

FACT SHEET

PROFILES IN ENVIRONMENTAL INJUSTICE

HIGHLIGHTS

Air toxics, or hazardous air pollutants, are known or suspected to cause health problems resulting from short- or long-term exposure, and impose a disproportionate burden on many low-income communities of color that are located near polluting facilities. This is especially true in Houston's predominantly Hispanic community of Manchester, where the dense concentration of polluting industries threatens the health and safety of residents who have few or no resources to address the problem.

Because people are often unaware of the hazardous chemicals they are breathing, this fact sheet provides an overview of six air toxics emitted from facilities in Manchester, and the health risks associated with them.

Air Toxics and Health in the Houston Community of Manchester

On the east side of Houston, Texas, nestled between one of the busiest highways in the city, the freight shipping ports of the ship channel, and 26 lanes of Union Pacific railroad, sits the community of Manchester.¹ Its residents—98 percent minority and 65 percent low-income—have borne the brunt of Houston's growth in commercial industry. Nineteen industrial facilities dot the small community, including oil refineries, chemical and fertilizer facilities, and metal recycling plants; several more are located in close proximity to Manchester. The only public green space, Hartman Park, sits next to the Valero refinery.

Residents of Manchester and other “fence-line” communities (i.e., next to industrial facilities) often lack not only financial resources, healthy food options, access to quality health care, public transportation, and political representation, but also access to information about the risks of living in close proximity to polluting facilities. Seven facilities in Manchester are required to report environmentally hazardous releases to the Environmental Protection Agency (EPA) (CEG 2015; EPA 2015a), and in 2014, 477,594 pounds of air toxics were released by four of those facilities; the other three reported releases that did not go into the air (EPA 2015a). This does not include releases from facilities that are almost certainly emitting pollutants, but below the reporting threshold set by the EPA.

Researchers have measured air pollution in Manchester countless times and found excessive levels that pose multiple risks to the community, yet little action has been taken (HARC 2016; Parras 2016; EPA 2015b; Olaguer 2015; Yacovitch et al. 2015). As a result, residents continue to face daily exposure to air toxics that can potentially cause severe health problems.



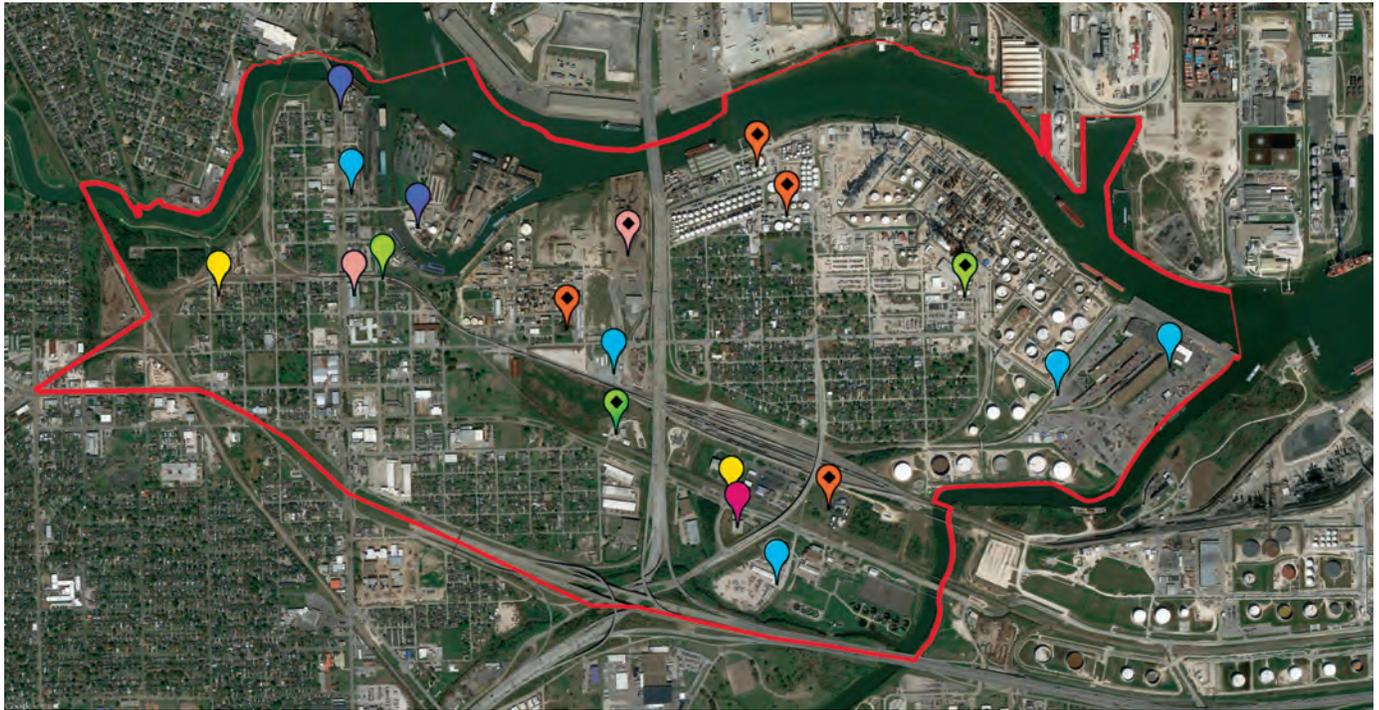
Manchester is one of many “fence-line” communities (i.e., located next to industrial facilities) that face public health risks from toxic air pollution. Local decision makers and officials should develop policies that prioritize public health and safety in fence-line communities in Houston and around the nation. The ability to live in a clean environment should not be a privilege limited to certain groups and zip codes, but a right of all people.

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FIGURE 1. In Manchester, Public Health Threats Are Everywhere



Facility Type

- Waste Disposal
- Chemical Manufacturing and Storage
- Shipping
- Metal Manufacturing and Recycling
- Shipbuilding and Repair
- Petroleum Processing and Storage
- Industrial Supplies
- ♦ Required to Report Hazardous Releases (or Potential Risks of Release) to the EPA
- Manchester Community Boundary

The Houston community of Manchester is surrounded by myriad sources of air pollution including highways, railways, ship traffic, and various chemical facilities. This map shows homes located dangerously close to facilities that release toxic chemicals.

SOURCES: (BASE MAP) GOOGLE EARTH PRO V 71.5.1557. (MARCH 3, 2016). HOUSTON, TEXAS. 29°43'00.99"N, 95°15'58.26"W, EYE ALT 11362 FEET. HOUSTON-GALVESTON AREA COUNCIL, TEXAS GENERAL LAND OFFICE, TEXAS ORTHOIMAGERY PROGRAM, US GEOLOGICAL SURVEY, USDA FARM SERVICE AGENCY. DIGITALGLOBE 2016. [JUNE 3, 2016] (MANCHESTER BOUNDARY) HOUSTON DTAT PORTAL 2013.

How Might Air Toxics Affect Your Health?

Regular exposure to air toxics may worsen the health of people who have pre-existing heart and lung ailments or breathing difficulties; adults over the age of 65 (8 percent of Manchester residents) and children under 18 (35 percent of Manchester residents) (United States Census Bureau n.d.) are also at higher risk of illness related to chemical exposure. Other health concerns associated with long-term exposure include the potential for developing cancer over the course of a lifetime, as well as a variety of respiratory, neurological, immune, and reproductive issues (Curtis et al. 2006).

This fact sheet does not address the impact of exposure to multiple chemicals at the same time, as there is no

definitive research on cumulative risk from air toxics. We provide the following overview of the potential health effects of six air toxics present in Manchester to help residents recognize symptoms possibly related to exposure and describe them to a health care provider.

What Exactly Is in Manchester’s Air?

The chemicals described below are not the only air toxics found in Manchester; these were chosen because they are on the EPA’s list of 187 hazardous air pollutants regulated under the federal Clean Air Act and found in high quantities in Manchester (EPA 2016; Olaguer 2015; Yacovitch et al. 2015).

Adults over the age of 65 (8 percent of Manchester residents) and children under 18 (35 percent of Manchester residents) are at higher risk of illness related to chemical exposure.

For example, xylene and styrene—a cancer-causing chemical—were two of the five toxic chemicals most commonly released into Houston’s air in 2014 (EPA 2015a). While monitoring air quality does offer information about the living environment in Manchester, it should be noted that exposure to any of these chemicals will not necessarily lead to the symptoms or illnesses listed.

1,3-Butadiene is a flammable, colorless gas with a gasoline-like odor.

- Released from petroleum processing (CDC 2016a)
- Used in synthetic rubber for car and truck tires, and in plastics such as acrylics (CDC 2016a)
- Short-term exposure may cause irritation of the eyes, nose, throat, and lungs; headaches; fatigue; decreased

blood pressure and pulse; central nervous system damage; and unconsciousness

- Long-term exposure can cause cancer and increases the likelihood of leukemia (National Center for Biotechnology Information 2016)
- Medical tests for detecting exposure to 1,3-butadiene are not yet available (CDC 2016a)

Benzene is a flammable, colorless liquid with a sweet odor that readily evaporates into air.

- Occurs naturally in crude oil and gasoline
- Used in plastics, rubbers, synthetic fibers, dyes, detergents, drugs, and pesticides
- Short-term exposure to high levels may cause headaches, tremors, drowsiness, dizziness, and even death



Schools, homes, and parks in the Manchester neighborhood of Houston are situated in close proximity to a large number of industrial facilities (such as the one behind the playground in this photo). High levels of air pollution have been measured in this neighborhood countless times, yet residents often lack the resources and access to technical information that would help hold local officials and industries accountable for this pollution.

- Long-term exposure can cause anemia, and high levels can cause leukemia. Women who breathe in high levels over a span of several months may experience irregular menstrual periods and smaller ovaries.
- Can be measured in the breath, urine, and blood, but tests must be done soon after exposure (before the chemical disappears from the body) (all bullets CDC 2016b)

Ethylbenzene is a colorless, flammable liquid with a gasoline-like odor.

- Occurs naturally in crude oil; released from petroleum processing
- Used in styrene production
- Short-term exposure to high levels may cause dizziness and irritation of the eyes and throat
- Can be detected in urine if tested within a few hours of exposure (all bullets CDC 2016c)

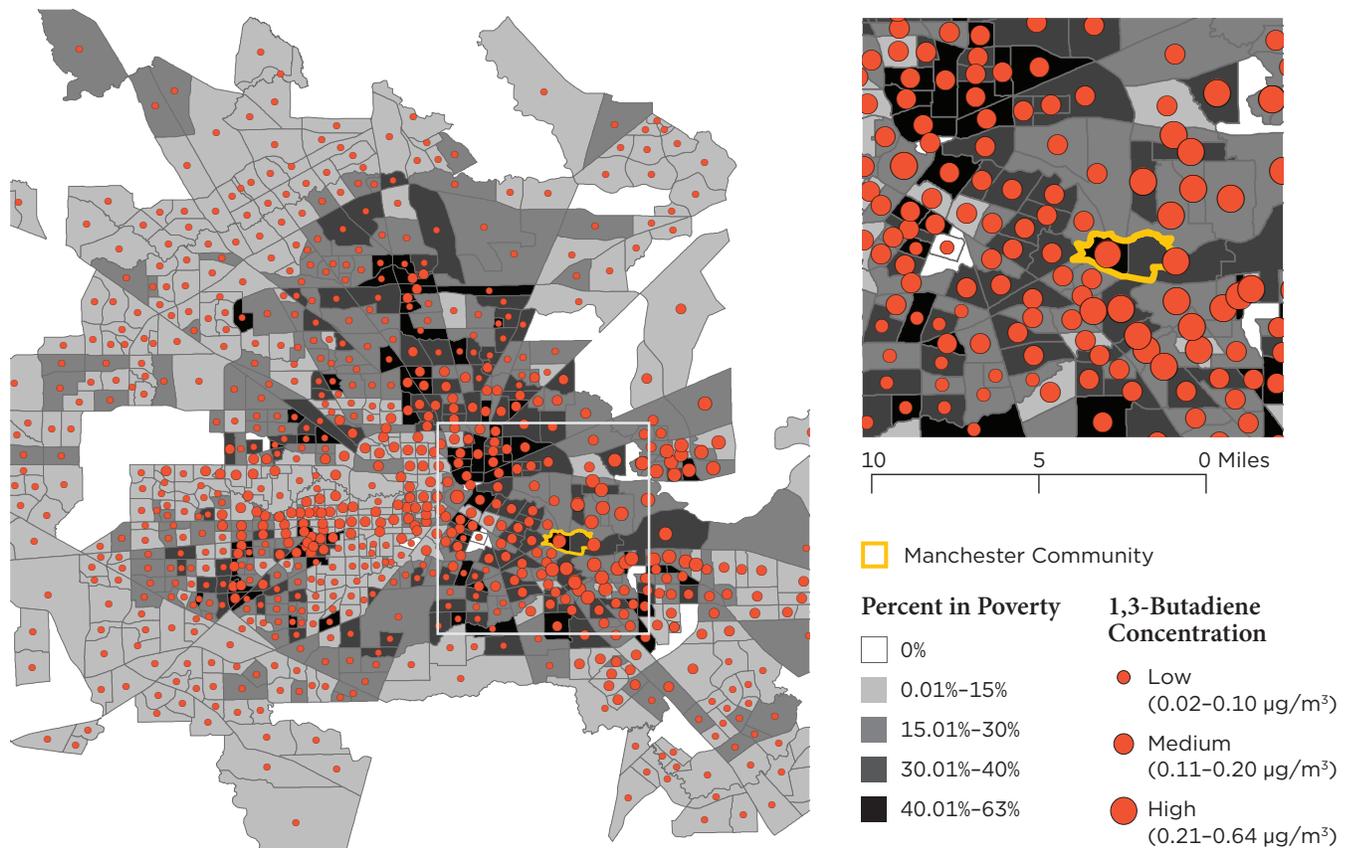
Styrene is a highly explosive, colorless liquid.

- Used in plastics, rubbers, insulation, fiberglass, and automobile parts
- Symptoms of exposure include irritation of the lungs, eyes, nose, and skin
- High levels of exposure may cause changes in color vision, tiredness, slowed reaction time, difficulty with balance, and cancer
- Can be measured in blood, urine, and body tissues if tested within one day of exposure (all bullets CDC 2016d)

Toluene is a colorless liquid with a sweet odor.

- Occurs naturally in crude oil; released from petroleum processing
- Used in plastics, rubbers, synthetic fibers, paints, and fingernail polish

FIGURE 2. Pollution Does Not Affect All Neighborhoods Equally



The positive correlation between pollution and poverty in Manchester is well illustrated on this map that overlays poverty statistics with concentrations of 1,3-butadiene in Houston census tracts. Communities like Manchester are burdened with disparities in both environmental and social problems coupled with a lack of the resources and political power needed to address them.

DATA SOURCES: EPA 2015B; HOUSTON DATA PORTAL 2013; UNITED STATES CENSUS BUREAU N.D.

“The air is not healthy for our kids. They cough, show symptoms like allergies, but I know that’s not [the real problem]. I know there is something in the air—I can smell it. There are times I can’t let the kids go outside because I don’t want their health to get worse. No mom should fear the air her kids breathe.”

— Sandra Martinez, Manchester resident

- Low to moderate levels can cause fatigue, weakness, memory loss, nausea, and appetite loss that generally fade when the exposure ends
- Long-term exposure may cause irritation of the eyes, throat, and lungs; headaches; and dizziness. May also affect the nervous and reproductive systems and cause developmental problems in children.
- Can be detected in blood and urine, but testing requires special equipment and must be done soon after exposure (all bullets CDC 2016e)

Xylene is a colorless, sweet-smelling liquid or gas.

- Occurs naturally in crude oil; released from petroleum processing
- Used in rubber
- Short- or long-term exposure at high levels may cause headaches, dizziness, lack of balance, difficulty breathing, memory difficulties, and irritation of the skin, eyes, nose, and throat
- Can be measured in urine if tested within a few hours of exposure (all bullets CDC 2016f)

Shifting the Burden

Every day, Manchester residents live at risk of exposure to these air pollutants and others being released from chemical facilities; oil refineries; and ship, barge, and truck traffic—as well as the risk of accidental spills and explosions. Yet the people most at risk often lack the resources and access to technical information that would help hold local officials and industries accountable. Though evidence shows low-income communities of color face disparate levels of exposure to toxic chemicals, the burden of proving these chemicals are harming residents’ health continues to rest on the communities themselves. It should be the polluters who are expected to prove that exposure to their chemicals poses no harm.

Local decision makers and officials should immediately develop policies that prioritize public health and safety in fence-line communities in Houston and around the nation. And they should involve area residents in shaping these policies and decisions, which have a direct impact on the

lives and health of residents and their families. The ability to live in a clean environment should not be a privilege limited to certain groups and zip codes, but a right of all people.

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Many of the air pollutants released from chemical facilities; oil refineries; and ship, barge, and truck traffic in Manchester are regulated as hazardous air pollutants under the Clean Air Act. Despite research showing excessive levels of air pollution, little action has been taken to improve health outcomes for Manchester residents.

ENDNOTES

1 For the purposes of this fact sheet, the boundaries of the Manchester community are defined using the City of Houston's "super neighborhood" designation for community planning. Manchester is known as super neighborhood 65 (Houston Data Portal 2013).

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FIND THIS DOCUMENT ONLINE: www.ucsusa.org/houstonairtoxics
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Texas Environmental Justice Advocacy Services

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