BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Bay Area Air District Response to the Chevron Refinery Incident

Jack P. Broadbent

Executive Officer/Air Pollution Control Officer

Presentation to the

California Air Resources Board

April 25, 2013

Background

- Chevron Refinery Fire

  Aug. 6 – approx. 6:30 PM
- Contra Costa County alerted

  BAAQMD Enforcement
- Air District Enforcement arrived on-site by 6:35 PM

  3 Air District inspectors responded to scene
- Shelter-in-place called by County at 6:37 PM

Background

- Staff at Command Center
- Additional staff coordinating offsite
- Transmitted information between on-site and field staff

- Coordinated community complaint information

Background

- Smoke visible throughout Bay Area
- Plume rose 1,000 to 5,000 feet
- Air District remained at scene until Shelter-in-place order lifted
- 8 grab air samples analyzed and sample results communicated

- PM filter results 10 days following incident
- Media inquiries for 3 weeks

Background

BAAQMD Response: 7 Point Action Plan

1. Investigation
2. Procedures
3. Air quality monitoring
4. Rule Development
5. Community Outreach
6. Legislation
7. Resource needs

Work Plan Point #1: Investigation

- Notices of Violations issued:
  - Public Nuisance – Reg. 1, Section 301
  - Visible Emissions (smoke) – Reg. 6, Rule 1
  - Grass Fire Ignited by the Flaring – Reg. 5
  - Leaking Pipes – Reg. 2, Rule 1 and Reg. 8, Rule 18
  - Missed Flare Gas Samples – Reg.12, Rule 11
- Required Root cause analysis, Preventative measure study and Emissions estimates
- Continue to coordinate further investigation/actions with Federal, state and local agencies

Work Plan Point #2: Procedures

- Updating procedures
- Coordination with Contra Costa County (CCC), Richmond communications staff ongoing
- Coordination with CCC Hazardous Materials staff ongoing
- Next Steps
  - Finalize draft updated procedures document
  - Request stakeholder review

Work Plan Point #3: Air Quality Monitoring

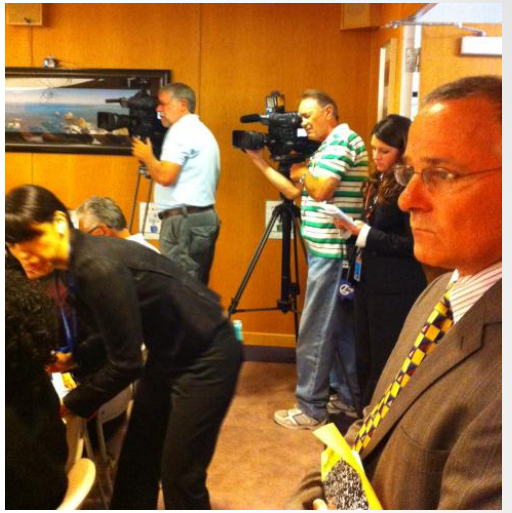
- Desert Research Institute (DRI) hired to investigate and identify potential air monitoring capability enhancements
- Convening panel of experts to
  - Review monitoring alternatives
  - Recommend course of action
- Will provide an opportunity for public input
- Will develop recommended enhancements
  - Implement enhancements to current monitoring network
  - Community monitoring guidance incorporated in new rule (Point #4)

Work Plan Point #4: Rule Development

- Aims to assess refinery emissions comprehensively
- Will require:
  - Emission Reduction Plan if annual emission increases above trigger-levels
  - Fence-line and community air monitoring
- First round of public workshops in April 2013
- Rule consideration anticipated in 2014

Work Plan Point #5: Community Outreach

- Shared contact information among Public Information Officers (PIOs)
- Held conference calls to discuss lesson's learned – ideas for future improvement
- Evaluating community engagement
- Next Steps
  - Evaluate Incident Response training for Air District PIO staff
  - Develop communications protocol template to share with other counties



Work Plan Point #6: Legislation

- SB 691, Senator Hancock, Author
- Co-Authors - Senators Hill, DeSaulnier, Lara, Leno and Assemblymember Skinner
- Co-sponsor - Breathe California
- Proposes higher civil penalties for one-day violations in which great numbers of individuals are affected by air quality violations

Work Plan Point #7: Resources

- Proposed incident fee for FYE 2014
- Mechanism to capture costs associated with major incidents.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Contact information

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Executive Officer/ APCO

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Refineries in the South Coast Basin: Monitoring and Emergency Response

Philip M. Fine Ph.D.
Assistant Deputy Executive Officer
Science & Technology Advancement

Background

- SCAQMD has eight major refineries
  - Large contributors to VOC emissions (38 TPD)
  - Minor contributors to CO, SOx and PM2.5
- Refinery unplanned emissions
  - Flares, upsets, fires
  - Complaint, community or emergency response

Refinery Monitoring Operations

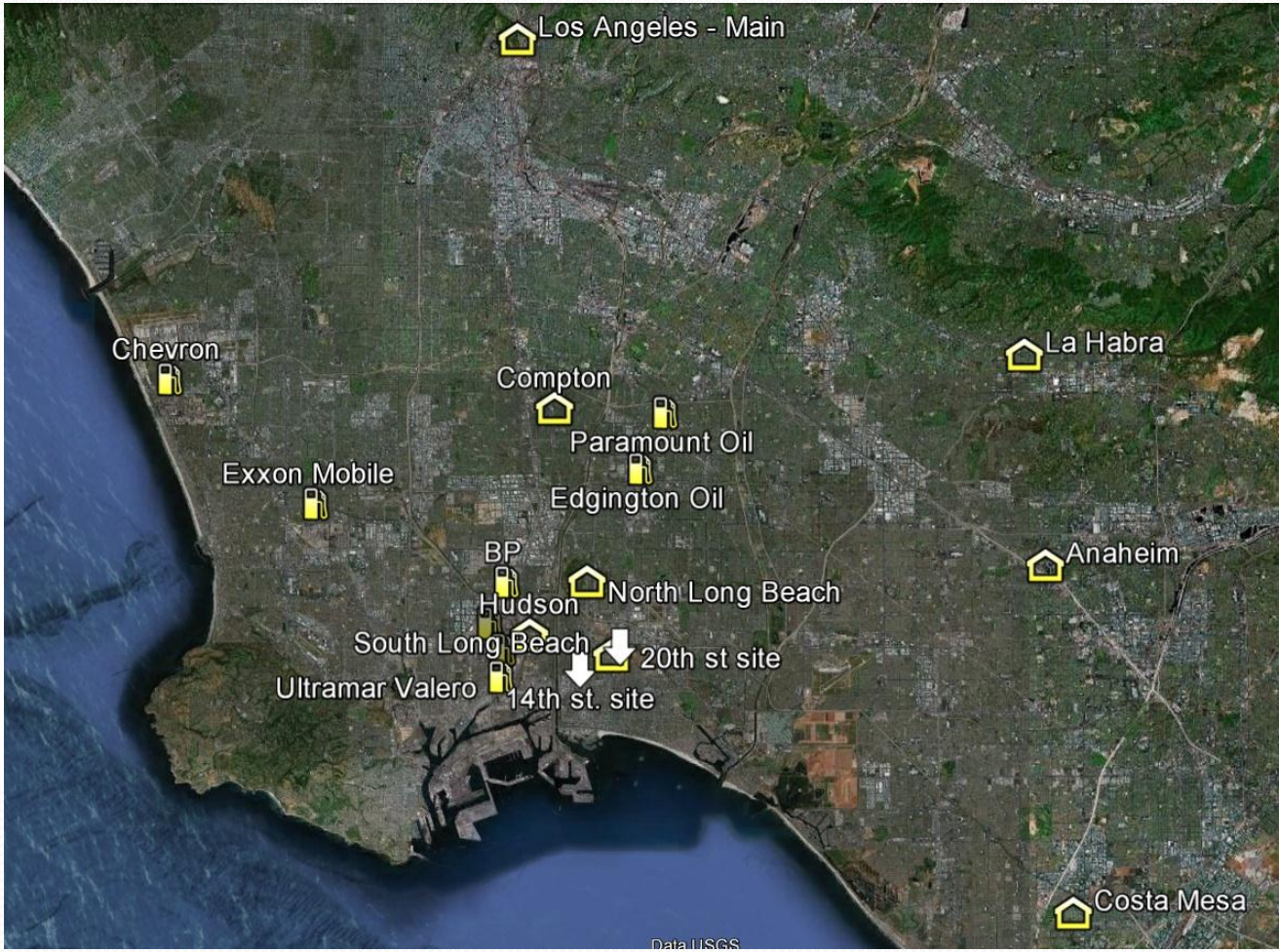
- Rule 1118 Flaring Activities / Continuous Emissions Monitoring (CEM)
  - Sulfur Process Gas Concentration
  - Process Gas High Heating Value (HHV)
  - **Flare Event Notification Listserve**
- HF Alkylation Process
  - HF Sensors
  - Telemetric monitoring of sensor readings and wind data
- Leak Detection and Repair (LDAR) Program
  - Quarterly Monitoring of components in light liquid / gas / vapor service
  - Periodic inspections / program audit by SCAQMD compliance staff
- RECLAIM Program
  - SO_x Emissions CEM
  - NO_x Emissions CEM

Blue Sky Inspections/ Compliance Determination

- Rule 1173 - LDAR Program
  - TVA / FLIR Camera
- Rule 1176 - Wastewater System
  - TVA / FLIR Camera
  - Sampling Bulbs
- Rules 463 / 1178 Storage Tanks
  - Monitor for Lower Explosive Limit (LEL) and oxygen concentration
  - FLIR Camera

SCAQMD Monitoring Stations

- Provide routine year round pollutant measurements of ambient air
- Some located near refinery areas that can provide information in case of incident



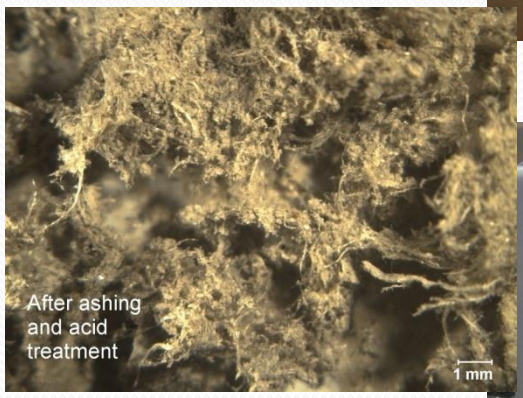
Emergency Response Program

- Established at SCAQMD in 1985
- Activation:
  - Notifications from Cal Emergency Management Agency, Cal EPA and Local Emergency Response Agencies, Local Fire Departments , CHP, wildfire events
  - Air Quality Complaints received by the SCAQMD (1.800.CUT.SMOG / www.aqmd.gov)
- Provides specialized technical support within the Incident Command System
  - Air quality sampling and analysis
  - Facility Information
  - Meteorological data and forecasting

Short Term Response: Grab Samples

- Capture representative samples at perimeter and potentially impacted communities

- Return to laboratory for chemical analysis
  - VOCs
  - PM
  - Speciated Sulfur
  - Microscopy



Short Term Response: Continuous Perimeter Monitoring

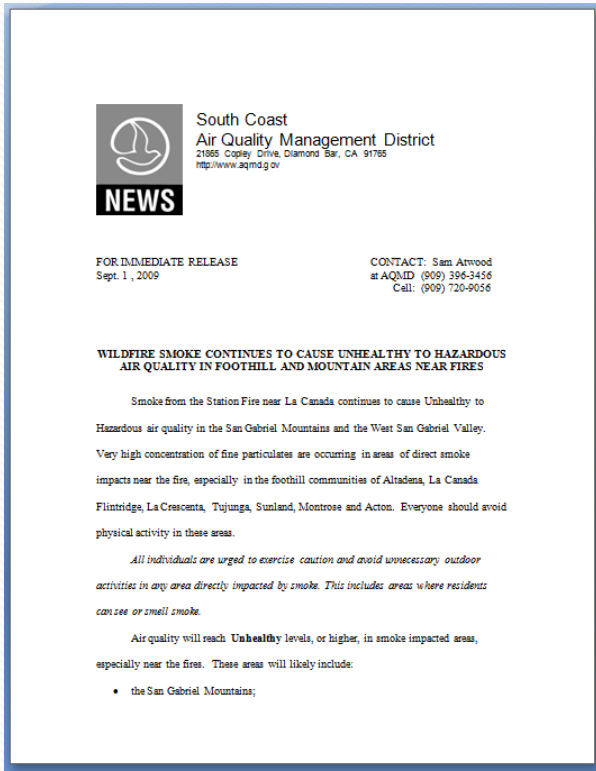
- Real time or near real time measurements
- GPS/ Mapping/ Communication Capability
- Variety of Technologies
  - Portable GC/MS, H2S Analyzer, Aethalometer, CPC , eBAM

Longer Term Response

- Mobile Trailer
- Multiple monitoring instruments
- Real time monitoring of total non-methane VOCs
- When measurements reach a certain threshold concentration, canister sample collected for subsequent laboratory analysis

Public Alerts

- News Advisory
  - Distributed to Clean Air Congress List
  - Air quality forecast list
- Press Releases
- Interactive Voice Response
  - 1-800-CUT-SMOG, Option 1
- Local Public Health and Community Groups Notified
- Media Interviews



South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765
http://www.aqmd.gov

NEWS

FOR IMMEDIATE RELEASE
Sept. 1 , 2009

CONTACT: Sam Atwood
at AQMD (909) 396-3456
Cell: (909) 720-9056

WILDFIRE SMOKE CONTINUES TO CAUSE UNHEALTHY TO HAZARDOUS AIR QUALITY IN FOOTHILL AND MOUNTAIN AREAS NEAR FIRES

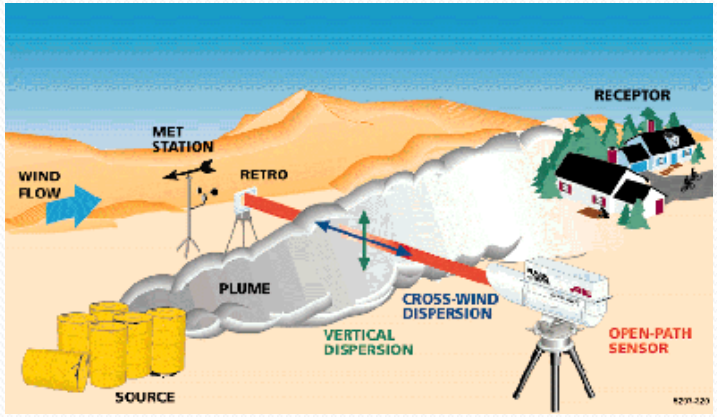
Smoke from the Station Fire near La Canada continues to cause Unhealthy to Hazardous air quality in the San Gabriel Mountains and the West San Gabriel Valley. Very high concentration of fine particulates are occurring in areas of direct smoke impacts near the fire, especially in the foothill communities of Altadena, La Canada Flintridge, La Crescenta, Tujunga, Sunland, Montrose and Acton. Everyone should avoid physical activity in these areas.

All individuals are urged to exercise caution and avoid unnecessary outdoor activities in any area directly impacted by smoke. This includes areas where residents can see or smell smoke.

Air quality will reach **Unhealthy** levels, or higher, in smoke impacted areas, especially near the fires. These areas will likely include:

- the San Gabriel Mountains;

Emerging Technologies for Fence-line Monitoring



- Spectroscopic open-path techniques to monitor and quantify trace gas emissions

- Current Pilot project at BP in Carson
  - Prof. J Stutz (UCLA), U.S. EPA

- Four Technologies

  LP-DOAS: *Fence-line; Aromatic hydrocarbons monitoring*

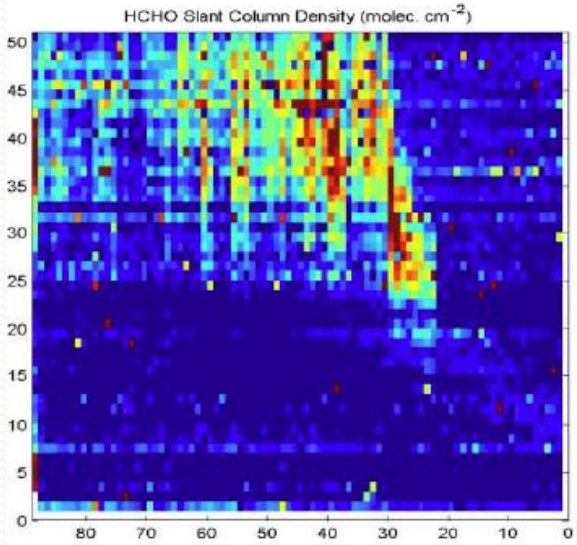
  FTIR: *Fence-line; Long-path measurements of selected hydrocarbons*

  I-DOAS: *Emissions of HCHO, NO_2, and SO_2 from point sources*

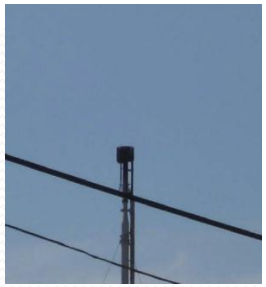
  MAX-DOAS: *Facility-wide emission fluxes of HCHO, NO_2, and SO_2*

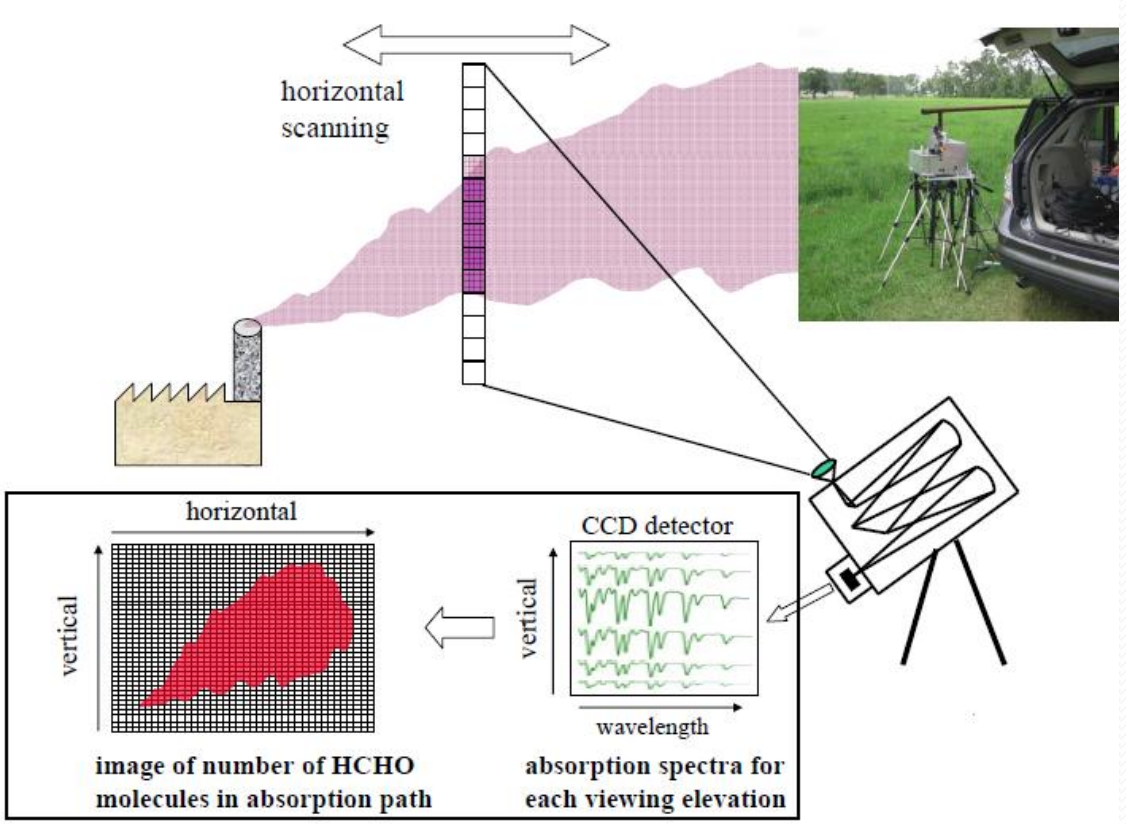
Fence-line Monitoring of Trace Gas Emissions: Imaging-DOAS

- Imaging (UV-visible) Differential Optical Absorption Spectroscopy
- Approach for remote point source flux measurement



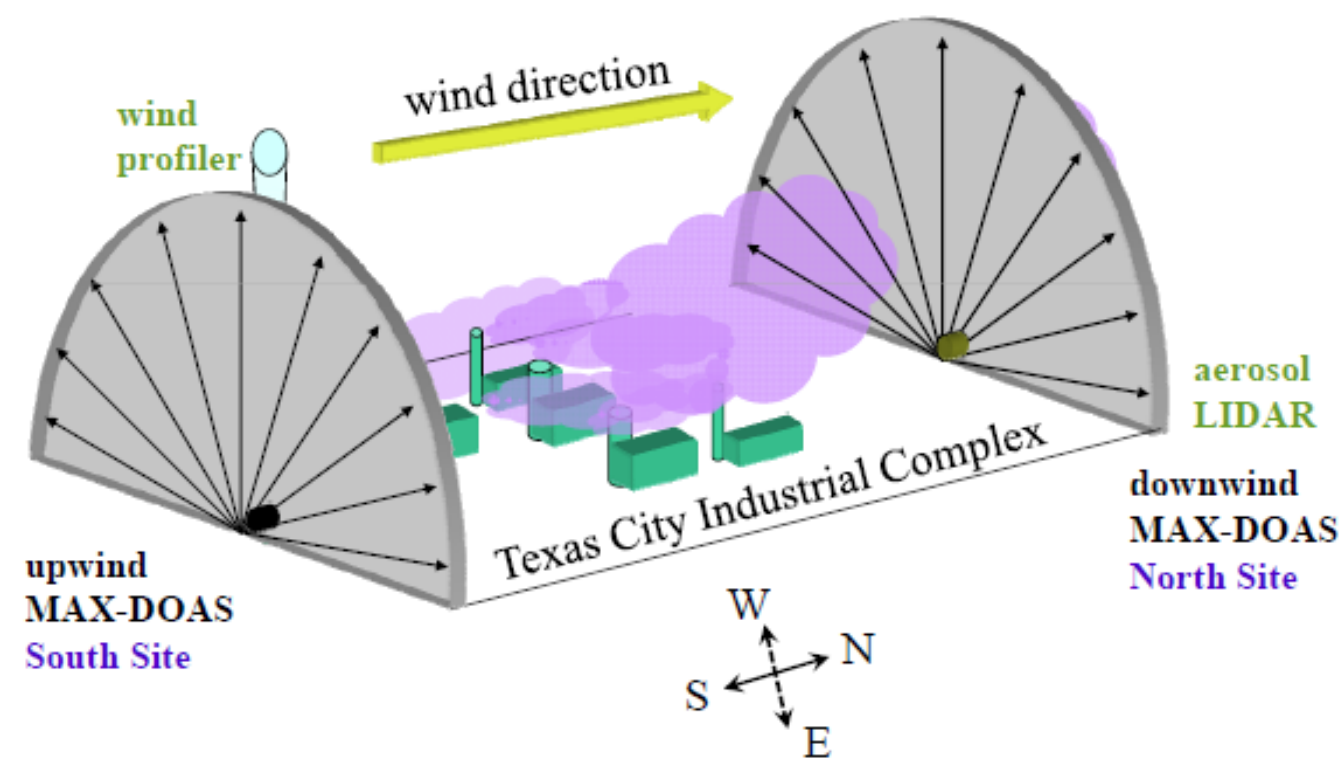
Formaldehyde





Fence-line Monitoring of Trace Gas Emissions: MAX-DOAS

- Dual Multi-Axis (UV-visible) Differential Optical Absorption Spectroscopy
- Remote quantification of facility wide emissions including fugitives



Low Cost Air Pollution Sensors

•Technology that can provide air quality information with wide spread distribution in affected communities

- Advantages
  - Low Cost
  - Portability
  - Real-time
  - Increased spatial resolution

- Challenges
  - Accuracy, precision, and uncertainty
  - Calibration
  - Interferences
  - Data interpretation/analysis
  - Overall data quality

VS

Next Steps

- Continue to work with CARB and CAPCOA on Project Plan
- Contribute links and information to CARB's Refinery Air Monitoring Web Clearinghouse
- Continue open-path pilot study in Carson
- On-going assessment of low-cost sensor technology for refinery monitoring applications

Developing a State Framework For Refinery Air Monitoring

Monitoring and Laboratory Division
Office of Emergency Response

April 25, 2013

ARB Actions

- Coordinate with local air districts
- Inform Governor's refinery task force
- Develop ARB/CAPCOA joint assessment plan
- Create new online clearinghouse

Coordination with Air Districts

Bay Area Air Quality Management District

CAPCOA
California Air Pollution Control Officer's Association

SLO County apcd

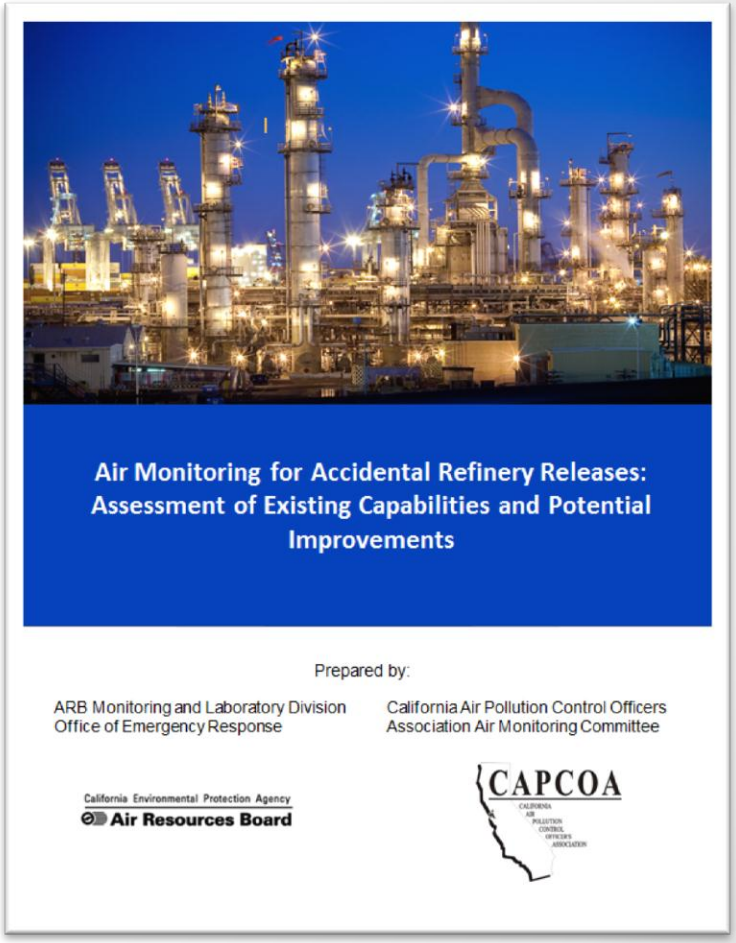
South Coast Air Quality Management District
AQMD
Cleaning the air that we breathe...

San Joaquin Valley Air Pollution Control District

Governor's Refinery Task Force

Draft Refinery Project Plan

- Delineate existing assets and resources
- Evaluate capabilities and propose enhancements
- Develop statewide guidance
- Improve coordination, training, and preparedness



New Online Clearinghouse

- Provides access to refinery related air monitoring information:

www.arb.ca.gov/fuels/carefinery/crseam/crseam.htm

Refinery Air Monitoring

This page last reviewed April 22, 2013

There are no alerts at this time

What's New

- Air Board updated on proposed statewide refinery air monitoring assessment plan April 25th.
- Bay Area refineries fenceline emissions monitoring data available online.
  - See Chevron Richmond
  - See Phillips 66 Rodeo
- U.S. Chemical Safety Board holds public hearing April 19th on interim report and safety recommendations for the Chevron Richmond refinery. See press release.

Information By Region

The buttons below allow you to access information by region. Information includes: refinery rules, incident reporting, hazardous materials programs, risk management plans, sheltering in-place, fenceline and community air monitoring, network and emergency response plans, refinery websites, etc.

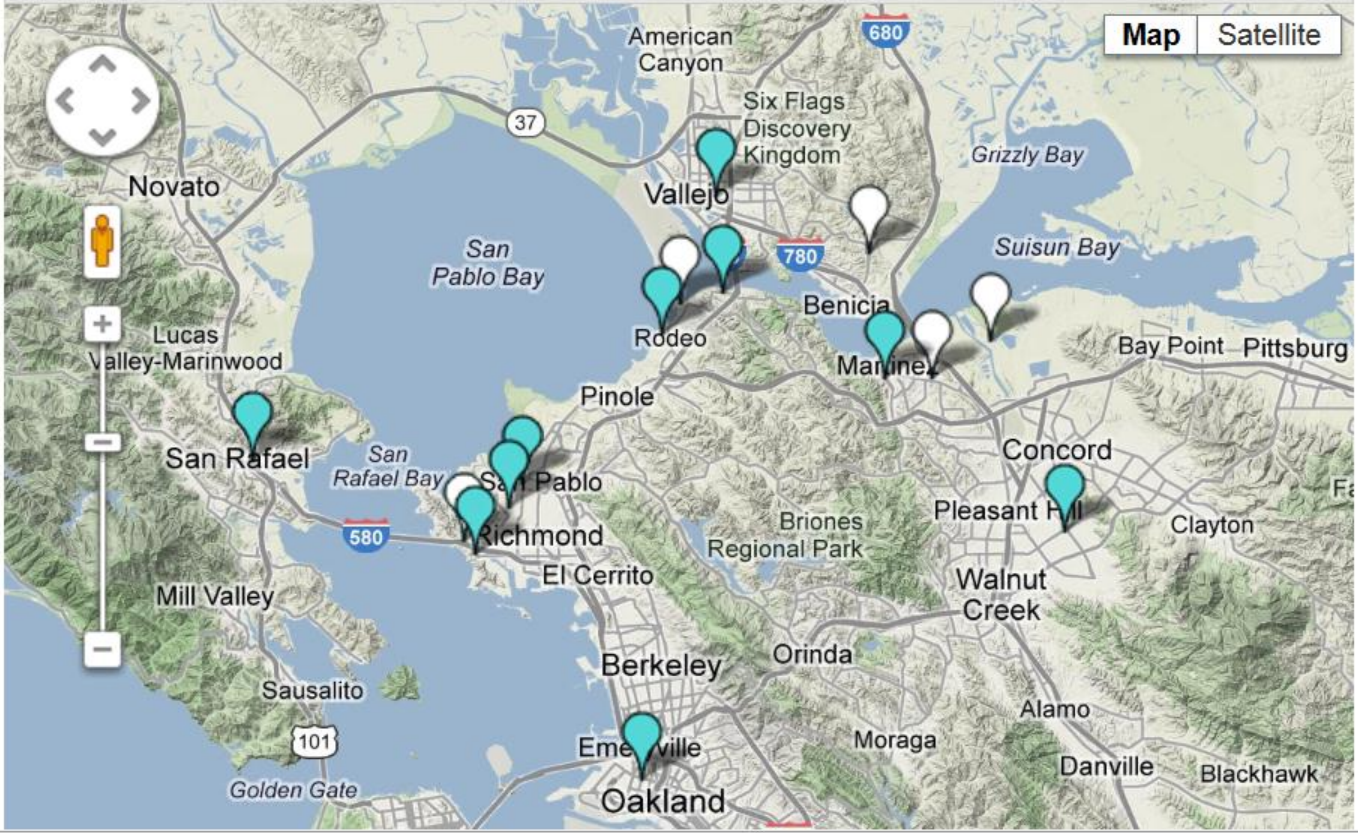
California Refineries: Interactive Map

This interactive map allows you to view refinery information and pertinent air monitoring data using Google Maps. Click on a refinery to see site information. On the Air Monitoring Stations overlay, you can select ARB and local Air District monitoring sites for current site-specific air quality data. Layers showing County or Air District boundaries may also be displayed.

- Refineries - Air Monitoring Stations

Maps Reset

Address: find



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Date/Time/GMT:	4/18/2013 3:00:00 PM
COncRT:	0.006
ConcHr:	0.008
Flow:	16.7
W/S:	2.6
W/D:	246
AT:	23.7
RHx:	20
RHi:	13
BV:	14.0
FT:	29.7
Alarm:	0
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Serial Number:	C4446
Version:	3613-01 R1.50.11
Sys. Volts:	13.31

Zoom
Position History

Map Satellite

Crockett
Rodeo
Hercules
Pinole
Refugio Valley Park
Franklin Canyon Golf Course
El Sobrante
North Richmond
East Richmond Heights
Wildcat Canyon Regional Park
San Pablo Reservoir
Briones Reservoir
El Cerrito
San Quentin
Richmond-San Rafael Bridge
Piper Park
Corte Madera
San Clemente Park
San Rafael
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Next Steps

- Project plan approval and implementation
- Facilitate ongoing interagency collaboration
- Assess resource needs and funding mechanisms
- Assist local agencies with securing resources