WORKING GROUP MEETING #7
PROPOSED AMENDED RULE 1407
CONTROL OF EMISSIONS OF ARSENIC, CADMIUM AND NICKEL FROM NON-CHROMIUM METAL MELTING OPERATIONS

March 12, 2019

SCAQMD Headquarters

Diamond Bar, CA

Agenda

- Summary of Working Group Meetings #5 and #6
  - Discussed proposed concepts
  - Comments from Working Group Meetings #5 and #6 will be addressed as we walk through proposed rule language today
- Preliminary draft rule language discussion
  - Will provide additional information mass emission limits, proposed exemptions, and Building enclosures

Proposed Rule Language

Preliminary Draft Rule Language

- Draft rule language provided to promote discussion
- Requesting stakeholder input and further information
- General approach focuses on measures used in recent toxic rules that address toxic metal particulate emissions, including fugitive emissions

Purpose, Applicability, and Definitions

Purpose (a) and Applicability (b)

- Purpose (a):
  - Purpose is to reduce emissions of arsenic, cadmium and nickel from non-chromium metal melting operations
  - Changed “non-ferrous” to “non-chromium”

- Applicability (b):
- Applies to owner or operators of 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
- Changed “non-ferrous” to “non-chromium”

Definitions (c)

Amend Subdivision (c) – Definitions, by:

Removing

- Non-Ferrous Metal
- Hard Lead
- Pure Lead
- Type Metal
- Particulate Matter
- Fine Particulate Matter (PM_{10})
- Good Operating Practices
- Emission Point
- Process Emission Control

AND

Adding

- Bag Leak Detection System
- Capture Velocity
- Emission Control Device
- Foundry
- Building Enclosure
- Enclosure Opening
- Non-Chromium Metal
- School
- Sensitive Receptor

Emissions Control Requirements

Emissions Control – Current Rule 1407

- Establishes a control efficiency limit of 99% for particulate emissions
  - No emission limits for Arsenic, Cadmium, and Nickel
- Limits control device inlet gas stream to 360º F, unless control efficiency of 99% can be demonstrated at higher temperature

Low Mass Emission Rates

- Previously proposed 100 tons per year exemption if mass emission rates were below following thresholds:
  - Arsenic < 0.0005 lb/hr;
  - Cadmium < 0.018 lb/hr; and
  - Nickel < 0.02 lb/hr
- Stakeholders noted that actual emission rates could be much lower at high process rates, thereby unnecessarily triggering emission controls
- Revised proposal
  - Establish mass emissions consistent with cancer screening risk thresholds for permitting*; and
  - Remove process rate threshold

* See Attachment N Table 1.0 – for Use in Conjunction with Risk Assessment Procedures for Rules 1401, 1401.1 and 212

Attachment N – Table 1 Assumptions

- All receptors located downwind
- Screening emission levels based on receptor with highest concentration in circular grid within specific distance (25m, 50m, 100m etc.)
- Modeling based on point source (excludes fugitive emissions)
- Modeling based on highest concentration from 24 meteorological stations at each distance

Addressing Low Mass Emission Rates

- Mass emission rates based on Cancer Risk of 25 in a million for a receptor located 100 meters from the source
- Annual screening cancer rates obtained from Attachment N, Table 1
- Converted annual to hours based on 12 hours per day, 6 days per week, 50 weeks per year (3,600 hours per year)

Toxic	Annual Rate (lb)	Proposed Hourly Rate (lb)
Arsenic	0.0953	0.00003
Cadmium	0.74	0.0002
Nickel	12.2	0.003

Proposed Emissions Control (d) – PAR 1407 (For Discussion)

- Emissions control requirements will apply to metal melting furnaces and include provisions similar to recently-approved toxic rules:
  - Minimum control efficiency of 99% for arsenic, cadmium and nickel; or
  - Emission limit for the following toxic air contaminants:
    - Arsenic: ≤ 0.00003 pound per hour;
    - Cadmium: ≤ 0.0002 pound per hour; and
    - Nickel: ≤ 0.003 pound per hour; or
  - Requirements to become effective January 1, 2021

Proposed Housekeeping Requirements

Proposed Housekeeping Requirements (e) - PAR 1407

- Require use of the following approved cleaning methods:
  - Wet wash or mop
  - Damp cloth
  - Low pressure spray nozzle
  - Vacuum
  - Other alternative method as approved by the Executive Officer
- Require weekly cleaning of following areas where:
  - Metal melting operations are conducted
  - Metal-containing wastes from housekeeping activities are stored, disposed of, recovered or recycled
  - Material collected from control devices are stored
  - Metal grinding or metal cutting operations are conducted

Proposed Housekeeping Requirements (e) - PAR 1407 continued

- Prohibit the use of compressed air or dry sweeping for housekeeping or other cleaning activities
- Require quarterly inspection and cleaning, if necessary, of collection vents, openings and ducting of each control device associated with metal melting operations
- Require transport of materials capable of generating fugitive dust, including slag, dross or any other metal-containing waste generated from housekeeping, construction or maintenance, be conducted within a closed conveyor system or in covered containers

Comparison: Current Rule 1407 and PAR 1407 - Housekeeping

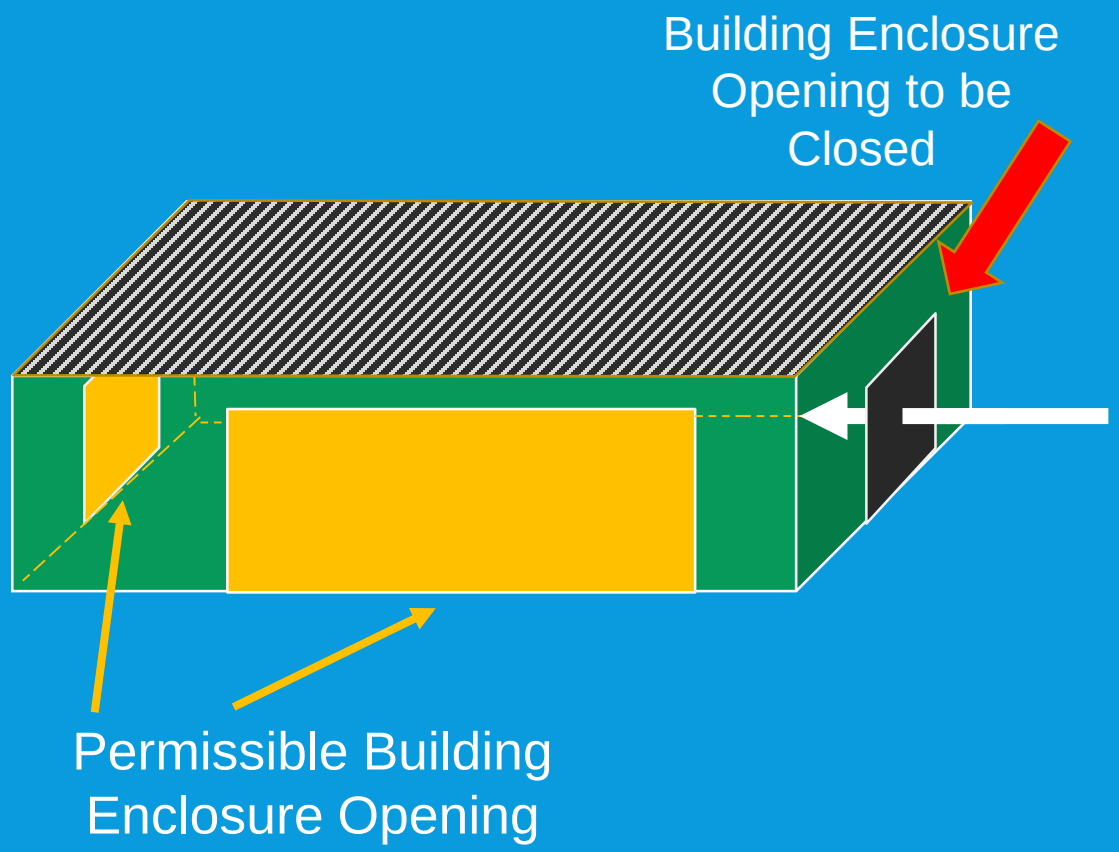
Requirement	Current Rule 1407	PAR 1407 (Effective Upon Date of Amendment)
Storage of dust-forming material	Yes	Yes
Weekly use of approved cleaning method on surfaces subject to vehicular or foot traffic	Yes	Yes
Weekly use of approved cleaning method on floors within close proximity to metal grinding and cutting operations	No Provision	Yes

Comparison: Current Rule 1407 and PAR 1407 - Housekeeping

Requirement	Current Rule 1407	PAR 1407 (Effective Upon Date of Amendment)
Prohibit use of compressed air or dry sweeping for housekeeping or other cleaning activities	No Provision	Yes
Quarterly inspection and cleaning of collection vents, openings and ducting of each control device associated with metal melting operations	No Provision	Yes
Transport of materials capable of generating fugitive dust in covered containers or in closed conveyor system	No Provision	Yes

Proposed Building Enclosure Requirements

Building Enclosures



- Use of building enclosures for areas where metal melting, grinding and cutting operations are conducted
- Provisions to minimize and eliminate cross-drafts
- Allows multiple doors and openings, provided no cross-draft where fugitives can move through structure
  -

Building Enclosure Requirements (f)

- Building enclosure consists of a permanent structure, completely enclosed with a floor, walls and a roof to prevent exposure to the elements
  - A room within a building with a floor, walls, and a roof is also an enclosure
- Benefits of building enclosures:
  - Provides a secondary containment of fugitive emissions
  - Minimizes cross drafts caused by wind
  - Optimizes the collection efficiency of control devices
- Current Rule 1407 does not have building enclosure provisions

Proposed Building Enclosure (f) – PAR 1407 continued

- Building enclosure requirements effective January 1, 2021
- Acceptable methods to minimize cross-draft conditions:
  - Automated roll-up doors
  - Overlapping plastic strip curtains
  - Vestibules
  - Airlock system
  - Alternative Executive Officer - approved methods capable of minimizing cross-draft

Proposed Building Enclosure (f) – Building Enclosure Plan

- If building enclosure provision is in conflict with requirements of municipal codes, OSHA or other agency requirements, operator can submit a Building Enclosure Compliance Plan (BECP)
- Operator must submit BECP with modifications to building enclosure that are needed to meet other agency requirements
- Submittal must be:
  - Within 30 days after rule adoption for operations existing before date of rule adoption; or
  - Prior to initial start-up for all other operations
- Operator to resubmit BECP 30 days after Executive Officer disapproval

Recordkeeping

Recordkeeping (g) – Current Rule 1407

- Maintain records, including:
  - Source tests data to demonstrate that control devices meet a minimum of 99 % control efficiency for particulate matter
  - Types and quantities of materials being considered for the metal and alloy purity exemption and Table 1 metals melted
  - Any analyses conducted to demonstrate metal or alloy content of materials considered for purity exemption
- Records required to be maintained for two (2) years

Comparison: Current Rule 1407 and PAR 1407 – Recordkeeping

Current Rule 1407	PAR 1407 (Effective Upon Date of Amendment)
Source test data to demonstrate 99% control efficiency	Same as Current Rule 1407
Types, quantities and analyses of metals melted	Same as Current Rule 1407
Raw materials usage records (only required if seeking purity exemption)	Monthly quantities of raw materials processed – ingots, scrap, reruns
Analyses of melt samples (only required if seeking purity exemption)	Monthly analyses of melt samples to determine As, Cd and Ni content

Comparison: Current Rule 1407 and PAR 1407 – Recordkeeping continued

Current Rule 1407	PAR 1407
Not required to be maintained	Parametric monitoring data files, including pressure differences across filter media
Not required to be maintained	Housekeeping, construction, inspection, maintenance and building enclosure repair records
Not required to be maintained	Data logs for periodic smoke testing, capture velocity measurements, baghouse leak detection systems
Maintain records for 2 years	Maintain records for 3 years

Proposed Source Testing Requirements

Source Testing (h) - Overview

- Source testing verifies that control equipment is meeting point source requirements (control efficiency or emission rates) and provides a “snap shot” of the device effectiveness
- Periodic source testing needed to demonstrate that control equipment continues to satisfy control efficiency and total mass emissions limit requirements
- Need to monitor key operational parameters of control devices by utilizing signals that provide guide to ensure proper maintenance and functioning of equipment and minimization of toxic emission losses

Source Testing (h) – Current Rule 1407

- Under current Rule 1407:
  - One-time source test required to demonstrate compliance
  - All emission points required to be vented to emission collection system
  - Gas stream from emission collection system required to be ducted to control device capable of controlling PM by 99 percent
  - Facilities claimed metal or purity exemption and were not subject to source testing requirements
  - No source test with As, Cd and Ni emissions or control equipment data was submitted to the SCAQMD

Proposed Source Testing (h) – PAR 1407

- Initial and periodic source testing required to confirm
  - Demonstrate collection system is operating effectively
  - 99% control efficiency limit for arsenic (As), cadmium (Cd) and nickel (Ni); or
  - Mass emission limits for arsenic, cadmium, and nickel
- Initial test to be conducted by January 1, 2021
- Recommend source testing of point source stacks once every 60 months

Applicable Material Testing Methods(i)

Applicable Material Testing Methods (i)

- The materials testing methods outlined in the current Rule 1407 to determine composition and concentration of metals in raw materials will be maintained in PAR 1407
- Minor change to exclude provision referencing the composition of “pig lead” which will be addressed by the 1420 series rules

Proposed Emission Control Device Monitoring Requirements

Emission Control Device Monitoring (j) – Current Rule 1407

Under current rule, facility operators required to:

- Submit compliance plan to demonstrate how operator will comply with applicable provisions or proof exemption
- Establish a maintenance program that includes:
  - Monitoring air velocities in hoods and ducts and pressure drops across control device
  - Visual inspections of baghouses and ducts operating under positive pressure
  - Maintaining records of these activities
- Monitor key operational parameters using:
  - Flow meter to measure flow rates to and from the emission collection system
  - Bag leak detection system to determine the presence of broken, leaky or damaged baghouse filter media
  - Temperature gauge or thermocouple to monitor control device inlet

Monitoring Emission Control Device – PAR 1407

- Remove compliance plan for compliance demonstration
- Monitoring key parameters such as pressure drops or increases across a filter can provide early detection of operational issues with pollution controls
- Maintain existing parametric monitoring, with added specificity, that are required for all sources with pollution controls
- Add provision for use of a continuous data logger to track and record pressure differences

Comparison: Current Rule 1407 and PAR 1407 – Control Device Monitoring

Current Rule 1407	PAR 1407 (Effective January 1, 2021)
Compliance plan to demonstrate how operators will comply with rule provisions or demonstrate proof of exemption	No compliance plan. Enhancement of current parametric monitoring consistent with current toxic rules and recent amendments
Establish maintenance program that includes monitoring air velocities in hoods and ducts	Measurement of control equipment air inlet velocities to ensure efficient operation
Monitor the following: - Flow rates to and from emission collection system - Pressure drops across baghouse filter media to determine presence of leaks or breaks that might affect equipment function - Temperature of control device inlet	All parameters referenced in current Rule 1407 will be similarly monitored in PAR 1407. In addition, a data logger will be utilized to track and record pressure differences across baghouse filter media

Proposed Exemption Requirements

Exemptions (k) – Current Rule 1407

Rule 1407 currently exempts operations subject to Rule 1420 from most requirements provided following provisions are satisfied:

- Minimum 99% (PM) control efficiency if control device present; and
- Maximum control device inlet temperature of 360 ^{0}F

Metal throughput exemption:

- Based on satisfying equation using Table 1 (ton per year) limits for lead, Al scrap and ingot, Zn, Cu or Cu based alloys

- Aluminum pouring
  - Ladles, launders or other equipment used to convey Al from melting or holding furnaces to casting equipment
- Small quantity
  - Facilities that melt no more than 1 ton of metals or alloys per year
- Metal or Alloy Purity
  - Facilities or furnaces that melt metals or alloys based on weight percent content of arsenic (< 0.002 %) and cadmium (< 0.004 %)

Exemptions (k) Overview – PAR 1407

Proposing to remove the following exemptions for following metals referenced in Table 1 - Current Rule 1407:

- Pure lead
- Hard lead
- Zinc scrap
- Type metal

These materials are regulated by other rules (Rule 1420 series) or cannot adequately demonstrate that they are free of contaminants

Proposed Metal or Alloy Purity Exemption (k) - PAR 1407

- Including a monthly raw material process rate limit of 700 tons per month
- Facilities that process scrap greater than 1 percent by weight not eligible for purity exemption
  - Contaminants in scrap may vary and no procedure available to ensure “clean” scrap

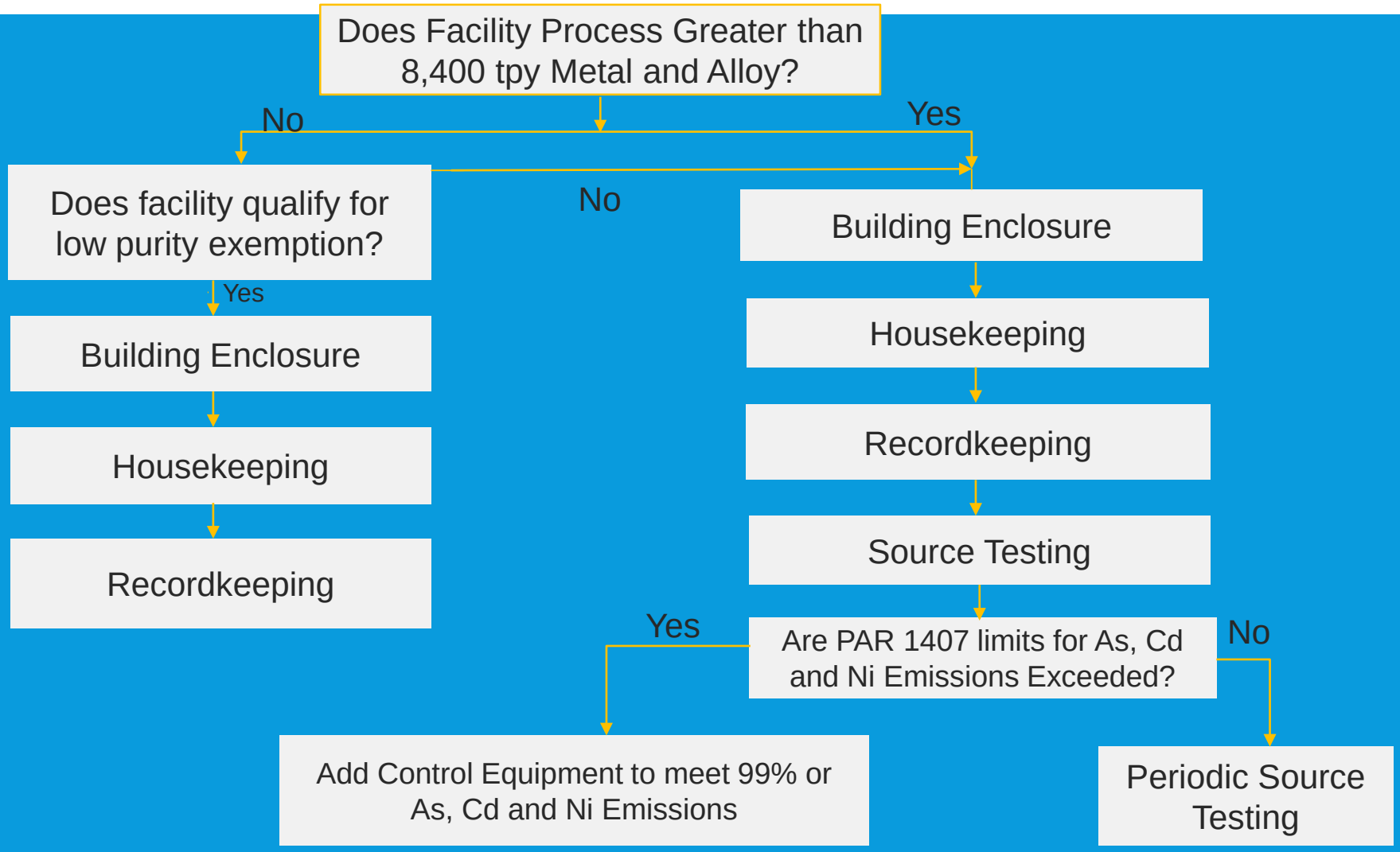
Metal or Alloy Purity Exemption (k)- PAR 1407 continued

- To qualify for (metal or alloy purity) exemption, operators will be required to demonstrate specified As and Cd contents based on any of the following analytical methods:
  - Raw material melts
  - Materials testing methods outlined in subdivision (i)
  - EPA approved methods
- Facilities or operations that qualify for this exemption will be subject to housekeeping, building enclosure and recordkeeping requirements

Summary of Proposed Exemptions

Current Exemptions	Proposed Exemptions	Explanation
Small facilities Processing <1 ton per year	This exemption will be maintained	Low overall emissions
Rule 1420 operations	Rules 1420, 1420.1, 1420.2, 1407.1 will be exempt from the requirements of PAR 1407	Requirements for these rules are at least as stringent as those in PAR 1407
Aluminum Pouring	Aluminum Pouring - This exemption will be maintained	Very minimal emissions associated with aluminum pouring
Metal or Alloy Purity - Requires metals or alloy melted to have a content of arsenic < 0.002% and cadmium < 0.004% by weight	Metal or Alloy Purity - The As and Cd weight content limits will be maintained, but specific throughput limits of 700 tons per month included	Threshold necessary for very large operations. Threshold quantity based on source test results and risk screening thresholds

Summary of Proposed Requirements



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