Community-Focused Monitoring in California: Building Bridges between Community Members and Industrial Facilities

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Outline

• Why community-focused monitoring?
  – Government regulations
  – Role of industrial facilities

• Key components of an effective community monitoring plan

• Benefits for communities and industry alike

• Case studies and lessons learned
Background – Air Quality in Communities

• There’s growing awareness among the general population that air pollution, even at low levels, can impact human health
  – Communities at the fenceline of large industrial sites are worried about potential exposures to routine emissions and periodic upset conditions
  – They are increasingly demanding transparency regarding potential exposure, even as regional concentrations of toxics decrease

• The social causes of today have focused on historically underserved communities (concept of Environmental Justice)

• Governments at the local, state, and federal level are actively considering or passing legislation focused on air monitoring in these overburdened communities
California State and Regional Regulations

• AB 617 (2017) aimed at evaluating and reducing exposure of criteria pollutants and air toxics in disproportionately impacted communities
  – Includes Community Air Grant Program that provides community-based organizations with assistance to better monitor and improve their local air quality
California State and Regional Regulations

• AB 1647 (2017) requires that petroleum refineries develop and maintain fenceline monitoring systems; measurements are obtained via open-path and point analyzers

• Requires real-time data be provided to the public as quickly as possible in an easily accessible format

• Regional rules include
  – Rule 12-15 – Bay Area
  – Rule 1180 – Los Angeles Basin
  – Rule 4460 – San Joaquin Valley
  – Rule 364 – Santa Barbara County
California State and Regional Regulations

- South Coast AQMD Rule 1180 expanded regulations by:
  - Increasing the number of pollutants reported to 20
    - VOCs; BTEX; NH$_3$, H$_2$S, HF, NO$_2$, SO$_2$, BC
  - Requiring data to be listed with health context (acute 1-hr REL)
  - Real-time public notifications when concentrations exceed health thresholds
Role of Industry in Community-Focused Monitoring?

• Regulations are the main driver for industrial facilities to establish air monitoring networks

• However, there are benefits to a facility being actively engaged in community-focused monitoring:
  – Improving the quality of the measurements and data
  – Providing transparency
  – Building trust
Current Approach to Community-Focused Monitoring

- Varied approach depending on available resources. Can include:
  - Use of both regulatory-grade monitors or low-cost sensors
  - Short-term stations or movable trailers
  - Mobile monitoring

- More communities are gravitating toward low-cost sensors, which – when compared to regulatory monitors – allow for:
  - More monitoring locations
  - Greater spatial coverage
  - Less need for technical expertise
  - More data collected
Drawbacks of Using Low-Cost Sensors for Community-Focused Monitoring

• Compounds generally emitted from industrial processes not measured by small sensors
  – PM and NO$_2$ well represented, but VOCs and air toxics are not
  – This means public concerns may not be adequately addressed

• Reduced data quality compared to more sensitive analyzers

• It can be difficult to change public perception once data exist, regardless of the quality

• May lead to public scrutiny and adversarial interactions between communities and industrial facilities
Components of a Well-Designed Community Monitoring Plan

• Combination of high-precision and low-cost sensors
  – Balance between spatial coverage and high-quality data

• Facilities engagement with community members during planning
  – Get input from community members, elected officials, environmental agency representatives, etc.
  – Meet with communities to better understand their concerns

• Outreach and educational programs
  – Focus on both students and adults
Components of a Well-Designed Community Monitoring Plan

• Effective communication of information to the public
  – Regularly updated websites
  – Summary reports of the collected data
  – Community hotline, email, or other feedback tools

• Benefits:
  – Provide an objective basis for conversations about air quality
  – Manage expectations and create a more predictable forum for engagement
  – Provide community with assurance and build trust
Refinery Fenceline and Community Monitoring: Torrance Air Project

• Selected as California Supplemental Environmental Project in 2017, funded by South Coast AQMD

• Project anticipated many Rule 1180 requirements:
  – Fenceline & community monitoring sites
  – Real-time community data access via website
  – Notification system for REL exceedances
Refinery Fenceline and Community Monitoring: Torrance Air Project

• Project was guided by a Community Advisory Committee that was made up of city officials, an advisor to a local Congresswoman, school district officials, HOA leaders, community organizers, and local business owners

• Provided input on community engagement plan, communications plan, branding, and public website through subcommittees
Refinery Fenceline and Community Monitoring: Torrance Air Project

Successfully completed two years of monitoring

• High precision instruments at monitoring sites and 25 low-cost PM sensors distributed to community members

• Worked with refinery personnel and AQMD to disseminate data

• Open exchange with city residents who demand transparency
  – Community meetings held for project updates or major technical issues