Albany South End Community

Air Quality Screening

August 14, 2014

New York State Department of Environmental Conservation
Outline

• Overview
  – Goals, Findings

• Details
  – Air pollutants sampled
  – USEPA sampling
  – Sampling locations
  – Meteorological conditions during sampling
  – Results and Spatial analysis
  – Conclusions and Next Steps
Air Screen Goals

• Screening assessment of current air quality

• Designed to look at worst-case air concentrations
  – Specific meteorological conditions
    • Low wind speed
    • Winds from south and southeast
  – Periods of odor episodes

• If screening indicated a concern – NYSDEC will follow-up
Findings

• Volatile organic compounds
  – Concentrations below short-term health-based air concentration values
  – Found at concentrations similar to other areas of the State and below State average
  – Therefore concentrations found – would not be considered a public health concern
Findings

• Light-weight alkanes
  – Added because they are part of the evaporative emissions from Bakken Crude Oil
    • Butane, Hexane, Pentane, Propane
  – Concentrations below health-based air concentration values and therefore not a public health concern
  – Low concentrations of evaporative emissions detected in community
Air Screen Goals

• Developed air quality screening approach with community members
• Understand current air quality conditions in community for volatile organic compounds
• Use results as a screening tool to determine if:
  – Further sampling necessary
  – Enhanced facility inspections are necessary
Air Pollutants

• Volatile organic compounds
  – EPA Method (43 air toxic compounds)
  – Constituents of crude oil
    • Benzene, ethylbenzene, xylenes, toluene
    • Benzene has a more stringent health-based air concentration value

• Light-weight alkanes - added
  – Part of the evaporative emissions from Bakken crude oil
    • Butane, hexane, pentane, propane
Sampling

- 1-hour samples
- Sampling when and where concentrations are expected to be highest
  - Warm temperatures, low wind speed and winds from south and southeast
- NYSDEC collected samples at three fixed locations on five days
- A community volunteer collected six samples
  - Periods of public concerns/complaints such as when odors were noticeable
USEPA Sampling

- Collected in early May
- Samples collected onsite at Global and Buckeye facilities
- One neighborhood sample south of Ezra Prentice homes on South Pearl St.
- 20 second “grab” air samples
- Same sampling equipment as used by NYSDEC
Meteorological Conditions

- All sampling events during time when winds from the south, southeast and east
- Temperatures were normal or above average
Evaluation of the Results

• Compared to NYSDEC’s
  – Short-term health-based air concentration values (1 hour)
    • Derived to protect the general public from adverse effects from short-term exposures
    • The general public includes infants, children, elderly and other individuals who may be susceptible
  – Other State data
    • Community 1 hour samples
    • Statewide air toxics network
Evaluation of the Results

• Compared to NYSDEC’s
  – Comparison done to evaluate need for follow-up activities such as additional monitoring or enhanced facility inspections
  – Long-term health-based air concentration values (annual)
    • Comparison (1 hour sample to long-term value) is not a conventional approach
    • Derived to protect the public from adverse health effects from long-term (e.g., continuous lifetime) exposures to air pollutants
Results

• Volatile organic compounds
  – Concentrations below short-term health-based air concentration values and therefore not a public health concern
  – Benzene concentrations are similar to or below levels found in other areas of the State
  – Other VOC results found at concentrations similar to other areas of the State
Results

• Light-weight alkanes
  – Low toxicity
  – Concentrations below health-based air concentration values and therefore not a public health concern
Spatial Analysis

• Data from each simultaneous sample collection were used to determine if there are local sources impacting the community.

• Local sources would impact one of the NYSDEC sites more than the other two.

• Distant and city-wide sources (like motor vehicles) would impact the three NYSDEC sites more evenly.
May 8

Local impact site - Gansevoort & Franklin is impacted by sources to the south to a higher degree than Ezra Prentice or Krank Park

Temperature 69° F
May 12

Local impact site - Gansevoort & Franklin is impacted by sources to the south to a higher degree than Ezra Prentice or Krank Park.

Temperature 77°F – higher temperature and benzene concentrations compared to May 8.
May 21

Local impact site - Gansevoort & Franklin is impacted by sources to the southeast to a higher degree than Ezra Prentice or Krank Park

Temperature 74°F – higher benzene concentrations compared to May 8 and 12
May 29

No local impact site was identified. Benzene concentrations are low overall. Ezra Prentice is higher than the other two sites.

Temperature 70°F
June 2

No local impact site was identified. Collected at 8:10 am to assess the impact of rush hour traffic. Benzene concentrations similar at the three sites.

Temperature 68°F
Spatial Analysis

• For 3 of the 5 (1 hour) sample events, locally impacted and background (city-wide impact) sites were identified

• The addition from local sources is defined as the benzene at the local impacted site minus benzene at the background site
  – May 8  Gansev&Fr – Krank P = 0.024 ppb
  – May 12 Gansev&Fr – Krank P = 0.112 ppb
  – May 21 Gansev&Fr – Krank P = 0.082 ppb

• Background benzene concentrations were
  – May 8 (0.063 ppb), May 12 (0.086 ppb) and May 21 (0.123 ppb)
Summary of Spatial Analysis

• The additional benzene from local sources was detectable in 2 of the 3 sample events.
• The spatial analysis does not account for local emissions that impact more than one sampling location.
• This analysis is applicable to three 1 hour sample events, other sources such as rush hour traffic and other meteorological conditions can impact benzene levels at other times.
Conclusions

• All results were below NYSDEC’s short-term health-based air concentration values and most were below or within an order of magnitude of the long-term health-based air concentration values.

• Results were within the range of levels found in locations in other parts of the State.

• NYSDEC did not identify concentrations of air toxics that would necessitate further air sampling or enhanced facility inspections.
Next Steps

• Baseline measurements
  – Formaldehyde
    • Sampler at Albany County Health Department
    • Collection May – August 2014
  – Hydrogen Sulfide
    • Portable instrument
    • Collect samples in the neighborhood