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## Clearing the Air about Air Quality in Houston

by H. Sterling Burnett

No one wants to breathe dirty air. This includes executives, employees and dependents of the chemical companies located in and around Houston. In addition, Houston has air problems that need redress; it violates United States Environmental Protection Agency (EPA) ozone standards.

Fortunately, according to the EPA, the air quality in Texas as a whole and Houston in particular has dramatically improved over the last 30 years. In Houston since 1975, under the EPA's 1-hour standard, ozone pollution has declined by an average 78 percent. Under the EPA's 8 hour standard, ozone has declined by 70 percent on average. And toxic air emissions in Texas have declined by more than 63 percent with the people living in the Houston area having benefited the most.

In addition, the Houston area has the most extensive

monitoring network of any city in the U.S., stricter Federal and State standards are already in the works and regulated industries face incentives to improve efficiency and reduce waste and thus remain profitable. As a result, the environmental quality in the Houston greater metropolitan area should continue to improve.

One would hardly be aware of the Houston area's rosy environmental future based on the series of articles published in the *Chronicle* in the past few weeks. With the high concentration of chemical manufacturing and refining plants in Coastal Texas compared to other regions of the country it is natural that Coastal Texas has higher than average emissions and that there is heightened attention paid to those risk.

In one sense, the employees of those plants and those who live and work in the surrounding communities

are living experiments on the effects of human exposure to synthetic chemicals. Yet the *Chronicle* could not produce evidence that the ambient air levels of chemicals resulted in higher cancer rates those living and working near the plants. And if employees, those most regularly exposed to the chemicals in question, had higher than average cancer rates, the *Chronicle* failed to note that as well.

Perhaps that's because the current "Effects Screening Levels," do in fact provide an adequate margin of safety. They are, after all, set at levels where chemicals should not cause adverse health or welfare effects. Even when a particular ESL is exceeded, however, it simply means further study is warranted.

The hypothetical risks posed by benzene, 1,3-butadiene and formaldehyde should be put in context. While they are potential

carcinogens, so are half of all the chemicals that have been tested for carcinogenic effects, both artificial and natural. That's right, natural chemicals in coffee, beer, tomatoes, and common tap water, among the myriad of products that have been tested, cause cancer in laboratory rats.

Scientists know that it's the dose that makes the poison. The carcinogenic effects of most chemicals are largely an artifact of the testing regime, wherein the maximum dose of a selected chemical that a lab animal can ingest without causing its immediate death is given to a test group of animals, and then the cancer rates of the test group are compared to a control group not given the chemical. Scientists then extrapolate these results to predict cancer rates in humans within a margin of safety.

But there are several problems. It is extremely questionable whether the effects of short-term megadoses of a chemical on lab rats is a good model for

the effects long-term exposure to miniscule doses of the same chemicals on humans. For that matter, the idea that anyone living in an affected community stays within the borders of that community, day after day, for 70 years never leaving, continuously being exposed to unsafe levels of the chemicals is far fetched at best.

When setting clean air standards the most important question to ask is would the benefits of stricter standards in terms of human health and welfare outweigh the health and economic costs incurred by the proposed standards; and are the costs likely to deliver more health and welfare benefits than other allocations of scarce public resources.

Researchers at the Harvard Center for Risk Analysis found that controlling benzene emissions at chemical manufacturing plants would cost approximately \$526,323,000 to save one year of one life. How many

women could we screen and treat for cervical or breast cancer with those dollars? How many doctors could be trained, police put on the street, or child welfare case workers hired for the same dollars?

Whether the air quality standards for Houston and surrounding communities should be made stricter should be determined by the EPA in consultation with the TCEQ and the affected communities. Such decisions, however, should not be made on the basis of the overblown fears concerning a link between current air quality and cancer rates.

Rather, they should be informed by the best available science, taking into account the limits of the tests used to set risk standards. In addition, there should be an accurate accounting of any harms realistically expected to be prevented by strengthening air standards weighed against any harms that would likely result from the standards being considered.

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