Proposed Rule 1430
Control of Emissions from Metal Grinding at Metal Forging Facilities

Public Workshop
South Coast Air Quality Management District
January 19, 2017
Background

• In 2012, the SCAQMD began receiving complaints about metallic odors in Paramount
• Investigations led to Carlton Forge Works (CFW) a metal forging facility
• In late 2013, SCAQMD placed an air monitor near the grinding operation at CFW
  – Metals of concern were nickel and hexavalent chromium
  – Nickel levels declined after implementation of voluntary measures by CFW for their grinding operations
  – Additional monitoring needed to understand source(s) of hexavalent chromium
• Investigation and air monitoring identified other more significant hexavalent chrome sources in the area
• In 2014 staff began rulemaking process for grinding operations at forging facilities
Decline in Ambient Nickel Concentrations After CFW Actions

Sept 2013 – Improved baghouse air flow by 35%

Oct to Dec 2013
- Plastic strip curtains
- Grinding tables closer to hoods
- Certified permanent total enclosure
- Improved housekeeping
Glass Plate Sampling

- 2013-2014, glass plate samples deployed at other metal forging facilities: Press Forge, Weber Metals, and Schlosser Forge
- Glass plate samples at other metal forging facilities showed higher concentrations of metals PM than CFW
- Each of the facilities had varying levels of toxic metal particulates: Arsenic, Cadmium, Lead, Nickel, Total Chromium
Need for Proposed Rule 1430

- The intensity of metal grinding and cutting operations at metal forging facilities are greater in magnitude when compared to metal grinding for other industries
  - Currently exempt from SCAQMD permitting
  - Unregulated source
- Ambient air monitoring, sampling, and site visits confirm need for:
  - Standards for pollution controls to control emissions from metal grinding operations
  - Building enclosures to contain fugitive grinding emissions
  - Improved housekeeping to clean metal dust in and around grinding and cutting areas to minimize impacts to surrounding neighbors
Public Process for PR 1430

- **Five Working Group Meetings**
  - October 7, 2015
  - September 14, 2016*
  - October 26, 2016
  - December 1, 2016*
  - January 11, 2017

- **Stakeholder Meetings**
  - Teachers Association of Paramount Schools – December 1, 2016
  - California Metals Coalition – December 9, 2016

- **Public Workshop**
  - January 19, 2017

- **Public Consultation Meeting**
  - January 25, 2017*

* Meetings held in the City of Paramount
Proposed Rule 1430

- **Purpose** – Reduce toxic and particulate matter emissions, in addition to odors, from metal grinding and cutting operations at metal forging facilities

- **Applicability** – Metal forging facilities that conduct metal grinding or cutting operations onsite; does not apply to:
  - Wet grinding or cutting operations
  - Grinding activities for maintenance or repair of facility equipment

- **Affected Sources** – 22 identified

- **Industry Description** – Primarily titanium, stainless steel, or aluminum forging for the aerospace industry
Types of Grinding Operations

**Billet Grinding**
Traveling grinder to grind billets and metal bars

**Swing Grinding**
Full lateral movement to prepare medium and large billets

**Stand Grinding**
Stationary grinder usually single speed for small castings and light metal removal

**Hand Grinding**
Hand tool that prepares, cuts, grinds, polishes or finishes forgings
Definitions (c)

• Worked with industry stakeholders to ensure appropriate industry terminology and description of operations
• Includes terms such as hand grinding, stand grinding, swing grinding, and metal cutting
• Staff will be incorporating the following additional definitions:
  – Adding “BILLET”
  – Clarifying “METAL FORGING FACILITY” and “METAL REMOVAL FLUID”
**Point Source Controls**
Point source pollution controls to reduce metal particulate where metal grinding and cutting operations occur.

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

**Housekeeping**
Housekeeping provisions minimize fugitive metal particulate becoming airborne.
Types of Enclosures

Temporary Enclosure
- Walls or partitions on at least three sides or ¾ of perimeter
- Floor and roof or cover

Building
- Permanent building/structure
- Floor, four walls, roof, with openings for ingress and egress
- Fugitive emissions may escape openings

Total Enclosure
- Building plus:
  - Minimize openings using automatic roll-up doors, plastic strip curtains, etc.
  - Minimize cross-draft
  - Contain fugitive emissions

Total Enclosure with Negative Air
- Total Enclosure plus:
  - Negative airflow
  - Air within enclosure vented to air pollution control device
Total Enclosures (d)

- Grinding and cutting in the open air is prohibited
- Upon rule adoption, facilities not conducting metal grinding or cutting operations in an existing building that will be upgraded to a total enclosure must comply with the following interim requirements:
  - Conduct metal grinding and cutting in a temporary enclosure or building
  - Conduct enhanced housekeeping measures
    - Every shift as compared to daily
    - Greater radius from source
- Metal grinding and cutting operations must be conducted in either (next slide provides more details):
  - Total Enclosure; or
  - Total Enclosure with Negative Air
Total Enclosure and Total Enclosure with Negative Air Requirements

**Total Enclosure**

- **Applicability**
  - ≥ 300 feet of a sensitive receptor or
  - ≥ 1,000 feet of a school or preschool

- **Compliance Date:**
  - 12 months from rule adoption if no existing structure
  - 6 months from rule adoption if upgrading an existing building, where grinding or cutting is conducted, to a Total Enclosure

**Total Enclosure with Negative Air**

- **Applicability**
  - < 300 feet of a sensitive receptor or
  - < 1,000 feet of a school or preschool

- **Compliance Date:**
  - 6 months after Permit to Construct is issued by the SCAQMD
Total Enclosures (continued)

- Staff will be incorporating the following changes:
  - Requiring facility to immediately stop metal grinding or cutting operations if inspection of a total enclosure reveals a fugitive emission leak
  - In addition to schools, requiring Total Enclosure with Negative Air if facility is within a 1,000 feet of an Early Head Start School, Head Start School, or Preschool
Emission Controls for Grinding or Cutting Operations

Point Source Emission Standard
- Establishes a particulate matter standard
- Requirements for filter media on final stage of controls
- Emission standard verified using an annual source test

Collection Efficiency
Ensures the pollution control device has the appropriate air flow to collect the emissions consistent with Industrial Ventilation Manual

Proximity of Grinding to Collection Device
Ensures grinding operation is at the appropriate distance to achieve the required Collection Efficiency
Emission Control Requirements (e)

• Vent metal grinding and metal cutting emissions to control device that does not exceed a PM outlet concentration of 0.002 gr/dscf
  – Initial proposal was 0.01 gr/dscf
  – Determined that 0.002 gr/dscf was achieved in practice using HEPA

• Final stage of any emission control device is fitted with filter media rated at 99.97% control efficiency
  – Can be rated at 98% if facility can demonstrate lower level of grinding and toxic emissions

• Emission control device must meet design and operation standards of Industrial Ventilation Manual published by the American Conference of Governmental Industrial Hygienist
Emission Control Device Monitoring Requirements (e) and (i)

- Requirements to ensure optimal operation and efficacy of the emission control device:
  - Require metal grinding and cutting operations be conducted in front of hood with visual indicators provided for operators
  - Prohibit obstruction of air flow between metal grinding or cutting operation and emission collection
  - Monitor baghouses for leaks using Bag Leak Detection Systems pursuant to SCAQMD Rule 1155
  - Measure static pressure once per operating shift
  - Continuously monitor pressure drop for HEPA filters
  - Conduct a periodic smoke test once every 3 months for each emission collection system
Housekeeping Requirements (f)

• Daily wet cleaning or HEPA vacuum of:
  – Areas where metal containing wastes generated from grinding operations;
  – 20 feet of metal grinding work station(s);
  – 20 feet of any entrance/exit point of enclosure;
  – 10 feet of metal grinding emission control device

• Housekeeping provisions effective beginning 30 days from rule adoption
  – Semi-annual roof cleanings
  – Monthly wet cleaning or HEPA vacuum of total enclosure of metal grinding or cutting operations
  – No compressed air cleaning operations within 30 feet of any metal grinding or cutting operation unless conducted under a hood
Provisions for Small Hand Grinding

- Small hand grinding means operations exclusively grinding parts having less than a total surface area of 25 square inches.
- Ventilation to emission controls not required for small hand grinding.
- Same total enclosure and housekeeping requirements for other metal grinding and cutting operations.
• Additional provisions when conducting maintenance or repair activities on emission control device that vents metal grinding or cutting operations (activity)
  – Provisions do not apply if activity conducted within total enclosure
• Beginning 30 days after rule adoption:
  – Wet clean or HEPA vacuum floors within 20 feet of where activity was conducted no later than one hour after completion
  – Immediately stop activity when instantaneous wind speeds are > 20 mph
  – Wet clean or HEPA vacuum metal-contaminated equipment and materials immediately after completion of activity
Source Test Requirements (h)

- Required for any emission control device venting metal grinding or cutting operations
  - Source test PM emissions: Once every 12 months
  - Source test hexavalent chromium and multi-metals: Once every 48 months
- Submit initial source test protocols for existing, permitted emission control devices no later than 60 days after rule adoption (30 days after initial start-up for new or modified emission control devices)
- Conduct source test within 60 days of source test protocol approval
- Subsequent source test protocols – submit 90 days prior to deadline for next source test
• PM emissions testing may be allowed once every 24 months if results of most current test shows < 50% of PM standard

• Incorporating a provision that will allow a facility to forego hexavalent chromium source testing if baghouse catch samples are < 1% total chromium
  – Must be conducted for every baghouse catch change out
Recordkeeping (j)

- Monthly records for the weight of:
  - Metals processed at the facility
  - Metal waste collected by the baghouse catch and housekeeping activities
  - Sample results for total chromium for each baghouse catch change out
- Dates when bags or HEPA filters are replaced
- Records of periodic smoke tests, maintenance, and repair activities
- Log of calls regarding odors or other air quality related issues
- Records for Bag Leak Detection Systems
- Maintain records for five years; maintain most recent two years onsite
Signage (k)

• Install sign that says, “TO REPORT ODORS FROM THIS FACILITY, CALL EITHER [FACILITY CONTACT PHONE NUMBER] OR THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AT 1-800-CUT-SMOG” and meets the following requirements:
  – Installed within 50 feet of each entrance of the facility visible to the public, and in a location on each side of the facility visible to the public
  – Measures at least 16 square feet; and
  – Displays lettering at least 3 inches tall with text contrasting with the sign background
  – Staff adding that sign must read “TO REPORT AIR QUALITY ISSUES OR ODORS”
Provisions to Ensure Continuous Compliance

• Received a comment that the proposed rule should include additional triggered requirements to ensure continuous compliance
• Staff is looking into potential provisions that could be incorporated
CEQA Analysis

- SCAQMD staff has prepared a Draft Environmental Assessment for PR 1430
- Analysis concluded no significant adverse impacts for any environmental topic area
- Comments regarding the document will be accepted during a 30-day public review and comment period beginning January 11, 2017 and ending at 5:00 on Friday, February 10, 2017
Preliminary Cost Analysis

- SCAQMD staff is conducting a Socioeconomic Impact Assessment for PR 1430
- Overall cost impact from PR 1430 is ~$6M annually for 22 facilities
- Cost impact primarily driven by cost of baghouses
- For example, a facility that requires a 10,000 CFM baghouse to meet the proposed point source emissions standard is anticipated to incur the following conservatively estimated cost:
  - Capital cost of $343,000
    - Includes baghouse ($169,000), HEPA ($12,000), enclosure ($160,000) and housekeeping equipment ($2,000)
  - Annual operating cost of $80,000
    - Includes baghouse maintenance ($13,000), HEPA maintenance ($12,000), housekeeping ($3,000), electricity ($43,000) and source testing ($9,000)
Schedule

- Stationary Source Committee Meeting
  - January 20, 2017

- Public Consultation Meeting in Paramount
  - January 25, 2017

- 6\textsuperscript{th} Working Group Meeting
  - February 1, 2017 (tentative)

- Set Hearing
  - February 3, 2017

- Public Hearing
  - March 3, 2017
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