
*Advancing Clean Air for
Disadvantaged Communities:
Community Air Monitoring*

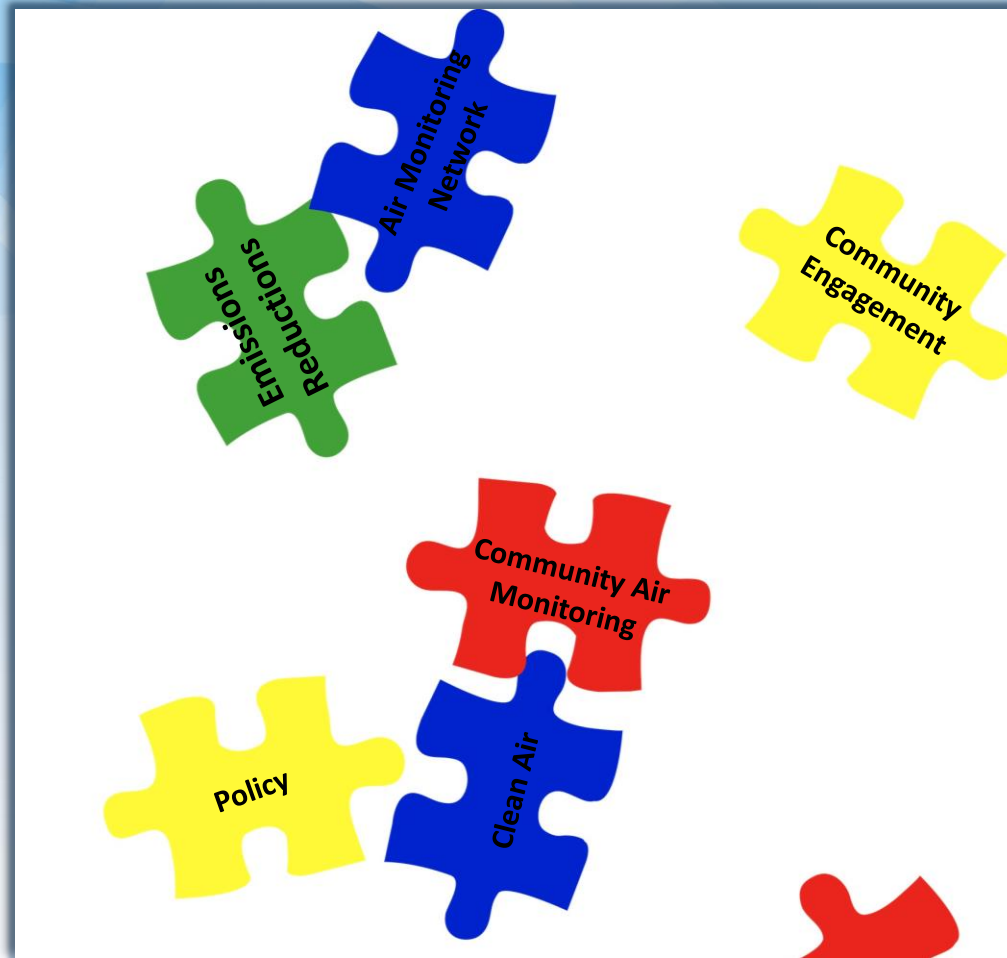


Jason Low, Ph.D.

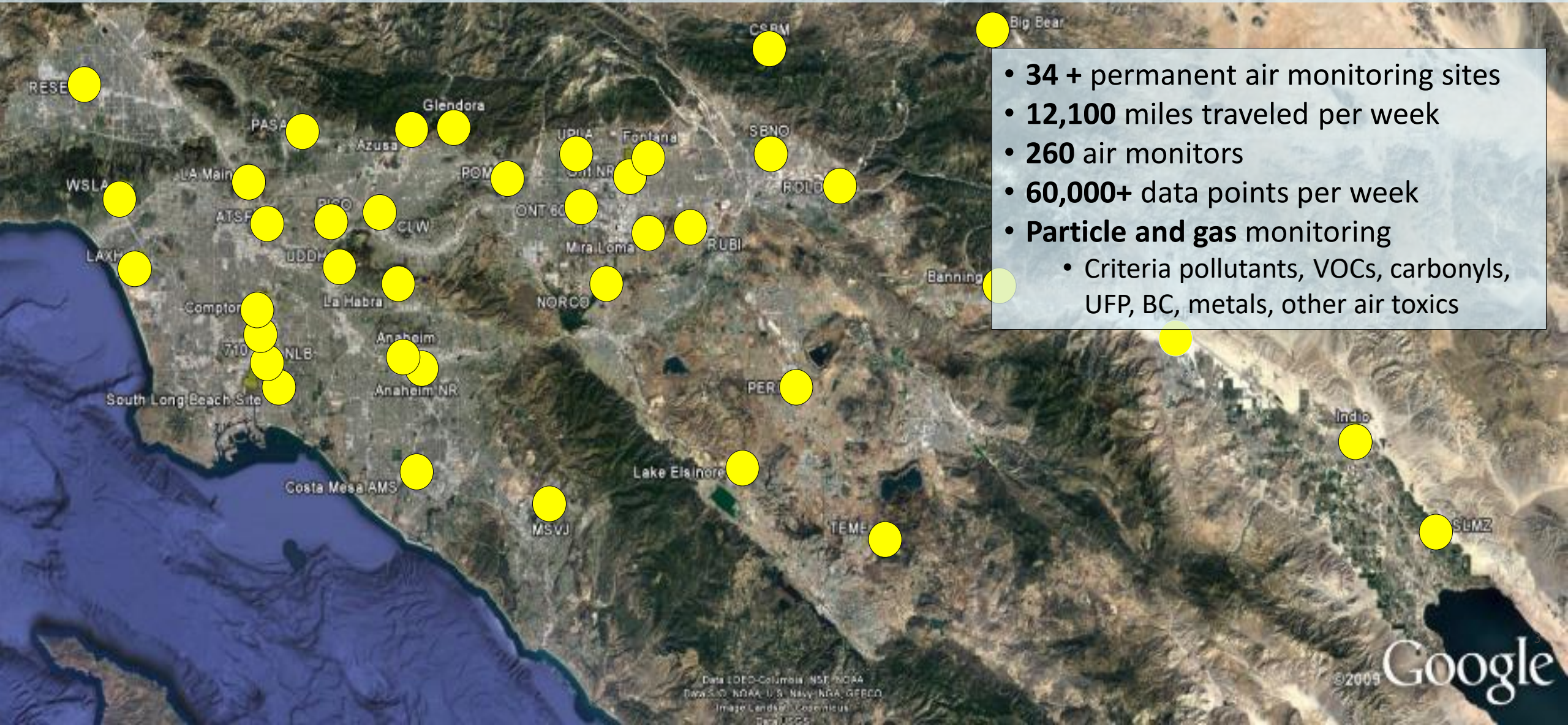
Deputy Executive Officer

Monitoring and Analysis Division

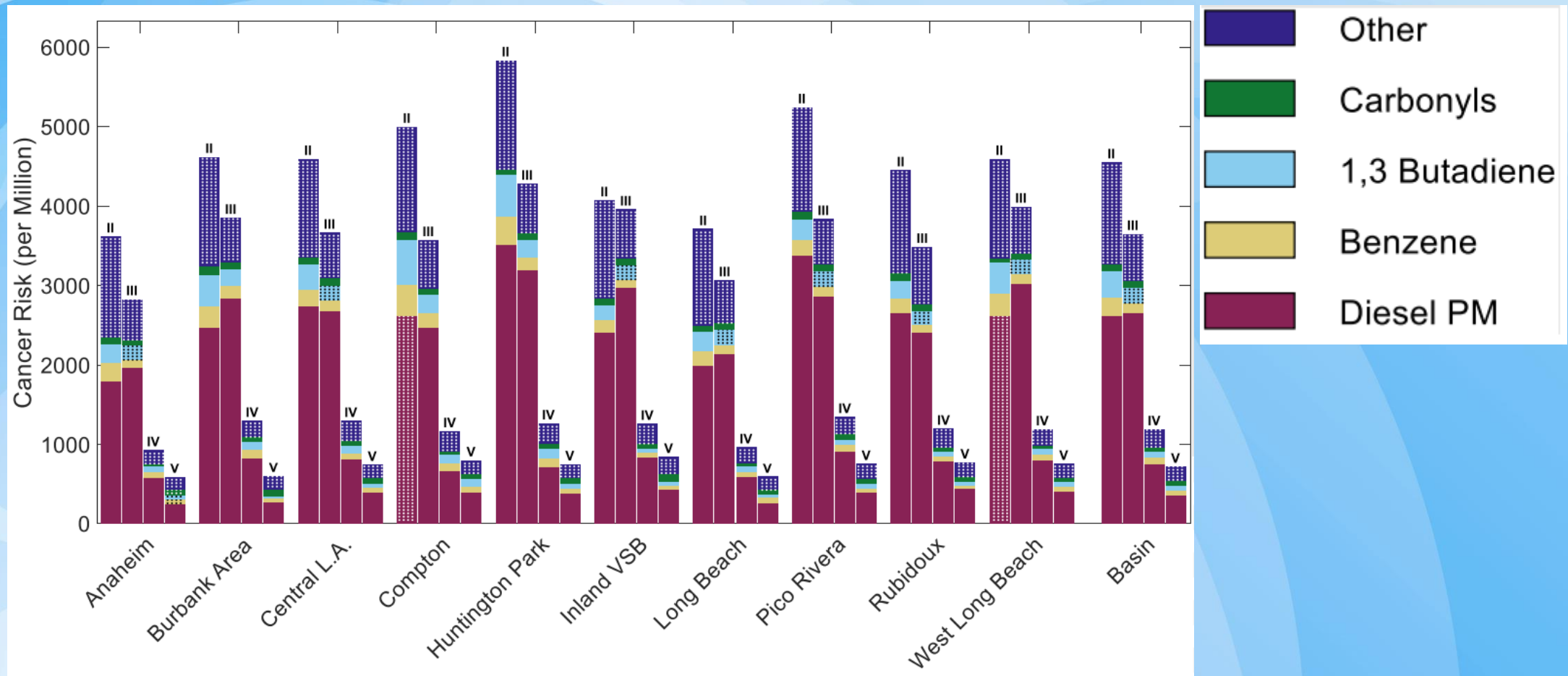
Community Air Monitoring: A Piece to a Larger Whole



South Coast AQMD Air Monitoring Network



MATES V Cancer Risk Trends (based on monitoring data)

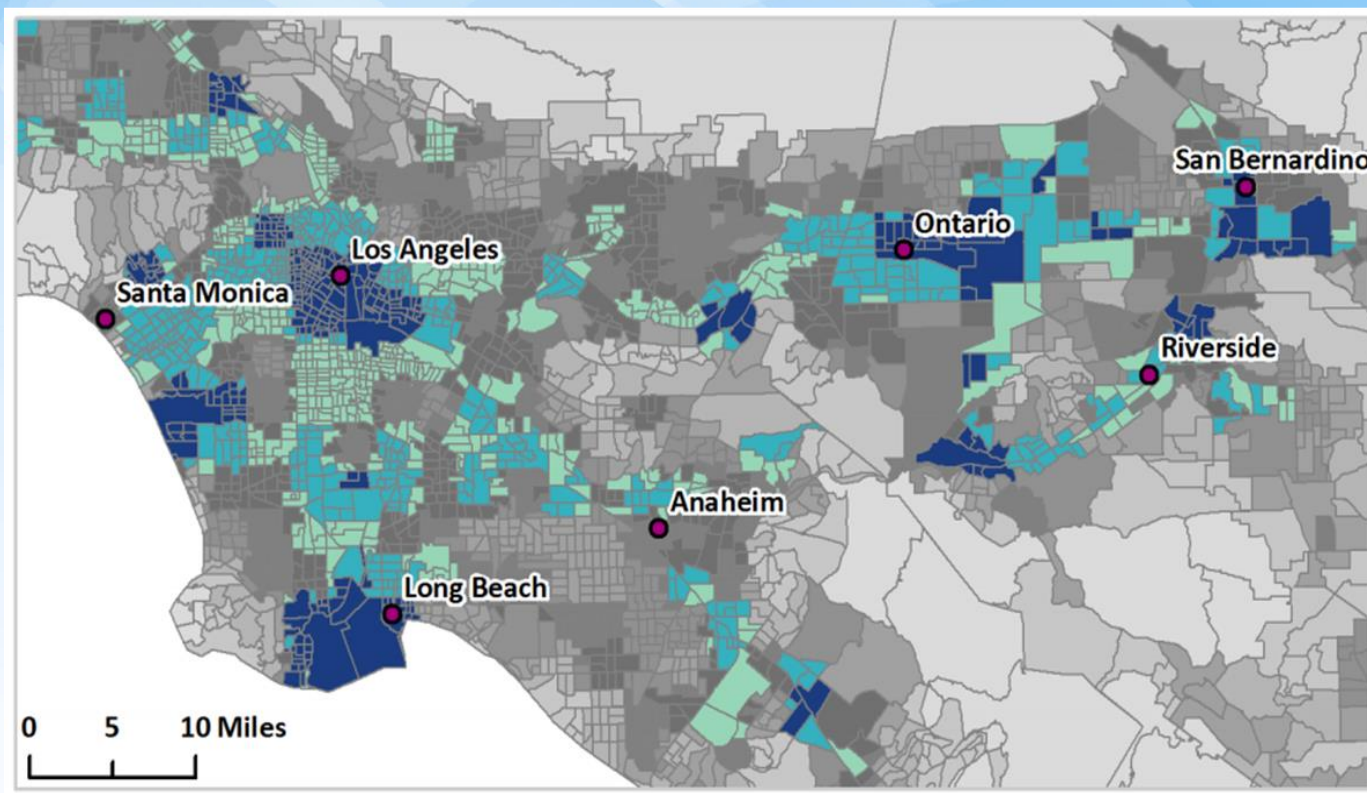


Motivation for Community-Level Efforts

Historical focus on regional air quality

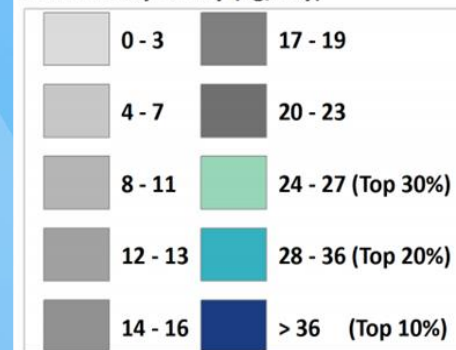
Significant improvement, but disproportionate burdens remain

Need for community-level focus



Diesel PM

Diesel PM emissions from on-road and non-road sources for a 2012 summer day in July (kg/day)



Source: CalEnviroScreen 3.0

California State Assembly Bill (AB 617)

- ▶ Statewide program enacted in 2017 to reduce air pollution in communities that are disproportionately impacted by air pollution
- ▶ Community partnerships and leadership are central to the program



Community Air
Quality
Monitoring



Community
Emissions
Reduction
Plans



Clean
Technology
Investments



Best Available
Retrofit Control
Technology
(BARCT) Rules



Easier
Access to
Data

Community Engagement

Community Steering Committee (CSC)

Residents

Community Leaders

Community Organizations

Government Agencies

Businesses

Industry



Community Emissions Reduction Plans (CERPs)

CERP Elements

Air Quality
Priorities



Goals



Strategies



Objectives

CERP Strategies

Air Monitoring

Focused Enforcement

Inter-Agency Collaboration

Incentive Programs

Public Information and Outreach

Rules and Regulations

Air Quality Concerns and Priorities

Diesel Exhaust



Truck Traffic

Railyards

Sensitive Receptors

Air Toxics



Refineries

Metal Processing
Facilities

Auto Body Shops

Odorous Compounds



Rendering
Facilities

Waste Transfer
Stations

Criteria Pollutants



Cement Batch
Plants

Dust

...and more!

AB 617 Community Air Monitoring Objectives

01

Better understand emission sources, pollutants of interest and their levels and establish baseline

02

Look at levels of pollution at the community level for providing information on further action

03

Support development and implementation of emissions reduction strategies

04

Provide air pollution data to the general public

General Air Monitoring Approach and Tools

Mobile Monitoring

- Survey large areas
- Identify hotspots and unknown sources
- Support inspections and enforcement actions
- Inform emission reduction efforts

Fixed Monitoring

- Provide more information about possible sources
- Assess levels in community
- Support emission reduction strategies
- Track progress

Sensors

- Provide more information about how levels vary within the community
- Complement other monitoring strategies
- Engage the community in air pollution measurement

Comprehensive and Purposeful Air Monitoring



Community Air Monitoring Plans

**AB 617 COMMUNITY AIR
MONITORING PLAN (CAMP)
FOR THE EASTERN
COACHELLA VALLEY
COMMUNITY**



South Coast Air Quality Management District
November 2020
Version 1

**Quality Assurance Project
Plan (QAPP)
for AB 617 Community Air
Monitoring Program**



South Coast Air Quality Management District
September 2020
Version 1

<http://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134/ab-617-community-air-monitoring>

Community Air Monitoring Dashboard

South Coast AQMD - AB 617 Community Air Monitoring

Air Quality Concerns Data Summary & Reports

WILMINGTON, CARSON, WEST LONG BEACH COMMUNITY (WCWLB)

This community adjacent to the ports has among the highest diesel particulate matter levels in the South Coast Air Basin, primarily due to emissions from goods movement activities, including rail yards. In addition, this area includes several major petroleum refineries.

MONITORING STATION INFO

Judson Air Monitoring Station
Community of Carson [Historical Search](#)

Black Carbon (BC)

| | | |
|------------------------------|---|----------------------|
| -- | Average Previous Hour State Standard - N/A Federal Standard - N/A | Link |
| 0.7 $\mu\text{g}/\text{m}^3$ | Average Previous 24 Hours State Standard - N/A Federal Standard - N/A | Link |

Hydrogen Sulfide (H₂S)

| | | |
|----|---|----------------------|
| -- | Average Previous Hour State Standard - 30 ppb Federal Standard - N/A | Link |
| 1 | Average Previous 24 Hours State Standard - N/A Federal Standard - N/A | Link |

South Coast Air Quality Management District [Disclaimer](#)

Community Air Monitoring Activities Near Oil Wells



- Area wide mobile monitoring with enforcement team support
- Identify locations with enhanced Volatile Organic Compounds (VOCs) concentrations

Area Surveys

Source Identification

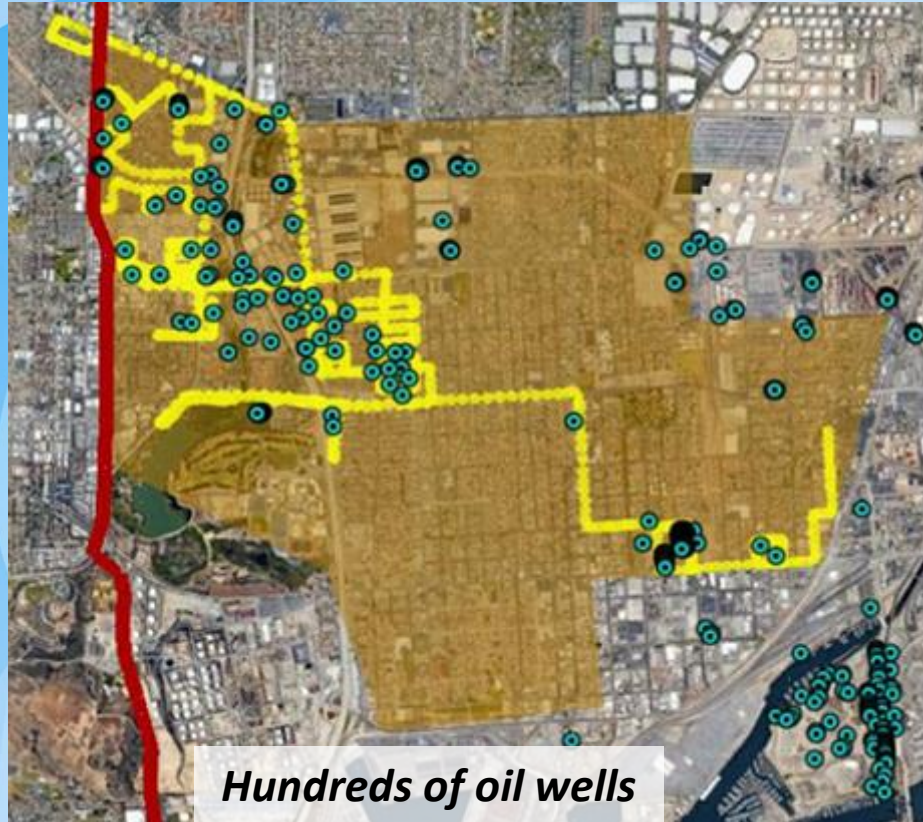
- Identification of emission sources through investigative monitoring



- Use Forward Looking InfraRed (FLIR) camera and Toxic Vapor Analyzers (TVA) to confirm leaks
- Facilities fixed leaks (staff verified)

Enforcement

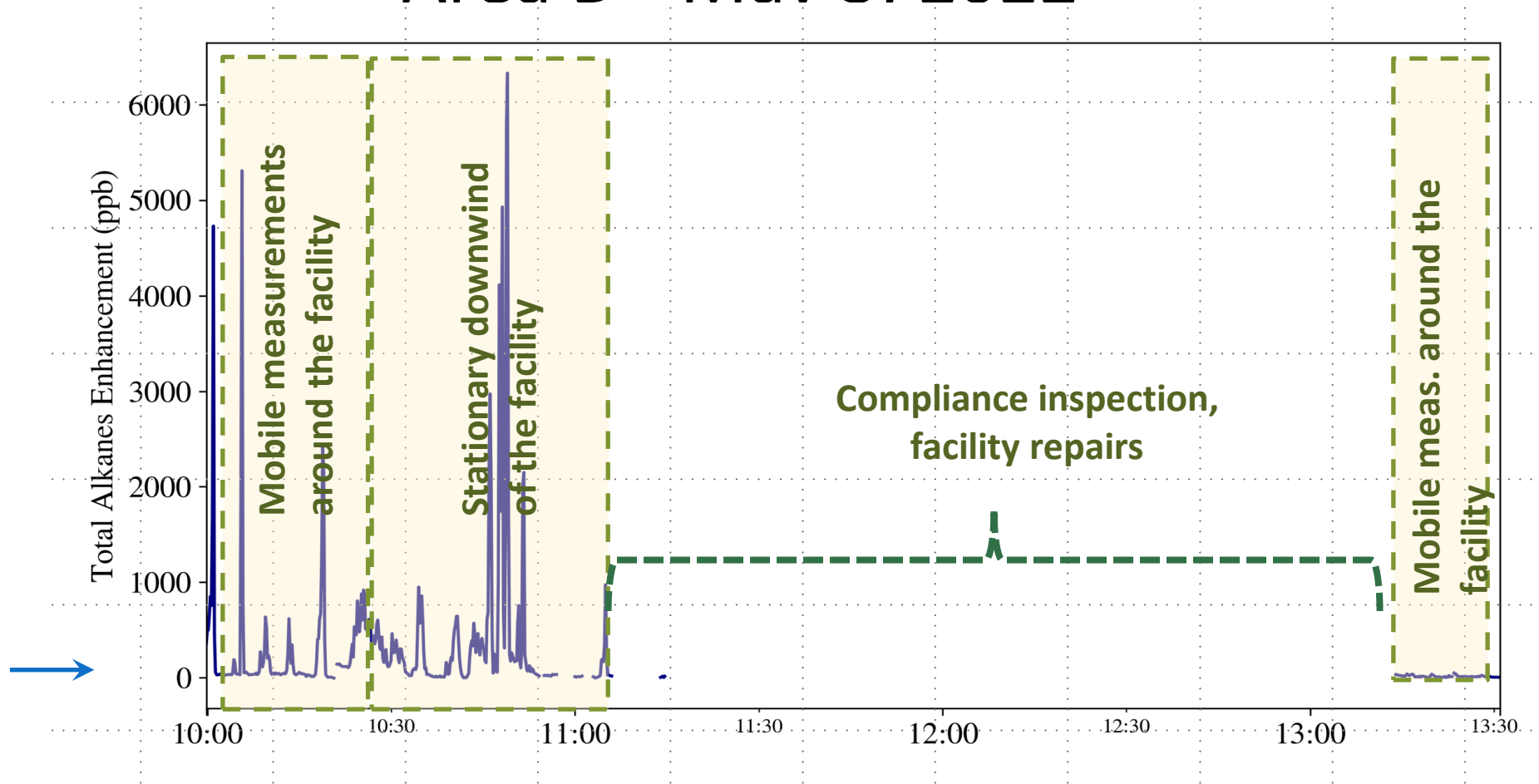
Community Air Monitoring Activities Near Oil Wells



Reducing Emissions from Oil Wells



Area D - May 3, 2022



Outcome of Community Air Monitoring Near Oil Wells



Mobile Surveys

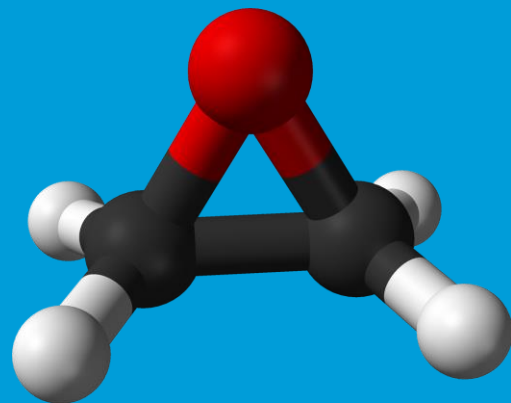
- September 2019 – April 2024
- 42 mobile surveys completed



Enforcement

- January 2021 – April 2024
- 20 NOV issued





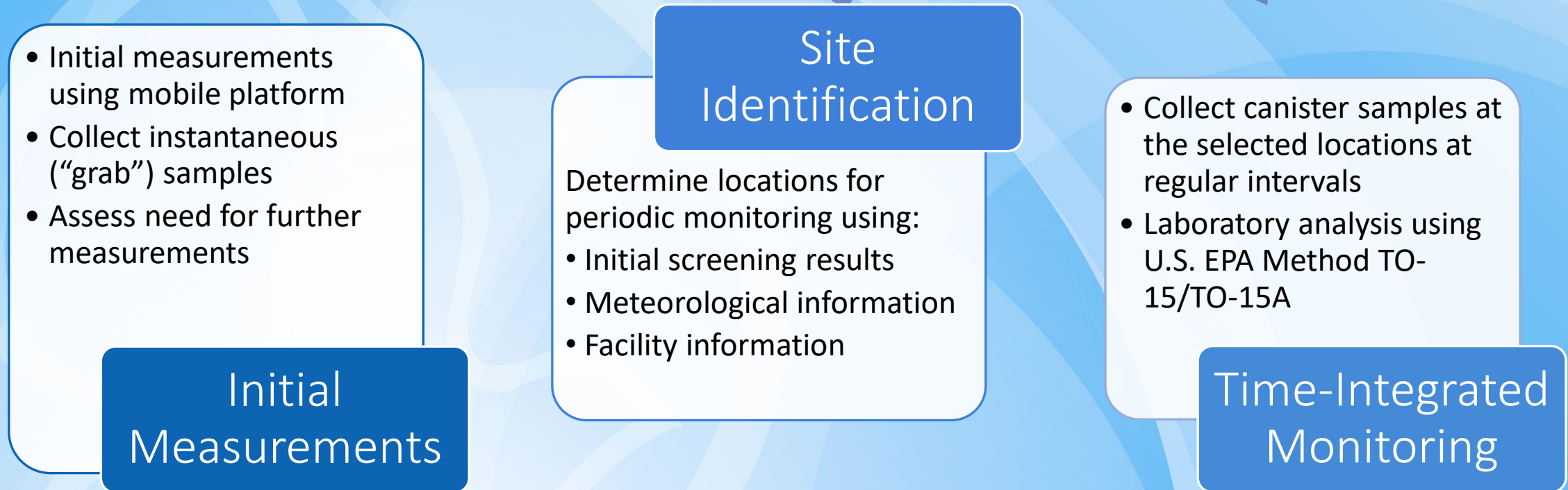
Medical Sterilizer Facilities: Ethylene Oxide Investigation



Courtesy: www.steris-ast.com

- Ethylene oxide (EtO) is a flammable and colorless gas
 - Short-term exposure may cause headaches, weakness, nausea, difficulty breathing, eye/skin burns, and other effects
 - Long-term exposure increases the risk of certain type of cancers
- U.S. EPA and OEHHA reassessed the toxicity of EtO
- Investigation initiated at multiple sterilization facilities and air monitoring was conducted at four facilities

Methodical Ethylene Oxide Monitoring Approach

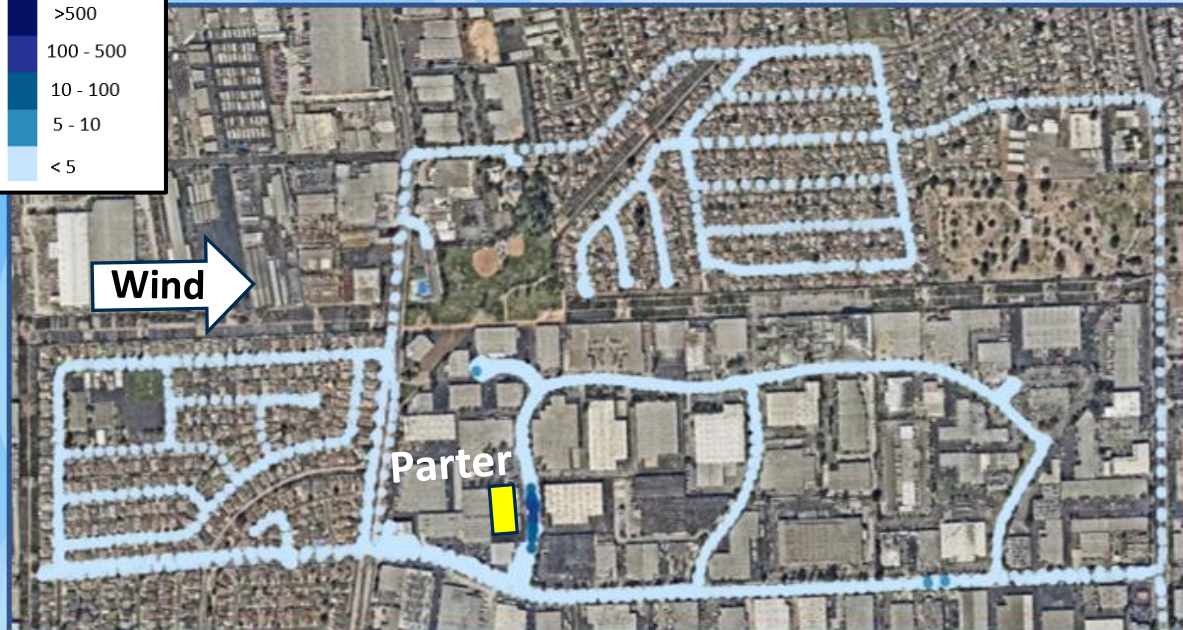
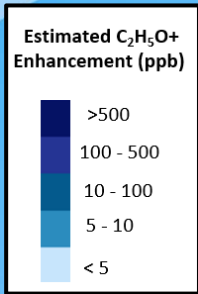


Mobile Monitoring For Ethylene Oxide Investigation



- Proton Transfer Reaction – Mass Spectrometer (PTR-MS) Mobile Platform
 - Real-time detection of Volatile Organic Compound (VOC) signals, including EtO
- If enhanced EtO-related signals are detected
 - Canister samples collected to confirm EtO with laboratory analysis
 - Based on canister sample result, can initiate fixed monitoring

Mobile Monitoring For Ethylene Oxide Investigation



Fixed Site Measurements For Ethylene Oxide Investigation

- Fixed monitoring relies on canister sampling followed by laboratory analysis
 - Accurate, reliable but time consuming; provides 24-hour averaged data
- Exploring the use of continuous EtO monitors

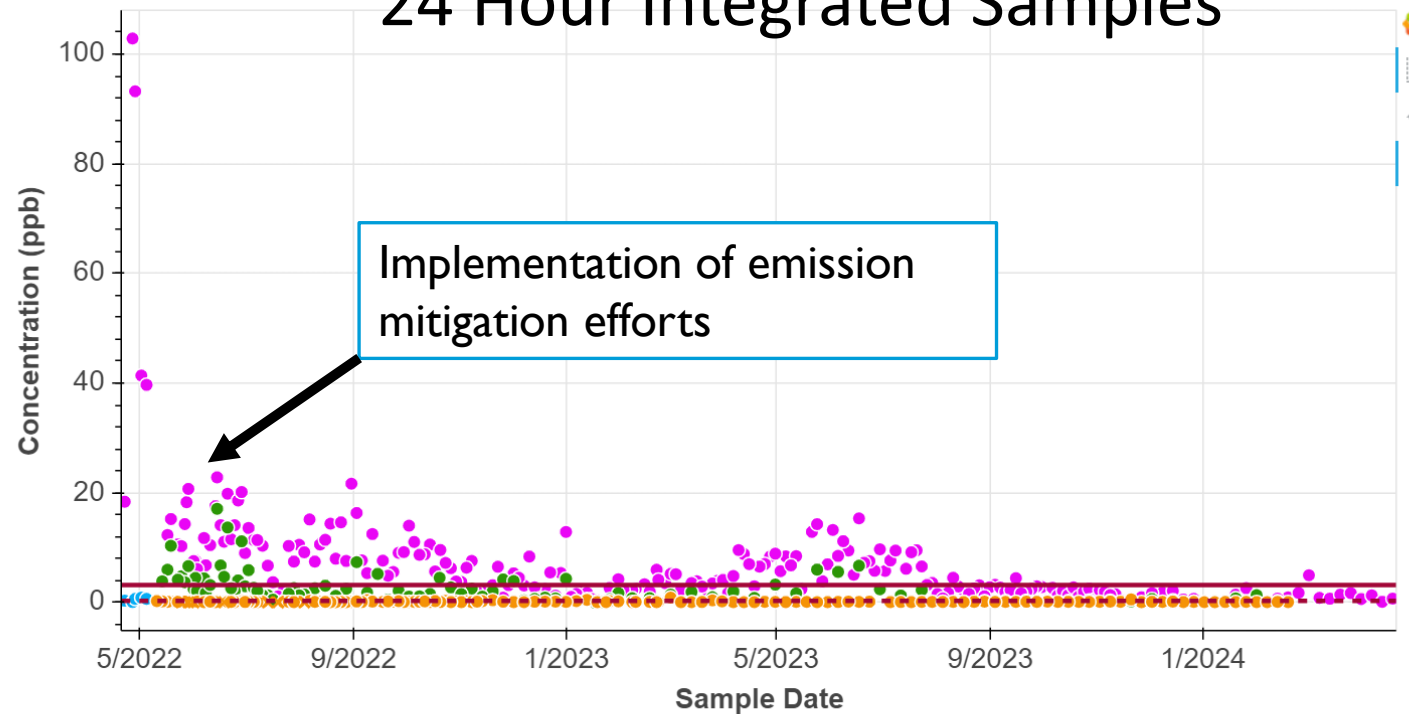


Fixed Site Measurements for Ethylene Oxide Investigation

Sampling Locations



24 Hour Integrated Samples



Background EtO: less than 0.17 ppbv

Click entries below to hide/show data (plot will resize to fit selections).
 ■ #1 49th St ■ #2 50th St ■ #3 Gifford Ave ■ #4 Fruitland Ave
 ▨ Typical background levels in the Los Angeles area — 100 in a million off-site worker cancer risk (OEHHA) = 3.18 ppbv - - 100 in a million residential cancer risk

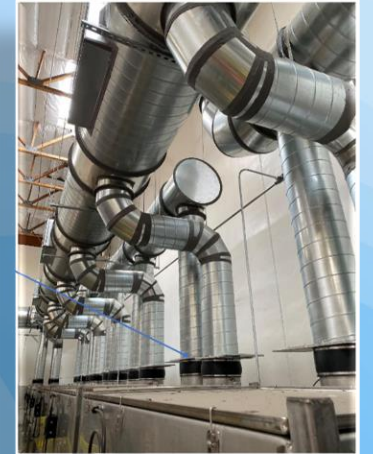
- Notes:
1. Results below method detection limits are indicated by x markers
 2. Off-site worker cancer risk is based on a 25 year exposure duration
 3. Residential cancer risk is based on a 30 year exposure duration

■ <http://www.aqmd.gov/home/eto>



Ethylene Oxide Emission Reduction Actions

- Proposition 65 notice
- Designation as a Potentially High Risk Level Facility under Rule 1402
- A complete investigation into the facilities' equipment and compliance with South Coast AQMD rules, regulations and permit requirements
- Evaluation of immediate actions to be taken by the facilities to reduce leaks or fugitive emissions
- Filed a petition for Order for Abatement against Sterigenics US, LLC and held hearings
- Rule 1405 was amended on December 1, 2023 to strengthen requirements for sterilization and storage facilities



Air Quality Sensor Performance Evaluation Center (AQ-SPEC)

International renowned program for field and laboratory evaluation of air quality sensors

- **Over 230 sensors tested**

Sensor network development and deployment in communities

- **More than 500 sensors deployed**

Development of educational and visualization tools

- **Air sensor toolbox for communities**

Upcoming sensor library program in disadvantaged communities



Concluding Remarks

- Purposeful community air monitoring provides valuable tools and information for actions leading to localized emissions reductions and clean air
 - Complements existing air monitoring infrastructure
 - Enhances ability to identify suspected or previously unknown sources
- Community engagement is an important element to discuss air quality concerns and assist in prioritizing potential issues

