

U.S.

# Chemicals Catch Fire at Plant Flooded by Harvey

Arkema facility was flooded with six feet of water due to Tropical Storm Harvey

*By Russell Gold and Erin Ailworth*

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CROSBY, Texas—Hurricane Harvey’s wall of water destabilized a chemical plant outside Houston, initiating a slow-moving crisis that officials say they are powerless to prevent.

A pressurized container holding liquid organic peroxide caught fire and exploded at the Arkema SA facility in Crosby, Texas, early Thursday morning.

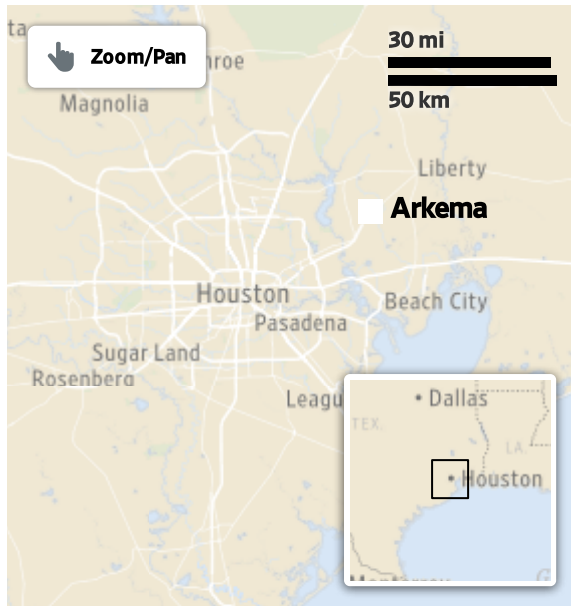
Residents within a mile-and-a-half radius of the plant had been urged to leave their homes Tuesday before the explosion, which created a 30- to 40-foot plume of smoke that officials described as “noxious.”

The company says it expects “eight other containers to do the same thing” as the first one, company executive Richard Rennard said at a press conference. “We don’t want people returning back to their homes thinking this is over. It is not over.”

The health effects of smoke from the plume or additional explosions were not immediately clear. Mr. Rennard wouldn’t call the smoke toxic, but said it was “noxious.”

Also among the unknowns is the status of another chemical stored at the site that, under a hypothetical worst-case scenario, could prove harmful for a 23 mile radius, covering more than 1 million residents, according to the company’s risk management plan on file with the federal government.

According to that 2014 plan, the plant stores 66,260 pounds of a toxic chemical, anhydrous sulfur dioxide. A spokeswoman for the company didn’t immediately respond to questions about the chemical or the EPA plan. The company hasn’t said that sulfur dioxide has been released or that its storage tanks have been compromised.



Leaflet | © Mapbox | © OpenStreetMap

The incident at Arkema, roughly 25 miles northeast of downtown Houston, is the latest chapter in the destruction wrought by Harvey. The storm and its record rains have left more than 30 people dead and thousands homeless, shut off the drinking water to the city of Beaumont and sent several rivers over their banks.

As the waters begin to recede and the recovery effort kicks into gear, officials have decided it is simply too dangerous to get close to the Arkema facility. They plan to keep the evacuation in place and let the organic peroxide burn.

In a state with a multibillion dollar petrochemical industry, the Arkema situation raises broader concerns about what other environmental damage and hazards may be caused by the flood waters, which defeated a system with multiple safeguards designed to protect the public and prevent an explosion.

The Arkema plant in Crosby produces a variety of organic peroxides for the chemical industry under the product name Luperox. Arkema is part of a global chemical company based in a suburb of Paris, France, and its peroxides are used to make pharmaceuticals, polystyrene cups, building material and acrylic paint.

While it is unclear exactly which variety of peroxide was at the Crosby facility, the company's safety data sheet for Luperox 11M75, for instance, lists that the chemical "may be fatal if swallowed and enters airways" and "toxic to aquatic life" with long-lasting effects.

"Peroxides can get kind of gnarly when they start decomposing," said Michael Poehl, director of process industry practices at the University of Texas at Austin.

The U.S. Environmental Protection Agency requires plants that store certain particularly toxic chemicals to provide risk management plans to the agency every five years. The requirement covers roughly 175 chemicals that are considered highly risky for inhalation or fire. The plans submitted by Arkema do not cover the organic peroxides produced at the plant, which aren't among the chemicals that require EPA risk management plans.

The plant was cited last year by federal inspectors for safety failures related to its handling of sulfur dioxide. The Occupational Safety and Health Administration cited the plant with 10 serious violations and issued more than \$100,000 in penalties.

Arkema officials did not immediately respond to a request for comment about the OSHA violations.

The company thought it was prepared for the storm, with three backup safety systems. But one by one over the past six days, the rising floodwater caused those safeguards to fail.

“Certainly, we didn’t anticipate having six feet of water in our plant,” said Mr. Rennard.

As Hurricane Harvey barreled toward the Texas coast last week, officials decided to shut down the plant out of an abundance of caution. They ruled out moving the peroxides in refrigerated trucks, deciding that “we certainly didn’t want to bring these containers out on the roads with hundreds of thousands of people being evacuated,” Mr. Rennard said.

Most of the 57 employees at Crosby were sent home to prepare for the storm. A small “ride-out” crew of 11 employees stayed behind to take care of the facility.

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The Crosby plant began flooding on Sunday morning, according to the company. Sometime that day, the plant lost power. When the ride-out crew tried to get the backup generators to work, they couldn’t. They were also inundated with water.

By Monday afternoon, more than 3 feet of rain had fallen at the facility. The crew, running out of options, moved pressurized containers of peroxides into nine diesel-powered refrigerated tractor-trailers that were parked far in a far

corner of the facility.

The first time storm emergency officials were alerted that there was a problem at the plant was Tuesday. The local Crosby Volunteer Fire Department, called emergency officials at Houston TranStar, the storm’s emergency operations center, that morning to request assistance with a high water rescue, according to Rachel Moreno, a spokeswoman for the Harris County Fire Marshal’s Office.

CenterPoint Energy Inc., the local power company, said they were also alerted to problems at the plant on Tuesday, but they couldn’t send in a repair crew because of a mandatory

evacuation order, said a CenterPoint spokeswoman.

On Tuesday, the company discussed the unfolding situation with Department of Homeland Security officials, said an Arkema spokesman. At about 3:30 in the afternoon, it issued a release warning that “the situation at the Crosby site has become serious.”

County officials began to evacuate nearby residents.

By Wednesday, there was 6 feet of water at the plant. The diesel in the refrigeration trucks ran out, said Ms. Moreno.

There was no one left to put more diesel in the trucks. On Tuesday, the ride-out crew had been evacuated.

— *Dan Molinski, Christopher M. Matthews and Alexandra Berzon contributed to this article.*

### **Corrections & Amplifications**

Arkema’s global revenue in 2016 totaled €7.5 billion. An earlier version of this article incorrectly stated the figure in dollars. (Aug. 31, 2017)

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