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Residential (In-home) Sampling

- Why? Elevated petroleum hydrocarbons in shallow soil gas samples near the fence line
- Illinois EPA required Shell to sample in residences including below the slab of the basement

Residential (In-home) Sampling Screening

- Direct read instruments
- Real time data
- Checks for:
 - Organic Vapors – PID and FID
 - LEL - Lower Explosive Limit
 - Methane
 - Oxygen
 - Carbon dioxide
 - Others

Screening Instruments



Residential (In-home) Sampling Air Samples – Summa Canisters

Specific Chemicals

- Benzene, hexane, and other petroleum hydrocarbons
- Methane
- Oxygen
- Carbon dioxide

Analyzed in Laboratory - Air Toxics
Laboratory Services, Folsom, California

Residential (In-home) Sampling Locations

- Indoor Air
 - First floor
 - Basement
- Sub-slab
 - Basement floor or slab of 1st floor
 - 3 ports
- Outdoors
 - Summa canisters only

Summa Canisters - Basement



Summa Canister – Sub-slab



Data Analysis

- Screening can be used to determine
 - Immediate hazards
 - Air samples that need to be expedited
 - Indoor sources of hydrocarbons

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

Hydrocarbons in Air Samples

- The primary chemical of interest is benzene
 - History of spill and product near fence line
 - Health effects

Summary of Indoor Air Results to Date

- No adverse health effects expected for indoor air concentrations for petroleum hydrocarbons, including benzene.
- A few homes on the work plan not yet sampled.
- Have received results from most (17 of 19) homes that have been sampled.

Summary of Sub-slab Results to Date

- Most sub-slab samples concentrations below a level of health concern
- Six sub-slab samples concentrations had concentrations of benzene greater than the screening level
- Three of the six homes had concentrations greater than the lower explosive limit
 - Precautionary recommendation not to use these basements for sleeping