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# On the Track of Air Pollution

A year after launching a rapid-response system for detecting highly reactive volatile organic compounds, the TCEQ evaluates how well the pilot project worked for the state and its partners in private industry.

## Agency fine-tunes monitoring project along Houston Ship Channel

The air quality project, carried out under the Environmental Monitoring and Response System (EMRS), was aimed at industries working with highly reactive volatile organic compounds (HRVOCs). The compounds of interest were ethylene, propylene, 1,3-butadiene, and the butenes, which are believed to contribute to the fast formation of ozone.

The goal was to find pollution in the early stages, then notify upwind industrial facilities when concentrations of contaminants exceeded certain thresholds at monitoring sites. Alerted to the need for quick action, the facilities would then check their internal operations and, upon finding a problem, initiate corrective action. Within two days, the TCEQ receives a report on the cause of the emissions problem and the solution that was undertaken.

Running from June to November 2004, the EMRS project drew upon data collected from monitors owned by the TCEQ, the city of Houston, and private industry.

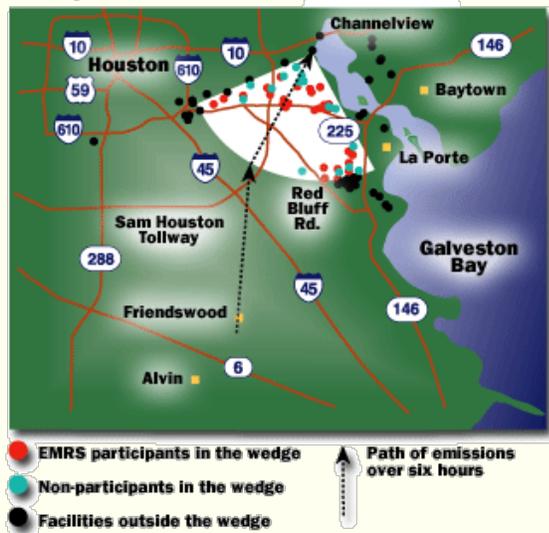
"We wanted to learn from experience what works and what doesn't work," said Commissioner R.B. "Ralph" Marquez.



Gov. Rick Perry, left, helped roll out the Environmental Monitoring and Response System at its debut last year in Houston. State and local officials were treated to a computer demonstration of how the air monitoring network tracks the speed and direction of pollution events. To the right of the governor are Commissioner R.B. "Ralph" Marquez, a local reporter, State Sen. Mario Gallegos Jr., TCEQ Monitoring Operations Director Steve Spaw, and TCEQ Houston Regional Director Don Thompson.

## The Path of Pollution

Once released, air contaminants move with the wind. In this case, a release of propylene was identified at 1 a.m. on June 19, 2004, at an air monitor near Channelview. All industrial facilities within a 10-mile, 90-degree wedge of the monitor were notified to check their operations.



"This project demonstrated that industry and the TCEQ can work together to try and address pollution problems faster and more effectively--much more than if the TCEQ alone tries to address these issues," he said.

Industry participation was voluntary and started with a small group--about 30 facilities signed up initially to receive the auto-alert notifications.

By the end of the project, more than 60 facilities had joined.

In all, about 90 companies in the ship channel area either produce or use one or more HRVOCs.

During the six-month project, automatic alerts were triggered 160 times. Of those, 116 triggers occurred at two monitors west of the ship channel.

Overall, the project raised awareness among participants to the potential impact of their daily maintenance and operations, said Marquez. As a result, there were more efforts to address concerns related to HRVOC spikes and other emissions problems.

"We believe data analysis from this project has the potential to focus attention on the companies responsible for the

majority of HRVOC emissions," he said.

Based on a survey of participants, the TCEQ will consider revising the notification thresholds, the checklist that facilities complete after each auto-alert, and the types of facilities asked to respond. If a facility does not handle the compound detected by a monitor, it probably does not need to receive the alert.

Another proposal is to focus attention on the more significant HRVOC spikes.

The TCEQ wants to identify the activities having the greatest potential of releasing HRVOCs, said Marquez, and to find best management practices that serve as examples of pollution prevention.

The next phase of the EMRS air quality pilot project will begin in June, he said, with one goal being increased industry participation.

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## What Set Off the Triggers?

During the EMRS air quality pilot project in 2004, the TCEQ asked participating companies to submit operational reports every time air monitors detected certain levels of highly reactive volatile organic compounds (HRVOCs). An analysis of those reports found a variety of industry actions that triggered the 160 alerts. (About half of the triggers were attributed to more than a single action, which accounts for the total exceeding 100 percent.)

Actions at Facilities Preceding an Alert	Percent
<b>Loading</b> <ul style="list-style-type: none"> <li>moving the chemical compound or a product containing the compound to or from tanks (loading or offloading a railcar, tank truck, or barge)</li> </ul>	40%
<b>Cooling towers with high HRVOCs</b> <ul style="list-style-type: none"> <li>may occur due to a heat exchanger leak</li> </ul>	31%
<b>Clearing</b> <ul style="list-style-type: none"> <li>compounds being evacuated from process equipment</li> </ul>	27%
<b>Routine maintenance</b> <ul style="list-style-type: none"> <li>activities such as repairing valves and replacing parts</li> </ul>	16%
<b>Reportable upsets</b> <ul style="list-style-type: none"> <li>unauthorized emissions of air contaminants</li> </ul>	13%
<b>Scheduled startup, shutdown, maintenance of equipment</b>	5%
<b>Unknown</b> <ul style="list-style-type: none"> <li>nothing unusual was determined to have occurred</li> </ul>	37%

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