City of Paramount: SCAQMD Rule Development for Metal Processing Operations

City of Paramount

April 27, 2017

Background

- In 2013, 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
- In 2014 staff began rulemaking process for Rule 1430 to address grinding operations at forging facilities
- Ongoing investigation and air monitoring has identified other more significant hexavalent chrome sources in the area

Current SCAQMD Rulemaking for Metal Processing Operations

- **Rule 1430** – Control of Emissions from Metal Grinding Operations at Metal Forging Facilities (Adopted March 3, 2017)
- **Proposed Amended Rule 1469 & 1426** – Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations; Emissions from Metal Finishing Operations (Proposal in Fall 2017)
- **Proposed Rule 1435** – Control of Emissions from Metal Heat Treating Processes (Proposal in Winter 2017/2018)

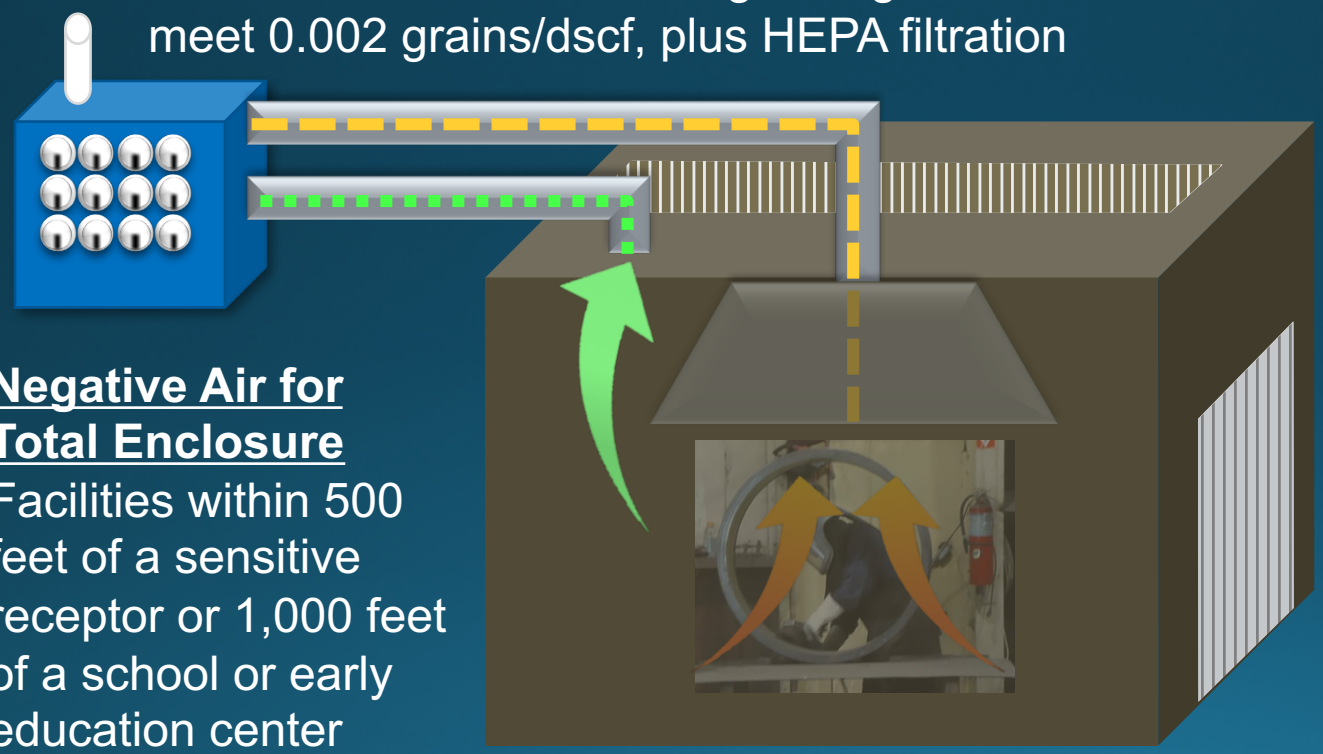
Rule 1430 – Background

- **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
- **Affected Sources** – 22 identified (4 facilities in Paramount)
  - Carlton Forge Works
  - Mattco Forge Inc
  - Press Forge Inc
  - Weber Metals Inc
- **Industry Description** – Primarily titanium, stainless steel, or aluminum forging for the aerospace industry

Rule 1430 Approach

Point Source Emission Controls
Pollution controls for metal grinding stations must meet 0.002 grains/dscf, plus HEPA filtration

Total Enclosure
Total enclosure closing openings to further contain fugitive metal particulate



Negative Air for Total Enclosure
Facilities within 500 feet of a sensitive receptor or 1,000 feet of a school or early education center

Housekeeping Measures
Clean any remaining fugitive metal particulate

Total Enclosures

- Grinding and cutting operations in the open air is prohibited beginning March 3, 2017
- Operations must be conducted in a Total Enclosure by:
  - September 3, 2017 if upgrading existing building used for grinding/cutting
  - March 3, 2018 if building a new structure
- Total Enclosure with Negative Air required if facility is:
  - Within 300 feet of a sensitive receptor, or
  - Within 1,000 feet of a school
- During construction of a Total Enclosure facility must:
  - Conduct metal grinding and cutting in an existing or temporary structure
  - Conduct enhanced housekeeping measures
    - Every shift as compared to daily
    - Greater radius from source

Emission Controls

Emissions Standard

- Establishes a particulate matter standard of 0.002 grains/dry standard cubic feet (gr/dscf)
- Plus filtration requirements of 99.97% (HEPA)
- Emission standard verified using an annual source test

Collection Efficiency

Pollution control device must have 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

Housekeeping

- Beginning March 3, 2017, 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 April 2, 2017
  - 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 metal grinding or cutting operation unless under a hood

Additional Requirements

- Periodic testing of controls
  - Particulate matter (annually)
  - Multi-metals and hexavalent chrome (every 4 years)
  - Smoke tests (every 3 months)
- Continuous monitoring of controls
  - Bag leak detection system
  - Pressure change across HEPA filter(s)
  - Additional source testing if pressure across HEPA is operating outside of specific ranges and durations
- Installation of signage for contact information of the facility and SCAQMD visible to the public
- Recordkeeping for housekeeping, monitoring, maintenance, and air quality complaints

Odor Contingency Measures

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Operational Change

- Changing ingress and egress openings
- Moving grinding stations

Process Change

- Change grinding element
- Change materials applied to grinding piece

Enhancement to Total Enclosure

- Installation of booths or barriers for grinding stations
- Upgrade openings used for ingress or egress

Other Odor Reducing Measure

- Any other measure or modification that can help to reduce odors or minimize odors

* Complaints for the same event must from different households and odors must be related to metal grinding and cutting operations

Rule 1469 - Background

- **Purpose** – Control hexavalent chromium emissions from chromium electroplating and chromic acid anodizing operations
- **Applicability** – Facilities performing chromium electroplating or chromic acid anodizing
- **Affected Sources** – 116 facilities (1 in Paramount)
  - Anaplex Corporation (Anaplex)
- **Industry Description** – Products for aerospace/defense, automotive, electronics, fixtures, and machinery/industrial equipment



Proposed Amended Rule 1469 – Background

- Monitoring near two Rule 1469 facilities have shown high levels of hexavalent chromium
- SCAQMD staff has been re-evaluating the overall efficacy of Rule 1469
- Initial concepts for Amendments to Rule 1469:
  - Address findings from air monitoring and other efforts
  - Incorporate inconsistencies with the 2012 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chromium Electroplating and Anodizing Tanks
  - Take into account the 2015 Revised OEHHA Guidelines for Estimating Health Risk
  - Potentially combine other metal finishing operations (Rule 1426)

Proposed Rule 1435

- Studies have shown that application of energy/heat applied to metal parts containing chromium can result in the generation of hexavalent chromium emissions
- Metal heat treating processes are currently being evaluated by SCAQMD staff to determine its significance as a source of hexavalent chromium
- Proposed Rule 1435 would establish requirements to reduce metal particulates, including hexavalent chromium, from heat treating processes

Interim Measures Implemented at Anaplex

- Modifications to tanks with chromate
  - Adding permanent and temporary covers
  - Reduce tank temperature
  - Discontinued air sparging
- Shutdown and remove pickling tank
- Filter upgrades for paint spray booths
- Replacement/calibration of all gauges for tanks and spray booths
- Closing of all facility access doors facing Garfield Avenue
- Improvements to housekeeping procedures
- Additional training of staff for minimizing fugitive emissions, including covering tanks when not in use

Interim Measures Implemented at Aerocraft

- Installation of total enclosures vented to baghouse controls for Heat Treating Building #1 and #2
- Addition of curtains to Heat Treating Building #3 to reduce air flow
- Cleaning heat treating, plasma arc cutter, and grinding areas
- Plastic strip curtains for grinding building enclosure
- Discontinued dry sweeping; use of wet mobile sweeper daily
- Discontinued outdoor forced air cooling of parts, and the use of compressed air cleaning for non-essential processing activities
- HEPA-vacuum cleaning of heat treating furnaces, storage racks, and fan cool process area
- Training on improved and more frequent housekeeping practices throughout the facility
- Installation of wind breaks within facility to reduce dust re-suspension
- Monthly monitoring of hexavalent chromium levels in quench tank