

# Dave Webb

Illinois Department of Public Health  
Environmental Toxicology Program  
Edwardsville Regional Office  
618-656-6680

# Residential (In-home) Sampling

- Conducted because of the presence of elevated petroleum hydrocarbons in shallow soil gas samples in residential areas near the fence line.
- Illinois EPA required Shell to sample in residences including below the slab of the basement.

# Residential (In-home) Sampling

- Outdoor air samples were collected to determine the outdoor air contribution, if any, to indoor hydrocarbon levels.
- Hydrocarbons, including benzene were analyzed in the samples.

# Residential Sampling Data Analysis

- Summa canister data can be used to determine
  - Compounds in air and sub-slab
  - Source of compounds in indoor air by comparing Indoor/Outdoor/Sub-slab data
  - Indoor exposures
  - Outdoor air quality

# Summary of Indoor Air Results to Date

- 53 homes, 3 schools, and 3 non-residential structures have had the indoor air sampled.
- No adverse health effects are expected from the measured indoor air concentrations of petroleum hydrocarbons, including benzene.

# Summary of Sub-slab Results to Date

- Most sub-slab samples concentrations below a level of health concern
- Six sub-slab samples had concentrations of benzene greater than the screening level
- Three of the six homes had concentrations greater than the lower explosive limit

# Summary Of Outdoor Air Results Collected by URS

- Collected from April 2011 - May 2012 as part of the in-home sampling.
- Sporadically during the 14 month period elevated benzene concentrations were detected.
- Most of the benzene concentrations in the outdoor air samples were below a level of health concern.

# Summary Of Outdoor Air Results Collected by URS

- None of the benzene levels detected were at concentrations that were an immediate threat to resident's health.
- Exposures were calculated for 14 days (acute) and 364 days (intermediate) and these were compared to their corresponding minimum risk level (MRL).

# Summary Of Outdoor Air Results Collected by URS

- Intermediate exposures did not exceed the minimum risk level.
- Acute exposures exceeded the minimum risk level for a two week period in early June and in the last week of August and the first week of September.

# Summary Of Outdoor Air Results Collected by URS

- Exposure to a chemical at a level that exceeds the minimum risk level does not necessarily mean that adverse health effects will result.
- The adverse health effects, if any, from outdoor air exposures would be to the immune system, specifically the white blood cells.

# Summary of Outdoor Air Results Collected by CTEH

- CTEH collected outdoor air samples in and around the refinery including residential areas from late June - September 2012.
- There were several benzene concentrations that were elevated. Most were in non-residential areas and associated with the Wood River Refinery wastewater treatment plant.

# Summary of Outdoor Air Results Collected by CTEH

- The benzene levels in the CTEH outdoor air samples collected in residential areas were below a level of health concern.

# Summary of All Outdoor Air Results Collected by URS and CTEH

- Chronic exposures were calculated using the outdoor data from both URS and CTEH.
- Chronic exposures did not exceed the minimum risk level.

# Additional Outdoor Air Sampling

- Washington University began collecting air samples in June 2012. Data is available for June – December 2012.
- The monitoring location is to the south and east of the intersection of Chaffer and Tydeman on Refinery property.
- The levels detected in the Washington University samples from June – September 2012 were similar to those collected by CTEH from Station 12.

# Further Actions

- A health consultation evaluating the exposures in Roxana is currently being written.
- It will contain detailed information on the exposures discussed in this presentation.