



Monday, August 8, 2011

**EPA ACTIONS TO INCREASE BENZENE EMISSIONS BEGINNING IN 2013**By Gene Powell, Editor/Publisher - *Powell Shale Digest*®

The **United States Environmental Protection Agency (EPA)** will, beginning in **2013**, eliminate the requirement for gas vapor recovery nozzles to be used at fueling stations, saying the systems that capture harmful vapors, primarily **benzene**, that escape from gas tanks while refueling are no longer needed. Why the change? The EPA began requiring gas stations in areas with high pollution levels to install the vapor recovery systems in 1994, in attempt to keep gas fumes that can cause ozone and smog from leaking out when drivers fill up. However, in 1998, automakers began installing their own *Onboard Refueling Vapor Recovery (ORVR)* technologies specifically designed to keep **benzene** and other fumes from escaping during refueling. **By 2006, all new automobiles and light trucks came equipped with ORVR.**

Now, the EPA says it's redundant for gas stations to have vapor recovery nozzles as well. States will have to individually determine whether ORVR systems are currently in widespread use. If yes, then the state's gas stations can do away with the vapor recovery nozzles. The EPA says the proposal could save gas stations more than \$3,000 a year.

It has been quoted from numerous sources that when you fill your automobile, truck or SUV with gasoline, you are subject to inhaling approximately **11,000 ppbv** (parts per billion volume) of benzene. The state maximum short term (one hour) for oil and gas well emission for benzene in Texas is **180 ppbv**. We have some very big problems with this EPA change regarding the use of *Onboard Refueling Vapor Recovery (ORVR)* technologies.

The **EPA's Clean Air Act** proposal would waive the requirement for gas stations to have the vapor recovery systems by **2013**, since the EPA estimates 70 percent of all vehicles will be equipped by then with on-board systems that capture the gas vapors. That will leave **30% of the vehicles on the road**, about **60,000,000 vehicles** that will still "**fall through the cracks**" on this change and **pour out 11,000 ppbv benzene every time** they fill up with gasoline. **The 11,000 ppbv benzene** amount was from tests run at service stations by the **Texas Commission on Environmental Quality (TCEQ)** as reported in the [Powell Barnett Shale Newsletter Feb1, 2010](#), page 6, ¶2.

This has also setup the ongoing problem increasing benzene emissions from gasoline service stations in twenty-five (25) states where the current rule has been adopted. **Benzene emissions can actually increase** when a motorist fills up a new automobile using both systems **simultaneously**. **Dr. Wolf Koch**, an engineer and expert on fuel recovery systems who has 26 patents in the field, said "With the two together, you're worse off than either one by themselves. The two actions can sometimes cancel each other out and allow emissions to escape," he said in an [Article July 17, 2011](#), ¶9-11. Some states, like



California and Texas, have taken steps to prevent the systems from overlapping, he said. Others have not acted.

On July 11, the EPA proposed to give states the option of dropping a requirement that gas stations in smoggy cities install vapor recovery systems to prevent vapors from leaking out of gas pumps. The Obama administration has argued these systems are no longer necessary and dropping the requirement could save gas station owners about \$67 million each year. Only about half of the states required the nozzles in areas with heavy pollution. These were either areas with ozone levels exceeding federal standards, that got too much ozone drifting in from neighboring states or in states that had their own requirements. They included Arizona, California, Connecticut, Delaware, District of Columbia, Georgia, Kentucky, Illinois, Indiana, Louisiana, Maine, Maryland, Massachusetts, Missouri, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Vermont, Virginia, Washington and Wisconsin.

The [U.S. EPA Proposed Amendments to AIR Regulations For The Oil And Natural Gas Industry July 28, 2011 Fact Sheet](#) announced on **July 28, 2011**, states on page 1 in ¶7: *The proposed changes also would reduce cancer risks from emissions of several air toxics such as **benzene**.* The EPA wants to impose the installation of a **Vapor Recovery System (VRS)** on storage tanks in the United States of any oil well producing **20 or more BOPD (barrels of oil per day)** or a natural gas well producing condensate of **1 or more BCPD (barrels of condensate per day)** at an EPA estimated cost of **\$108,000 per tank to the operator**.

There have not been any air quality tests showing excessive test levels of benzene by any state or federal agency or independent study by any environmental engineering firm in the Barnett Shale in Texas from its **16,000** producing wells. Excessive levels called **AMCV** by the **Texas Commission on Environmental Quality (TCEQ)** for a **short term level for benzene is 180 ppbv** and for a **long term level for benzene is 1.4 ppbv**. Short term tests are one hour samples and long term tests are samples averaged that are taken at least once each six days for a year.

The most thorough actual testing of wells for air quality was recently completed by [ERG City of Fort Worth Natural Gas Air Quality Study July 13, 2011](#). The *Eastern Research Group, Inc. (ERG)* report stated on page xiii of the *Executive Summary* in ¶4: *While Fort Worth residents are exposed to these and other pollutants released from natural gas sites, the measured and estimated air pollution levels **did not reach levels that have been observed to cause adverse health effects**. Further, the measured **benzene and formaldehyde levels in Fort Worth were not unusually elevated when compared to levels currently measured by TCEQ elsewhere in Texas**.* (Editor's note: formaldehyde is not a component of natural gas).

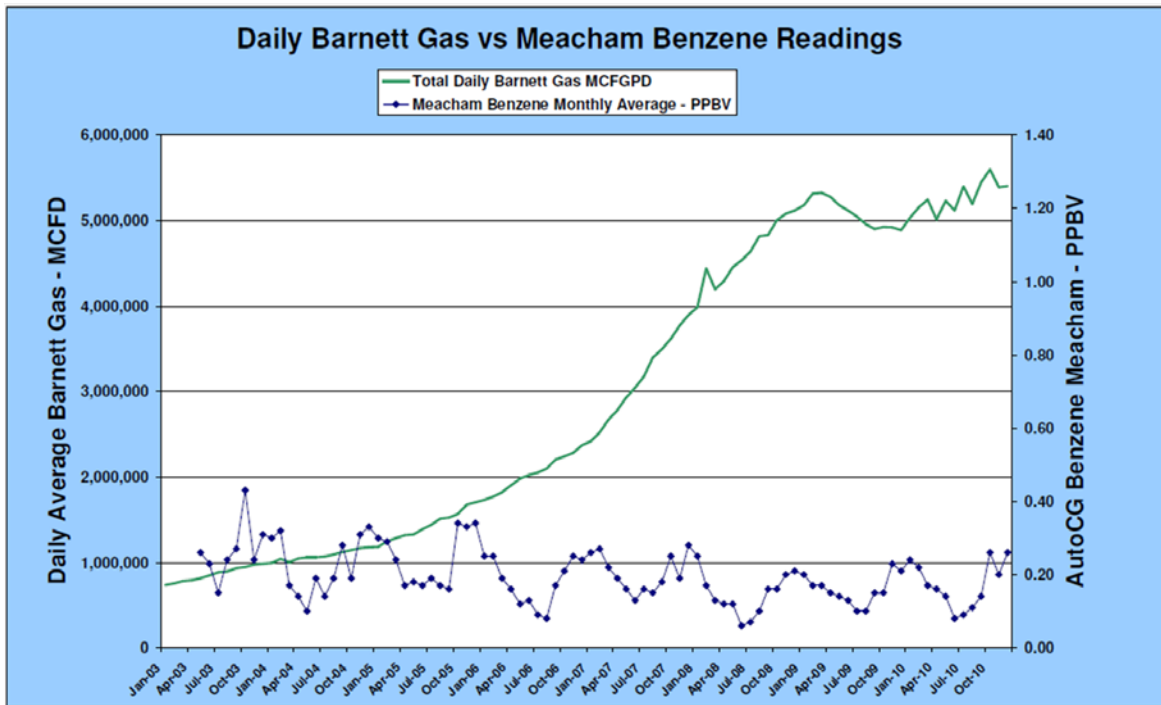
The EPA is actually proposing changes which will lead to releasing more benzene into areas with ozone levels already exceeding federal standards. Dropping the requirement for gas vapor recovery nozzles to be used at fueling stations while proposing to impose such extreme costs to the oil and gas industry will result in many wells being plugged. Operators cannot absorb the exorbitant cost of vapor recovery systems where there is not enough vapor to recover to begin any payout of the additional equipment.



# POWELL SHALE DIGEST

There are now seven Automated Gas Chromatographs (AutoGCs) in the Barnett Shale Monitoring Network run by the *Texas Commission on Environmental Quality (TCEQ)* in North Texas concentrated in the *DFW 9 County EPA Ozone Nonattainment Area*. Some of these are not new with the oldest being eleven years old at Dallas Hinton St. (Love Field Airport). The 2nd oldest is the Ft. Worth Northwest (Meacham Airfield) which is seven years old. All these AutoGCs units test forty-five compounds listed as volatile organic compounds (VOCs) every 20 of 24 hours. The results may be viewed from any computer anytime at [Automated Gas Chromatographs \(AutoGCs\) Barnett Shale Monitoring Network](#). None of the tests have ever exceed the TCEQ limits for short term or long term AMCV test levels. [Long term tests are samples averaged that are taken at least once each six days for a year or the annual average of all the daily test results]. Eight new AutoGC units have been approved by the *2011 Texas Legislature* and signed into law by **Texas Governor Rick Perry**. This will bring the total for the Barnett Shale area to fifteen ‘around the clock’ testing units monitoring the ambient air quality. Each AutoGC Unit costs \$250,000 and about \$100,000/yr. to operate and maintain.

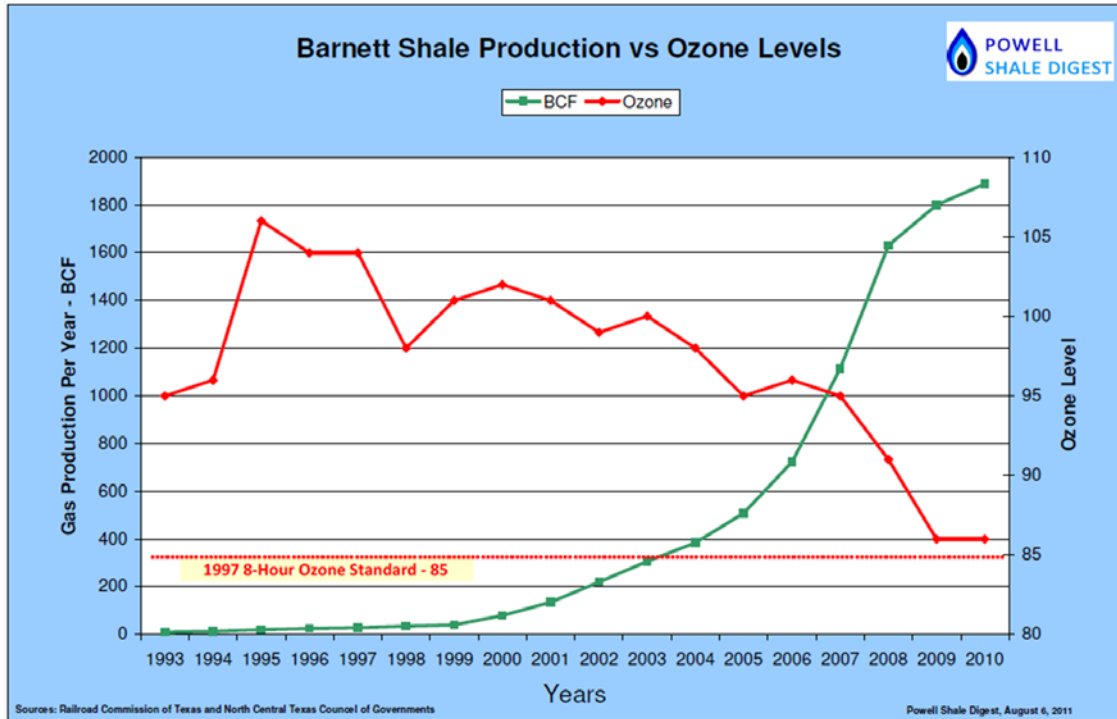
EXHIBIT 1



**Exhibit 1** shows the shows the daily average of the natural gas from the Barnett Shale growing to exceed over 5 billion cubic feet gas per day while the daily benzene tests (20 each 24 hours) never exceeds 0.40 ppbv since January 2003 at the Ft. Worth Northwest (Meacham Airfield) AutoGC unit vs. a short term maximum of 180 ppbv. There are no benzene tests in the Barnett Shale to justify the EPA ‘police action’ against the oil and gas industry by requiring equipment which will not improve the air quality, only adding a heavy cost burden to the industry while falsely claiming to protect the environment. This graph and its extremely low results are representative of all the AutoGC tests run each 24 hours on benzene and on the other forty-five (45) volatile organic compounds at the other six AutoGC Units in North Texas.



## EXHIBIT 2



**Exhibit 2** shows a graph which plots, by year, total Barnett Shale natural gas production, in billions of cubic feet (green line) as compared to the measured 8 hour ozone tests in ppb (parts per billion) averaged by year (red line) for the 9 County DFW Non-Attainment Area. Ozone is the combination of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) plus sunlight. The right side scale of the graph shows the annual ozone level scale has dropped from 102 ppb in 2000 to 86 in years 2009 and 2010 while the natural gas production from the Barnett Shale (left side scale) has increased from 79 billion cubic feet gas in the year 2000 to 1.9 trillion cubic feet gas (1,888 BCF) in the year 2010. The production data is from the Railroad Commission of Texas (state regulatory authority over oil and gas) and the ozone data is published by the North Central Texas Council of Governments from the Texas Commission on Environmental Quality.

It seems strange that the EPA appears to have completely ignored the result of many tests and studies conducted by credible sources, and demands that oil and gas operators buy and install equipment to capture non-existent benzene and other VOC emissions. By no longer requiring gas stations in smoggy cities to install vapor recovery systems to capture benzene and other VOCs, one can only wonder if they are attempting to create an environmental danger by deleting the use of equipment that does capture harmful emissions and demanding the purchase and use of equipment that, no matter how up-to-date, cannot capture what is not there. Are they planning a "told you so" moment when benzene and other VOCs do show up after the equipment that does control them is no longer in use?

*Michael E. (Gene) Powell, Jr. is publisher/editor of the Powell Shale Digest, a weekly electronic newsletter since 2003. He has 45+ years of executive and 'hands-on' operational experience in the oil and gas industry. He can be reached at [mepowell@shaledigest.com](mailto:mepowell@shaledigest.com).*