SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Preliminary 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.

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

[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

hazard to human health.[5]. Table 1-1 summarizes the United Sates 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	US 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

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:

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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

- 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, and site visits to 30 of the 54 affected facilities. 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 four additional PAR 1407 Working Group Meetings since the rulemaking effort has been bifurcated into PAR 1407 and PR 1407.1. The eight 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, and May 23, 2019. A Public Workshop is also scheduled for June 19, 2019.

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 Enclosures (Subdivision (f))
- Recordkeeping (Subdivision (g))
- Source Testing (Subdivision (h))
- Applicable Material Testing Methods (Subdivision (i))
- Emission Control Device Monitoring (Subdivision (j))
- Exemptions (Subdivision (k))
- 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 sunsetted. 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 point 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.

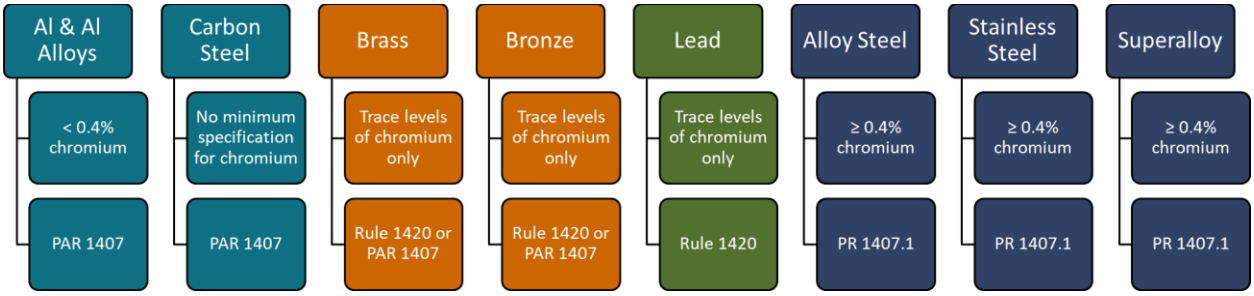
Staff agreed to bifurcate the proposed rules, but did so based on the chromium content in the metal or alloy. Hexavalent chromium has a cancer potency factor that is one or more orders of magnitude higher than arsenic, cadmium, or nickel. Thus emissions of hexavalent chromium would likely need more stringent 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:

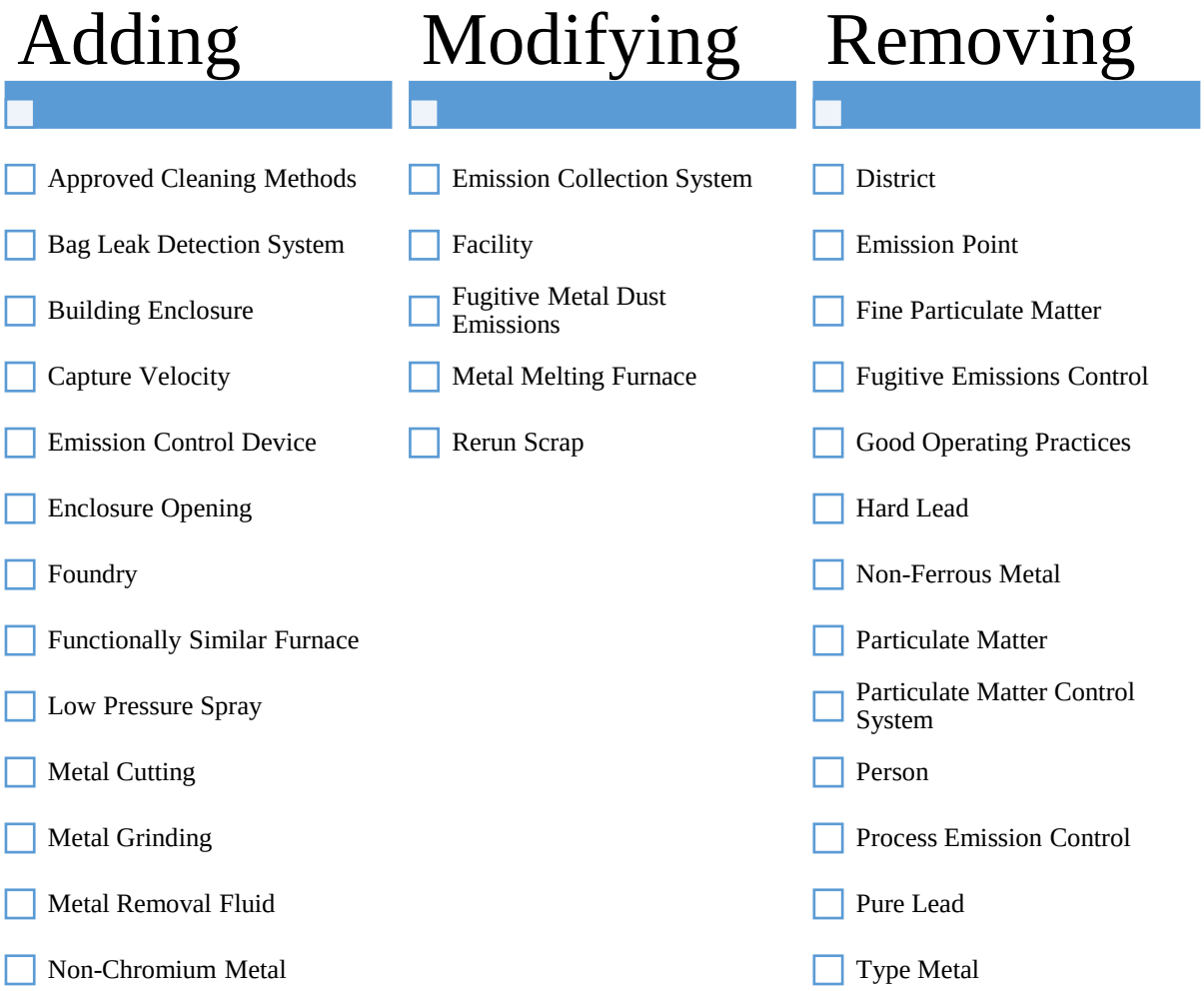
> *This rule applies to the owner or operator of a facility conducting non-chromium metal melting operation(s) including, but not limited to, smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning), and other miscellaneous processes such as dip soldering, 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), (d)(4), or January 1, 2021, whichever occurs first.

PAR 1407 will place specific emphasis on the control of the toxic air contaminants that the rule was intended to control – arsenic, cadmium, and nickel. The new emission control requirement will require emissions from a furnace melting arsenic, cadmium, or nickel either reduces arsenic, cadmium, and nickel emissions by 99 percent for each pollutant or demonstrates that annual facility-wide emissions from all non-chromium metal melting furnaces and associated emission control devices of arsenic, cadmium, and nickel are below 0.095 pounds, 0.74 pounds, and 12.20 pounds respectively.

The arsenic, cadmium, and nickel mass emission rates were developed from the annual screening cancer rates obtained from South Coast AQMD Permit Application Package "N", Version 8.1,

Table 1[1]. They are based on a screening cancer risk of 25 in one million for a receptor located 100 meters from the source. The screening cancer risk is a conservative estimate as it assumes the receptor located in the direction of the downwind concentration, worst-case meteorological conditions, and a low stack height of between 14 and 25 feet high.

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 annual facility-wide emissions of arsenic from all metal melting operations are below 0.095 pounds. Likewise, a facility may install a pollution control device that has a control efficiency less than 99 percent but reduces mass emissions below the annual 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 mass emission 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 mass emission limit; and it does not require air pollution control equipment for furnace operations with very low levels of arsenic, cadmium, and 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 that due to the physical properties of arsenic, arsenic can convert from solid to vapor at temperatures as low as 1,137 degrees Fahrenheit[2]. Arsenic oxide, a toxic that is also subject to regulation may vaporize even at room temperature and has a boiling point of 869 degrees Fahrenheit; these temperatures are 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 oxide in vapor form. A wet scrubber or a wet electrostatic precipitator may be required to control arsenic or arsenic oxide in vapor form. Where the facility-wide emissions of arsenic are greater than 0.095 pounds per year, 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 facility-wide arsenic emissions are below 0.095 pounds per year.

This subdivision will maintain the provision limiting visible emissions previously contained under fugitive emission control. Source testing requirements are being moved to subdivision (h). The maintenance program provisions will be split into Housekeeping Requirements (subdivision (e)) and Emission Control Device Monitoring (subdivision (j)). A comparison of current emission control requirements and proposed emission control requirements is provided in Table 2-1 below.

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[1] Permit Application Package "N", Version 8.1, South Coast AQMD, accessed June 2019 http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/attachmentn-v8-1.pdf?sfvrsn=4

[2] 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

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	Until January 1, 2021
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	Moved to Source Testing – (subdivision (h))
Maintenance program	Yes	Moved to Housekeeping Requirements (subdivision (e)) and Emission Control Device Monitoring (subdivision (j))
Limit visible emissions	Yes	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 areas 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 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 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; 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 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 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 Enclosures (Subdivision (f))

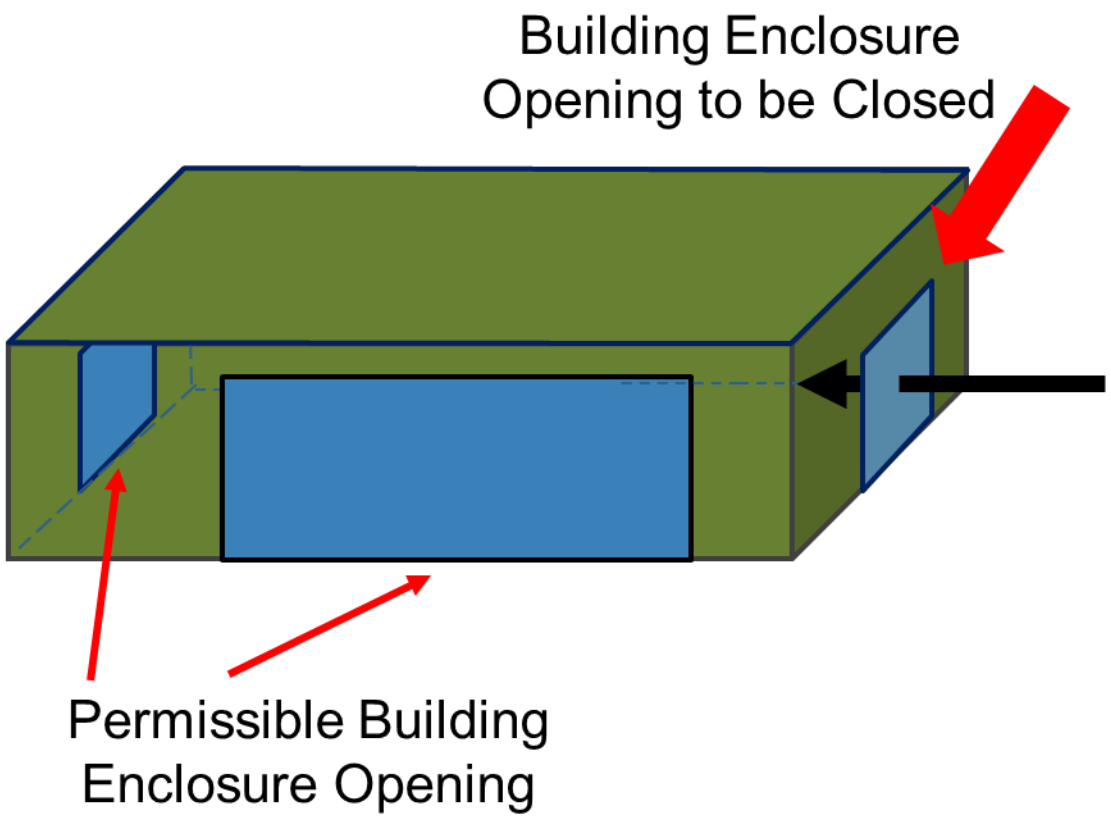
Paragraphs (f)(1) and (f)(2) require the owner or operator of a non-chromium metal melting operation to conduct operations within a building enclosure that minimizes cross draft conditions

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. Additionally, the owner or operator can demonstrate to the Executive Officer equivalent or more effective ways to minimize cross-draft conditions.

An illustration of building enclosure requirements is provided in Figure 2-3 below.

Figure 2-3: Building Enclosures



In the event that an owner or operator cannot comply with the requirements of paragraphs (f)(1) and (f)(2) 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)(3) requires

a Building Enclosure Compliance Plan. The Building Enclosure Compliance Plan shall be submitted no later than 90 days after rule adoption for existing facilities and prior to initial start-up for all other operations 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)(4) 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)(5).

Recordkeeping (Subdivision (g))

PAR 1407 will require records be kept to assist in verifying compliance. Pursuant to (g)(5), 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:

- (g)(1) – Type and quantity of raw materials processed, including purchase records to confirm these quantities;
- (g)(2) – Data related to the content of arsenic, cadmium and nickel in raw materials, including the results of analyses obtained from materials testing by a method identified in paragraph (i), a U.S. EPA-approved or Executive Officer approved method, or metallurgical assay used to verify the metal contents of alloys;
- (g)(3) – Quarterly analyses of baghouse catches;
- (g)(4) – Source test data as required by subdivision (h) and paragraph (j)(3);
- (g)(5) – Housekeeping activities completed pursuant to subdivision (e);
- (g)(6) – Parametric device monitoring for emission control devices pursuant to subdivision (j); and
- (g)(7) – Anemometer data and calibration documentation as required by paragraph (j)(6);
- (g)(8) – Smoke test documentation as required in Attachment (B)

A comparison of current emission control requirements and proposed emission control 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)

Source Testing (Subdivision (h))

Facilities shall submit a source test protocol to the Executive Officer at least 60 calendar days prior to conducting a source test and 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; 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 (h)(2) will require an initial source test and paragraph (h)(3) will require subsequent source tests every 60 months, thereafter, to demonstrate compliance with the emission control requirement specified in subdivision (d). For uncontrolled furnaces, paragraph (h)(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.

For new or modified emission control devices that start after the adoption of PAR 1407, paragraph (h)(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 (h)(6) and (h)(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 (h)(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 capacity. Paragraph (h)(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 (h)(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 (h)(11) states that the source test method selected must be approved by the Executive Officer. Additionally, according to paragraph (h)(11), violating any specified source test method constitutes violating the rule.

Paragraph (h)(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 (h)(13).

Applicable Material Testing Methods (Subdivision (i))

Proposed Amended Rule 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. The only non-administrative change to this subdivision is to remove the pig lead analysis technique which is no longer applicable.

These testing methods may be used to gather data which may be used to claim the low purity exemption. These testing methods include the following:

- ASTM E 227-67 (1982), "Standard Method for Optical Emission Spectrometric of Aluminum and Aluminum Alloys by the Point-to-Plane Technique;"
- ASTM E 607-90, "Standard Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique, Nitrogen Atmosphere;"
- ASTM E 1251-88, Standard Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Argon Atmosphere, Point-to-Plane Unipolar Self-Initiating Capacitor Discharge;"
- ASTM E 536-84 (1988), "Standard Test Method for Chemical Analysis of Zinc and Zinc Alloys" to determine cadmium concentration in zinc and zinc alloys;
- ASTM E 53-86a "Standard Test Method for Chemical Analysis of Copper" to determine cadmium concentration in copper and copper based alloys;
- ASTM E 62-89, "Standard Test Method for Chemical Analysis of Copper and Copper Alloys" to determine arsenic concentration in copper and copper based alloys;
- US-EPA Method 7061 (Revision 1, December, 1987), "Arsenic (Atomic Absorption, Gaseous Hydride)," U.S. EPA Test Methods for Evaluating Solid Waste Physical and Chemical Methods, First Update (3rd Edition), January, 1988; EPA/530/SW-846.3-1; PB 89-14876 shall be used. For aluminum alloys sampling shall employ Method 1 listed in Attachment A – Digestion of Metal Aluminum Sample for Determining Arsenic to determine arsenic content in aluminum or zinc (or any other alloy in which determination

of arsenic by spectrochemical methods is compromised by interference) to evaluate eligibility for exemption under paragraph (k)(3).

Emission Control Device Monitoring (Subdivision (j))

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 (j)(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 pursuant to South Coast AQMD Rule 1155 – Particulate Matter (PM) Control Devices.

Pressure Across a Filter (paragraph (j)(2))

By January 1, 2021, the pressure across the filter of an emission control device shall be continuously measured with a mechanical gauge that is visible and in clear line of sight of the operator or maintenance personnel. The reading from the gauge provides an indication of whether the filters are operating within the proper range of pressure differential or whether the filters may be clogged or have leaks, thereby compromising their effectiveness. The monitoring device shall be required to:

- Be equipped with ports that allow for periodic calibration in accordance with manufacturer's specifications;
- Be 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.

If the pressure across the filter (associated with the emission control device) is not maintained within the range 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 the averaging periods specified below, paragraph (j)(3) requires the owner or operator to conduct additional source testing.

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

The acceptable range of pressure across the filter may be specified in the Permit to 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 (j)(4) and (j)(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, or any more stringent methods required by OSHA or CAL/OSHA.

In addition, for each emission collection system required to be monitored under PAR 1407, a 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 in turn improves 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 Ventilation Systems of an Emission Control Device Pursuant to Paragraph (j)(5).

Anemometer (paragraph (j)(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 a capture velocity of at least 2,000 feet per minute. For both of the capture velocities above, the alternative is to maintain at least the minimum slot velocity measured in the most recent source test that verified complete collection efficiency is acceptable.

Exemptions (Subdivision (k))

PAR 1407 provides 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 melts no more than one ton per year of all non-chromium metals are exempt from all requirements except for recordkeeping. Sources will still 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 less than 0.002 percent of arsenic and less than 0.004 percent of

cadmium on a monthly weighted average shall only be subject to housekeeping, building enclosure, 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.

A threshold of 8,400 tons of metal melted per year is included in the exemption (k)(3) to address high throughput facilities. The threshold is 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.

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 is 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) 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. 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. This requirement will instead be included in an upcoming amendment to Rule 1420.2.

Metal Grinding and Cutting with Metal Removal Fluids

Metal grinding or cutting conducted under a continuous flood of metal removal fluid have greatly reduced fugitive emissions and are exempted in paragraph (k)(8) from building enclosure requirements.

Repair and Maintenance

Metal grinding or cutting operations conducted for repair or maintenance purposes 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 Ventilation Systems of an Emission Control Device Pursuant to Paragraph (j)(5) (Attachment B)

Attachment B specifies the method for periodic smoke tests to demonstrate capture efficiency for ventilation systems of add-on air pollution control device(s) pursuant to paragraph (j)(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 conditions. An acceptable smoke test shall demonstrate a direct stream to the collection location(s) of the ventilation system without meanderings out of this direct path. 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 costs less than $1,000 annually.

Staff estimates that 19 of the 54 facilities (35 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 between $164,000 and $272,000 for each of the 19 facilities. Four facilities (seven percent) are expected to require construction of building enclosures to comply with PAR 1407. The cost of the enclosures range between $184,000 and $340,000 for the construction of one wall or barrier based on cost

estimates from similar activities required in proposed amended Rule 1469 - Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Anodizing Operations[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 $20,000 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: eight facilities are expected to conduct only one source test; three facilities will need to conduct two source tests; one 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 $130,000[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 $65,000 annually per control device. For facilities operating control devices, PAR 1407 requires a pressure gauge, data acquisition system, and anemometer. There will be one-time cost of $90,000, $22,500, and $6,375, respectively for each of the 19 control devices expected to be subject to PAR 1407. There will also be an on-going requirement to conduct smoke testing at an annual cost of $3,200 for each of the control devices.[3]

[1] Final Socioeconomic Impact Assessment for Proposed Amended Rule 1469 – Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Anodizing Operations, South Coast AQMD, November 2018

[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

[3] Final Staff Report, Proposed Amended Rule 1420 – Emissions Standard for Lead, South Coast AQMD, December 2017

The estimated total costs by expense for all facilities subject to PAR 1407 is presented in Table 3-1 below. For cost ranges, the highest cost is used in the table. Annualized costs were determined using a ten year expected life for equipment.

Table 3-1: Total Costs by Expense Type

Expense Type	Number of Facilities	Cost	Total Cost	Annualized Cost
Minor Building Upgrades	19	$272,000	$5.2 million	$639,000
Enclosures	4	$340,000	$1.4 million	$172,000
Source Test	21 source tests at 13 facilities	$20,000 (every 60 months)	$84,000 annually	$84,000
Control Device	10 control devices at 4 facilities	$131,000 ($65,000 annually)	$1.3 million (plus $650,000 annually)	$810,000
Pressure gauge	19 gauges at 8 facilities	$90,000	$1.7 million	$209,000
Data acquisition system	19 systems at 8 facilities	$22,500	$0.4 million	$49,000
Anemometer	8	$6,375	$0.1 million	$6,000
Smoke Test	19 tests	$3,200 (annually)	$61,000 (annually)	$61,000
TOTAL Annualized Cost				$2,030,000

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 and 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

Expense Type	Small Facility Processing < 8,400 Tons Per Year	Small Facility Processing < 8,400 Tons Per Year With Existing Control Device	Large Facility Processing Low-As and Low-Cd Metals	Large Facility With Installation of New Control Device
Minor Building Upgrade	$272,000	$272,000	$272,000	$0
Enclosures	$0	$0	$0	$340,000
Source Test	$0	$20,000	$20,000	$40,000
Control Device	$0	$0	$0	$131,000 (plus $65,000 annually)
Pressure gauge	$0	$90,000	$0	$90,000
Data acquisition system	$0	$22,500	$0	$22,500
Anemometer	$0	$6,375	$0	$6,375
Smoke Test	$0	$3,200 (annually)	$0	$3,200 (annually)
Total Cost (10 years)	$272,000	$443,000	$292,000	$1,312,000
Annualized Cost	$33,000	$54,000	$36,000	$161,000

EMISSIONS IMPACT

Implementation of PAR 1407 will reduce both point source and fugitive 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 will be 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. A comparative analysis will be prepared and released for public review and comment at least 30 days prior to the South Coast AQMD Governing Board Hearing of Proposed Amended Rule 1407, which is anticipated for September 6, 2019.