

## Regional ozone group ends study; States, EPA near plan to cut NO<sub>x</sub>

This month, atmospheric scientists and air quality modelers will complete their analysis of one of the most complex and controversial air transport problems facing U.S. regulators: What control options are needed to bring 54 urban areas in the East into compliance with Clean Air Act ozone air quality standards?

The research is being conducted by scientists with the Ozone Transport Assessment Group (OTAG), a 37-state organization created in May 1995 and led by state environmental officials with participation by hundreds of stakeholders. OTAG's goal is to seek a regional solution to the states' interrelated ozone air pollution problems.

These states were unable to develop federally required plans that would lead to attainment of Clean Air Act standards, which were due in November 1994. They argued that much of the high ozone levels in their urban areas came from sources outside local control. Consequently, EPA gave the states added time to develop a regional plan to control ozone and its precursors: volatile organic compounds (VOCs) and especially nitrogen oxides (NO<sub>x</sub>). That time is running out.

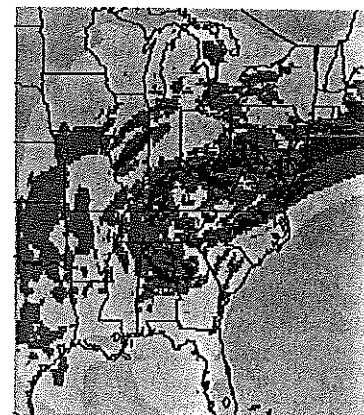
In January, Mary Nichols, EPA assistant administrator for air and radiation, put the states on notice that the agency would publish a proposed rule in March laying out a plan and schedule to bring them into compliance with ozone reductions stipulated by the Clean Air Act. Nichols also said a final action plan would be required this summer. An Illinois state official who works with OTAG said its first draft of a proposal for the region is not expected until June. Despite EPA's threat to move ahead, OTAG and EPA officials said the agency would rather have OTAG's diverse

members develop their own ozone reduction plan than step into the void with a federal proposal.

Thus far, OTAG researchers have confirmed that NO<sub>x</sub> is the precursor with the greatest impact on the region's ozone pollution. Because almost half of it comes from electric power plants, utilities are expected to shoulder much of the NO<sub>x</sub> cuts; but how much NO<sub>x</sub> they must reduce and which utilities must make the biggest cut will be guided by the results of OTAG's model, according to Mike Koerber, co-chair of OTAG's modeling work group and technical director of the Lake Michigan Air Directors Consortium, a nonprofit agency that conducts ozone research for Illinois, Indiana, Michigan, and Wisconsin.

OTAG's efforts may serve as a prototype for how control strategies are developed for other air pollutants, such as particulates and air toxics, and for the negotiation process itself, which will determine the sources to be cut. Of course, that will depend on OTAG's success. The debate will be sharp, several state officials noted, because utilities and other sources in "clean" attainment areas will likely be required to make significant cuts to bring distant polluted urban areas into compliance.

Over the past year, OTAG researchers performed three rounds of modeling analyses. The first round tested the accuracy of a regional air model OTAG was adapting to its needs and applying to the 37-state region. A fundamental part of OTAG's basic research depended on building an emissions inventory and studying four "ozone episodes" in which high ozone concentrations occurred throughout much of the region and ozone transport was closely measured. The episodes, emissions inventory, meteorology,



Reductions in regional ozone levels across the eastern United States (blue areas) are greater when NO<sub>x</sub> are cut (top) than when only VOCs are reduced (bottom), according to the Ozone Transport Assessment Group's modeling results. Reductions vary from 4 to 48 parts per million. (Courtesy OTAG)

and ambient measurements were used to develop and test the regional air transport model. To determine whether NO<sub>x</sub> or VOCs were the main culprit in regional ozone pollution, OTAG also ran "sensitivity" tests as part of the second round of modeling in which the impact on regional ozone was studied assuming various levels of VOCs and NO<sub>x</sub> reductions (see figure).

The final modeling round takes this information and compares control strategies that cut NO<sub>x</sub> and VOCs to levels needed to get the region into compliance. Koerber said the modelers will run at least 9 different control scenarios and possibly as many as 20 to get a full emissions con-

control picture. The results are expected to show conclusively what NO<sub>x</sub> reductions are needed as well as which sources should be cut and by how much.

The control strategies being developed and assessed are based on real-world control measures, Koerber emphasized. "We don't want to call for X% reduction across the board. That would be too expensive and unnecessary. We need specific controls on spe-

cific sources."

OTAG is also developing cost data and will present cost figures for each option, both in dollars per ton of NO<sub>x</sub> removed and the cost per part-per-billion change in ozone concentrations. The concentration cost figures are a new wrinkle, Koerber said, and show the specificity policy officials feel they need to determine how the standard should be met.

State officials stressed that

NO<sub>x</sub> sources in attainment areas will be very reluctant to add new controls to cut downwind pollution. They will want to be sure there is a good scientific basis for any reductions, the officials added. That question in large part has driven OTAG's research, officials said. The research program is estimated to have cost \$3.3 million in EPA grants as well as substantial in-kind state contributions. —JEFF JOHNSON

## Risk commission issues guide for managers, calls for new approach

Future Clean Air Acts, Clean Water Acts, and other environmental laws should include comprehensive risk management provisions to protect the public and the environment, according to the final report of the Presidential/Congressional Commission on Risk Assessment and Risk Management. That recommendation was among many issued by the 10-member science panel, which was created by the Clean Air Act 1990 Amendments.

The committee's two-year investigation of strengths and pitfalls of risk management (*ES&T*, Nov. 1996, p. 479A) is being issued in a two-volume report. The first, released Jan. 29, lays out a 64-page framework to guide risk managers in making risk-based decisions. Volume two, with a release date of early March, will contain more than 300 pages of specific recommendations for using risk analysis and risk management in federal regulatory programs and agencies.

The framework report presents a methodology for making risk management decisions and provides real-life examples of good and bad risk-based decisions. It also recommends a more comprehensive approach when gathering information needed for environmental and public health decision making.

Speaking at a briefing on the report, Commission Chair Gilbert Omenn, dean of the University of Washington School of Public Health and Community Medicine, noted the inadequacy of today's chemical-by-chemical, media-specific methods of attempting to make risk-based regulatory decisions. He emphasized the need to

consider risk from exposure to multiple chemicals released to air, water, and soil.

Among other recommendations, the framework urged greater emphasis on indoor air pollution and offered a geographic approach for future environmental legislation, such as focusing on particular urban areas or watersheds. Many of the report's recommendations went beyond risk and sought integration of disparate environmental statutes, regulations, and oversight bodies. It called on Congress to better coordinate its overlapping environmentally related committees, and it urged federal regulatory agencies to use their discretionary authority to better address significant sources of hazardous exposures and to expand stakeholders' roles in making risk-based decisions, notably by involving the community earlier in the decision-making process.

Two key congressional staff members at the briefing supported the report's intentions but

saw difficulties in its application. Nandan Kenkeremath, House Commerce Committee counsel, questioned the value of extensive community stakeholder participation in all risk management decisions. He also warned that conservative risk assumptions would continue to limit the value of risk decisions under the commission's scenario.

Mike Evans, Senate Environment and Public Works Committee minority counsel, warned of the "resource-intensive nature" of commission recommendations when applied on a national basis, particularly the multimedia and watershed regulatory approaches.

The report's final volume, Omenn said, will discuss a host of thorny subjects such as comparative risk, shortcomings in rodent tests, and uncertainty in cost-benefit analysis, as well as program recommendations for EPA, the Occupational Safety and Health Administration, the Food and Drug Administration, and other agencies. —JEFF JOHNSON

### Transportation planners lack clean air tools, NRC says

State and local transportation planners do not have the technology or the data they need to comply with federal clean air mandates, according to a report issued by the National Research Council (NRC) in January. The council recommended federal research to improve the scientific basis of regulations and to sharpen compliance tools as federal officials tighten clean air standards.

The report said local planners have outdated models and inadequate data to predict the impact on air quality of driver behavior, traffic patterns, new roads and developments, and vehicle age and maintenance. They also lack reliable tools to monitor progress in reducing volatile organic compounds and nitrogen oxide emissions, said the NRC.

The report recommended that an independent research organization be established to look at the basic science behind transportation air quality regulations, evaluate the existing structure of the regulations, and weigh trade-offs associated with pollution abatement programs. —VINCENT LECLAIR

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