

# Proposed Amended Rule 1407

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Working Group #2

November 9, 2017



# Summary of Working Group #1

- Rule development process
- Current Rule 1407 requirements
- Potentially affected facilities
- Breakdown of furnace data
- Site visits and surveys





# Purpose and Applicability

- Purpose
  - Reduce emissions of:
    - Current 1407: Arsenic, cadmium, and nickel
    - PAR 1407: Include hexavalent chromium
- Applicability
  - Current 1407: Non-ferrous metal melting operations
  - PAR 1407: Include ferrous metal melting operations

# Stainless Steel

- Chromium
  - Stainless steel contains 10.5-28% chromium
  - At high temperatures, hexavalent chromium can be formed from the oxidation of chromium<sup>1</sup>
- Nickel
  - The majority of the stainless steels contain 8-10% nickel



<sup>1</sup> <https://www.osha.gov/SLTC/hexavalentchromium/>

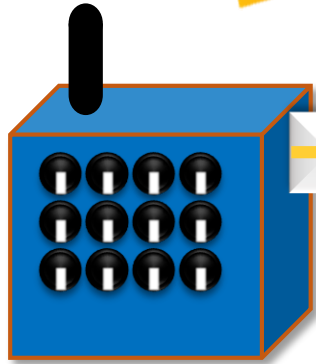
# Hexavalent Chromium

- Hexavalent chromium was identified as a carcinogenic toxic air contaminant in 1986 by the California Air Resources Board
- Can occur as an aerosol or particulate matter in the air
- Exposure to hexavalent chromium can cause both cancer and non-cancer health effects
  - Inhalation over a long period time increases risk of lung and nasal cancer
  - Non-cancer effects include irritation of nose, throat and lungs including nasal sores and perforation of the membrane separating the nostrils

# PAR 1407 Control Approach

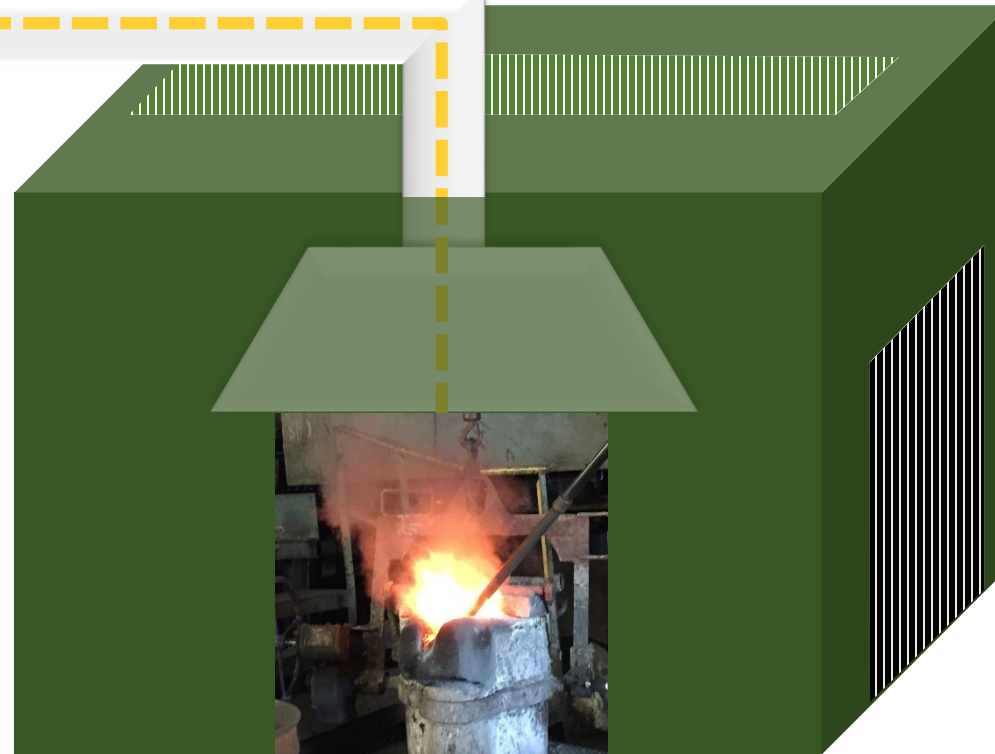
## Point Source Controls

Point source pollution controls to reduce metal particulate emissions at source



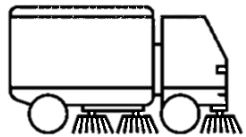
## Total Enclosure

Building enclosure, with minimal openings for ingress and egress to contain fugitive metal particulate emissions



## Housekeeping

Housekeeping provisions to minimize fugitive metal particulates from becoming airborne



# Requirements – Point Source

- Current 1407
  - Vent all emission points to an emission collection system ducted to a control device that reduces the particulate emissions by 99%
- PAR 1407 – Initial Concepts
  - Deliberating between basing requirements on emission of specific toxics or emission of particulates
  - Considering the option to meet either control efficiency or mass emission rate



# Requirements – Source Tests

- Current 1407
  - One-time source test to determine control efficiency of the particulate control device
    - SCAQMD Method 5.2 – Determination of Particulate Matter Emissions from Station Sources Using Heated Probe and Filter
    - Alternative method approved by Executive Officer
  - Executive Officer may require additional source testing periodically or when the process is changed
- PAR 1407 – Initial Concepts
  - Proposing periodic source testing

# Control Efficiency vs Mass Emission

Source Test Requirement	Control Efficiency	Mass Emission
Testing at Inlet	Yes	No
Testing at Outlet	Yes	Yes
Low Inlet at Source	No	Yes

- Source Testing
  - Control efficiency requires testing the inlet and outlet
  - Mass emission requires testing only the outlet (cost savings)
- Low Inlet Source
  - Mass emission is easier to verify than control efficiency
- Mass emission provides a more absolute amount of a specific compound that will be allowed from a point source

# Emission Control Device Monitoring

- Current 1407
  - Requires maintenance plan and use of measuring devices
- PAR 1407 will remove maintenance plan and instead enhance current parametric monitoring
  - Monitoring of key parameters can identify operational issues of air pollution control equipment
    - More continuous status of operating conditions
    - Indication that emissions are not well controlled
    - Alert the operator of operational issues or needed maintenance on the pollution control equipment



# Emission Control Device Monitoring – Flow Meter

- Current 1407
  - Flow meter to indicate air velocity in the duct leading to or from the control device
- PAR 1407
  - Flow meter with continuous data acquisition system to monitor the air velocity in the duct
  - Smoke test once every three months to demonstrate capture efficiency

# Emission Control Device Monitoring – Pressure Gauge

- Current 1407
  - Magnehelic or light sensitive gauge with an alarm system to indicate the pressure drop
- PAR 1407
  - Gauge with a continuous data acquisition system to monitor the pressure drop across the filter
  - Source test required if the pressure across the filter is not maintained

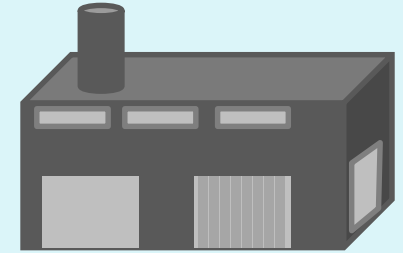
# Emission Control Device Monitoring – Broken Bag Detector

- Current 1407
  - Broken bag detector to sound an alarm if there are broken/damaged filter media or leaks
- PAR 1407
  - Bag Leak Detection System (Rule 1155) to continuously monitor bag leakage and failures

# Total Enclosures

- Current 1407
  - No requirements for metal melting operations to occur inside a building enclosure
- PAR 1407
  - Proposing all metal melting operations be conducted in a total enclosure
  - Building Enclosures
    - Provides a secondary containment of fugitive emissions
    - Prevents exposure to the elements
    - Minimizes cross-draft

Total Enclosure



- Permanent containment structure
- Completely enclosed with floors, walls and a roof
- Limited openings to allow access and egress of people and vehicles
  - Minimize openings using automatic roll-up doors, plastic strip curtains, etc. to:

# Housekeeping Requirements



- Current 1407
  - Housekeeping Plan submitted with the Compliance Plan which specifies how housekeeping measures will minimize fugitive emissions
- PAR 1407
  - Remove Housekeeping Plan and incorporate specific provisions similar to those in other recently amended rules
  - Designed to minimize fugitive dust in and around building enclosures where metal melting processes are located
    - Fugitive dust that accumulates on surfaces can become airborne potentially exposing surrounding land uses



# Ambient Air Monitoring

- Current 1407
  - No provisions for ambient air monitoring
- PAR 1407
  - Will not include provisions for mandatory or an on-ramp for ambient monitoring
  - Ambient monitoring for Rule 1407 facilities to be addressed in Proposed Rule 1480
- Proposed Rule 1480 – Toxics Monitoring
  - Ambient monitoring of toxic air contaminants





# Current 1407 Exemptions

- Small Quantity
- Metal or Alloy Purity
- Aluminum
  - Clean aluminum scrap
  - Aluminum scrap furnaces
  - Aluminum pouring
- Rule 1420 – Emissions Standard for Lead
- Control Devices for Fugitive Emissions

# Small Quantity Exemption

- Current 1407
  - Melts less than one ton per year of all non-ferrous metals; or
  - Using formula and Exemption Limits listed in Table I
- PAR 1407
  - Retain an exemption for total metal melted
    - Reassess one ton per year threshold
  - Reassess need for formula and Exemption Limits in Table I

# Metal or Alloy Purity Exemption

- Current 1407
  - Furnaces that do not melt scrap (except for clean aluminum scrap or rerun scrap); and
  - Metal or alloy melted must have less than 0.004% cadmium and 0.002% arsenic
- PAR 1407
  - Reassess percentage limit for cadmium and arsenic
  - Include percentage limit for hexavalent chromium and nickel

# Aluminum Exemptions

- Current 1407
  - Clean aluminum scrap or mixture of clean aluminum scrap or aluminum ingots to produce extrusion billets
  - Combustion chamber in a reverberatory aluminum furnace constructed with a charging well
  - Aluminum pouring equipment
- PAR 1407
  - Reassess aluminum exemptions

# Exemption for Rule 1420 – Emissions Standard for Lead

- Current 1407
  - Exempt from control efficiency requirement if meets Rule 1420 requirements
- PAR 1407
  - Make consistent with new Rule 1420 requirements
  - Additional rule exemptions?

# Exemption for Control Devices for Fugitive Emissions

- Current 1407
  - Devices used solely to control fugitive emissions
- PAR 1407
  - Remove exemption for control devices for fugitive emissions
    - Ensure that fugitive emission control devices are operated and maintained at approved control efficiencies



# Schedule

South Coast  
AQMD

- Site Visits Ongoing
- Additional Working Groups TBD
- Public Workshop February 2017
- Stationary Source Committee March 16, 2018
- Set Hearing April 6, 2018
- Public Hearing May 4, 2018



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