



Investigating Hydrogen Sulfide Exposures in Illinois

In 2006, the Illinois Department of Natural Resources (IDNR), Illinois Environmental Protection Agency, and the U.S. Environmental Protection Agency received odor complaints from residents in Bridgeport, Illinois. These “rotten egg” smells came from hydrogen sulfide, which occurs naturally in the oil formations throughout southern Illinois. Emissions from wellheads, storage tanks, and emergency pits are the primary sources of hydrogen sulfide releases. Short-term exposures to hydrogen sulfide may cause airway constriction, decreased lung function, pulmonary edema, and central nervous system effects. Long-term exposures to hydrogen sulfide may result in chronic adverse health effects, including neurological and respiratory effects.

In response to a review of the community complaint logs and sampling data collected by IDNR during odor events, ATSDR requested additional sampling in order to help characterize the exposure. In the summer of 2006, ATSDR collected continuous measurements of hydrogen sulfide in air at several residences, a school, a public park, and a background location. At the same time, EPA also began monitoring hydrogen sulfide emissions from specific areas where oil vapors were suspected of being released.



Tank farm where oil/water mixtures from multiple wells are collected and separated. Faculty hatches on the tanks have been shown to be a significant source of hydrogen sulfide release.

There are over 2,000 wells in the Lawrence oil field, many in close proximity of residential areas. This well is located in the playground of the elementary school in Bridgeport.



The results of ATSDR's exposure investigation concluded that peak hydrogen sulfide concentrations posed a public health hazard for residents who live near the storage tank facilities, particularly at properties in low-lying areas. This information supported regulatory actions to direct the facility to reduce hydrogen sulfide releases from their sources and therefore reduce exposure levels in these communities. ATSDR shared investigation results in public information sessions, and also met with local physicians at the county health department to alert them to possible public health problems. ATSDR continues to work with EPA to review additional exposure data and address community concerns.

ATSDR's recent work in Bridgeport, Illinois is one example of an investigation into potential public health hazards impacting communities. ATSDR conducts public health assessments and consultations throughout the United States to ensure that health hazards in communities are evaluated and interventions to alleviate those hazards are implemented. ATSDR has also been at the forefront in protecting people from acute toxic exposures that occur from hazardous leaks and spills, environment-related poisonings, and natural and terrorism-related disasters.

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