Addressing Public Outrage at An Oil Field Site in Down Town Los Angeles—An Air Monitoring and Risk Mitigation Model for Other Urban Oil and Gas Operations

Eric Winegar, PhD, Exponent
C. E. Lambert, PhD, DABT, Intrinsik

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The Past:
Before Hollywood, the Oil Industry Made LA
The Present: Los Angeles Oil Wells
High Density Urban Well Area
The Legacy of the LA Oil History
AllenCo Oil Field: A Locus of Conflict

- 1964: Initial well drilling
- 2009: Sold to AllenCo Energy
- 2010: Production increased
- 2010-2013: Complaints began
- 2010-2013: Agency visits/NOVs
- 2013: Closure
- 2018: Re-opening
Long-standing Origins of Oil Field Controversies

- Zoning laws favored O&G development vs. community protection
- With growth, City failed to address gaps in regulatory system
- Regulatory bodies did not enforce restrictions

→ Over time, citizen activism increased ←
Culmination of Forces Behind the Conflict

Land-use and Zoning Pressures

- 250 Complaints
- People not Pozos
- Class Action Lawsuit
- Porter Ranch

Increased Community Activism and Awareness

Increased Regulatory Attention

- AQMD NOV/Settlement
- EPA Settlement
- City Lawsuit/Settlement
Conflicts Lead to Closure…and Future Conditions

- Street demonstrations
- Negative publicity; threats
- Agency inspections—one which sickened EPA inspectors
- Appeals to the local Archdiocese and the Pope
- Senator Barbara Boxer
  - Called for AllenCo to shut down…which they did voluntarily—December, 2013
- Multiple agency violations

Consequences:

#1: Install Improvements in Systems

- City Attorney Lawsuit filed in 2014; in 2016 settled for $1.25 million:
  - Required monitoring system
  - Required adherence to all agency specifications
Question:

Can this (and similar) operation exist alongside the community?

Yes*

*If done right

Fine print: There will always be opposition.
How? It’s All About Risk

Risk = Hazard + Outrage

Management

Hazard: Mitigation* and Monitoring

*Mitigation = Operational Improvements

Communication

Address Outrage*

*Outrage = The Past…and The Future

Classic Risk Equation
Managing the Hazard

• Mitigation—Operational Improvements
  – New tanks
  – New plumbing
  – New methane sensors
  – New fire system
  – New tank monitoring systems
  – Removed sump

• Monitoring System
  – State of the Art System
  – Addresses community concern
    — Odors
    — Exposure—acute and chronic
    — Use health-based standards
      → US EPA
      → California OEHHA
      → Scientific literature
Fence Line Sampling System

- Continuous, real-time
- All four sides of facility
- Targets:
  - Methane: Non-Toxic--Part of oil extraction
  - Non-methane hydrocarbons (NMHC): Surrogate for thousands of individual species
  - Hydrogen sulfide: Part of oil extraction
- Meteorology: Wind is transport mechanism
- Special Targets: Toxics species
Rotating Inlet Sampling System

- Rotating Valve System
- M/NMHC
- H2S
- Automatic
- Daily cal check
- Daily review
- Remote access

Data Evaluation

Wind
Methane/Non-methane Hydrocarbons

- GC/FID with backflush
- Methane, then
- Backflush for Total HC
- Three minute cycle
- 50 ppbv detection limit
- 1% precision
- Daily calibration checks
Hydrogen Sulfide

- Thermal UV-fluorescence photometry
- Continuous analysis—1 minute average
- 1 ppbv sensitivity
- Agency-type instrument

Conversion from H2S to SO2
Detection of SO2
Measurement Process
Data Evaluation: Tier Levels → Leading to Actions

Definition: Tier (action) levels* defined as a set of actions to be performed upon exceedance

• Tier 1: Minor events—Minor events in facility → NO community effect
• Tier 2: Potential for community impact (odors and/or exposure*)
• Tier 3: Significant impact*—Facility shut down; notification of public agencies and community

* Determined by health standards
What is in a Tier?

- **Targets**—Chemicals to be monitored
- **Averaging time**—Length of measurement period
- **Frequency**—Consequences for frequency exceedances
- **Actions**—Actions to be taken upon exceedance
Tier Exceedance: What happens?

- **Detection**: Independent (not AllenCo employee) System Operator validates that trigger level has been exceeded

- **Notification**:
  - Tier 1) AllenCo operator
  - Tier 2) Public via website
  - Tier 3) Public agencies and community

- **Cause**: Determine cause and remediate

- **Verification**: Confirm that the cause of the exceedance has been corrected or repaired
Addressing Outrage:

Truth (Data) and Consequences (Actions)

• Improvements and Monitoring System
  – Inherently address concerns
  – Monitoring system results are two-fold:
    – Protective of community $\rightarrow$ outward facing
    – Forces operations to improve $\rightarrow$ inward facing

• Actions vs. Simple Data Reporting
  – Data is of no value unless paired with potential action…and consequences
General Meta-message:
How to Manage the Community-Industry Interface

Is there a way for a facility and the community to coexist?

- **Yes** (in my opinion):
  - Mitigation* + monitoring** \(\Rightarrow\) Inherently Address Outrage

*Mitigation = Fix operations
**Monitoring = Enforce standards to Protect; Surveil Operations
A Solution-?: Regional Compliance vs. Community Monitoring

South Coast
AQMD Monitoring Stations—
38 General Stations for 16.8 Million people

AllenCo
Community Monitoring—
Source-specific for Local Neighborhood
Thank you

In God we trust; all others must bring data.

W. Edwards Deming