SCAQMD Proposed Rule 1480
Air Toxic Metals Monitoring

Working Group Meeting #2
SCAQMD Headquarters, Diamond Bar, CA
June 13, 2018

Review of Air Monitoring

• Regional and localized air monitoring are effective tools to identify unknown sources of toxic metal emissions
• Regional air monitoring captures concentrations from a variety of sources in the vicinity of the monitor
• Localized air monitoring is designed to capture contributions from a potential source
Meeting Agenda

• Approaches to identifying sources
  – Regional air monitoring
  – Localized air monitoring
  – Other approaches (e.g. glass plate and bulk samples)

• Summary of ambient air monitoring

Examples of Regional and Localized Air Monitoring Efforts for Toxic Air Contaminants

• Regional air monitoring
  – Multiple Air Toxics Exposure Study (MATES)
  – Conducted four MATES
  – Initiated work on fifth MATES

• Localized air monitoring near
  – Large lead-acid battery recycling facilities
  – Cement manufacturing facility
  – Chromic anodizing facilities
  – Metal forging and grinding facilities
  – Heat treating facility
Regional Air Monitoring -
Multiple Air Toxics Exposure Study (MATES)

• MATES is a regional monitoring and evaluation study conducted in the Basin
• Includes:
  — Ambient monitoring (e.g. Carbonyls, Metals, PAH, VOC)
  — Emissions inventory of Toxic Air Contaminants (TACs)
  — Regional modeling estimates of health risks across the Basin
Regional Air Monitoring – MATES (Continued)

- Network of 10 fixed sites in commercial and light industrial areas to monitor over 30 TACs for one year
- Focused on regional levels of air toxics
  - Localized areas of increased exposure may not be identified

Ambient Air Toxic Metals of Concern in the South Coast Air Basin

- Existing monitoring can detect a large list of metals including these:
  - Arsenic (As)
  - Cadmium (Cd)
  - Copper (Cu)
  - Hexavalent Chromium (CrVI)
  - Lead (Pb)
  - Manganese (Mn)
  - Nickel (Ni)
  - Selenium (Se)
Reductions in Basin-Wide Air Toxic Metals Concentrations

- Significant reductions in basin-wide air toxic metals concentrations between MATES III and MATES IV
- Decreases due to ongoing emissions reduction efforts

Cement Manufacturing Facilities

- MATES III identified high levels of hexavalent chromium at one of the monitoring sites
- Further investigation identified cement manufacturing facilities as a potential source (e.g., soil and ambient air samples)
- Confirmed with additional monitoring
- Led to the amendments to Rule 1156 that requires a compliance plan or fenceline monitoring
Localized Air Monitoring

What is Localized Air Monitoring?

• Localized air monitoring refers to ambient air monitoring that is designed to capture concentrations from a potential source
• Upon confirmation of a potential source, localized air monitoring is deployed
• SCAQMD has conducted localized air monitoring near a variety of different sources throughout the air basin
SCAQMD Localized Air Monitoring Efforts

<table>
<thead>
<tr>
<th>Sources</th>
<th>Pollutants</th>
<th>Cities</th>
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<tbody>
<tr>
<td>Large-lead acid battery recycling</td>
<td>Lead</td>
<td>Vernon and Industry</td>
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<tr>
<td>Lead battery manufacturing</td>
<td>Lead</td>
<td>Santa Fe Springs</td>
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<tr>
<td>Cement manufacturing</td>
<td>Hexavalent chromium</td>
<td>Riverside</td>
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<tr>
<td>Steel mini mill</td>
<td>Lead and multi-metals</td>
<td>San Bernardino</td>
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<tr>
<td>Chromic acid anodizing</td>
<td>Hexavalent chromium</td>
<td>Newport Beach, Paramount, Long Beach, Compton</td>
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<tr>
<td>Heat treating</td>
<td>Hexavalent chromium</td>
<td>Paramount</td>
</tr>
<tr>
<td>Metal forging and grinding</td>
<td>Nickel, hexavalent chromium</td>
<td>Paramount</td>
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Localized Air Monitoring - Paramount

- **Beginning 2012**, SCAQMD began receiving a series of burnt metallic odor complaints - a number of complaints focused on Carlton Forge Works (CFW).
- **May 2013**, Glass plate sampling at and near CFW confirmed fugitive metal particulate emissions.
- **August 2013**, SCAQMD began ambient air monitoring near CFW.
- **September 2013**, CFW began voluntarily implementing measures to reduce fugitive emissions from their grinding operations.
- **January 2014**, SCAQMD hosted a town hall meeting to report initial monitoring results.
- **Post 2015**, Expanded monitoring activities and additional emission reduction measures.
Glass Plate Sampling at CFW

- Sample location
- Predominant Wind Direction

1. Rooftop of the Grinding Room
2. Rooftop of the Saw Building - westside
3. Rooftop of the Saw Building - eastside
4. Roof of Residence across street from facility
5. Roof of Residence across street from facility
6. Residential area one block to the east
7. Residential area 4 blocks to the east

Ambient Air Monitoring

Sampling Locations

Site #1
Discontinued

Site #2
Duration of monitoring: 8/8/2013 – ongoing
Sampling schedule: 1-in-3 days

Site #3
Duration of monitoring: 10/31/2013 – ongoing
Sampling schedule: 1-in-6 days
Voluntary Emission Reduction Measures at CFW

- September 2013: Increased baghouse airflow by 35% for improved collection efficiency.
- October 2013: Installed plastic strip curtains on all building overhead doors.
- October 2013: Placed grind shop work tables closer to baghouse exhaust intakes.
- November 2013: Sealed grind shop roof to provide a Permanent Total Enclosure.
- December 2013: Enhanced housekeeping measures such as routine sweeping.
- Spring 2015: Installed HEPA filters on baghouse.

Glass Plate Sampling Results at CFW

- 2013/2014 deployed glass plate samples:
  - Found elevated levels of metals near grinding operations.
- Comparison of 2013 and 2014 glass plate samples showed a decrease in metal particulates.
- Demonstrates effectiveness of voluntary emission reduction measures for grinding operation.
Nickel Ambient Air Monitoring Results

Expanded Monitoring Efforts in Paramount

- Monitoring has occurred at 38 community locations
- Analyzed over 2,700 samples
- Significant progress in identifying facilities and operations that can emit high levels of hexavalent chromium
- Overall reduction in average hexavalent chromium levels
- A range of improvements have been made by facilities, some voluntary, some through regulatory changes and enforcement actions
Identifying Sources of Hexavalent Chromium

- When elevated levels of hexavalent chromium are observed SCAQMD staff evaluates potential sources
  - Review permitting database
  - Conduct multi-agency inspections of all surrounding sources, both permitted and unpermitted
  - Utilize a variety of tools to verify the presence of hexavalent chromium
    - Analysis of bulk samples of materials
    - Source tests of specific sources/equipment

- Additional ambient air monitors may be added to better “pinpoint” source(s)

Initial Measures to Reduce Monitored Levels

- In November 2016, SCAQMD staff determined that Anaplex and Aerocraft were sources of elevated levels of hexavalent chromium emissions
- Source tests were performed on various pieces of equipment
- SCAQMD staff observed that open doors negatively impacted the collection efficiency of add-on air pollution control devices
- Implementation of measures such as closing doors to prevent cross-draft and performing operations in enclosures resulted in reductions of monitored hexavalent chromium emissions
Effectiveness of Measures at Anaplex

- Anaplex’s interim measures demonstrated immediate results in reducing monitored concentrations of hexavalent chromium when:
  - Closing doors to minimize cross-draft
  - Using temporary tank covers
  - Performing daily cleanup activities in tank process areas

Decline in hexavalent chromium emissions correspond to mitigation measures implemented at Anaplex

Additional Steps to Address Elevated Levels – Anaplex and Aerocraft

- Staff pursued an Order for Abatement through the SCAQMD Hearing Board
- Designated as Potentially High Risk Level Facilities under Rule 1402
- Proposed amendments to Rule 1469
- Proposed Rule 1435
Summary of Ambient Air Monitoring

- Regional air monitoring and other investigation methods have assisted with the placement of localized air monitors
- Can assist with the identification of previously unknown sources of air toxic metals
- Have shown that the contribution of fugitive emissions from facility operations can be substantial
- Are effective at identifying areas with elevated levels of air toxic metals
- Can be used to confirm the effectiveness of measures undertaken by facility to reduce emissions

PR 1480: Next Steps

- Working Group Meeting #3 in Summer 2018
- Governing Board Hearing – December 2018

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