

Proposed Rule 364

Refinery Fenceline & Community Air Monitoring

Community Advisory Council Meeting

**Santa Barbara County
Air Pollution Control District**

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air pollution control district
SANTA BARBARA COUNTY

Presentation Outline

- Quick review of AB 1647 materials from January meeting
- Additional information in response to CAC questions:
 - 1) Open-path Monitoring Installations
 - 2) Pollutant Identification & Potential Interferences
 - 3) Permits from Other Agencies
 - 4) Community Monitor Siting Criteria
- Rule 364 & Guideline changes since January CAC

Assembly Bill 1647 (2017-2018)

- Concerns about public health and air quality impacts from refineries.
- AB 1647 approved by the Governor of California on October 8, 2017.
 - Applicable to all refineries statewide, with only 1 refinery within Santa Barbara County.
- AB 1647 requires the following:
 - 1) Petroleum refineries install, operate, and maintain a fenceline air monitoring system.
 - 2) Air districts install, operate, and maintain a refinery-related community air monitoring station.
 - 3) Real-time data is made accessible to the public.
 - 4) Refineries are responsible for the costs to implement the requirements.

Proposed Refinery Fenceline Monitoring

- OEHHA Analysis of Refinery Chemical Emissions [March 2019] identified the prime chemicals from refineries statewide.

TABLE 1 - POLLUTANTS FOR FENCELINE AIR MONITORING

<i>Air Pollutants</i>
Benzene
Toluene
Ethylbenzene
Xylene
Sulfur Dioxide (SO ₂)
Hydrogen Sulfide (H ₂ S)

Proposed Refinery Fenceline Monitoring

- **Open-path Monitoring Technologies**
 - Collect measurements over a large area.
 - Fourier Transform Infrared Spectroscopy (FTIR)
 - Ultraviolet Differential Optical Absorption Spectroscopy (UVDOAS)



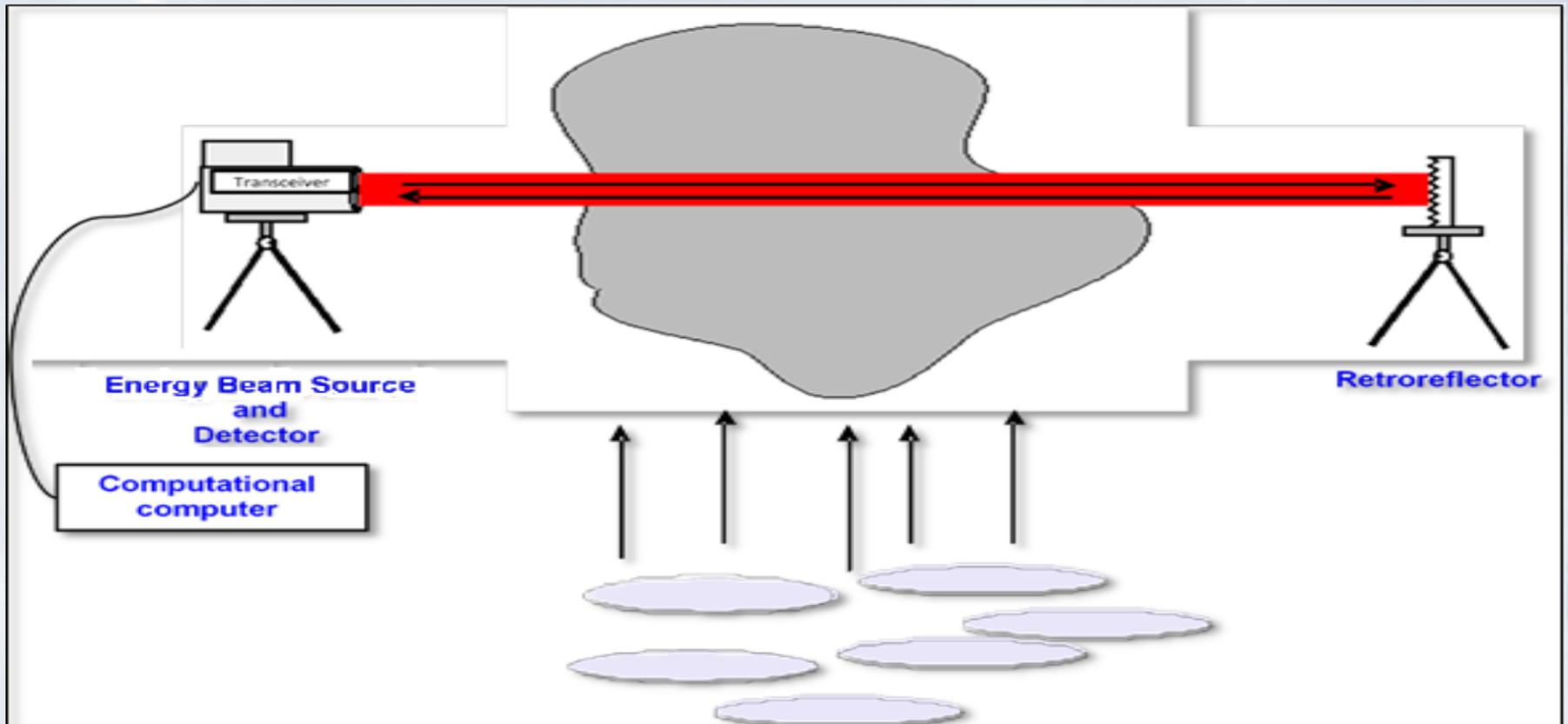
Open-path Monitoring Technology

- Open-path systems commercially available since the 1990s.

Refinery	Year Installed	Benzene Minimum Detection Limit (MDL)
Phillips 66 – Rodeo	1997	≈3 ppb
Chevron – Richmond	2013	≈2 ppb
Remaining 3 Bay Area refineries	2019	<1 ppb

- EPA Optical Remote Sensing Handbook (2011) and Update (2018)
 - Instrument Performance, Strengths & Limitations
 - Vendor lists: Argos Scientific, Ophis, Spectrex, Cerex, ENVEA, ETG
- Open-path systems comply with Federal benzene monitoring requirements at major refineries.

Open-path Monitoring Technology



Example Set-ups



UVDOAS Analyzer



UVDOAS Retroreflector

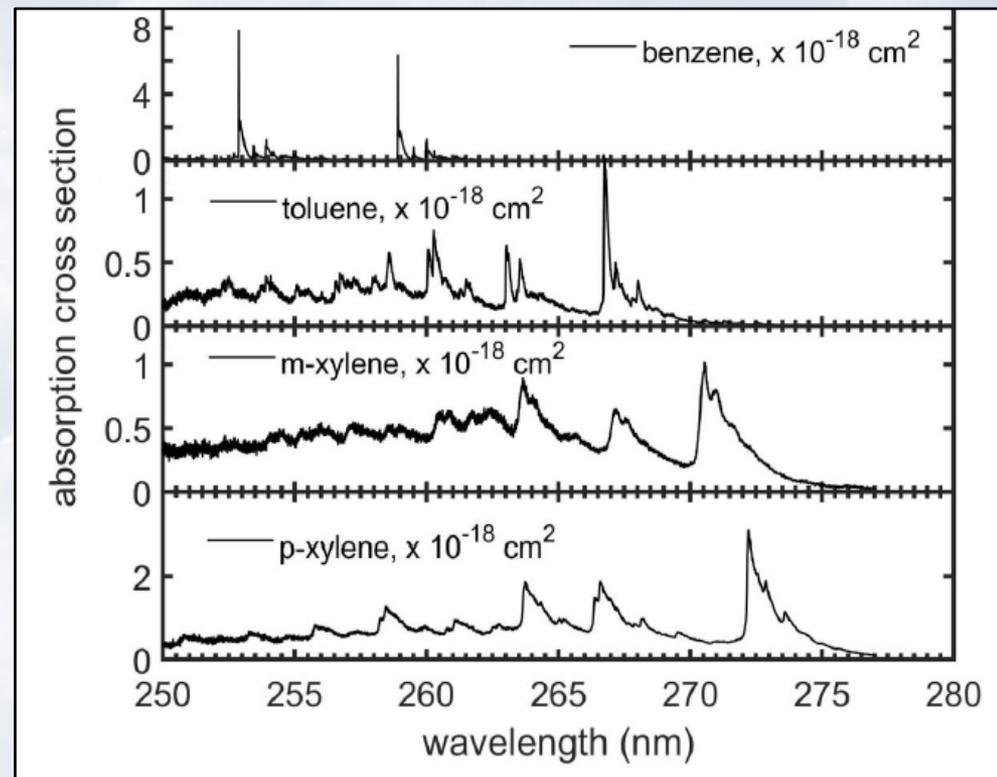
Example Set-ups



- Location adjustments may be necessary
 - Reduce potential interferences
 - Security measures
 - Topography

Pollutant Identification

- Each compound has a unique absorption pattern with peaks at specific wavelengths.
- The concentration of the pollutant is measured by the height of the patterns.
- UVDOAS is calibrated by challenging the system with a gas calibration cell on a regular basis.



Potential Interferences

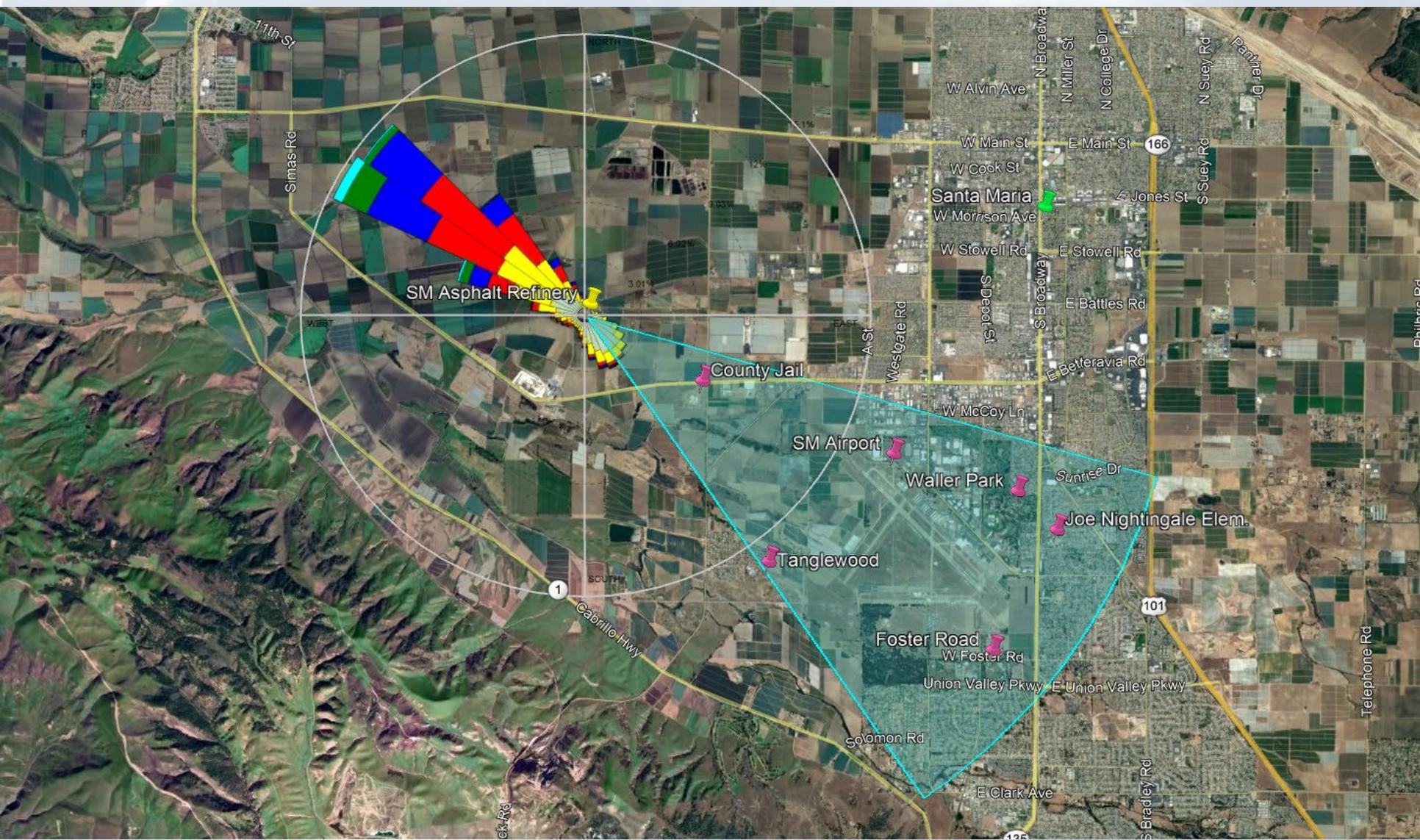
- System's analytical software programmed to prevent compound interference.
- Heavy fog and dust may prevent data from being collected.
 - Reduces visibility and scatters light beams.
- Total equipment uptime of 90% or higher added to the monitoring guidelines.



Permits from Other Agencies

- Electrical & Concrete pad building permits
- Land-use permits
- Meteorological Tower: Height of 10 meters
 - Not anticipated to be affected by the Federal Aviation Administration (FAA) requirements.
- Proposed rule change:
 - Increased implementation time from 270 days to 365 days.

Site Selection for Community Air Monitor



Site Selection for Community Air Monitor

- EPA siting criteria contained in 40 CFR Part 58
- Select best location to meet monitoring objectives
- Spatial scale: Micro → Middle → Neighborhood → Urban → Regional
- Evaluation Factors:
 - Local sources
 - Wind patterns
 - Roadways/Traffic
 - Obstructions/Buildings/Trees
 - Accessibility
 - Power
 - Safety/Security
 - Cost



Changes to the Rule 364 Guidelines

- 1) Clarified that the refinery's data website should contain a weblink to the District's monitoring website.
- 2) Added a refinery fenceline data recovery efficiency of 90% or higher.

Proposed Additional Revisions to Rule 364

- 1) Increase the implementation time for the refinery fenceline monitoring system from 270 days to 365 days.
- 2) Delay the timeline for the community air monitoring station fee payment from 3 months to 6 months after rule adoption.
- 3) Change from \$7,500 fee to cost-reimbursement basis for modifications to District-approved monitoring plans.
- 4) Attach the fenceline air monitoring guidelines to the rule.
- 5) Clarify that the community air monitoring system is required as long as the refinery is operational.
- 6) Additional clarification in Section H related to co-location and cost-sharing fees.

Questions?

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