Rutgers ready to combat air pollution

Monitoring station to help improve state's air quality

By Steve Manas

Smog is a serious problem in New Jersey. But the nation’s first comprehensive photochemical assessment monitoring station (PAMS), now operational at Rutgers, should help researchers gain a better understanding of just when and where air pollution becomes a threat to human health.

The station will collect information to help New Jersey meet its enhanced air monitoring requirements under the 1990 Clean Air Act Amendments, Daryl Lund, executive dean of agriculture and natural resources at Cook College, announced. The PAMS is located at the New Jersey Agricultural Experiment Station/Cook College Vegetable Research Farm No. 3 in East Brunswick.

The station is especially equipped to monitor ground-level ozone, a major pollutant which has no relationship to the ozone layer that protects us from ultraviolet radiation. "This station will play a key role in air pollution research and will ultimately lead to improved environmental quality and better health for state residents," Lund said.

The monitoring equipment at the site, which includes a 66-foot tower, continuously collects data on ground-level and upper-atmosphere winds and temperatures and relays the information to computers housed in a N.J. Department of Environmental Protection air monitoring trailer. The facility is equipped to collect additional data on the concentration of ground-level ozone and other pollutants. Public Service Electric and Gas Co. and Jersey Central Power and Light Co. jointly donated equipment and construction costs for the station.

"This monitoring station, created through a cooperative effort among businesses, industry, government and an academic institution, will provide New Jersey with critical information necessary for tracking the movement of pollutants," said Commissioner Robert C. Shinn Jr. of NJDEP, which provided support for the project. "Understanding and controlling the transport of pollutants into New Jersey is vital to our ability to comply with the Clean Air Act."

Nathan Reiss, chairman of NJAES/Cook College’s department of meteorology, explained: "The upper air measurements are absolutely essential in understanding the complex factors involved in ground-level ozone development. Unlike pollutants that have a stable chemical makeup and can be easily traced to their source, ground-level ozone forms in the atmosphere through complex interactions. Factors include other chemical emissions, sunlight, wind speed, wind direction and temperature.

"Ground-level ozone cannot necessarily be reduced by decreasing a single factor. Scientists need to better understand how it is formed to find ways to eliminate it."

Although there are several other sites in the New York-New Jersey metropolitan area that monitor upper-atmosphere winds and temperatures, they do not do so continuously and are not located in high-ozone areas, Reiss observed.

"This station will give us the most definitive readings available," he noted. "We’ll be able to use the data to clearly document the factors involved in the formation of ozone and develop mathematical models to work on a solution.

"The station also will greatly enhance our research and teaching capabilities," he added. "The data can be used for other land-atmosphere research projects that are numerous meteorological, climatological and agricultural applications, and our students now will be able to see the three-dimensional nature of weather and to watch it evolving continuously over time."

The MTBE controversy

An interview with Paul Loy

One strategy for reducing air pollution is to add the chemical MTBE (methyl tertiary butyl ether) to gasoline. But with talk radio humming with complaints about MTBE, Focus turned to Paul Loy of the Environmental and Occupational Health Sciences Institute to get the facts. The institute is a joint enterprise of Rutgers and the University of Medicine and Dentistry of New Jersey.

Q. What do we know about the health effects of MTBE? A. The good news is that studies in which the institute has participated show that most people are not affected by MTBE. However, there seems to be a sensitive subgroup of the population who suffer nausea, headaches and sleepiness at the weakest level. That subgroup is not characterized, and the prevalence of symptoms is not known.

Q. What can consumers do to reduce exposure to MTBE? A. If you are affected by MTBE, first of all, try to find a gasoline station that is not using ethanol as an additive. Second, whether you are affected by MTBE or not, make sure that your vehicle is tuned up. Third, if you have a problem.

Having a properly tuned car cuts down on air pollution in many ways, not just in terms of MTBE, to which you may be exposed.

Third, and this again, applies to all motorists, if you have an older vehicle, make sure that your mechanic reduces the amount of emissions. This will cut down on the amount of MTBE and other pollutants that get into the atmosphere.

Q. Are there other things consumers can do? A. If you live near a spill, you may be affected by MTBE, don’t pump the gasoline yourself, go to an operator-assisted station. And, if you’re concerned you may have been caught in a traffic jam, keep your windows rolled up and adjust your ventilation system to recycle the air that’s already in your car.

Q. Is the public debate now raging about MTBE an “infirmed” debate? A. I would say yes. The purpose of using MTBE is to cut down on carbon monoxide levels, and achieving the mandated standard is logical and reasonable. However, we must keep in mind that, in 1994, New Jersey is not out of compliance with federal clean air standards for carbon monoxide by any large measure.

Q. If you could re-frame the debate, how would you do it? A. We’re not focusing on the issue properly. We should be lowering the levels of carbon monoxide at the specific locations where violations are taking place, the simplest way to control the problem is to re-route congested traffic flow in those areas, rather than change over the entire fuel system for the region. At the moment, all we see is trying to drive a nail into a wall with a sledgehammer.