

# THE AIR POLLUTANT WATCH LIST: A RECORD OF SUCCESS

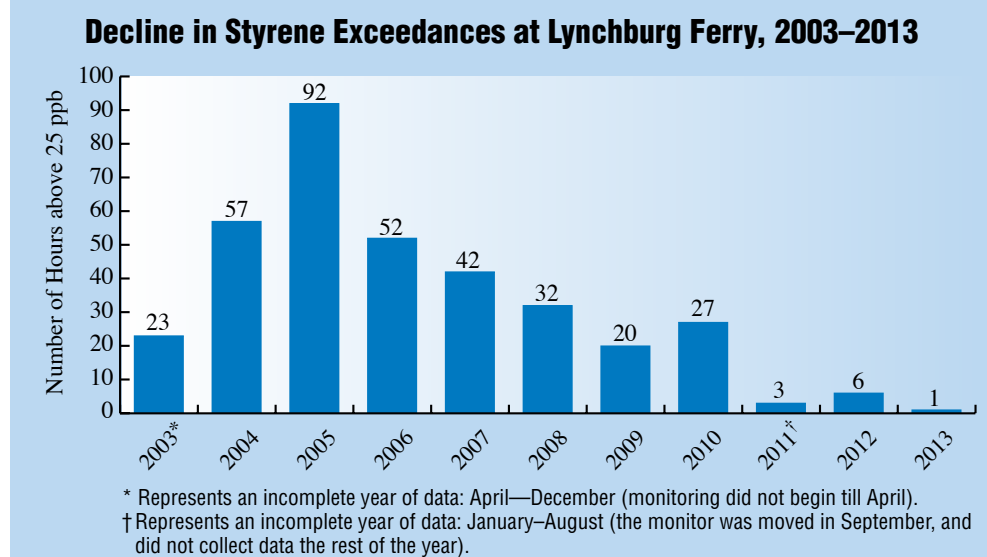
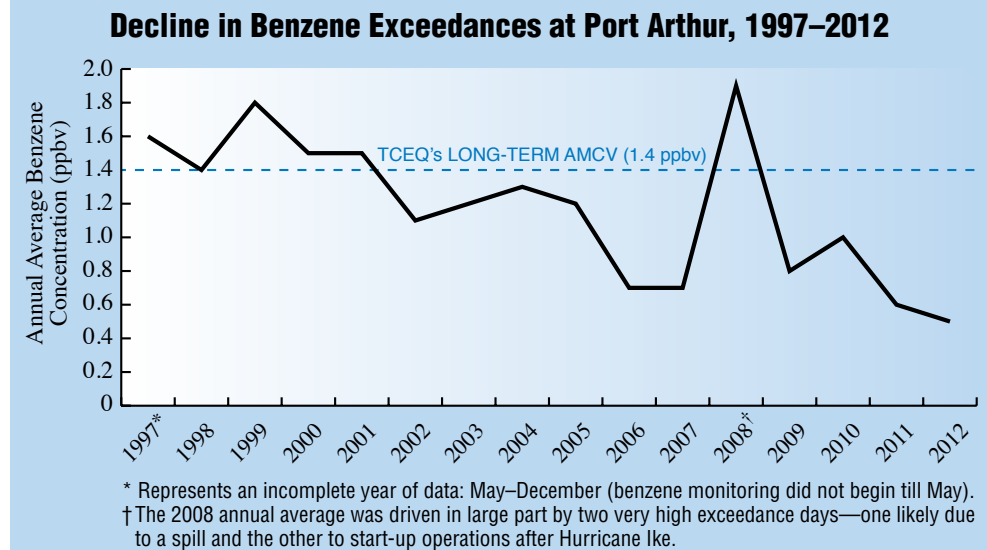
**O**n May 27, 2014, the TCEQ announced that two locations, Port Arthur and Lynchburg Ferry, had been removed from the Air Pollutant Watch List (APWL), the agency's dedicated inventory of areas of concern regarding concentrations of certain air toxics.

Port Arthur in Jefferson County, listed since 2001, had previously shown levels of benzene, a known carcinogen, equaling or exceeding the long-term health-based air monitoring comparison value (AMCV) established by the TCEQ's Toxicology Division. Listed since 2003, Lynchburg Ferry, in Harris County, had previously recorded high levels of styrene—a known odorous compound that can cause odor-related health effects, such as nausea and headaches—at persistently high levels.

“In both cases, industry's efforts to implement control strategies and operational changes greatly contributed to the sites being removed from the list,” said the TCEQ's chief toxicologist, Dr. Michael Honeycutt.

## Port Arthur

Due to APWL activities and procedures, annual concentrations of benzene at the Port Arthur City Service Center monitor have continually decreased since 2008, and today are at 0.36 ppb, which represents a 76 percent reduction since 2001.



## Industry Efforts

Some companies in the Port Arthur APWL area have taken strategic actions that have reduced contaminants of concern. These actions included implementing stringent

leak detection and repair programs that use an infrared camera to help identify leaks and make more timely repairs.

Other companies have taken action under the U.S. Environmental Protection

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— TCEQ Deputy Director Steve Hagle, P.E.

Agency’s Petroleum Refinery Initiative to mitigate benzene emissions. These actions included instituting a variety of enhanced benzene waste and wastewater management programs. One of these programs involves comprehensive auditing and monitoring, and improved emission controls, such as secondary carbon canisters and scrubbers. Emission reductions were also realized when some companies decommissioned facilities or ceased production of benzene.

Finally, expanded monitoring activities helped to further reduce benzene emissions, as some companies funded additional monitoring and others conducted additional evaluation of existing monitoring data to improve operations.

### **Lynchburg Ferry**

As a result of APWL activities and procedures, the Lynchburg Ferry monitor also shows a significant improvement in air quality. The monitor showed only one hourly exceedance of the TCEQ’s short-term odor-based AMCV in 2013. This is a significant reduction from 2005, in which there were 92 exceedances. The TCEQ therefore determined that ambient styrene concentrations were no longer of potential concern and that concentrations could reasonably be expected to remain below levels of concern.

### **Shipyard Efforts**

The final step of unloading product from a barge is the removal of remaining gasses. This process, called degassing, results in the emission of some of these gases, and therefore requires a permit. One shipyard facility voluntarily amended its barge degassing permit requirements in October 2010, significantly reducing emissions of volatile organic compounds (VOCs), including styrene. An estimated 70 percent decrease in the maximum hourly styrene emission

rate from another shipyard facility was realized when the company agreed to implement a significant operational and control strategy to mitigate styrene emissions, essentially agreeing to eliminate uncontrolled styrene barge handling at its site.

### **Lynchburg Area Styrene Reduction Committee**

To complement the specific actions by the shipyards to mitigate styrene emissions, several area companies formed the Lynchburg Area Styrene Reduction (LASR) Committee in 2012. The LASR Committee reported to the TCEQ that several of the companies in the APWL area implemented operational changes to mitigate emissions, such as degassing to VOC concentrations lower than the mandatory limits specified in TCEQ regulations, limiting nighttime degassing, and staggering compartment degassing to reduce hourly styrene emissions. Additionally, the LASR group reported that major chemical companies have implemented operational changes to decrease the need for styrene barge cleaning in the Houston Ship Channel.

Several of the LASR Committee members, in collaboration with the Houston Regional Monitoring Corp. (a privately sponsored ambient air monitoring network), implemented an e-mail alert system to automatically notify some of the area’s largest styrene emitters when the monitor reads an elevated concentration of styrene. This type of near-real-time notification enables companies to better evaluate the potential effect of their operations on ambient styrene concentrations and helps ensure that concentrations remain below a level of concern.

### **APWL History**

The Air Pollutant Watch List, which was initiated in 1996, is the mechanism that

the TCEQ uses to reduce emissions of air toxics and ensure that ambient concentrations of air toxics remain below levels of concern. Placing an area on the APWL allows the TCEQ to implement a number of strategies to find and address the cause of elevated concentrations through heightened awareness. Once strategies are implemented to reduce the contaminant of concern, and monitoring data show that levels are no longer of potential concern, the TCEQ may propose to remove an area or pollutant from the list.

View a full description of the APWL protocol: [pdf](#) or [doc](#).

Port Neches, the inaugural location on the list, was placed on it due to high levels of 1,3-butadiene in the area, with the 1996 annual average exceeding the TCEQ long-term screening value, which was 5 ppb at that time. Port Neches was removed from the list in 2009, after monitors detected the annual averages and especially the 12-year long-term average well below the lowest applicable comparison value based on the most up-to-date toxicity assessment.

“The APWL is a program we developed that goes beyond federal requirements,” says TCEQ Deputy Director Steve Hagle, who heads the Office of Air. “TCEQ recognized through the collection and evaluation of ambient monitoring data that additional measures were needed to ensure the protection of public health.”

In 2006, the commissioners approved a 30-day comment period on any changes to the list. Shortly after that, the APWL included a list of companies and detailed maps of the designated areas. While the agency had successfully maintained the watch list for 15 years, in 2011, House Bill 1981, which was passed by the 82nd regular session of the Texas Legislature, required the TCEQ to formally establish and maintain the APWL.

Since its beginning, a total of 21 areas have been placed on the APWL. Steady declines in chemical concentrations, support from area industries, and extensive public input have allowed 13 of these areas to be successfully removed from the list, and no sites have been added since 2007.

### **Milby Park: A Sample Success Story**

Visitors to Charles H. Milby Park, located just southeast of Houston, are often found playing disc golf or soccer, or canoeing the Sims Bayou, which snakes its way along rolling hills and majestic oak trees. While the scene is now idyllic, just 15 years ago the park was instead noted for being an area where nearby chemical concentrations of 1,3-butadiene were at a level of potential health concern. The location was added to the APWL in 1999.

In order to solve the problem and protect human health, the TCEQ

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conducted fence-line monitoring to identify potential sources. Results of the monitoring encouraged the nearby Texas Petrochemicals Corp. and Goodyear Tire and Rubber Co. to enter into emissions-reduction agreements in 2004, which almost immediately produced results.

“It’s one of our biggest success stories with the Air Pollutant Watch List,” says Dr. Honeycutt. “In 2005 the annual average of 1,3-butadiene at Milby Park was the lowest reported concentration at the site since the agency began monitoring, in 1999.”

The site was formally removed from the watch list in 2009, due to significant improvements in long-term concentrations, which were below levels of health concern. Since then, due to APWL activities and procedures, annual concentrations of 1,3-butadiene at Milby Park have remained below levels of concern; today, they are at 0.5 ppb, which represents an 89 percent reduction since 1999.

### **Raising the Bar: Monitoring and Standards**

#### **Monitoring**

Decreases in concentrations of chemicals of concern have been observed in several APWL areas, due in part to flyover investigations conducted by the TCEQ. Using an infrared video camera, the TCEQ can identify VOC plumes, such as gasoline vapors, that normally cannot be seen by the human eye. The camera depicts emissions as a light or dark plume, depending on the temperature settings. A skilled operator can then identify emissions that warrant further investigation.



View [infrared footage](#) of a TCEQ flyover investigation.

Texas monitors collect ambient concentrations of air toxics, which are

pollutants known or suspected to cause cancer or other serious health effects.

Each year, the TCEQ collects an extensive amount of ambient air monitoring data and evaluates the potential for adverse short- and long-term health effects, obtaining data on approximately 150 air toxics from stationary monitors and also from the deployment of mobile monitoring. The TCEQ monitors for VOCs, such as benzene; carbonyls, such as formaldehyde; polycyclic aromatic hydrocarbons; such as naphthalene; and metals, such as nickel.

### **Standards and Air Monitoring Comparison Values**

The EPA has set National Ambient Air Quality Standards (NAAQs) for six pollutants. As a result, each state must develop a state implementation plan, or SIP, to demonstrate how it will comply with and attain the NAAQS. The Texas SIP is the mechanism that the TCEQ uses for regulating ozone, lead, carbon monoxide, sulfur dioxide, nitrogen dioxide, and particulate matter (PM).

The TCEQ established ambient regulatory standards for two air toxics: sulfur dioxide and hydrogen sulfide. For all other monitored air toxics, the TCEQ’s Toxicology Division establishes pollutant-specific reference values known as air monitoring comparison values (AMCVs) to protect human health and welfare. “Air monitoring comparison values” is a collective term that refers to all odor-, vegetative-, and health-based values used in reviewing air-monitoring data. The APWL is an example of a mechanism that the TCEQ uses to reduce emissions of air toxics and ensure that ambient concentrations of air toxics remain well below levels of concern.

For example, elevated levels of ozone can cause respiratory issues in sensitive populations, but benzene is a specific

ozone precursor that is also an air toxic and known carcinogen. Unlike for the criteria pollutant ozone, the EPA has not established an ambient standard for benzene. Thus, the TCEQ has taken measures beyond federal requirements to ensure that public health is protected. The TCEQ established an AMCV for benzene and has used the APWL to lower ambient benzene concentrations where monitoring data have shown persistent levels above the AMCV.

## Shareholder Participation and Support

### Industry Participation

The Air Pollutant Watch List is consistent with the agency's mission of protecting the state's public health while ensuring sustainable economic development. One of the primary strategies for addressing APWL areas involves additional scrutiny for air permit applications that include a request to increase an APWL contaminant.

"It focuses the company's efforts to identify sources of emissions and take voluntary actions to reduce emissions," says the Office of Air's Hagle. "The permitting process enables us to continue to allow economic growth while ensuring continued progress in reducing the ambient concentrations of those contaminants of concern in the watch-list area."

The TCEQ provides assistance and offers pre-application meetings to companies in APWL areas applying for new source review permits and permits by rule, in an effort to address any issues up front.

"We have actually seen very positive changes in permitting and the success of the APWL over a number of years," says Mike Wilson, director of the TCEQ's Air Permits Division. "We encourage applicants to come in proposing equivalent reductions as a way to help expedite their applications and keep them moving quickly. We also offer applicants the opportunity to talk to us in pre-application meetings so that proposed increases or equivalent reductions can be vetted early in the process."

### Public Participation

Public participation has also been vital to the continued success of the program, as the agency strives for a transparent process in providing information on the status of each listed area. The agency offers an opportunity for stakeholders to comment on all changes to the list, and holds public meetings in affected areas.

Public meetings are an opportunity for citizens to provide any relevant data

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or information that the TCEQ should consider regarding APWL decisions. These meetings also give the TCEQ an opportunity to explain why an area is on the APWL and also to describe improvements in air quality and actions to reduce emissions of the air contaminants of concern.

When a site is removed from the formal list, the agency will generally continue to monitor it to track progress. Anyone wishing to follow any changes in the APWL can subscribe to a dedicated e-mail group on the program (on our website, go to "Get e-mail updates" and check the box for Air Pollutant Watch List under the Air Quality heading).

In addition, the Toxicology Division publishes annual health-effects evaluation memos on data collected in the TCEQ's monitoring network. For more information, please visit [www.tceq.texas.gov/goto/tox-eval-air-data.html](http://www.tceq.texas.gov/goto/tox-eval-air-data.html).



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