

Resiliency Planning in Houston: Understanding Chronic Health Issues from Harvey

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Arkema



Photo accessed:

<https://www.google.com/search?q=images+from+arkema+blast&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEwivhOCjxIDXAhUI5IMKHeGBDWEQ7AklRA&biw=1366&bih=672#imgrc=XQUBqnoHtm2CrM>



INDUSTRIAL FACILITIES: The greater Houston area includes roughly 570 chemical plants, 9 refineries, 188 cement batch plants, 80 metal recycling facilities, and thousands of underground storage tanks. Surface water and sediments from the flood contained high levels of *E. coli* and *Enterococcus* bacteria, dioxin, PCBs, and mercury. These flooded contaminated surface water bodies left behind extensive deposits of potentially contaminated sediment, silt and sludge in yards, parks, and school grounds.



Photo: Scott Olson

FLOODING: 60 inches of rain fell from Hurricane Harvey in Texas, shattering the U.S. storm record. The 275 trillion tons of water on the Houston region was heavy enough to cause the earth's crust to drop by 2cm.



U.S. Environmental Protection Agency (USEPA) Environmental Response Team Trace Atmosphere Gas Analyzer (TAGA) Post-Harvey Monitoring Houston, Corpus Christi, and Beaumont Areas, TX

EPA won't release benzene levels collected post-Harvey; private tests show elevated levels

Environmental groups hired a private firm after the flooding and found higher than normal levels of dangerous chemicals in the air around a refinery.

BY KIAH COLLIER, THE TEXAS TRIBUNE AND LISA SONG AND AL SHAW, PROPUBLICA SEPT. 14, 2017 3 PM

EPA tells Houston Chronicle that Valero significantly underreported emissions (shortly before ProPublica article is published).

October 9, 2017

TCEQ releases a summary of EPA's monitoring results, **39 days** after resident concerns.

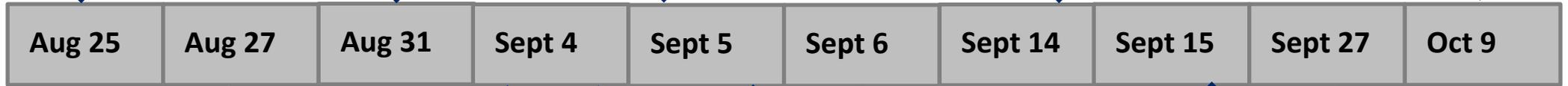


Harvey makes landfall near Port Aransas and moves north toward Houston. The region receives over 5 feet of rain within 5 days.



City of Houston receives odor complaints. EDF and AAH coordinate with City officials to deploy mobile monitoring unit from CA.

Conference call with EPA, EDF, and City of Houston to discuss situation. Concentrations remain elevated but not as high.



Valero files initial report to TCEQ indicating excess benzene emissions of **6.7 pounds**. Valero in daily communication with TCEQ. TCEQ never takes a single measurement.

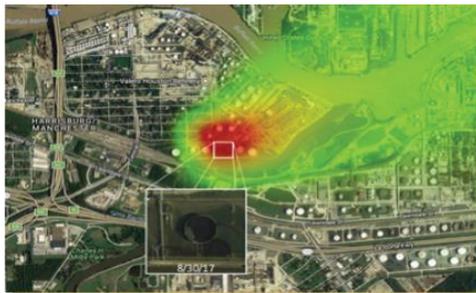
Two sets of independent measurements taken. Benzene concentrations in Manchester **exceed 300 ppb**.

EPA takes measurements in Manchester but does not release data to public.

EDF releases air quality health alert.

Valero files final emissions report with the state revising their emission estimate to **1881 pounds**. Valero never released a public statement.

EPA demands that Valero release reports related to the release.



FOR IMMEDIATE RELEASE

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Air quality remains a concern after Harvey despite claims from EPA officials

Statement from EDF's Dr. Elena Craft, senior health scientist

(HOUSTON – Sept. 4, 2017) The Environmental Protection Agency released a statement Sunday that "local residents should not be concerned about air quality issues related to the effects of the storm." Yet the Houston area was under alert for ground-level ozone, a lung-damaging air pollutant, for the fourth day in a row, according to the EPA's Air Now website.

Messaging

TCEQ issues first joint statement with EPA on Sept. 3, 2017

“As of Saturday, Sept. 2, more than 88 percent of monitors are up and working again in Corpus Christi, 85 percent in Houston, and 36 percent in Beaumont. The network is expected to be fully operational again by next week. Of the available air monitoring data collected from Aug. 24-Sept. 2, all measured concentrations were well below levels of health concern. Monitors are showing that air quality at this time is not concerning, and residents should not be concerned about air quality issues related to the effects of the storm.”

What the statement should say

Although air quality monitoring remains limited after the storm, we are seeing high levels of ozone in the Houston region, as well as hearing complaints about strong odors in neighborhoods near storm-damaged oil refineries and chemical plants. Valero reported the release of benzene and other toxics at its Houston refinery, and Magellan Midstream Partners reported a large gasoline spill in Galena Park, among others. We can expect more air pollution as industrial facilities restart over the next month. In response to this storm, TCEQ intends to increase our air quality monitoring efforts and emergency outreach to local residents. This is a critical time for residents to pay attention to air quality as many people work outside for long hours to clean up their homes and neighborhoods. While everyone may experience health effects from air pollution, people with heart and lung disease, older people and children are at greater risk. Please stay vigilant.

Environmental Health & Housing Registry

Goal

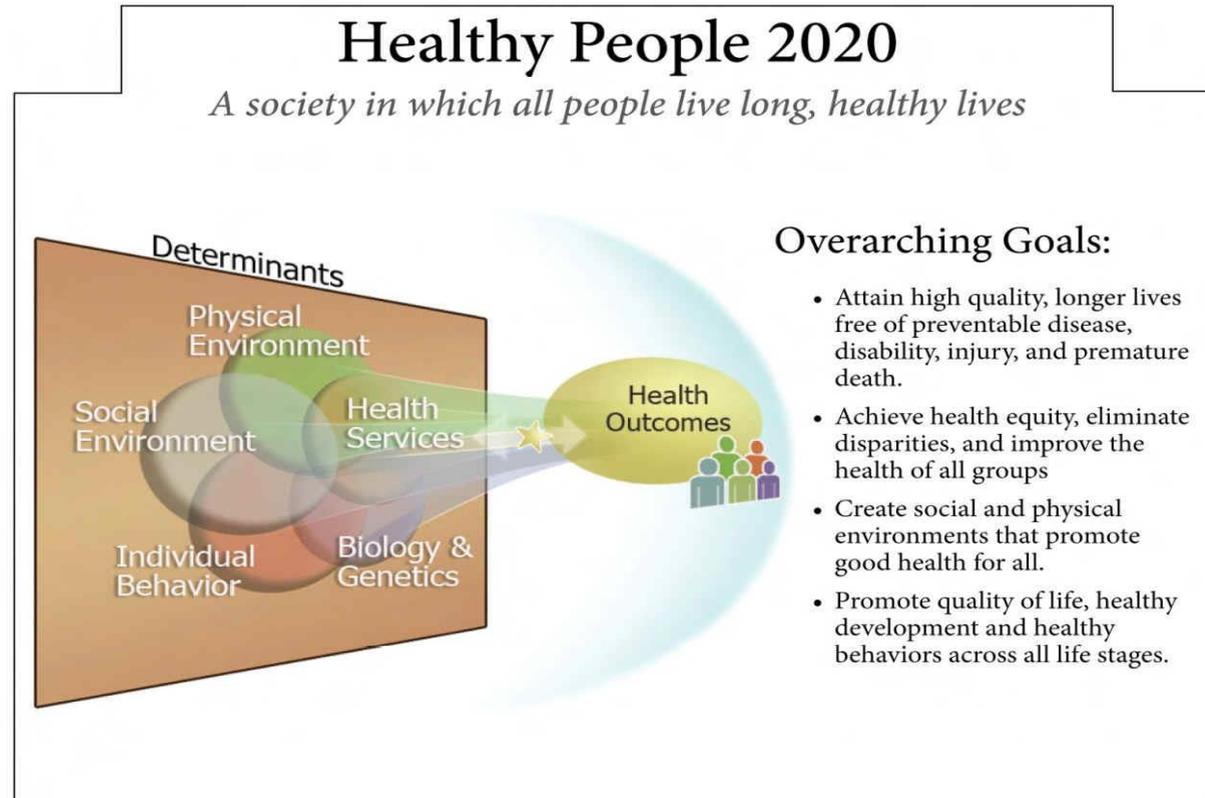
To gather baseline health information on impacted individuals (especially children), and combine it with extensive environmental monitoring over time.

Timeline

The registry launched April 25 with an announcement from Mayor Turner.

Data

Housed on Rice's Urban Data Platform, an existing system used by the City of Houston and the Houston Public Health Department.



HURRICANE HARVEY REGISTRY



HarveyRegistry.rice.edu

The Hurricane Harvey Registry is a tool for collecting information on the impact of Hurricane Harvey on our Houston community.

The Registry includes a brief core survey with questions on health, housing, and vehicle damage resulting from Hurricane Harvey. Later, optional supplementary surveys may ask for more detailed information on these and other topics.

The information gathered through the Registry will be used to serve and inform our Houston community. Using the data collected, we will be able to better measure who is being impacted and how. This will help to direct both the continuing Hurricane Harvey recovery efforts, as well as plan for the future.

If you are interested in helping, please use the button below to register and complete the Registry's Core Survey.

Take the Survey

This survey is best viewed with a desktop, laptop, or tablet.



Our Air. Our Health. Our Houston.





Photo: Jay Janner

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- One of the largest **non-profit** environmental organizations in the world
- Track record of **corporate partnerships** with companies like FedEx, Walmart, and Starbucks

- Advocacy based in **sound science and economics** through science studies, technology pilots
- Organization that is over **50 years old** with offices all over the world



Science »

Founded by scientists, we are evidence-based advocates.



Economics »

We find economic incentives to drive environmental progress.



Partnerships »

Our allies range from farmers to Fortune 500 companies.



Nonpartisan policy »

We build broad support for environmental progress.