

Groundwater Conditions in Residential Roxana, Illinois

Presenter: Amy Boley

Illinois Environmental Protection Agency

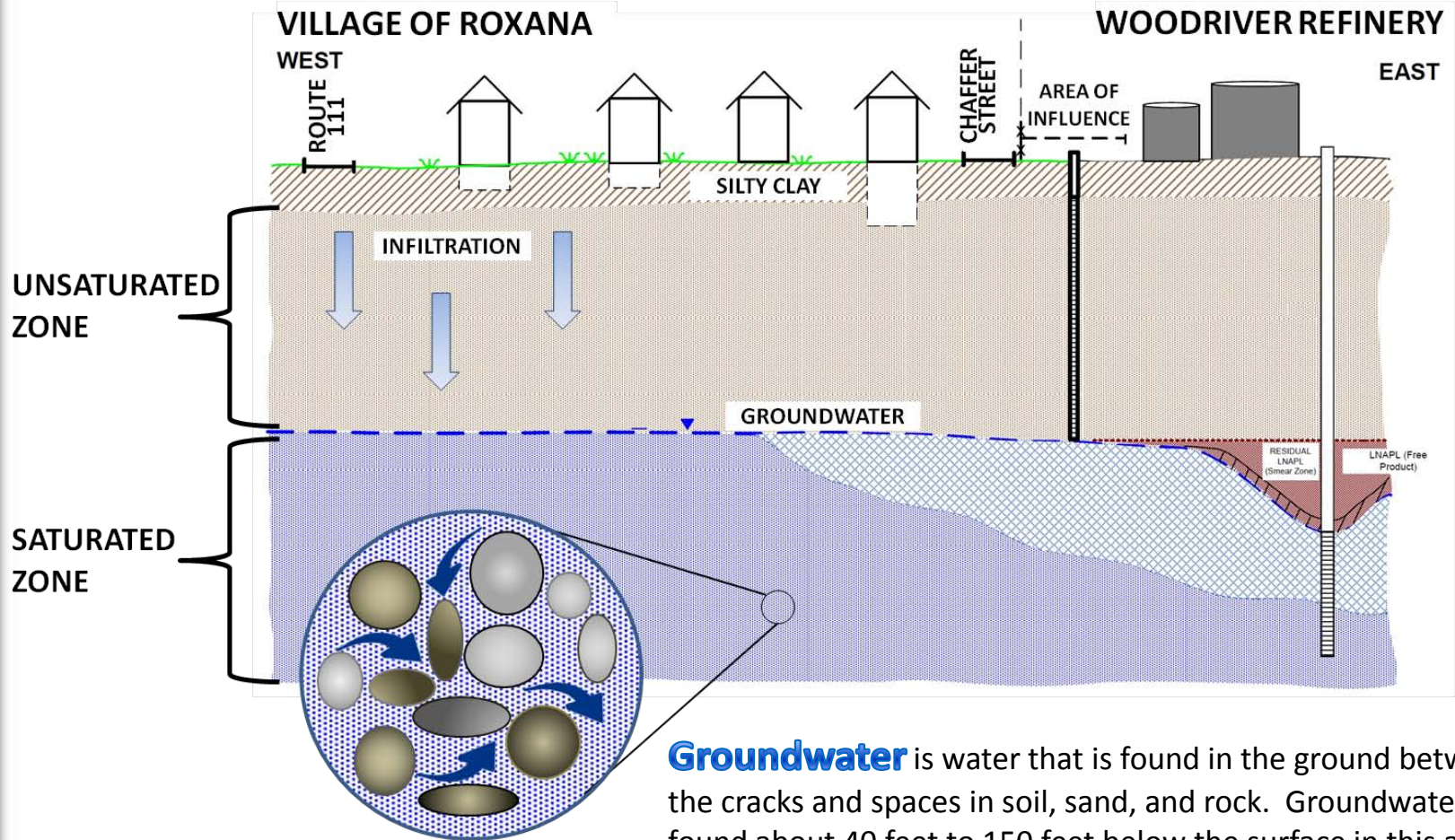
Bureau of Land

Permits Section

217/558-4716

Amy.boleyn@illinois.gov

Groundwater Defined



Groundwater is water that is found in the ground between the cracks and spaces in soil, sand, and rock. Groundwater is found about 40 feet to 150 feet below the surface in this area, and is the aquifer being investigated.

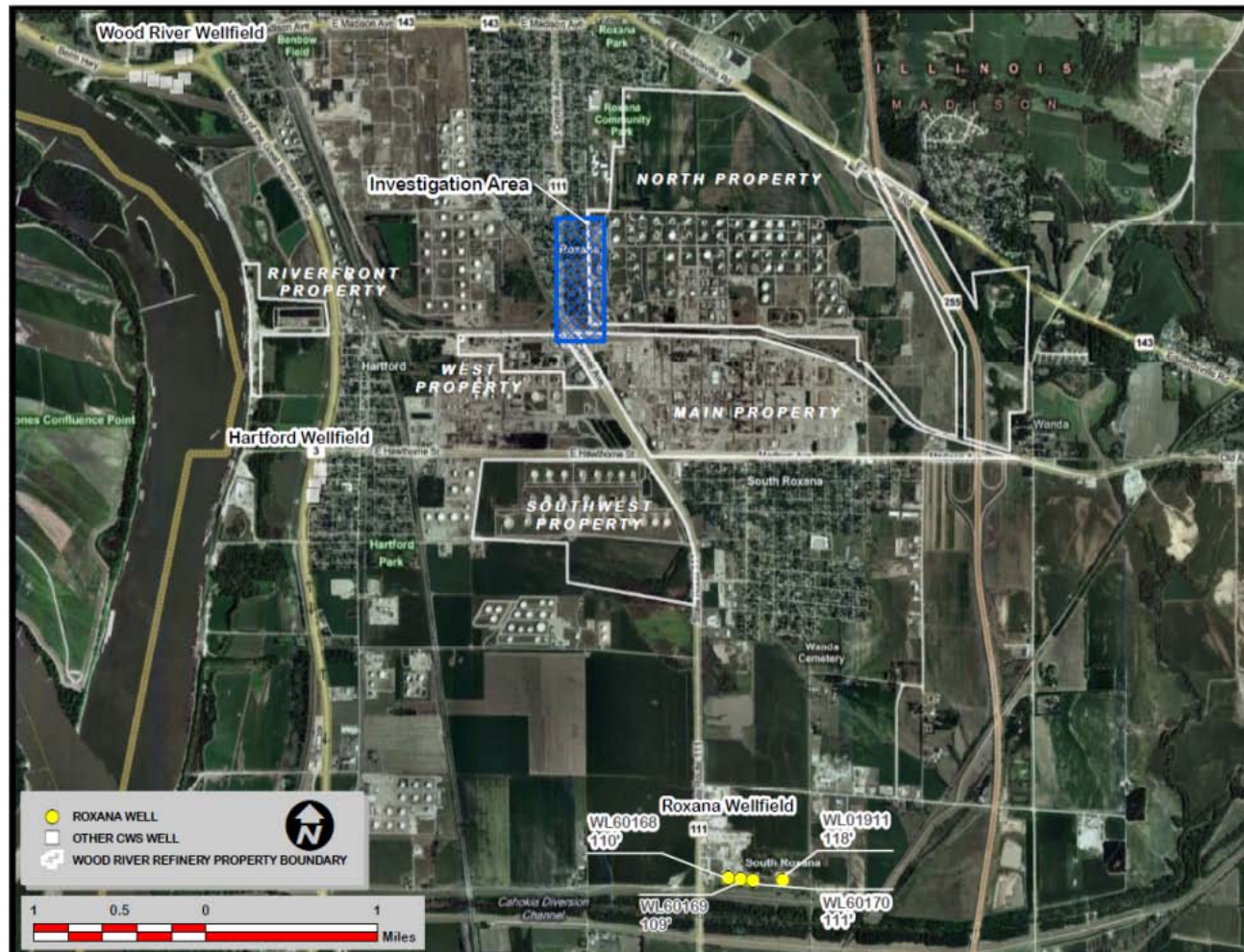
What about water in my basement? Water that comes into a basement in a home in Roxana is not from groundwater of the contaminated aquifer. This water would come from rainfall.

What about my drinking water?

The graphic was created by **URS** and has been modified for purposes of this presentation.

Roxana Community Water Supply

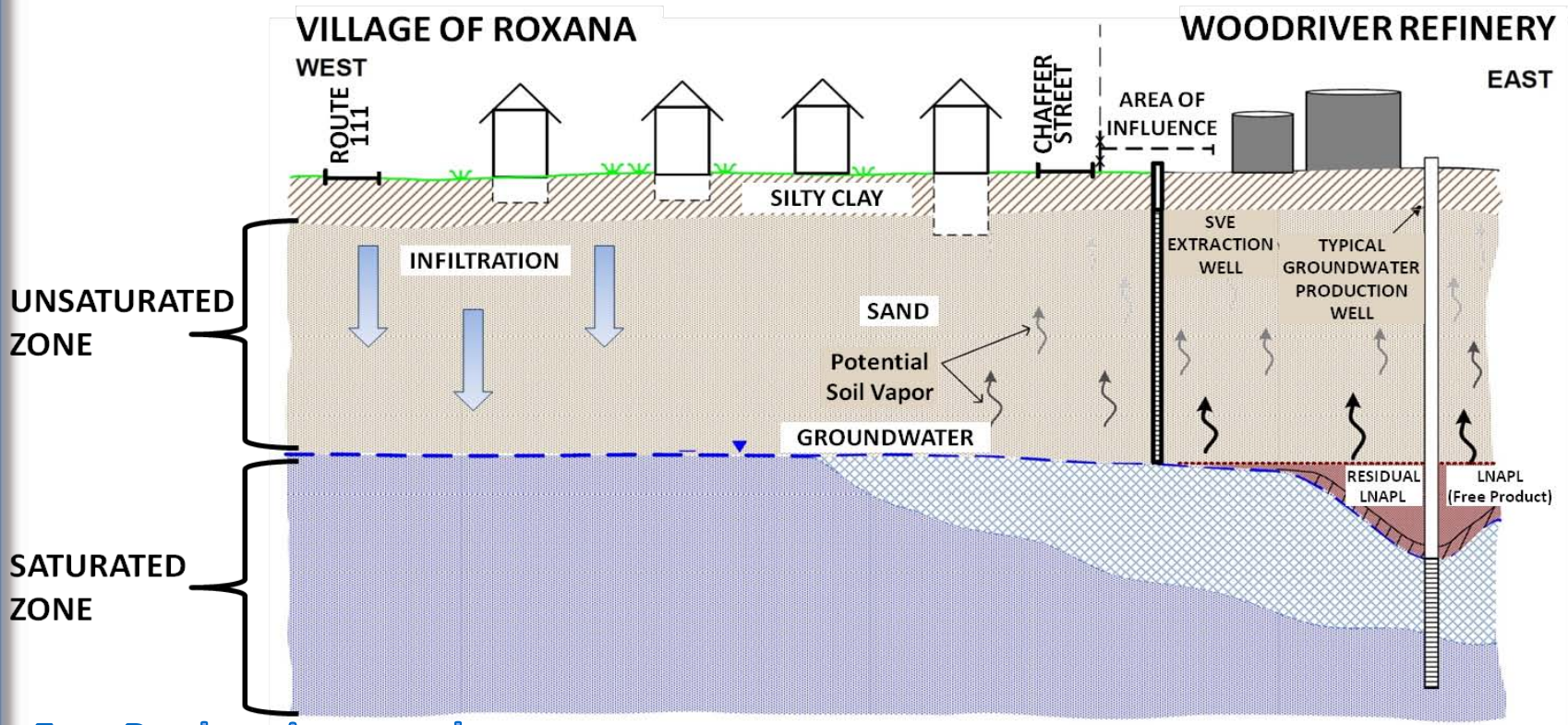
WOOD RIVER REFINERY IN RELATION TO ROXANA COMMUNITY WATER SUPPLY



No private water supply wells have been identified within 2500 feet of the investigation area.

This graphic was created by
Illinois EPA

Free Product Versus Dissolved Groundwater Contamination

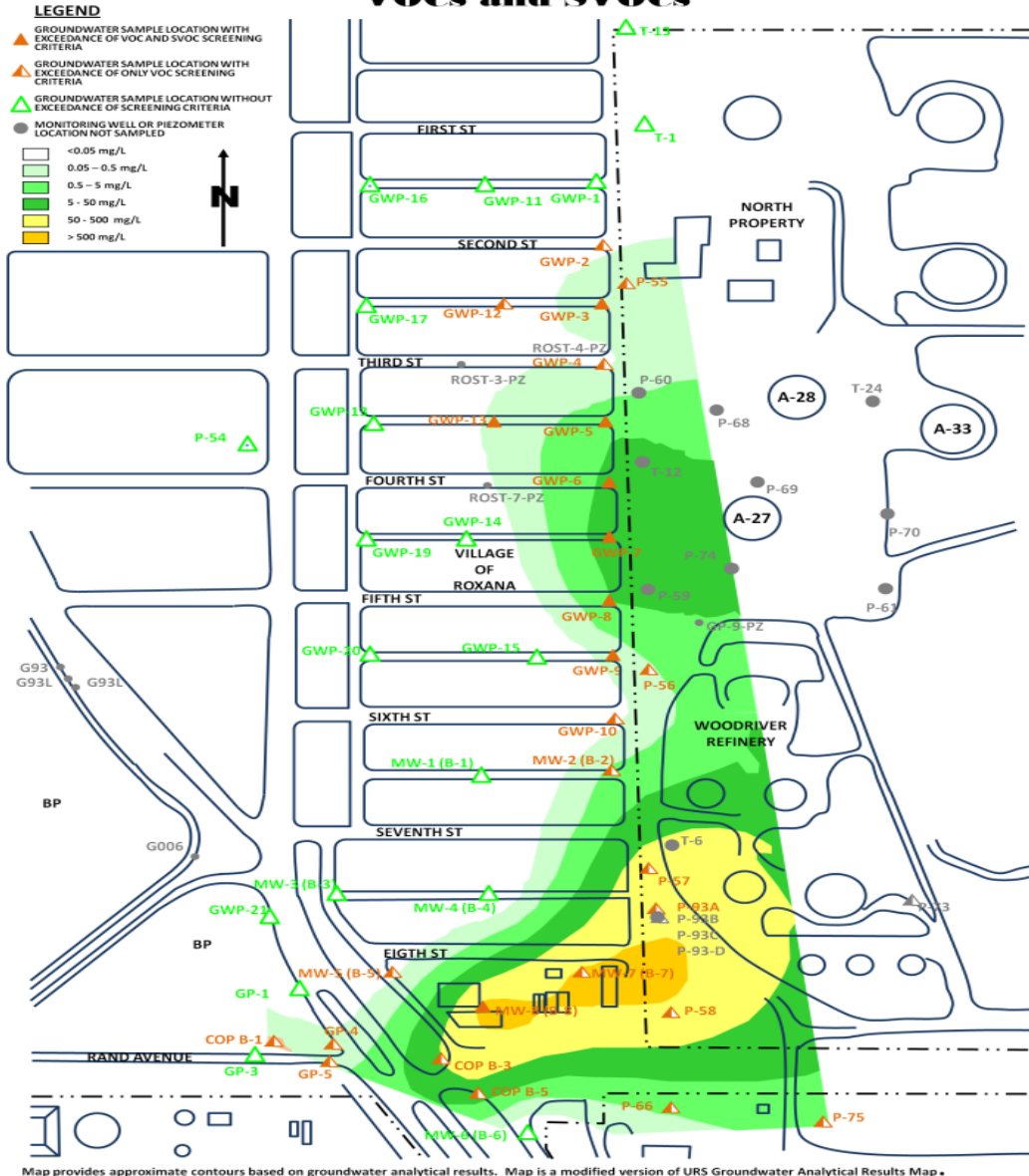


Free Product in groundwater is petroleum product that can be measured; these products are lighter than groundwater so they will be found floating near the top of the groundwater.

Dissolved Groundwater Contamination means that some of the product has mixed with the groundwater and now is part of the groundwater.

Example: Puddles in parking lots will sometimes have a rainbow sheen (“product”), and some of the product has mixed (“dissolved”) in with the water.

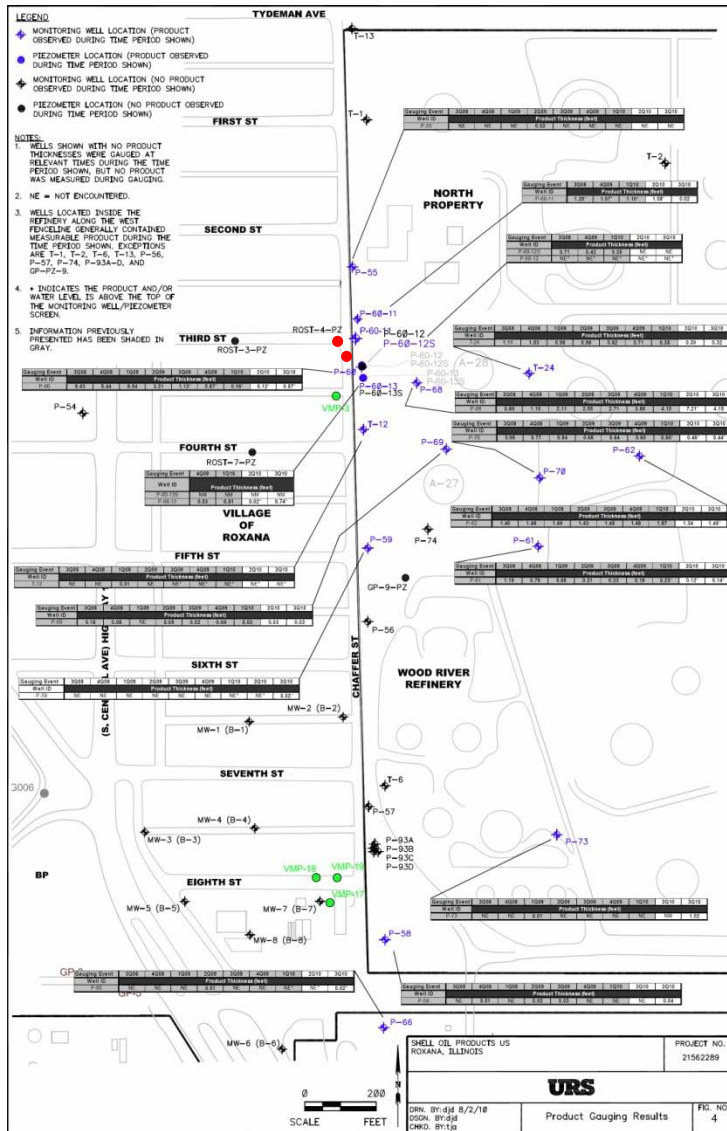
Estimated Groundwater Results Summary VOCs and SVOCs



Where is the dissolved groundwater contamination?

The approximate extent of measured dissolved contamination is shown here. The monitoring wells are sampled quarterly.

Two different sources have been found in these investigations. The benzene plume is in the south, and a mixed hydrocarbon plume is farther north.



The graphic was created by **URS** and has been modified for purposes of this presentation.

● = Approximate location of the 2 wells where Free Product has been detected within the residential area of the Village of Roxana (near 3rd and Chaffer Streets)

Is there an underground lake of gasoline under the Village? No, based on investigations to date, and **weekly measurements**, we know that the product has been found at these 2 locations only.

How much? It is hard to estimate how much because product tends to pool in wells, so measurements in wells can provide an inaccurate picture.

What is being done to remove it?

Because there is a limited amount of product, absorbent “socks” placed in the wells are able to absorb the product at these locations.

How deep is the product? The product is at the top of the groundwater table, approximately 40 feet below the ground surface.

What is the IEPA requiring?

Groundwater Pumping and Free Product Removal has been conducted for over 20 years at the Refinery, and regulations require it to continue until the groundwater quality is restored.

The initial goal of the investigation was to determine how far the contamination extends - - Now the focus is to remove contamination from under the Village.

The IEPA letter dated June 16, 2011 requires a proposal for an additional removal system --for both free product and contaminated groundwater along the west fenceline and at the Roxana Public Works Yard area for more aggressive removal of contaminants.

The proposal is due within 60 days.

