SCAQMD Proposed Rule 1480

Air Toxic Metals Monitoring

Working Group Meeting #1

SCAQMD Headquarters, Diamond Bar, CA

May 2, 2018

South Coast AQMD

Meeting Agenda

- Background
- Ambient Air Toxic Metals Monitoring
- Considerations for Rule Development
- PR 1480 Timeline and Next Steps
- Questions, Comments, Feedback

Background

- SCAQMD staff has utilized ambient air samplers to measure levels of particulate that contain toxic air contaminants at the following types of facilities:
  - Large lead-acid battery recycling (lead and arsenic)
  - Chromic acid anodizing facilities (hexavalent chromium)
  - Cement manufacturing (hexavalent chromium)
  - Metal grinding at metal forging facilities (nickel, hexavalent chromium, arsenic, cadmium)
  - Heat treating (hexavalent chromium, nickel)
- Ambient monitoring has shown that contribution of fugitive emissions can be substantial – building enclosures and housekeeping are effective at minimizing fugitive emissions[2]

[1] Based on ambient monitoring near Cal Portland Cement, Aerocraft Heat Treating, Hixson Metal Finishing, and Anaplex Corporation

[2] Aerocraft Heat Treating and Hixson Metal Finishing

Use of Ambient Air Monitoring

- Measures concentration of specific pollutant(s) in ambient air
- Provides information on fugitive and point sources of emissions
- Can identify emission sources that were not previously known and need pollution controls
- Can assist in determining effectiveness of existing pollution controls that are currently implemented at a facility

Challenges of Ambient Monitoring

- Contribution of emissions from other nearby sources
- Metals sampled – multi-metals + hexavalent chromium requires two monitors
- Resources to conduct ambient monitoring – cost and implementation
- Data collected is specific to the location
- Siting of monitors

Benefits of Ambient Monitors

- Can provide near real-time information on the concentrations of certain pollutant(s)
- Can identify sources of emissions that were not previously known
- Provides concentration of all emissions at the location of the monitor – point and fugitive emissions

Point and Fugitive Sources

- Point sources are generally those emission sources whose emissions are vented to air pollution controls
- Fugitive sources are generally those emissions that are not collected through air pollution controls and can accumulate on surfaces in and around the facility
- Air pollution controls cannot achieve 100 percent collection efficiency
  - Emissions that do not make it to the air pollution controls are fugitive emissions

Sources of Fugitive Emissions

Openings from Enclosures

Vents from Enclosures

Storage and Transport

Foot Traffic

Vehicular Traffic

Inadequate Housekeeping

Why Do Fugitive Emissions Matter?

- Fugitive emissions can land on surfaces outside of a facility – roof tops, walk ways, perimeter of facility and can become airborne impacting surrounding areas
- Fugitive emissions that land on surfaces can be re-entrained from foot traffic, vehicular traffic, wind, etc.
- Impact of fugitive emissions to surrounding areas can be intermittent and can depend on variable processes, such as wind direction and meteorology
- Particulate fugitive emissions monitoring and the necessary models for estimating their emissions are complex

Different Ways to Monitor Ambient Air Toxic Metals

Ambient Air Toxic Metals Monitoring

Stationary Monitoring

Continuous Emissions Monitoring

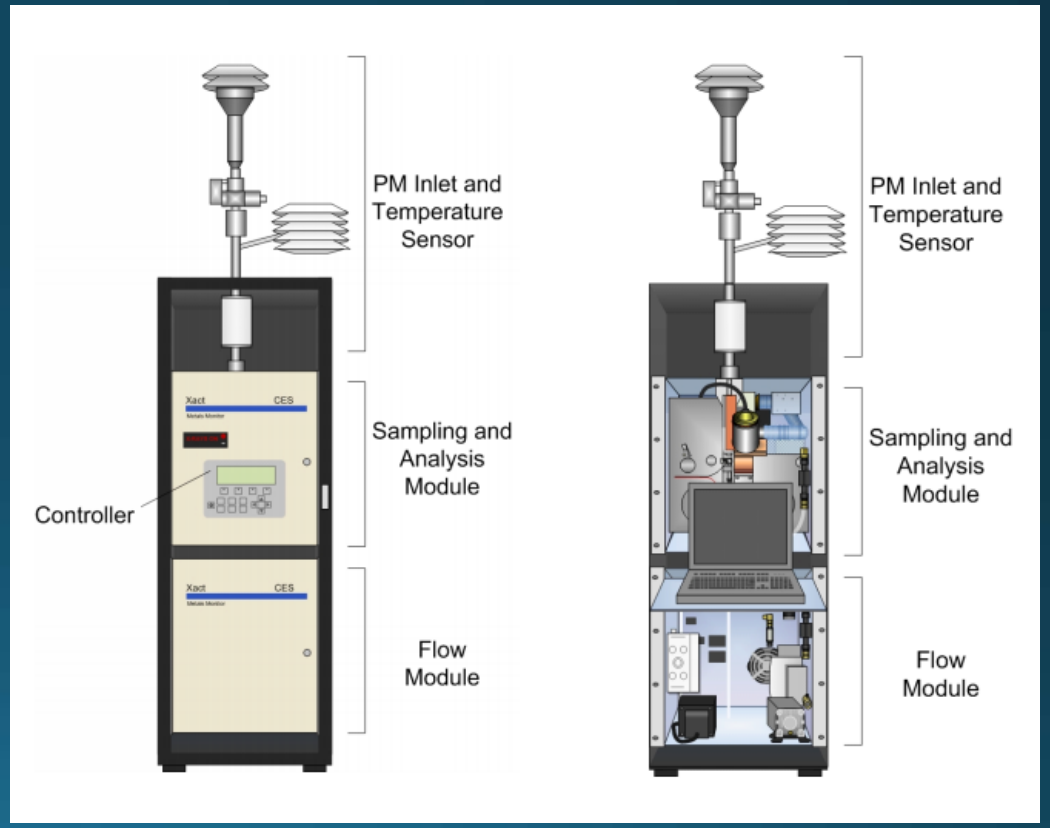
Mobile Surveys

Stationary Monitoring Stations

- Ambient monitoring analyzers can be installed in trailers which are moved as needed to further clarify pollutant characteristics in a given location
  - Trailers can be equipped with real-time or time-integrated monitors
- Their use allows one set of monitoring equipment to be shared among sites
  - Lowers the cost of obtaining survey information

Multi-Metals Continuous Emission Monitoring Systems (CEMS)

- Determines metals in airborne PM10, utilizing an automated moveable filter tape system
- Utilizes X-ray fluorescence (XRF) to determine ambient metal concentrations (Xact-CEMS)
- Aids source identification by correlating metals concentrations to wind speed and direction
- Requires air conditioned monitoring sheds/housing or a trailer
- Can measure multiple toxic metal particulates, except hexavalent chromium

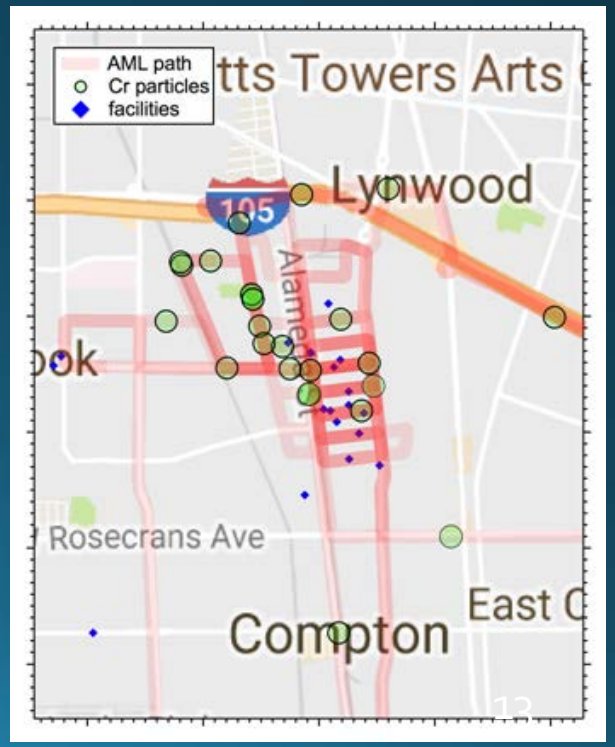


Schematic of the Cooper Environmental Services Xact 620

Next Generation Air Monitoring Methods Mobile Surveys

- Will allow a more comprehensive look at emissions in a community with multiple known sources
- Can identify hotspots and pinpoint areas for further investigation or placement of fixed monitoring sites
- Can measure all air toxic metals except hexavalent chromium

Aerodyne Mobile Laboratory (AML)



Existing SCAQMD Rules with Monitoring Requirements for Air Toxics

- Rule 1156
- Rule 1420
- Rule 1420.1
- Rule 1420.2
- Rule 1466

Rule 1156 - Further Reductions of Particulate Emissions from Cement Manufacturing Facilities

- Reductions in Particulate Matter (PM) and hexavalent chromium emissions from cement manufacturing operations
- Compliance monitoring plans required for hexavalent chromium and wind monitoring
- Requires a minimum of three fence-line sampling sites for hexavalent chromium
- 24-hour samples every three days
  - If no exceedance of limits set in the rule, can conduct sampling every six days

Rule 1420 - Emissions Standard for Lead

- Applies to any metal melting facility or lead processing facility that processes lead-containing materials
- Ambient monitoring is a triggered requirement
  - Requires ambient air monitoring if contributions to ambient air concentrations of lead exceeds 0.15 µg/m^3 averaged over 30 days OR if lead point source limits from emission controls devices exceed 0.0003 lb/hr
- Requires a minimum of two fenceline sampling sites, determined by air dispersion modeling
- 24-hour samples every six days

Rule 1420.1 - Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities

- Applies to large lead-acid battery recycling facilities to help ensure attainment and maintenance of lead NAAQS
- Reduces arsenic, benzene, and 1,3-butadiene
- Requires a minimum of four sampling sites for lead and arsenic at or beyond the property line
- 24-hour samples daily for lead and arsenic

Rule 1420.2 - Emission Standards for Lead from Metal Melting Facilities

- Applies to metal melting facilities that melt 100 tons or more a year to help ensure attainment and maintenance of lead NAAQS
- Requires a minimum of three sampling sites for lead at or beyond the fenceline based on air dispersion modeling and emission calculations
- Requires collection of wind data
- 24-hour samples daily or once every three days

Rule 1466 - Control of Particulate Emissions from Soils with Toxic Air Contaminants

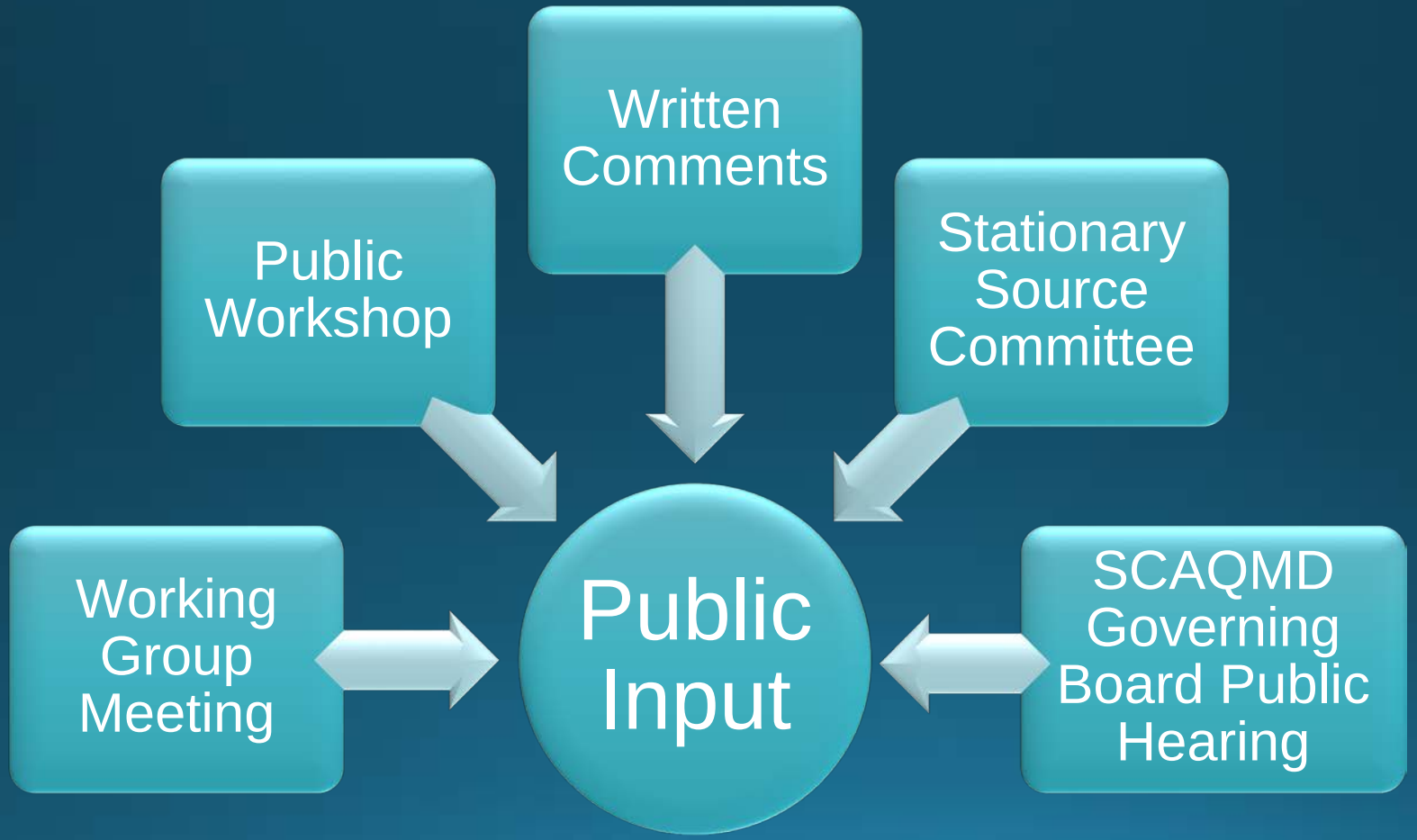
- Designed to minimize fugitive dust from earth-moving activities at sites containing soils with certain air toxics
- Applies to sites which have been designated by an agency and contain applicable toxic air contaminants
- Requires continuous real-time PM10 monitoring when earth-moving activities are conducted at the site
- A minimum of one upwind monitor and one downwind monitor located as close to fenceline as possible

Other Ambient Monitoring Programs

- AB 617
- Rule 1180 - Refinery Fenceline and Community Air Monitoring
  - Continuous real-time fenceline measurement of refinery related criteria pollutants and air toxics
  - SCAQMD will conduct community air monitoring, which includes air toxic metals (AB 1647)

Considerations for Development of PR 1480

Rule Development – Public Input



Objective of PR 1480

- Provide a way to look at all toxic metals monitoring comprehensively instead of rule-by-rule or within legal orders
  - Future air toxics rules could refer to PR 1480 for monitoring requirements
  - Provide current and consistent sampling methodologies across all programs

PR 1480 Considerations

- Applicability
  - Which facilities will be subject to PR 1480?
- Triggers
  - When will PR 1480 apply?

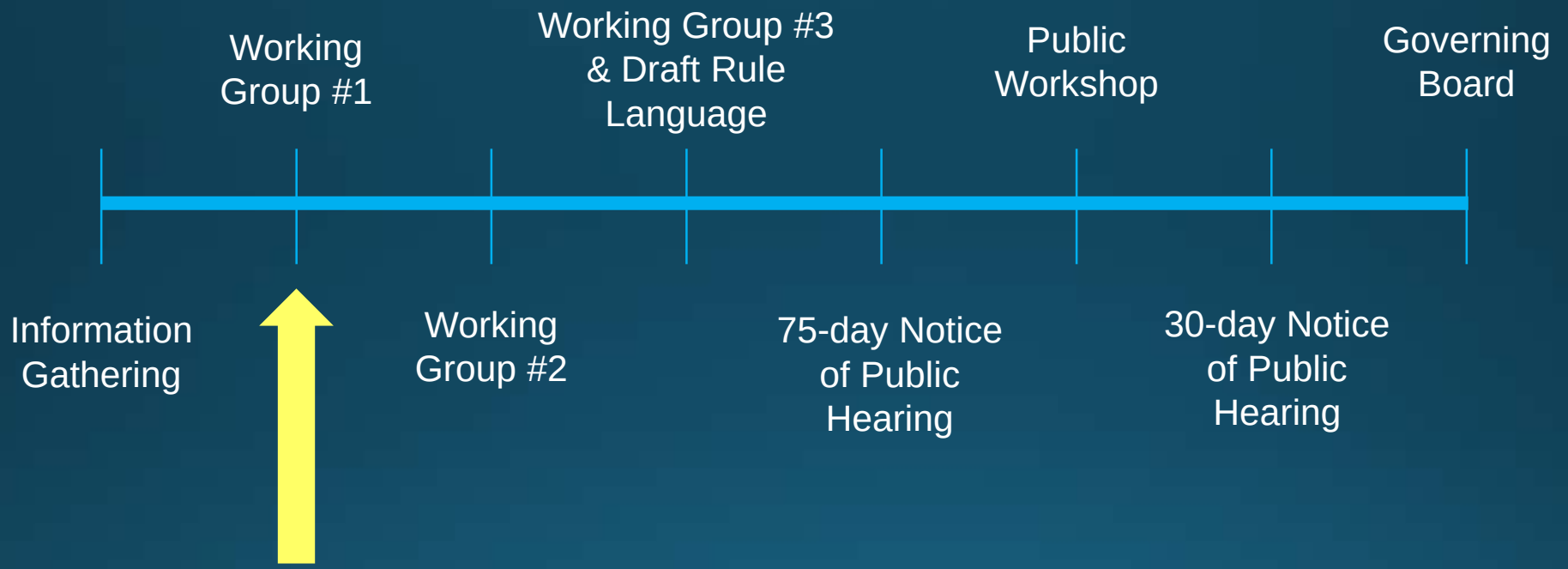
PR 1480 Considerations *(cont'd)*

- Ambient Concentration Limits
  - Should PR 1480 specify limits?
  - How would limits be established?
  - What about background levels?
- Ambient Monitoring Plans
  - Number and placement of monitors?
  - Requirement for weather station?
  - Type of sampler and sampling schedule?

PR 1480 Considerations *(cont'd)*

- How long to continue monitoring?
  - Can monitoring stop once ambient concentrations over a time period are below a certain level?
  - Use modeling to confirm no predicted future rule violations?
- Costs
  - Initial installation costs
  - Recurring sampling costs

PR 1480 Timeline



*Additional Working Groups can be added as needed

PR 1480: Next Steps

- Working Group Meeting #2 in late Spring or early Summer 2018
- Governing Board Hearing – Fall 2018

Staff Contacts:

Melissa Sheffer
(909) 396-2346
msheffer@aqmd.gov

Payam Pakbin
(909) 396-2122
ppakbin@aqmd.gov

Jillian Wong
(909) 396-3176
jwong1@aqmd.gov

Susan Nakamura
(909) 396-3105
snakamura@aqmd.gov


Questions
Comments
Feedback