

# Petrochemical giants dumped deadly carcinogens during Hurricane Harvey

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12 September 2017

As Hurricane and Tropical Storm Harvey bore down on and flooded the northern Gulf Coast last month with an estimated 20 trillion gallons of rain, some 60 plants belonging to the world's petrochemical giants on the Texas coast began shutdown procedures. During this time they vented and dumped almost a million pounds of some of the most deadly chemical compounds on earth.

"Total air pollutants from all oil and gas facilities added up to 5.6 million pounds," according to an analysis released September 1 by the Center for Biological Diversity. The deadly cocktail that included benzene, hexane, sulfur dioxide, 1,3-butadiene, and xylene were dumped or spilled during the storm by ExxonMobil, Shell, and Chevron Phillips and other petrochemical giants over a period of eight days beginning August 23.

Reports filed by the refining industry with the Texas Commission on Environmental Quality (TCEQ) confirmed that residents of Harris County and the surrounding area sustained 61 percent of the un-permitted emissions of toxic dumping than occurred in all of 2016. The dumping of these compounds included over 13 tons of benzene.

Significantly, Houston, Texas has never met national air quality standards since the passage of the Clean Air Act of 1970.

When TCEQ spokeswoman Andrea Morrow was queried about the findings, she was quoted as saying, "All measured concentrations were well below levels of health concern," and that "local residents should not be concerned about air quality issues related to the effects of the storm." The US Environmental Protection Agency (EPA) stated it was observing the situation with "air quality buses," though how this was done in the midst of a flood was not explained.

According to a *Las Vegas Review-Journal* article appearing September 8, the chief Houston Health Department scientist Loren Raun reported that a department air quality monitor measured an astonishing level of 14,000 parts per billion of volatile organic compounds downwind of the Valero Partners refinery on Houston's east side, where a heavy roof had collapsed into a reservoir of stored chemicals during the storm.

For the duration of the storm-related events, Texas Governor Greg Abbott decreed a temporary suspension of emission

regulations. The state's air quality monitors were also shut off, with the initial explanation that officials made this decision to prevent damage to the expensive instrumentation. Later, air quality spokespersons began telling the press the monitors were damaged during the storm.

Ruben Basurto, a 33-year-old construction worker living two blocks from the refinery reported that the smell drove him and his friends indoors. Cindy Sanchez, 32, told the press that she became sick to her stomach and had eye burning. Nearby Galena Park mothers opened a Facebook page to describe their illnesses, saying the discharge smelled like "sweet gasoline," or raw sewage in very thick air.

A local environmental activist Juan Flores said, "a lot of people are afraid to talk, because their husbands work at the plants." He also said many of the residents near the refineries want to see a doctor, but they have no insurance or means to pay.

Daniel Cohan, an environmental scientist at Rice University, pointed out that the refineries, during a significant storm, delay shutdown until the very last moment. When the event is passed, they restart quickly, causing a very dramatic surge in emissions. He added, "These plants are three to four decades old," and that the facilities are outmoded and badly overdue for modernization.

In 2010, ExxonMobil, Chevron-Phillips, and Shell were sued by the Sierra Club and Environment Texas, and this May were ordered by a federal judge to pay a settlement of \$27.8 million. ExxonMobil's share was \$19.9 million and the energy conglomerate filed an appeal.

The federal Agency for Toxic Substances and Disease Registry (ATSDR) issued a Public Health Statement in August, 2007 regarding benzene, noting that it is a colorless liquid with a sweet odor, which can be smelled by humans at about 60 parts per million (ppm) of air, and correctly identified at 100 ppm. Benzene can be tasted in water at 0.5-4.5 ppm, and 1 ppm is about 1 drop in 40 gallons of water. It is in the top 20 chemicals produced in the US, used in making plastic foam and other plastics, some types of rubber, lubricants, dyes, detergents, drugs, and pesticides. It is also present in crude oil, gasoline and cigarettes.

Benzene is also slightly soluble in water, and will make its

way from soil into aquifers. About 20 percent of human exposure in the US is from auto exhaust and industrial emissions. Fifty percent enters the body by breathing, and lesser amounts by ingestion and through the skin. Its human metabolites include phenol, muconic acid, and S-phenylmercapturic acid, which are known to cause leukemia and liver cancers.

At least a quarter million workers are significantly exposed to benzene in the US petrochemical and refining industry, tire manufacturing, shoe making, printing, in lab technology, fire fighting, and gasoline stations.

A 5-10 minute respiratory exposure to benzene can be fatal at air levels of 10,000-20,000 ppm. The compound will produce dizziness, nausea, headaches, rapid heartbeat, drowsiness, and unconsciousness at 700-3000 ppm. The US Department of Health and Human Services, the EPA, and the International Agency for Cancer Research identify benzene as a carcinogen. High levels of benzene inhaled by female workers has produced irregular menses, and has been linked to fetal changes and damaged immune and central nervous systems in experimental animals.

The EPA has estimated that the regular drinking of benzene-contaminated water at 10 ppm, or breathing air with 0.4 ppm would account for one added cancer per 100,000 people annually. The EPA also requires the National Response Center to investigate a spill into the environment of 10 pounds or more of benzene.

In August, 2008, the *Environmental Health Perspective Journal* published the results of a study titled "Childhood Lymphohematopoietic Cancer Incidence and Hazardous Air Pollutants in Southeast Texas, 1995-2004." The investigation found in a review of 997 cases of childhood blood and lymphatic systems cancers that "Census tracts (from Houston, Texas and the surrounding eight counties) with the highest benzene levels had elevated rates of all leukemia(s)." The study's conclusion reads, "Our ecologic analysis suggests an association between childhood leukemia and hazardous air pollution."

Bakeyah Nelson, executive director of Air Alliance in Houston told the *Guardian*, "It's really a serious public health crisis from pollution and other impacts people are facing. Communities in close proximity to these facilities will get the worst of it, as they get the worst of it on a daily basis. There's also the acute danger of one of these facilities exploding in neighborhoods where storage tanks are adjacent to people's backyards. It's a very real threat and it's a very precarious situation."

The *Guardian* quoted Bryan Parras, who grew up in and lives in the low income East End, "These people have very little political power and the city knows it. The real disaster is that they are poisoning these communities slowly, 24-7."

A September 5 *New York Times* article reported that Arkema Company, the French-owned firm whose plant exploded and

burned in Crosby, Texas during Hurricane Harvey, had little in its emergency flood plans for power loss to its cooling equipment for storage of organic peroxides, its main product, sold to plastics manufacturers. Company vice president Gilles Galinier in Crosby insisted, "It is not an industrial accident," instead blaming the severity of the storms, despite the Houston area having experienced so-called 500-year floods each of the last three years. The company worldwide had sales last year of \$8.9 billion.

After Hurricane Ike in 2008, Arkema conceded hurricanes and resulting floods were a plant safety issue. But when flood plans were filed with the EPA, there were no provisions for elevating backup generators above the floodwater line. The flooding of emergency generators last month led to the explosions and chemical fires.

At the onset of Harvey, 11 of the 50 Arkema workers in Crosby hurriedly transferred the organic peroxides from the overheated plant building to nine outside refrigerated tanker trucks. The tankers were moved to the highest spot on the Arkema grounds and as far as possible from tanks of sulfur dioxide, a very corrosive gas, and other tanks of isobutylene, a very flammable gas. As it was, all nine tanker trailers and 18 tons of organic peroxides were consumed by fire.

Tom Neltner of the Environmental Defense Fund noted, "They (Arkema) identify new hazards, but don't change anything in their plans."

The EPA's risk management in fact ignores volatile explosive compounds, requiring companies to address risk for 150 identified chemicals selected for flammability and toxicity, but not reactivity. The unstable compound ammonium nitrate is not on the EPA list of monitored chemicals, and caused the 2013 explosion of a fertilizer plant that killed 15 people in the town of West, Texas.

The *World Socialist Web Site* spoke with a retired oil worker from the ExxonMobil refinery in Beaumont, Texas. "The major refiners are on the Neches River. The Exxon plant in Beaumont and a nearby chemical plant share a water containment facility. I'm sure it overflowed into the river. The public doesn't hear about runoff and seepage, but the workers in the facility know about oil and processed fluids that are floating underneath us and getting into the ground. You don't hear about the health of workers either."



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