



## Illinois EPA UPDATE #3:

# Wood River Refinery West Fence Line Environmental Investigations Roxana, Illinois

Shell is continuing to address hydrocarbon contamination west of the Wood River Refinery's North Property. In addition to conducting soil, soil vapor and groundwater investigations in the study area between First St. and Rand Ave., and east of Central Ave., Shell is operating an interim soil vapor extraction (SVE) system to remove hydrocarbon vapors in soils near the intersection of Fourth St. and Chaffer Ave., and groundwater and free phase hydrocarbon removal systems along the WRR's fence line.

### **Hydrocarbon Vapors Initially Found Beneath Three East 4<sup>th</sup> Street Homes are Diminishing:**

The three homes on Roxana's East Fourth Street under which hydrocarbon vapors had been found, continue to be monitored on a twice-weekly basis. Since late July, elevated hydrocarbon vapor concentrations have no longer been found beneath two of these homes and the hydrocarbon vapor concentrations are continuing to decrease under the third home. These results indicate that the interim SVE system installed for this area has been successful at removing vapors.

As a precaution and on the recommendation of the Illinois Department of Public Health (IDPH), Shell offered to relocate these residents; all of the residents are staying elsewhere temporarily. Meanwhile, Shell's environmental and engineering consultant, URS, is preparing a vapor mitigation plan for each home for review and approval by the homeowners, Illinois EPA and IDPH. Once approved, URS will perform the vapor mitigation work for these three homes.

### **Nearby "Step-Out" and Area-Wide Screening and Sampling:**

URS continues to screen, assess and conduct indoor air sampling at other homes near the refinery. So far, the hydrocarbon levels detected in indoor air in these homes have not been at levels that would present a health concern for residents. Additionally, owners of several homes in the wider study area have requested that their homes be assessed, screened, and their indoor air sampled. A total of 37 properties have been screened and sampled with more being added to the list. If you are interested in having your property sampled, please refer to the map on page 2 of this *Update* to determine if your property falls within the study area.

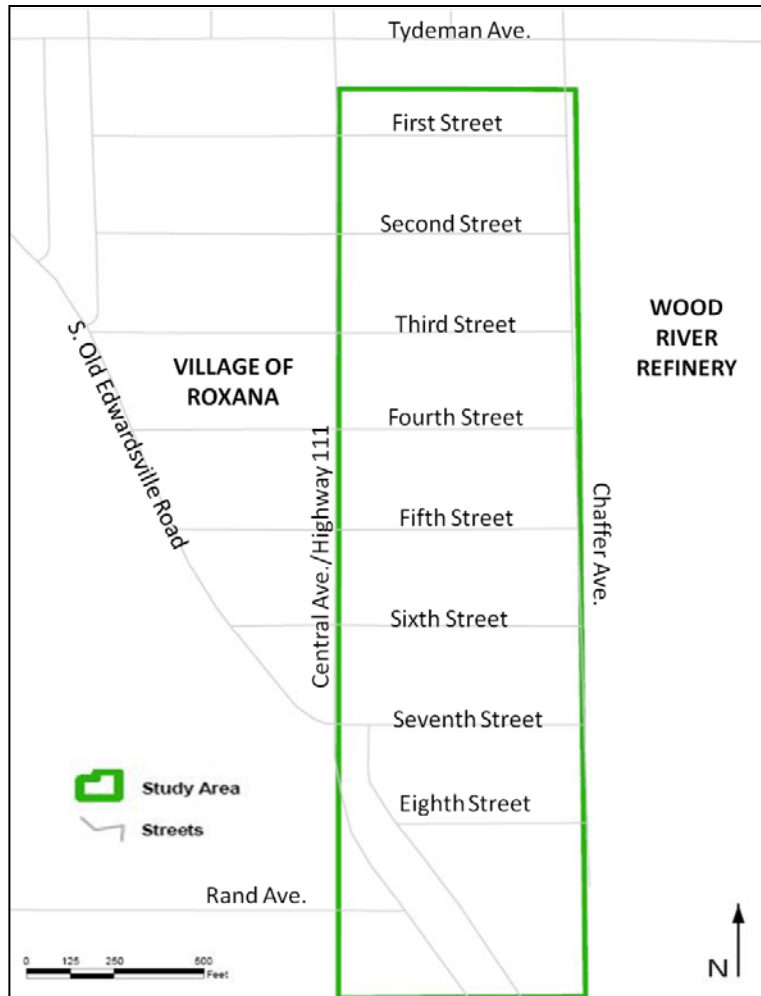
### **Roxana School District Sampling – NO VAPOR INTRUSION IDENTIFIED:**

The Roxana school superintendent and the school board president requested air quality testing be performed at the Roxana High School north of the refinery property. Although the school is not in the study area, Shell agreed to conduct sampling to address any potential community concern. Illinois EPA staff accompanied URS during the indoor air and sub-slab vapor sampling performed August 4, 5 and 8, 2011. Illinois EPA and IDPH reviewed the laboratory results. While there was evidence of some petroleum compounds in the sub-slab samples, they were not at levels that would present a health concern for students and staff. No health hazards would be expected from exposure to the indoor air in any of the four buildings. In a letter dated August 18, 2011, IDPH explained and conveyed the analytical results to the school superintendent. Shell has prepared a summary fact sheet describing the high school sampling process and posted it on its project web site (<http://RoxanaInvestigation.urs-stl.net>).



### Properties Within Study Area Are Eligible for Sub-Slab and Indoor Air Sampling:

All properties located within the study area are eligible to be screened, sampled and, if a hydrocarbon vapor problem is identified, vapor mitigation work performed to correct the problem. The study area is delineated on the map below. If you wish to have your eligible residential or commercial property sampled, please contact **Bob Billman, URS, at (618) 225-7613 to make arrangements.**



### Remedial Work Ongoing:

#### Hydrocarbon Vapor Removal

Two Internal Combustion Engine (ICE) units continue to extract vapors from under the three E. Fourth St. homes. Monitoring of subsurface soils between the homes and the SVE wells, and also under the basement floors, indicates the ICE units are creating a slight vacuum, pulling hydrocarbon vapors through the soils toward the SVE wells. The temporary ICE units will not be placed on the refinery property as originally proposed; instead they will be located on the driveway of 150 E. Fourth St. until the longer-term, larger-scale SVE system is operating at the refinery.

The large-scale SVE system will include several additional extraction wells installed from Second St. to Eighth St. and also at the Roxana Public Works property. Air emissions permitting for the SVE system is in place; system design and operation will be approved soon; Shell is proceeding with procurement of the necessary equipment and has begun preparatory field work.

A trench that runs approximately 50 feet from the end of Fourth St., across Chaffer Ave. and into the ConocoPhillips refinery property is being excavated to hold the piping that will pull vapors from the residential area into the large-scale SVE system. Excavation of the trench is taking longer than originally expected partly due to the presence of underground utilities and infrastructure, some of which was previously unknown. ConocoPhillips staff had reported that they expected to find three operating pipelines during the excavation work: a fire water line, a sewer line and a Buckeye pipeline. However, six additional abandoned pipelines were discovered. Illinois EPA will determine what future investigation or evaluation of these abandoned pipelines will be required. Shell expects to complete the trench work in early September, 2011.

### Improvements to Shallow Groundwater and Free Phase Hydrocarbon Removal Systems

By August 31, 2011, Shell is required to provide to the Illinois EPA a proposal for improvements to corrective action efforts for both shallow groundwater and free phase hydrocarbon (FPH) removal within

the village of Roxana. The proposal will be posted on the Shell project web site (see address below) once it is submitted to the Illinois EPA for review.

**Refinery Groundwater Pumping Resumes After June Storm:**

Shell and ConocoPhillips are required to maintain an eastward flow of groundwater into the Wood River Refinery property along the western fence line. That “inward groundwater gradient” is accomplished by pumping the production wells at the refinery. Groundwater levels in wells along the fence line are measured (gauged) and compared with the depth to groundwater on- and off-site. If groundwater levels are lower on-site, an “inward gradient” is being maintained. Well gauging is also used to assess the size of the groundwater capture zone being produced by ConocoPhillips’ pumping of its production wells.

A severe electrical storm caused the temporary shutdown of refinery operations on Saturday, June 25, 2011, including the shutdown of groundwater pumping wells and FPH skimmer system wells. Both ConocoPhillips and Shell notified the Illinois EPA of the shutdown on Monday, June 27, and Shell subsequently provided daily updates to the Agency regarding groundwater and product removal systems. Groundwater pumping wells along the west fence line resumed full operation on June 29. Shell continued to conduct weekly monitoring at groundwater wells within the village to observe any potential FPH and to identify any potential changes in groundwater gradients; no significant changes were observed. On July 5, the refinery was fully functional again and groundwater pumping wells and the FPH skimmer system wells were restored to pre-shutdown operations.

**For more information:**

To review earlier fact sheets and other documents concerning this project, please go to the Illinois EPA web site: <http://www.epa.state.il.us/community-relations/fact-sheets/shell-environmental/index.html> and to the Shell project web site: <http://RoxanaInvestigation.urs-stl.net>

**You may also contact:**

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