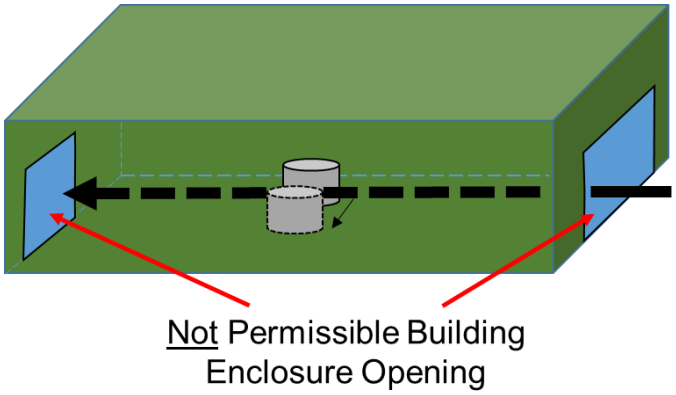


Figure 2-9: Unacceptable Building Enclosures

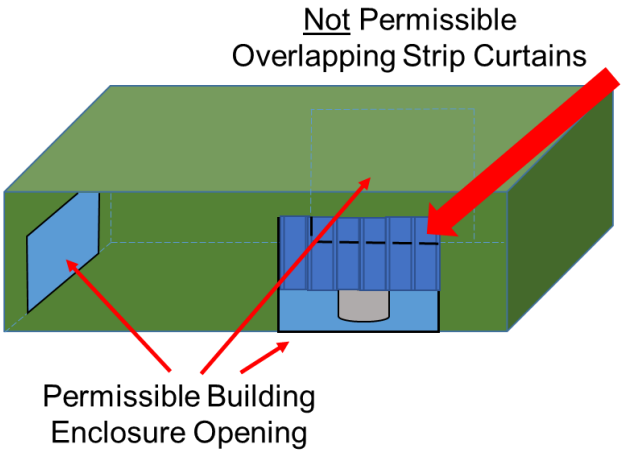
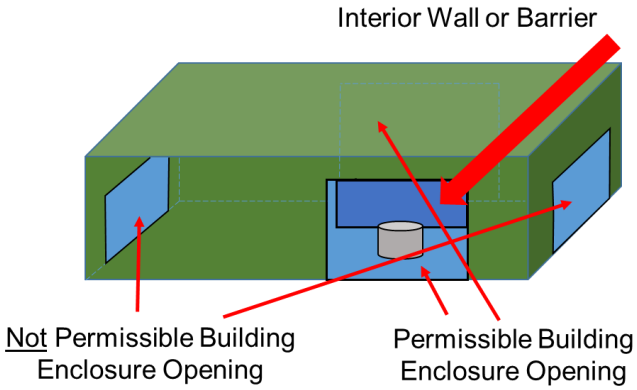


Figure 2-10: Unacceptable Building Enclosures



In the event that an owner or operator cannot comply with the requirements of paragraph (f)(1) due to conflicts with federal Occupational Safety and Health Administration (OSHA), California Division of Occupational Safety and Health Administration (CAL/OSHA), or other municipal

codes or agency requirements directly related to worker safety, paragraph (f)(2) requires a Building Enclosure Compliance Plan. No later than 90 days after rule adoption for existing facilities and prior to initial start-up for all other operations, a Building Enclosure Compliance Plan shall be submitted and shall include the explanation for the conflict and the alternative measures that will be implemented to minimize the release of fugitive emissions to the outside of the building enclosure. This plan will be subject to Rule 306 – Plan Fees. Paragraph (f)(3) establishes procedures for resubmittal and appeal of disapproved Building Enclosure Compliance Plans. If the Building Enclosure Compliance Plan is disapproved, a revised Building Enclosure Compliance Plan must be resubmitted within 30 days of the notification of disapproval. Alternatively, the owner or operator may appeal the disapproval to the Hearing Board per Rule 216 – Appeals and Rule 221 – Plans. The Executive Officer will either approved the revised and resubmitted Building Enclosure Compliance Plan or will modify the plan and approve it as modified. The Executive Officer modified and approved Building Enclosure Compliance Plan can be appealed per Rules 216 and 221. Once the Building Enclosure Compliance Plan is approved, the plan must be implemented within 90 days of approval for facilities existing prior to rule adoption and prior to initial start-up for all other facilities pursuant to paragraph (f)(4).

Source Testing Requirements (Subdivision (g))

Facilities shall submit a source test protocol to the Executive Officer by October 1, 2020 for the initial source test and at least 3 months prior to the deadline for periodic source testing. The source test protocol must specify the information necessary to be included in the source test protocol including: source test criteria, all assumptions, required data; target mass emission standards for arsenic, cadmium and nickel; planned sampling parameters; an evaluation of the emission collection system's capture efficiency and velocity; and information regarding equipment, logistics, personnel and other resources necessary to facilitate an efficient and coordinated source test.

No later than January 1, 2021, PAR 1407 paragraph (g)(2) will require an initial source test and paragraph (g)(3) will require periodic source tests every 60 months, thereafter, to demonstrate compliance with the emission control requirement specified in subdivision (d). For uncontrolled furnaces, paragraph (g)(4) allows the emission rate determined for one uncontrolled furnace to be applied to all functionally similar furnaces at that facility. Paragraph (c)(16) defines functionally similar furnaces as furnaces that melt the same type of alloys and are the same type of furnace (electric, induction, cupola, reverberatory, etc.). Similar alloys would be those that have the same base metal. The furnace must be operating at a minimum of 80 percent of its weight capacity and a normal operating temperature during the test.

For new or modified emission control devices that start after the adoption of PAR 1407, paragraph (g)(5) requires an a source test protocol to be submitted within 90 days after the Permit to Construct is issued and to conduct the initial source test within 120 days after the approval of the source test protocol.

The owner or operator shall notify the South Coast AQMD one week prior to conducting any source tests, 24 hours prior to cancelling or rescheduling a test, and within five calendar days of knowing source test results exceeded emission standards. These provisions are contained in paragraphs (g)(6) and (g)(7).

Currently, Rule 1407 emission control requirements are based on particulate matter; PAR 1407 will be basing emission control requirements specifically on the control of arsenic, cadmium, and

nickel. Therefore, the source test method requirement in PAR 1407 in paragraph (g)(8) is CARB Method 436 – Determination of Multiple Metal Emissions from Stationary Sources. Source tests shall be conducted while the equipment is operating at a minimum of 80 percent of the equipment's permitted throughput. Additionally, the sample volume must be large enough to achieve analytical results at the method reporting limit or 150 dry standard cubic feet, assuming that the method reporting limit is 0.2 micrograms per sample for arsenic, cadmium, and nickel. If a source test results in all runs below the method reporting limit for a compound, then that compound will be reported as non-detect and will be counted as a zero for purposes of this rule. If a source test results in at least one run below and one run above the method reporting limit for a compound, then the runs that are below the method reporting limit shall be assigned one half of the method reporting limit for that runs[2]. Paragraph (g)(9) allows for the 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.

As required by paragraph (g)(10), the source test shall be performed by a South Coast AQMD approved laboratory. When there is more than one possible source test method, paragraph (g)(11) states that the source test method selected must be approved by the Executive Officer. Additionally, according to paragraph (g)(11), violating any specified source test method constitutes violating the rule.

Paragraph (g)(12) allows a facility to utilize a source test conducted after January 1, 2016 instead of conducting the initial source test required in paragraph (h)(1) provided that the source test:

- Is the most recent completed source test for that equipment;
- Demonstrated compliance with the limits in subdivision(d); and
- Was conducted using PAR 1407 applicable and approved test methods.

Reports from source testing must be submitted to the South Coast AQMD within 90 days of completion of source testing in order to comply with (g)(13).

Material Testing Requirements (Subdivision (h))

PAR 1407 will maintain the majority of the material testing methods used in the current rule to determine the composition of alloys used in metal melting operations until January 1, 2021, which coincides with the sunset of current Rule 1407 emission limits and exemptions. The pig lead analysis technique will be removed because it is no longer applicable. PAR 1407 allows for the use of U.S. EPA-approved methods, active ASTM International methods, metallurgical assays, or alternative methods approved by the Executive Office. The method needs to be a method that is appropriate to the sample matrix, has the appropriate method detection limit, has no interferences, and is approved by the Executive Officer.

The following material testing is required in PAR 1407:

- Monthly analysis of raw materials melted in non-chromium metal melting furnaces; and
- Quarterly analysis of baghouse catches of baghouses associated with non-chromium metal melting operations.

[2] South Coast A.Q.M.D Risk Assessment Procedures for Rules 1401, 1401.1 and 1402, Version 8.1, South Coast A.Q.M.D, September 1, 2017

Emission Control Device Monitoring (Subdivision (i))

PAR 1407 includes parametric monitoring to ensure proper operation of the non-chromium metal melting emissions control device. Operational parameters are generally expressed as range 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 emission control device in between source testing.

Bag Leak Detection System (paragraph (i)(1))

By January 1, 2021, the owner or operator of a non-chromium metal melting operation shall operate, calibrate, and maintain a Bag Leak Detection System for all baghouses pursuant to Rule 1407, regardless of size, pursuant to the Tier 3 requirements of Rule 1155 – Particulate Matter (PM) Control Devices.

Pressure Across an Emission Control Device (paragraph (i)(2))

By January 1, 2021, the pressure across the emission control device shall be continuously measured with a 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 emission control device is operating within the proper range of pressure differential, whether the filters may be clogged or have leaks thereby compromising their effectiveness, or if the scrubber is approaching flooding velocity. The monitoring device shall be required to:

- Be equipped with ports that allow for periodic calibration 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 not less than once every sixty (60) minutes;
- Generate a data file from the computer system interfaced with each DAS each calendar day. 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; and
- Be maintained in accordance with manufacturer's specifications.

The owner or operator is required to conduct a source test, if the differential pressure emission control device is not maintained within the range or ranges specified in the 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:

- 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 emission control device may be specified in the Permit to Operate or shall be determined by the Executive Officer based on supporting documentation such as manufacturer specifications and source test results.

Air Flow to the Air Pollution Collection System (paragraphs (i)(4) and (i)(5))

Emission control devices shall be operated at a minimum capture velocity specified in the most current edition of the *Industrial Ventilation: A Manual of Recommended Practice for Design,* published by the American Conference of Governmental Industrial Hygienists, at the time a permit application is deemed complete with the South Coast AQMD. As specified in *Industrial Ventilation,* the minimum collection velocity should be sufficient to overcome the combustion products and heat of combustion.

In addition, for each emission collection system required to be monitored under PAR 1407, a passing periodic smoke test shall be conducted at least once every six 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 verifies the effectiveness of the air pollution control device. Smoke test procedures are outlined in PAR 1407 Attachment B – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device. If the smoke test fails, then the associated furnace(s) are not to be used for production until the system can pass a smoke test.

Anemometer (paragraph (i)(6))

The slot velocity of each emission collection system shall be measured at least every six months using a calibrated 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. An emission collection system with slots, but without an enclosure or hood shall maintain slot velocities of at least 2,000 feet per minute. An emission collection system designed with a canopy hood without an enclosure shall maintain a capture velocity of at least 200 feet per minute across all open sides without any cross drafts. For all three of the capture velocities above, the operator shall maintain at least the minimum slot velocity that verifies 100 percent collection efficiency measured in the most recent source test.

Recordkeeping Requirements (Subdivision (j))

PAR 1407 will require records be kept to assist in verifying compliance. Owners and operators will be required to maintain records for three (3) years, keep the most recent two years onsite, and make them accessible and available to South Coast AQMD compliance staff upon request. Records shall include the following:

- (j)(1) – Type and quantity of raw materials processed, including purchase records to confirm these quantities maintained monthly;
- (j)(2) – Material testing data as required by subdivision (h);
- (j)(3) – Source test data as required by subdivision (g) and paragraph (i)(3);
- (j)(4) – Housekeeping activities completed pursuant to subdivision (e);
- (j)(5) – Parametric device monitoring for emission control devices pursuant to subdivision (i); and
- (j)(6) – Anemometer data and calibration documentation as required by paragraph (i)(6);
- (j)(7) – Smoke test documentation as required in Attachment B

A comparison of current recordkeeping requirements is provided in Table 2-3 below.

Table 2-3: Comparison of Recordkeeping Requirements

Requirement	Rule 1407	PAR 1407*
Types, quantities of metals melted	Yes (For exemption demonstration only)	Yes
Analyses of metals melted	Yes (For exemption demonstration only)	Yes
Baghouse catch analyses	No	Yes
Source test data	Yes	Yes
Housekeeping activities	No	Yes
Parametric monitoring	Yes (Maintenance program)	Yes
Anemometer data	No	Yes
Smoke test documentation	No	Yes

*Records to be maintained for three years (previously two years)

Exemptions (Subdivision (k))

PAR 1407 includes exemptions limiting some requirements that a facility may be subject to:

Small Quantity

The small quantity exemption is included in the existing rule and shall be maintained in paragraph (k)(1) of PAR 1407. Facilities that melt no more than one ton per year of all non-chromium metals are exempt from all requirements except for paragraph (j)(1). Sources will be required to maintain records verifying that they melt less than one ton annually. This will exclude many small operations including universities, artists, and jewelers.

Low Throughput, Clean Aluminum Scrap, and Aluminum Scrap Furnaces

These exemptions are retained in paragraphs (k)(2), (k)(4), and (k)(5) until January 1, 2021 and will be replaced by (k)(3), a revised Metal or Alloy Purity Exemption. As currently written, paragraphs (k)(2), (k)(4), and (k)(5) are overly broad allowing materials with high levels of arsenic, cadmium, or nickel to be excluded from point source requirements because they are merely free from oil, grease, or paint which have nothing to do with arsenic, cadmium, or nickel content.

Metal or Alloy Purity

Equipment and operations that melt raw materials consisting of a metal or an alloy which is shown by laboratory analysis to contain minimal amounts of arsenic and cadmium and melt below a specific threshold shall only be subject to housekeeping, building enclosure, material testing, and recordkeeping requirements of the rule pursuant to paragraph (k)(3). The operator will have to maintain records to demonstrate the exemption and also be required to meet the housekeeping and building enclosure requirements to ensure that fugitive emissions created by the facility's operations are minimized. This incentivizes facilities to melt metals with extremely low levels of toxic air contaminants avoiding the need for costly controls. Many smaller facilities can meet this exemption by utilizing feed materials that have been certified by their suppliers to meet the exemption thresholds.

The metal or alloy purity exemptions in paragraph (k)(3) are based on the purity of the metals melting at a facility:

- A threshold of 8,400 tons of metal melted per year for facilities melting alloys which contain less than 0.002 percent arsenic 0.004 percent cadmium, and 0.5 percent chromium by weight on a monthly weight average;
- A threshold of 42,000 tons of metal melted per year for facilities melting alloys which contain less than 0.0004 percent arsenic, 0.0008 percent cadmium, and 0.5 percent chromium by weight on a monthly weight average; and
- A threshold of 84,000 tons of metal melted per year for facilities melting alloys which contain less than 0.0002 percent arsenic, 0.0004 percent cadmium, and 0.5 percent chromium by weight on a monthly weight average.

The thresholds are based on source test results at an aluminum secondary smelting facility. The test results were used to determine the amount of metals melted before the screening risk used for mass emission limits would be exceeded. This provides a sufficiently conservative limit to ensure that uncontrolled furnace operations will not pose an unacceptably high risk to the surrounding community. To qualify for a metal or alloy purity exemption, the facility must demonstrate compliance through material testing of the raw materials.

Aluminum Pouring

This exemption is included in the existing rule and will be retained in paragraph (k)(6) of PAR 1407. This exemption addresses areas in the proximity of where ladles, launders, and other equipment are used to convey aluminum from a melting or holding furnace to casting equipment. Since these activities involve transfer of molten material, it is believed that only minimal emissions will be involved, but the potential for losses due to spilling of material still exists. As such, staff believes that housekeeping and recordkeeping requirements will sufficient in mitigating fugitive losses.

Rules 1420, 1420.1 and 1420.2 – Lead Rules

Equipment or operations that are subject to the lead rules listed above are exempted in paragraph (k)(7) and (k)(8) because they are currently subject to requirements which are just as or more stringent for point source and fugitive emission control than the requirements of PAR 1407, with one exception for Rules 1420 and 1420.2 equipment and operations. The exception is the requirement for a gas stream that exceeds 360 degrees Fahrenheit requiring the control device to meet a control efficiency of 99 percent or more for controlling arsenic and cadmium emissions. Therefore, equipment and operations subject to Rules 1420 and 1420.2 are exempt from all requirements of the rule except for this provision (d)(5). If at some future date, Rule 1420 or 1420.2 are amended to address arsenic emissions, then equipment and operations subject to Rules 1420 or 1420.2 will be exempt from all requirements of Rule 1407. Equipment and operations subject to Rule 1420.1 are exempt from the entirety of Rule 1407 because Rule 1420.1 has its own arsenic standards. A facility that is subject to Rule 1420 or 1420.2 but also has furnaces that melt non-chromium metals, excluding lead, would be required to comply with PAR 1407 for those non-chromium metal melting furnaces.

Maintenance

Brazing, dip soldering, metal cutting, or metal grinding conducted for maintenance purposes, including repair of equipment and structures, are not subject to the requirements of this rule. These operations are not conducted on products that are intended for sale.

Digestion of Metal Aluminum Sample for Determining Arsenic (Attachment A)

Minor changes were made to Attachment A for clarification purposes only.

Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device

Attachment B specifies the method for periodic smoke tests to demonstrate qualitative capture efficiency for emission collection systems of add-on air pollution control device(s) pursuant to paragraph (i)(5). A smoke generator is placed within the area where collection of emissions by the ventilation system reveals the capture efficiency. The test is conducted while the emission control device is in normal operation and under typical draft and cross-draft conditions. An acceptable smoke test shall demonstrate a direct stream to the collection location(s) of the ventilation system without escaping. The periodic smoke test requirement of PAR 1407 will not be required if performing such a 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.

Chapter 3: Impact Assessment

INTRODUCTION

PAR 1407 is estimated to affect 54 metal melting facilities including those that melt aluminum, brass, bronze, copper, and zinc. These facilities include secondary smelters, foundries, die-casters, galvanizing and tinning coating operations, and other miscellaneous processes such as dip soldering, brazing and aluminum powder coating production.

AFFECTED FACILITIES

The facilities subject to PAR 1407 were identified by reviewing South Coast AQMD permits for metal melting furnaces, reviewing South Coast AQMD inspection reports for metal melting facilities, internet searches for facilities that offer metal melting services, and site visits. Internet searches were conducted to locate facilities where the furnaces do not require permits. Facilities that conduct heat treating or other metalworking operation but do not melt the metal were excluded. Additionally, facilities that melt metals containing chromium were excluded as they will be subject to PR 1407.1. Likewise, facilities that melt metals containing lead were excluded as they are subject to Rule 1420 – Emissions Standard for Lead, Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities, or Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities. Staff conducted approximately 30 site visits to various metal melting operations. During these site visits, staff gathered facility operations information and data related to melting furnaces, any associated control equipment, and types and amounts of alloys melted. Based on South Coast AQMD staff analysis of compliance and permitting data, there are approximately 54 facilities in the District that meet the applicability requirements of the proposed rule amendment.

COMPLIANCE COSTS

Compliance costs are estimated by observations from site visits and review of permitted equipment. The costs are estimated by actual costs provided by facilities, vendor quotes, and cost estimates from other rules with similar requirements.

All 54 facilities subject to PAR 1407 will be required to conduct housekeeping and to maintain records. Nearly all facilities already conduct weekly cleaning. Covering containers holding dust-forming metal-containing slag, dross, and trash can be accomplished by a simple container with a cover or keeping those materials within a building enclosure. Building enclosure costs are described below. Inspections of control device collection points is required quarterly. The removal of a weather cap is a one-time activity. Nearly all facilities already closely track the speciation of metals in the melted metal and conduct weekly housekeeping. Facilities are expected to record housekeeping activities pursuant to subdivision (e), maintenance of control devices pursuant to subdivision (j), and maintain source test reports, emission control device data, anemometer data, and source test documentation on site. Both proposed housekeeping and recordkeeping provisions are expected to increase labor costs less than $1,000 annually.

All facilities are assumed to require the purchase of a HEPA vacuum system. Riding vacuum HEPA sweepers cost an estimated $11,500 and would be utilized by 13 larger facilities. Backpack vacuum HEPA equipment is approximately $600 and would be utilized by the remaining 41 facilities. Staff estimates that 14 of the 54 facilities (26 percent) subject to PAR 1407 would likely require some minor building upgrades to address doors or openings to comply with subdivision (f) – Building Enclosures. Minor building upgrades are expected to have a one-time cost of $44,000

per facility for four facilities to install roll-up doors. Another ten facilities are expected to install plastic curtains at a cost of $9,000 per facility.. Four facilities (seven percent) are expected to require construction of building enclosures to comply with PAR 1407. The cost of the enclosures is approximately $151,500 for the construction of one wall or barrier based on cost estimates from similar activities required in proposed amended Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities [1]. The estimate for the number of facilities needing construction is from site visits to the facilities.

Smaller facilities typically use ingot, billet, and rerun scrap and will likely qualify for the Metal or Alloy Purity Exemption pursuant to paragraph (k)(3). Facilities that qualify for the Metal or Alloy Purity Exemption are only required to operate within a building enclosure, conduct housekeeping, and maintain records. They are expected to have no further costs.

Thirteen larger facilities will not be eligible for the Metal or Alloy Purity Exemption because their throughput is larger than 8,400 tons per year of non-chromium metal and therefore will be subject to the point source requirements of paragraph (d)(1). To demonstrate compliance with (d)(1), source testing will be required initially and then every 60 months thereafter pursuant to paragraph (h)(3). It is estimated that source testing will cost $21,000 per source test. For uncontrolled furnaces, a source test result may be applied to functionally similar furnaces. Staff estimated the following number of source tests each facility will be required to perform to demonstrate compliance: fifteen facilities are expected to conduct only one source test; nine facilities will need to conduct two source tests; two facility will need three source tests; and a final facility is expected to conduct four source tests.

The provisions in paragraph (d)(1) allows a facility to 1) install control equipment that reduces arsenic, cadmium, and nickel emissions by 99 percent each; 2) demonstrate through source testing that annual mass emissions are below a limits specified in paragraph (d)(2); or 3) utilize a combination of control equipment and source testing to demonstrate that 99 percent reduction or annual mass emissions are achieved. Most facilities will conduct source testing to demonstrate that they meet annual mass emission limits as that is the lowest cost option. For uncontrolled furnaces, a source test may be applied to functionally similar furnaces. Nine facilities are expected to only conduct source testing.

Four facilities are estimated to require the installation of ten control devices at an estimated cost of $256,000[2] per control device. In addition to installation costs, there would be on-going operating and maintenance costs for the operation of the control devices estimated at $275,000 annually per control device. For facilities operating control devices, PAR 1407 requires a pressure gauge and data acquisition system at a one-time cost of $1,400. Baghouses are also required to have a baghouse leak detection system at a cost of $1,500. Anemometer costs for each baghouse is $1,000 per anemometer. Slot velocity tests are expected to cost $80 per set of tests per emission control device for a total of $2,240 every six months. There will also be an on-going requirement to conduct smoke testing at an annual cost of $500 for each of the control devices.

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[1] Final Socioeconomic Impact Assessment for Proposed Amended Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities, South Coast AQMD, October 2015

[2] Cost Reports and Guidance for Air Pollution Regulations – EPA Air Pollution Control Cost Manual, U.S. EPA, accessed June 2019, https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution

The estimated total costs by expense for all facilities subject to PAR 1407 is presented in Table 3-1 below. The total present worth value cost to meet the 2020 deadline is $43.1 million to $59.2 million using a 4 percent or 1 percent discount rate respectively. Between $5.4 and $6.4 million are one-time costs applicable in 2020 while $37.7 million to $52.9 million are recurring costs over a 21 year period.

Table 3-1: Total Costs by Expense Type

	Present Worth Value (2019)		**Annual Average (2019-2040)**	
Cost Categories	**1% Discount Rate**	**4% Discount Rate**	**1% Real Interest Rate**	**4% Real Interest Rate**
One-Time Cost				
Baghouse**	$4,777,000	$3,962,000	$245,000	$287,000
Bag leak detection system**	$36,000	$30,000	$2,000	$2,000
Pressure gauge with DAS**	$34,000	$28,000	$2,000	$2,000
Anemometer**	$24,000	$20,000	$1,000	$1,000
Major enclosure***	$627,000	$602,000	$32,000	$43,000
Roll up doors***	$182,000	$175,000	$9,000	$12,000
Plastic curtains***	$102,000	$98,000	$5,000	$7,000
Rider HEPA vacuum*	$507,000	$412,000	$26,000	$29,000
Backpack HEPA vacuum*	$83,000	$68,000	$4,000	$5,000
Total one-time cost	**$6,372,000**	**$5,395,000**	**$326,000**	**$388,000**
Recurring Cost				
Baghouse annual maintenance	$48,635,000	$34,545,000	$2,499,000	$2,499,000
Smoke test	$495,000	$352,000	$25,000	$25,000
Source test	$2,652,000	$1,995,000	$134,000	$134,000
Slot velocity test	$40,000	$28,000	$2,000	$2,000
Housekeeping	$1,062,000	$780,000	$54,000	$54,000
Total recurring cost	**$52,884,000**	**$37,700,000**	**$2,714,000**	**$2,714,000**
Total	**$59,257,000**	**$43,095,000**	**$3,041,000**	**$3,102,000**

Note: Values rounded to nearest thousand dollars.

*Cost annualized over 6 years

**Cost annualized over 10 years

***Cost annualized over 20 years

Typical cost by facility type is provided in Table 3-2 below. For a small facility, it is assumed that minor building upgrades are needed though that is true in 15 of 41 small facilities. For a large facility processing low-As and low-Cd metals, it was assumed that only minor building upgrades were necessary though one facility would require enclosure construction. For the remaining large facilities, it is assumed that two source tests would be necessary, enclosure construction is required, and that a new control device would be necessary.

Table 3-2: Total Costs by Facility

Facility size	Number potentially affected facilities	Total cost if all PAR 1407 expenses made in 2019	Annualized cost
Small; no existing emissions control device.	39	$50,000	$3,000
Small; with existing emissions control device.	2	$158,000	$8,000
Large; processing low arsenic and low cadmium metals.	9	$1,352,000	$69,000
Large; PAR 1407 requires new emissions control device installation.	4	$11,189,000	$575,000

Note: A small facility is defined to process less than 8,400 tons of metal per year, while a large facility is defined to process 8,400 tons of metal or more per year. Total cost includes all one-time and recurring costs expected due to PAR 1407 from 2019-2040 for an average facility in each facility-size category.

EMISSIONS IMPACT

Implementation of PAR 1407 will reduce both point source and fugitive arsenic, cadmium, and/or nickel emissions, resulting in reduced ambient air concentrations of the toxic air contaminants arsenic, cadmium, and nickel. Point source controls reducing emissions by 99 percent will limit emissions from furnaces, metal cutting, and metal grinding operations. Housekeeping and building enclosures will reduce fugitive emissions from uncontrolled sources. Fugitive emissions are difficult to quantify but have been shown to be a contributing factor to ambient toxic air contaminant concentrations.

PAR 1407 will require controlling arsenic, cadmium, and nickel emissions from point sources associated with metal melting operations. Owner or operators will also be required to conduct source testing that will provide the South Coast AQMD with data that may be used to improve the quantification of arsenic, cadmium, and nickel emissions.

SOCIOECNOMIC ASSESSMENT

A Draft Socioeconomic Impact Assessment has been prepared and released at least 30 days prior to the South Coast AQMD Governing Board Hearing on PAR 1407 (currently scheduled for September 6, 2019).

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's Certified Regulatory Program (Rule 110), the South Coast AQMD, as lead agency for the proposed project, has determined that implementation of PAR 1407 will not be expected to result in any potentially significant adverse environmental impacts. Further, since the proposed project will not be expected to have statewide, regional, or area-wide significance, no CEQA scoping meeting is required pursuant to Public Resources Code Section 21083.9(a)(2). As such, South Coast AQMD is preparing an Environmental Assessment (EA) with less than significant impacts for PAR 1407. The EA will allow public agencies and the public the opportunity to obtain, review and comment on the environmental analysis. The EA will include a project description and analysis of potential adverse environmental impacts that could be generated from the proposed project. Upon its completion, a Draft EA will be released for a 30-day public comment and review period. If comments are submitted, the letters and responses to comments will be incorporated into the Final EA.

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 South Coast AQMD 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 1407 is needed to further protect public health by reducing emissions of arsenic, cadmium, and nickel from non-chromium metal melting operations. The intent of this proposed amendment is to reduce arsenic, cadmium, and nickel emissions. The proposed amendment will reduce arsenic, cadmium, and nickel emissions from point and fugitive sources from metal melting operations.

Authority

The South Coast AQMD Governing Board has authority to adopt PAR 1407 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 41700, 40001, 40440, 40441, 40702, 40725 through 40728, and 41508.

Clarity

PAR 1407 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PAR 1407 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

PAR 1407 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 South Coast AQMD.

Reference

By adopting PAR 1407 the South Coast AQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 39659 (regulations to establish programs for hazardous air pollutants), 39666 (Air Toxics Control Measures), 41700 (nuisance), 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 amended rule with any Federal or District rules and regulations applicable to the same source. See Table 3-3 below.

Table 3-3: Comparative Analysis

Rule Element	PAR 1407	Rule 1407	40 CFR Part 63 ZZZZZ	40 CFR Part 63 EEEEE	CARB Non-Ferrous Metal Melting ATCM
Applicability	Non-chromium smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning) and other miscellaneous processes such as dip soldering, brazing and aluminum powder production conducting non-chromium metal melting	Non-ferrous smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning) and other miscellaneous processes such as dip soldering, brazing and aluminum powder production conducting non-ferrous metal melting	Area source iron and steel foundries emitting less than 10 tons per year of any single hazardous air pollutant or less than 25 tons of any single hazardous air pollutant constructed after September 17, 2007	Major source iron and steel foundries emitting 10 tons per year or more of any single hazardous air pollutant or 25 tons or more of any single hazardous air pollutant	Non-ferrous smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning) and other miscellaneous processes such as dip soldering, brazing and aluminum powder production conducting non-ferrous metal melting
Requirements	• Control emissions of arsenic, cadmium, and nickel by 99% or limit aggregate mass emissions to 0.000066 lb/hr of arsenic, 0.000541 lb/hr of cadmium, and 0.00848 lb/hr of nickel • Building enclosures • Housekeeping • Visible emission standards	• Control particulate emissions from emission collection system by 99% • Temperature in exhaust stream may not exceed 360F • Maintenance program for emission control device monitoring • Housekeeping • Visible emission standards	• New foundries control particulate emissions to 0.1 lb/ton and hazardous air pollutant emissions to 0.008 lb/ton • Pollution prevention management practices for metallic scrap and mercury switches • Maintenance program for emission control device monitoring	• Existing electric arc furnaces control particulate emissions to 0.005 gr/dscf and hazardous air pollutant emissions to 0.0004 gr/dscf • Existing cupolas control particulate emissions to 0.006 gr/dscf and hazardous air pollutant emissions to 0.0005 gr/dscf	• Control particulate emissions from emission collection system by 99% • Temperature in exhaust stream may not exceed 360F • Maintenance program for emission control device monitoring • Housekeeping • Visible emission standards

Rule Element	PAR 1407	Rule 1407	40 CFR Part 63 ZZZZZ	40 CFR Part 63 EEEEE	CARB Non-Ferrous Metal Melting ATCM
			• Housekeeping • Visible emission standards	• New electric induction furnaces control particulate emissions to 0.001 gr/dscf and hazardous air pollutant emissions to 0.00008 gr/dscf • New electric arc furnaces and cupolas control particulate emissions to 0.002 gr/dscf and hazardous air pollutant emissions to 0.0002 gr/dscf • Plan or certification to minimize hazardous air pollutants from scrap • Maintenance program for emission control device monitoring • Housekeeping • Visible emission standards	
Reporting	Source test report	None	Semiannual compliance reports for exceedances, parametric monitor downtime, deviations from pollution prevention practices	Semiannual compliance reports for exceedances, parametric monitor downtime, deviations from pollution prevention practices	None
Monitoring	• Initial and period source testing • Emission control device monitoring • Material testing	• One time source test on a furnace that is vented to a control device • Parametric monitoring • Bag leak detection system	• Source test on a furnace that is vented to a control device every five years • Parametric monitoring • Bag leak detection system	• Source test on a furnace that is vented to a control device every five years • Parametric monitoring • Bag leak detection system	• One time source test on a furnace that is vented to a control device • Parametric monitoring • Bag leak detection system
Recordkeeping	Melt records, material testing and source testing results, housekeeping log, emission control device monitoring log made available for three years	Source testing results made available for two years	Test reports, notifications, semiannual reports made available for five years	Test reports, notifications, semiannual reports	Source testing results made available for two years

APPENDIX I: COMMENTS AND RESPONSES

Comment Letter #1

The Boeing Company
July 8, 2019

The Boeing Company
4000 Lakewood Blvd
Long Beach, CA 90808

July 8, 2019

S C A Q M D
21865 E. Copley Drive
Diamond Bar, CA 91765

ATTN: Michael Morris
Planning, Rule Development and Area Sources Manager

Re: SCAQMD Rule 1407 Proposed Amendments

Thank you for the opportunity to provide comments relating to the proposed amendments to SCAQMD Rule 1407 (Control of Emissions of Arsenic, Cadmium and Nickel from Non-Chromium Metal Melting Operations). Boeing requests that the following changes/clarifications be incorporated into the proposed amendments to the rule:

- With respect to the proposed language in (k)(1), current proposed language will require that all recordkeeping requirements listed in (g) be followed in order to meet the exemption requirement. Boeing requests that the language be modified to state the following:
  - 'An owner or operator of a non-chromium metal melting operation that melts no more than one ton per year of all non-chromium metals shall maintain records of raw materials processed, including ingots, scrap, and reruns and the associated records to verify these quantities on an annual basis."
- The proposed language in (k)(9) should be modified to include other maintenance activities such as dip soldering and brazing activities. These activities, while using very small quantities of materials, are typically performed by contractors and the proposed language will result in very burdensome recordkeeping requirements in order to track these types of maintenance activities at a facility.
- Request that (e)(2)(D)(ii) be removed, as appears to be duplicative of the nearly identical requirement stated in (e)(2)(D)(i).

1-1

1-2

1-3

Boeing looks forward to continuing to work with District staff in the development of the proposed amendments to SCAQMD Rule 1407. If you should have any questions or require additional information, please do not hesitate to contact me.

William Pearce
Senior Environmental Engineer
Environmental Services
Environment, Health & Safety

Response to Comment 1-1

Staff agrees and has modified paragraph (k)(1) accordingly to only require monthly quantities of raw materials processed to be tracked.

Response to Comment 1-2

Rule language for paragraph (k)(9) has been moved to paragraph (k)(10) and will now include dip soldering and brazing as maintenance activities.

Response to Comment 1-3

Staff disagrees that clauses (e)(2)(D)(i) and (e)(2)(D)(ii) are duplicative. A work station dedicated to metal grinding or cutting may not necessarily be within 20 feet of an entrance or exit point of a building enclosure that houses these same operations. Keeping both requirements in the rule language will ensure properly accounting for each individual location and its surrounding area.

Comment Letter #2

California Metals Coalition
July 8, 2019

CALIFORNIA METALS COALITION

Main Office and Mailing Address: 2971 Warren Lane, El Dorado Hills, CA 95762
Lobbying Office: 1215 K Street, 17th Floor, Sacramento, CA 95762
P. 916.933.3075 | F. 916.933-3072 | http://www.metalscoalition.com

July 8, 2019

Mr. Mike Morris
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, California 91765

Dear Mr. Morris:

The California Metals Coalition appreciates the opportunity to comment on the South Coast Air Quality Management District ("District" or "SCAQMD") workshop proceedings and consideration of **SCAQMD Proposed Amended Rule (PAR) 1407.**

These comments on PAR 1407 are divided into the following sections: Summary; Background on CMC; Comments on Workshop Presentation and Draft Rule Language; and Recommendations for Further Scoping and Development.

SUMMARY

This comment letter addresses the PAR 1407 slides presented on **June 19, 2019** at the Public Workshop. At the Public Workshop, the SCAQMD provided an overview of the rulemaking, details of the rule requirements, a cost analysis, and draft rule language.

BACKGROUND ON CMC

California is home to approximately 4,000 metalworking facilities, employing over 350,000 Californians. The average industry salary is $66,400/year in wages and benefits.

8 out of 10 employees in the metalworking sector are considered ethnic minorities or reside in disadvantaged communities throughout Southern California. A job in the metals sector is often the only path to the middle class for many of these Californians.

Here is a breakdown of the metalworking industry's impact on the 4 counties within SCAQMD jurisdiction:

- Los Angeles County: 54,290 Direct Jobs | 52,741 Indirect Jobs | $7 billion wages | $26 billion economic activity

- **Orange County**: 25,448 Direct Jobs | 18,912 Indirect Jobs | $2.9 billion wages | $10.8 billion economic activity
- **San Bernardino**: 9,778 Direct Jobs | 8,378 Indirect Jobs | $1.2 billion wages | $4.5 billion economic activity
- **Riverside**: 6,971 Direct Jobs | 7,712 Indirect Jobs | $957 million wages | $3.2 billion economic activites
- **Total**: 96,487 Direct Jobs | 87,743 Indirect Jobs | $12 billion wages | $33.8 billion economic activity

California metal manufacturers use recycled metal (ex: aluminum, brass, iron and steel) to make parts for the aerospace industry, clean energy technologies, electric cars, biotech apparatuses, medical devices, national defense items, agriculture, infrastructure, construction machinery, household appliances, food processing and storage, movement of water, and millions of other products demanded by society.

COMMENTS ON WORKSHOP PRESENTATION AND DRAFT RULE LANGUAGE

Item #1, PAR 1407's Non-Detect Calculation and Unintended Consequences within Rule:

As currently written, a metal melting facility may be required to conduct a source test for arsenic, cadmium and nickel. If the source test results are "non-detect," the non-detect default value (100% of the detection limit) will trigger the facility to install a control device.

As currently written, the control device currently requires a 99% capture efficiency of the "non-detect" value. CMC believes the "non-detect" problem is an unintended consequence of the proposed rule. But the issue still must be addressed.

- **SUGGESTION**: The SCAQMD should align the analysis to be consistent with District R1401 guidance. In this situation, that would mean using a value of zero "0" for ND runs when computing the corresponding emission factor.
    - Once a value is established for "non-detect", CMC suggests that staff re-run the calculations from the single source test used to establish the tonnage throughput limits [Draft Rule Language (k)(3)] based on the purity limits.

2-1

Item #2, Draft Rule Language Definition #25 RERUN SCRAP"

PAR 1407 currently defines Rerun Scrap as "any material that includes sprues, gates, risers, foundry returns, and similar material intended for remelting that has been generated at the facility as a consequence of a casting or forming process but has not been coated or surfaced with any material."

There will be some metal melting facilities regulated by PAR 1407 that can satisfy all parts of this definition except "generated at the facility." A common practice within the metal sector is for customers to return sprues, gates, risers, returns and similar material back to the material provider. Since it is being returned, the material is not "generated at the facility," but it meets all the quality requirements.

2-2

- **SUGGESTION**: CMC suggests adding "customer returns" to the definition of Rerun Scrap. PAR 1407 can add a new requirement under recordkeeping for customer returns so that an inspector can review the material specification sheets that meet the definition of Rerun Scrap.

2-2 (Cont.)

Item #3: Draft Rule Language (k); Using 1402 Determination for Exemption from Emission Controls and Source Test Requirements:

The source test requirements of PAR 1407 are measured against a cancer risk of 25 in one million. Some metal melting facilities impacted by PAR 1407 have conducted a Rule 1402 cancer risk assessment and continue to update the assessment on a quadrennial basis. Rule 1402 is as strict, and arguably more demanding, than the PAR 1407 source test.

- **SUGGESTION**: CMC suggests allowing facilities that are subject to Rule 1402 requirements, to use the 1402 results or determinations when assessing the need for a control device in PAR 1407. This exemption would not apply to any other part of the rule (ex: recordkeeping, enclosures, housekeeping) and is based on a similar exemption provided in SCAQMD Rule 1469.1.

    - Facilities are exempt from the emission control requirements in section (d)(1) though (4) and source test requirements in section (h) if either of the following conditions are met quadrennially;
        1. A facility can successfully demonstrate facility-wide emissions of all toxic air contaminants result in a cancer risk at all receptor locations through submittal of an approved health risk assessment that reflects representative operating conditions, or submittal of a Risk Reduction plan developed pursuant to Rule 1402 that is fully implemented prior to [Rule adoption date], or submittal of evidence of enforceable permit conditions that limit cancer risk to:
            - 25 in a million if a facility is located more than 25 meters from a residential or sensitive receptor; or
            - 10 in a million if a facility is located 25 meters or less than a residential or sensitive receptor, or located 100 meters or less from an existing school.
        2. if a facility has been determined to be a low priority or intermediate priority facility based on Rule 1402 Prioritization Score as established by the SCAQMD.

2-3

Item #4: Draft Rule Language (e)(2)(E) Actively Depositing Materials:

PAR 1407 includes a housekeeping requirement to keep containers covered at all times "except when material is actively deposited into a receptacle." The depositing of material during the melting process is ongoing and can happen frequently. Dross and slag may be skimmed from the melt and placed in containers for recycling.

2-4

- **SUGGESTION**: CMC suggests that the language state "except when material is actively deposited into a receptacle during the melting or pouring process."

Item #5, Slides 41-42; Cost Analysis Overstates Ability to Finance Rule Requirements:

The Workshop presentation included a cost analysis of PAR 1407. CMC strongly disagrees with costs being annualized in any manner. The cost impact of PAR 1407 will occur in year 1 of the rule and draw from the current operating budget of a business.

As an example, building a wall to enclose the building, conducting source tests, or installing a new baghouse are "cash-up-front" transactions.

2-5

The only know type of loan that might satisfy this is a "Line of Credit" against the business, which has high interest rates and strict requirements.

When SCAQMD staff presents a cost analysis for the SCAQMD Stationary Committee or Board, the costs should not be amortized.

RECOMMENDATIONS FOR FURTHER SCOPING AND DEVELOPMENT

Thank you for your time, and for allowing CMC to participate and comment on PR 1407. We look forward to continued discussions.

Sincerely,

James Simonelli
Executive Director

Response to Comment 2-1

Staff has revised the rule language to indicate that source tests will need to run for a sufficient amount of time to achieve a method reporting limit. Clause (g)(8)(B)(i) states that the compound can also be identified as non-detect if all source test runs are below the method reporting limit. Non-detect results can be reported as the value of zero. Clause (g)(8)(B)(ii) states if one or more source test runs are above the method reporting limit, then the facility should assign half of the method reporting limit for the runs below the method reporting limit.

Response to Comment 2-2

The definition of "Rerun Scrap" in paragraph (c)(26) now include offsite generated materials. Documentation to confirm where materials were generated shall be provided at the request of the South Coast AQMD.

Response to Comment 2-3

Staff has included an exemption in paragraph (k)(9) for facilities with a Health Risk Assessment with a maximum individual cancer risk less than ten in one million or an Air Toxic Inventory Report with a Facility Priority Score of less than ten. Facilities that qualify will be exempt from subdivision (d) and will not be required to put on additional controls. The receptor distance of 100 meters from the source will be retained.

Response to Comment 2-4

Staff has removed "at all times" from subparagraph (e)(2)(E). The purpose of having an enclosed storage area, a building enclosure, or the coverage of containers is to prevent metal dust emissions. If the metal melting container is enclosed within any of the above mentioned methods, then the spread of metal dust emissions would be considered adequately prevented.

Response to Comment 2-5

The staff report includes total costs as requested by the commenter to recognize the costs borne by the facilities subject to PAR 1407. The total present worth value cost to meet the 2020 deadline is $43.1 million to $59.2 million using a 4 percent or 1 percent discount rate respectively. Between $5.4 and $6.4 million are one-time costs applicable in 2020 while $37.7 million to $52.9 million are recurring costs over a 21 year period.

The PAR 1407 Socioeconomic Impact Assessment includes the present worth value of all one-time capital costs (building enclosure, source tests, or installing a new baghouse), in addition to the annualized capital costs assuming a 1% and 4% real interest rate. The present worth value discounts future capital expenditures to account for the time value of money.

When conducting socioeconomic analyses, the South Coast AQMD typically annualizes capital costs. This allows us to account for the cost of financing and the opportunity cost of capital. The opportunity cost of capital can be defined as the incremental return on investment that a facility must forgo when it allocates funds for regulatory compliance. Total annualized costs (annualized capital costs plus annual operations and maintenance costs) are then used as inputs in our regional dynamic economic modeling analysis. Inputting one-time (non-annualized) capital costs will likely

result in an increase in short-term macroeconomic impacts (job losses), but, ultimately, will result in a reduction in total macroeconomic impacts over the entire analysis time horizon.

Additionally, while it is considered that all estimated costs would be borne by the affected facilities, the compliance costs could potentially be passed onto downstream consumers of services and products. While capital financing could be potentially used by an affected facility to lessen the stress on the facility's cash flow, this analysis does not take into account financial decisions made at the facility or firm level.

Comment Letter #3

Kaiser Aluminum Fabricated Products
July 9, 2019

KAISER ALUMINUM

July 9, 2019

Mike Morris
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, California 91765

Dear Mr. Morris,

Kaiser Aluminum ("Kaiser" or "the facility") appreciates the opportunity to comment on the South Coast Air Quality Management District ("District" or "SCAQMD") workshop proceedings and consideration of **SCAQMD Proposed Amended Rule 1407 (PAR 1407).**

General Comment

Kaiser is an AB2588 facility and is thus subject to District Rule 1402 requirements. As a part of these requirements, the facility has previously submitted Air Toxics Inventory Report (ATIR) to the District, most recently on April 30, 2014. That most recent ATIR was approved by the SCAQMD in September 2017 and resulted in a District determination that the Kaiser facility was an Intermediate Priority facility based on a prioritization score of 2.31.[1] As concluded in the District's letter:

> *"This demonstrates that for the toxics inventory and emissions level reported, **Kaiser does not pose a significant health risk** to the surrounding communities and as a result no health risk assessment is required."*

Kaiser has not materially changed its operations and thus, does not anticipate any material changes to its emissions inventory.

The annual emission thresholds (for control system exemption) and the annual throughput thresholds (for purity exemption from the rule) in the draft PAR 1407 proposal were based on a single source test conducted at the Kaiser facility in December 2015. SCAQMD has used this source test to develop emission factors[2] and coupled them with a number of conservative assumptions to establish the proposed emission thresholds and throughput thresholds. It appears the current PAR1407 proposal could require Kaiser to install new emission controls despite the fact that the District has already determined (under Rule 1402) that Kaiser does not pose a significant health risk to surrounding communities. We believe such an outcome conflicts with the intent of the PAR1407 rulemaking. Kaiser offers the following comments on the rule.

[1] Letter from SCAQMD to Edward Swistock, dated September 19, 2017 (Attachment A).

[2] See Comment 2 for more details.

6250 E. Bandini Blvd., Los Angeles, CA 90040

KAISER ALUMINUM

Comment 1: Rule 1407 should provide an exemption for facilities subject to Rule 1402 that have been determined not to pose a significant health impact. Such a provision could be similar to the exemption found under District Rule 1469.1.

Current draft language for PAR 1407 includes several exemptions under section k. To align PAR 1407 applicability with potential facility risk (as determined by the District), Kaiser proposes an additional exemption from the emission control requirements as well as the source testing requirements be included in Section (k) as follows:

A facility is exempt from the emission control requirements in sections (d)(1) though (d)(4) and source test requirements in section (h) if either of the following conditions are met;

1. *A facility can successfully demonstrate facility-wide emissions of all toxic air contaminants result in a cancer risk at all receptor locations through submittal of an approved health risk assessment that reflects representative operating conditions, or submittal of a Risk Reduction plan developed pursuant to Rule 1402 that is fully implemented prior to [Rule adoption date], or submittal of evidence of enforceable permit conditions that limit cancer risk to:*
   a. *25 in a million if a facility is located more than 25 meters from a residential or sensitive receptor; or*
   b. *10 in a million if a facility is located 25 meters or less than a residential or sensitive receptor, or located 100 meters or less from an existing school.*

2. *if a facility has been determined to be a low priority or intermediate priority facility based on Rule 1402 Prioritization Score as established by the SCAQMD.*

3-1

2. **Comment 2:** Pounds per ton arsenic emission factor developed during the rulemaking process does not follow correct SCAQMD guidance. This should be revised in accordance with District R1401 guidance.

AQMD has presented a 700 tons/month or 8,400 tons/year threshold (currently proposed in PAR 1407) based on an emission factor of 1.06E-05 lb of arsenic (As) per ton of scrap processed. At Working Group Meeting #3, staff discussed the calculations used to find this as a maximum throughput required to reach cancer screening risk thresholds of 25 in a million at 100-meter receptor distance. The pounds per ton emission factor was calculated for toxic air contaminants using Kaiser's 2015 source test results. Based on source test results and emission screening levels, the arsenic emission factor drives the calculated throughput limit.

We note that in two of the three air samples from the Kaiser 2015 data, arsenic was reported as Non-Detect. AQMD used the arsenic detection level (for these two ND runs) to calculate an emission factor. However, this methodology does not follow AQMD's Rule 1401 guidance[3], which specifies that in cases where less than 10 samples are collected, and a TAC has been detected in only one sample, non-detect runs are to be assigned a value of zero. If AQMD had followed the R1401 guidance, the correct emission factor would be 2.62E-06 lb of As per ton

3-2

[3] SCAQMD 2018. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12.

KAISER ALUMINUM

of scrap processed[4]. Kaiser believes using published guidance under Regulation XIV is appropriate for Regulation XIV rule development. Assigning detection level values to non-detect runs materially overstates emissions. Kaiser recommends that the District correct this emission factor and update all necessary calculations for the next version of the draft PAR 1407 using a 2.62E-06 lb/ton emission factor.

3-2 (Cont.)

Comment 3: Annual Emission Thresholds proposed under section (d) should use a tiered receptor distance approach.

Existing Rule 1407 (d)(2) states that *"The gas stream from any emission collection system shall be ducted to a control device which shall reduce the particulate emissions by 99 percent or more by weight."* This condition is slightly changed in the PAR Rule 1407. PAR 1407 (d)(3) states that *"by January 1, 2021, owners or operators of non-chromium metal melting operations shall reduce emissions from furnaces by a minimum of 99 percent or meet facility-wide annual mass emission limits as noted in (d)(4)(A), (d)(4)(B), and (d)(4)(C)."* As per these subsection conditions, annual emission limits for As, Cd and Ni are 0.095 lbs/year, 0.74 lbs/year and 12.2 lbs/year respectively, before a control equipment is required.

These annual emission thresholds were back-calculated using emission screening levels for a cancer risk of 25 in a million and a receptor placed 100 meters away from the source. This scenario is not representative of all facilities and unnecessarily imposes requirements on facilities which may not present a significant health risk. Kaiser recommends that PAR 1407 be revised to provide annual emission thresholds that are based on tiered receptor distances, as set forth in the following **Table I:**

3-3

Table I. PAR 1407 (d)(4)(A) – Annual Emission Thresholds

Distance[1]	Toxic Air Contaminant		
	Arsenic (lbs/year)	Cadmium (lbs/year)	Nickel (lbs/year)
100	0.095	0.74	12.2
200	0.295	2.296	37.9
300	0.775	6.039	99.6
400	1.152	8.975	148.0
500	2.243	17.469	288.0

1. Screening emissions at 100 meters based on SCAQMD Rule 1401 risk assessment screening levels for a risk of 25 in a million as currently proposed in PAR 1407.
2. Emission levels at 200, 300, 400 and 500 meters based on scaling x/Q dispersion factors published in the 1401 risk guidance. Assumes a stack height between 14 and 25 feet and facility operation greater than 12 hours per day for worst case meteorology (Banning station).

Comment 4: Purity Exemption Thresholds also need a tiered receptor distance approach.

Draft language for PAR 1407 (i)(2) states that the Metal or Alloy Purity Exemption applies to facilities with an annual throughput of less than 8,400 tons per year[5] of non-chromium metal.

3-4

[4] All calculations and comments in this letter use the corrected arsenic emission factor which was developed following published AQMD R1401 guidelines.

[5] Note, Annual allowable throughput limits should be based on an EF that is developed in accordance with the AQMD R1401 risk assessment guidance.

6250 E. Bandini Blvd., Los Angeles, CA 90040

KAISER ALUMINUM

The annual throughput proposed is based on a cancer risk of 25 in a million for a receptor placed 100 meters away from the source. As mentioned above, this scenario is not representative of facilities with receptors at distances well beyond 100 meters and therefore may unnecessarily limit facility throughput with no corresponding health benefit. Kaiser proposes that annual throughput thresholds for purity exemption be provided as a tiered approach with receptors at various distances from the source. See **Table II** as a proposed update to PAR 1407. Under this proposal, facilities would periodically confirm their nearest receptor location (e.g., quadrennially). The thresholds shown would correlate to a risk of 25 in a million at that receptor distance. Emissions shown in Table I were used to establish these proposed throughputs.

Table II. Proposed Annual Throughput

Distance to Receptor (meters)	Proposed Annual Throughout Threshold (tons)[1]	Alternative Proposed Annual Throughput Threshold (tons)[2]
100	8,400	36,294
200	27,904	112,632
300	73,378	296,180
400	109,057	440,193
500	212,272	856,805

[1] Throughputs are calculated incorrectly assuming non-detect compound emissions are equal to the detection limit.
[2] Throughputs are calculated correctly assuming non-detect compound emissions are equal to 0 per SCAQMD guidance.

3-2 (Cont.)

Comment 5: Draft Rule Language Definition of RERUN SCRAP should include customer returns.

As per the definition of 'Rerun Scrap' in the current draft rule language material that has left the facility—but is returned as sprues, gates, risers, foundry returns, or similar material is not included. The district staff has expressed concern that once it leaves the facility, an outside process could add oil, coatings, or some other contaminants that could produce emissions. A common practice within the metal sector is for customers to return sprues, gates, risers, returns and similar material back to the material provider. Since it is being returned, the material is not "generated at the facility," despite meeting the quality requirements.

Additionally, there are both industry standards and regulatory definitions which control the quality of scrap returned to a foundry for reprocessing. Because of these standards and regulatory requirements, the metal quality of third-party scrap is compositionally indistinguishable from internally generated Rerun Scrap.

For example, the federal MACT regulations for secondary aluminum production (40 CFR 63 Subpart RRR) strictly regulates the types and quality of aluminum which can be introduced into foundry furnaces. Subpart RRR defines the following terms (40 CFR §63.1503):

> Clean charge means furnace charge materials, including molten aluminum; T-bar; sow; ingot; billet; pig; alloying elements; aluminum scrap known by the owner or

3-5

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operator to be entirely free of paints, coatings, and lubricants; uncoated/unpainted aluminum chips that have been thermally dried or treated by a centrifugal cleaner; aluminum scrap dried at 343 °C (650 °F) or higher; aluminum scrap delacquered/decoated at 482 °C (900 °F) or higher, and runaround scrap. Customer returns means any aluminum product which is returned by a customer to the aluminum company that originally manufactured the product prior to resale of the product or further distribution in commerce, and which contains no paint or other solid coatings (i.e., lacquers).

In the case of Subpart RRR, clean charge, customer returns, and internal scrap are considered equivalent feedstocks. As such, Kaiser believes the industry standards and regulations are sufficient to protect returned materials from including oil, coatings, or other contaminants. Kaiser suggests adding "customer returns" to the definition of Rerun Scrap and adding a new recordkeeping requirement for customer return logs to be maintained at the facility to note down the material specifications that meet the definition of Rerun Scrap.

3-5 (Cont.)

Comment 6: There are significant safety and implementation concerns with the housekeeping requirements. Housekeeping requirements currently proposed in the draft rule language require use of approved cleaning methods. APPROVED CLEANING METHODS are techniques to clean while minimizing fugitive dust emissions consisting of wet wash, wet mop, damp cloth, low pressure spray, or vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97% control efficiency for 0.3 micron particles.

Using any of the approved cleaning methods (other than a "HEPA" vacuum) would involve introducing water or moisture. There are significant safety concerns introducing moisture in high heat environments in aluminum smelting facilities.

1. Explosion possibility
   Explosions have occurred in the past at aluminum smelting facilities when any water or similar liquids comes in contact with molten aluminum, including dross tubs. Kaiser's casthouse safety protocols, which conform to The Aluminum Association Molten Aluminum Handling Guidelines, precludes the use of liquids in areas which may come into contact with molten aluminum, regardless of alloy or size. Consequently, none of the suggested wet methods can be used in the casthouse area where there is any potential for exposure to molten aluminum.
2. Release of toxics
   When dross comes in contact with water, there is also a significant health and safety risk of byproduct gaseous emissions that result from the exothermic reaction of dross and water. Ammonia, methane, and hydrogen can be created, with ammonia being the most prevalent. Kaiser makes considerable efforts to not allow water to come in contact with the dross.

The only remaining alternative in the proposed rule language are "HEPA" vacuums. For Kaiser, given the layout and size of the facility, using a vacuum for cleaning purposes is not a practical cleaning methodology for all areas.

Although an explosion-proof floor sweeper with "HEPA" filters could conceivably work in some of the floor areas; our initial research of that type of equipment suggests that the commercially available units may not be able to meet the removal efficiency requirements set forth in the current draft of the new rules. Additionally, much of the non-dust debris that is typically present in some areas of the cast house is of sufficient size that it would not be picked up by a vacuum device, and must be mechanically; i.e., dry swept, to be disposed of.

3-6

6250 E. Bandini Blvd., Los Angeles, CA 90040

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Kaiser recognizes that cleaning is important to reduce the potential release of fugitive emissions; however, the allowable cleaning techniques need to be feasible. Particularly in Kaiser's case where the metals (arsenic and cadmium, and nickel) that drive the risk assessment results are not used by Kaiser in our manufacturing operations, but are rather low level or non-detect background impurities that are not unlike native area soils. Therefore, Kaiser requests that AQMD revisit the cleaning requirements to provide cleaning options/protocols that are both practical and achievable so that Kaiser, and facilities similar to Kaiser, can continue to safely operate.

3-6 (Cont.)

Thank you for the opportunity to comment and we would appreciate if the district considered and incorporated these in the next version of the rule.

Sincerely,

Edward E. Swistock, PE
Project Manager
Kaiser Aluminum Fabricated Products, LLC

6250 E. Bandini Blvd., Los Angeles, CA 90040

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Attachment A - SCAQMD ATIR Approval Letter

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 - www.aqmd.gov

Via E-mail, Certified Mail and Return Receipt

September 19, 2017

Mr. Edward E. Swistock, P.E.
Project Manager
Kaiser Aluminum Fabricated Products, LLC
6250 E. Bandini Blvd.
Los Angeles, CA 90040

Subject: AB2588 Air Toxics Inventory Report (ATIR) Approval
Kaiser Aluminum Fabricated Products, LLC (SCAQMD Facility ID No. 16338)

Dear Mr. Swistock:

The South Coast Air Quality Management District (SCAQMD) staff notified you by letter dated October 11, 2013 to prepare a detailed ATIR. Your ATIR submitted on April 30, 2014 for calendar year (CY) 2010 emissions has been reviewed and SCAQMD staff has updated your facility's priority score. As noted in the Facility Priority Score Form attached to this letter, the updated priority score is in the Intermediate Priority (Category B; 1< Priority Score <= 10) specified in the *"SCAQMD Supplemental Guidelines for Preparing Risk Assessments and Risk Reduction Plan for the Air Toxics "Hot Spots" Information and Assessment Act, November 4, 2016."*[1]. Therefore, a Health Risk Assessment (HRA) is not required.

Background

In accordance with the State of California's Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) and SCAQMD Rule 1402, SCAQMD staff notified your facility on October 11, 2013 that it must submit a detailed ATIR because of the high priority scores from the emissions inventory report for CY 2010. The ATIR prepared pursuant to this request was submitted on April 30, 2014.

A source test for dioxin/furan emissions was conducted from September 24-26, 2014 and the report was submitted to us on October 28, 2014. The source test report was conditionally approved by

[1] Available here: http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588

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SCAQMD's Source Test staff on November 14, 2014. A site visit to your facility was conducted on October 8, 2014 to understand your facility's operational activities.

A multiple metals, total chromium, hexavalent chromium and hydrogen sulfide compounds source test for the natural gas fired aluminum melting furnace (D9) was conducted from December 15-16, 2015. The source test report was submitted on February 25, 2016 and correction pages were submitted on June 9, 2016. The source test report was conditionally approved by SCAQMD's Source Test staff on June 23, 2016.

Incorporating the results of the source tests, SCAQMD staff recalculated your facility's 2010 priority score and determined it to be 2.31. Your facility's revised Priority Score demonstrates that for the toxics inventoried and the emission levels reported, your facility does not pose a significant health risk to the surrounding community and as a result no Health Risk Assessment is required. Therefore, you have complied in full with your obligations under AB 2588 Program. Please be aware that your facility is still in the "District Tracking" category of the AB 2588 Program and you are required to submit a quadrennial emissions inventory for year 2018. Your facility continues to be subject to an annual Hot Spots fee (refer to Table I of Rule 307.1) based on the results of your approved ATIR. Should your facility have significant changes in activities or operations, please notify SCAQMD promptly.

We thank you for your participation in the AB 2588 program. If you have any questions regarding this letter, please contact Victoria Moaveni at (909) 396-2455, or myself.

Sincerely,

Jillian Wong

Jillian Wong, Ph.D.
Planning and Rules Manager

Attachment: Facility Priority Score (2010)

JW:VM:WK

Response to Comment 3-1

See response to comment 2-3.

Response to Comment 3-2

See response to comment 2-1.

Response to Comment 3-3

See response to comment 2-3.

Response to Comment 3-4

See response to comment 2-3.

Response to Comment 3-5

Customer returns has been defined in paragraph (c)(8). The metal or alloy purity exemptions in paragraph (k)(3) excludes customer returns as part of the 1 percent scrap allowed.

Response to Comment 3-6

Staff recognizes the need for a moisture-free cleaning technique for aluminum smelting facilities. Paragraph (c)(2) allows for a vacuum equipped with HEPA filters as an option for housekeeping requirements. Both riding HEPA vacuum and backpack HEPA vacuums are available that can be used to meet the cleaning requirement without the use of water. Larger metal pieces may be cleaned using an alternative that does not result in fugitives, such as a flat edged shovel or picking up large debris by hand (insulated glove due to heat). Even with using HEPA, there will still be contamination left on the ground and debris. A HEPA is not expected to completely abate the metal dust emissions in the area, so even sweeping after HEPA usage may generate fugitive emissions. Recent fugitive emission events due to sweeping and compressed air used for cleaning have impacted nearby ambient monitors.

COMMENT LETTER #4

Los Angeles Waterkeeper
July 10, 2019

July 10, 2019

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

RE: Comments on Proposed Amended Rule 1407—Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations

Sent via e-mail to mmorris@aqmd.gov

Dear Mr. Morris,

Los Angeles Waterkeeper (LAW) submits the following comments on Proposed Amended Rule 1407—Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations.

LAW is a nonprofit environmental organization composed of over 3,000 members that works to protect and restore the inland and coastal surface and groundwaters throughout Los Angeles County. The South Coast AQMD jurisdiction includes the South Coast Air Basin, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernadino counties. Los Angeles Waterkeeper and its partner organizations thus advocate for improved water quality of many waterbodies within the South Coast AQMD jurisdiction.

Aerial pollutants such as arsenic, cadmium, and nickel from industrial sources can cause or exacerbate water quality problems both directly by deposition into waterbodies and indirectly by deposition onto land and subsequent runoff into water bodies. LAW has reviewed the Proposed Amended Rule 1407 and supports eliminating Rule 1407's overly broad exemptions, such as the "metal or alloy purity" and "clean aluminum scrap" exemptions, as metals containing arsenic, cadmium, and/or nickel pose a risk to the health of surrounding communities and waterbodies.

4-1

Effect of Particulate Matter on Waterbodies

Air serves as a medium for metals to directly and indirectly enter inland and coastal waterbodies. Particulate matter can increase acidity and/or change nutrient balances in waterbodies, deplete nutrients in soil, contribute to acid rain effects, and affect overall ecosystem

diversity.[1] These combined effects damage ecosystem health and threaten the water quality of streams, lakes, and the oceans in the South Coast AQMD jurisdiction. Further, metal particles are not biodegradable, allowing them to remain in waterbodies and contaminate drinking water supply.[2]

The Clean Water Act, Water Quality Standards, and Air Pollution

The federal Clean Water Act (CWA) aims to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[3] The CWA requires states to adopt water quality standards that support the waterbody's uses and protect the public health and welfare. The CWA presumes all water bodies should be fishable and swimmable.[4] States must monitor water quality and identify impaired or threatened waters. Once a state designates a waterbody as impaired, it must develop a strategy to restore the water quality. The California Water Code §13020, known as the Porter-Cologne Water Quality Act, enables the State Water Resources Control Board and Regional Water Quality Control Boards to implement the federal Clean Water Act pursuant to the California Water Code.

Airborne pollution affects this process in two ways. First, the Environmental Protection Agency has declared the direct and indirect deposition of particulate matter into waterbodies as a source of nonpoint pollution. Section 319 of the CWA requires states to develop nonpoint source pollution management programs. Additionally, stormwater runoff transports fallen particulate matter from surfaces (such as buildings and streets) into bodies of water. The CWA designates stormwater runoff as point source pollution and requires cities to implement Stormwater Management programs.

LAW therefore supports the Proposed Amended Rule 1407 with a few additional suggestions. First, we ask for more coordination between the South Coast Air Quality Management District and the Los Angeles Regional Water Quality Board in recognition that air, land, and water pollution do not respect the jurisdictional boundaries of regulatory agencies. In particular, SCAQMD should consider the effect of air pollution on waterbodies within its jurisdiction. Fugitive gases especially pose a risk of degrading water quality when metal burning operations are situated in close proximity to waterbodies such as the Los Angeles River, which suffers numerous water quality impairments. Additionally, while the Proposed Amended Rule 1407 will sunset the majority of Rule 1407's exemptions, certain exemptions remain. For example, facilities that melt less than one ton per year are only subject to recordkeeping provisions. We request clarification to what extent fugitive emissions could pose a threat to water quality, even from relatively small sources, from facilities in close proximity to waterbodies.

4-2

4-3

[1] https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm (Accessed July 10, 2019).
[2] Geiger, A., & Cooper, J. (2010). Overview of airborne metals regulations, exposure limits, health effects, and contemporary research. *Environmental Protection Agency, Air Quality: Washington, DC, USA.*
[3] 33 U.S.C. 1251 (a)
[4] 33 U.S.C. 1251 (a)(2) states, "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983"

Lastly, we recommend that SCAQMD include cost savings when conducting the Socioeconomic Impact Assessment of Proposed Amended Rule 1407. Reduced emissions of arsenic, cadmium, and nickel will lead to improved health of the surrounding communities and waterbodies. This translates into economic benefits, such as lowered health care costs and lowered costs from compliance with water quality standards.[5] While these metrics can be difficult to calculate, they should at the very minimum be noted in the overall cost benefit analysis of the Proposed Amended Rule 1407 to ensure a more accurate socioeconomic impact analysis.

4-4

Thank you for this opportunity to comment on the Proposed Amended Rule 1407.

Sincerely,

Kathryn Pettit
Law Fellow,
Los Angeles Waterkeeper

[5] See, for example, *The Cost of Air Pollution: Strengthening the economic case for action,* a report by the World Bank and Institute for Health Metrics and Evaluation, finding that air pollution cost the United States over $450 billion in total welfare losses in 2013. The U.S. Office of Management and Budget reported that U.S. Environmental Protection Agency regulations issued between 2004 to 2014 to improve air quality provided between $157 billion and $777 billion in economic benefits to the United States.

Response to Comment 4-1

Staff acknowledges the support for limiting the overly broad exemptions.

Response to Comment 4-2

The California Environmental Quality Act report is provided to other regulatory agencies, including water quality boards, for their review. The report includes a detailed analysis of potential water impacts from the proposed rule.

Response to Comment 4-3

The scope of PAR 1407 does not change the impacts to facilities that melt less than 1 ton per year of non-chromium metals. Staff did not analyze the extent of fugitive emissions impacts on water quality from facilities in close proximity to waterbodies because it is outside the scope of the proposed rule. Impacts, if any, would be unchanged by the amendments to the rule.

Response to Comment 4-4

Improved public health due to reduced air pollution emissions may also result in a positive effect on worker productivity and other economic factors; however, public health benefit assessment requires the modeling of air quality improvements. Therefore, it is conducted for Air Quality Management Plans and not for individual rules or rule amendments.

Comment Letter #5

Kaiser Aluminum Fabricated Products
August 2, 2019

KAISER ALUMINUM

02 August, 2019

Mike Morris
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, California 91765

Dear Mr. Morris,

Kaiser Aluminum ("Kaiser" or "the facility") appreciates the opportunity to comment on the South Coast Air Quality Management District ("District" or "SCAQMD") workshop proceedings and consideration of **SCAQMD Proposed Amended Rule 1407 (PAR 1407).**

General Comment:

Kaiser previously provided comments in regards to this matter on or about 09 July, 2019 inclusive of six specific comments. We appreciate the dialogue that we have had with District staff as a result of these previous comments. In addition to the previous six comments we offer an additional three comments, and elaborate on comment #6, included below for clarity.

Comment 6: *There are significant safety and implementation concerns with the housekeeping requirements. Housekeeping requirements currently proposed in the draft rule language require use of approved cleaning methods. APPROVED CLEANING METHODS are techniques to clean while minimizing fugitive dust emissions consisting of wet wash, wet mop, damp cloth, low pressure spray, or vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97% control efficiency for 0.3 micron particles.*

Using any of the approved cleaning methods (other than a "HEPA" vacuum) would involve introducing water or moisture. There are significant safety concerns introducing moisture in high heat environments in aluminum smelting facilities.

1. *Explosion possibility*
   Explosions have occurred in the past at aluminum smelting facilities when any water or similar liquids comes in contact with molten aluminum, including dross tubs. Kaiser's casthouse safety protocols, which conform to The Aluminum Association Molten Aluminum Handling Guidelines, precludes the use of liquids in areas which may come into contact with molten aluminum, regardless of alloy or size. Consequently, none of the suggested wet methods can be used in the casthouse area where there is any potential for exposure to molten aluminum.
2. *Release of toxics*
   When dross comes in contact with water, there is also a significant health and safety risk of byproduct gaseous emissions that result from the exothermic reaction of dross and water. Ammonia, methane, and hydrogen can be created, with ammonia being the most prevalent. Kaiser makes considerable efforts to not allow water to come in contact with the dross.

The only remaining alternative in the proposed rule language are "HEPA" vacuums. For Kaiser, given the layout and size of the facility, using a vacuum for cleaning purposes is not a practical cleaning methodology for all areas.

5-1

6250 E. Bandini Blvd., Los Angeles, CA 90040

KAISER ALUMINUM

Although an explosion-proof floor sweeper with "HEPA" filters could conceivably work in some of the floor areas; our initial research of that type of equipment suggests that the commercially available units may not be able to meet the removal efficiency requirements set forth in the current draft of the new rules. Additionally, much of the non-dust debris that is typically present in some areas of the cast house is of sufficient size that it would not be picked up by a vacuum device, and must be mechanically removed; i.e., dry swept, to be disposed of.

Kaiser recognizes that cleaning is important to reduce the potential release of fugitive emissions; however, the allowable cleaning techniques need to be feasible. Particularly in Kaiser's case where the metals (arsenic and cadmium, and nickel) that drive the risk assessment results are not used by Kaiser in our manufacturing operations, but rather are trace level or non-detect background impurities that are not unlike native area soils. Therefore, Kaiser requests that AQMD revisit the cleaning requirements to provide cleaning options/protocols that are both practical and achievable so that Kaiser, and facilities similar to Kaiser, can continue to safely operate.

Update to comment #6: (#6.a): Kaiser remains concerned with compliance on this issue. In further researching the availability of HEPA dry sweepers with a 99.97% 0.3 micron capture efficiency, there are some models that appear to be available. As a point of reference, the vendor we contacted refers to this as a "MERV 17" filtration system, using the OSHA nomenclature. In contacting these vendor(s), they do not offer explosion proof unit, which may limit their safe use for aluminum dust

We also believe that we will need to scrap and/or "dry-sweep" the floor surface to remove the larger metal pieces. These materials do not meet the definition of "dust" as contained in PAR 1407 Draft Rule Language. Since weekly housekeeping will be required using "Allowable Methods" as defined in the current rule language, we request that clarifying language be added that recognizes and allows cleaning of "non-dust" materials by other methods.

It is worth noting that this dust does not contain free elemental forms of the toxic metals in question, since the trace elements are contained in the stable aluminum alloy matrix, and are only potentially liberated in the presence of very high temperatures or purposeful chemical reactions that dissolve the aluminum matrix.

5-1 (Cont.)

Comment #7: Housekeeping - e.1.C-D states the "All areas where furnace and casting operations occur… " "shall be cleaned at least weekly…" The word "All" is troublesome from an enforcement standpoint. It could be interpreted to mean the 30' ceiling, crane rails, purlins, etc. Will it be possible to use the same language that is in the cutting and grinding sections of the rule specifying floors within 20 feet?

5-2

Comment #8: In the definition of "Metal Cutting" in section c.18 the word "abrasively"; i.e. non-mechanical, is used in the definition. This verbiage is not included in subsequent sections where [metal] cutting is referenced. Will it be possible to be consistent in the rule language to differentiate between "abrasive" cutting and non-abrasive mechanical cutting?

5-3

6250 E. Bandini Blvd., Los Angeles, CA 90040

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Comment #9: Effective date – housekeeping. It is very unlikely that Kaiser would be able to specify and purchase the required HEPA compliant equipment within 30 days as specified in the rule. Will it be possible to change the effective date to 01 July 2020 to align with the building enclosure requirements?

5-4

Thank you for the opportunity to comment and we would appreciate if the district considered and incorporated these in the next version of the rule.

Sincerely,

Edward E. Swistock, PE
Project Manager
Kaiser Aluminum Fabricated Products, LLC

6250 E. Bandini Blvd., Los Angeles, CA 90040

Response to Comment 5-1

See response to comment 3-6.

Response to Comment 5-2

The housekeeping requirements in subparagraph (e)(1)(C) have been clarified to specify cleaning of floor areas within 20 feet of applicable operations.

Response to Comment 5-3

As the commenter notes, Metal Cutting is defined in the rule as abrasive cutting. Other forms of cutting, including mechanical, machining, milling, turning, laser, water jet are not subject to the rule. Additionally, abrasive metal cutting conducted under a continuous flow of metal removal fluid is not subject to the rule.

Response to Comment 5-4

The effective date of the new housekeeping requirements will be July 1, 2020 to allow the purchase of specialized equipment and to make changes to storage and buildings.