Landscapes of Risk: Texas City and the Petrochemical Industry

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LANDSCAPES OF RISK

Texas City and the Petrochemical Industry

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Several hurricanes and industrial explosions in 2005 brought increasing public attention to the risk inherent in the location of US petrochemical facilities. The upper Texas Gulf Coast is home to a significant cluster of petrochemical industries including some of the largest refineries in the United States. Residents live, play and work in the shadow of petrochemical towers. While the petrochemical industries have brought jobs and economic development to the area, they have permanently changed the landscape and been linked to increased stress and illness for local residents. Nevertheless, the US demand for their products means that these industries will continue to pose ongoing risks for citizens that live near them. Our photo essay intends to provide insight into these particularly important and complex landscapes of risk–landscapes in which the natural environment and well-being of residents is largely ignored as fuel prices and energy security are debated.

Keywords: *community; public health; risk; industrial accident; environmental pollution*

Several disasters in 2005, including hurricanes and a major explosion in Texas City, Texas, brought increasing public attention to the risk inherent in the location of U.S. petrochemical facilities. Across the country, the damage to the industry was felt through fuel shortages and rising gas prices. Subsequently, many legislators have called for expanded petrochemical processing capacity. Although new plants may increase the fuel supply, the risks these plants pose to the environment and individual health is also likely to increase. Our photo essay intends to provide insight into these particularly important and complex landscapes of risk—landscapes in which the natural environment and well-being of residents is largely ignored as fuel prices and energy security are debated.

The upper Texas Gulf Coast is home to a significant cluster of petrochemical industries, including some of the largest refineries in the United States. Petrochemical plants derive chemicals, gasoline, and plastics from petroleum or

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natural gas. So-called "locational advantages," such as proximity to oil production and access to shipping networks, explains much of the industrial presence. Although the petrochemical industries have brought jobs and economic development to the area, they have permanently changed the landscape and been linked to increased stress and self-reported illness for local residents. Nevertheless, the U.S. demand for their products means that these industries will continue to pose ongoing risks for citizens that live near them.

One of the most dramatic examples of the risks associated with petrochemical complexes occurred in 1947 in Texas City, Texas, when a ship in its harbor loaded with ammonium nitrate fertilizer (a petrochemical product) caught fire and exploded, killing more than 500 people. Although this human-induced disaster was the worst in U.S. history, accidents in the petrochemical industry are relatively common. In 2005, a Texas City refinery explosion killed 15 people and injured 170.

Although explosions like these are forceful examples of overt threats to health near plants, there are more insidious health dangers that residents face. Some residents complain of asthma and other pollution-related ailments, and some express concern about elevated cancer rates. Evidence about the industry appears to support these complaints and concerns. Indeed, research suggests that petrochemical activity pollutes air with volatile organic compounds, and water, soil, and flora near refineries are found to show increased levels of heavy metals (Beg et al., 2001; Bosco, Varrica, & Dongarra, 2005; Conley, Thomas, & Wilson, 2005; Nafissa, Bouzerna, & Chettibi, 2005). Moreover, physical health problems, such as leukemia, preterm births, and lower birth weight of newborns, are associated with proximity to petrochemical plants (Yang et al., 2004; Yang, Tseng, Chang, 2003; Yu et al., 2006). Negative psychological effects associated with living near refineries have also been documented in a number of studies (Burby, 1999; Burby & Strong, 1997; Downey & Van Willigen, 2005; Luginaah, Taylor, Elliott, & Eyles, 2000, 2002).

Although the rationale is implied rather than stated, petrochemical companies have been buying real estate in zones surrounding their plants in an effort to lower such risks and associated liabilities. Similar to the tension between jobs and risk, the creation of "buffer zones" also destroys neighborhoods (Maantay, 2001). On the other hand, remaining residential areas near such industrial sites are often neglected and undesirable. Both situations create social and psychological costs that are not yet well understood.

The following photos depict the risky landscape inhabited by those who live near petrochemical industries in Texas City. The intrinsic health threat faced by citizens emerges from these images. Beginning with historical explosion damage and landscape shifts, we see the reminder of risk that residents regularly view. Residents live, play, and work in the shadow of petrochemical towers. The 1947 disaster created a buffer zone for residents, but subsequent explosions have caused additional damage to surrounding neighborhoods. Consequently, industry has sought to further increase the buffer zones between the plants and residents.

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PHOTO 1: Welcome to Texas City
Driving into Texas City from the south, we are greeted by a friendly sign among the rising towers and holding tanks of the petrochemical industry. Although the sign reads "Texas City by the Bay Welcomes You," the oil petrochemical plants dominate the view.
Photo by Deanna Meyler.

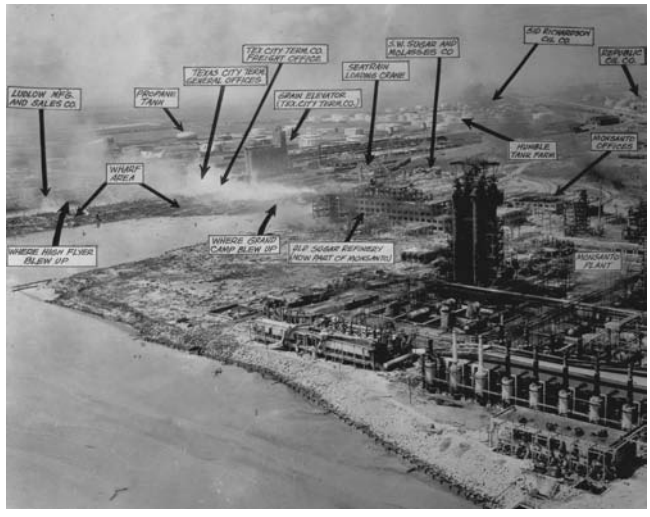

PHOTO 2: 1947 Port Area After the Explosion
The effects of the Texas City disaster on April 16, 1947. The ship "High Flyer" was carrying ammonium nitrate fertilizer and anchored in the Texas City harbor. It caught fire and exploded on April 16, 1947, igniting a chain reaction of additional explosions including a second ship the following day, the "Grand Camp." More than 500 people lost their lives in the two explosions, and countless others were injured from the impact and the smoke. Photos display damage to the harbor, multiple businesses in the petrochemical complex, and local homes. Despite the damage, many business and neighborhoods rebuilt.
Courtesy of the Houston Metropolitan Research Center, Houston Public Library.

PHOTO 3: 1947 Explosion Effects in a Neighborhood
Reprint with permission from Moore Memorial Public Library, City of Texas City, Texas (2004). Copyright 2004 by Moore Memorial Public Library, City of Texas City, Texas. Reprinted with permission.

PHOTO 4: Texas City Remembers
Texas City remembers the 1947 disaster in this dedicated park where unidentified victims rest. The memorial serves as a source of community pride in their collective perseverance, but it can also be viewed as a reminder of the persistent risk of living in Texas City. The gazebo in the background tells the disaster story with graphic photos.
Photo by Deanna Meyler.

PHOTO 5: Aerial View of Texas City and Petrochemical Plants
When flying over Texas City, the scale, scope, and proximity of the petrochemical industry is prominent.
Photo by Deanna Meyler.

PHOTO 6: Refinery Scene
This photo is a view from the east, where Martin Luther King Junior Boulevard divides residents from the plants. The buffer was the direct result of the 1947 explosion.
Photo by Deanna Meyler.

PHOTO 7: Homes Next to Plants

PHOTO 8: Playground Near Plants
Many residents live and recreate next to the plants. Poorer, mostly ethnic minority residents live here. The location near these facilities creates a zone of lower cost housing, and the area shown is a historically African American neighborhood.
Photos by Malcolm Cutchin.

PHOTO 9: 2005 Explosion

PHOTO 10: 2005 Explosion Smoke
However, the danger from explosions has continued. On March 23, 2005, a British Petroleum plant exploded. 15 contract workers died at the plant, and 170 people were injured at the plant and in the surrounding community. The geographic buffer between the plant and neighborhoods was not sufficient when doors and windows of homes blew out and residents were asked to "shelter in place" in case of toxic releases. Initial reports suggested no toxic emissions; however, later reports by the Texas Commission on Environmental Quality documented large releases of potentially toxic chemicals in the days and weeks following the explosion.
Photos by Dwight Andrews. Reprinted with permission from the Galveston County Daily News.

PHOTO 11: No Trespassing
Because of the damage from the 2005 explosion, more homes are being purchased by petrochemical companies to further increase the buffer between petrochemical plants and residents.
Photo by Norma Perez. Reprinted with permission.

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