

HOUSTON TOXIC POLLUTION: FACT VS. FICTION

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FICTION: Houston air quality is good and has been getting better for a long time. Houston benzene levels have declined by 80% over the past 15 years.

FACT: Houston air quality is far from good. Recent studies by the City of Houston, local universities, and medical schools have documented dangerous levels of toxic pollution in parts of Houston.

- In 2006, a study by the City of Houston identified 12 chemicals that are present in Houston's air at levels that pose a definite health risk.¹
- A study by Houston area universities and medical schools looked in detail at four pollutants, including 1,3-butadiene, and "recommend[ed] immediate action to lower the ambient concentrations" of the pollutants.²
- TCEQ's Air Pollutant Watch List identifies three neighborhoods in Harris County, and eight in the Houston Gulf Coast region, as exceeding health-based standards for toxic pollutants.³
- TexAQs II, a study by universities, state/federal/local governments, and industry found that emissions of volatile organic compounds (VOCs), including toxics, from Ship Channel industries combine with area industrial nitrogen oxide (NOx) emissions to form plumes of high ozone that spread across the city and can cause chest pain and lung irritation and worsen bronchitis, emphysema and lung function.⁴

While not good, Houston's air quality has improved since the 1980s. Most of that improvement took place in the late 80s and early 90s. Since 1996, Harris County industry has consistently reported emitting between 600,000 and 800,000 pounds of benzene per year.⁵ The City of Houston recently analyzed benzene monitor data and found that more than half of the Harris County monitoring sites examined – including two of the most contaminated sites, Lynchburg Ferry and Channelview – showed **no statistically significant improving trend in benzene concentrations in the past five years.**⁶

FICTION: Pollution – like benzene – from industrial sources in Houston is dwarfed by other sources, such as car exhaust.

FACT: It is the concentration of airborne toxics to which the public is exposed that is relevant when it comes to public health. Don't be confused by people trying to obscure a real problem by using numbers to minimize their role – such as pointing out that "only" 14% of reported benzene emissions county-wide come from industry and 55% come from cars. **Because Houston industry is grouped in small areas, such as along the Ship Channel, its emissions result in "hotspots" with high ambient concentrations of toxic pollutants, like benzene.**

The federal government has adopted regulations for cars, which are projected to significantly reduce benzene and 1,3-butadiene levels nationwide.⁷ These regulations, however, will not solve the problem of Houston's hotspots because there is significant evidence that industry, not cars, is responsible for these hotspots. For example:

- Monitoring during airplane flyovers has found that benzene levels in downtown Houston are similar to those in Dallas, but benzene levels rise substantially over the Houston Ship Channel;⁸
- The areas on the state's Air Pollutant Watch List, where concentrations of toxics exceed the state's health-based goals, are primarily industrial areas, or are directly downwind of industrial areas;⁹ and
- Cars emit carbon monoxide as well as benzene. In locations that do not have industrial complexes, ambient benzene levels rise in proportion to ambient carbon monoxide levels. High benzene levels over the Houston Ship Channel are not associated with high carbon monoxide levels, showing cars are *not* the problem.¹⁰

Furthermore, recent Houston studies found levels of actual VOC emissions from petrochemical facilities to be 10 to 100 times higher than reported levels.¹¹ Monitoring in Canada and Europe has found refinery VOC emissions to be 10 to 20 times higher than reported, with refinery benzene emissions being 18 times higher than calculated emission estimates.¹² It is likely, therefore, that Houston industry is responsible for a greater percentage of Houston's total toxic emissions than reported.

FICTION: Houston industry is working hard and doing all it can to clean up the air that we all breathe.

FACT: Houston's industry is not doing all it can to reduce toxic emissions. Houston's refineries are dirtier than refineries in other states. **While Texas is home to about 30% of the nation's refining capacity, Texas' refineries are responsible for almost half of cancer-causing emissions from refineries nationwide.**¹³

There are a number of pollution controls and practices used in other states that could be implemented at Houston chemical and refining plants to clean up their emissions, including:

- flare gas recovery,
- improved use of passive optical gas imaging to identify leaks, and
- more stringent controls for storage tanks.¹⁴

Such improvements would not only address Houston's toxic air problems, but would help bring the area into compliance with ozone standards. Instead of implementing these measures, industry has been spending its money on lawyers and lobbyists, fighting any legislation to control (or even give the public notice about) toxic hotspots and bringing lawsuits opposing plans to reduce Houston's ozone levels.¹⁵

FICTION: Environmental regulations cost jobs and hurt Houston's economy.

FACT: Houston's reputation of being one of the dirtiest cities in the U.S. is hurting business. For example:

- In 2003, Houston lost a bid to get an \$800 million Toyota plant in part because of region's dirty air. The plant would have brought close to 2,000 jobs to the city;¹⁶
- In 2007, Houston lost out again to San Antonio when Microsoft announced that it was building a green state-of-the-art datacenter in the Alamo city. Microsoft's criteria for choosing San Antonio included access to environmentally friendly resources;¹⁷
- Houston Business Journal reported that Horizon Wind Energy LLC founder Michael Skelly has trouble recruiting employees from other parts of the nation to work in Houston because of the city's poor air quality;¹⁸
- In the 2007 Worldwide Quality of Living Survey, the Mercer index ranked Houston an unimpressive No. 68. Mercer scores cities based on quality and availability of health care, as well as air quality and infectious diseases;¹⁹ and
- A recent study by CEOs for Citizens ranked Houston 49th out of the 50 fastest-growing metropolitan areas for its ability to attract college-educated 25-to-34 year olds. The report shows that a major factor in recent college graduates' choice of cities is a green environment.²⁰

In the 2007 annual Houston Area Survey, 49% of Houstonians surveyed reported being "very concerned" about the effects of air pollution on their families' health, while 57% rejected the suggestion that "strengthening pollution controls will result in too many restrictions on individuals and businesses."²¹ In fact studies show that actual costs of pollution controls are usually much lower than industry predicts.²² Regulation serves to drive technology innovation, level the playing field, and reduce the price of pollution controls through economies of scale.²³ Many pollution controls – particularly those that capture chemicals that can be sold or used for fuel – can pay for themselves, and even save industry money in the long run.²⁴

¹ City of Houston, Mayor's Task Force on the Health Effects of Air Pollution, *A Closer Look at Air Pollution in Houston: Identifying Priority Health Risks* (June 2006), p. 13.

² Rice University, Baylor College of Medicine, Texas Southern University, University of Houston Law Center and the University of Texas Medical Branch at Galveston, *The Control of Air Toxics: Toxicology, Motivation and Houston Implications* (Sept. 2006), at p. 181. (The pollutants studied were benzene, 1,3-butadiene, formaldehyde and diesel PM.)

³ <http://www.tceq.state.tx.us/implementation/tox/AirPollutantMain/APWL.html>.

⁴ VOCs are chemical compounds that have high enough vapor pressures under normal conditions to significantly vaporize and enter the atmosphere or to participate in a photoreaction. A number of toxics are VOCs. NOx reacts with VOCs in sunlight to form ozone.

⁵ U.S. EPA, Toxic Release Inventory, Trend Report for Benzene Emissions in Harris County Texas. <http://epa.gov/triexplorer/trends.htm>. The emissions vary year to year, with some years on the higher end of the range and some years lower.

⁶ City of Houston, *Comments on National Emission Standard for Hazardous Air Pollutants from Petroleum Refineries: Proposed Rule* (Docket ID No. EPA-HQ-OAR-2003-0146) (Dec. 20, 2007), p. 25-26.

⁷ EPA modeling results indicate reductions in air toxics from mobile sources of about 35% from 1996 to 2007. The new Mobile Source Air Toxics rule is projected to reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene and acetaldehyde by 67 to 76%. <http://www.epa.gov/ttn/atw/nata/natsatr.html#mobile>.

⁸ Joost de Gouw, Carsten Warneke, NOAA, Environmental System Research Laboratory and CIRES, University of Colorado, *Emissions and Chemistry of Atmospheric VOCs: New Insights from Airborne and Ship-Based Measurements*, slide 24.

⁹ See maps at <http://www.tceq.state.tx.us/implementation/tox/AirPollutantMain/APWL.html>.

¹⁰ Joost de Gouw, Carsten Warneke, NOAA, Environmental System Research Laboratory and CIRES, University of Colorado, *Emissions and Chemistry of Atmospheric VOCs: New Insights from Airborne and Ship-Based Measurements*, slide 25.

¹¹ TexAQ5 II Rapid Science Synthesis Team, *Final Rapid Science Synthesis Report: Findings from Second Texas Air Quality Study (TexAQ5 II)* (Aug. 31, 2007), p. 7 Finding C2.

<http://www.esrl.noaa.gov/csd/2006/rss/rsstfinalreport083107.pdf>.

¹² U.S. EPA, *Technical Memorandum: Potential Low Bias of Reported VOC Emissions from the Petroleum Refining Industry* (July 27, 2007), p. 1. (EPA Docket No. EPA-HA-OAR-2003-0146).

¹³ City of Houston, *Toxic Emissions: Texas vs. Other States* (2007). (Analysis of data from U.S. EPA's 2005 Toxic Release Inventory and the 2005 Energy Information Administration Annual Refinery Report).

<http://www.houstontx.gov/environment/reports/toxicsemissions.ppt>.

¹⁴ See, *Houston We Have A Problem: A Roadmap for Reducing Petrochemical Industry Toxic Emissions in the Lone Star State* (May 2008). [http://www.toxictexas.org/pdfs/Houston We Have a Problem.pdf](http://www.toxictexas.org/pdfs/Houston%20We%20Have%20a%20Problem.pdf)

¹⁵ Five industry associations opposed legislation ensuring public notice about toxic hotspots: the Texas Chemical Council, Texas Oil and Gas Association, Texas Association of Business, American Electronics Association, and the Association of Electric Companies of Texas. [http://www.toxictexas.org/pdfs/Houston We Have a Problem.pdf](http://www.toxictexas.org/pdfs/Houston%20We%20Have%20a%20Problem.pdf). Industry, through various front groups such as the Texas Industry Project (TIP) and the Business Coalition for Clean Air (BCCA), has also brought lawsuits challenging various air pollution clean-up rules. See also, Rick Casey, Houston Chronicle, *Chemical Lobby Tactic: Create Fog* (Feb. 2, 2007).

www.chron.com/CDA/archives/archive.mpl?id=2007_4278188

¹⁶ Bill Hensel, Jr., Houston Chronicle, *Houston Not A Contender Because of Dirty Air* (Feb. 6, 2003).

http://www.chron.com/CDA/archives/archive.mpl?id=2003_3624426.

¹⁷ Nancy Gohring, International Data Group News Service, *Microsoft Breaks Ground on San Antonio Datacenter* (July 30, 2007). <http://www.idg.com/www/homenew.nsf/home?readform>.

¹⁸ Monica Perin, Houston Business Journal, *Poor Air Quality Hindering Recruiting in Houston, Experts Say* (Feb. 29, 2008). <http://houston.bizjournals.com/houston/stories/2008/03/03/story7.html>

¹⁹ Mercer Human Resource Consulting, *2007 Worldwide Quality of Living Survey* (April 2, 2007).

<http://www.mercer.com/referencecontent.jhtml?idContent=1128060#Americas>

²⁰ L.M. Sixel, Houston Chronicle, *Houston Lacks Pull With New College Grads* (March 19, 2008).

<http://www.chron.com/disp/story.mpl/business/sixel/5634211.html>.

²¹ <http://www.houstonareasurvey.org/>.

²² Economic Policy Institute, *Falling Prices: Cost of Complying with Environmental Regulations Almost Always Less than Advertised* (November 1997) p.2. <http://www.epi.org/briefingpapers/bp69.pdf>.

²³ Economic Policy Institute, *Falling Prices: Cost of Complying with Environmental Regulations Almost Always Less than Advertised* (November 1997) pp. 9-12. <http://www.epi.org/briefingpapers/bp69.pdf>.

²⁴ See, *Houston We Have A Problem: A Roadmap for Reducing Petrochemical Industry Toxic Emissions in the Lone Star State* (May 2008). [http://www.toxictexas.org/pdfs/Houston We Have a Problem.pdf](http://www.toxictexas.org/pdfs/Houston%20We%20Have%20a%20Problem.pdf)