



BAY AREA  
AIR QUALITY  
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DISTRICT

**AGENDA: 4**

# **Update on Schnitzer Steel Industries, West Oakland, dba Radius Recycling**

**Stationary Source Committee Meeting  
February 14, 2024**

**John Marvin  
Compliance & Enforcement Manager  
[jmarvin@baaqmd.gov](mailto:jmarvin@baaqmd.gov)**

# Presentation Outcome



- Provide an update on the Schnitzer Steel Industries, West Oakland facility, including the Air District response to the August 2023 fire, its work with other agencies and the community, and its current permitting efforts.

# Presentation Outline

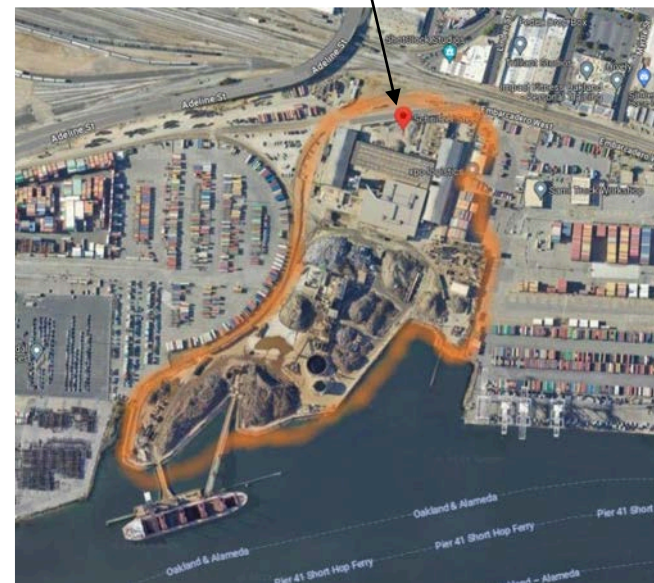
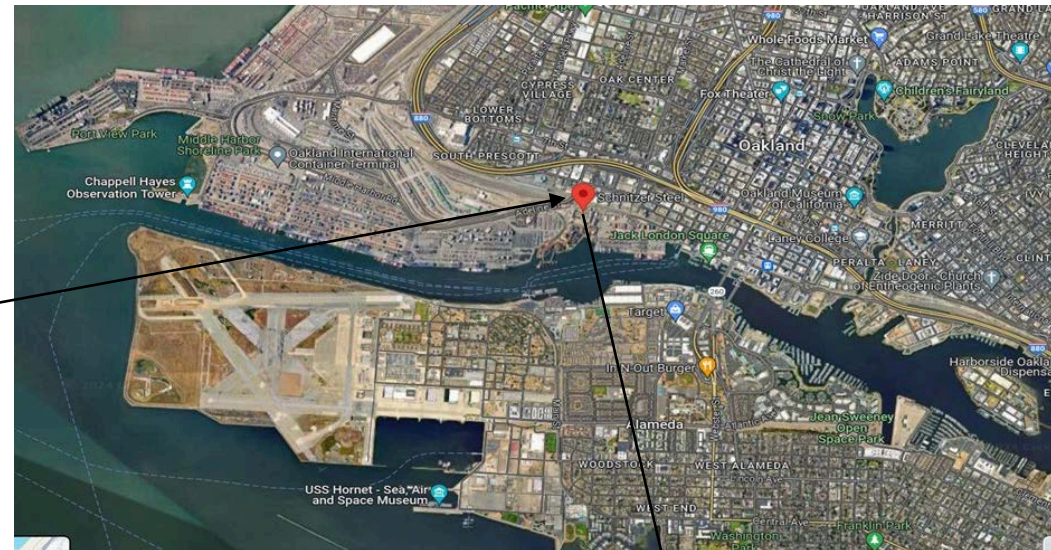
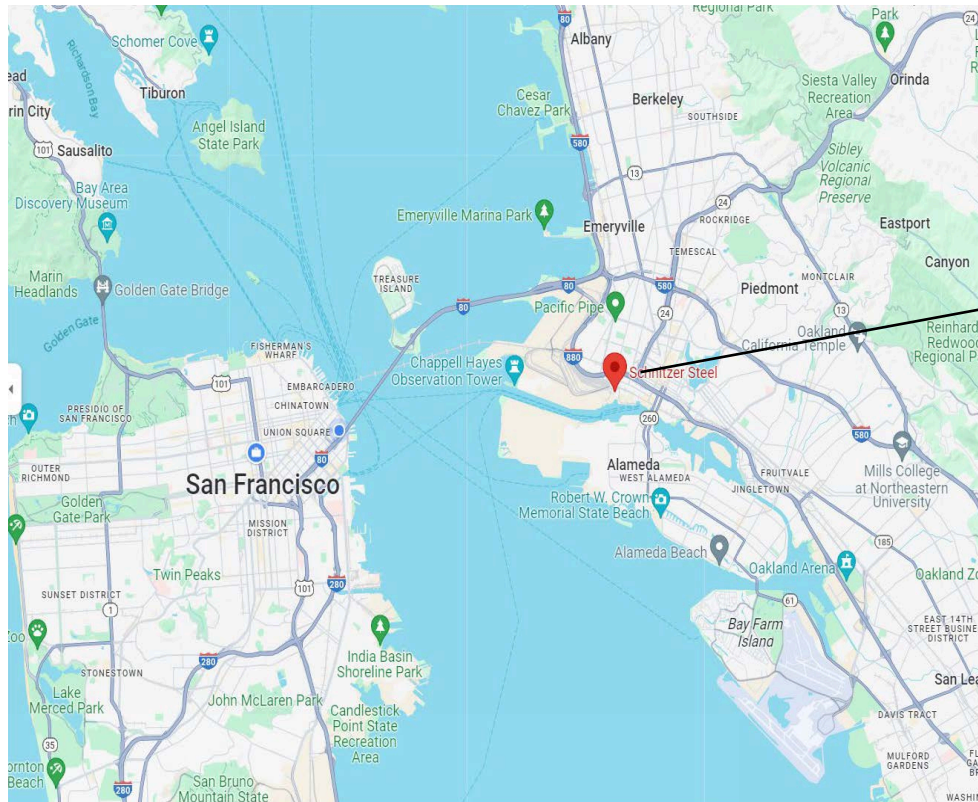


Near-term Air District Goals: Reduce exposure and strengthen health protection for the West Oakland Community and Bay Area residents by reducing emissions at Schnitzer Steel and ensuring compliance with Air District requirements.

## Agenda:

- Schnitzer's Metal Recycling Operations (slides 4-6)
- Light Fibrous Material (LFM) (slide 7)
- Schnitzer Steel Fires and Air District Response (slides 8-13)
- Permitting Update (slides 14-15)
- Emission Reduction Improvements (slide 16)
- Rapid Response Task Force (RRTF) and Work with the Community (slides 17-18)
- Next Steps (slide 19)

# Schnitzer Steel Industries



Schnitzer Steel dba Radius Recycling  
1101 Embarcadero West  
Oakland, CA 94607

Stationary Source Committee Meeting  
February 14, 2024

Bay Area Air Quality Management District

# Schnitzer's Metal Recycling Operations



## Pollutants:

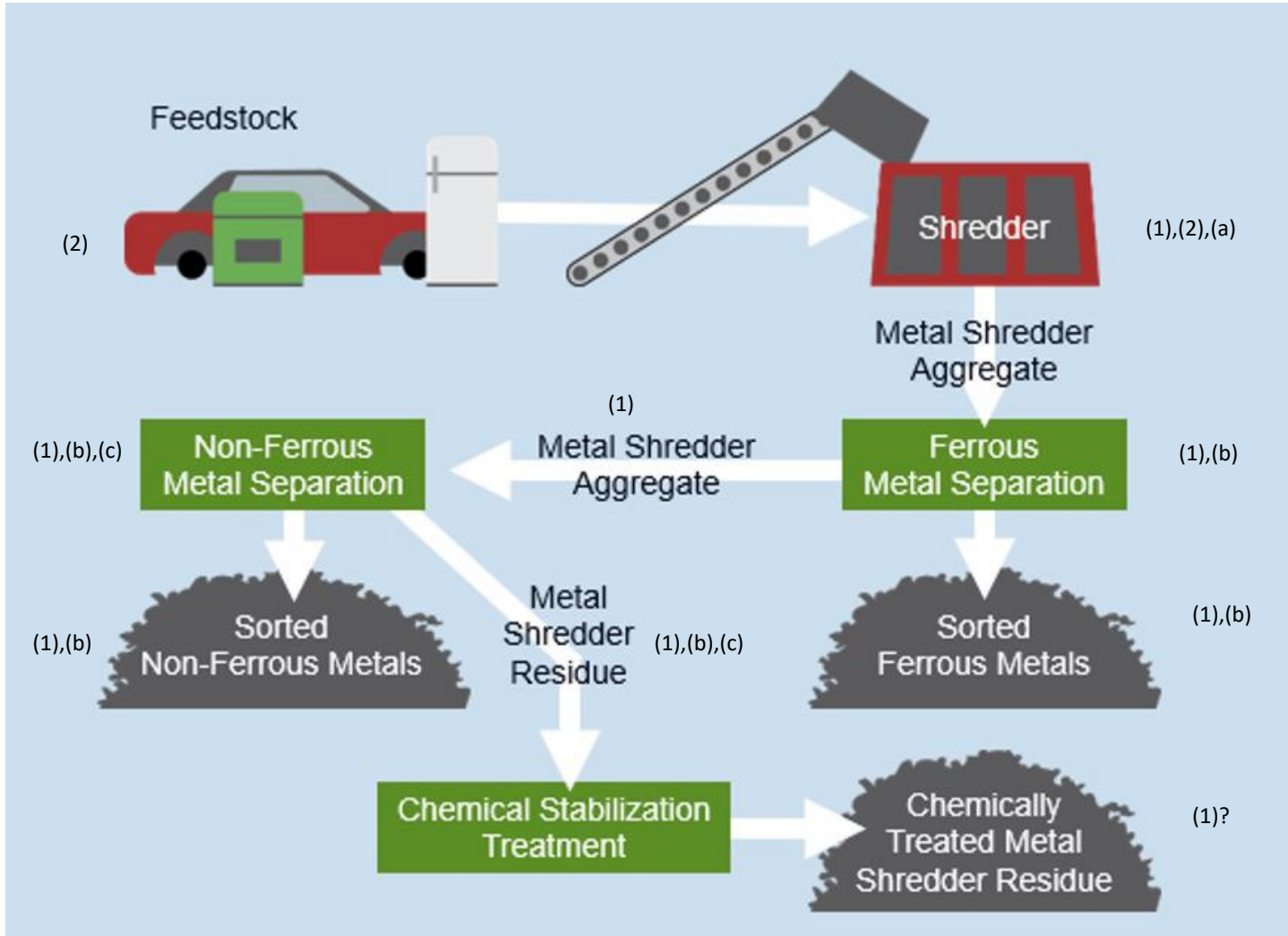
PM / Light fibrous material (LFM) aka Shredder Residue or fluff  
 (1) (Note – PM can come from any source)

VOC, NOx (2)

Toxic Organics: benzene, PCBs, PAHs, dioxins (2)

Toxic Metals: hexavalent chromium, mercury, lead (1)

Refrigerants: CFCs & HCFCs (2)



## Emission Controls:

Shredder Enclosure  
 Venturi Scrubber (a)

Regenerative Thermal Oxidizer (a)

Acid Gas Scrubber with mist eliminator (a)

Water Trucks (b, roadways/paved surfaces)

Sweeper Trucks (roadways/Paved surfaces)

Water Spray equipment (b)

Bag House(s) (c)

# Schnitzer's Metal Recycling Operations (cont.)



## Key Air District Rules and Regulations

- **Regulation 6: Particulate Matter, Rule 1: PM General Requirements**
- **Regulation 6: Particulate Matter, Rule 6: Prohibition of Trackout;**
- **Regulation 6: Particulate Matter, Rule 4: Metal Recycling and Shredding Operations;**
  - **Emissions Minimization Plan – EMP**

6-4-401 Emissions Minimization Plan Requirements: The owner or operator of any metal recycling facility subject to the requirements of this Rule shall develop and submit to the APCO in accordance with Sections 6-4-402 through 406 an Emissions Minimization Plan (EMP) that details management practices, measures, equipment and procedures that are employed or will be implemented to minimize fugitive emissions.
- **Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations;**

# Light Fibrous Material (LFM)

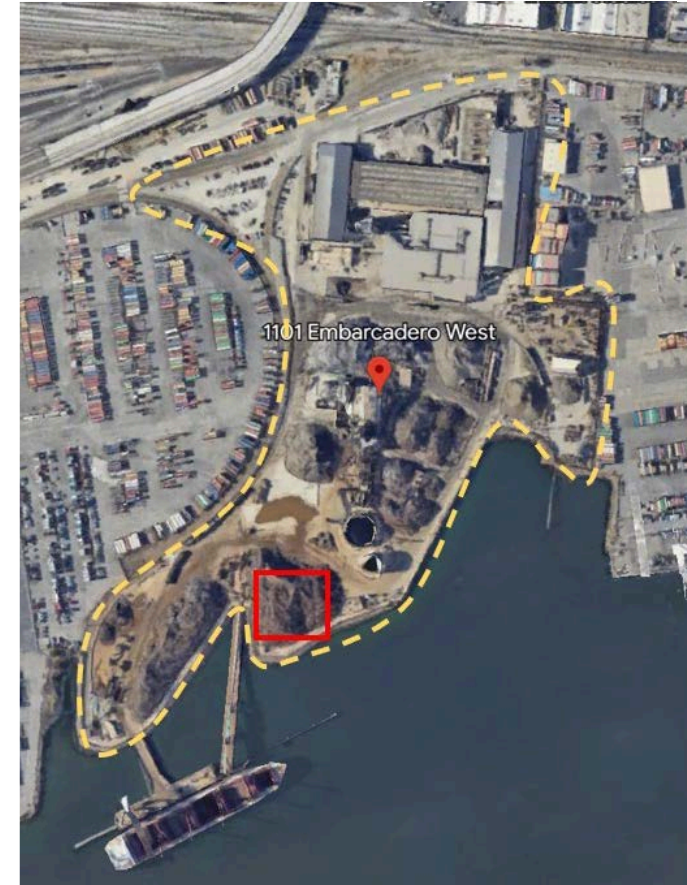


- LFM is waste that typically consists of residues from metal shredding operations
- LFM can contain toxic metals, can become airborne, and migrate offsite
- The Air District is coordinating with the California Department of Toxic Substances Control (DTSC) about LFM found near and outside the facility and its impacts on air quality
- The Air District assisted with data analysis for an air monitoring and LFM study led by DTSC, which indicated that facility emissions likely caused or contributed to higher levels of certain metals, including lead, found in air samples
- The Air District and DTSC are determining what additional sampling and analyses would be helpful in assessing and quantifying air quality impact on the community

# Schnitzer Steel Fires



- Three fires since 2018:
  - June 2, 2018
  - June 17, 2020
  - August 9/10, 2023
- August 2023 Fire Details:
  - ❖ Fire occurred in a temporary pre-shred scrap pile. OFD investigation determined fire was accidental with undetermined cause.
  - ❖ 15-hour active fire / 22-hour total fire suppression effort
  - ❖ Significant offsite impacts: smoke and odor
  - ❖ 51 air pollution complaints



Google Maps satellite view of Schnitzer Steel.  
Retrieved on 8/18/23.

**Key:**

- Approximate facility boundary
- Location of 8/9/23 fire



# Schnitzer Steel Fires (cont.)

August 9/10, 2023 fire



## Field Response:

- Mobilized after-hours incident response
  - 1 supervisor, 2 field specialists
- Responded to air quality complaints
- Documented community impacts
- Contacted facility for information
- Reported back finding for internal coordination

## Meteorology and Measurement

- Meteorology forecasting
- Analyze existing real-time air monitoring data

## Communications

- Prepared notifications for our Board of Directors
- Distributed Air Quality Advisory to media/public
- Social media posts – Facebook, Twitter, etc.
- Responded to media requests



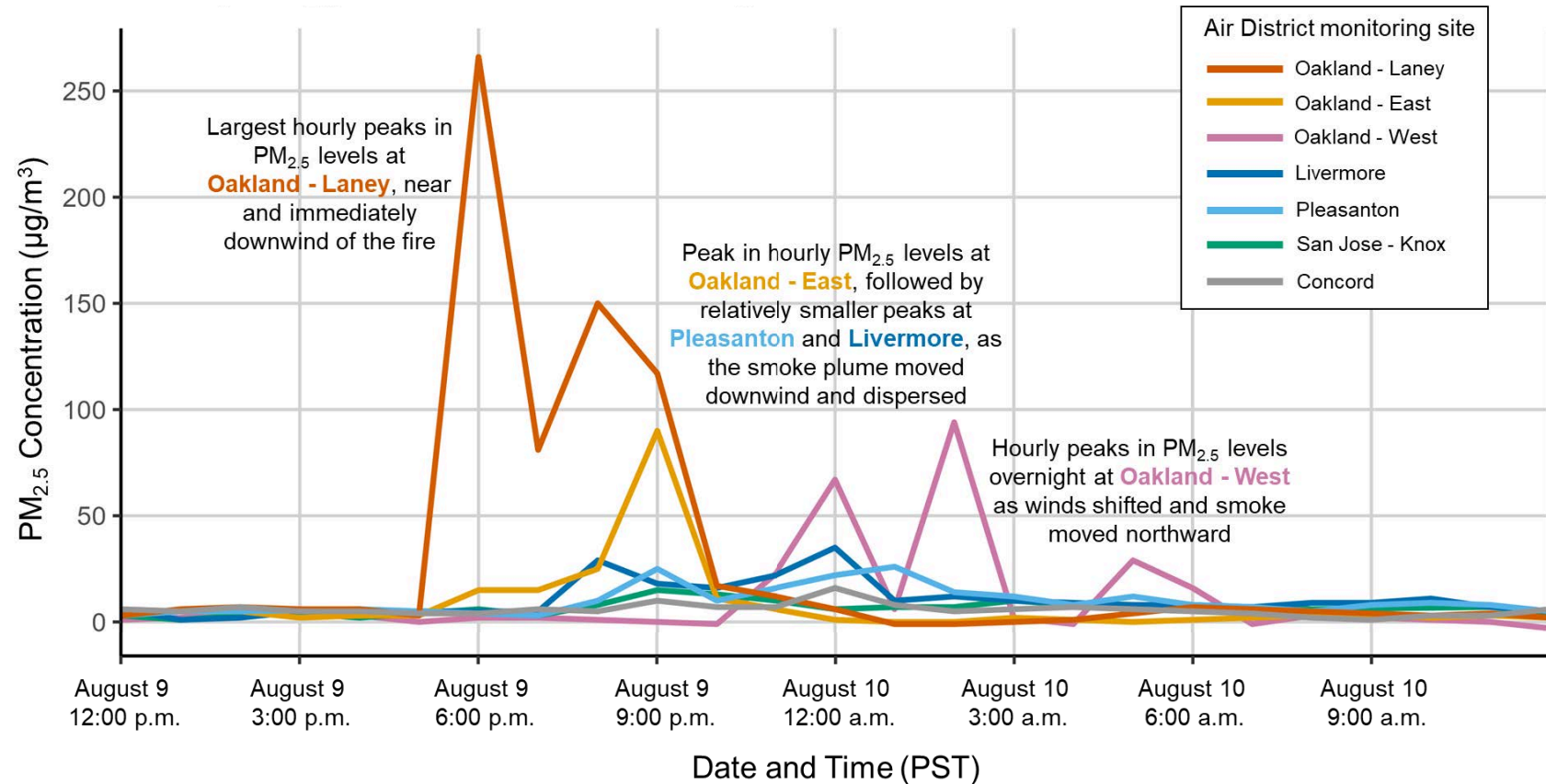
# Schnitzer Steel Fires (cont.)

## August 9/10, 2023 fire



- Staff reviewed PM<sub>2.5</sub> data from Air District monitors and from lower-cost sensors to track the smoke plume
- Large peaks in hourly PM<sub>2.5</sub> levels were noted at several Air District monitors
- Staff are evaluating additional air monitoring data to help characterize impacts from this incident
- Preliminary review of speciated PM<sub>2.5</sub> data showed relatively higher levels of some metals

Hourly PM<sub>2.5</sub> Concentrations from selected Air District monitors, August 9-10, 2023

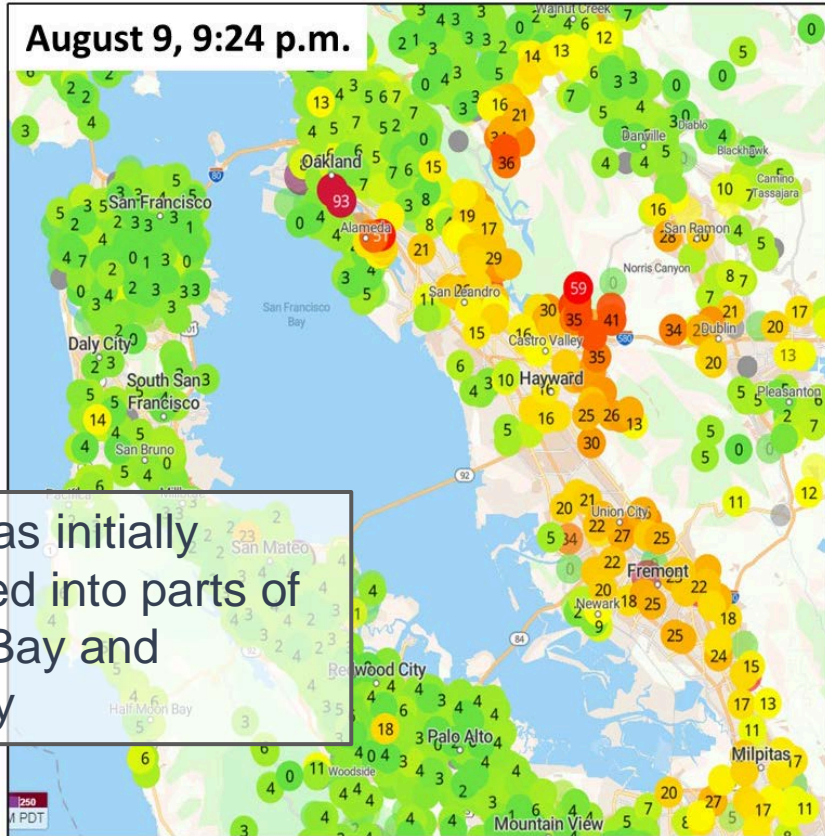


# Schnitzer Steel Fires (cont.)

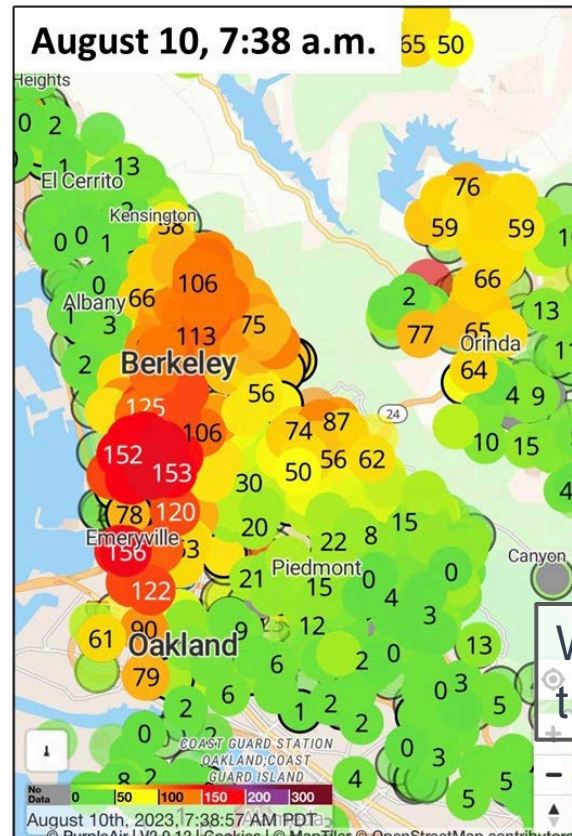
August 9/10, 2023 fire



PM<sub>2.5</sub> data from lower-cost sensors helped illustrate the spatial extent of the smoke plume



Smoke was initially transported into parts of the East Bay and South Bay



Some of the peak impacts were experienced in overburdened communities, including East and West Oakland and along I-880

Winds shifted overnight and transported smoke northward

Screenshots from the PurpleAir website ([map.purpleair.com](http://map.purpleair.com)) of PM<sub>2.5</sub> 10-min averages

# Air District Response



## August 2023 Schnitzer Fire:

### Enforcement Actions

1. NOV A61931 – Public Nuisance (Reg 1-301, CH&SC 41700)
  2. NOV A61932 – A. Prohibited Fire (Reg 5-301), B. Excessive Visible Emissions (Reg 6-1-301)
  3. NOV A62739 – Noncompliance with EMP (Reg 6-4-303.1)
- Investigation and legal review ongoing

### EMP Update Required per Reg 6-4

# Air District Response (cont.)



- Air District reviewing revised EMP
- Revised EMP must address fire prevention/suppression measures triggered by enforcement actions and rule
- Preliminary assessment of revised EMP indicates potential improvements including:
  - Continuous monitoring of all fire prone storage piles with stationary FLIR camera coverage
  - Emergency FLIR monitoring using handheld cameras during power outages and/or equipment failure
  - Fire-fighting foam available for use by staff and fire department
  - Smaller pile sizes with fire breaks between piles
- Air District will carefully assess proposed changes during approval process

# Permits Issued



<b>Application Number</b>	<b>Permit Issued</b>	<b>Description</b>
<b>14194</b>	<b>2007</b>	<b>Replaced original shredder with a new shredder</b>
<b>16721</b>	<b>2009</b>	<b>Increased maximum permitted throughput at shredder to 720,000 tons/year and added limit of 26 ship calls/year</b>
<b>27762</b>	<b>2020</b>	<b>Added enclosure around shredder, two blowers and two venturi scrubbers to control emissions of particulate matter (PM) and light fibrous material (LFM)</b>
<b>29870</b>	<b>2020 (exempt)</b>	<b>Reconfigured process at Joint Products Plant (JPP) and added enclosures, a baghouse and water sprays</b>

# Permits Under Air District Consideration



- Request to increase shipping limit to 32 ship calls/year – California Environmental Quality Act (CEQA) review is underway (2018)
  - Request to add additional abatement systems to shredder including two thermal oxidizers to control organic and toxic emissions and two scrubbers to control secondary acid gases – Authority to Construct issued August 2021, Operation began April 2022, and Compliance testing completed – Next Step: initiate public notice for the draft Permit to Operate for the new controls (2019)
  - Request for Initial Title V Operating Permit (2018)
    - Request for Synthetic Minor Operating Permit that would replace the Title V Operating Permit based on lower limits from abatement equipment, if approved (2019)
  - Request to increase maximum hourly operating rate at shredder (2020)
- The Air District will include Civil Rights and EJ considerations in the review of these permits

# Emission Reduction Improvements



## Toxics and Criteria Pollutant Emissions from Shredding Operation (Joint Products Plant (JPP))

- Shredder enclosure in 2017 substantially reduced fugitive emissions of PM
- Source Testing in 2019 identified significant VOC emissions in violation of Regulation 8, Rule 2
- As part of a settlement and compliance agreement, Schnitzer installed abatement equipment in April 2022 to control VOC/Toxics
  - There have been significant reductions of PM and VOC with added controls

## LFM from storage piles

- Schnitzer has installed temporary barriers to prevent LFM from blowing off-site

## Fires at storage piles

- The revised EMP is intended to minimize the chance of fires



# RRTF and Work with Community



## Working with Agency Partners:

CalEPA / USEPA Rapid Response Task Force (RRTF) – convened in response to August fire

- Rapid, coordinated enforcement response to a high-priority incident in an overburdened community
- 12 Participating agencies
- Meetings co-led by WOEIP and CalEPA/USEPA
- Activity Log
  - <https://calepa.ca.gov/wp-content/uploads/sites/6/2023/10/Schnitzer-Activity-Log-October-2023.pdf>

 Schnitzer Steel Industries, Inc. dba Radius Recycling Update on Environmental Compliance October 2023

**Background**  
Schnitzer Steel Industries, Inc. dba Radius Recycling owns and operates a scrap metal recovery and recycling facility located at 1101 Embarcadero West, Oakland, California 94607 ("Schnitzer"). Schnitzer occupies approximately 33.2 acres adjacent to the Oakland Inner Harbor waterfront and the Port of Oakland. The Facility is bounded to the south by the Oakland Inner Harbor, to the east and west by the Port of Oakland (Howard Terminal and Roundhouse Terminal respectively), and to the north by Embarcadero West and Union Pacific Railroad tracks. Community members are concerned about fires and potential exposure to pollution that may impact public health from Schnitzer's operations.

**Alameda County CUPA Actions**  
The Alameda County Department of Environmental Health (ACDEH) became the CUPA for the City of Oakland in 2015. As the CUPA, ACDEH implements administrative requirements, permits, inspections and enforcement of hazardous materials laws and regulations. The CUPA programs under the authority of ACDEH as a regulatory agency include:

- Hazardous Materials Business Plan (HMBP)
- Hazardous Waste Generator (HWG)
- Underground Storage Tank
- Aboveground Petroleum Storage Act (APSA)
- California Accidental Release Prevention

**Is the facility subject to environmental requirements?**  
Schnitzer is subject to federal, state, and local requirements related to air emissions, water quality, and hazardous materials and waste.

**Who is involved in this matter?**  
Multiple agencies at the local, state, and federal level are responsible for regulating Schnitzer and have been engaged in inspection and enforcement activities. These agencies include:

- Alameda County Department of Environmental Health, Certified Unified Program Agency (CUPA)
- Bay Area Air Quality Management District (Bay Area AQMD)
- City of Oakland/Oakland City Attorney
- Alameda County District Attorney
- San Francisco Bay Regional Water Quality Control Board
- California Attorney General
- State Water Resources Control Board
- California Air Resources Board (CARB)
- California Department of Toxic Substances Control (DTSC)
- California Environmental Protection Agency (CalEPA)
- United States Environmental Protection Agency, Region 9 (US EPA)

**Schnitzer is subject to HMBP, HWG and APSA program requirements. Since becoming the CUPA for Schnitzer in 2015, ACDEH has conducted inspections and found the following violations:**

- September 14, 2015, one HMBP program violation that was corrected on October 13, 2015.
- September 14, 2015, five HWG program violations that were corrected on February 16, 2016.
- September 15, 2015, four APSA program violations that were corrected on December 3, 2015.
- December 11, 2017, one HMBP program violation that was corrected on December 21, 2017.
- November 8, 2018, one HWG program violation that was corrected on December 7, 2018.
- November 5, 2019, one HMBP Notice of Violation was issued and corrected on November 11, 2019.
- April 11, 2023, four HWG program violations that have not been corrected.
- April 11, 2023, one APSA program violation that has not been corrected.
- August 10, 2023, one HMBP program violation that has not been corrected.
- August 10, 2023, three HWG program violations that have not been corrected.

Details of these violations can be found in *Appendix A - Alameda County CUPA Inspections, Violations, and Return to Compliance*. In addition, ACDEH conducted HWG program inspections on June 4, 2018, and August 6, 2020, and found no violations.

# RRTF and Work with Community (cont.)



- Community Issues and Demands
  - Enforce 2001 settlement (2021 Settlement Agreement – AG’s Office, Alameda County DA, DTSC)
  - Increase Penalties
  - Improve Monitoring and Reporting
  - Implement Community Warning System
  - Provide Community Restitution
- Issues and concerns
  - Light Fibrous Material (LFM)
  - Permitting and Enforcement
  - WOCAP #68
    - Metal Recycling White Paper / Rule 6-4 amendments
  - Ship Calls

# Next Steps



- (Amended) EMP Approval Process – Near term
- Thermal Oxidizer Permit for Public Comment – Near term
- Federal Permit: Title V or Synthetic Minor Operating Permit. Federally Enforceable – Midterm
- Evaluate Potential Concepts that Mitigate Emissions – Release Metal Recycling Emissions White Paper– Midterm
- Possible future rule making – Long Term
- Ongoing Collaboration with DTSC on LFM Monitoring Results
- Continue Work with RRTF, Agency Partners, and Community - Ongoing



# Questions / Comments



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**AGENDA: 5**

# **Metal Recycling & Shredding Emissions - Evaluation & Recommendations**

**Stationary Source Committee  
February 14, 2024**

**Poornima Dixit  
Senior Air Quality Engineer  
Rules & Strategic Policy**

**[pdixit@baaqmd.gov](mailto:pdixit@baaqmd.gov)**

# Presentation Outcome



To inform the committee on the findings of the Metals Recycling Emissions White Paper and provide recommendations for future actions.

# Presentation Outline



- Background on Metal Recycling and Shredding Emissions
- White Paper Development
- Current Rules
- Gap Analysis
- Recommendations
- Next Steps
- Feedback and Questions

# Requested Action



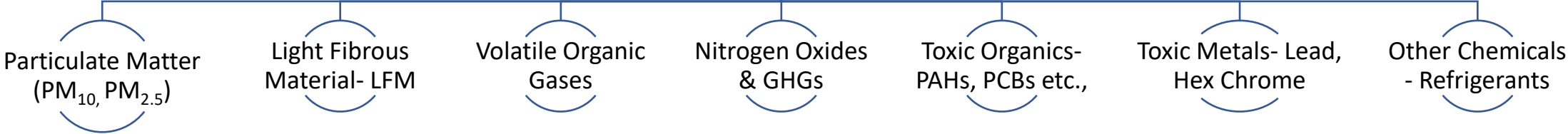
None; This is an informational item.



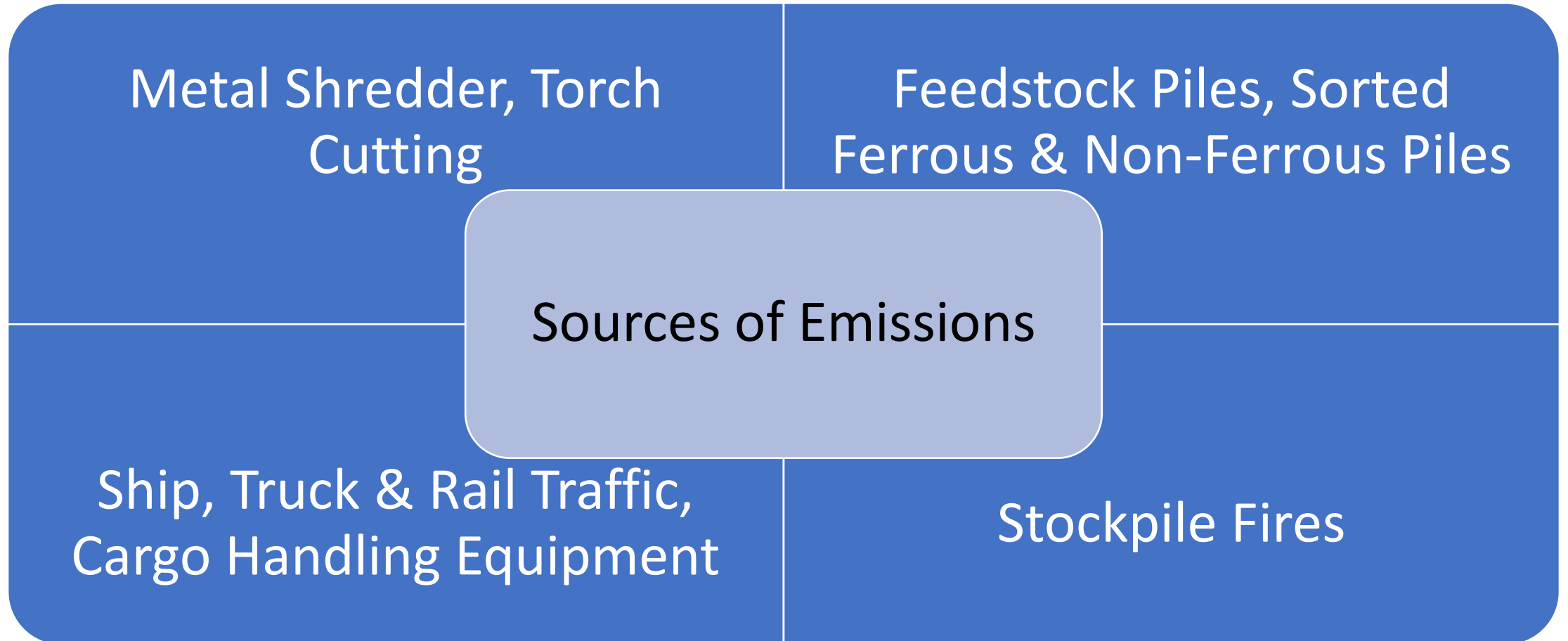
# Background



**All harmful emissions resulting from Metal Recycling & Shredding Operations/Facilities**

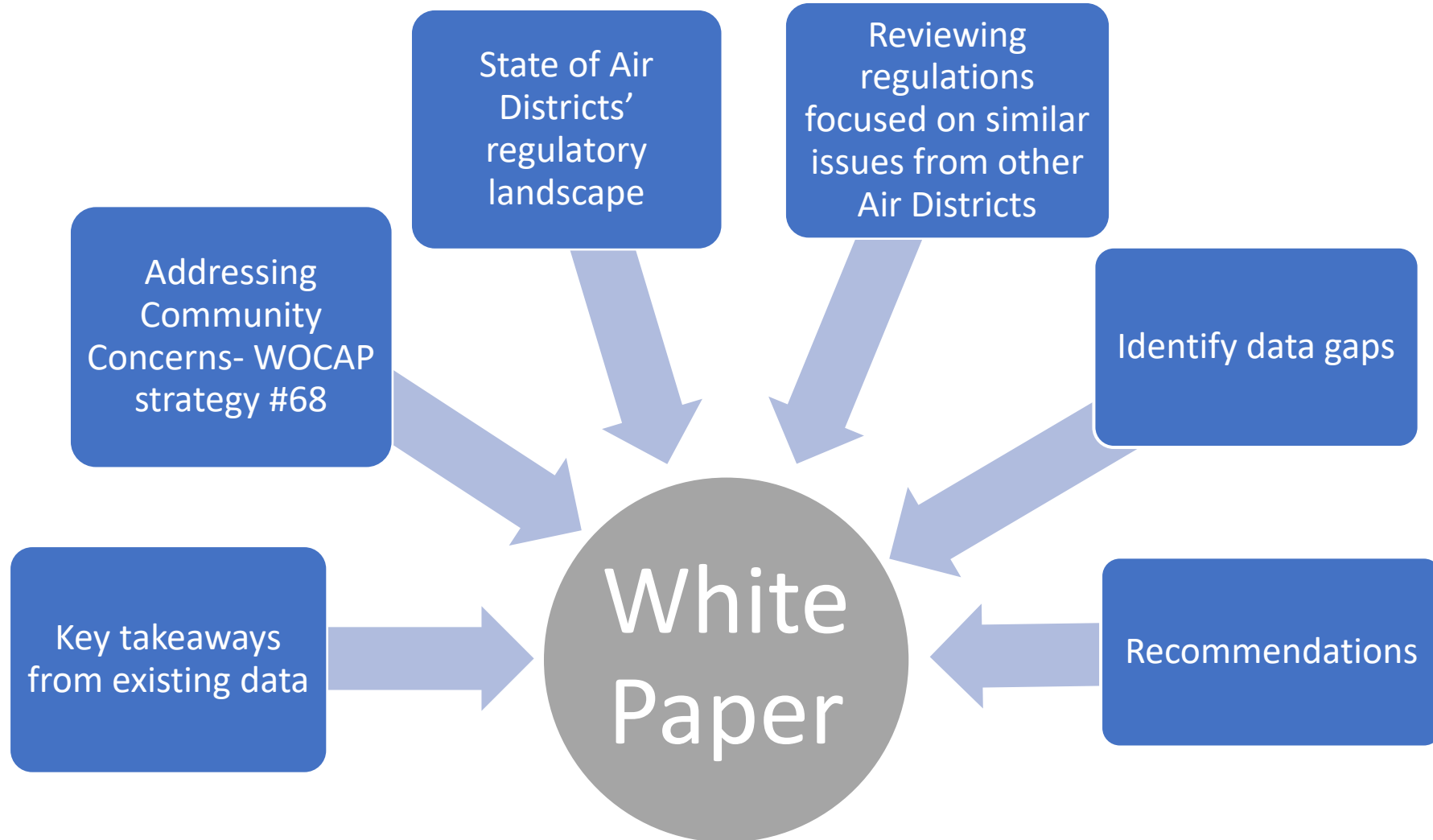


# Background (cont.)





# White Paper Development



# Current Rules that Mitigate Metal Recycling Emissions



## Rule 6-4: Metal recycling and Shredding Operations

- *Requires Metal Recycling and Shredding Operations to develop and implement an Emissions Minimization Plan (EMP) that would include practices and procedures to minimize fugitive emissions of PM*

## Rule 6-6: Prohibition of Trackout

- *Requirements for prohibition of trackout*

## Rule 2-2: New Source Review

- *Requirements for Best Available Control Technology (BACT) that applies to new or modified sources*

# Gap Analysis of Metal Recycling Emissions Rules



Staff reviewed existing regulatory measures used to control emissions from Metal Recycling & Shredding operations at the following jurisdictions

- South Coast Air Quality Management District (SCAQMD)
- Arizona Department of Environmental Quality (ADEQ)
- San Diego County Air Pollution Control District (SDAPCD)
- San Joaquin Valley Air Pollution Control District (SJVAPCD)
- US EPA
- California Air Resources Board (CARB)
- Clark County (NV) Department of Environment and Sustainability (DES)
- Imperial County Air Pollution Control District (ICAPCD)
- Maricopa County Air Quality Department (MCAQD)
- Sacramento Metropolitan Air Quality Management District (SMAQMD)

# Potential Recommendations



## Propose to Amend Rule 6-4

### *Stringent Emissions Control*

- Include a minimum set of emissions control measures that apply to all facilities instead of an Emissions Minimization Plan (EMP)
- Establish stringent De-pollution strategies
- Include recordkeeping and reporting requirements for each emission control measure to improve enforceability and transparency
- Ensure better stockpile and feedstock management by having them contained in permanent enclosures

# Potential Recommendations (cont.)



## *Monitoring Requirements*

- Add Air Monitoring requirements to Rule 6-4
  - Require the facility to perform air monitoring at the fenceline and/or in nearby communities to monitor emissions and characterize fugitive PM and VOC emissions

# Potential Recommendations (cont.)

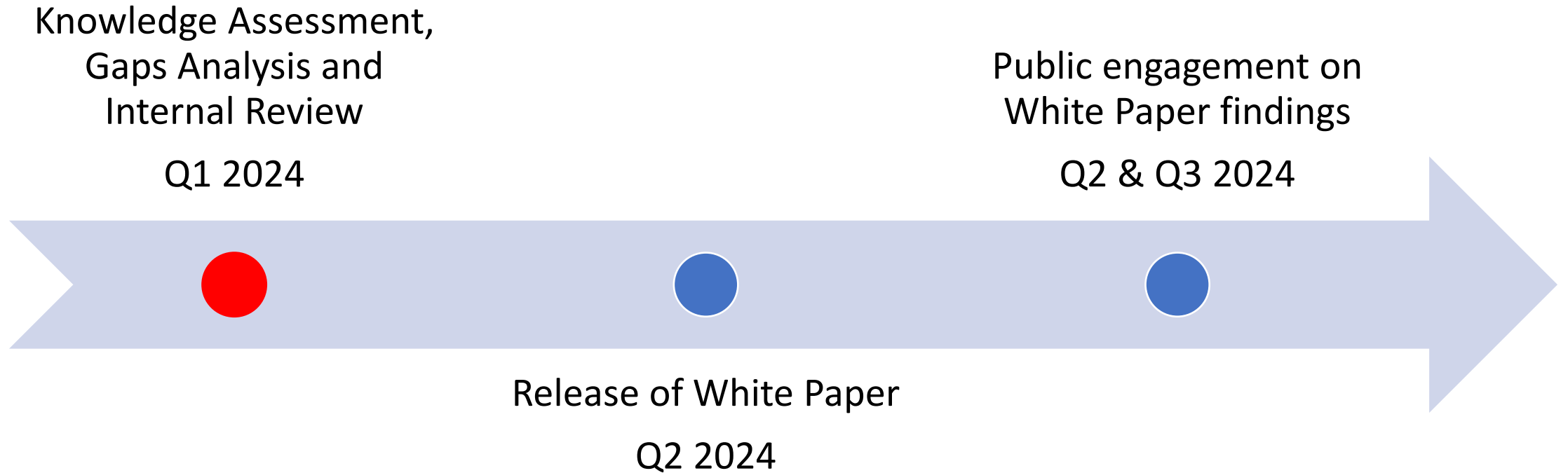


## Bolster Inter-Agency Partnership

- Establish partnerships with agencies that have jurisdiction over metal recycling facilities to jointly enforce regulations and issue violations when they occur



# Scoping Phase of the Rule Development Process



# Feedback Requested



- Questions & Comments?