PROPOSED AMENDED RULE 1407
CONTROL OF EMISSIONS OF ARSENIC, CADMIUM, AND NICKEL
FROM NON-CHROMIUM METAL MELTING OPERATIONS

Working Group Meeting #8
May 23, 2019
Conference Call Number: 1-719-359-9722
Participant Passcode: 278853
Agenda

- Summary of Working Group Meeting #7
- Review of Preliminary Draft Rule Language
- Impacted Facilities
- Rule Development Schedule
Summary of Working Group Meeting #7
Concepts Discussed in Previous Working Group Meeting

**Definitions**
Key terms used to clarify rule requirements

**Mass Emission Limits**
Based on cancer screening risk level of 25 in one million for a receptor located 100 meters from source

**Emission Control**
(Effective January 1, 2021)
Demonstrate 99% control for arsenic, cadmium, and nickel; or Meet mass emission limits

**Housekeeping**
Weekly cleaning required for areas near metal melting, grinding, and cutting operations

**Building Enclosures**
(Effective January 1, 2021)
Minimize cross-drafts for areas where metal melting, grinding, and cutting operations occur

**Exemptions**
Metal Purity Exemption limited to facilities that process less than 700 tons per month
Review of Preliminary Draft Rule Language
Draft rule language based on:
- Concepts presented during working group meeting
- Measures used in recently approved toxic rules

Provides stakeholders an opportunity to provide input and feedback before Public Workshop
Purpose (a)

- Reduce emissions of arsenic, cadmium, and nickel from non-chromium metal melting operations
  - Other South Coast AQMD rules will regulate toxic emissions from chromium or lead melting operations

<table>
<thead>
<tr>
<th>Alloy Type</th>
<th>Code</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al &amp; Al Alloys</td>
<td>(PAR 1407)</td>
<td></td>
</tr>
<tr>
<td>Carbon Steel</td>
<td>(PAR 1407)</td>
<td></td>
</tr>
<tr>
<td>Brass (Rule 1420 or PAR 1407)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronze (Rule 1420 or PAR 1407)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead (Rule 1420)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless Steel (PR 1407.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alloy Steel (PR 1407.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super Alloys (PR 1407.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Applicability (b)

- Applies to non-chromium metal melting operations including:
  - Smelters (primary and secondary)
  - Foundries
  - Die-casters
  - Coating processes (galvanizing and tinning)
  - Dip soldering
  - Brazing
  - Aluminum powder production

Includes grinding and cutting operations conducted at non-chromium metal melting facilities
### Definitions (c)

#### Adding
- Approved Cleaning Methods
- Bag Leak Detection System
- Building Enclosure
- Capture Velocity
- Emission Control Device
- Enclosure Opening
- Foundry
- Low Pressure Spray
- Non-Chromium Metal

#### Modifying
- Emission Collection System
- Emission Control Device
- Facility
- Fugitive Emissions
- Metal Melting Furnace
- Non-Chromium Metal
- School

#### Removing
- District
- Dust Forming Material
- Emission Point
- Fine Particulate Matter
- Fugitive Emissions Control
- Good Operating Practices
- Hard Lead
- Non-Ferrous Metal
- Particulate Matter
- Particulate Matter Control System
- Person
- Process Emission Control
- Pure Lead
- Type Metal
Emission Control Requirements (d)

- Maintain following limits from point sources, such as furnaces until implementation of proposed emission limits
  - Capture 99% of particulate emissions
  - Gas stream temperature < 360°F unless 99% control can be demonstrated for arsenic, cadmium, and nickel
Proposed Emission Control Requirement (d)

▷ On or before January 1, 2021, must either demonstrate:
  ○ Control device captures 99% of arsenic, cadmium, and nickel emissions; or
  ○ Annual mass emission rate below

<table>
<thead>
<tr>
<th>Toxic</th>
<th>Annual Rate (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.0953</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.74</td>
</tr>
<tr>
<td>Nickel</td>
<td>12.2</td>
</tr>
</tbody>
</table>

▷ Mass emission rates:
  ○ Allow facilities without controls to demonstrate they have low emissions even if they do not qualify for purity exemption
  ○ Allow facilities to source test only the outlet of control device providing some cost savings
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 South Coast AQMD Permit Application Package “N”, Version 8.1, Table 1
- Earlier proposed hourly rate replaced with annual rate
  - Avoids making assumption regarding operating hours
Housekeeping (e)

- Limits fugitive emissions
  - Effective upon rule adoption unless otherwise noted

<table>
<thead>
<tr>
<th>Housekeeping Requirement</th>
<th>Current Rule 1407</th>
<th>Proposed Rule 1407</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly cleaning</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Discharge materials from emission control device into closed container</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Metal-containing debris in closed containers</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Dust-forming materials covered or in building enclosure</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Prohibition of compressed air or dry sweeping</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Weekly cleaning of cutting and grinding operations</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Quarterly inspection, and cleaning if necessary, of collection vents and ducts</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Transport of materials in covered containers or in building enclosure</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Remove weather caps from stacks</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Clean within one hour after construction or maintenance</td>
<td>No</td>
<td>Yes*</td>
</tr>
</tbody>
</table>

*Effective 30 days after rule adoption
Building Enclosures

▷ Use of building enclosure for areas where metal melting, grinding, and cutting operations are conducted

▷ Benefits of building enclosures
  ○ Minimizes cross-drafts
  ○ Provides secondary containment of fugitive emissions
  ○ Optimizes collection efficiency of control devices

▷ Allows multiple doors and openings, provided no cross-draft where fugitives can move through structure
Proposed Building Enclosures (f)

▷ Building enclosure requirements effective July 1, 2020
▷ Acceptable methods to minimize cross-drafts:
  ○ Automated roll-up doors
  ○ Overlapping plastic strip curtains
  ○ Vestibules
  ○ Airlock system
  ○ Alternatives approved by Executive Officer
▷ Operator may submit Building Enclosure Compliance Plan if building enclosure is in conflict with other agency requirements
Recordkeeping (g)

▷ Assists in verifying compliance
  ○ Records to be maintained for three years (previously two years)

<table>
<thead>
<tr>
<th>Record Type</th>
<th>Current Rule 1407</th>
<th>Proposed Rule 1407</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types, quantities, and analyses of metals melted</td>
<td>Yes</td>
<td>Yes (All)</td>
</tr>
<tr>
<td></td>
<td>(Purity exemption only)</td>
<td></td>
</tr>
<tr>
<td>Source test data</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Housekeeping activities</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Parametric monitoring data including pressure difference across filter media</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Anemometer data including capture velocities</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Source Testing (h)

- Source testing verifies control efficiency or mass emission rates
  - Periodic source tests (once every 60 months) needed to verify continued compliance
- Must demonstrate compliance with mass emission rate or 99% control efficiency by January 1, 2021
- Each control device to be tested
- One uncontrolled furnace may be tested with results applied to other functionally identical uncontrolled furnaces
Materials Testing (i)

- Used to determine composition and concentration of elements in materials
  - Minor change to exclude “pig lead”
Emission Control Device Monitoring (j)

Monitoring key parameters of emission control devices can provide early detection of issues with pollution controls

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Current Rule 1407</th>
<th>Proposed Rule 1407*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Plan</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Bag Leak Detection System (Rule 1155)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Monitoring air velocities in hoods and ducts</td>
<td>Yes (Compliance Plan)</td>
<td>Yes</td>
</tr>
<tr>
<td>Flow rates to and from emission collection system</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pressure drops across baghouse filter media</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Temperature of control device</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Continuous data acquisition system</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Periodic smoke test</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Effective January 1, 2019
Exemptions Retained (k)

- **Small quantity exemption**
  - Facilities that melt less than 1 ton per year only required to maintain records to confirm

- **Aluminum pouring exemption**
  - Equipment used to convey aluminum only subject to housekeeping and associated recordkeeping

- **Equipment subject to lead rules (Rules 1420, 1420.1, and 1420.2)**
  - Currently only Rule 1420 specified
  - Lead rules generally have more stringent requirements
  - Want to avoid having duplicative requirements
# Purity Exemption (k)

<table>
<thead>
<tr>
<th><strong>Purity Limit</strong></th>
<th><strong>Thresholds</strong></th>
<th><strong>Notes</strong></th>
</tr>
</thead>
</table>
| Retain existing purity limits | • 0.004% cadmium  
• 0.002% arsenic | |
| Limit to facilities processing < 700 tons per month | • Threshold needed for facilities with high throughput  
• Threshold based on source test results presented in working group meeting #3 | |
| Limit to facilities that process < 1% scrap | • Contaminants in scrap may vary  
• No reasonable procedure to ensure “clean” outside scrap | |
Purity Exemption (continued) (k)

▷ Sunsetting limited metals melted (Table I), clean aluminum scrap, and aluminum scrap furnace exemptions
  ○ Will be replaced by revised purity exemption
  ○ Sunset will allow facilities to remain exempt until new requirements become effective

▷ Facilities qualifying for purity exemption will not be subject to:
  ○ Emission controls (d);
  ○ Source testing (h); and
  ○ Emission control device monitoring (j)

▷ Many facilities will qualify for purity exemption
Stakeholder Input Encouraged

▷ Seeking stakeholder input on preliminary draft rule language
▷ Comments and recommendations received by June 11 can be considered for incorporation into Public Workshop version of rule language
▷ There are additional opportunities to provide further input as rule development progresses
  ○ Early input is encouraged
Impacted Facilities
PAR 1407 Universe of Facilities

- Approximately 54 facilities subject to PAR 1407
  - Staff has visited 30 facilities over past 3 years
- Facilities identified by review of permits, business classification (North American Industry Classification System), and web search
- Estimates based on preliminary draft rule language
  - Subject to change based on stakeholder input

### Exclusions

| Equipment used for lead melting Subject to 1420 series rules | Facilities melting less than one ton per year Jewelers, artists, schools | Equipment used for chromium metal melting Subject to PR 1407.1 |
Distribution of Facilities by Rule Status

- Requested process and raw materials data
  - Received information from 30 facilities (59%)
  - Remaining facilities are smaller and primarily utilize ingots (no external scrap)
Estimating Building Enclosure Impacts

▷ All 54 facilities melting > 1 ton per year must meet building enclosure requirements

▷ Building Enclosure upgrade estimations based on site visit observations
  ○ All 13 larger sites projected to require “Source Testing” and “Adding Controls” were visited
  ○ 17 of 41 smaller sites projected to utilize “Purity Exemption” were visited; building enclosure status extrapolated from visits
Distribution of Facilities by Building Enclosure Status

- Address Doors or Openings means that minor modifications including rollup doors, plastic strip curtains, or similar measures needed
- Construction means that one or more walls will need to be constructed

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Number of Facilities</th>
<th>No Construction</th>
<th>Address Doors or Openings</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilizing Purity Exemption</td>
<td>41</td>
<td>26</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Requiring Source Testing</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Requiring Added Controls</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Rule Development Schedule
Tentative Rule Schedule

- Public Workshop
  - June/July 2019
- Stationary Source Committee
  - July 2019
- Public Hearing
  - September 2019
Contacts

Lisa Wong
Assistant Air Quality Specialist
lwong@aqmd.gov
909-396-2820

Uyen-Uyen Vo
Program Supervisor
uvo@aqmd.gov
909-396-2238

Mike Morris
Planning and Rules Manager
mmorris@aqmd.gov
909-396-3282