

## **PennTex, Bridgeport, IL, Odor Investigation Fact Sheet**

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### **Background**

Bridgeport is a city in southeastern Illinois, near the Indiana border. Oil production operations have been active in the Bridgeport area for more than 100 years. More than 1,000 wells are active in Lawrence County. Many of these wells and their collection tanks in the Bridgeport area are owned by PennTex Resources Illinois, an affiliate of Rex Energy. The company acquired the Lawrence oilfield in 2005. However, several other oil producers also have wells in the Bridgeport-Petrolia area.

The Illinois Department of Natural Resources, Illinois Environmental Protection Agency, and the U.S. Environmental Protection Agency have received odor complaints in recent years from Bridgeport area residents. The “rotten egg” smells come from hydrogen sulfide. Hydrogen sulfide occurs naturally in the oil formations throughout southern Illinois and is released into the air from local oil production facilities. Gas measurements were taken near the wells at times when the odors were most noticeable. The measurements indicate that the high concentrations of hydrogen sulfide were coming from wells where the emissions are not adequately treated.

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### **Why did ATSDR become involved in the PennTex site?**

The Agency for Toxic Substances and Disease Registry (ATSDR) was asked to evaluate whether levels of hydrogen sulfide in the air could be a health hazard for people living in the Bridgeport community.

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### **What is hydrogen sulfide?**

Hydrogen sulfide

- is a colorless, flammable gas;
  - smells like rotten eggs;
  - occurs at landfills and as part of industrial and manufacturing processes at petroleum refineries, active oil fields, and natural gas plants.
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### **How could I be exposed to hydrogen sulfide?**

You could be exposed to hydrogen sulfide by breathing the gas released into the air from the oil wells, storage tanks, truck loading stations, and emergency pits located throughout the area.

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**What are some symptoms of exposure to hydrogen sulfide?**

- At the peak levels of hydrogen sulfide found in your community, the most frequent health effects are
  - eye irritation,
  - sore throat,
  - nasal blockage,
  - cough,
  - chest pain,
  - nausea,
  - headaches, and
  - a worsening of asthma symptoms.
- Sleep disturbances, insomnia, irritability, loss of appetite, and poor memory have also been reported by workers after daily exposure daily to hydrogen sulfide.
- People with asthma or chronic lung disease, such as emphysema, are at greater risk because hydrogen sulfide may make their symptoms worse.

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**How can I protect myself and my children?**

Whenever possible, try to avoid long exposure to hydrogen sulfide. You will know that you are being exposed because hydrogen sulfide smells like rotten eggs. Remember that you can smell smaller amounts of hydrogen sulfide than the levels that may cause severe health effects, so smelling the gas does not mean that it will make you sick.

If the odor is strong, hydrogen sulfide exposure may cause you to have watery eyes, congestion, cough, or difficulty breathing. If that happens, go to a spot where the odor is not as strong or where you cannot smell the gas.

Here are some other steps that may help you avoid contact with hydrogen sulfide:

- Go inside and close the doors and windows. Avoid using a window fan or air conditioner, if the odor is strong outside.
- If the odor is strong inside, try going outside to get some fresh air.
- If you have access to transportation, consider temporarily removing yourself and your family from the area.
- Avoid outdoor activities, such as jogging or yard work, when there are strong odors.

If you have medical conditions, such as asthma or emphysema, exposure to hydrogen sulfide may make your symptoms worse. Keep your medications, inhalers, and other supplies close by if you live in the affected area. If your child attends a school where odors are present, have their inhalers available at the school nurse's station. Always consult with your doctor if you continue to have health problems. ATSDR plans to talk to doctors in the area about health effects related to hydrogen sulfide exposure.

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**What is an exposure investigation?**

ATSDR conducts exposure investigations (EI) to evaluate the levels of human exposures to hazardous substances in the environment and decide whether those exposures may harm people's health. An EI usually includes taking air, groundwater, or soil samples from specific areas to evaluate community exposures.

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**What exposure investigation activities were conducted in Bridgeport?**

During the EI in Bridgeport, ATSDR worked with the Illinois Department of Public Health to collect air samples over a 4-week period. They used the samples to determine the levels of hydrogen sulfide and other contaminants in specific areas where residents live and work. The investigation was not designed to fully evaluate all areas affected by the oil wells. It was focused on those areas where the most significant exposures may be occurring.

Air samples were taken at the following locations:

- Bridgeport Grade School and the City Park in Bridgeport
- Near three private residences (two in Bridgeport and one in Petrolia residence).
- In the nearby community of Petrolia, in response to community concerns about the many oil wells in this residential area.

An air monitor was also placed in the Red Hills State Park, to serve as a background location not affected by oil wells.

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**Who do I contact about ATSDR's site activities?**

**Regional Office—Chicago (312-886-0840)**

- **Mark Johnson, PhD**  
Senior Environmental Health Scientist
- **Michelle Colledge**  
Environmental Health Scientist

**Main Office—Atlanta (1-800-232-4636)**

- **Michael Patterson, MD**  
Medical Officer
  - **Debra Joseph**  
Health Communications Specialist
  - **Paula Peters**  
Health Education Specialist
  - **Debra Gable**  
Environmental Health Scientist
- To learn more about ATSDR, please visit our Web site at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).
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**Who should I contact if I have questions about the other agencies' site activities?**

If you have questions about EPA's activities in the Bridgeport-Petrolia area, please call the EPA Regional Office Hotline in Chicago (800-621-8431).

Questions for the Illinois Department of Public Health should be directed to Lynn Stone (618-993-7010) or Jennifer Davis (217-785-3239).

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**Who should I contact if I experience significant odor events related to oil operations?**

An "Odor Hotline" (618-943-3302) will be set up with Lawrence County Health Department to collect information regarding the time, location, and description of significant odor events as they occur. Lawrence County Health Department will forward this information to state and federal agencies, and PennTex representatives.

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