S. HRG. 106–966

CLEAN AIR ACT: STATE REAUTHORIZATION ISSUES

HEARING

BEFORE THE

SUBCOMMITTEE ON CLEAN AIR, WETLANDS, PRIVATE PROPERTY, AND NUCLEAR SAFETY

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED SIXTH CONGRESS

SECOND SESSION

SEPTEMBER 27, 2000
NOVEMBER 13, 2000—OKLAHOMA CITY, OK

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ONE HUNDRED SIXTH CONGRESS
SECOND SESSION

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CLEAN AIR ACT: STATE REAUTHORIZATION ISSUES

WEDNESDAY, SEPTEMBER 27, 2000

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON CLEAN AIR, WETLANDS, PRIVATE PROPERTY AND NUCLEAR SAFETY,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:15 p.m. in room 406, Senate Dirksen Building, Hon. James M. Inhofe (chairman of the subcommittee) presiding.

Present: Senators Inhofe, Thomas, Voinovich, Lautenberg, and Smith [ex officio].

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. The hearing will come to order. Today is the third Clean Air Authorization hearing in this Congress.

The first hearing last October addressed the broad policy issues that we would be dealing with such as cost-benefit analysis, risk and exposure.

The second hearing was held in May and concentrated on the effect of multiple regulations addressing the same pollutants and we looked specifically at the utility industry as an example.

Today's hearing addresses the role of States and the local governments in implementing the Clean Air Act. As a former mayor, I am very sensitive to Federal mandates, to problems that come with Federal programs, not just the fact that the cost of this that has to be borne by, in many cases, the States or the local communities, but also the one-size-fits-all concept that we are so often faced with.

I have often criticized Federal bureaucrats within Washington, within the Beltway, for writing regulations without understanding how they get implemented out in the States. Part of the problem is the fact that what works in one State or one region doesn't necessarily work in another.

In the Clean Air Act, Congress decided to give, and this is 1990, give authority to set environmental standards to the EPA here in Washington, DC and the States were given the role of implementing the programs through the State Implementation Process, the SIP process.

Unfortunately, I think the EPA has tried to micromanage the implementation too much and has not given the States the flexibility Congress envisioned.

For the purpose of today's hearing, I have two main questions. From the State and local government point of view, what aspects of the Clean Air Act are currently working well and second, what needs to be improved in the Act in order to add more flexibility.

We often say our States serve as national laboratories to test new programs and new approaches. I am sure we will hear a lot of positive feedback today and the coming months which will help shape the next version of the Clean Air Act.

You know, we said sometime ago that we would start off this year with having three hearings which we now have had with this hearing. I think there is no reason we can't get into it aggressively in the new legislature.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JIM INHOFE, U.S. SENATOR FROM OKLAHOMA

The subcommittee's first hearing last October addressed broad policy issues such as cost/benefit, risk, and exposure. The second hearing was held in May and concentrated on the effect of multiple regulations addressing the same pollutants, and we looked specifically at the utility industry as an example.

Today's hearing addresses the role of the States and the local governments in implementing the Clean Air Act. As a former mayor of a major metropolitan city, Tulsa, Oklahoma, I have a good understanding of the partnership between the Federal Government and the local and State governments. I also understand the problems associated with implementing Federal mandates, and when I say Federal mandates I don't just mean the associated costs of the mandates, but the problem of the "one-size-fits-all" bias of Federal regulations.

I have often criticized Federal bureaucrats, within the Washington beltway, for writing regulations without understanding how they get implemented out in the States. Part of the problem is the fact that what works in one State or one Region, may not necessarily work in another.

In the 1990 Clean Air Act, Congress decided to give the authority to set the environmental standards to the EPA here in Washington, DC, and the States were given the role of implementing the programs, through the State Implementation Planning process. Unfortunately, I think the EPA has tried to micro-manage the implementation too much and has not given the States the flexibility Congress envisioned.

For the purposes of today's hearing, I have two main questions.

1. From the State and local government point of view, what aspects of the Clean Air Act are currently working well?

2. What needs to be improved in the Act in order to provide you more flexibility and responsibility?

We often say our States serve as national laboratories to test new programs and new approaches. I'm sure we will hear a lot of positive feedback today, and in the comings months which will help shape the next version of the Clean Air Act.

Senator INHOFE. Senator Thomas, do you have an opening statement that you would like to share?

OPENING STATEMENT OF HON. CRAIG THOMAS, U.S. SENATOR FROM THE STATE OF WYOMING

Senator THOMAS. Yes, Mr. Chairman. Thank you very much for the hearing. I think it is important to lay the groundwork for the reauthorization of the Clean Air Act.

First, of course, I want to welcome Dennis Hemmer who is here from Wyoming. He is working in environmental quality and I think he has been a leader in this. I am looking forward to his testimony.

The issue is, of course, of great importance to everyone. But in the West, in our State of Wyoming, we have currently some of the

cleanest air that we have, and particularly, of course, we have lots of resources of coal, natural gas, as well as wind resources.

So, we are very interested in how this moves and how it takes place. Since the enactment of the 1990 Clean Air Act, I think the administration has tried various ways to, of course, implement stricter standards, among them are ways to include the State and local governments.

Often we vocalized our opposition to some of these propositions without much success. So, I think principles of sound science need to be involved. We need to have a cost-benefit analysis, environment versus environmental benefits versus economy.

Business and industry has made great strides and we encourage that to happen. So, I hope that we can take from these some ideas as to how to make this program even better and work even better. Thank you.

Senator INHOFE. Thank you, Senator Thomas.

I, too, want to recognize also we have two witnesses from Oklahoma here, John Terrill who is the Air Quality director of our Oklahoma Environmental Quality Department and then there is Mr. Zach Taylor, executive director of the Association of Central Oklahoma Governments.

Now, the first panel consists of six people. I have asked them to be seated at the witness table. The way we have divided into two panels today is to start with Ms. Karen Studders, commissioner of the Minnesota Pollution Control Agency; Mr. Jeff Saitas, executive director of the Texas Natural Resources Conservation Commission; Mr. Dennis Hemmer, director of the Wyoming Department of Environmental Quality; Mr. John Terrill, Air Quality director to the Oklahoma Department of Environmental Quality; Mr. Kenneth Colburn, director of the Air Resources Division, New Hampshire Department of Environmental Services; and Mr. Ron Methier, Air Protection Branch chief of the Georgia Environmental Protection Division.

I would like to tell you that even though your entire testimony will be made a part of the record of this community meeting, since we have two panels and a total of nine witnesses, we are going to confine your opening remarks to 5 minutes and we will use the light system here.

It appears that we are going to have quite a few members here today, more than we normally do, even though there are only two of us here right now, so we will try to confine our questions to 5 minutes.

Ms. Studders, we would like to start with you. You are recognized to make your opening statement. Welcome to the community.

STATEMENT OF KAREN A. STUDDERS, COMMISSIONER, MINNESOTA POLLUTION CONTROL AGENCY

Ms. STUDDERS. Thank you, Mr. Chairman and members of the subcommittee. I want to thank you all for the opportunity to appear before you today.

My remarks reflect a perspective I have gained during my time as Commissioner of the Minnesota Pollution Control Agency, as well as my experience as director of Environmental Programs in a division of a $15 million international energy services company.

I will focus my oral testimony on two areas. First, what Minnesota has learned about toxic air pollutants and second, some ideas on integrating environmental regulation with cost-effective power generation.

Please refer to my written testimony for comments on what I believe States need from the Federal Government to carry out the EPA mandates under the Clean Air Act, specifically more funding and flexibility.

In your materials there is a picture of what the first air pollution alert looked like in the State of Minnesota back in 1972. A grimy brown haze choked the Minneapolis skyline and visibility was bad even at ground zero.

Our agency scrambled to warn people with asthma and heart disease to stay indoors. In the following years the Clean Air Act's strong anti-pollution requirements for smokestacks and cars helped reduce sulfur dioxide and other criteria air pollutants.

These efforts in Minnesota paid off. We have not had an air alert since 1987. Today, Minnesota meets all Federal air quality standards. The Clean Air Act was the tool Minnesota desperately needed in 1972. In using that tool, we were able to take a deteriorating air quality situation and turn it around in less than 20 years.

When the world of air pollution consisted of only six criteria pollutants, we didn't have problems as serious as those in cities like Los Angeles or Houston. We were getting control of the air pollution problem we had.

Also in your materials there is a chart with some information having to do with criteria pollutants. This figure shows that levels of all pollutants, except nitrogen dioxide, have dropped in the past 8 years.

This was achieved at the same time that the vehicle miles traveled continued to climb and our economy continued to grow. Indeed, we now know that economic growth and environmental protection can go hand in hand.

Today we have a different set of problems, one that is more complex. Minnesota is one of a few States that actively monitors air toxics in outdoor air. We have a statewide monitoring network that has measured 75 air toxics in our State in locations ranging from farms to small towns to big cities. What we have found is disturbing.

When compared to health benchmarks, 10 air toxics exceeded thresholds. Many of the air toxics with the highest concentration are primarily from cars, trucks, buses and other engines.

Please refer to the executive summary in your materials for details in our report.

The Federal Government must no longer delay taking action on air toxics. While the provision for point sources in the 1990 Clean Air Act Amendments have made a difference, much more must be done about mobile sources of air toxics, both on and off the road.

We need a real, national air toxic strategy with specific goals that we can all focus on so that we can improve our air.

The final photo in your packet is a picture of a lake in northern Minnesota. Hundreds of lakes just like it are scattered across the region. If you fish there next summer, we would be obliged to warn you that you cannot safely eat more than one meal per week of

many fish caught in the lake. If you are a pregnant woman, no more than one meal per month. There is too much mercury in the fish. The mercury got into the fish from the water; into the water mostly from mercury deposition from our air; into our air from mercury-emitting power sources, like power plants, hundreds, even thousands of miles away.

We have taken significant steps to improve the situation in Minnesota, reducing our own mercury emissions by over 50 percent. But most of the mercury in our fish comes from sources outside our borders.

Increasing demand for electric power has brought us face to face with tough environmental issues. What about mercury and other toxic emissions from burning coal? What do we do about ozone transport? What do we do about regional haze?

We need a comprehensive, integrated, national power generation strategy that regulates multiple pollutants, including nitrogen oxides, sulfur dioxide, carbon dioxide, mercury and other toxic pollutants.

The strategy should set national goals and schedules that allow flexibility for industry on how to meet them. We need a strategy that once and for all deals with the old grandfathered power plants.

I flew to Washington today from St. Louis where I participated in a conference for State environmental, energy and utility Commissioners on energy and the environment. I will pass on to you the most important piece of advice I heard there. If we try to achieve environmental results pollutant by pollutant, we will hamstring the industry and never achieve what we want anyway.

Piecemeal programs targeting the power industry have led to uncertainty and cost inefficiencies. They are like separate trains heading down separate tracks each carrying a few passengers to separate destinations.

What we need is one big train on a single track so we can get everyone on board, all heading to the same place. I am certain we can develop an approach that balances environmental needs and reliable energy production.

Amendments to the Clean Air Act must address a comprehensive approach to the power utility industry.

I thank you and I look forward to your questions.

Senator INHOFE. Thank you, Ms. Studders.

Mr. Saitas.

STATEMENT OF JEFF SAITAS, EXECUTIVE DIRECTOR, TEXAS NATURAL RESOURCES CONSERVATION COMMISSION

Mr. SAITAS. My name is Jeff Saitas. I am the executive director of the Texas Natural Resource Conservation Commission. That is the agency in the State that is responsible for a broad array of environmental programs including those related to air, water, and waste.

I am pleased to be here today with you. We are going to talk about really two things. One is an example of how we have had planning success under the Clean Air Act and the second part will be with respect to some of the challenges.

As you may know, we are in the process of developing clean air plans for some of our major metropolitan areas. Last April we submitted a plan to the Environmental Protection Agency to clean up the air in the Dallas-Fort Worth metroplex as well as the Beaumont-Port Arthur area.

I would point to that particular process to be an indication of a very successful process. In that particular process we relied very heavily and engaged very intimately with the local government and the leadership of local government, particularly the county judges and the mayors of the largest cities, those of Dallas and in Fort Worth. By engaging them very early on in the process, they developed a series of measures that were very effective for them at the local level, because clearly, if you are going to clean the air you have to have rules that people will, in fact, follow.

That process led to a plan that was adopted by our commission and ultimately submitted to the Environmental Protection Agency and has been recently deemed to be administratively complete. We look forward to an approval of that plan.

However, once we adopted that plan we faced a series of lawsuits. That is the point I want to discuss with you with respect to implementation problems.

One of the issues that was raised in a number of those lawsuits had to deal with the concept of Federal preemption. When I have to deal with developing a plan to clean the air in a place like Houston, TX, when you look at the solution you identify the broad array of places where emissions come from. Now, a big bulk of those are things that I have authority to regulate. But there is a piece of them that I don't.

But, I have the responsibilities as the State to develop a plan. If I don't do that and I don't achieve that attainment by November 15, 2007, then the State is going to suffer the consequences.

The point I want to make to you is when I go through this process and propose rules and develop rules to do that, I have to face a public that tells me, well, what are you going to do about the aircraft engines? What are you going to do about the ground support equipment in an airport? What are you going to do about the construction equipment? What are you going to do about the ships that steam into the port? What are you going to do about the locomotive engines? What are you going to do about the 18-wheelers that come up and down the road?

So, while I am struggling with trying to find strategies that make sense, that will actually clean the air, there are certain key things which the public looks to which we drive by every single day and know they are a big part of the problem, yet we as a State are preempted from making them be a big part of the solution.

Now, I am not arguing to this committee that it should be the role of everyone in the 50 States to be able to have separate standards for each one of these categories. That is not what I want to say to you today.

What I do want to say to you today is if we are going to have a partnership to clean up the air in places like Houston, TX, we all have to work together which means if my deadline is 2007, November 15, then the Federal Government should pull their load on exactly the same timeline.

The reductions needed from those categories that I mentioned should occur on the exact same timeline. That is the point I want to leave with you because if we don't have that outcome, the end result is the entities that I do have control over in the State have to carry more than their fair share and that is just not right.

With that, I will conclude my comments well ahead of time, Mr. Chairman.

Senator INHOFE. Thank you, Mr. Saitas.

We have been joined by Senator Voinovich who has been a great addition to this committee with his background as both Governor and as a former mayor and by Senator Bob Smith, who is the chairman of the full committee.

I would ask either one of them starting with Senator Voinovich, did you have an opening statement you wanted to make?

Senator VOINOVICH. Yes, I do, Mr. Chairman.

Senator INHOFE. You are recognized.

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. First of all, Mr. Chairman, I want to thank you for conducting this important hearing this afternoon on the subject of the Clean Air Reauthorization.

I appreciate the fact that you are holding these hearings this year in anticipation of reauthorization next year.

When we talk about the Clean Air Act, I think there is a tendency to think of large, billion dollar companies. Later on today we are going to have some testimony from a small company in the State of Ohio. That is a little utility company that will testify about what they are confronted with.

When I first entered office in 1991, most of Ohio's urban areas were not attaining the 1-hour ozone standard. By the time we left, we saw a situation where every area, just like Minnesota, met the ambient air standards that we have in place currently.

The real issue, I think, that we are going to have to be confronted with, Mr. Chairman, is to look at the Clean Air Act in light of the practical implications of it for the people who really have to deal with it on an everyday basis and somehow come to grips with their practical problems and also the concerns of the environmental organizations that we have in this country in terms of how do we go about doing this and making sure that the dollars that we spend really deal with problems that are out there and that we don't spend dollars that we don't need to spend.

As you know, Mr. Chairman, one of the things that I have done is introduce a bill that would amend the Clean Air Act fundamentally that would give the same provision that is now in the Safe Drinking Water Act. That would require risk assessment, cost benefit. It would require good science. It would require peer review.

Senator INHOFE. I would add that is an excellent bill. I am joining you on that, cosponsoring it.

Senator VOINOVICH. The thing is to kind of balance this up to make sure that what we are doing really makes sense. Now, I think too often some of you who are on the firing line on the State and on the local level are confronted with some unrealistic, impractical things that from a point of view of cost benefit really don't

make sense and result in a loss in appreciation, I think, by some of our Federal agencies, particularly the EPA, on occasion, about the practical ramifications of what it is that you are being asked to do.

So, I think, Mr. Chairman, the challenge will be to balance all of this up and I think that is going to be a challenge for all of us and it means that those who are on the firing line will have to work with the environmental community to try to come up with something that makes sense for all of us and protects our economy and also enhances the environment and the health of our citizens in this country.

Thank you.

Senator INHOFE. Thank you, Senator Voinovich.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM OHIO

Mr. Chairman, I want to thank you for conducting this very important hearing today on the subject of Clean Air Act Reauthorization.

I would like to extend a warm welcome to Mayor Homrighausen of Dover, OH. Mayor Homrighausen testified before this subcommittee several years ago regarding his concerns with the EPA's new ozone and particulate matter standards. He and I were concerned that the new National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter far outweighed the benefits to public health and the environment. Hopefully, Mayor Homrighausen, the Supreme Court will agree with us.

When we talk about the Clean Air Act or electricity generation, there is a tendency to think about large, billion dollar companies. People forget about municipalities like Dover, OH, which owns and operates its own utility plant and provides low-cost energy to its consumers.

Dover has done its share to help reduce air pollution in Ohio by installing effective environmental controls. In fact, it was the first electric utility in the United States to install natural gas co-firing burners to reduce particulate matter emissions. I welcome you back, Mayor Homrighausen.

Mr. Chairman, I appreciate the series of Clean Air Act Reauthorization hearings that you have conducted. I believe that we need to take proactive steps to provide clean air now and in the future. Throughout my 33 years of public service, I believe I have demonstrated a commitment to preserving our environment and the health and well-being of all Ohioans. When I first entered office as Governor in 1991, most of Ohios urban areas were not attaining the 1-hour ozone standard. By the time I left office in 1998, all cities had attained the 1-hour ozone standard, except one. However, I am proud to say that now all of Ohio is in attainment of the 1-hour standard.

Overall, the ozone level in Ohio has gone down by 25 percent and in many urban areas, it has gone down by more than 50 percent in the past 20 years. I am very proud that Ohios urban areas and our citizens worked together to improve the quality of our air.

When I was Governor of Ohio, the State Legislature made a decision to require vehicle emission testing. When it became politically unpopular, they tried to undo it. In fact, I even vetoed a bill in 1997 that would have weakened our emission program, E-Check. This was a strong action in favor of public health and the environment and I was surprised that it did not receive strong support from Ohios environmental advocates.

In addition, while I was Governor I supported a 65 percent reduction of nitrogen oxide (NO_X) emissions from stationary sources, with a plan for additional reductions if they were necessary to meet air quality standards. Ironically, EPA's final NO_X rule would require attainment of the 8-hour ozone standard a year later (2010) than the Midwest and Southern Governors alternative to achieve the standard in 2009.

When we look to reauthorize the Clean Air Act, we need to make sure that State and local governments have the flexibility they need to implement the laws requirements. While national standards are necessary, there should be adequate flexibility for State and local governments to meet those standards. The EPA should not be in a position to mandate cookie-cutter approaches to meeting air quality. You don't always need a hammer. There are a lot of innovative programs out there and we need to promote and encourage these types of programs.

For instance, in Ohio, Columbus just implemented a new program called Project CLEAR, which will involve citizens, businesses, local governments and other organizations in evaluating and choosing strategies to improve air quality. The Columbus Health Deapartment, Mid-Ohio Regional Planning Commission and the Office of Research at the Ohio State University are involved in this initiative.

In addition, last year Cincinnati was awarded an annual Governors Award for Outstanding Achievement in Pollution Prevention for its gas cap replacement program. Through this program, motorists had the opportunity to voluntarily have their vehicles gas cap tested and replaced, if necessary, for free. Approximately 23,000 gas caps were given to vehicle owners in metro area in 1998. This eliminated an estimated 3.5 tons of hydrocarbon emissions daily, and almost 1,300 tons annually.

And these cities have voluntarily implemented these programs in order to meet national air quality standards.

These are the types of innovations that we need to continue to encourage as we reauthorize the Clean Air Act.

However, we also need to do a much better job of ensuring that regulations are based on sound science and that their costs bear a reasonable relationship with their benefits. And we need to do a better job of setting priorities and spending our resources wisely. We need to ask the question of whether a less costly approach would achieve the same benefits.

And this is going to be a main topic of discussion as this subcommittee considers reauthorization of this law.

We need to ensure that Federal agencies, such as the EPA, are accountable for the decisions they make in promulgating regulations under the Clean Air Act. They should be required to answer several simple, but vital questions:

1. What science is needed to help make good decisions?
2. What is the nature of the risk being considered?
3. What are the benefits of the proposed regulation?
4. How much will it cost?
5. And, are there better less burdensome ways to achieve the same goals?

That is why earlier this year Senator John Breaux and I introduced the Air Quality Standard Improvement Act, S. 2362, a bill that will provide a commonsense approach to promulgating regulations under the Clean Air Act and will increase public health safety and environmental protection.

I thank the chairman for becoming an original cosponsor of that bipartisan bill and for agreeing to consider this legislation during the reauthorization debate. I look forward to todays testimony.

Senator INHOFE. Senator Smith.

OPENING STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Senator SMITH. Thank you, Mr. Chairman. I will be very brief. I apologize for interrupting the witnesses and for being a little bit tardy. I had to chair the Senate, so that was one of the reasons why I was late.

I want to thank Senator Inhofe for chairing the hearing and calling attention to this very important issue of the reauthorization of the Clean Air Act which we are going to be working on over the next several months.

I certainly want to thank all the witnesses, but specifically Ken Colburn, the Air Quality director for New Hampshire. We have worked together for many years. You do a great job for the State and you are a very valuable resource to me and to my staff, and I appreciate it, Kenny.

Mr. COLBURN. Thank you, Senator.

Senator SMITH. I have a couple of points. I think we have had the Act, which since its inception has initiated a lot of regulation which has caused problems for some and probably gotten a lot of positive results as well.

But it has initiated some innovative approaches, I believe, to environmental management. I think we need to build on some of the successes and perhaps move away from some of the bad aspects of that act.

Let me just give two examples and then I will yield back.

The State role: The Clean Air Act was the first to establish a system that calls on the Federal Government to establish standards and to allow the States to determine how best to achieve those standards. I want to expand on that, if we can, on our reauthorization.

Second, and perhaps even more importantly is the market-driven reduction standards. If we can move to the market and gain the reductions in air emissions that we have seen, well, then maybe we can move away from the end-of-pipe regulation and put the money on the focus of new innovations.

There is a lot of that going on, relying on the market has proven, frankly, an unmitigated success. It is my belief that if we give the market the opportunity, it will move way out ahead of the regulation at such a rapid pace that regulation, at least to the extent that we now know it, won't be necessary.

To give you an example, in the CAFE standards which many pressed us to tighten up, as Senator Inhofe knows, if we can produce automobiles such as hybrid cars that will produce less emissions the regulation, in terms of the CAFE standards as we now know them, goes away.

If we can't and we don't give the market the opportunity to do it and we don't give them the incentive to do it, then perhaps it won't happen and we will continue to regulate at the end of the pipe. That is just one example.

The acid rain program many years ago used a system of credits that worked fairly well. I don't see any reason why we can't look at the same approach again. We need to figure out how to adapt this approach to other programs, look at the entire issue, all of the air, all of the emissions and begin to look at how each individual component to this equation can be dealt with.

I think the resulting requirements that we have had have been expensive and inefficient and yet, to some degree they have reduced the air quality. But can we improve on that? That is the issue.

So, I would like to see us reduce utility emissions in the country while at the same time allowing our economy to grow and we can do this, I think, with a balance in the system that rewards, let us just use the power producers for an example, if they can produce the greatest amount of power while emitting the least amount of pollution, then maybe we would be getting somewhere.

So, it is all very complex and it is not going to be an easy challenge, Mr. Chairman, but I know you are up to it. I am looking forward to working with you on it.

Senator INHOFE. Thank you, Senator Smith.

[The prepared statements of Senator Smith follow:]

STATEMENT BY HON. BOB SMITH, U.S. SENATOR FROM NEW HAMPSHIRE

Good afternoon. I would like to thank Senator Inhofe for continuing to focus our attention on the important issue of improving the Clean Air Act.

I would like to thank the witnesses for taking the time to prepare statements and appear here today. The committee will benefit from your insight.

I would also like to welcome Ken Colburn, the Air Quality director from New Hampshire. Ken is doing a terrific job for the people of New Hampshire, and has been an invaluable resource for my staff.

The Clean Air Act is the most complex environmental statute on the books.

With it we have made tremendous strides in reducing emissions and improving air quality.

But the job of protecting air quality requires constant vigilance, and the Act itself requires regular maintenance as we learn more about which pollutants are most harmful and what sources need better controls.

The Act has initiated numerous innovative approaches to environmental management. We need to build on these successes as we try to determine the next step for the Act.

For Example:

State Role.—The Clean Air Act was the first to establish a system that calls on the Federal Government to establish standards, but allow the States to determine how best to achieve those standards. We need to expand on this flexibility.

Market Driven Reductions.—The most daring experiment of the 1990 Amendments was to include an emissions trading program in the Acid Rain Program. Relying on the market has proven an unmitigated success. Actual costs for implementation and compliance are a mere fraction of the lowest 1990 estimates for the program. Emission reductions have come faster and been deeper than required by law. Most importantly, the Acid Rain Program has an unprecedented 100 percent compliance record. Clearly, we need to figure out how to adapt this approach to other programs.

Lastly, I would like to point out that we need to build a better system for addressing emissions from the utility sector.

Outside of the Acid Rain controls, the few emission reductions we have achieved under current law for this sector have come only after countless rounds of regulation and litigation.

The resulting requirements are expensive and inefficient.

We need to reduce utility emissions in this country, but we want our economy to continue to grow.

Technology has made our economy more energy-intensive as more homes and offices acquire more electronic devices. The increasing power demand must be met at the same time as we drive overall utility emissions down.

The only way to manage this balance without damaging the economy is to build a system that rewards the power producers that can produce the greatest amount of power while emitting the least pollution.

The current law does not do this, and I believe it is the greatest challenge of reauthorization.

ADDITIONAL STATEMENT OF HON. BOB SMITH, U.S. SENATOR FROM NEW HAMPSHIRE, REGARDING RECENT TRENDS IN TEXAS ENVIRONMENTAL PERFORMANCE MEASURES

During the questioning of Mr. Saitis' panel, Senator Lautenberg raised a number of questions regarding Texas' overall environmental performance. Senator Lautenberg"s indictment of the Texas record, specifically the record of Governor George W. Bush's administration, came at the very end of the panel's questioning, and I was not able to follow up with the witness. I will ask questions of the witness for the record. However, in the interest of ensuring a fair and complete record, I performed some research that should be made part of the record.

Texas, the second largest State in area and population, is naturally among the leading states in terms of overall emissions of pollutants. That is not surprising. I imagine Governor Davis of California is among the very few Governors who would understand the sheer, magnitude and complexity of environmental problems, and especially clean air problems, that Texas faces. However, no one was unfairly bashing California in our hearing.

In the large states especially, it is important to look at trends, and not just at the overall numbers. In Texas, under the leadership of Governor Bush, the trends are very encouraging. Despite the assertions, Texas is no longer the "most polluted state" in the nation, even as measured by the imperfect EPA Toxic Release Inventory. According to the EPA TRI data, Texas ranked either first of second in the Nation for total emissions to air, water and land from 1988, when the EPA started collecting TRI data, through 1994. What has happened under Governor Bush? Texas dropped from first place in 1995 to fifth place in 1998. From 1995 through 1998,

no State reduced its toxic emissions by more than the 43 million pounds that Texas did.

The topic of the hearing was the Clean Air Act, so it is fair to look at Texas' record specifically on that important statute. The fact is that Texas has reduced emissions of every criteria pollutant over the past few years, even when the national emissions for some pollutants increased. Between 1995 and 1997, Texas' emissions of NO_X decreased by 23.6 percent while the national emissions increased by 8.2 percent. Texas' emissions of VOCs declined by 43.2 percent while national emissions fell by only 16 percent. Texas' emissions of CO fell by 12 percent while the national emissions only fell by 5.1 percent. Texas' emissions of SO dropped by 17.1 percent while the national emissions increased by 11.2 percent. The only pollutant that Texas did not exceed the national trend was PM. Emissions of PM in Texas diminished by 11.9 percent while the national emissions fell by 21.2 percent.

I would like to highlight one specific innovative program that holds special interest to me.

In 1999, Texas established a voluntary emissions reduction program similar to the multi-pollutant bill—the so-called "Bubble Bill"—that I have been working on and plan to introduce next session. Under the Texas program, the oldest, dirtiest power plants, commonly referred to as "grandfathered plants," are required to substantially reduce NO_X and SO_2. Though compliance is not required until 2003, Texas has already issued 133 permits to the grandfathered plants. These permits have resulted in emissions reductions of approximately 25,000 tons.

Facts are difficult things. The facts are that Governor Bush inherited a State with difficult pollution problems, and that the trends are in fact quite good. In gross terms, Texas has reduced its emissions more than any other state. In relative terms, Texas is fair exceeding national averages for reductions in four of five criteria air pollutants. The slander that Texas is the "most polluted State in the union" just doesn't stand up. The facts that show Texas, under Governor Bush, is getting cleaner, in absolute and relative terms, every day.

Senator INHOFE. From Wyoming, Mr. Hemmer.

STATEMENT OF DENNIS HEMMER, DIRECTOR, WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Mr. HEMMER. Thank you, Mr. Chairman and members of the committee. My name is Dennis Hemmer. I am the director of the Wyoming Department of Environmental Quality. I want to thank you for this opportunity to address you.

My comments today will primarily focus on stationery sources with fewer than 500,000 people in Wyoming, I don't have much experience with mobile sources or many of the urban issues that some of my colleagues do. We also have very good atmospheric ventilation. Our clean air is often passing by at about 30 miles an hour.

I think if you look at the results we have achieved in this country, the Clean Air Act has been very effective. It has focused on and addressed issues. However, since the original passage of the Clean Air Act, each reauthorization has added another layer to the Act.

While each was effective in addressing the issues of the day, the layers do not necessarily compliment each other, nor do they create, some of them actually create disincentives for emission reductions and penalize facilities that voluntarily make early reductions.

I believe it is time to start with a fresh sheet of paper. With respect to stationery sources, we need to start fresh and create a system that provides incentives for reductions.

The first priority must be human health. The current health standards, essentially the national ambient air quality standards, should be retained. It is paramount that we protect the health of those around the facilities and our general population.

I would ask that more emphasis be placed on good science and data related to what is needed to protect public health. One only has to look back at the debate over the proposed fine particulate and ozone standards to see the need for better science and better data.

Once we have protected public health, I believe the other goals related to stationery sources encompassed by the Clean Air Act are best served by a market-based system. I believe a properly constructed market system could provide incentives for emission reductions and incentives for the development of technology to reduce emissions.

Before I proceed, I have to give credit. Many of the particulars I am speaking of were developed in a paper by Mr. Bob Newfeldt. For a market system to work a market must be created by some sort of limit similar to what was done for sulfur dioxide in the 1990 Clean Air Act Amendments.

The limit usually takes the form of a cap or benchmark below which emissions must be maintained. Benchmarks would need to be set for each pollutant depending on the goal you wish to achieve.

Benchmarks would need to be periodically reviewed. If the results desired are not being achieved, the benchmark would need to be lowered. Ideally, the benchmark would create a situation that achieves the goals and creates an economy that stimulates the development of new technology to accommodate growth.

However, I think we need to be realistic. The benchmark may need to be raised if it is so low that it is determined that it cannot accommodate society.

As much as we would like to see air quality gains similar to those made over the last 30 years, we need to recognize that the population is expanding and today's technology demands materials and power.

I want you to remember these are the goals beyond health. I am not suggesting we sacrifice health for growth. Setting the benchmarks would be a Solomon-like task. If we embroil them in the morass associated with today's rulemaking, like today's rules needed adjustments, it will only happen through litigation.

A system is needed that allows adjustments to balance reductions with societal needs. The Federal Reserve could serve as a model. The parameters for the benchmarks must be clearly articulated and be closely tied to an intelligent national energy policy.

I am concerned today that some decisions are being made to reflect agendas not articulated in the Act. I also believe that we are dictating national energy policy through decisions made under the Clean Air Act. While the two must compliment each other, energy policy needs to be thoughtfully debated in its own right.

If a market-based system is used, the initial allocation of emissions is again a taxing task. Most systems use historic emissions as the base line. Unfortunately, this system penalizes the cleaner facility and rewards dirty facilities. Basing the allocations on a market-based value, I would suggest gross revenue would be a system consistent with market principles.

I believe there are vast opportunities for such a system. We would be able to create an environment where emission reductions can become revenue enhancers, rather than revenue drains. We

can create an environment that makes technology advances which reduce emissions marketable, where our concern is visibility as it often is in the West.

There would also be opportunities for inter-pollutant trading. The light-disrupting properties of a particle of one species should be able to be related to the light-disrupting properties of another species. While the trades may not be on a one-to-one basis, we should be able to equate resource gains.

I am not so naive as to believe that in a market system everybody will comply because they are good citizens or because they are making money. It would require that limits allocated or obtained through the market be contained in an enforceable permit and that those limits be closely monitored for compliance.

I also recognize that there would still be categories of emissions from these facilities, for instance, fugitive emissions that cannot be accommodated in our market system.

While we have a good law, if we continue to layer new on old, we will stifle significant opportunity for innovative. However, if we build on the advances of the last 30 years, take advantage of today's technology, and mold a system that addresses today's issues, we can achieve even more without the rancor and confrontation.

Thank you.

Senator INHOFE. Thank you, Mr. Hemmer.

Now, from my State of Oklahoma, Mr. John Terrill.

STATEMENT OF JOHN TERRILL, DIRECTOR, AIR QUALITY DIVISION, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

Mr. TERRILL. Thank you, Mr. Chairman and members of the subcommittee. My name is John Terrill. I am the Air Quality Division director for the Oklahoma Department of Environmental Quality. I appreciate the opportunity to comment on some of the changes that you are debating.

My first set of comments has to do with the 8-hour ozone standard, but it really could apply to any time we change the national ambient air quality standards.

Let me emphasize that we support the concept of a standard for ozone that looks at exposure over an 8-hour period. We believe this form of the standard best represents real world exposures likely to be experienced by the population most at risk.

However, we disagree with the level at which the standard was implemented. It is our belief that any time a standard such as this is changed and the bar is raised as it clearly has been in this case, the statute should require clear and incontrovertible evidence that such a change is necessary.

In addition, once it has been established that a change in existing standard is going to happen, it should be mandatory upon the EPA that all guidance necessary to help the States and local agencies with implementation must be formulated and made available prior to the beginning of any implementation of that program.

Ideally, this guidance should be written in cooperation with the State and local programs or at least there should be an opportunity for comment before the guidance becomes effective.

For example, we have never received guidance that outlines the EPA's position relative to the consequences of nonattainment under the 8-hour standard as it relates to new source review transition areas.

The Act itself is specific to the 1-hour standard only. It has also become quite obvious that the things we understood about the 1-hour standard do not necessarily apply to the 8-hour standard.

Voluntary measures that worked well to shave the peaks on days of concern do not work as well under the 8-hour scenario. Ozone forecasting under the 8-hour standard is much more difficult and unpredictable. This is illustrated by the dramatic increase in the number of ozone alert days that we have called under the 8-hour standard as opposed to those that were called when the 1-hour was controlling.

It has also become apparent that the transport of ozone and ozone precursors on a near-regional basis such as between neighboring States is very important to both forecasting ozone and meeting the new standard.

Until we know the effect of national measures such as low-sulfur gasoline and Tier 2 standards for mobile sources, as well as regional measures such as implementation of controlled strategies in areas working to meet attainment with the 1-hour standard, planning to meet this new standard is problematic at best.

If there is one word that would summarize our concerns with the current system, it would be "consistency or the lack thereof." Consistency in the interpretation of statutes, as well as the rules and regulations as they apply State to State and region to region is fundamental to the integrity of any Federal law. The same is true for consistency in the data bases that are used for a variety of purposes throughout the State and Federal system.

A consistent interpretation of statutes, rules and regulations are vitally important to both the regulators and the regulated community.

It is important to know that when we obtain an applicability determination or some other type of rule determination from the EPA, that we are getting the same interpretation as that which would be given to another State in a similar fact situation. It is very damaging to our credibility and that of the EPA when industry points out that the same facts and circumstance has resulted in a different interpretation in a different State or region.

It can also create an unfair competitive advantage for like industrial facilities operating in different States and regions. The regulated community deserves to know what the rules are and that they are being applied the same throughout the country.

Data base consistency, including the handling of data, who should have access to that data, and which is also an area that needs to be addressed.

The vast majority of activities done by the EPA are driven by the data collected in the State and local programs. Currently, there is no consistent understanding as to what these data are useful to determine and what they are not. Consequently, there is little consistency from State to State and region to region.

This is especially troublesome when outside parties such as industrial, environmental, and other special interest groups attempt to use the data in support of their particular cause.

We believe the EPA should be required to establish the standards for data to be submitted by States and utilized by the EPA, yet allow States program flexibility in the design of their data management systems.

The EPA should also be encouraging the States movement toward electronic data submittal, ease the paperwork burden on the regulated community and the State and local agencies. We would also incur further definition of what and when data are accessible by the public.

We are supportive and believe in the public's right to have access to any data that are used to make decisions relative to air quality programs. However, Congress should statutorily insist that before any data is made public by any agency, it is carefully evaluated as to its accuracy and made available for public viewing only in the context of when it was collected.

That will conclude my comments.

Senator INHOFE. Thank you, Mr. Terrill.

Mr. Colburn.

STATEMENT OF KENNETH COLBURN, DIRECTOR, AIR RESOURCES DIVISION, NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

Mr. COLBURN. Thank you, Mr. Chairman. I am delighted to be back before the committee. I was down a year or two ago. I want to thank Mr. Wheeler for the invitation.

Incidentally, when Mr. Hemmer was talking about that 30-mile an hour wind that is going by, Senator Smith said, yes, right toward New Hampshire.

I also want to thank Senator Smith for not only his kind remarks to me, but for offering approximately half of my speech, of which that would be a part, Senator.

Senator SMITH. Repetition is fine.

Mr. COLBURN. Thank you very much, Senator. I am delighted to be here and have the opportunity to share some of my thoughts regarding Clean Air Act Reauthorization.

Four thoughts come immediately to mind. The first one is, "Thank God at last." The Act is certainly showing its age. With a decade of hindsight, it is clear that several fundamental flaws are evident in its structure, its approaches, and scientific presumptions including, for example, that it largely ignores the existence of wind. I think the EPA has done a reasonably good job of implementing the Act, although I do wish the agency had come to you sooner to fix some of its problems. Second, great good has resulted from the Act. So, we must undertake and amend it, don't end its reauthorization process.

Many new ideas were tried out in the 1990 amendments and some, like cap and trade programs, proved extraordinarily successful. Others, however, proved counterproductive and we need to revise them.

Third, this reauthorization is far too important to public health, functioning ecosystems and our Nation's global competitiveness for it to devolve into partisan, political or regional bickering.

I am a witness to the power of collaboration. I have seen firsthand the progress that can be made when dedicated leaders like your chairman, Senator Smith, and New Hampshire's Democratic Governor, Jeanne Shaheen, work together.

There is broad agreement among the States that the Act should contain less prescriptive approaches, provide greater opportunity to innovative responsibly and accountably, and incorporate new scientific developments much more readily.

There is also broad agreement that progress in reducing air pollutant emissions, particularly from our transportation and energy sectors, and the technology development that rises to meet this challenge, must continue.

Finally, thorough independent analysis of State air programs has determined that the Federal Government provides about enough resources to fund half of what it asks us to do.

Contrary to popular belief, title V's "Polluter Pays" provisions do not fill this gap. Title V added more work than it funded. Furthermore, the responsible, accountable regulatory flexibility that States should have, and which our companies deserve, is much more costly than traditional one-size-fits-all command and control regulation.

Simply put, Congress has to get serious about funding clean air or something has to give.

Air issues are among the most complex and difficult of all environmental matters, so much so that it is impossible to go into detail in any single hearing. Nevertheless, having lived and breathed these issues for the last 6 years, I can and do confidently represent to you that there are better ways to conduct air policy, better for the environment, better for the regulated community and far less costly to administer.

For example, while States generally support requirements that new facilities install state-of-the-art pollution controls, this provision of the Act lets "excellent" get in the way of "good" by encouraging sources to keep their old equipment running longer instead of installing new, cleaner equipment. We can fix this.

I won't repeat the remarks of Karen Studders relative to multipollutant integrated approaches, particularly for the energy sector, only that we should also add to her list declining pollutant caps over time.

I am delighted, Mr. Chairman, that your committee has begun to look at exactly this kind of integrated solution.

By its very proscriptiveness, the Act makes it difficult, if not impossible, for the EPA to approve innovative new approaches to pollution reductions. We can fix this by providing the EPA with the authority and responsibility to approve non-standard solutions that provide equal or better environmental benefits.

Requiring sources in similar categories to pay for emissions, and then taking those revenues and distributing them back to the sources based on production, would encourage both lower emissions and higher productivity, along with many attendant economic and regulatory benefits.

Similarly, if we internalized environmental costs at the front end, market forces would drive environmental improvement instead of regulation.

I would call your attention to the last page of the handout I brought today for an example of this involving industry averaging.

Too much time and money has been wasted both at the Federal and State levels arguing about the nature and extent of transported air pollution. We should perhaps adopt a new definition of States' responsibility concerning transported pollution, perhaps by requiring that the air that leaves a State be as clean or cleaner as the air that entered the State. We can fix this.

Science is increasingly showing that several pollutants including ground level ozone and fine particulate matter are zero threshold pollutants. Unlike traditional dose response approaches, there is no safe level of exposure. As a result, traditional approaches to setting and meeting national ambient air quality standards need revision, and costs should probably factor much more greatly into this process.

Finally, and perhaps most importantly, there is widespread recognition that the production and use of energy in all sectors is the primary cause of most significant air pollution problems, ozone, mercury deposition, acid rain, haze, toxic air pollution and climate change.

We need to do everything we can to assist States in making more efficient use of energy. In doing so, we will also reap the benefits of faster technology development and greater international competitiveness. We can address this problem, too.

I want you to know that you have New Hampshire's commitment, Mr. Chairman, to assist in any way we can in the daunting, but doable task of defining, describing, developing and drafting the ways to fix these problems.

Thank you for this opportunity, Mr. Chairman. I look forward to assisting in any way I can.

Senator INHOFE. Thank you, Mr. Colburn.

Mr. Methier.

STATEMENT OF RONALD METHIER, CHIEF, AIR PROTECTION BRANCH, GEORGIA ENVIRONMENTAL PROTECTION DIVISION

Mr. METHIER. Good afternoon. My name is Ronald Methier. I am the chief of the Air Protection Branch of the Georgia Environmental Protection Division. On behalf of the State of Georgia I thank you for the opportunity to testify on this very important issue.

The single most valuable fix that Congress could make in the Clean Air Act would be to increase the flexibility given to the States and the EPA to allow the use of solutions that were not available or recognized when Congress amended the law in 1990.

There are two specific areas where the lack of flexibility in the law makes it difficult for Georgia to address its air quality problems in a timely and cost-effective manner.

First, is the requirement to meet the Act's strict attainment dates, an unachievable goal because these dates apply to areas like Atlanta which are significantly effected by the transport of pollutants from other States.

Second, the Act's mandate to use Federal reformulated gasoline is more hindrance than help in Georgia's struggle to achieve attainment.

In 1990, the scientific community did not fully understand how ozone itself was formed, nor did it recognize that because of the regional weather conditions and heavy vegetation in the Southeast, nitrogen oxides, or NO_X rather than volatile organic compounds or VOCs are the critical factor in ozone formation.

In 1990 regulatory agencies had limited ability to quantify or control the impact of interstate transport of pollutants. As a result, the EPA was not able to take final action on the ozone transport problem until September 1998. This final rule, referred to as the NO_X-SIP call, required 22 Eastern States to revise their State implementation plans to provide for significant NOx reductions. By court action, the final implementation date for the NO_X-SIP call is now 2004.

Georgia has already adopted regulations to require major reductions of NO_X emissions at least equal to those in the NO_X-SIP call. Georgia projects that Atlanta will attain the 1-hour standard for ozone in 2004 as soon as the NO_X-SIP call controls reduce NO_X emissions from our neighboring States.

Thus, despite significant efforts, Atlanta was unable to meet its 1999 attainment deadline. It was not alone. The map attached to my written testimony still shows more than 20 metropolitan areas still classified as nonattainment for ozone.

Except for those areas ranked "extreme" or "severe" shown in red on the map, all of these areas have already missed their statutory attainment dates. The reasons for nonattainment vary, but Atlanta's experience illustrates problems that are common to many of these areas.

The EPA has acknowledged that Atlanta's ozone problem is significantly affected by pollutants transported from upwind States. In December 1999, the EPA proposed to apply its extension policy to Atlanta. This policy allows extension of the attainment date for Atlanta and other areas significantly affected by interstate ozone transport.

In spite of the reasonableness of the extension policy, it has come under severe criticism by some who contend that it is beyond the EPA's authority. Georgia is currently involved in litigation in which the validity of the extension policy has been attacked.

Another suit was recently filed seeking to require the EPA to bump up 15 other areas to the next highest pollution classification in spite of the EPA's proposal to extend the attainment dates for some of them.

If Atlanta's attainment date is not extended by the EPA's extension policy or by legislation, Atlanta will be forced to bump up from serious to severe. Bumping Atlanta up from serious to severe would have punitive consequences, the worst of which is the requirement to use the EPA's reformulated gasoline, also called RFG.

Because of the way ozone is formed in the Southeast, Atlanta must reduce more NOx than VOCs to reach attainment. Georgia, working with the EPA and the oil companies, designed a special low sulfur fuel currently used in the Atlanta area which reduces more NOx than RFG does.

If we are forced to use Federal RFG, it will hurt rather than help us achieve the ozone standard and the incremental cost to gasoline consumers is about twice as great. As I am sure you understand, we want to avoid an increase in already high gas prices if there is no environmental benefit.

We urge you to act expeditiously to address these unintended consequences of the 1990 amendments. We request that Congress either extend the attainment dates where the failure to attain is the result of interstate transport, or make it clear that the EPA has authority to extend.

Second, we urge you to allow the States more flexibility in developing regionally relevant control measures such as clean fuels best suited to their localized air quality problems.

I thank you for giving me the opportunity to tell you about some of these critical issues that Georgia is facing under the Clean Air Act.

Senator INHOFE. Thank you, Mr. Methier.

What I would like to do is propound a question and then start with Ms. Studders and go all the way across and have you respond very briefly to it.

I think the 1990 amendments to the Act created an important partnership with the EPA setting the standards and the States doing the implementation. It sounded good and in some areas it hasn't worked out that well.

I would like to have each one of you give us an example of where this partnership has worked well and where it has broken down.

Ms. STUDDERS. Mr. Chairman, I am speaking on behalf of the State of Minnesota. I would say where it has worked well would be two things: The advent of the Federal standards for fuels and the changes made technologically in engines to help us reduce the emissions from mobile sources. I would say those two have worked very well.

On the front where it has not worked as well, several of my peers have testified here today that we have layers of permitting right now in the Clean Air Act.

The Clean Air Act Amendments of 1990 added more. Right now we are incenting the exact opposite behavior that we want to incent. We are literally incenting old facilities to continue operating and to continue emitting more and more serious pollutants like nitrous oxides, sulfur dioxide, and mercury because the hoops you have to crawl through to build a new technologically sound facility are huge. So, we are incenting the exact opposite.

Senator INHOFE. Mr. Saitas.

Mr. SAITAS. Mr. Chairman, I would just reiterate what I mentioned in my comments. To the extent that the EPA has implemented standards they generally do a very good job of setting standards that have a significant reduction on emissions.

Where the shortcoming is, is that timeline for implementation doesn't match up with the timeline to clean up the air. So there needs to be some sort of matching of that for it to be effective and useful to us in meeting the most significant air quality challenges we have.

Senator INHOFE. Good.

Mr. Hemmer.

Mr. HEMMER. I think that generally we have a good working relationship with the EPA and so on. Many of the implementations work well. I think the problem is with the lack of flexibility.

That comes in two forms. One is prescriptiveness of the guidance or rules that come out of the EPA in prescribing one way of doing it. Sometimes the technology isn't there to do it correctly.

Some of it, frankly, is in the Act in terms of prescribing certain tools. The one that comes to mind is when you are dealing with the prevention of significant deterioration, you require both short-term and long-term monitoring of document compliance.

In many of our facilities the technology does not exist to do short term modeling that accurately reflects what is on the ground.

Senator INHOFE. In Oklahoma, Mr. Terrill?

Mr. TERRILL. I think you are aware of the success the Tulsa area had with the Flexible Attainment Agreement. Tulsa was redesignated attainment for the 1-hour standard just prior to the 1990 amendments and then shortly thereafter they had two violations of the 1-hour standard.

Rather than wait for the Federal Government to act or for the winds of weather to cause another one, industry, local citizens, and community leaders got together and created the Ozone Alert Program and then they worked with the EPA and the COG and other groups to form the flexible attainment agreement.

That worked very well in keeping Tulsa in attainment with the 1-hour standard. We have had some problems over Labor Day weekend the past 3 years where some exceptional events have caused some problems there, but there are some flexible benefits to this agreement that should allow us to take care of that.

I think that is a real success story because it allowed the community to do things that were specific to them to address the programs without a lot of preemptive type measures that may or may not have been effective.

One of the bad things that has come out of this is relative to the 8-hour standard. It goes back to the lack of guidance. I think what it really goes back to is I think that the Federal system has forgotten its role.

I think headquarters has forgotten what they are supposed to do. I think the regional offices are not allowed to do what was intended for them. The States are not funded well enough and were not given the flexibility to do what we are supposed to do under the Act.

I think if we can address those issues we can go a long way toward providing a more flexible system and a more predictable system for our regulated community and cleaner air for our citizens.

Senator INHOFE. Thank you.

I would like to remind the panel here that the program he is talking about, the Flexible Attainment Program was a pilot program that did work well. So, it is nice to her that some of these experimentations that we do in specific areas such as we did in Tulsa are successful.

Mr. Colburn.

Mr. COLBURN. Thank you, Mr. Chairman. In theory, the SIP process allows States to assemble an approach that they want to

take. In reality that is not exactly true. There are several components of SIPs that are required under the Act.

One of those, for example, is tailpipe testing. Our analysis of tailpipe testing has shown that it focuses primarily on the VOCs that Mr. Methier mentioned were less effective in reducing NO_X—which is the primary source of ozone—and further, to implement a program according to the strict implementation of the statute would cost about $10 million in New Hampshire to achieve the same environmental benefit that would cost about $100,000.

The success story here is that the EPA has not required that we move ahead to implement this foolish program for the State of New Hampshire.

I would just add, Senator, that there is one other problem with SIPs in that they reflect unreality. They account for unreality where modeling and so forth comes up with numbers that are required to meet SIPs, and they don't adequately include reality when that is appropriate.

Let me give you an example. Because of mobile source requirements, motor vehicle requirements in neighboring States, we have many cleaner vehicles than we actually require in New Hampshire.

As a result, our air is cleaner, but we can't count those reductions even though they are in reality occurring, whereas some other things that may or may not prove true that are included in our SIPs do count.

Senator INHOFE. Thank you. Mr. Methier.

Mr. METHIER. I think one of the best examples of the partnerships are when the States identify what their needs are and there are very common needs throughout the country and the EPA can respond with national standards, whether it is strict tailpipe standards or strict fuel standards.

Those don't always match up when certain areas may have their attainment dates like some of these new vehicle standards and even fuel standards won't help us with Atlanta. But they will in the future and that is good.

What we see bad is quite often in the development of those standards, whether it is vehicle testing or anything else, the EPA does like the one-size-fits-all, have to do it the same in every region approach.

That is not the right way to do it. We have to reflect the science of what the problem is. How does the particular air pollution problem get formed in a particular State or region or what time of the year even. That, quite often, the EPA has been very inflexible on.

Senator INHOFE. Very good.

Using the early bird rule, we will go to Senator Thomas.

Senator THOMAS. Dennis, in your testimony you said that we are dictating national energy policy through decisions in clean air. We had a hearing yesterday with Secretary Richardson. I tend to agree with you. What would you give as an example of that?

Mr. HEMMER. Senator Thomas, I think we are in many ways dictating that the fuel of choice becomes natural gas. Now, obviously Wyoming has lots of natural gas and lots of coal. But I question the wisdom if we are dictating it to the point that natural gas is being used for base load electricity.

It seems to me that there are other fuels that are better for that. So, It seems to me that before we by air quality begin dictating what the fuels will be, we also need to think about what is the wisest use of those respective fuels.

So, I am concerned that we are forcing fuels that may or may not be in the best long-term interest of the Nation in terms of energy.

Senator THOMAS. Thank you.

Mr. Colburn, you seem to be interested or concerned about what is moving into your State from other States. If indeed you measure and control pollution as it comes from whatever it is, from power plants or exhaust pipes, at the location, how does that happen?

Why do you feel like you are intimidated by somebody else's cost?

Mr. COLBURN. Thank you, Senator. As you know, the southern part of New Hampshire is quite proximate to the Boston metropolitan area. That is where most of my ozone exceedances occur. They occur in a very predictable pattern which the science makes clear, but the law does not.

What happens is that the emissions from the metropolitan Boston commute and power plants and so forth go out over the Gulf of Maine early in the day. They cook out there in a uniform fashion to create ozone.

As the land heats up on the same hot day, the air over the land rises, draws in the ozone that has been created over the ocean, and triggers the monitors. That process walks up the coast of New Hampshire and on up through Maine, hour by hour diminishing ozone concentrations so that you have maybe 130 parts per billion at Rye, NH, 126 at Portland, ME, and 125 at Acadia.

Senator THOMAS. So it is aggravated as it moves? The air is still complying with the law?

Mr. COLBURN. I am sorry, in Maine?

Senator THOMAS. Maine or wherever.

Mr. COLBURN. They certainly could be. Exceedances are what are occurring downwind after that cooking of their emissions. We also get transport from much more distant areas, but it is distance dependent and the nearer areas are most important.

Another example, Senator, would be Bridgeport, CT, which doesn't have a prayer of reaching attainment until New York City is more successful at reducing its emissions.

Senator THOMAS. I doubt if you get much from Wyoming. I have to comment on that.

Mr. COLBURN. I certainly do not, Senator.

Senator THOMAS. You know, I know how difficult it is, but in many things you would think what we should do is set attainment standards that we want to have over the country and then say to States, I don't care how you get there. All we are going to measure is what the result is. Is that a workable thing?

Mr. COLBURN. To a large extent setting a performance standard is a very good idea. What we lack an awful lot of is that to determine compliance under such an approach, we need to have a much more aggressive monitoring infrastructure because until you are able to identify the science behind it, the way you are going to be able to know it is by physically monitoring things, measuring the sources and measuring where it goes.

Until you make that investment, then you are not going to be making the wisest decisions in terms of moving forward to clean the air.

Mr. SAITAS. I will tell you, with respect to the State of Texas, we actually contract with the university to fly an airplane and we can fly that airplane upwind of a power plant stack that is burning coal and we can fly it back and forth and cut that plume and we can track where it goes.

Senator THOMAS. But my point is that you all talk about you need more flexibility, things are different, why don't we just say, "Here is the attainment goal. You could get there however you choose."

Ms. STUDDERS. If I may, Mr. Chairman, I think what the issue becomes is that we need to see national standards.

Senator THOMAS. OK, we have got national standards.

Ms. STUDDERS. If you have the national standards, the dilemma in having the States say, OK, "you just achieve it;" From the industry perspective they need to know what that target is.

A couple of people testified about the idea of the four pollutants and having a market cap with declining goals in the future.

If we tell people where they need to go in the future, I think that is an OK and realistic thing to do from a business perspective and also from an environmental quality perspective, because you would know what equipment you would eventually have to add and it would take care of Mr. Hemmer's concern about which fuel would have to be used, because then you could just dictate where we wanted to go.

But I think we run into trouble if we have different States with different——

Senator THOMAS. No, that is not what I said. You have national standards and then—well, it is here. I understand it.

We always hear, "Well, we have too many details." They told us how to do it. We need more flexibility and so on. I am saying set the standards and you all get there however you choose. However, you want the Feds to pay for it all; don't you.

Mr. COLBURN. Only what you require, Senator. The other problem, though, with that analogy is that I don't control the sources in the Boston area. I am perfectly willing to shoulder that challenge for the sources I do control.

Senator THOMAS. I understand. Thank you.

Senator INHOFE. Senator Voinovich.

Senator VOINOVICH. Thank you, Mr. Chairman.

Mr. Hemmer and Senator Thomas, I was just thinking here, it was almost 31 years ago that I went out to Cheyenne, WY as the vice chairman of the Ohio Environment and Natural Resources Committee and the father of our Environmental Protection Agency to talk to Wyoming legislators about the importance of clean air and water, not to sacrifice your environment for the economy.

It is hard to just think of all those years that have gone by. I also couldn't help but think—and you did a great job because it is working.

Senator THOMAS. Yes, it has.

Senator VOINOVICH. And I comment about the fact that if it wasn't for Congress's passing in 1959 the Air Pollution Control Act,

where would we be today as a country? I think so often we get together at these hearings and we just think about the problems that we have.

But I don't think we celebrate enough the progress that we have made in this country in terms of cleaning up our air and water.

The question I would like to ask of all the panelists is this: As you know, the new ambient air standards are now in the Supreme Court of the United States, the proposed ambient air standards for ozone and for particulate matter.

In the event that the Court overturns the District Court and rules that those ambient air standards are applicable, what impact will those new standards have on your respective States and if they do go into effect, would you be requesting some more flexibility in terms of trying to achieve those standards?

We will start out with whoever wants to volunteer. Ms. Studders.

Ms. STUDDERS. I am thinking. Minnesota is currently now in attainment. The issue I think we are going to have is two-fold. Down the road, depending on how many more vehicles continue driving more and more miles, until we get into the rub with the ozone standard, and we are a part of the country that is growing. More and more people are driving.

The second area that is going to play into it is our power plants, given that they create 30 to 70 percent of emissions of the big pollutants.

Short term, I think we are going to be OK. By "short term" I mean probably 5 years. Beyond that, I would need some data to help support it. But I think we would be running into some problems.

Mr. SAITAS. With respect to Texas, if the 8-hour standards are held to be enforceable by the U.S. Supreme Court, then 70 percent of our population would be living in an area that didn't meet that standard.

Senator VOINOVICH. Seventy percent would what?

Mr. SAITAS. Seventy percent of the population in the State of Texas would be living in an area that didn't meet that standard.

Senator VOINOVICH. Does not meet the 8-hour standard?

Mr. SAITAS. Yes, sir.

Mr. HEMMER. Mr. Chairman, our initial evaluation was that while we might have some localized facility impacts with the fine particulates standard, we would have to do a little more work on it.

Basically, we would not be impacted to any significant degree by the fine particulate and we have the luxury of not having an ozone issue, so our analysis shows that we would have no impact there.

I think the key point though in the whole thing, and it goes back, as you mentioned, to working on the Safe Drinking Water Act, it is getting back into some cost balance that cold be put in there.

As you will recall, that was a real ticklish thing. That was finding the correct language that people could accept there.

Mr. TERRILL. In Oklahoma we would immediately go in nonattainment in the Tulsa area. If the EPA does what they have told me they will do in Oklahoma City, we can take the last 3 years' worth of data and average out, although if you take the first 3 years and just look at that, they would be nonattainment.

So, it will be interesting to see what happens if they do what they said they would do and take the last 3 or the best 3 years worth of data which is the most recent.

Basically, we are so close in so many areas that it is going to be a year-to-year struggle until a lot of the national measures go into effect.

I think going back to the question that was asked previously, I think that one of the things that the EPA has done that I don't think if it was an intended consequence, but it may have some real relevance in trying to meet some of these standards are the regional planning bodies that came out of the Regional Haze Rule.

I really think that that is the way that air pollution control is going to be looked at in the future, looking at it on a regional basis, because we have never said that we didn't affect our neighbor.

There is no doubt that emissions from Oklahoma City and Tulsa affect Kansas on some days, Arkansas on some days, Texas on some days. We would argue about the extent of that, but near transport happens.

It is amazing to me the things that they are doing in Texas to try to address their problem. I don't see how they got some of the measures passed that they did, but things they are going to do there is going to help us address this 8-hour problem.

I think working on a regional basis, which I really believe these regional planning bodies should have the flexibility to look at other pollutants besides regional haze because they are all tied together.

It doesn't make a lot of sense to me to look at just one area when we can cost-effectively look at a lot of areas and working together through that process, I think, will work.

Mr. COLBURN. Senator, the citizens of New Hampshire, as a result of a cold, rainy summer, enjoy air quality that either meets or very nearly meets the 8-hour standard.

I would echo the comments of Mr. Terrill. The national measures that the EPA has implemented but which haven't yet taken effect, the SIP call, vehicle controls, and so forth, should reduce the pollution coming at us enough to ensure that we do remain in attainment.

I don't think that we would be coming back to you requesting any additional flexibility than we have already asked today.

Mr. METHIER. In Georgia the ozone standard would have an impact on more of our cities. What I am most concerned with is the particulate matter standard. At this point, every single monitor that we operate indicates that it would violate this new standard.

So, we would have widespread State nonattainment problems. What concerns me is that I see that a lot in the Southeast, more than in other parts of the country. We may have a similar southeastern or regional problem with this kind of pollutant like we have with ozone.

With the way the law is constructed right now, there might not be the flexibility for our region to really plan for what is needed.

Another possible problem is that the way the Clean Air Act is constructed and the way this monitoring data is being collected and when areas may actually be designated, we may have overlapping deadlines which may not allow us to really do the integrated kind

of planning that you have heard some of the other panelists talk about.

A lot of the same things that cause ozone cause fine particulate matter and cause regional haze. If we can lay out a timeline to address all of those problems at once, that would be much more cost effective.

Senator VOINOVICH. Mr. Chairman, I would just make one other comment. It is interesting that when we set the 2.5 standard for particulate matter, at the time they set it they weren't sure whether or not it would really make a difference.

In other words, we had the standard of 10 which is the current standard. We have spent, I think, $185 million already setting up these testing—what do they call them? Monitors?

Mr. METHIER. The monitors around. One thing that this committee could look at, Mr. Chairman, is what is the result of all that monitoring and was the original 2.5 realistic in terms of what these monitors are picking up in terms of the impact it is having on the environment and public health.

So, it might be something you might go back and revisit after we have more information. But it is interesting that they put the standard in effect and at the same time asked Congress for $24 million to start doing the research to find out whether or not the new standard was going to make a difference in terms of the environment and public health.

Senator INHOFE. Senator Smith.

Senator SMITH. Thank you, Mr. Chairman.

As I was listening to each of you, I notice we have Minnesota, Texas, Wyoming, Oklahoma, New Hampshire, and Georgia here. So, we will give you guys a room and you can just lock yourselves in there, come up with a solution and give it to us and we will pass the law. Do you think you could do that?

Mr. SAITAS. We could try.

Ms. STUDDERS. Should we say we are up to the challenge?

Senator SMITH. You might do well.

Mr. SAITAS. Will you promise that?

Senator SMITH. Promise what? I will promise I will lock you in the room if you promise you will come up with the solutions.

All kidding aside, you have coal producers. You have natural gas. You have some utilities that are doing a better job than others in terms of emission controls. You have nonattainment versus attainment. You have all these problems all in varying degrees around the country. Clearly, there is not one State answer.

I think, Mr. Colburn, you brought it up that we can't be in attainment, no matter what we do, because of another State's emissions.

So, it clearly is going to take a national plan. It is going to take something that we all can put together that probably is not going to make everybody happy.

You won't get everything you want, but it is going to have to take a solution. You know, anyone of us can do the numbers. I don't care what State you are from. If it is 49 to 1, you are going to lose.

In the case of New England, there are a lot more Senators from States other than New England than there are Senators from New

England, and that includes Congressmen. So, clearly you can't win in any region if you go it alone.

So, I think I have come to that conclusion. We need to look at a way, and I think Senator Thomas alluded to it, you look at wherever that line may be and then work it out in a way that we can all agree to come up with a solution for that.

Let me ask you this question and anybody can respond to it or everybody, if you would like. Is it possible for us to come to that kind of agreement, a basic agreement which basically is—call it a bubble, call it whatever you want—credits whatever you want where some people are going to get a little forbearance and others are not.

But can we come to an agreement, in your view, that would get us to a reasonable level of emissions that we can gradually ratchet down.

A, can we come to that agreement, and B, if we can, give me some idea what you think it might be.

If anybody wants to tackle that, go ahead, otherwise I am going to lock you in the room.

Mr. COLBURN. Senator, I will start. I appreciate that you come close to what I think is one of the essential policy dilemmas that faces the Congress in Clean Air Act reauthorization.

That is the conflict between a least cost solution which means that perhaps controls in the less-populated areas of Wyoming are unnecessary because there are not a whole lot of emissions there as they are in, say, New York City, versus what is commonly viewed to be a fair solution of applying the same level of controls to all sources throughout the country.

The question of fairness versus least cost, both of which are admirable and neither of which can be done together, will present a public policy problem and I think only the Congress can resolve it.

Within that caveat though, I do believe that it is possible to come to a solution. I think there are some indications already in front of this committee from the utility community that they would agree on a multiple pollutant, bubble kind of approach.

I think the same could be achieved in other sectors of our economy. I guess what I am most optimistic about is while we often think in terms of cost and benefit, there is an essential component left out typically.

It is that the technology that evolves to meet the environmental reduction is marketable throughout the rest of the world. In New Hampshire, even though we have high energy costs—and we don't want to see them higher—our comparative advantage as a State relates to our quality of environment and our quality of life, not how much can we ratcheted down individual costs for environmental controls.

I think there are huge technology benefits to this Nation and its competitiveness by developing the controls to solve these problems.

Senator SMITH. Is it possible to make the transition, the leap, if you will, from the historical pattern that we have been dealing with which, yes, has gotten results, end of pipe, but has not really focused on the innovation and new technology.

Can we make that leap to get to new technology, perhaps revenue enhancers? Can we make that leap? Is that doable? I mean

you all represent different States with different attainment and nonattainment problems. So it would be good to see if we get one answer here.

That might be a good start. Does anybody want to start? Ms. Studders, Karen?

Ms. STUDDERS. Yes. Mr. Chairman and Senator Smith, having just returned from St. Louis, I need to share with the committee here that we had energy regulators and environmental regulators together for a couple of days. We did our Energy 101 and Environmental 101.

If I walked away with anything, I walked away with the understanding that we are a very electrified country and we are using electricity in great amounts and that we have some needs for future plants to provide that electricity.

From the industry perspective, they need to know what the standards are that they need to meet. I think the time is right that we could come up with some national numbers, knowing that we would have a market cap that would decline over time because we have the energy they need there. We were talking about it at the table.

In fairness to the developers of the plants, they need to know 10 years, 20 years, 30 years, and the life of that plant, what is going to be expected of them.

I think we would be in a much better situation than we currently are right now, both from an energy perspective and an environmental one.

I also will share with this committee that some of what impacts air quality is not just how we have each developed in our respective regions of the country, but also our geography. The ocean and the mountains play very heavily into how air quality is dispersed both around the United States and impacts how quickly we get the air quality from other countries.

The importance would be, most of our players are national, if not international. If we had those caps nationally, I think we would be in a much better position than we are now. I think we could come to some agreement.

Senator SMITH. My time has expired.

Would anybody disagree with that?

Senator INHOFE. Why don't we ask, Senator Smith, and the rest of them could respond to that for the record, in writing, if they so desire because I am going to be making a similar request in a minute.

Mr. HEMMER. I was going to respond to that question. I don't know what the bubbles would look like. I think we can do the bubbles. Obviously, some of us in the West were primarily worried about visibility. Other areas are worried about other thing.

I think the pollutants may vary. We may have to shape those bubbles differently. I think the trick is to somehow provide an incentive to make sure that you can accommodate the growth that is going to happen in those areas with the gains that you are looking for.

My pitch would be that to do that somehow we need to get into a market-based system that provides an incentive for the reductions to where that reduction becomes an asset.

Senator INHOFE. Senator Lautenberg.

Senator LAUTENBERG. Thank you very much, Mr. Chairman. I thank the members of the panel here for coming from fairly significant distances to be with us today. The distance, however, in the room might be more of a travail than the distances in the geography.

I come from New Jersey. I wouldn't say I thank each of you for contributing to our pollution problems, but there is a significant amount of sharing. We recognize that.

Mr. Colburn talked about what happens as a result of Boston's emissions in New Hampshire. I know New Hampshire, not very well, but I have been up there in the mountains and things, especially when I was younger.

Besides, the chairman of the full committee is from New Hampshire. So we all did a primer on New Hampshire to make sure that we understand what the problems are.

I will tell you though, your Senator was born in New Jersey, just in case you didn't know that. So, you can take the fellow out of New Jersey, but you can't take New Jersey out of the fellow.

One of the things that I hear threaded through this discussion is, well, questions about whether or not we do it regionally and what can States do individually.

I think that if everyone has a standard to meet within their own State's borders that we could ultimately take care of the regional problem.

The question is: What kind of cooperation can we get?

Mr. Saitas, I am sorry I wasn't here to hear your testimony, but I was very interested. You have an energetic State with a large stake in how much energy can be produced there, oil and so forth.

It has been noted considerably in the last few days, the city of Houston won a distinction long held by Los Angeles, and that is they are the smoggiest city in the country. This calls for some significant action because there is a public health challenge here.

It is my understanding and please disagree if my statistics are wrong, but I have read that Houston's own studies find that about 430 residents die prematurely each year from air pollution.

I think statewide, Texas air pollution can be blamed for over 2,600 premature deaths per year. I give it the attribution of the Environmental Defense Fund. You can argue, perhaps, but it is a fairly significant number, absolutely.

Since past approaches seem to have failed, is it time for Texas to adopt a standard much like California uses to fight air pollution?

Mr. SAITAS. Thank you, Senator. I would offer, first of all, that we do have a problem in Houston, TX. I have lived there. I have family there. My wife has family there. There are times that I can drive in on some days and you can't see the skyline. So we have to fix that, and we are going to fix that.

I would also offer with respect to the studies, there was a substantial study that I think was done by the city of Houston, and I don't know if that is the one that you are referring to.

Regardless if the number is 100 or 10 or 1, it doesn't matter. The fact of the matter is that the air quality there doesn't meet the standard. There are people being affected and it has to be fixed, first and foremost.

What I said earlier in my opening comments I will repeat again now. To clean up that air is going to take the joint efforts of local, State and Federal.

The main issue that we have, and it is a major stumbling block to try to clean up Houston's air, is the issue of Federal preemption.

We don't have the ability as a State to require reductions from very key and very significant emission sources.

I will repeat them again since you weren't here: Aircraft engines, ground support equipment, railroad engines, ships, 18-wheelers, construction equipment. All of them, when you look at them collectively, are huge.

Senator LAUTENBERG. Automobiles as well.

Mr. SAITAS. Yes. For us to be able to clean up Houston's air, we must have significant reductions from those categories on the same timeline which is November 15, 2007, if we are going to clean up the air.

That is the biggest challenge we have right now because we, as a State, are required to meet that deadline. However, the rules to force reductions in those categories aren't required to be on the same timeline, in fact, they are not. Some of them haven't even been contemplated yet.

So, any assistance you can bring to bear to make that happen would be greatly appreciated by us in Houston.

Senator LAUTENBERG. Well, a large part of the debate in this room centers around how much Federal intervention we have with various problems, particularly on the environmental side, more often on the environmental side than any other.

Houston was a favorite business place of mine. The company is called ADP, the company I helped start and run until I came here. It was in Houston. We have a very active location there. It is a terrific place to do business. I knew the former mayor, Bob Lanier, very well.

So, while I am certainly not an expert on Houston, the problem, as you agree, has to be solved. Therefore, wouldn't you advocate a more aggressive Federal intervention? Each of the States, perhaps the Western most don't see it as much as we do in the East or in the center of the country. But it has a degree of pollution coming from other places.

So, wouldn't it be appropriate for the Federal Government to set the standards and make sure they are enforced, offer whatever is necessary to get the job done.

I mean it is quite a sorry thing to see a State like Texas wind up, I think, the 49th most polluted State in the country. Considering the number of lives lost early, it would be almost an ideal setting for us to get on with the task of taking care of our people and the quality of the air. That is what this meeting is about.

So, wouldn't it make sense for a more aggressive posture?

Mr. SAITAS. I would beg to differ, Senator, that it requires more aggressive intervention. But let me read to you one sentence out of the comment letter that we received from the EPA yesterday. It was the 25th. That was 2 days ago.

It talks about emission reductions. It says,

Based on the Engine Manufacturers Association of America versus the EPA in the D.C. Circuit Court in 1996, it held that State regulation of nonroad engines is preempted by the Clean Air Act, unless it is a use restriction.

So for me to be able to reduce emissions from construction equipment and by the way, when I take my kids to school in the morning, my son will see a backhoe that is on the corner and he will watch it billow smoke, and he will say, "What are you going to do about that?" My answer is: "Well, I can't do anything."

Senator LAUTENBERG. You can drop him off at school and get out of there.

Mr. SAITAS. The Federal Government tells me the only thing I can do is a use restriction. Do you know what that means? That means I just move it in the course of the day. Because of the way ozone is created, you can't use it from the morning hours. You can do construction in the afternoon.

Now, think of the social consequences of that. Think of the business consequences. The end result of that suggestion is that there is not a single pound of pollutant coming out of the air. It is still going to be emitted, but at different parts of the day.

So, what we need more than anything else in terms of Federal intervention is for them to carry their load. They need to do it on the same timeline. So, anything you can do to make them carry their load on the timeline would be greatly appreciated.

Senator LAUTENBERG. Just 1 minute, Mr. Chairman.

Senator INHOFE. OK.

Senator LAUTENBERG. Is it OK?

Senator INHOFE. No, not really. You go right ahead. Nine minutes instead of five, so I'll give you one more.

Senator LAUTENBERG. I appreciate the generosity.

The question arises for me. I don't want to disrupt the social or the economic structure of Texas. That is not my mission. My mission as it has always been is to try to clean up the environment because all of us with children or grandchildren all know what the consequences could be as a result.

But I made a mistake when I said before that Texas was 49th in the quality of the environment. It is 49th in spending on cleaning the environment.

Well, to me it looks like that there is a place there that a difference could be made within the State itself with perhaps less disruption of the functioning of the society.

Mr. SAITAS. Senator, we spent $350 to $400 million a year in the State of Texas on environmental programs. We have 3,000 employees. I would say that that is probably one of the most significant commitments by a State in this Union.

Nonetheless, we still have to clean up the air. We still have to have clean water. We still have to have safe land.

Senator INHOFE. Mr. Saitas, I am going to have to cut this off now because we have another panel.

I had one question I would like to have you answer for the record because there is no more time now. That is, when we first started this program in 1970, no one had much experience. In the 1990 Act, the Federal Government had the experience, but the States really didn't.

Now they do. So, I would like to have you send us in writing for the record what parts of the Federal program could be effectively delegated to the States.

Senator INHOFE. The other things, just a comment, you know there is a diverse philosophy up here. Being close by Texas, I know what a difficult job it is in a huge State like Texas to do some of the things. You are doing an outstanding job.

I hope that you will observe, if you haven't already, that there is a mentality in Washington, DC, that if a decision isn't made in Washington, it is not a good decision. I don't subscribe to that.

Senator LAUTENBERG. Where in Washington is that done, Mr. Chairman?

Senator INHOFE. Oh, it is done right here in the U.S. Senate.

Senator LAUTENBERG. Is that right? I thought everybody represented properly their State interests. I didn't know that that was——

Senator INHOFE. I can remember one time—no, I won't get into that.

At this time I will dismiss this panel and ask the next panel to come forward.

We do have several votes taking place at 4:30, so it is going to be the effort of this committee to conclude this hearing before those votes take place.

If we could have order here while they are being seated, our second panel, as a matter of fact, I am going to skip the mayor because we have a very important U.S. Senator from Ohio who wants to make that introduction himself.

We have Mr. Taylor from the State of Oklahoma, Zach Taylor. We appreciate your being here very much. He is the executive director of a group I work with with some regularity and that is the Association of Central Oklahoma Governments.

We also have Ms. Marcia Willhite, the assistant chief, Pollution Prevention of Air Quality for the Environmental Health Division for the city of Lincoln, NE.

I would recognize at this time Senator Voinovich for another introduction.

Senator VOINOVICH. Thank you, Mr. Chairman. I kind of cut my first statement short because I knew the mayor was going to be coming on.

But I would like to extend my welcome to Mayor Homrighausen of Dover, OH. Mayor Homrighausen testified before this committee several years ago, Mr. Chairman, in regard to his concern with the EPA's new standards for ozone and particulate matter.

He and I were concerned about those new ambient air standards for ozone and particulate matter. We thought that they far outweighed the benefits to public health and the environment.

Mayor, I hope that we are successful in the Supreme Court. It was interesting to hear the reaction from the State people in regard to what is going to happen in their States if these new ambient air standards go into effect.

Mr. Chairman, as I mentioned, when we talk about clean air or electricity generation there is a tendency to think about those large billion dollar companies. People forget about municipalities like lit-

tle Dover, OH, which owns and operates its own utility plant and provides low-cost energy to its consumers.

I think that it came out from the previous testimony that when we look to reauthorize that Clean Air Act we need to make sure that State and local governments have the flexibility they need to implement the law's requirements.

I agree that national standards are necessary, but there should be adequate flexibility for State and local governments to meet those standards.

The EPA should not be in the position to mandate cookie-cutter approaches to meeting air quality. You know, you don't always need a hammer. There are a lot of innovative programs out there. We need to encourage those types of programs.

Forget about "Well, local communities can do it if they put their mind to it." For example, in the city of Cincinnati, that was our last city to achieve their ambient air standards. Now, they recently received the Governor's Annual Award for Outstanding Achievement in Pollution Prevention for a little program.

It was a gas cap replacement program. Through this program motorists had the opportunity to voluntarily have their vehicle gas cap tested and replaced if necessary, and it was for nothing. This is hard to believe, but 23,000 gas caps were given to vehicle owners in the metro area in 1998. It eliminated an estimated 3.5 tons of hydrocarbon emissions daily and almost 1,300 tons annually.

So, that is just a little program, but it made a difference and it helped them to achieve that ambient air standard that they had been working to achieve for so long.

So, I really think that if we have a more flexible approach to some of these things that we can achieve a whole lot more than if we are restricted.

It was interesting to hear from the gentleman from Texas saying that he has been asked to do a job but not given the tools to get the job done.

So those are the practical sides of these things that we need to address our attention to. I am anxious to hear the testimony of our witnesses here to date.

Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Senator Voinovich.

We will go ahead and start with the same rules as before.

Again, we do have some votes that are coming up at 4:30, so we want to conclude before that time.

We will start with our 5-minute opening statements. Mayor, we will start with you. I would add that you have four very sympathetic ears up here in that both Senator Voinovich and I have been mayors in the past. We know what a hard job it is.

STATEMENT OF HON. RICHARD P. HOMRIGHAUSEN, MAYOR, CITY OF DOVER, OH

Mayor HOMRIGHAUSEN. Senator Inhofe, Senator Voinovich, my name, as Senator Voinovich said is Richard P. Homrighausen and I am mayor of the city of Dover, OH.

As a mayor from a small town in the heart of the industrial Midwest, I am honored to be invited for the second time to testify before you.

As a small town mayor, local municipal utility operator of a small coal-fired power plant and active participant in other generation projects through AMP-Ohio, and as president of the Ohio Municipal Electric Association, I know both the value that citizens have received from the passage of the Clean Air Act and its amendments as well as the hardships imposed from inflexible, overzealous, and over-reaching administration.

I sincerely appreciate this opportunity to share with you my observation on the Clean Air Act, its successes and failures, as well as my views on how to fix the problems that communities like mine are experiencing.

Under the Clean Air Act, tremendous improvements have been made in air quality. As a local official, I must emphasize that these accomplishments were realized largely through the efforts of State and local governments through innovative development and implementation of the State implementation program.

The following is a summary list of key areas in which I believe the Congress must seek improvements. Under the Unfunded Mandates Act, the Small Business Regulatory Enforcement Fairness Act and other provisions, the EPA and other Federal agencies are to consider and respond to specific and differing needs of small business and local government.

Regrettably, all too often the needs of these interests are ignored with the EPA imposing one-size-fits-all approaches where the costs of compliance are as high for a small facility or operator as they are for facilities many times larger.

Congress should amend the Small Business Regulatory Enforcement Fairness Act to ensure that the needs and concerns of small business and local government are addressed.

The title IV Acid Rain Program exempts units under 25 megawatts, but encourages these units to opt in. Despite the diligent efforts of AMP-Ohio, OMEA and others, the EPA has failed to construct the opt-in program in a workable manner. Therefore, they have penalized us and failed to use a cost-effective means of bringing numerous small emitters under the Act's Acid Rain Program.

Congress must fix the opt-in program and expand the use of market-based mechanisms to achieve pollution reduction objectives.

In adopting and amending the Clean Air Act, Congress did not give the EPA the authority to set emissions limits for grandfathered plants. Yet, the EPA has taken numerous approaches to target these plants and attempt to force their retirement.

The EPA also appears to be attempting to exceed its authority through backdoor imposition of carbon dioxide limits. Congress must maintain rigorous oversight and take action when necessary to prevent the EPA from over-reaching its statutory authority.

The Act creates a careful partnership between the EPA and the States. In general, the EPA sets the broad standards and the States have the flexibility to implement various means of achieving that standard.

However, the EPA has increasingly undermined the authority of the States such as seeking to impose plant-specific limits on grandfathered plants in overturning the State best-available control technology determinations.

Congress should affirm the role of the States in implementing the Act. Since its inception, Congress expected that technological feasibility and cost effectiveness would be taken in to account and the EPA, the States and generally balanced pollution control technology and cost, and the required B.A.C.T. removal efficiency standards have improved impressively.

However, in recent actions, the EPA appears to have ignored technological feasibility and cost effectiveness. Congress must affirm and strengthen provisions requiring technological feasibility and cost effectiveness.

The EPA fails to take a holistic approach to pollution prevention and regulation, leading to deployment of technologies to reduce one form of pollutant that merely causes or contributes to another source problem.

To cite an all-too-frequent dilemma and one that has the ability to greatly impact the city of Dover, the EPA is increasingly insistent that fly ash, a byproduct of coal-fired electric generation, be included in the list of hazardous wastes.

Yet, in a neighboring township, the EPA sees nothing wrong with approving a new solid waste landfill that would be built directly over top and upstream of Dover's drinking water aquifer and one, and when at full capacity, would become the highest elevation point in Tuscarawas County.

Congress should encourage and facilitate the use of multi-media pollution management.

One final note of interest, following my April 1997 testimony before this subcommittee, I was amused to find the city of Dover listed among the key contributors to the pollution problems inherent in the northeastern United States.

You will find this reference in the Section 126 petitions filed by the eight northeastern States. As you may have noticed in my written testimony, the city of Dover operates a 14-megawatt coal-fired power plant which is co-fired with natural gas, in addition to gas turbine and diesel generation.

Chairman Inhofe and Senator Voinovich, I have shared with you numerous concerns, but I want to reaffirm my earlier statement. The Clean Air Act has worked well in many of the areas envisioned by Congress, including developing a mechanism for setting and attaining ambient air standards.

When standards are based on scientific consensus and designed to address human health and welfare, the system works.

Most criticisms of the Clean Air Act are actually criticisms of the EPA's efforts to use the Act to achieve objectives and impose restrictions beyond congressional intent.

Again, I want to thank you for this opportunity. I look forward to answering any questions you might have.

Senator INHOFE. Thank you, mayor.

Ms. Willhite.

STATEMENT OF MARCIA WILLHITE, ASSISTANT CHIEF OF ENVIRONMENTAL HEALTH LINCOLN-LANCASTER COUNTY DEPARTMENT OF HEALTH, LINCOLN, NE

Ms. WILLHITE. Mr. Chairman and Senator Voinovich, I am Marcia Willhite, assistant chief of Environmental Health at the Lincoln-Lancaster County Department in Lincoln, NE.

Thank you for this opportunity to provide some comments on the Clean Air Act as you begin its reauthorization.

Our local health department's air quality program administers the Clean Air Act within Lancaster County, Nebraska. Lancaster County is home to about 240,000 people and it includes a large range of air pollution sources.

We are currently in attainment of all national ambient air quality standards and anticipate remaining so. Our scope of activities includes all levels of air permitting including our own title V program, compliance inspections, enforcement, air toxics, and collection of emission inventories, air quality planning, and technical assistance. Our guiding principle is pollution prevention.

In summary, our local health department administrates a small-sized air quality program which is experienced in administering a large range of program activities.

The main message I bring to you today from Lincoln, NE is that the Clean Air Act is working. It is holding the line on air emissions increases in our community.

The secondary message I bring to you today is that there are some concepts that we as a local air quality program in a growing community encourage Congress to consider as the Clean Air Act is reauthorized.

The Clean Air Act is a tool for public health risk reduction. The greater the air pollution reduction, the greater the risk reduction.

Interestingly, the greatest air pollution reductions achieved in Lancaster County in the past 5 or 6 years were not mandated by the Clean Air Act. Between 1994 and 2000, a 53-percent reduction in hazardous air pollutants and a 43-percent reduction in volatile organic compounds occurred because of voluntary choices made by businesses to use less toxic materials and less polluting processes.

The coal-fired power plant in Lancaster County even reduced sulfur dioxide emissions by 2,000 tons per year voluntarily by switching to ultra-low sulfur coal.

These choices to prevent pollution rather than control it need to be encouraged and rewarded. Somehow the lesson learned in Lancaster County that significant environmental benefits occur through voluntary pollution prevention needs to be applied to the Clean Air Act of the 21st century. Specifically, incentives for pollution prevention need to be incorporated for those businesses willing to take that option or to go beyond the minimum air quality requirements.

Another area where prevention-based strategies are needed is in the area of maintaining clean air while cities grow.

Lincoln is currently an attainment area, however, in the next 20 to 30 years our population is likely to increase substantially. The land use choices and transportation plans that we make today may affect our ability to maintain nonattainment status in the future.

The tools and funding, funding, funding to support assessment, innovation and best management practices to reduce air quality impacts of transportation should be available to communities like Lincoln that are trying to prevent unhealthy air as well as to areas that are solving air quality problems.

The next version of the Clean Air Act needs to achieve risk reduction more efficient and comprehensively by incorporating multi-pollutant control strategies.

Harmonizing control options to simultaneously use all pollutants of concern for a particular sector is easier to implement for both industry and State and local regulatory agencies and is more cost effective.

Examples of opportunities for better harmonization are plentiful. Coal-fired power plants have gone through separate requirements and permitting for acid rain and NO_X reduction and are likely to face a different regulation for air toxics reduction.

Similarly, the recent light and heavy duty vehicle and fuel standards are focused on ozone precursors. Had they been optimized to include air toxics reduction as well, a separate rulemaking process under 202(L) would not have been necessary.

Reformulated gasoline or RFG, although intended for ozone reduction has been effective in reducing levels of air toxics such as benzene, which national assessments indicate is a concern in every county in the United States. Yet, RFG may only be sold in ozone nonattainment areas.

The next version of the Clean Air Act should be structured to enable multi-pollutant strategies for air pollution management.

The current Clean Air Act calls for a substantial reduction in cancer risk from air toxics in urban areas. To implement this, the Environmental Protection Agency has drafted a strategy centered on identifying the pollutants and sources which contribute most significantly to public health risks based on national, regional, or local level assessments.

In this draft strategy, the EPA would address sources and risks ranking highly on national level assessment and States or localities would address risks and sources of high priority based on regional or local assessment.

This is an efficient, common sense approach. However, the authority for it is unclear. In the reauthorization Clean Air Act a clear mandate and authority for States and localities to cause risk-based reductions would assist our local community when national standards do not address our most pressing air toxics risks.

While other aspects of the Clean Air Act could be addressed, we have purposely limited our community's comments to these three key issues that we believe are of utmost importance.

Please keep prevention-based strategies, multi-pollutant strategies and authorizing State and local toxics risk reduction in mind as you craft the reauthorization of the Clean Air Act.

We hope you will consider these concepts worthy of further study.

I look forward to your questions.

Senator INHOFE. Thank you, Ms. Willhite.

Mr. Taylor.

STATEMENT OF ZACH TAYLOR, EXECUTIVE DIRECTOR, ASSOCIATION OF CENTRAL OKLAHOMA GOVERNMENTS, OKLAHOMA CITY, OK

Mr. TAYLOR. My name is Zach Taylor. I serve as the executive director of the Association of Central Oklahoma Governments, which is the Council of Governments serving Oklahoma City, the metropolitan area as well as serving as a metropolitan planning organization for transportation.

This afternoon, I brought you a breath of fresh air from Oklahoma in case you need it in this dialog. The central Oklahoma region has been an attainment area for ozone since 1978 and carbon monoxide since 1990.

These accomplishments are due primarily to the proactive efforts of civic leaders, local businesses, government officials, and residents.

However, we are fearful that changes in the National Ambient Air Quality Standards for ozone and particulate matter established in September 1997 will thwart the progress made by grass roots efforts in central Oklahoma.

We are ever mindful that these standards were made effective retroactively for the entire summer of 1997.

The past 3 years have brought exceptionally difficult weather to central Oklahoma with El Niño and La Niña and in many ways have thwarted our best efforts and episodic measures to combat what Mother Nature has provided us.

If our metropolitan area were to go nonattainment, the label of nonattainment would have a stigma associated with it as well as a financial impact to our citizens. We have estimated a first-year cost of at least $43 million just for our motoring public, not to mention the ramifications for our businesses.

As Congress addresses reauthorization of the Clean Air Act, we appreciate this opportunity to express some concerns from the heartland regional perspective. We hope that you will consider our full testimony.

In the interest of time, I will attempt to be brief, Mr. Chairman.

Consistent with the position of the Oklahoma Department of Environmental Quality, we also support an 8-hour measuring standard for ground level ozone. We believe this mode of measuring allows more realistic methods of evaluating ambient air quality conditions.

However, we feel the measure currently in place is too strict and is limiting and we would favor a measure that is more scientifically sound.

We urge the EPA Science Advisory Board to revisit its studies regarding air quality standards and that the EPA take smaller steps in implementing the scientists' recommendations.

More specifically, the scientists' recommendations of a range of .07 to .09 parts per million, if more stringent requirements were shown to be scientifically justifiable, we would favor a more gradual implementation schedule beginning with .09.

We feel Congress should allow States and local governments to use flexibility, which is a predominant theme this afternoon, in determining the most effective control measures in regions.

Along those lines, we encourage, as has been suggested here today, the EPA invest in additional research related to the effectiveness of various measures or techniques from different regions around that country.

We strongly encourage a national emphasis be placed on research and technological solutions rather than heavy-handed enforcement.

We encourage national research for nationwide remedies, including technologies for mitigating industry pollution as well as mobile source pollution such as rapid acceleration of the use of alternative light fuel vehicles.

Our single highest concern has to do with the conformity rule, or we call it the hammer. Should a region be declared nonattainment, the State and local governments in that area should be given ample time, at least 3 years, to adjust their transportation plans before transportation dollars are withheld in the name of conformity.

In the current laws, both air and transportation, federally-funded transportation projects must be found to conform to State air quality plans before they are adopted, accepted, approved or funded.

This dilemma, however, is one in which it takes several months to develop an emissions budget to do the necessary modeling and so forth to prove that the transportation plan does not worsen conditions.

In Oklahoma, this process would take no fewer than 2 years, probably 3. We feel that it is ludicrous for the Federal Government to hold up progress in a regional community that has demonstrated a long-standing basis of good faith efforts in response to air quality and they are being made on a continuing basis.

Also, because of the anomalous weather patterns, we ask that the EPA expand its current guidelines and parameters regarding exceptional events. The EPA proposed guidance a few years ago to address this situation, but those rules did not make it through the process.

Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Mr. Taylor. I know that you are aware, you expressed a concern over what should happen before transportation dollars were withheld. I think you know that my amendment is a part of the law that will be signed to stop them from doing that.

It is very sensitive to me because way back in January 1967, I came as a newly-elected State representative to Washington to testify before this very committee. Jennings Randolph was the chairman at that time.

I was protesting the implementation of Lady Bird's Highway Beautification Act of 1965 and their withholding of Federal transportation dollars, saying, you know, that is blackmail and you can't do that.

Well, here it is several generations later and we are still facing that same problem.

Mr. Taylor, you have been a big help. You know, when we had our hearing out in Oklahoma, I did appreciate all the help you were to our various witnesses.

In your written statement you mentioned that the cost of nonattainment in that area would be $43 million. Do you want to elaborate on that a little bit and say something in the nature of that and the cost on businesses of nonattainment in our particular area?

Mr. TAYLOR. We principally focused on mobile sources and the measured economic impact of $43 million in the first year for the motoring public stems from what we expect to be required to impose in the way of motor vehicle inspections, different formulas for fuels as well as vapor recovery systems for both wholesalers and retailers.

Senator INHOFE. I will ask all three of you this since I have been in the position you are in currently. Do you sometimes get the feeling that there is not a whole lot of concern from Washington over the cost that it is to the local communities and to the States in implementing some of these regulations?

Mayor HOMRIGHAUSEN. From my perspective, that is exactly correct. One of the things that I think is the problem with the EPA is that they have a history of handing down unfunded mandates without congressional authority and without giving those of us that they hand the unfunded mandate to any remedy on how to accomplish and pay for the mandate.

They consistently overstep their bounds and have disregarded Congress and the laws that Congress passes and continually make things more difficult for us to live with and don't offer us any money to carry them out.

Senator INHOFE. Do you other two generally agree with the mayor?

Ms. WILLHITE. Well, I guess I come at it from a little bit different perspective of being a delegated implementer of the program.

Our funding needs are really to carry out the work and as has been mentioned before, the funding pot for State and local activities related to the Clean Air Act has been shrinking over the years and has a greater deficit between what it costs to do the work and what we are actually receiving.

Senator INHOFE. There are two problems with the mandates that come from Washington. One is the cost of the unfunded mandates. The other is the one-size-fits-all. Would any of you like to respond to the one-size-fits-all aspect of this problem?

Ms. WILLHITE. I think that as Senator Voinovich was illustrating, some very innovative programs can be developed at the local level for dealing with air quality problems.

It would be nice to have the funding to support those types of activities, whether it is through the State and local grants or it is through something like the Clean Air Partnership fund that can support that innovation.

It would also support the assessments to just kind of evaluate at the local level what would be useful problems to solve. It may not be the ones identified in the Clean Air Act.

Senator INHOFE. Yes, Senator Voinovich did talk about the need for flexibility. He felt that when he had his positions back in the State of Ohio.

Now that you have developed experience, are there specific areas where you would recommend we address the flexibility insofar as it affects you as we move into reauthorization?

Mayor HOMRIGHAUSEN. Well, I would just cite Dover as an example, Senator and tie in the last question with this one, where through innovation we are partnered with East Ohio Gas to install coal-fired gas burners on our 14 megawatt boiler which, before we did that, we were at 29 percent of our SO_2 allowances, 36 percent of our particulate matter allowances, so we were well below what we were allowed to emit.

But, by adding the gas burners, we even further reduced our emissions. Now, it was a partner between East Ohio Gas which is now Dominion and the city of Dover with no outside funding.

So, you know, I think we should be allowed to get involved in projects like this because certainly AMP-Ohio's largest plant which is the Gorsuch Station down in Marietta is 213 megawatts. What you would have at the Gorsuch Station certainly would not apply to Dover's 14 megawatt power plant.

So, we have to have flexibility.

Senator INHOFE. Are there any other comments?

Mr. Chairman?

Mr. TAYLOR. Well, related to cost, I think it is particularly important, as has been noted earlier, to allow national requirements to take hold in regions before imposing, particularly in previously determined attainment areas, before imposing new, costly local measures.

In regard to the one-size-fits-all, the flexible attainment region approach which was piloted in Tulsa and used also in Oklahoma City has proven to be a very effective technique for allowing flexibility and flexible attainment regions.

Also, we have piloted substantially in our area on alternative fuels and we have found the partnerships built around electric, propane, and natural gas organizations to be very, very productive in reducing emissions.

It has been very, very successful for Tinker Air Force Base, which now has the single largest deployment of alternatively fueled vehicles in the United States.

It has proven both to be a very, very effective environmental management technique, but also an economic management technique for the base.

Senator INHOFE. Well, I would have to say we had a great deal of concern back when you and I were addressing the earlier mandates on ambient air.

You mentioned Tinker Air Force Base, the effect it would have had on not just Tinker, but also Fort Sill, the firing range. In fact, our analysis was that it would have required shutting it down.

You know, we have had three hearings on this so far. I think this is a pretty ambitious way to start out. We are committed to getting this through in the next Session, which means in the next 2 years.

Now, you have lived under this for a while now. You have brought your expertise here. But we want to hear from you, if not in this hearing, afterwards as we progress, all of the problems.

If we don't know about the problems, then we are not going to be able to address them. We are going to have a very aggressive attitude toward getting this reauthorization completed.

So, we will want to hear from you because what is reauthorized you are going to have to live with for a while. As we come to a close, I would like to ask if there is anything that any of the three of you would like to say that may not have been clarified or you have not had a chance to say before now.

Mayor HOMRIGHAUSEN. I would just like to add that if the 1997 amendments do hold up in court and they are implemented, the city of Dover would not have any problem with ozone, however, we would have a problem with the $PM_{2.5}$.

I guess I would like to ask a question of the Federal Government what they would do once Theodore Roosevelt National Park goes out of compliance from the natural production of ozone.

Senator INHOFE. Good. That is a very responsible question to ask. We will look for an answer.

Anyone else?

Well, we thank you very much for being here and also for those who are in the audience that were participants on the first panel, we appreciate it very much. We ask for your continued input as we progress over the next 24 months in this reauthorization.

We are adjourned.

[Whereupon, at 4:15 p.m., the subcommittee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF KAREN STUDDERS, COMMISSIONER, MINNESOTA POLLUTION CONTROL AGENCY

Mr. Chairman and members of the subcommittee, thank you for the opportunity to appear before you today. My name is Karen A. Studders and I am the Commissioner of the Minnesota Pollution Control Agency. I bring you greetings, Mr. Chairman, from Governor Jesse Ventura, who appointed me to this position in February 1999.

My remarks reflect the perspective I have gained during my time as Commissioner at the Minnesota Pollution Control Agency, as well as my experience as director of environmental programs in the natural gas distribution division of a $15 billion diversified international energy services company, where I worked for 17 years.

The Clean Air Act sets out broad goals. In the first wave of environmental protection, back in the seventies, we used "command and control" techniques to address air pollution from large, industrial point sources of pollution. Times have changed. I believe we are now ready for what I call "the second wave of environmental protection," which allows the States more flexibility and encourages true innovation. Under current regulations, States are allowed limited flexibility, but we need more. We believe it is possible to craft a program that allows flexibility without compromising the environment, safety or health. Environmental laws cannot be static, because our impact on our environment is not static.

While the structure of the Clean Air Act has worked, I will suggest several changes that can be made to improve the use of this tool in the 21st century.

Let me begin by telling you what I will discuss today.

- The effect of the Clean Air Act in Minnesota;
- States' need for funding to carry out mandates;
- What Minnesota has learned about toxic air pollutants; and
- Integrated, cost-effective environmental regulation of power generation.

THE EFFECT OF THE CLEAN AIR ACT IN MINNESOTA

Twenty-eight years ago Minnesota had its first air pollution health alert. It was February 11, 1972, and it was almost 20 degrees below zero. A grimy brown haze choked the Minneapolis skyline and visibility was bad even at ground level (overhead of photo, "February 11, 1972," in attachments, from *Minnesota Environment*

2000[1]). The 5-year-old Minnesota Pollution Control Agency scrambled to get the word out to warn people with asthma and heart disease to stay indoors.

In the following years, the Clean Air Act's strong anti-pollution requirements for smokestacks and cars helped reduce sulfur dioxide, carbon monoxide and other criteria air pollutants. In Minnesota, these efforts paid off. We have not had an air pollution health alert since 1987.

Today, unlike many other States, Minnesota meets all Federal air quality standards. The Clean Air Act was a tool Minnesota desperately needed in 1972. Using that tool, we were able to take a dangerously deteriorating air quality situation and turn it around in less than 20 years.

STATES' NEED FOR FUNDING TO CARRY OUT MANDATES

The Clean Air Act Amendments of 1990 created a new mechanism to help fund the requirements of the Act: emission fees. These air emission fees were intended to pay for many of the new requirements in the amendments. In Minnesota, emission fees cover 80 percent of the air program's needs. The fee amount specified by the Clean Air Act Amendments ($25/ton, with adjustments for cost of living) is not enough to pay for the costs it was intended to cover. Not long ago, the U.S. Environmental Protection Agency (EPA) and the States concluded that there was about a $100 million gap between funding necessary to carry out Clean Air Act activities and funding available to States.[2] I suspect things have only gotten worse since then.

For example, the 1990 Clean Air Act Amendments required States to complete issuing all permits for major facilities (Title V Permits) by 1998. Now, in the year 2000, 2 years after that deadline, many States have issued fewer than half their permits. Minnesota is in the same boat. We have issued about 160 permits—less than half. The good news is that, because we intentionally chose to target the largest emission sources, those 160 permits cover 75 percent of our emissions. The bad news is that about 200 permits have yet to be issued and we do not have the resources to issue them faster. To make matters even worse, the first permits we issued 5 years ago are now approaching the end of their 5-year shelf life.

With States being this far behind in permitting, funding is clearly inadequate for the task at hand. As Congress considers changes to the Act, please also consider the funding necessary to operate an adequate air quality program.

Nationally, States collect 94 percent of environmental data, conduct 97 percent of facility inspections, operate about 70 percent of the Federal programs delegated to them, conduct about 80 percent of the enforcement actions, and contribute about twice as much funding to environmental programs as the U.S. EPA.[3]

Ten years after the Clean Air Act Amendments of 1990, it is clear that the total package of funding available to States—emission fees, other State funds and Federal grants—is not sufficient to adequately cover the costs of Clean Air Act-related activities. One example of a funding shortfall is the multi-year process to reduce regional haze.

WHAT MINNESOTA HAS LEARNED ABOUT TOXIC AIR POLLUTANTS

When the world of air pollution consisted only of six criteria pollutants, we felt pretty smug in Minnesota. We did not have problems as serious as those in cities such as Los Angeles or Houston, and we were successfully addressing the air pollution problem we did have (overhead of, "Trends in criteria air pollutants in the Twin Cities area, in attachments).[1] As this figure shows, all criteria pollutants except nitrogen dioxide dropped from 1990 to 1998. This was achieved at the same time vehicle miles traveled continued to climb and our State economy continued to grow. This is a clear indication that economic growth and environmental protection can go hand in hand.[4]

However, we do not feel so smug any more. Thanks to researchers, scientists, health professionals and U.S. EPA, we know that the world of air pollution is more complex than anyone dreamed back in 1972.

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[1] Minnesota Pollution Control Agency, *Minnesota Environment 2000*, St. Paul, Minn.: MPCA, 2000, *http://www.pca.state.mn.us/about/pubs/mnereport/index.html*

[2] "Sagamore Study," prepared by U.S. EPA and presented by Jerry Kurtzweg at STAPPA/ALAPCO May 15, 1997 meeting.

[3] Testimony of George Dana Bisbee, Assistant Commissioner, New Hampshire Department of Environmental Services and Chairman, ECOS Data Management Workgroup, before the Senate Committee on Environment and Public Works, September 26, 2000.

[4] Meyer, S. "Environmentalism and Economic Prosperity: An Update," February 16, 1993, available on MIT website at *http://web.mit.edu/polisci/mpepp/reports.htm*

Just 2 years ago, U.S. EPA completed the air toxics component of its Cumulative Exposure Project[5] which used computer models to assess 1990 outdoor concentrations of air toxics across the continental United States. Air toxics—also known as toxic air pollutants or hazardous air pollutants—are a group of chemicals associated with a variety of adverse health problems, including cancer, neurological effects, and reproductive and developmental effects. The U.S. EPA data suggest that half our increased risk of cancer (over and above the risk from smoking, consumption of certain foods and genetics) comes from air toxics emitted by our cars, trucks and other engines.

In Minnesota, we did not just rely on U.S. EPA's computer model. Over the last few years, we have been monitoring the outdoor air. We have actually measured 75 different air toxics around our State, in locations ranging from farms to small towns to big cities. What we found was disturbing.[6] Our report was published in a scientific peer-reviewed journal this month.[7]

We found that when compared with health benchmarks, 10 air toxics exceeded thresholds in either modeled (predictions in the U.S. EPA's study) or monitored (actual measurements by the Minnesota Pollution Control Agency) concentrations or both.

Five of these pollutants (formaldehyde, benzene, carbon tetrachloride, chloroform, ethylene dibromide) exceeded health benchmarks in some or all regions of Minnesota. In several cases, measured concentrations were actually *higher* than U.S. EPA's predictions in the Cumulative Exposure Project. We are now in the process of developing the capacity to measure the rest of the 10 pollutants where there is reason to suspect high concentrations. These pollutants include 1,3 butadiene, acrolein and chromium.

Many of the air toxics with the highest concentrations are primarily from cars, trucks, buses and other engines. For those chemicals, concentrations were highest by far in the Twin Cities. But, surprisingly, we found that one cannot escape air toxics by moving to a home far from urban centers. In rural Minnesota, even a town like Granite Falls, with a population of 3,000, showed measured concentrations of some toxics above health benchmarks.

The Federal Government must no longer delay taking further action. While the provisions for point sources in the 1990 Clean Air Act Amendments have made a difference, there is clearly much more that needs to be done about mobile sources of air toxics—both on and off-road.

Although we appreciate U.S. EPA's efforts to regulate mobile sources, we believe they must turn their attention to reducing air toxics now. New amendments to the Clean Air Act must include air toxics regulation in order to ratchet down toxic tailpipe emissions from cars, trucks, buses and small engines. Requiring further improvements in fuel efficiency will also help reduce air toxics. We need *national*, rather than regional or State-by-State, standards. We also need to require cleaner burning fuels for all internal combustion engines. We need to standardize fuels and reduce the number of different "boutique" fuels around the country. The current situation, with different fuels specified for use in different parts of the country leads to spot fuel shortages and higher gasoline prices—something we are experiencing in the Midwest.

I think we can accomplish all this while maintaining a significant role for homegrown ethanol as a fuel component. Ethanol production is an important industry in the Midwest. In Minnesota, we have successfully incorporated ethanol into our fuels with significant environmental benefit—and, we do not have the MTBE (methyl tertiary butyl ether) problem other States are facing.

U.S. EPA tells us they plan to decide about further reductions in mobile sources of air pollution in the year 2004. Given what we measured in Minnesota, I believe we cannot wait that long.

U.S. EPA also says they are working on an Urban Air Toxics Strategy. They have collected information on what everyone around the country is doing about urban air toxics. Frankly, I do not think of that as a strategy. I think of that as a list. We do not need a list. We need leadership, we need a real *national* urban air toxics strategy with specific goals that we can all focus on, so we can improve the air people breathe daily. And, given the health threat, we need a strategy now.

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[5] Environmental Protection Agency, *http://www.epa.gov/cumulativeexposure/air/air.htm*

[6] Minnesota Pollution Control Agency, *Staff Paper on Air Toxics*, St. Paul, Minn.: MPCA, Nov. 1999, *http://www.pca.state.mn.us/air/airtoxics.html#paper*)

[7] Pratt, G., Palmer, K., et al., "An Assessment of Air Toxics in Minnesota," *Environmental Health Perspectives*, Vol. 108, Number 9, September 2000.

A recent study in Denver showed that children living near heavily traveled streets have six times the risk of developing cancer and leukemia as other children.[8] Research reported in the British medical journal *The Lancet* estimates that 6 percent of all deaths in Austria, France and Switzerland are due to air pollution and that half of those are due to mobile source pollution.[9]

Research carried out by the Harvard School of Public Health in Boston shows a direct connection between heart attacks and air pollution.[10] The scientists found that the higher the day's particulate pollution concentration, the more people died of heart attacks—even when particulate levels remained *well below* the standard proposed by U.S. EPA.

In other words, people are dying of heart attacks brought on by particulate pollution so low we assumed it was harmless. Even when U.S. EPA's recently promulgated diesel and gasoline standards go into effect, clearly more will be needed to solve particulate pollution problems.

The cost of the illnesses described in these studies is too high, both financially and socially. We cannot allow more delay.

INTEGRATED, COST-EFFECTIVE ENVIRONMENTAL REGULATION OF POWER GENERATION

This is a lake located in the unique Voyageurs National Park on the Minnesota-Canada border. This remote area of forests and lakes is northern Minnesota's spectacular crown jewel[11] (overhead in attachments). Hundreds of beautiful lakes just like it are scattered across the region. If you should decide to do any fishing in this lake next summer, we'd be obliged to warn you that you cannot safely eat more than *one meal of fish per week* of most fish caught in this pristine-looking lake. Pregnant women and children in your family cannot safely eat more than one meal of fish per month from this lake. The fish in this lake and in many other lakes in this remote wilderness area contain too much mercury.

The mercury got into the fish from the water. Much of that mercury got into the water from mercury deposition from the air. It got into the air from mercury-emitting sources such as power plants, hundreds and even thousands of miles away.

We have taken significant steps to improve this situation in Minnesota, reducing our own mercury emissions by more than 50 percent. But most of the mercury in our fish comes from sources outside our borders.[12]

Coal-fired electric utility plants are one of the largest sources of mercury emissions in this country. We know that if we further reduce emissions from coal-fired plants and develop and convert to other methods of power generation, we will not only cut mercury emissions but other pollutant emissions, too.

Increasing demand for electric power has brought us face to face with tough environmental issues. What do we do about the transportation of air pollution across State borders? What will be the effects of regulating the tiniest of particles in the air, $PM_{2.5}$? What do we do about regional haze? Do we need to do more to reduce acid rain in the northeast? What about toxic emissions from burning coal? What about climate change?

These questions and the programs we have created to address them are like separate trains heading down separate tracks, each carrying a few passengers to separate destinations. We need one big train on one single track, so we can get everyone on board, all heading to the same place. We need a comprehensive, integrated national power generation strategy that regulates multiple pollutants, including nitrogen oxides, sulfur dioxide, carbon dioxide, mercury and other toxic pollutants. The strategy should set national goals and schedules that allow flexibility for industry in how to meet them. And we need a strategy that once and for all deals with old coal-fired power plants that have been "grandfathered" into existing regulations.

An integrated national approach should be long-term in nature. It should target both new and old plants, both large and small. However, for the existing population of old plants, a long-term schedule of plant renovation or phaseout should be implemented to limit disruption of electricity supply and economic costs. Again, the crit-

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[8] Pearson, R., Wachtel, H., Ebi, K., "Distance-Weighted Traffic Density in Proximity to a Home is a Risk Factor for Leukemia and Other Childhood Cancers," Journal of the Air and Waste Management Association, Vol. 50, Feb. 2000.

[9] Kunzli, N., Kaiser, R. et. al., "Public-health Impact of Outdoor and Traffic-Related Air Pollution: a European Assessment," *The Lancet*, Vol. 356, September 2, 2000.

[10] "Re-analysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality," (Health Effects Institute, Cambridge, Mass.: July, 2000).

[11] Photo courtesy of Minnesota Office of Tourism.

[12] Report on the Mercury Contamination Reduction Initiative: Advisory Council's Results and Recommendations, Minnesota Pollution Control Agency, March 1999, *http://www.pca.state.mn.us/hot/legislature/reports/1999/mercury.pdf*

ical element is for the government to establish a set of schedules and performance standards for all facilities and allow electric utilities and independent power producers maximum flexibility in meeting those standards.

The energy regulatory and environmental arms of the legislative and administrative branches of government need to start talking in concert with the industry. They need to acknowledge the problems on both sides and establish goals. It is a huge process, but one that must be initiated. We cannot ignore the environmental problems caused by global warming on one side, nor the dependence of our economy on energy on the other.

I flew to Washington today from St. Louis, where I participated in a conference on energy and the environment. It was sponsored by the Environmental Council of States, the National Association of Regulated Utility Commissioners, the National Association of State Energy Organizations, and the State and Territorial Air Pollution Program Administrators and Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), with some funding provided by the U.S. EPA. I will pass on to you the most important piece of advice I heard there: If we try to achieve environmental results pollutant by pollutant, we will hamstring the industry and never achieve what we want in the end anyway. And we'll risk an increasing number of brownouts and blackouts throughout the country as utilities struggle to meet separate requirements on separate schedules.

Piecemeal programs targeting the power industry (acid rain, new ozone standard, $PM_{2.5}$, regional haze and ozone transport, climate change) have led to enormous uncertainty and cost-inefficiencies. Because no one is sure of what to expect from regulators, utilities delay environmental decisions, even delay decisions on new generating capacity. This cannot continue without eroding the reliable power supply of our Nation. Our lack of focus isn't good for the environment; it is not good for the industry; and it is not good for the citizens of the United States, who want and deserve both a reliable source of energy and a clean environment. A comprehensive and integrated approach to the power industry could lead to impressive environmental gains for our children without sacrificing growth in power capacity.

I am certain we can develop an approach that can successfully balance environmental needs, cost-effectiveness and reliability. Amendments to the Clean Air Act must address a comprehensive and integrated approach to the power utility industry.

You asked me to address what is working and what needs to be changed in the Clean Air Act. In addition to what I've mentioned (funding, air toxics and an integrated environmental energy strategy), we need to further simplify the permitting program. Right now, the biggest time drain in permitting is the new source review and prevention of significant deterioration regulations. These regulations were well intended, but are too complicated. Too many sources undergoing modification are using these rules to try to avoid new emission controls. Grey areas in these regulations have resulted in a recent onslaught of legal and enforcement actions across the country. It may be time for us to discuss whether it would be better for all, the regulated community and the regulators, to end the practice of "grandfathering" existing sources (with reasonable timeframes) and to require all sources undergoing modifications to meet minimum pollution control standards.

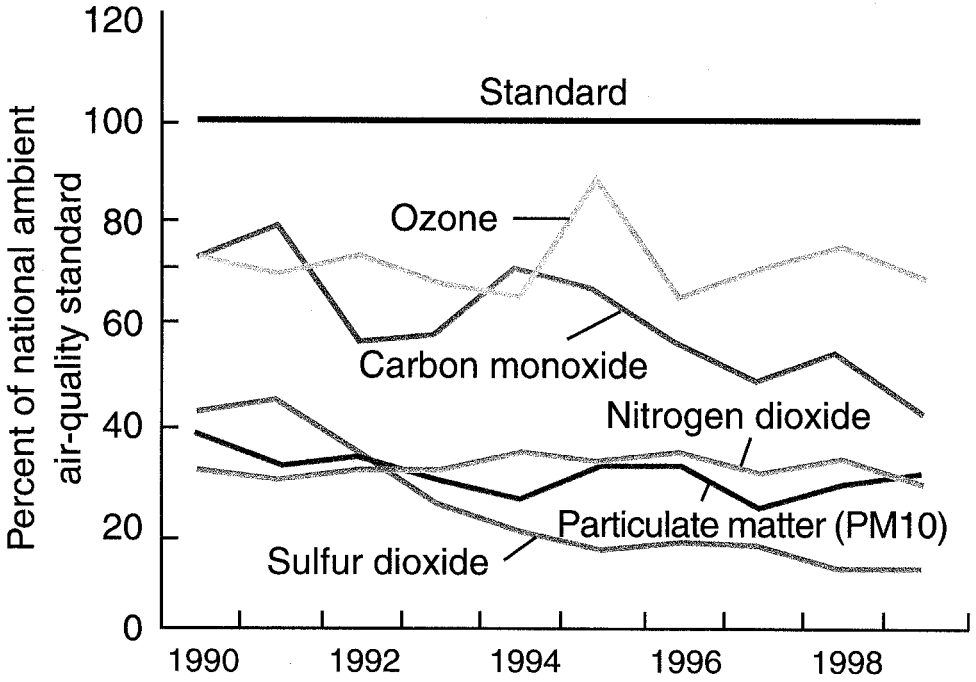
It is also important that cross-media questions be addressed. For instance, a neglected aspect of coal-fired generation is the fate of literally millions of tons of bottom and fly ash containing high concentrations of heavy metals. When we develop policies on air, too often we ignore parallel effects on our lands and waters. Cross media concerns that link the Clean Air Act to the Clean Water Act and other Federal legislation and rules need to be better developed.

I want to thank you for inviting me here to provide Minnesota's perspective on changes needed to the Clean Air Act. I believe these changes are necessary to improve the air in our environment and therefore, the health and quality of life for the people of the United States of America. I believe these changes are necessary if we are to live up to the promise of the Clean Air Act.

Thank you. I look forward to your questions.

First air pollution alert hits the Twin Cities.

Trends in criteria air pollutants in the Twin Cities area



Rainy Lake, Voyageurs National Park, Minnesota

RESPONSES BY KAREN STUDDERS TO ADDITIONAL QUESTIONS FROM SENATOR BAUCUS

Question 1. You suggested there is a shortfall in funding for State activities because the Clean Air Act per ton emission fee of $25 per ton (adjusted for cost of living) is too low. The Act (section 502(b)) appears to provide States with sufficient authority and responsibility to raise the fee to cover the relevant permitting responsibilities. Why is there a shortfall and does the Act need to be modified? What would a more appropriate fee level be in the Act and should it be higher for more toxic or persistent and bioaccumulative pollutants?

Response. States were to have completed the first round of issuing Title V permits to all of their facilities by 2 years ago. For numerous reasons, nearly every State is far behind that original schedule and many still have only issued about half of their Title V permits. The permitting program regulations that were developed by the Environmental Protection Agency (EPA) are far more complicated than anticipated when the Clean Air Act Amendments were passed in 1990. The fact that so many States are still working to issue their initial round of Title V permits is a clear indication that the resources needed to implement the program are not adequate. While the Act gives States the ability to raise fees above and beyond the minimum stated by the law, States are reluctant to do so. There are many reasons for this reluctance, including: fear of creating a negative business climate relative to neighboring States and a reluctance by State legislators and Governors to raise fees for State agencies. A combination of streamlining the regulations and increasing the presumptive minimum fee to be collected seems to be in order.

A number of States, Minnesota included, have debated the notion of charging higher fees for toxic and bioaccumulative pollutants. There are several reasons why this may not be a good idea. First, these fees are, by design, to raise funds to pay for the permitting program. Thus they provide little incentive to reduce emissions. Charging a higher fee for certain pollutants would only make sense if the fee were set high enough to provide a disincentive to emit that pollutant, or if the cost of regulating that pollutant were greater than others. Second, our emission inventories for toxic and bioaccumulative pollutants are very imprecise. The inaccuracies in the inventories would potentially create unfair billing situations and would certainly result in many challenges to the emission numbers. For the reasons stated above, Minnesota has decided not to pursue a different fee level for toxic and bioaccumulative pollutants.

Question 2. What is the fee (per ton of emissions) which your State currently charges for permitting under Title V of the Clean Air Act? How much does that generate annually and what is your States' annual budget for permit activities, implementation and enforcement matters, emissions and ambient monitoring, modeling, analysis, demonstration, inventory preparation and emissions tracking, relating to air quality? What, if any, additional categories of spending are necessary to support air quality programs?

Response. In the State fiscal year 2000, the fee per ton charged in Minnesota was $32.80. This generated $8.75M in revenue for the program. In the same fiscal year, the annual budget for the air program, including all other State and Federal funds, with the exception of the Minnesota Vehicle Inspection Program which has since been terminated, was $12.3M. Of this total, approximately 60 percent was expended on the regulatory compliance program (permitting, compliance, enforcement), 23 percent was expended on the air monitoring program, 16 percent was expended on policy and planning activities, and 9 percent; was expended on administrative costs.

There are at least two additional spending categories that should be considered. First, there is a very large regional planning effort underway to develop State Implementation Plans for regional haze. While the Regional Planning Organizations are being funded, little or no new funding has been made available to States to support their considerable efforts in this activity. States need financial support in order to participate effectively. Second, EPA will soon be releasing the latest results of its National Air Toxics Assessment. The data shows potential air toxics problems around the country. The current level of effort being made to confirm these results with actual monitoring data is not sufficient. Additional grants to States for air toxics monitoring is needed.

Question 3. Flexibility was mentioned repeatedly during the hearing as necessary for efficient conduct of States' programs. The Clean Air Act Amendments of 1990 created relatively strict deadlines and established numerous requirements largely because insufficient progress had been made prior to 1990 in achieving attainment. How can we be certain that increasing flexibility will not result in slowing current progress? What specific changes in the Act would be necessary to enhance flexibility?

Response. No one can guarantee that increased flexibility for States will not slow our current progress. However, many are certain that the current methods fail to accomplish the desired goals effectively or efficiently. Providing flexibility within a structure can help to identify methods that increase a program's efficiency or effectiveness.

Bear in mind that flexibility can mean many different things. Frequently, States desire flexibility of process to meet the goals set by Congress or the Federal Government. The effectiveness of providing such flexibility to States can be best measured when Congress or the Federal Government: (1) establishes a clear environmental goal that is achievable on a State level; (2) imposes it with a realistic deadline; (3) sets up a mechanism that ensures the States' efforts are adequately funded, (4) establishes a program "floor" that establishes minimum expectations; and (5) provides for real consequences when States fail to deliver the desired results.

It is clear that an enormous amount of progress has been made in improving the environment over the past 30 years of environmental regulation. However, Minnesota believes that most of the improvements that can be made under the Act have been made. And therefore the rate of decrease of air emissions from point sources has already begun to slow and flatten out. Furthermore, there are emerging issues and priorities not currently addresses by the Act, such as urban exposure to air toxics. Minnesota believes that given the flexibility to experiment, without degrading the environment, solutions can be discovered that improve the environment while decreasing the amount of resources expended. These resources can then be transferred to address emerging issues. Minnesota believes that the Toxic Release Inventory (TRI), while clearly not perfect, is a great example of how a much less burdensome approach clearly resulted in enormous benefits to our environment. Minnesota believes that given the opportunity to experiment, other TRI-type opportunities could be developed, implemented, evaluated, and then transferred to the system as a whole to bring our country to that next level or "second wave of environmental protection."

Question 4. Transport of ozone and other long range pollutants continues to be a serious problem for public health and for State and local air quality planners. Do you have any suggestions for ways that the Act could better deal with this phenomenon?

Response. Minnesota believes that Congress and EPA clearly need to take the lead to resolve problems resulting from long-range transport. This needs to be done in continuous consultation with the States. (The Environmental Council of the States (ECOS) provides an excellent means to work with all of the States.) Certain mid-range transport problems such as regional haze and ozone may be best turned over to regional planning organizations. EPA, however, must provide technical and financial aide to these regional planning organizations. EPA must also stay involved in the processes. Regional planning is still an experiment. In some cases it may fail. EPA and Federal law must step in to provide consequences if States fail to reach agreement or fail to implement their part of the solution. Finally, regional planning is likely to be a complex and expensive process and should not be undertaken even for mid-range transported pollutants if national regulation is more effective and efficient.

RESPONSES BY KAREN STUDDERS TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. What would be the consequences to your State if the Environmental Protection Agency (EPA) moves forward with designations of "nonattainment areas" under the 8-hour national ambient air quality standard for ozone before the Supreme Court renders a decision in the case.

Response. Minnesota submitted a letter to EPA requesting that the entire State be designated "attainment" for the proposed 8-hour standard. Therefore Minnesota should not be affected by, and does not disagree with a possible move by EPA to designate nonattainment areas.

Question 2. Is EPA providing sufficient resources currently, as well as commitments for future resources, to conduct appropriate ambient air monitoring within your State, including monitoring of fine particulate matter and determination of the composition of fine particulate matter?

Response. There seems to be sufficient funding to Minnesota for fine particulate monitoring. This is due primarily to the fact that the data collected to date seems to indicate attainment with the proposed new standard. The situation in other States that will not be in attainment may be different.

There currently is insufficient funding for the monitoring of regional haze, not just in Minnesota but throughout the Midwest, and monitoring for air toxics.

The monitoring network for regional haze was established based on the locations of Class I areas. The middle of the United States has few Class I areas (Kansas, Nebraska, Iowa, Wisconsin, Illinois, Indiana, Ohio, Pennsylvania and New York have no regional haze monitoring sites). This "monitoring hole" in the middle of the country must be filled with additional monitoring sites in order to develop the information needed to prepare State Implementation Plans for regional haze.

EPA will soon be releasing the latest results of its National air Toxics Assessment. The data show potential air toxics problems around the country. The current level of effort being made to confirm these results with actual monitoring data is not sufficient. Additional grants to States for air toxics monitoring is needed.

Question 3. Is EPA providing adequate flexibility and appropriate guidance to State and local air pollution agencies to administer the program for operating permits under Title V of the Clean Air Act?

Response. *Appropriate guidance.*—EPA fails to provide guidance that meets a reasonable standard of being timely, consistent, and appropriate. While things have improved somewhat as the Title V program has matured, policy decisions still take too long to make and issue. Too often, policy decisions vary from region to region and the policies may cause problems for the permitting authorities (e.g. States) that need to implement the Title V program.

In 1992, EPA promulgated the Part 70 rules, thus codifying Title V of the Clean Air Act. States then developed operating permit programs under those rules and began to permit facilities. EPA and the States both learned a great deal about operating permits since 1992.

Unfortunately, EPA and the States did not always learn the same lessons or desire the same outcomes. EPA sought to clarify its intentions by developing policies and by revising the rules. States then needed to adapt their programs to the changing field of play, regardless of the impact on their programs.

EPA still plans to amend the Part 70 rules, particularly in the areas of modifications and public participation. EPA has been working to change the modification provisions for several years, floating proposals at least twice. While changes are anticipated, no regulations have yet been promulgated.

In the absence of a national policy, EPA's regional offices provide guidance. All too frequently, that guidance varies from region to region. Companies with facilities in several States tend to desire the interpretation that best suits their desires.

Finally, EPA's policies may cause problems for the State implementing the program. One example is the conflict between the "once-in, always-in" policy that EPA has applied for the Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAPs) program and the flexible policy for the Part 70 program. The Part 70 policy allows facilities to move in and out of major source status.

Another problem is EPA's interpretation that a Title V permit cannot supercede the, permit from which a specific condition is drawn. This causes confusion, as both the Title V permit and the previous permit must be actively maintained; if a conflict arises over the interpretation of the Title V condition, which permit governs the situation?

Flexibility.—Title V creates nothing more than a permit to pollute. Facilities close to the threshold do have a strong incentive to reduce emissions below thresholds, in order to get out of the enormously complex and costly Title V requirements. However, once a permit is issued, or the source safely escapes permitting by reducing just enough to stay under thresholds, there is little incentive to further reduce the impact a facility has on the environment.

There is a constant need to improve the way we protect our environment. Minnesota does not have all the answers as to how to go about doing this, and therefore desires the authority to experiment. Current options available to conduct such experimentation are limited at best. For example, Minnesota created a simplified and streamlined multimedia permit that replaced Title V and other Act provisions for a 3M facility in Hutchinson, Minnesota. Stakeholders in Minnesota critically evaluated this alternate permit. A specific Minnesota law was passed (unanimously in both the Minnesota House and Senate) to provide boundaries and guidelines for such experiments in Minnesota. This experiment with 3M was not perfect. However, there were assurances it would be protective of human health and the environment. Yet, in the end EPA was inflexible and overrode the desires of the State to implement this experiment. This is the type of experiment Minnesota believes it should have the authority to:

- develop,
- undertake,

- evaluate,
- report on, and finally,
- apply lessons learned to improving how Minnesota's environment is protected.

There is more than one way to peel an apple. The method outlined in Title V, although valid, may not be the way to get the best performance or be the most efficient use of environmental protection resource dollars. Minnesota is committed to continuous improvement, and therefore is committed to gaining the authorities needed to conduct experiments to this end.

Question 4. Are EPA's regulations under the Act sufficiently clear, consistent and timely to allow your State to properly implement Clean Air Act programs for which it is responsible?

Response. EPA's regulations and the guidance provided by EPA fail to meet the standard of being clear, consistent, and timely. This is true for a large fraction of the Clean Air Act programs, and includes the Title V permitting program, the New Source Review (NSR) major source permitting program, and several of the New Source Performance Standards (NSPS) and the National Emission Standards for Hazardous Air Pollutants (NESHAPs).

EPA is cursed with trying to apply its regulations consistently to a variety of situations, many with circumstances that would have been difficult, if not impossible, to anticipate. Applying the regulations in such situations leads to a lack of clarity and consistency. Trying to remedy the lack of clarity and consistency causes the lack of timeliness.

For example, the NSR regulation lacks clarity sufficient to deal with all situations. For that reason, EPA developed (and continues to develop) guidance that interprets the regulation. EPA has issued enough guidance memoranda to fill at least five three-inch three-ring binders. To provide permittees throughout the country with a "level playing field"—a clear, consistently interpreted regulation—the permitting authorities that implement NSR should be familiar not only with the regulation, but also with all the guidance. Because of the breadth of the guidance, this is a daunting task.

However, the permitting authorities are not alone in their need to know the regulation and the guidance. Each of EPA's regions must also be able to interpret and apply these regulations consistently. Frequently, the interpretations from different regions on a given situation vary significantly. Then, the affected source or industry group often seeks to have the most lenient interpretation applied nationally.

To try to solve this problem, some interpretations are raised to EPA headquarters. Because of EPA's structure and process, the decisionmaking effort typically involves a variety of competing interests and opinions. The entire process cannot be completed in a timely manner.

Most States currently have large backlogs of unissued Title V permits. This is partly a clarity issue due to the tremendous task of deciphering how the Title V regulations apply to given sources. Minnesota was one of the first States to gain approval for implementing a Title V permit program, but is now faced with an initial issuance backlog that will take approximately 4 years to work through. This lack of issuance of Title V is not due to a lack of desire by Minnesota Pollution Control Agency (MPCA) staff. On the contrary, it is due to the commitment of MPCA staff to conduct the process in full compliance with the Title V and Part 70 permit requirements. The process of Title V permit issuance has turned out to be a much more complex and time intensive activity than anticipated.

One possible solution to this dilemma would be to create a category of Title V sources, say under a threshold double the current limits that receive a streamlined permit approach. Another possibility might be to extend the maximum duration for at least some sources from 5 years to 10 years or longer. If Congress is serious about addressing this State dilemma, Minnesota would be more than willing to help develop creative solutions that do not compromise the protection of the environment.

RESPONSES BY KAREN STUDDERS TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. From the State and local government point of view, what aspects of the Clean Air Act are currently working well?

Response. Most of what the Clean Air Act (Act) set out to accomplish has been accomplished in Minnesota. For example: (1) Minnesota meets all National Ambient Air Quality Standards; (2) total pollutant emissions are down for historic highs; (3) Minnesota has an effective permit program; and (4) acid deposition in Minnesota has been reduced to what we believe to be environmentally safe levels. Nationwide the Act has resulted in reduced emissions and improved air quality through a strong consistent Federal presence. Certain clear victories stand out such as the acid rain

provisions and removal of lead from gasoline. Progress has also been made in the more thorny recalcitrant problems such as ozone and air toxics. For the most part, the Act also lays out a constructive framework for State/Federal relationships. There are problems that remain, and limited modifications may be necessary to solve them.

Minnesota believes that the Act falls short in two areas. First, once compliance is achieved with the standards in the Act (which is the case with most facilities in Minnesota), there is little incentive for further improvement. In Minnesota, in general, data trends are already showing a flattening of performance in regards to improving air quality for regulated pollutants. Second, there are emerging air quality issues that are not well addressed by the current regulatory system. These issues, such as urban exposure to air toxics and reduction of multi-source regional pollutants such as mercury, do not fit well under the command and control model of the current regulatory system, and are not well addressed by the 1990 amendments to the Act.

Question 2. From the State and local government point of view, what needs to be improved in the Act in order to provide you more flexibility and responsibility?

Response. The MPCA has been and is continuing attempts to work with the Environmental Protection Agency (EPA) under various regulatory innovations programs. These programs include Project XL and the Common Sense Initiative. In addition, the MPCA had a key leadership role in the development of the Environmental Council of States (ECOS)/EPA regulatory innovations agreement. When reinvention efforts were implemented in the mid-1990s, the MPCA was an enthusiastic participant. The MPCA believed the initiatives presented the opportunity to improve the environment and become more efficient at the same time. However, MPCA experience with the reinvention initiatives has been disappointing. The effort to develop pilot projects has been resource intensive and has resulted in incremental improvements at best. A key part of why the EPA reinvention initiatives have had disappointing results is EPA itself. Instead of allowing innovation experiments to happen, and then evaluating and applying the lessons learned, EPA chose to focus on requiring guarantees of up-front success. This has resulted in resource intensive up-front review and micro-management of the proposed pilots. The outcome is apparent, very few participants stepping forward to pilot the initiatives. Therefore, little is being learned from innovation pilots as to how to improve the way regulators conduct our environmental business. The MPCA believes that it is difficult, if not impossible, for a multi-faceted and complex organization like EPA to develop pilot projects outside the core environmental regulatory programs.

The MPCA supports and would like to see Federal legislation to give EPA clear direction in developing innovative approaches that result in:

(1) a reduction of impacts on the environment;

(2) an efficient use of resources; and

(3) a better understanding of environmental impacts by the affected public.

The MPCA believes a dialog on how to best implement innovative strategies is important. The premise of this dialog is the fact that current regulatory systems can and should be improved. The MPCA believes the focus at this point should be to facilitate experiments to identify how improvements can be made. The experiments should be conducted meeting the following four conditions:

(1) will not harm public health or the environment;

(2) will be consistent with existing Federal law;

(3) will have a higher level of accountability to the public; and

(4) will have evaluation and recommendation requirements to report lessons learned.

Therefore, a Federal legislative action to simply facilitate experiments meeting the above criteria would be adequate. After results of experiments are known, recommendations could be made as to how the environmental regulatory system can be improved.

Furthermore, the MPCA believes the primary reason for the disappointing results under current EPA innovation initiatives is the amount of resources required to develop and implement pilot projects. Minnesota as well as many other States, passed State legislation to conduct innovation-related pilot projects meeting the four criteria stated above. The MPCA believes that rather than create a new EPA program, Federal legislation should simply facilitate the ability of States to conduct and report on innovation pilot projects. Therefore, the MPCA recommends this provision state explicitly that EPA delegate the implementation of an innovative strategy program to a State if the program meets the above four criteria.

Question 3. When the Clean Air Act began in the 1970's, no one had much experience. When the Act was amended in 1990, the States had little experience compared

to the Federal Government. With the experience and expertise of everyone today, what parts of the Federal program can effectively be delegated to the States?

Response. The Federal Government's role, in most cases, should be to enact laws and promulgate regulations that set national standards. Ideally, these standards are the desirable national environmental outcomes. The role of individual States is then to design programs that achieve the desired results.

Where the States cannot individually produce the desired outcome, the Federal Government must intercede. This may occur because the problem is regional, national, or global in effect; or because a State is unable or unwilling to take the steps needed to produce the desired goal.

When the scope of the problem is regional (e.g., ozone or regional haze), the Federal Government should encourage States to work together to solve the problems, perhaps including acting through its regulatory authority to mandate action by recalcitrant States. The Federal Government should provide a strong coordinative roll. For national and international problems (e.g., acid rain, mercury, or global warming), the Federal Government must take the lead in designing programs that reduce adverse impacts.

Similarly, the Federal Government must intercede when a State fails to act to clean up problems that are within the State's own sphere of influence. When, however, a State has demonstrated that it is achieving the desired goal or that it is making adequate progress toward it, the Federal Government should grant the State greater freedom to make decisions about how it continues to conduct its activities. This is particularly true for pollutants that do not affect adjacent States.

States have demonstrated that they have varying capabilities to manage Federal environmental programs. Certain States need greater oversight, as they have failed to clean up their problems with or without Federal assistance. However, over time, others have demonstrated that they can achieve the desired outcome with limited Federal oversight. These States should be given greater authority in using their resources to focus on the problems that the States have identified to be the most serious, and to use the tools that they deem to be most appropriate.

States have achieved much of their early success with a "command-and-control" approach. Today however, most major pollutant sources have the resources and the commitment to work as partners in protecting the country's environment. States like Minnesota need to leverage these partnering opportunities to move to the next level or "*second wave of environmental protection*" while reducing resources focused on traditional regulatory programs.

It is Minnesota's desire that Congress and the Environmental Protection Agency (EPA) begin to grant States the authority to determine how to meet standards and how to create leveraged opportunities with the regulated community. Congress and EPA need not look far for ideas to create an atmosphere of innovation that will allow this type of partnering to occur. The General Accounting Office July 1997 report on "Challenges Facing EPA's Efforts to Reinvent Environmental Regulation" provides an accurate analysis of challenges with specific recommendations on ways to overcome these types of challenges.

On a broader scale, the National Academy of Public Administration (NAPA) has produced three reports in recent years on reinventing the national environmental protection system. Congress could do well by taking NAPA's recommendations to heart and taking concrete steps to implement them.

Question 4. I believe the trading program for acid rain has worked well. We are constantly being told we should expand the free market concepts of the Clean Air Act. My question is in which areas of the Act would a free market approach work?

Response. In Minnesota we do not have experience with implementing local air quality trading programs, although we are a leader in water quality trading and can transfer that experience. It would appear that "scale of effect" and simplicity would be two of the most important factors when considering candidates for trading programs. The less a pollutant acts locally, the better it is as a candidate for trading. This trait allows trading over large areas without creating adverse local impacts. The second trait, simplicity, would argue that problems created largely by one or two types of sources would be better candidates than problems caused by multiple source types.

Global warming gases, mercury, NO_X, and further sulfur dioxide reductions might be the best candidates from the "scale of effect" perspective. As an alternative, a system focused on one or two source sectors, such as electric utilities, could address multiple pollutants, and yet retain simplicity.

ATTACHMENT 1

MINNESOTA POLLUTION CONTROL AGENCY STAFF PAPER ON AIR TOXICS (INITIAL REPORT, NOVEMBER 1999)

EXECUTIVE SUMMARY

AIR TOXICS: THE INVISIBLE THREAT

The U.S. Environmental Protection Agency's (EPA's) recent national study, the Cumulative Exposure Project (CEP), alerted the Nation to the possible risk of cancer faced by Americans over a lifetime of breathing toxic air pollutants in outdoor air. This risk is in addition to other risks, for instance, lifestyle choices such as smoking. The CEP's conclusions resulted from computer modeling to estimate air toxics emissions and, therefore, potential exposure, for each state. The CEP predictions for Minnesota parallel their predictions for other States with similar population centers.

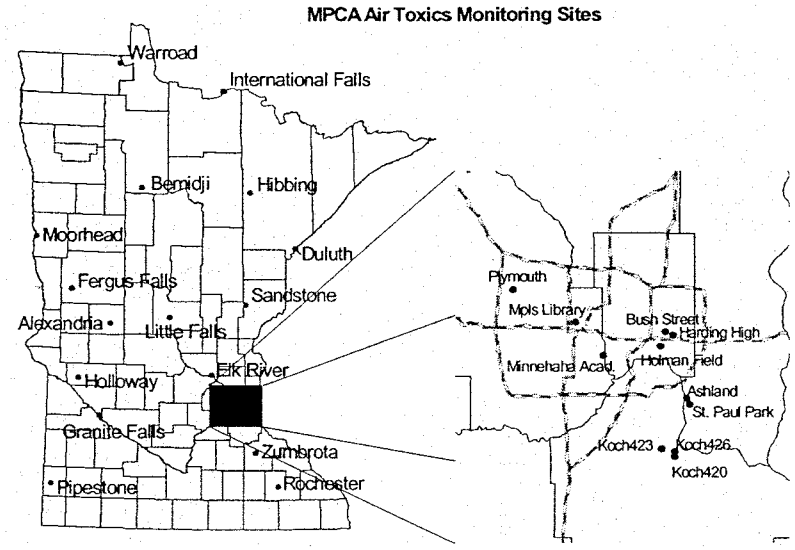
The CEP marked the first time that the EPA had attempted comprehensive modeling to predict ambient concentrations at a census-tract level for each of the 48 contiguous States. The study used 1990 emissions data and a computer model to calculate air toxics concentrations. Few actual measurements of these pollutants are available nationally. Unlike criteria air pollutants, such as carbon monoxide and sulfur dioxide (which have been monitored since the 1970's), there is no national air toxics monitoring system. Minnesota is fortunate to have one of the best toxics monitoring systems in the Nation in terms of number of pollutants monitored, duration of monitoring and diversity of monitoring locations.

The Minnesota Pollution Control Agency's (MPCA's) ambient (outdoor) monitoring data generally supports the CEP's conclusion. According to both CEP models and the MPCA's monitoring data, ambient concentrations of 10 toxic compounds exceed health benchmarks[1] in some or all regions of Minnesota. Most of the increased cancer risk that can be attributed to these compounds are due to motor vehicle emissions. *In fact, a comparison of the CEP's most modeled average concentrations with Minnesota's monitored concentrations indicates that, for almost two-thirds of the air toxics with both modeled and monitored data, the CEP's model actually underestimated current concentrations.* In other words, the situation appears to be even more serious than the CEP indicates.

This staff paper is intended to encourage further dialog and research on air toxics, and provides the first comprehensive analysis of the air toxics data collected from Minnesota's monitoring system. This analysis points to the need to re-examine MPCA resources and how they may be directed to air toxics issues, and to the need to influence national efforts to most effectively reduce public health risks associated with air toxics.

Shown are the locations where monitoring data for this paper were collected.

[1] A health benchmark is a concentration of the pollutant below which there is likely to be no public health concern. If the Minnesota Department of Health (MDH) has drafted a health risk value for a pollutant, that value was used as the health benchmark in this paper.



POLLUTANTS OF CONCERN

The CEP evaluated 148 toxic air pollutants using computer models. The MPCA monitors (actually measures in the air) 75 air toxics. When compared against health benchmarks, 10 pollutants exceeded health benchmarks in either modeled or monitored concentrations or both.

All 10 of Minnesota's pollutants of concern appear on the list of 33 hazardous air pollutants that the EPA judged to pose greatest threat to public health in urban areas. Taking into account current information, the 10 pollutants fall into two groups:

1. *Current information warrants action.*—Enough information exists now to say we are concerned about levels in the ambient air and the potential adverse long-term health effects posed by formaldehyde, benzene, carbon tetrachloride and chloroform. The first action recommended is sharing information about the chemicals in this group with our partners and the public.

2. *Current information highlights need for more study.*—Current data suggest that ethylene dibromide, 1,3-butadiene, acrolein, arsenic, nickel and chromium are pollutants of concern, but additional information is necessary to confirm their significance. Of the six pollutants in this group, it appears likely that, with additional data, nickel will fall from the list. In addition, diesel particulate matter and/or polycyclic organic matter (POM) may be added after further study.

Group 1: Current Information Warrants Action

• *Formaldehyde.*—The mean ambient air concentration of formaldehyde measured at every site (25 sites total, both urban and rural) exceeded the cancer health benchmark of 0.8 micrograms (μg) per cubic meter (m^3). Concentrations appear to be stable over the past 4 years. The widespread exceedances of health benchmarks for formaldehyde, which is a respiratory irritant and probable carcinogen, suggest that a public health issue exists. Roughly two-thirds of the formaldehyde in the ambient air is due to mobile sources—cars and trucks.

• *Benzene.*—Both monitoring and modeling data show benzene concentrations above the lower range of the health benchmark in the Twin Cities metropolitan area and in the State's smaller cities, including Duluth, Rochester, Mankato and St. Cloud. About two-thirds of benzene emissions can be attributed to mobile sources. In the metropolitan area, there has been a slight decrease in benzene concentrations since 1991, for which the reason is unclear. Given the magnitude of the measured concentrations, it would appear that benzene, a known human carcinogen, presents a potential health problem in both the Twin Cities metropolitan area and in smaller population centers.

• *Carbon tetrachloride.*—Although production of carbon tetrachloride has been banned in the United States since 1996, both monitoring and modeling data show

that carbon tetrachloride concentrations in the air exceed cancer health benchmarks everywhere in Minnesota (as well as throughout the nation, according to the CEP). Minnesota's monitoring data do not show a decrease in concentrations since the ban. Carbon tetrachloride is very persistent in the atmosphere and can take decades to degrade. Carbon tetrachloride is a probable human carcinogen and also causes damage to the liver and kidneys.

• *Chloroform.*—According to monitoring data, chloroform concentrations pose a concern at one location in Minnesota (the CEP did not predict any exceedances of the health benchmark). This location is in International Falls, adjacent to a U.S. paper mill and across the river from a Canadian paper mill, both of which are likely sources of the chloroform emissions. In addition to being classified as a probable carcinogen, chloroform may be involved in reproductive and developmental disorders. Target organs for chronic chloroform toxicity are the liver and the central nervous system.

Group 2: Current Information Highlights Need for More Study

• *Ethylene dibromide.*—Monitored ethylene dibromide concentrations exceed health benchmarks in some rural locations of Minnesota (the CEP did not predict any exceedances). Measured concentrations were highest in Pipestone, in western Minnesota. More investigation is needed to determine the reasons for the high concentrations in that location. Ethylene dibromide was formerly used as a fumigant for agricultural purpose, but has been banned for this purpose since the 1980's.

• *1,3-butadiene.*—Because the CEP model predicted that this chemical would exceed health benchmarks in the Twin Cities metropolitan area and smaller cities, the MPCA has begun to develop the capacity to monitor 1,3-butadiene (the agency currently has no such capacity). Monitoring data will help confirm the reliability of the CEP model for this pollutant. About two-thirds of 1,3-butadiene emissions are predicted to come from mobile sources.

• *Acrolein.*—The CEP estimates that acrolein concentrations exceed the health benchmark in the Twin Cities metropolitan area and in many smaller cities across Minnesota. As with 1,3-butadiene, the MPCA currently has no monitoring data to confirm the accuracy of this prediction, but is studying resources available to begin monitoring. Acrolein is a respiratory irritant emitted mostly by area (64 percent) and mobile (36 percent) sources.

• *Arsenic.*—The method used for measuring arsenic concentration in the ambient air is more of a screening tool, as the lower detection limit of the method is greater than the health benchmark. It appears that arsenic concentrations may exceed health benchmarks at some locations, but more refined measurement is needed to confirm this.

• *Nickel.*—The CEP predicts nickel to exceed the health benchmark in two census tracts in the Twin Cities metropolitan area. Monitoring data from all locations were well below the health benchmark and, in some cases, even lower than model predictions. More work is needed to measure nickel concentrations in the air in different locations, such as those near suspected point sources. More sensitive techniques might also confirm whether this chemical should be of concern.

• *Chromium.*—Minnesota's monitoring data indicate that chromium concentrations may exceed the health benchmark at some locations, but not necessarily those predicted by the CEP. The health benchmark for chromium is less than the lower detection limit for the chromium measurement method used. Most of the monitoring data are below the lower detection limit of this method. More work is needed to be able to better quantify chromium concentrations and to speciate chromium, so that it is possible to determine how much of the most toxic form of this chemical exists in the ambient air.

• *Diesel particulate matter/POM.*—Another group of pollutants may be added as a pollutant of concern in Minnesota after more study. Diesel particulate matter contains a "soup" of chemicals, most of which are organic (carbon-based) substances generated from the incomplete combustion of diesel fuel. Polycyclic organic matter (POM) consists of more than 100 compounds, including the group of organic compounds known as polycyclic aromatic hydrocarbons (PAHs). The California Air Resources Board (CARB) lists POM, PAHs and their derivatives as toxic air contaminants. CARB has identified diesel particulate matter as the primary air toxic pollutant of concern and a significant contributor to the overall cancer risk from air toxics. EPA is considering diesel particulate matter for classification as a hazardous air pollutant.

ADDITIVE EFFECTS OF AIR TOXICS

It is important to remember that compounds modeled in the CEP and monitored by the MPCA are just a fraction of the anthropogenic (human-caused) pollutants

emitted into the air each day. In other words, ambient air contains very many pollutants, of which the MPCA monitors only a few. These pollutants can have synergistic effects, each compound having its own toxicity and, in addition, having more complex toxicities when combined with other air pollutants.

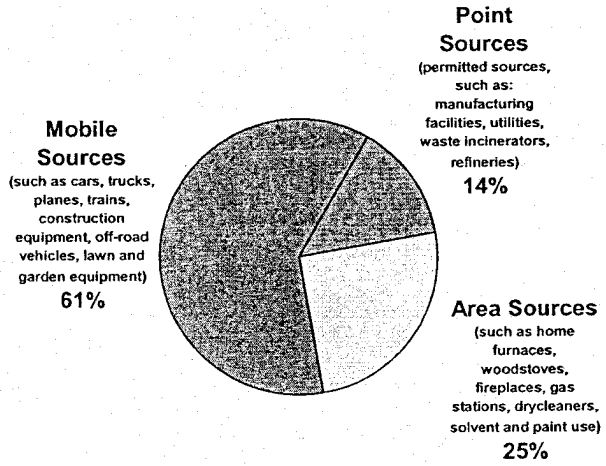
There is little research available on risk to public health from exposure to multiple ambient air toxics. The additive effects of pollutants or the characteristic of a local emission source may make other pollutants, including those not singled out in this paper, a concern.

Currently, the primary health concern from exposure to multiple air pollutants is increased cancer risk. Cancer is the toxicological endpoint of concern for 9 of the 10 air toxics targeted in this paper. More work needs to be done to determine the significance of noncancer endpoints, such as cardiopulmonary, neurologic, immunologic and reproductive/developmental systems effects.

MAJORITY OF RISK IS FROM MOBILE SOURCES

The majority of the risk posed by all the pollutants modeled in the CEP comes from mobile sources (cars, trucks, buses, etc.). Area and point sources account for about equal portions of the remainder of the risk. In the past, the MPCA has focused most of its resources on regulating point sources. The EPA's recently-published Urban Air Toxics Strategy focuses on regulation of area and point sources, and gives less emphasis to specific regulation of toxics from mobile sources. While point sources have an impact at a local level and it remains important to ensure that their emission levels are protective of health, mobile sources impact a much wider geographic area. We believe this is important and must be reflected when the MPCA designs its 5-year work plans.

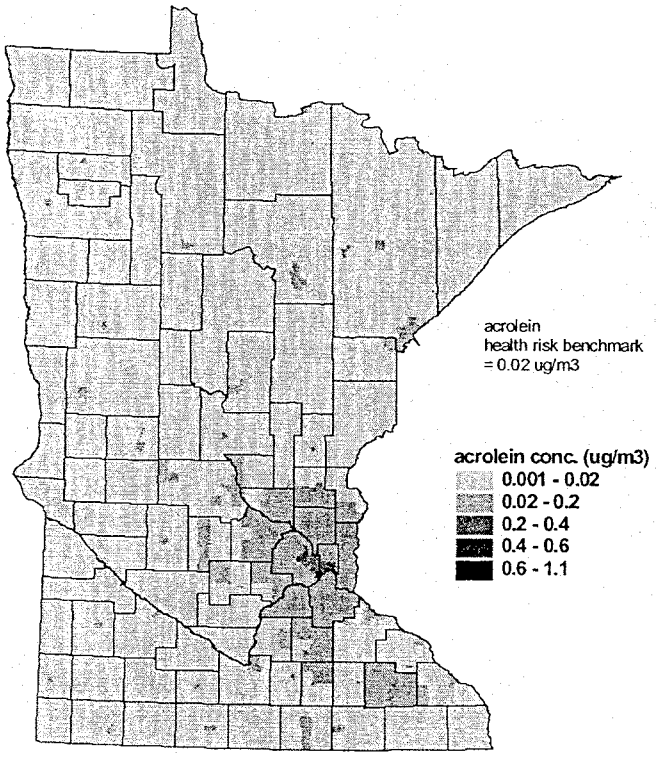
Shown are the contributions by source to excess lifetime cancer risk based on CEP data.



URBAN AREAS MOST AFFECTED

Air pollution is not evenly distributed geographically (except for certain pollutants, such as carbon tetrachloride, which is very persistent and relatively uniform in concentration across the state). A pattern exists for many of the toxics emitted in significant amounts from mobile and area sources (e.g, acrolein, formaldehyde, benzene and 1,3-butadiene). The highest concentrations of toxics tend to be found in the center of the Minneapolis-St. Paul metropolitan area, with concentrations decreasing as one moves away from the urban center. In the rest of the state, most areas have lower concentrations than the metropolitan area. However, many smaller cities (e.g, Duluth, St. Cloud, Rochester, Mankato and Moorhead) also have elevated concentrations of these pollutants that come from mobile and area sources. Quite clearly, where an individual chooses to live, work and play affects exposure.

This map shows predicted acrolein concentrations based on modeling data. Other pollutants in the paper show a similar pattern. The map illustrates the fact that air toxics are not just a metropolitan area issue.



PUBLIC SEES AIR TOXICS AS PRIORITY ENVIRONMENTAL ISSUE

The MPCA recently completed extensive public participation efforts aimed at learning about the environmental values of Minnesota citizens. These efforts included seven locations around the State for the "Governor's Forum: Citizens Speak Out on the Environment," a telephone survey to 800 households, and a project called "Comparing Environmental Risks." In each of the three, air toxics issues ranked as a high priority with the public.

• In the Governor's Forums: Citizens Speak Out on the Environment, 100 citizens from the Twin Cities metropolitan area ranked air-quality-related issues as two of their three most important environmental issues. The forums were held in the spring of 1999.

• In the public values survey, also conducted in the spring of 1999, two of the top four environmental threats as ranked by the 800 respondents were related to toxic air emissions (exhaust from cars, trucks and buses and emissions from manufacturing facilities and refineries).

• In the Comparing Environmental Risks project, conducted in 1996 and 1997, the citizens jury, stakeholder and MPCA staff groups all ranked the three sources of air pollution (industrial, mobile and area) at the top of the list is the risk-based environmental priorities project.

Based on this information, it appears that the public, especially in the Twin Cities metropolitan area, is concerned about air toxics and air-quality-related issues. However, results from the public values survey also indicate that members of the public feel that air quality in their own communities is good to excellent and likely to remain so for the next 10 years. These differing perceptions may present a challenge to creating solutions, especially for mobile source issues, which may involve asking individuals to make changes in driving habits.

WHAT'S NEXT

The MPCA has created an Air Toxics Lateral Team, which began work in September 1999. This lateral team consists of three subteams:

(1) Technical Team,
(2) Communications and Reduction Strategies Team, and
(3) Mobile Source Reduction Strategies Team.

The overall goals of this lateral team are:

• To identify, communicate and, when possible, address problems associated with toxic air pollutants, and
• To protect human health and the environment from the effects of air toxics.

The Technical Team continues to study the pollutants themselves. The initial focus of the Communications and Reductions Strategies Team will be on sharing the information contained in this staff paper with the public, and on identifying partners to work with. Communication pieces will be developed for various audiences using information from this paper as well as other information. The Mobile Source Reduction Strategies Team is beginning to develop a work plan that will encompass all of the MPCA's activities directed at mobile sources of air toxics.

ATTACHMENT 2

REPORT ON THE MERCURY CONTAMINATION REDUCTION INITIATIVE ADVISORY COUNCIL'S RESULTS AND RECOMMENDATIONS

1.0 EXECUTIVE SUMMARY

The Mercury Contamination Reduction Initiative is a Minnesota Pollution Control Agency (MPCA) project aimed at reducing mercury contamination of fish in Minnesota lakes. As part of the initiative, the MPCA formed an Advisory Council to develop recommendations on mercury-reduction strategies for the agency's consideration. The purpose of this report is to document and recommend implementation of the strategies adopted by the Advisory Council.

Background

Mercury is an environmental issue of significant concern in Minnesota and around the world. Mercury is a neurotoxin that concentrates in fish to the degree that eating the fish may expose humans and wildlife to unsafe levels of mercury. The concentrations of mercury in fish in most of the Minnesota lakes tested currently exceed the Minnesota Department of Health (MDH) fish consumption advisory level. Therefore, as a precaution, the MDH advises people who eat fish—particularly nursing mothers, children, and women of childbearing age—to limit the amount of fish they eat.

Mercury is an element found naturally in the Earth's crust. Mercury is released into the environment through natural events, such as volcanic eruptions, and through processes, such as fuel and waste combustion; ore processing; and product manufacturing, use and disposal. Most of the point discharges of mercury to water have been reduced or eliminated, so it is estimated that virtually all of the mercury that now reaches the lakes in Minnesota is due to atmospheric deposition. More than half of the mercury deposited in Minnesota is thought to be global atmospheric contamination, the mercury remaining in the atmosphere for up to a year before it is deposited. It is estimated that 10 percent of the deposition in Minnesota is due to mercury emitted in Minnesota. Therefore, a 50 percent reduction in mercury air emissions in Minnesota is estimated to result in a 5 percent reduction in mercury deposition in the state.

Mercury uses in many products, such as paint, fungicides and batteries, have been reduced or eliminated. Because of this and other factors, such as mandated reductions from waste incinerators and other sources, mercury air emissions in Minnesota are estimated to have already declined by approximately 45 percent between 1990 and 1995.

MERCURY CONTAMINATION REDUCTION INITIATIVE PROCESS

To ensure that releases of mercury in Minnesota continue to decline, the MPCA established the Mercury Contamination Reduction Initiative (hereafter referred to as the "Initiative"). The MPCA's goal for the Initiative is: "To achieve significant reductions of mercury contamination, using the most cost-effective methods available, in cooperation with everyone who has an interest in the results."

To achieve this goal, the MPCA established an Advisory Council made up of representatives from industry, environmental groups and government to provide recommendations on mercury-reduction strategies for the agency's consideration (see Table 1 for a list of member organizations). The Advisory Council met nearly month-

ly from May 1997 through February 1999. A number of organizations not represented on the Advisory Council also participated in Advisory Council meetings.

The goal the Advisory Council established is: "To advise the MPCA regarding policies designed to reduce mercury contamination and to recommend policy-oriented changes, taking into account the ability to reduce mercury contamination, cost-effectiveness and the need for regional, national and international cooperation."

Table 1.—Advisory Council Members

Association of Minnesota Counties	Minnesota Department of Health
Center for Clean Air Policy	Minnesota Department of Natural Resources
Center for Energy and Economic Development	Minnesotans for an Energy-Efficient Economy
Clean Water Action/Minnesota Project	Minnesota Forest Industries
Cooperative Power/Great River Energy	Minnesota Hospital and Healthcare Partnership
Fond du Lac Indian Reservation	Minnesota Iron Mining Association
Honeywell, Inc.	Minnesota Pollution Control Agency
Izaak Walton League of America	Minnesota Power
Lignite Energy Council	Minnesota Resource Recovery Association
Metropolitan Council	Northern States Power
Minnesota Center for Environmental Advocacy	Recyclights
Minnesota Chamber of Commerce	U.S. Environmental Protection Agency—Region 5
Minnesota Dental Association	Western Lake Superior Sanitary District

To accomplish its goal, the Advisory Council established a three-phase process. The purpose of Phase I was to improve the information on mercury use and release ("mercury inventory"), to identify options with the greatest potential to significantly and cost-effectively reduce mercury releases, and to identify strategies that create incentives for implementing mercury-reduction options. Results of this work can be found in the Source Reduction Feasibility and Reduction Strategies (SRFRS) Committee Report, *Options and Strategies for Reducing Mercury Releases*. (The SRFRS report is being revised and the final version is expected to be available in April 1999).

In addition, a committee developed evaluation criteria to facilitate critical evaluation of the options and strategies. These criteria, which are defined in the Criteria Committee's *Report on the Strategy Evaluation Process and Criteria Definitions*, are: cost effectiveness, reduction potential, technical feasibility, comprehensiveness/fairness, social/political feasibility, permanence, flexibility, compatibility, transferability and verifiability.

In Phase II, a committee was charged with using the strategy evaluation criteria to narrow the list of potential strategies to be considered by the Advisory Council. This committee was also directed to assess the economic impact and contamination-reduction potential of the strategies.

Results of these analyses are presented in Appendix A and Appendix B. The package of strategies developed by this committee formed the basis for recommendations, agreed upon by the Advisory Council in Phase III of the process.

Advisory Council Recommendations

The Advisory Council achieved consensus on the following recommendations which, taken as a whole, are designed to achieve the goals of the Initiative and the Advisory Council.

Mercury Reduction Goal

The Advisory Council recommends establishment of a statewide goal in 1999 legislation that aims to reduce mercury releases to air and water (combined) by 60 percent in the year 2000 and by 70 percent in 2005 using 1990 as the baseline year. Failure to meet this statewide goal is not a trigger for mandatory action in the legislation. The legislation would require MPCA to conduct a progress review in 2001 and 2005 to reconsider voluntary and mandatory strategies and the goal. The reduction goal applies to the statewide total of releases from existing and new mercury sources. As new information regarding mercury releases changes the 1990 baseline estimate, the goal of a 70 percent statewide reduction in releases to air and water by 2005 will apply to the revised 1990 baseline.

National and International Strategies

To significantly reduce mercury contamination in Minnesota, it will be necessary for reductions in mercury use and release to occur outside of Minnesota as well as within the state. To maximize mercury-reduction potential and cost-effectiveness, it

makes more sense to implement certain mercury-reduction strategies on a regional or national level than only at the State level. The Advisory Council recommends pursuit of a set of national and international strategies for reducing mercury use and release, including:

• Lowering the threshold above which sources would have to report mercury releases as part of the Toxics Release Inventory (TRI);
• Increasing relevant mercury research;
• Developing a comprehensive international mercury management plan that encourages pollution prevention and ensures that mercury is managed wisely;
• Creating a mercury-related outreach position for Minnesota to share its success stories and to learn from others;
Instituting a national mercury product labeling program or law;
• Evaluating the feasibility of lower emission limits for sewage sludge incinerators;
• Lowering emission limits for medical waste combustors; and
• Establishing a credit for early action (early reduction credits) program.

Minnesota Mercury Inventory, Research, Monitoring and Reporting

The Advisory Council recognized that additional work is needed to better understand mercury sources, environmental fate, health impacts and other risks in Minnesota. Toward that end, the Advisory Council recommends that research be conducted in Minnesota that is focused on addressing mercury issues of particular importance to Minnesota. The Advisory Council also recommends that efforts be applied toward improving the comprehensiveness and accuracy of the existing State mercury inventory. In addition, the Advisory Council recommends that the MPCA develop monitoring, measurement and reporting protocols that would improve data consistency both within and across sectors and result in a better accounting of mercury use, release and reductions. These protocols will be developed to enhance the possibility that mercury reductions achieved in Minnesota since 1990 could earn recognition or credit under any future Federal programs.

Reducing Purposeful Use of Mercury

The Advisory Council determined that the lowest-cost strategies for reducing mercury tended to be those related to mercury-containing products. In order to maximize the cost-effectiveness of mercury-release reductions, the Advisory Council recommends the following strategies for implementation in Minnesota:

• *Existing Products.*—To improve the likelihood that mercury contained in products currently in use does not get released to the environment, Minnesota should improve the mercury-collection infrastructure, conduct clean sweeps to collect unneeded mercury, and step up enforcement of existing bans regarding disposal of mercury-containing products. In addition, sources are encouraged to label mercury products still in use to ensure proper disposal.
• *New Products.*—To discourage use of mercury and encourage proper management of new mercury-containing products, Minnesota should increase enforcement of existing mercury labeling laws and reduce demand for mercury-containing products by discouraging procurement of mercury-containing products by State government.
• *Education and Promotion.*—Education and promotion are needed to maximize the effectiveness of strategies listed above, as well as to reach larger audiences. To achieve this, the Advisory Council recommends strategies that educate the general public, schools and target industries. The Advisory Council also recommends education geared specifically toward informing dentists of appropriate amalgam waste management practices and encouraging building contractors to reduce use of mercury products in buildings.

Voluntary Agreements

As an essential strategy to achieve the mercury-reduction goals, the Advisory Council recommends that mercury sources be encouraged to develop voluntary agreements with the MPCA to reduce or work toward reducing mercury use and releases. Voluntary agreements provide a mechanism to achieve reductions from all sources, including those for which no cost-effective solutions were identified. Participation is open to any interested source; however, priority will be given to sources with releases in excess of 50 lb. per year that are not, already expected to significantly reduce their mercury use or release.

FUNDING MECHANISMS

The Advisory Council recommends that the MPCA and Office of Environmental Assistance prioritize their current budgets and staffing as well as other agency re-

sources on mercury-reduction strategies prior to seeking general fund sources to cover cost of the strategies. After this is done, the Advisory Council supports a request of money from general fund sources to cover costs incurred by the state, counties or other government bodies necessary to implement the mercury-reduction strategies recommended by the Advisory Council.

PREPARED STATEMENT OF JEFFREY A. SAITAS, P.E., EXECUTIVE DIRECTOR, TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

INTRODUCTION

Good afternoon, Mr. Chairman and members of the subcommittee. My name is Jeff Saitas and I am executive director of the Texas Natural Resource Conservation Commission. Our agency implements a broad range of regulatory and nonregulatory activities that protect the health of Texans and their environment. The agency is led by a three-member commission appointed by the Governor. About 3,000 staff members work in Austin and at 16 regional offices around the State. Clean air issues continue to be one of the agency's top priorities and toughest challenges.

Thank you for the opportunity to testify about our experiences implementing the Clean Air Act and about our suggestions for improvement. I will highlight a successful planning process and point out where we feel held back, namely by the lack of timely Federal action and clear definition of the roles of local, State, and Federal Government to regulate emissions.

PLANNING PROCESS SUCCESS

First, you've asked about what's working in Texas. One successful effort has been the development of a State Implementation Plan to address ozone problems in the Dallas-Fort Worth area. Through a partnership between State, local, and Federal Governments; by working with a wide variety of interested parties; and by seeking public input throughout the process, we've developed a plan that will clean up the air in the Dallas-Fort Worth area.

The proposals developed for the Dallas-Fort Worth area are based on recommendations from local leaders and the community that target problem areas. They include local government controls, such as changes to building codes and transportation control measures; State controls on industrial point sources, principally power plants, and a more effective vehicle emissions testing program; and Federal controls such as automobile emission standards and cleaner fuels. The Dallas-Fort Worth portion of our State Implementation Plan was submitted to EPA in April of this year and determined to be administratively complete.

IMPLEMENTATION PROCESS PROBLEMS

Unfortunately, elements of the Plan have been challenged by those industries that will be affected—particularly the electric utilities, cement kilns, diesel engine manufacturers, and the airlines. One of the most significant issues raised by this litigation is the question of Federal preemption. Several elements of our Dallas-Fort Worth plan have been challenged in court on the grounds that those control strategies are reserved for Federal action. In addition, Federal actions often occur too late for their full air quality benefits to be taken into account by States to meet Clean Air Act attainment deadlines.

The Clean Air Act SIP process was designed to be a partnership between local, State, and Federal Government. For instance, the Act requires Federal agencies such as EPA, the Federal Aviation Administration, and the U.S. Army Corp. of Engineers to take steps to control emissions. On the other hand, if our Federal partners fail to control these emissions, or take too long to do so, the sources that the State can control will have to do more than their fair share. The problem here is the extra burden may be more than these sources have the ability to reasonably achieve.

CONCLUSION

To remedy this problem we need two things.

- First, we need a true partnership—one that recognizes that Federal, State, and local performance are required for a successful SIP; without any one of these partners, the equity of the solution is compromised.
- Second, we need very clear guidance on precisely what those roles are and how they will be performed.

Thank you again for the opportunity to testify today. We look forward to working with the subcommittee and all interested parties.

RESPONSES BY JEFFREY A. SAITAS TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. From the State and local government point of view, what aspects of the Clean Air Act are currently working well?

Response. In some ways, the Clean Air Act has been working well. The biggest evidence of this is the fact that, overall, the air in the United States is cleaner than it was at the time of passage of the Act in 1977, and its amendment in 1990. As you noted in one of your questions, the acid rain program found in Title IV of the Act has helped to reduce acid rain efficiently. Likewise, the National Emission Standards for Hazardous Air Pollutants program is also likely to yield significant reductions in emissions of air toxics. The nonattainment and mobile source programs also have yielded reductions in emissions of pollutants for which there are National Ambient Air Quality Standards (NAAQS).

For example, Texas has received the following specific environmental benefits traceable to well functioning components of the Federal Clean Air Act and its amendments:

- Benzene, a known human carcinogen, sharply dropped at our ambient air monitoring sites in Houston following the introduction of reformulated gasoline.
- Data we have collected under the Photochemical Assessment Monitoring Station Program have been useful in developing new State Implementation Plans for ozone.

Finally, it should be noted that, while some of these programs have yielded environmental benefits, they could be made more effective, more flexible, and more cost-efficient.

Question 2. From the State and local government point of view, what needs to be improved in the Act in order to provide you more flexibility and responsibility?

Response. First, duplication and conflict between State and Federal requirements that does not improve air quality should be eliminated. For example, Texas has a program to review proposed new sources of air emissions that predates the Federal program, covers more sources and reviews the potential health impacts of more pollutants than the Federal program. In cases like this, where States have existing and effective programs, Federal program requirements are only different, not better. The Act as implemented should recognize this fact, and allow programs to differ in order to avoid duplicative or contradictory requirements on the regulated community or State environmental programs.

Second, it should be recognized that the NAAQS program provides little to no incentive for actively seeking to reduce emissions in order to remain in compliance with the standard. The lion's share of the attention and resources focused on criteria pollutants has always been on nonattainment areas coming into attainment. Even the Act itself devotes exponentially more space to establishing requirements for nonattainment areas than to addressing areas that currently are in attainment. At a minimum, the Act should provide incentives such as flexibility or delayed designation of nonattainment areas that voluntarily take steps to reduce criteria air pollutants.

Third, the prescriptive requirements in the Act for nonattainment areas should be examined. With many more areas and many more rural areas potentially violating the new and revised NAAQS, some of the current prescriptive regulatory requirements which made sense for reduction of pollution in urbanized areas may not have the same environmental benefit in largely rural areas. Requirements such as immediate, mandatory conformity, new source review (NSR) and even mobile source controls may not effectively address exceedances of the new standards. The Act should allow flexibility in these areas to apply the types of control measures that make the most environmental sense for their specific circumstances and not require the imposition of controls that have little benefit.

Fourth, the Act should require consideration and coordination of deadlines under other Clean Air Act program requirements when developing compliance deadlines for new programs or NAAQS. These deadlines must be consistent, particularly when compliance with one program can preclude compliance with another. An example of this problem is presented in the new NAAQS for ozone, fine particulate matter and regional haze. Each of these programs will require the reduction of virtually the same types of pollutants, but each program has separate and sometimes contradictory deadlines. These requirements should be harmonized to reduce duplication of planning requirements on the States or control requirements on the regulated community.

Question 3. When the Clean Air program began in the 1970's, no one had much experience. When the Act was amended in 1990, the States had little experience compared to the Federal Government. With the experience and expertise of everyone today, what parts of the Federal program can effectively be delegated to the States?

Response. At the time of initial passage of the Act, many States had very limited air pollution control programs, so that the Federal Act focused on establishing a floor for State programs, which included specific program requirements that any facility in a State had to meet. One might expect that, as States have become more sophisticated and more active in controlling air pollution, the Federal Government would have become less involved in daily management of State air pollution issues. On the contrary, it has become *more* involved, to the point of attempting to incorporate entirely new State source review programs. At the same time, States and industry have experienced a corresponding explosion in the volume and level of detail in Federal environmental regulations. Despite this regulatory expansion, we are often still unable to answer basic questions that citizens want to know: Is the air around my child's school safe? Can I go outside?

Given this paradox, I believe that the Clean Air Act needs to change in two basic ways. First, both States and the Federal Government must move to a results-oriented mode that answers these basic questions. This includes a shift from a focus on rigid, detailed regulatory requirements to a focus on monitored environmental results. Second, this shift needs to include a similar shift in Federal treatment of State programs from an attitude that attempts to direct day-to-day management of State programs, to one that emphasizes environmental results.

It would be helpful for the Federal Government to spend some of the time that could be freed up by ceasing management of State new source review programs on developing technical information and tools that can be used by State permitting authorities to implement their approved programs. Examples include development of information on emerging control technologies, toxicological information for compounds, emerging technology for stack and ambient emission monitoring techniques, and updating and improving Environmental Protection Agency (EPA) sampling and testing methods. For other permit programs delegated to States, EPA provides oversight through audits of selected permits after issuance. Using this procedure for the Clean Air Act would be a more effective way to use EPA resources.

In addition, the Federal Government should set standards for conditions that are national in scope such as national power generation and multi-pollutant control strategies, and standards for upper air and equipment efficiency. The States cannot measure or enforce rules without standards against which performance can be measured. Furthermore, programs to meet local health-based standards should be delegated to the States.

Question 4. I believe the trading program for acid rain has worked well. We are constantly being told we should expand the free market concepts of the Clean Air Act. My question is, in which areas of the Act would a free market approach work?

Response. In general, a free-market approach should work in any region where an ambient standard can be established and specific pollutants and sources can be identified. Regulatory control requirements are generally the driver for a free market approach.

Texas is now in the process of implementing two additional free market approaches to pollution control. The first is driven by Senate Bill 7, enacted by the Texas Legislature in 1999, that mandated for electric utilities a 50 percent reduction of emissions of nitrogen oxides (NO_X) and a 25 percent reduction of SO_2. This requirement is implemented under an allocation system modeled on the Title IV acid rain trading program.

The second free market approach is prompted by a proposed 90 percent reduction of NO_X emissions from 1997 levels for stationary sources as part of the State Implementation Plan (SIP) for the Houston/Galveston area. This mandate has been coupled with new banking rules to allow for a mass cap and trade program in that area. The cap will effectively shrink the emissions in the area over time to a level consistent with the attainment strategy and allow the trading of allocations on the open market. In Texas we are exploring an expansion of the cap and trade program to other nonattainment areas in the future.

RESPONSES BY JEFFREY A. SAITAS TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. What would be the consequences to your State if EPA moves forward with designations of "nonattainment areas" under the 8-hour national ambient air quality standard for ozone before the Supreme Court renders a decision in the case?

Response. The major consequences of EPA moving forward with designations under the 8-hour ozone NAAQS would be the potential doubling of Texas' current four nonattainment areas covering 16 counties under the 1-hour standard with the inclusion of the metropolitan areas of Austin, San Antonio, Tyler, and Longview, and the expansion of the Dallas-Fort Worth nonattainment area to include the entire CMSA. These designations in newly-affected areas and counties will trigger new regulatory requirements such as transportation and general conformity and Federal new source review, and will start the clock on State implementation plan requirements for which many of these areas are not prepared to develop and implement from either a technology or resource perspective. Furthermore, some of the mandatory requirements that result from a nonattainment designation may not effectively reduce ozone formation in some predominantly rural areas. Because of the cost and possible inefficiency of these requirements, we believe that designations should only be made after the legal challenges to the standard have been finally resolved, and should be implemented with adequate flexibility to take into consideration the unique characteristics and resource base of each newly-affected area.

Question 2. Is EPA providing sufficient resources currently, as well as commitments for future resources, to conduct appropriate ambient air monitoring within your state, including monitoring of fine particulate matter and determination of the composition of fine particulate matter in the air?

Response. Texas' monitoring efforts for fine particulate have received adequate funding from the EPA. Funding for other required Federal monitoring is also sufficient. We do not know at this time what funding will be provided for new toxic monitoring initiatives because funding decisions for that program will be made after the national pilot project on toxic monitoring is completed. However, if Texas is required to redirect current monitoring resources to focus on toxic monitoring, we might have to make substantial reductions or changes in existing networks because shutting down one monitor in a station of two or more monitors does not save any appreciable money or resources.

Question 3. Is EPA providing adequate flexibility and appropriate guidance to State and local air pollution agencies to administer the program for operating permits under Title V of the Clean Air Act?

Response. Flexibility under the Title V program should be expanded, and the guidance provided to States should be improved. In general, EPA's requirements for State programs are monolithic and prescriptive, regardless of the nature and breadth of State permit and enforcement programs.

In particular, 40 CFR Part 70, which implements the Federal operating permit program, is much more prescriptive and inflexible than the Act in the areas of (1) Responsible Official/Duly Authorized Representative (RO/DAR), (2) RO/DAR certification requirements, and (3) the permit revision process. In addition, EPA has in some cases prevented States from using what flexibility is provided by Part 70. For example, EPA has not allowed States to use the provision for permit revisions procedures that are substantially equivalent to those in Part 70.

The latter is particularly difficult because EPA's process provides no flexibility in the operating permit revision process. The SIP deadlines cause State regulations to change so fast that it is difficult to get those rules into operating permits without delays and complications. Delays and complications are due to the lack of flexibility in the revision process rather than by physical changes at a facility. The EPA has been inflexible when interpreting 40 CFR Part 70, even when other approaches meet the letter of Title V. In essence, the EPA would have the agency (the TNRCC) promulgate incorrect rule language in order to gain program approval under their interpretation of Part 70. It would be far better for EPA to allow "substantially equivalent" for revisions, where States can make a determination that something different is just as good as part 70.

Lastly, EPA has been unsuccessful in finally adopting rules for Title V in large part because the agency has been too prescriptive concerning implementation, especially in the area of the permit revision process and State New Source Review interrelationship with the Operating Permit. At times, in fact, it appears that the Title V program is being used to reach State new source review program areas in ways that are not provided for in the new source sections of the Federal Act. The EPA should establish the objectives that are to be accomplished and allow States the flexibility to determine the best path to accomplish the objectives. Then EPA should oversee whether the objectives have been accomplished not the details of implementation.

Question 4. Are EPA's regulations under the Act sufficiently clear, consistent and timely to allow your State to properly implement Clean Air Act programs for which it is responsible?

Response. No, EPA regulations are seldom timely, consistent, or clear. Because of State and Federal regulatory overlap, there also is often duplication in requirements. EPA's guidance typically comes several years after implementation has begun. States lacking specific EPA instruction must develop their own mechanisms. EPA subsequently issues prescriptive guidance, without adequately considering the State mechanisms already in place. Last, many States do not have the research resources or statutory authority to determine what future Federal standards might be.

Examples of untimely, inconsistent or unclear regulations include the following:

• Areas may be designated as nonattainment (which immediately triggers a conformity requirement) under the new 8-hour standard before publication of procedures to predict how a new or modified source would impact the nonattainment or unclassified area;

• Section 112(g) of the Clean Air Act requires States to conduct case-by-case reviews of the toxics emissions from a major source before EPA issues a MACT standard or air toxics regulation for that particular category of sources or facilities;

• In the Operating Permit program, model permits and example forms were developed after the first program submissions were required and the periodic monitoring and compliance assurance monitoring requirements have taken years to finalize;

• The guidance related to the Title III MACT standard and the rules and guidance relating to Title V create difficulties in efficiently incorporating the number of regulations (especially MACT standards) into Operating Permits already in the process of being issued;

• Due to Federal Clean Air Act deadlines, States had to develop their own nonattainment permit review requirements without the EPA rules; EPA rules have yet to be issued.

• In 1984 EPA was ordered by the D.C. Court of Appeals to analyze marine vessel emissions for permit applicability for PSD and NA; EPA has still not done that analysis, and the rules vacated by the Court still remain in the Code of Federal Regulations;

• EPA's proposed new source review reform rules were published in July of 1996; but that package has never been finally adopted or withdrawn.

RESPONSES BY JEFFREY A. SAITAS TO ADDITIONAL QUESTIONS FROM SENATOR BAUCUS

Question 1. You mentioned that there are a number of air pollution sources contributing to Houston's air quality problems which are outside your control. What is their contribution to nonattainment in Houston on a percentage of tons per day basis? What specific sources were you discussing? Would you support new Federal standards to control those sources?

Response. In the Houston-Galveston 1-hour ozone nonattainment area approximately a 75 percent reduction in emissions of NO_X will be required to demonstrate attainment. Of that NO_X inventory, mobile source emissions make up over 40 percent. It should be noted that mobile source emissions include emissions not only from automobiles and construction equipment, but also from airplanes, locomotives, marine vessels, jet skis and even lawnmowers. As the Clean Air Act assigns primary responsibility for the development of mobile source emissions standards to EPA, affected industries have argued that Texas is preempted from regulation of such emissions.

Because less than 60 percent of the NO_X emissions contributing to the ozone problem in the Houston area are from stationary sources, when EPA does not require timely reductions in mobile source emissions, Texas is faced with the choice of either regulating mobile sources, over-regulating stationary sources, or not meeting the statutory deadline. The Act should be revised to require EPA to develop and implement those control programs over which it has authority on timeframes consistent with the statutory attainment dates or States should be allowed to extend those attainment dates as necessary to take full advantage of such EPA programs. In the alternative, States in addition to California could be specifically authorized to adopt standards for categories of mobile sources, especially where EPA fails to act.

Question 2. What is the fee (per ton of emissions) which your State currently charges for permitting under Title V of the Clean Air Act? How much does that generate annually and what is your state's annual budget for permit activities, implementation and enforcement matters, emissions and ambient monitoring, modeling,

analyses, demonstration, inventory preparation and emissions tracking, relating to air quality? What, if any, additional categories of spending are necessary to support air quality programs?

Response. Texas currently assesses $26 per ton of pollutant which includes carbon monoxide (CO) that is not included in the Act's Title V requirements. When this amount is compared to the Title V requirement with the CPI inflation factor and exclusion of CO, the Texas' rate is slightly lower than the presumed national requirement. However, Texas collected approximately $39 million from the Air Emissions Fee during fiscal year 2000, which we believe adequately covered the costs to implement our Federal operating permit program. It should be noted that the Air Emissions Fee statute was recently changed to triple the fee annually for certain facilities that do not obtain State new source review permits. This exponential tripling of fees for large facilities could result in substantially greater fee collection than is required by the Federal Clean Air Act.

Question 3. Flexibility was mentioned repeatedly during the hearing as necessary for efficient conduct of States' programs. The Clean Air Amendments of 1990 created relatively strict deadlines and established numerous requirements largely because insufficient progress had been made prior to 1990 in achieving attainment. How can we be certain that increasing flexibility will not result in slowing current progress? What specific changes in the Act would be necessary to enhance flexibility?

Response. States have made significant progress in developing their air quality programs since the inception of the Act in 1977, and even since the 1990 amendments. While prior to that time many States may have needed prescriptive Federal requirements to provide effective air quality programs, most States now have the expertise and technical training required for effective air quality improvement programs. Therefore, it is reasonable to allow the States more flexibility in designing and implementing programs that are appropriate for the needs of individual States. To assure that this flexibility does not result in a slowing of current progress, EPA could be directed to hold each State strictly accountable for developing, submitting and implementing their individual plans by the deadlines required by the Act. The Act currently allows EPA more than adequate tools to enforce this accountability with the existing sanction provisions.

Question 4. Ms. Studders of Minnesota called for a comprehensive, integrated national power generation strategy that regulates multiple pollutants, including NO_X, CO_2, mercury, and other toxic pollutants. This would seem to be a sensible combination of energy and environmental policy. What are your views on such a strategy?

Response. Strategies that incorporate multiple pollutant control into national strategies are exactly where Federal policy should be going. The national power generation network is a perfect example as it involves toxics, criteria pollutants, and greenhouse gasses. Single pollutant strategies are less effective and efficient in addressing these problems.

Question 5. Transport of ozone and other long-range pollutants continues to be a serious problem for public health and for State and local air quality planners. Do you have any suggestions for ways that the Act could better deal with this phenomenon?

Response. Transport of ozone and other pollutants is definitely a serious problem in Texas as well as other States. We had a very graphic and visible example of that fact with the smoke from the Central American fires in the spring of 1998. However, the Act currently includes a provision to take into account the transport of pollutants from another country under Section 179b. With respect to domestically generated pollutants, Texas has addressed the transport problem by developing a regional strategy for ozone reductions that targets large sources and mobile emissions from the eastern half of the state. This strategy should also provide local benefits to areas that are close to being in violation of ozone standards.

12494 Temp S

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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Bryan L.
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EXECUTIVE DIRECTOR

Mr. Jeff Saitas
Executive Director
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711

Dear Mr. Saitas:

I am pleased to provide the enclosed final guidance for assessing the impacts of the Mexican/Central American Fires of May 1998, on ozone levels in the United States. This guidance was finalized on November 10, 1998. The guidance was developed by a workgroup which included representatives from the U.S. Environmental Protection Agency's Office of Air Quality Planning and Standards, the Office of Air and Radiation, affected Regional Offices, and the Office of General Counsel.

If you have any questions or comments on the guidance, please contact Mary Kemp, Chief of the Air Quality Analysis Section, at (214) 665-8358.

Sincerely yours,

Robert E. Hannesschlager, P.E.
Acting Director
Multimedia Planning
and Permitting Division

Enclosure

RECEIVED
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COMPLIANCE AND ENFORCEMENT

MEMORANDUM

SUBJECT: Guidance on Assessing the Impacts of May 1998 Mexican Fires on Ozone Levels in the United States

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

Signed //

TO: Addressees

The purpose of this memorandum is to provide guidance on the technical approach for assessing whether the smoke plumes from the severe fire incidents, which occurred in Mexico and Central America in May of this year, had significant impacts on air quality in specific areas of the United States. This guidance addresses possible impacts on peak daily monitored ozone levels downwind of these fires and methods for technically justifying the exclusion of concentration values above the level of the standard from use in subsequent compliance calculations.

BACKGROUND

The guidance, developed by a workgroup which included representatives from my office, affected Regional Offices, and the Office of General Counsel, is provided as an attachment to this memorandum. The Workgroup on Mexican Fire Impacts was formed in response to the impacts of the Mexican fires of May 1998, on air quality as described in my memorandum to you dated June 25, 1998.

In that memorandum, we noted specifically that our first concern in all cases of elevated air pollution levels is the potential impact on public health in the affected areas. We stated that in this regard, it is necessary for the State and local agencies to inform the public of potential health hazards and to mitigate those hazards to the extent possible. We also noted that it is not the intent of the Environmental Protection Agency (EPA) to hold State and local agencies accountable for exceedances of air quality standard levels that were caused by the extraordinary and catastrophic May 1998 Mexican fire event. EPA's workgroup has developed specific technical recommendations, based on readily-available data, for identifying when and where the Mexican fires of 1998 impacted ozone pollution levels, such that the affected monitoring data could be appropriately flagged and excluded from use in determining compliance with the ozone standard. This guidance has been developed by taking a common-sense approach to the technical problem, with the specific intent of keeping the process as simple as possible to reduce the burden on the affected States. The EPA believes that, for purposes of determining attainment of the ozone standard, all quality-assured data should be considered unless it is plainly demonstrated to warrant exclusion under an

authorized exemption. Clearly, the burden of proof for justifying these data exclusion requests belongs to the States. The EPA wishes to provide technical assistance for these justifications through direct workgroup interaction wherever possible.

The EPA has concluded that the approach described in the attached guidance is appropriate for the extraordinary Mexican fire event of 1998. The approach in the attached guidance is intended for application to ozone only. The applicability of this approach to any future ozone events will be determined on a case-by-case basis.

LEGAL RATIONALE FOR EXCLUDING DATA

On July 18, 1997, the EPA promulgated the revised 8-hour National Ambient Air Quality Standard (NAAQS) for ozone. Under the new 8-hour NAAQS, EPA has provided for adjustments to data affected by natural events, such as the fires concerned here. Section 50, Appendix I of 40 Code of Federal Regulations (CFR) provides in part that:

"Whether to exclude, retain, or make adjustments to the data affected by stratospheric ozone intrusion or other natural events is subject to the approval of the appropriate Regional Administrator."

For determinations of attainment to be made under the new 8-hour NAAQS set forth in 40 CFR section 50.10, EPA has expressly provided for an opportunity for adjustments for natural events. EPA also believes that, since the adoption of the new 8-hour NAAQS, it is also appropriate to provide this opportunity for adjustment to determinations to be made on 1-hour ozone NAAQS attainment determinations. Section 50.9(b) of 40 CFR provides that "the 1-hour standards set forth in this section will no longer apply to an area once EPA determines that the area has air quality meeting the 1-hour standard."

Since the purpose of the determination of attainment for the 1-hour standard is to phase out that standard as part of the transition to the 8-hour standard, EPA believes that the applicable data handling procedures for determining attainment should be consistent with those for the 8-hour standard. It would be inappropriate to disregard a natural event deemed significant enough to adjust data for the 8-hour standard and not do the same under the 1-hour standard. The determination that an adjustment is warranted must, of course, be subject to the approval of the appropriate Regional Administrator.

Even under the 1-hour standard, Congress explicitly authorized exempting data affected by events of international origin from consideration for similar attainment-related purposes in section 179B(b). This section provides:

"Notwithstanding any other provision of law, any State that establishes to the satisfaction of the Administrator that, with respect to an ozone

nonattainment area in such State, such State would have attained the national ambient air quality standard for ozone by the applicable attainment date, but for emissions emanating from outside of the United States, shall not be subject to provisions of section 181(a)(2) or (5) or section 185."

To provide for consistency of data handling under both the 1-hour and 8-hour standards in the transition period while the 1-hour standard undergoes area-by-area revocation, EPA has concluded that the provision for adjustment for natural events should be applicable to determinations of attainment under both the 1-hour and 8-hour standards.

PROCESS FOR REQUESTING EXCLUSION OF DATA

States desiring exclusions for the May 1998 Mexican fire event should submit data exclusion requests in writing to their Regional Office within 30 days of the release of this memorandum, if they have not already done so. Final technical justifications for these requests, including all pertinent data and analysis, should be submitted to the Regional Office within 60 days of the release of this memorandum. Decisions on approval or disapproval of the data exclusion requests will be made by the appropriate Regional Office in conjunction with the Office of Air Quality Planning and Standards in an expeditious manner following these submittals (nominally 30 days). Individuals interested in submitting data exclusion requests are encouraged to contact the chair of EPA's workgroup directly to ensure expeditious response.

If you have further questions regarding this guidance, please contact the workgroup chair, Dave Guinnup, by phone at (919)541-5368 or by e-mail at "guinnup.dave@epa.gov."

Attachment

Addressees:
Acting Director, Office of Environmental Measurement and Evaluation, Region I
Director, Division of Environmental Planning and Protection, Region II
Director, Environmental Services Division, Region III
Director, Air, Pesticides, and Toxics Management Division, Region IV
Director, Air and Radiation Division, Region V
Acting Director, Multimedia Planning and Permitting Division, Region VI
Director, Environmental Services Division, Region VII
Director, Air Program, Region VIII
Director, Air Division, Region IX
Director, Office of Air Quality, Region X
Deputy Director, Office of Ecosystem Protection, Region I
Director, Division of Environmental Science and Assessment, Region II
Director, Air Protection Division, Region III
Director, Science & Ecosystems Support Division, Region IV
Director, Air, RCRA, and Toxics Division, Region VII
Director, Office of Environmental Assessment, Region X

cc:
Scott Bohming

Jeff Clark
Mike Davis
Ted Erdman
Denise Gerth
Richard Guillot
Dave Guinnup
Bill Hunt
Pam Johnson
Mary Kemp
Donna Kenski
Mike Prosper
Kendra Sagoff
Sally Shaver
Jake Summers
Henry Thomas
Steve Thompson

OAQPS/EMAD/AQTAG/DGUINNUP/11-3-98/FILE:FIRES.MEM
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Technical Guidance & Criteria for Deciding whether Fire Plume Impacted Ground-level Ozone Concentrations - established for Mexican/Central American fire event, May 1998, by EPA Workgroup on Mexican Fire Impacts

If an exceedance of the level of the ozone standard (125 ppb for 1-hour or 85 ppb for 8-hours, whichever is applicable) is measured at a particular location on a given day, it may be established that the exceedance could have been caused by pollution from the fire if:

1. TOMS satellite imagery from that day and the day before indicate that the aerosol plume from the fires passed over the location, or;
2. GOES satellite imagery from that day and the day before indicate that smoke from the fires passed over the location. The EPA Workgroup on Mexican Fire Impacts will gladly facilitate the availability of satellite imagery data to any interested party. Currently, pertinent satellite data have been compiled and are available for viewing and download in the "Resources" section of the website:

http://capita.wustl.edu/CentralAmerica

While EPA may need to rely solely on the existence of an exceedance of the ozone standard level accompanied by the presence of the plume, it will also consider other available evidence, such as particulate measurements and visibility or visibility range measurements, as well as other data bearing on the likelihood that the exceedance was caused by pollution from the fire. We acknowledge that the type of local data and appropriate analyses may vary from case to case, but some examples of these are given below.

Corroboration of a potential fire impact can be established if:

1. Particulate measurements (PM-10 or PM-fine) taken on that day near that location indicate abnormally high levels when compared to similar data from surrounding days or average values from previous years on that date, or;
2. Visibility or visibility range measurements taken on that day near that location indicate abnormally low levels when compared to similar data from surrounding days or average values from previous years on that date, or;
3. Other data (meteorological, other pollutant measurements, for example) indicate either that the presence of the fire plume on the exceedance date is likely or that conditions are not generally conducive to the local production of high ozone levels on the exceedance date.

It should be noted that corroboration of the fire impact is not a necessary condition to establish the likely causality, but that such evidence, if available, can serve to increase the confidence of this determination. Conversely, evidence of low levels of particulate matter or good visibility in the presence of a plume aloft will cast doubt on whether the plume has contributed to the exceedance. In either case, consideration of this and other evidence will help EPA make a well-informed decision. To that end, EPA will endeavor to use all available data for these determinations, and will work directly with States to see that all data are considered.

Once a State or local agency has determined that the Mexican/Central American fires have likely contributed to an ozone standard level exceedance on a given day, the ozone data submitted to AIRS for that day should be flagged according to standard AIRS exceptional event procedures using the forest fire flag (E). At that same time, or soon thereafter, the State or local agency should submit a request to the appropriate Regional EPA Office to approve this exception with their analysis following the criteria detailed above. The Regional Office and the Office of Air Quality Planning and Standards (OAQPS) will review this material and make appropriate recommendations within 30 days. If approved, the data in AIRS will be flagged accordingly (EE) by OAQPS. Data flagged in this way will subsequently not be used in the calculation of ozone attainment status (i.e., the data will not be used to penalize an area for air quality violations attributed to the fires.)

For further information, please contact the chair of the EPA Workgroup on Mexican Fire Impacts: Dave Guinnup, OAQPS, EPA (MD-14), Research Triangle Park, NC 27711. Telephone: (919)-541-5368. FAX: (919)-541-1903. E-mail: guinnup.dave@epa.gov

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

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TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 11, 1999

Robert E. Hannesschlager, P.E., Acting Director
Multimedia Planning and Permitting Division
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Mr. Hannesschlager:

I would like to take this opportunity to express my appreciation for the United States Environmental Protection Agency's (EPA) guidance on assessing the impacts of smoke from the wildfires in Mexico and Central America on ozone levels in the United States. I would also like to request that you accept this letter and the enclosed documents as the State of Texas submission of final technical justification for the exclusion of monitored ozone levels (which were influenced by the smoke intrusions of 1998) from comparison with the National Ambient Air Quality Standards (NAAQS).

I want to stress our agency's position that the impacts of the fires in Mexico and Central America represent an extended episode that significantly influenced all monitored levels of ozone, and not merely a few individual days in the month of May. Based on our conclusion that the influence represents an extended episode, I believe that the enclosed reports and electronic presentations (PowerPoint documents that can be posted on your FTP site) provide a reasonable justification that monitored ozone levels in the State of Texas were significantly influenced by transported ozone resulting from the smoke as early as April 1, 1998, and as late as June 20, 1998. We believe that because compliance with the 8-hour ozone NAAQS will be based on the 3-year average of the fourth highest value, it is important that EPA recognize the significant contribution of the episode to all measured values during this period and not just those that exceeded the standard.

For our technical justification, we conducted an analysis of all relevant imagery data, including the Eighth Geostationary Operational Environmental Satellite, Hybrid Single Particle Lagrangian Integrated Trajectory analysis, the 1998 monitored ozone and particulate matter data, historical monitoring data, and near real time data collected using aircraft monitoring. We also based the analysis on the meteorological conditions during the episode as compared to previous years.

The analysis provides evidence that the pollutant-laden smoke transported from the fires in Mexico was the single most significant contributor to the levels of monitored ozone. We believe that the smoke was responsible for background levels of ozone in excess of 50 parts per billion. Additionally, these elevated

background levels occurred in conjunction with a set of meteorological conditions that typically would be considered benign for the formation of ozone.

Based on our analysis of the 1998 smoke episode, we are requesting EPA's concurrence with our conclusion to exclude all ozone monitoring data for the period of April 1, 1998 through June 20, 1998 from comparison with the ozone NAAQS. Further, I believe it would be beneficial if Region 6 staff and our staff could arrange a meeting within the next two weeks to review our analysis. If you or your staff have any questions or need additional information, please contact Mr. John Gillen of the Air Policy and Regulations Division at (512) 239-1415.

Sincerely,

Randolph Wood, Deputy Director
Office of Policy and Regulatory Development

RW/JG/cv

Enclosures

High Ozone Levels in Texas Associated with Smoke from Fires in Mexico and Central America April through June 1998

prepared by
Bryan Lambeth, P.E.
Dan White
John Gillen

February 1999

Texas Natural Resource Conservation Commission
Monitoring Operations Division
Policy and Regulatory Development Division

Introduction

During the period from April 1, 1998 through June 20, 1998 large amounts of smoke were transported into Texas from fires in Mexico and Central America. The intensity of the smoke in 1998 was unprecedented in recent history - even though agricultural burning is conducted every year in the spring and early summer in Mexico and Central America. In 1998 the fires were unusually intense and widespread because of severe drought conditions in Mexico and Central America. In addition to the smoke, high levels of ozone were produced as a result of the fires and the unusually high ozone was transported into Texas along with the smoke.

Evidence for Ozone in Association with Smoke

Evidence of ozone in association with the smoke can be seen in aircraft vertical profiles and by comparing measured pollutant levels on a smoke day with levels on a non-smoke day with similar weather conditions.

Aircraft Data

An example of ozone in association with smoke layers aloft is shown in Figures 1 and 2. These measurements were made by an aircraft operated by Baylor University for the Texas Natural Resource Conservation Commission (TNRCC). The Baylor aircraft has been flying routine missions to investigate air quality in Texas since 1997. The aircraft was equipped with a nephelometer which measures light scattering in the atmosphere. The intensity of light scattering is directly related to the intensity of smoke, when present, in the atmosphere. Consequently, when smoke was present in the atmosphere, the nephelometer documented the intensity. Numerous vertical profiles were conducted by the aircraft in May 1998, showing smoke layers aloft and smoke levels in the surface well-mixed layer. In most cases, increased levels of ozone were measured in association with the smoke layers. In many cases ozone concentrations as high as 100 to 140 parts per billion were measured in the smoke layers. In general, the highest ozone concentrations were found in the same layers with the most intense smoke, as can be seen in Figures 1 and 2. These observations imply the presence of smoke at ground level indicates that there is a strong likelihood that corresponding above-normal ozone levels occurred as a result of the smoke - especially at locations that were not downwind of local ozone precursor sources.

Comparison of Smoke Versus Non-Smoke Days

Another example of ozone in association with smoke can be seen in Figure 3. This figure compares ozone levels on a smoke day - May 8, 1998 - with a non-smoke day - October 3, 1998 - measured at the TNRCC Brownsville monitoring site. The October 3 data were selected for comparison because weather conditions were very similar to May 8, including wind direction, wind speed, and temperature. The graph in Figure 3 clearly shows that ozone levels were much higher on the smoke day versus the non-smoke day. Figures 4 and 5 show comparisons of particulate matter less than 10-microns in size

(PM_{10}) and carbon monoxide (CO) on the same two days, comparing smoke conditions with non-smoke conditions. These measurements show that the PM10 and CO levels were also much higher on the smoke day versus the non-smoke day. Figures 6, 7, and 8 show that the wind flow and temperatures on the two comparison days were almost identical. This comparison provides further evidence that high ozone levels were associated with the smoke. In fact, the first and only 8-hour ozone exceedance in five years of monitoring at the Brownsville site was recorded with the smoke conditions on May 8, 1998 - another indication of the unusual conditions.

Evidence for Locations and Times of Impact

A combination of satellite imagery, air trajectories, and particulate and visibility measurements provide the best characterization of the origin, location, and intensity of the smoke. These measurements, taken independently, in most cases are inadequate to fully demonstrate the origin and spatial and temporal impacts of the smoke, but together, the data are complimentary and provide a good characterization.

Satellite Imagery Showing Smoke

Two types of satellite imagery are most useful in analyzing the location and transport of the smoke - high resolution visible imagery and multi-spectral measurements of atmospheric aerosols. Visible satellite imagery depicts the location of the smoke most clearly over water and, where the smoke is intense, over land. It also can show the location of the origin of the smoke and track the motion of the smoke over time. However, the visible satellite imagery is not available at night and does not indicate how much smoke is mixing to the surface. Also, clouds can obscure the smoke and light amounts of smoke are difficult to observe over land. Visible satellite imagery does not directly distinguish between smoke and other types of haze, such as dust clouds or anthropogenic haze. The smoke determination must be inferred by tracking the haze back to the source using visible satellite imagery or by using other methods, such as air trajectories or chemical speciation of particulate samples.

Satellite aerosol measurements are also limited to cloud-free areas and only provide incomplete coverage once per day. Gaps in coverage occur between each pass of the polar orbiting satellite that makes the aerosol measurements. Examples of visible satellite imagery from the Eighth Geostationary Operational Environmental Satellite (GOES-8) that were received and processed at TNRCC are shown in Figures 9 and 10. An example of satellite aerosol measurements produce by the National Aeronautic and Space Administration (NASA) from the Total Ozone Mapping Spectrometer (TOMS) instrument aboard the Earth Probe 1 satellite is shown in Figure 11. The NASA aerosol imagery does not indicate which areas were obscured by clouds and uses day-old data to fill in gaps between satellite passes. Consequently, the aerosol imagery from NASA must be used with caution.

Air Trajectories Showing Origin in Fire Areas

One method to demonstrate that air may have passed over known fire zones is to construct air parcel trajectories backward-in-time from locations where smoke is

suspected. Figure 12 shows a sample backward-in-time trajectory showing that the air arriving in Texas had previously crossed parts of Mexico and Central America where fires were prevalent. This trajectory was constructed by the National Oceanic and Atmospheric Administration (NOAA) Applied Research Laboratory (ARL) using the Eta Data Analysis System (EDAS) that includes gridded three-dimensional meteorological data derived from surface and upper air measurements. The EDAS grid domain does not extend any farther south than the southern edge of the Gulf of Mexico. This EDAS limit also prevents trajectories from extending past the southern Gulf of Mexico. The ARL also has an Aviation data set that covers the entire northern hemisphere, but data from the April through June 1998 are no longer available to the public.

Particulate Measurements Indicating Smoke

Another indication of smoke is above normal levels of PM_{10} or particulate matter 2.5 microns or less in size ($PM_{2.5}$). This evidence alone is not sufficient to prove that smoke is present, because other sources of particulate can also cause above normal levels. In Texas, widespread high levels of PM_{10} and/or $PM_{2.5}$ are typically caused by smoke from large fires, wind blown dust from large dust storms, or anthropogenic sources of particulate. Satellite imagery can usually provide evidence to identify smoke from large fires. Wind information, including air trajectories can also help to provide confirmation. Where available, chemical speciation of particulate samples can also document the level of smoke impact. However, very little speciation data were available from Texas locations during 1998.

Continuous hourly PM_{10} data were available from only one official reporting site east of El Paso in Texas during the April through June 1998 period - the TNRCC site at Brownsville. Non-continuous 24-hour every-sixth-day official PM_{10} samples were collected at 35 locations in Texas during April through June. Additional unscheduled 24-hour samples were also collected at many of these sites in mid to late May. There were no official $PM_{2.5}$ measurements during the period of interest.

Unofficial continuous PM_{10} monitors were added by TNRCC to sites in Corpus Christi, San Antonio, and Dallas and operated from mid-May through June. TNRCC also added unofficial non-continuous PM_{10} monitors in Austin and Victoria during May. Unofficial continuous hourly PM_{10} and $PM_{2.5}$ data were provided by Texas A&M University at Kingsville for the Corpus Christi Holly site for parts of the April through June period. Also, unofficial continuous hourly $PM_{2.5}$ data were provided by the Houston Regional Monitoring (HRM) Corporation from the HRM Site 3 in the Houston ship channel area for May and June 1998. Unofficial non-continuous $PM_{2.5}$ data were collected by TNRCC at Austin and by EPA at sites in Dallas, San Antonio, and Corpus Christi, and Galveston for intermittent days in mid to late May.

Graphs of the available continuous PM_{10} and $PM_{2.5}$ data for April, May, and June are presented in Figures 13 through 18.

Relation of Visibility to Particulate Measurements

Because of the limited amount of PM_{10} and $PM_{2.5}$ data from Texas locations in 1998, visibility data from more additional locations is useful to help document the presence and intensity of smoke in some areas. To show how well visibility measurements relate to PM_{10} measurements, PM_{10} and visibility measurements in the Austin and Brownsville areas are compared in Figures 19 and 20. These graphs show a good relationship between PM_{10} and visibility during the month of May when relative humidities were below about 80 percent. The visibility measurements at both Austin and Brownsville were recorded by visibility meters operated by the National Weather Service (NWS). These instruments use forward scattering of light to estimate the visibility and are located at all of the major airports across Texas and at many smaller airports as well. The NWS reports visibilities up to 9 miles. All visibilities of 10 miles or greater are reported as 10 miles. Consequently, the visibility data from these instruments cannot be used to determine the presence of smoke that reduces the visibility to levels greater than 9 miles.

Particulate and Visibility Data to Show Extent of Smoke Impact

Particulate and visibility data can be used to place upper limits on the intensity of smoke on particular days. Table 1 shows a listing of all of the days when either the one-hour or eight-hour ozone National Ambient Air Quality Standard (NAAQS) were recorded for each city in Texas. The table also shows the mid-day visibility from the nearest NWS airport site and any PM_{10} or $PM_{2.5}$ measurements that were available for each city. Where more than one PM_{10} or $PM_{2.5}$ measurements were available, a range from minimum to maximum is shown. From these measurements, each day is categorized for a rough estimate of smoke intensity. From this data set, it is not possible to determine whether no smoke was present - only that the smoke levels were relatively low if the visibility was 10 miles or greater and/or the particulate levels were low.

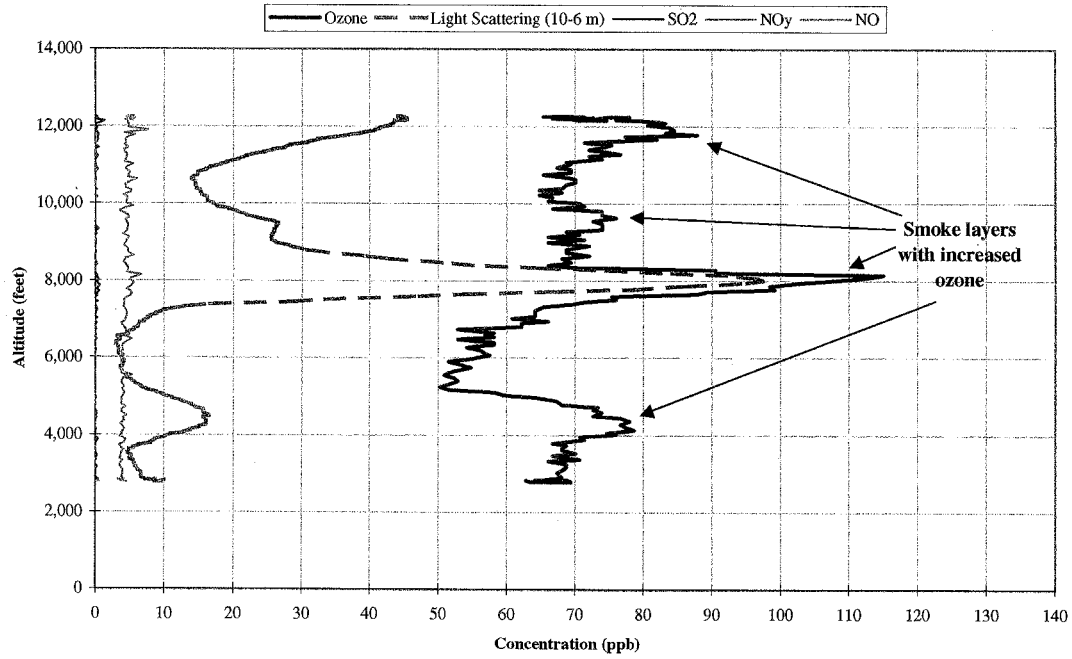
Historical visibility data must be used with caution. Within the last two to three years the NWS has changed to an automatic weather observation and reporting system that uses a visibility meter to estimate the visibility based on light scattering. The new system does not report visibilities greater than 10 miles. When the visibility exceeds 10 miles, the new system reports the visibility as 10 miles, even though it is likely to be greater. Observations prior to the new system were made by human observers and were limited by the availability of visibility targets for human observers. However, most stations had targets of at least 12 to 15 miles. Since visibilities above 10 to 15 miles are much more frequent than lower visibilities at locations in Texas, historical visibility averages for particular days tend to average about 12 to 15 miles, prior to the new NWS measurement system. With the new system, visibilities cannot exceed 10 miles. The result is an artificial drop in visibility when comparing this years data to historical data. One method to avoid this problem is to calculate the frequency that particular visibility ranges occurred, with the highest range not exceeding 10 miles. Observations with high relative humidity or with precipitation must be removed from the data to remove the influence of weather.

Table 1. Smoke and Ozone April 1 - June 20, 1998

Date	City	Ozone Maximum 8-Hour (ppb)	Ozone Maximum 1-Hour (ppb)	Estimated Smoke Intensity	Visibility Noon CDT (miles)	PM10 24-Hour (ug/m3)	PM2.5 24-Hour (ug/m3)
04/05/98	Houston-G-B	110	149	Low	10+	17-30	
04/10/98	Corpus Christi	85		Low	10+	31	13
04/11/98	Houston-G-B	89		Low	10+		
04/16/98	Houston-G-B	85		Moderate	7		
04/20/98	Houston-G-B	129	164	Low	10+		
04/22/98	Houston-G-B	95	129	Low	10+		
04/23/98	Houston-G-B	97	134	Low	10+	21-61	
04/24/98	Houston-G-B	85		Low	10+		
04/24/98	Longview	86		Low	10+		
04/30/98	Houston-G-B	110	156	Low	10+		
04/30/98	Corpus Christi	98		Low	10+		15
05/01/98	Longview	97		Low	10+		
05/02/98	Dallas-Fort Worth	87		Low	10+		
05/04/98	Houston-G-B	126	139	Moderate	7-10		
05/07/98	Houston-G-B	114		**Very High**	4		67
05/07/98	Dallas-Fort Worth	89		High	5		
05/07/98	San Antonio	101	140	**Very High**	**2**		
05/07/98	Midlothian	89		High	5		
05/08/98	Houston-G-B	95	130	**Very High**	**2**		93
05/08/98	Brownsville	89		**Very High**	**2.5**	**257**	
05/08/98	Austin	85		**Very High**	**2.5**	**89**	
05/10/98	Houston-G-B	125	136	Low	10+		12
05/10/98	San Antonio	89		Low	10+		
05/10/98	Corpus Christi	86		Low	10+		
05/11/98	Houston-G-B	106		Low	10+	22-81	27
05/11/98	Dallas-Fort Worth	99		Low	10+	25-32	
05/11/98	Midlothian	97		Low	10+	27-93	
05/11/98	Victoria	87		Low	10+		
05/12/98	Houston-G-B	91		Moderate	9		35
05/16/98	Dallas-Fort Worth	99		High	5-10		56
05/16/98	Longview	90		High	5		
05/17/98	Houston-G-B	86		Moderate	7	32-54	30-35
05/18/98	Houston-G-B	98		Moderate	8	32-82	28-36
05/18/98	Beaumont-PA	90	143	Moderate	8		
05/19/98	Houston-G-B	93	135	Moderate	10+	41-105	37
05/19/98	Beaumont-PA	92		Moderate	10+		
05/20/98	Houston-G-B	85		High	4-6	46-96	43
05/29/98	Houston-G-B	86	134	Low	10+	14-22	9-17
05/29/98	Dallas-Fort Worth	98		Moderate	7	30	
05/29/98	Longview	112	142	Moderate	10+		
05/30/98	Dallas-Fort Worth	90		Moderate	10+	21	
06/07/98	Houston-G-B		142	Moderate	10+		22-23
06/15/98	Austin	86		Low	10+	29	
06/15/98	Longview	100	128	Low	10+		
06/15/98	Tyler	86		Low	10+		
06/16/98	Dallas-Fort Worth	94		Low	10+	18	
	Key			Low	10+	<20	<15
				Moderate	6-9	20-49	15-39
				High	4-5	50-80	40-65
				Very High	**<4**	**>80**	**>65**

Figure 1

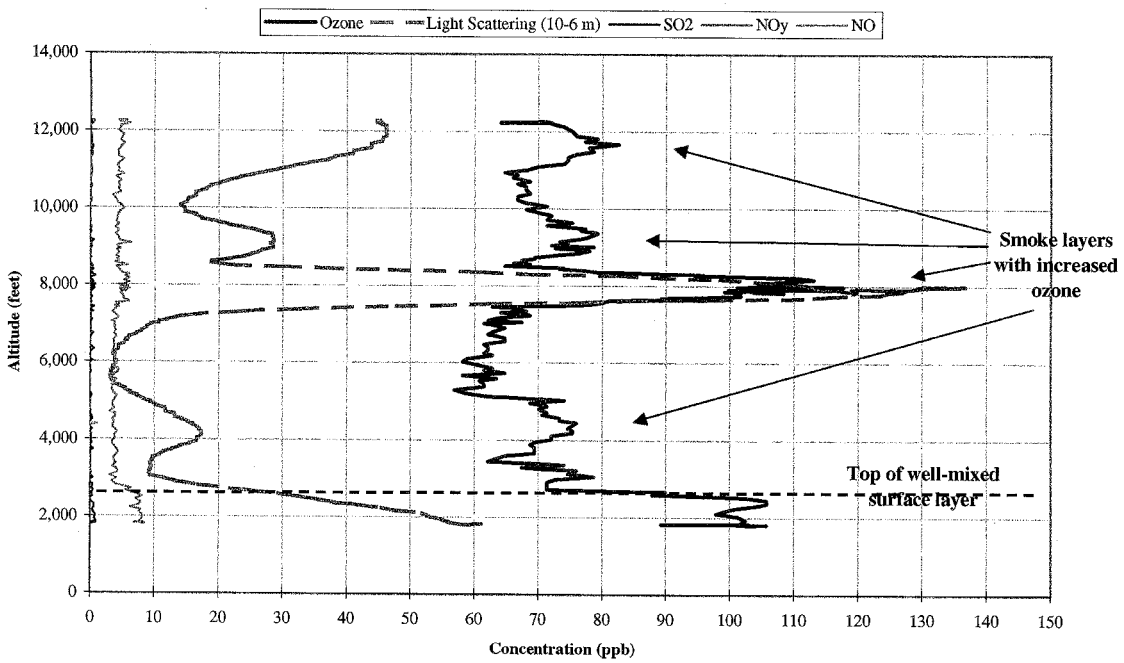
5/17/98 Baylor Aircraft Flight 48 Level 1 Data - 8 Miles North of Conroe
Vertical Pollutant Ascending Profile 1325-1339 CDT



TNRCC OCE/MO/MDMA

Figure 2

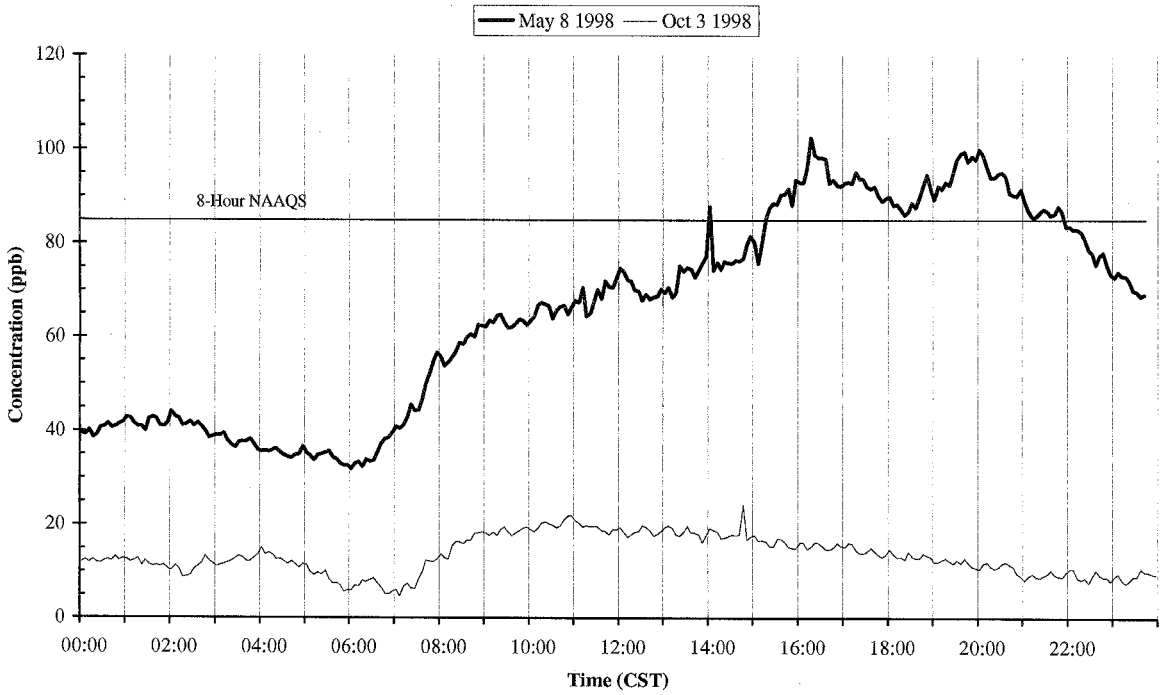
5/17/98 Baylor Aircraft Flight 48 Level 1 Data - 8 Miles North of Conroe
Vertical Pollutant Descending Profile 1339-1357 CDT



TNRCC OCE/MO/MDMA

Figure 3

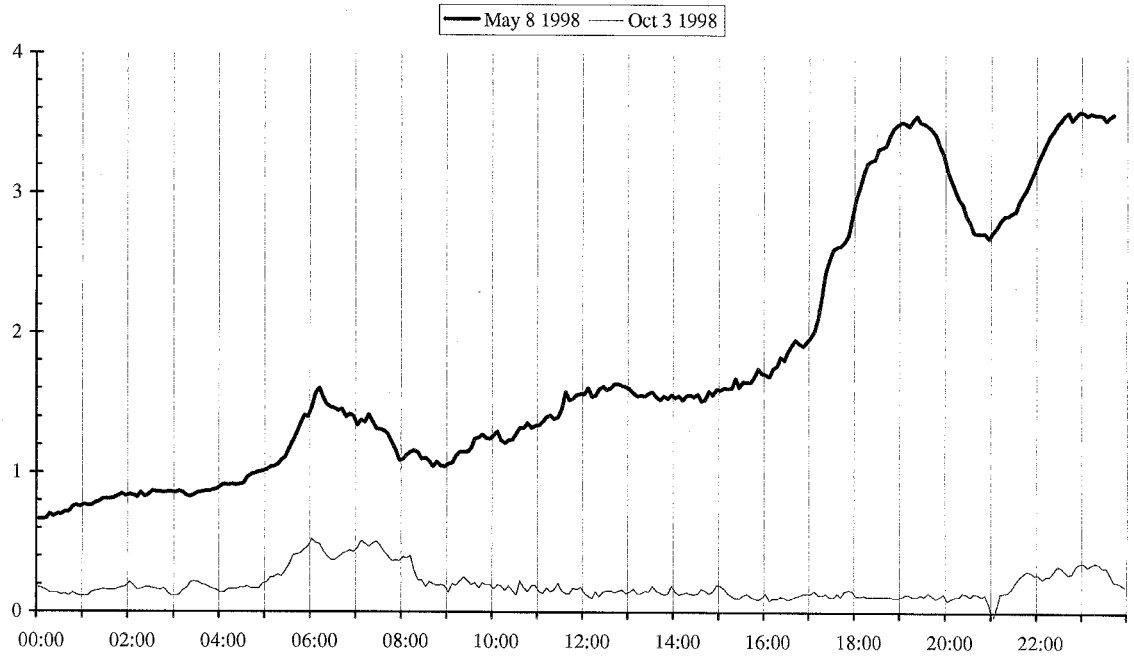
Brownsville 480610006 CAMS 80 Ozone Comparison



TNRCC OCE/MO/MDMA

Figure 4

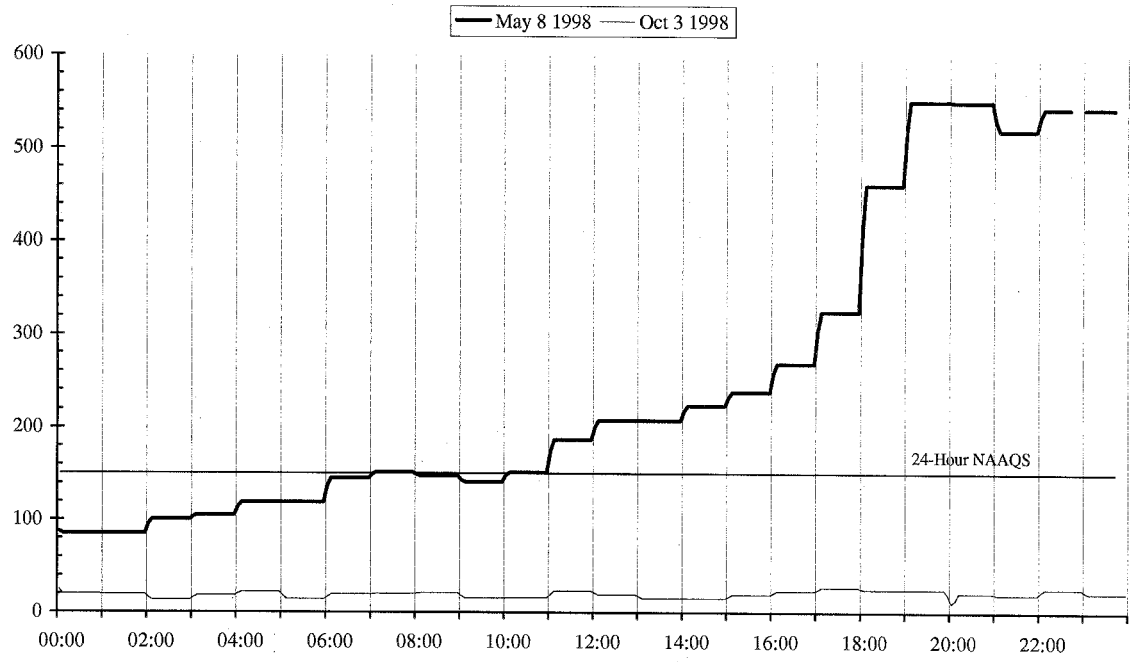
Brownsville 480610006 CAMS 80 Carbon Monoxide Comparison



TNRCC OCE/MO/MDMA

Figure 5

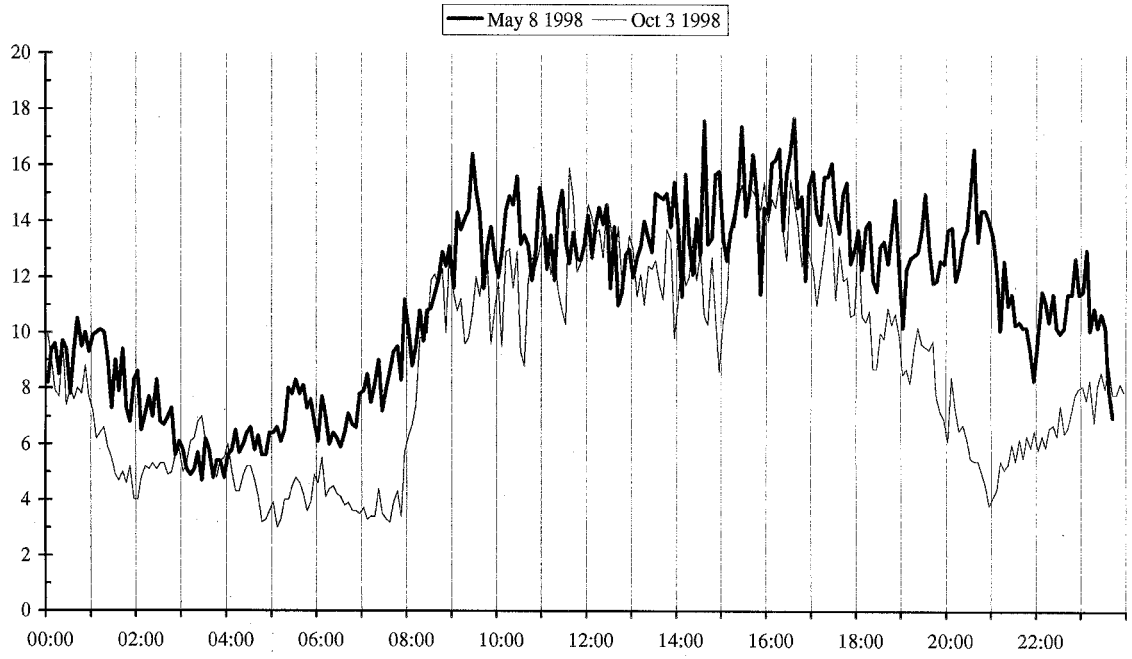
Brownsville 480610006 CAMS 80 PM10 Comparison



TNRCC OCE/MO/MDMA

Figure 6

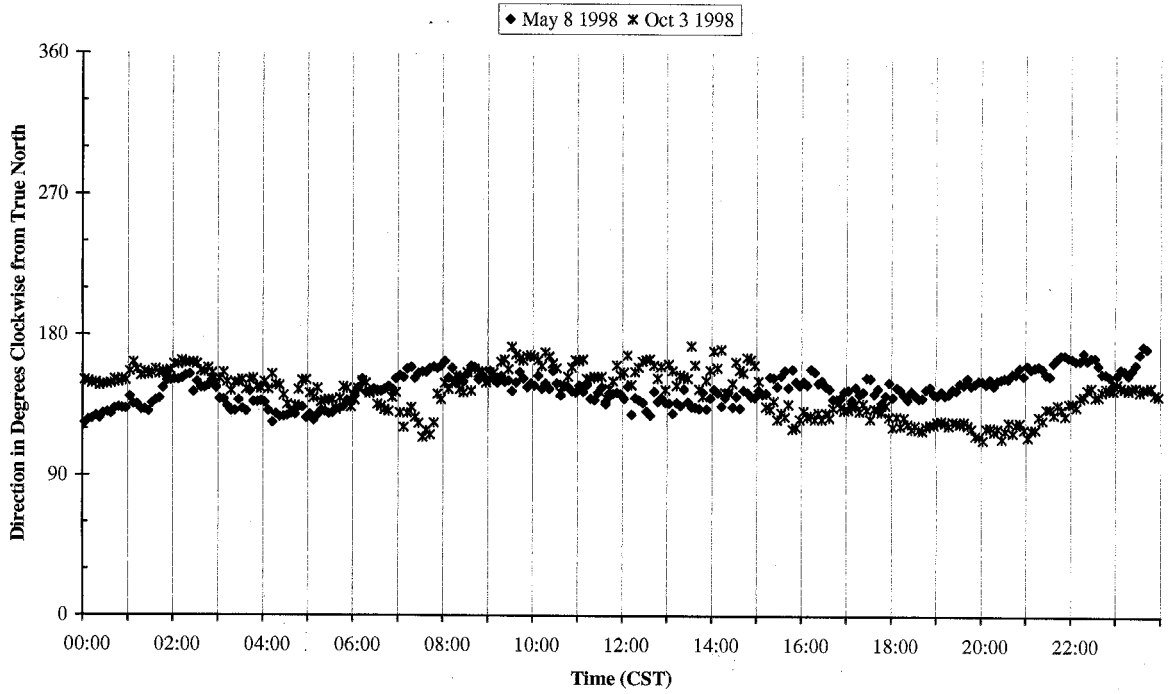
Brownsville 480610006 CAMS 80 Wind Speed Average Comparison



TNRCC OCE/MO/MDMA

Figure 7

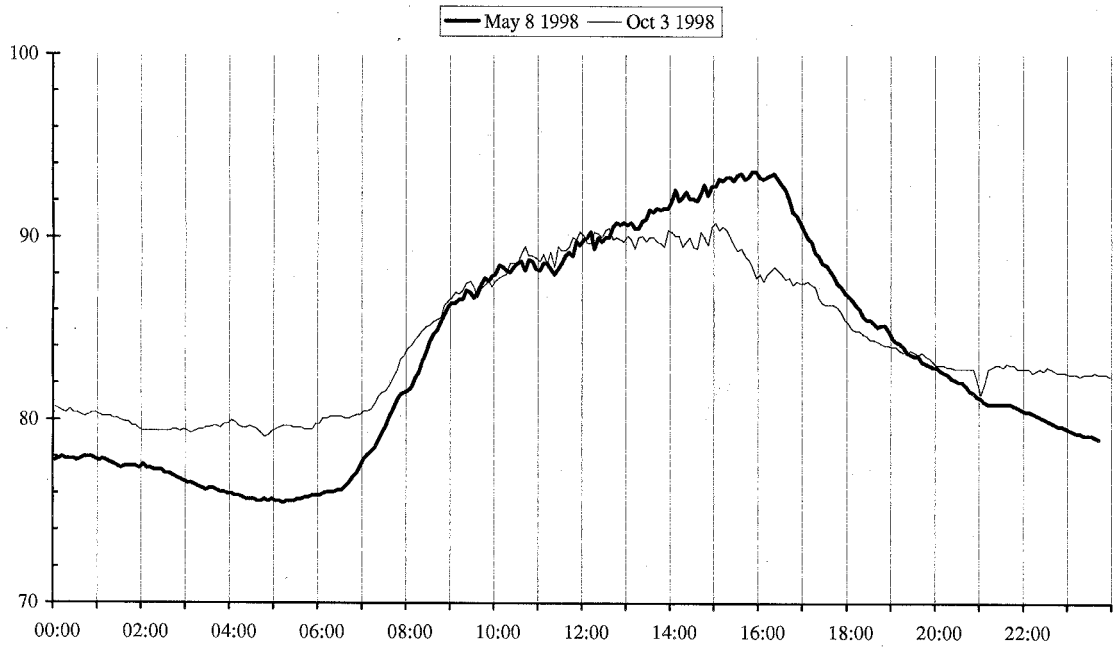
Brownsville 480610006 CAMS 80 Wind Direction Resultant Comparison



TNRCC OCE/MO/MDMA

Figure 8

Brownsville 480610006 CAMS 80 Temperature Comparison



TNRCC OCE/MO/MDMA

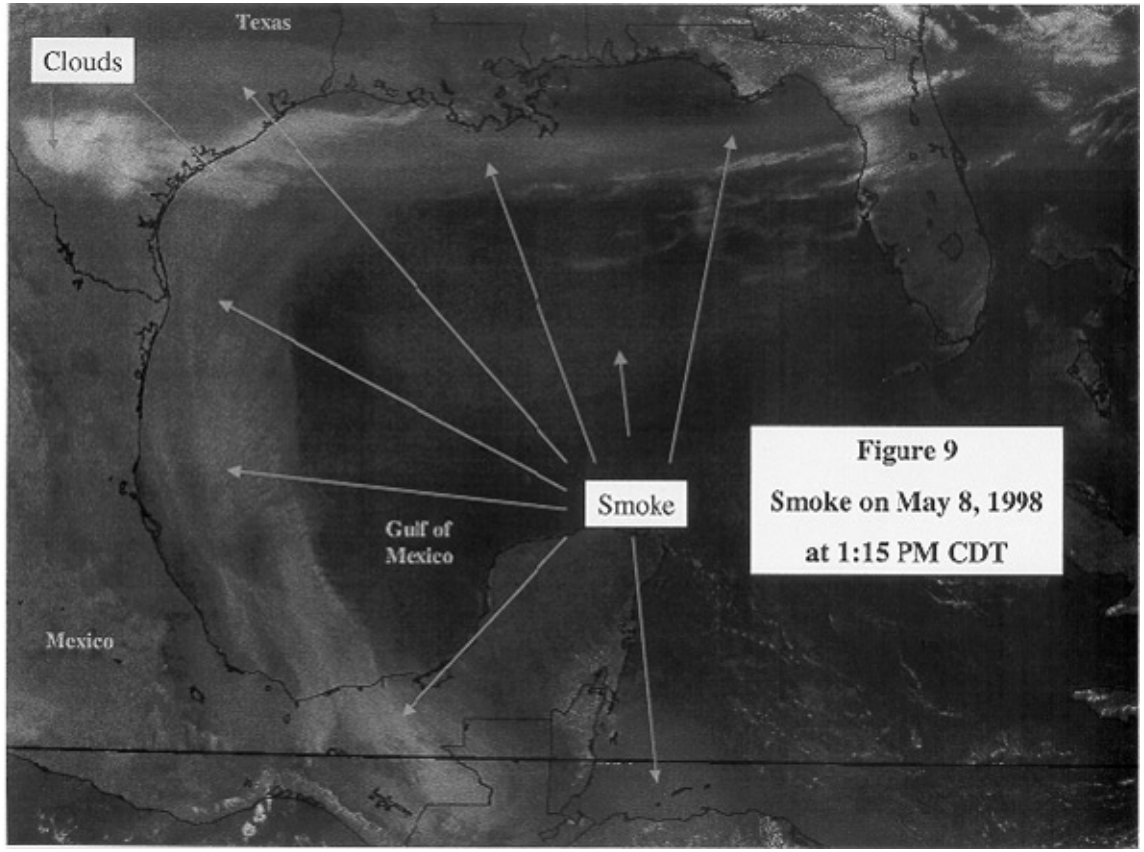
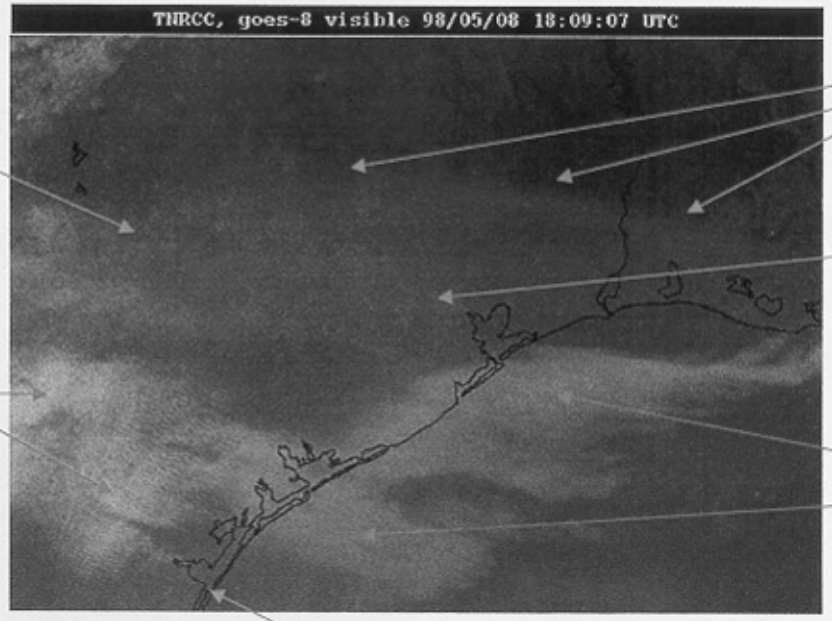


Figure 9

Smoke on May 8, 1998

at 1:15 PM CDT

Figure 10
Southeast Texas Smoke on May 8, 1998 at 1:15 PM CDT



Smoke Over Austin

Edge of Smoke

Smoke Over Houston

Clouds Embedded In Smoke

Clouds Embedded In Smoke

Smoke Over Corpus Christi

Figure 11
NASA TOMS Imagery for May 8, 1998

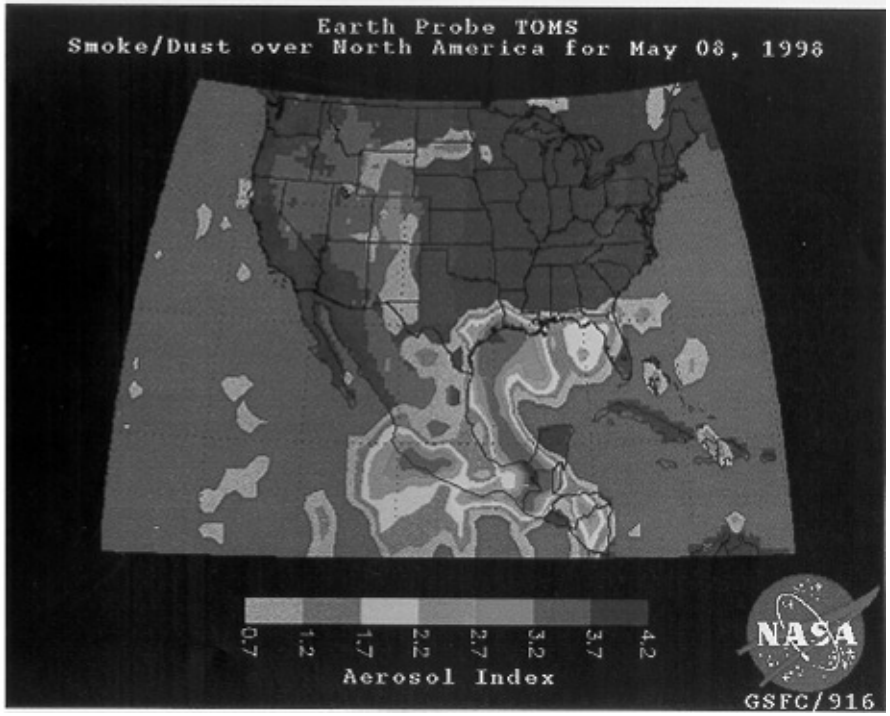


Figure 12
NOAA ARL Trajectory
for May 8, 1998

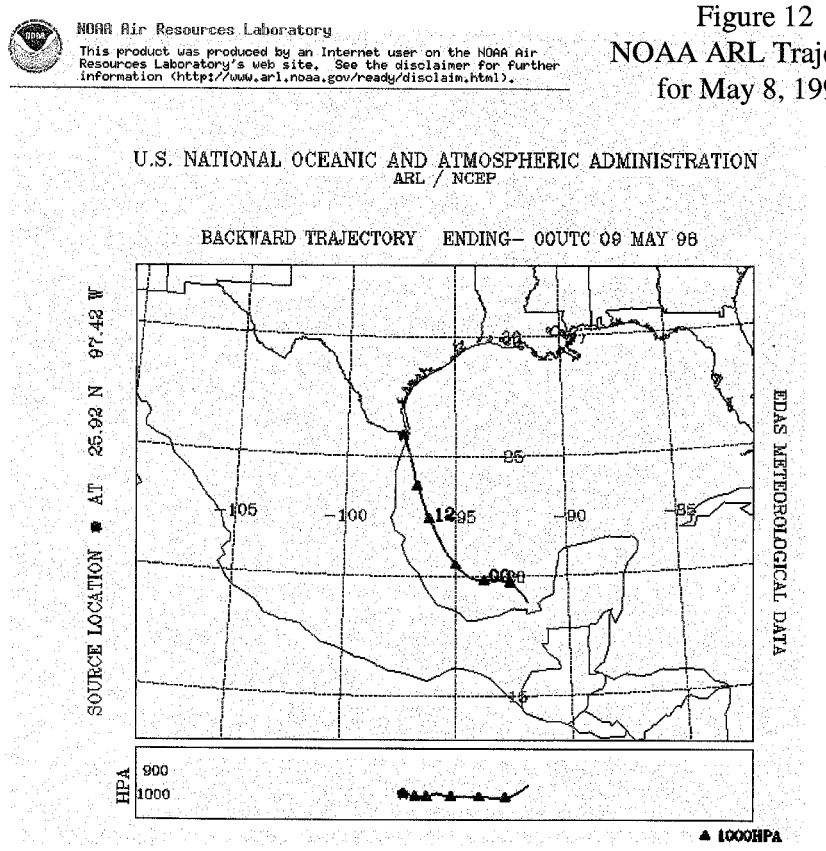
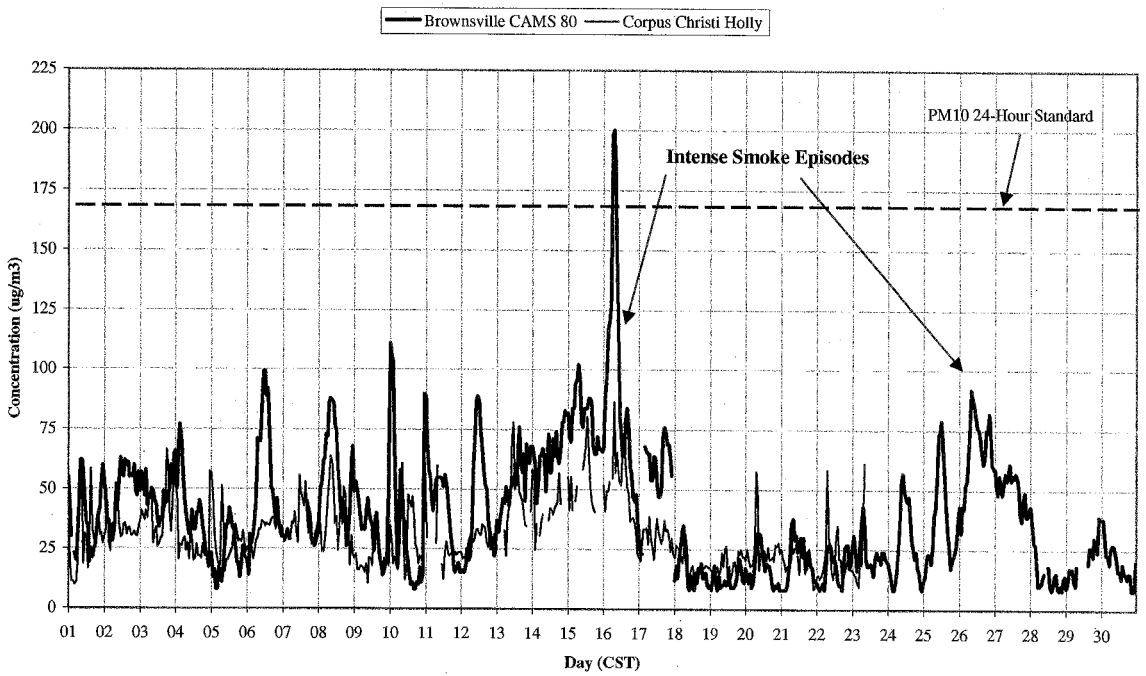
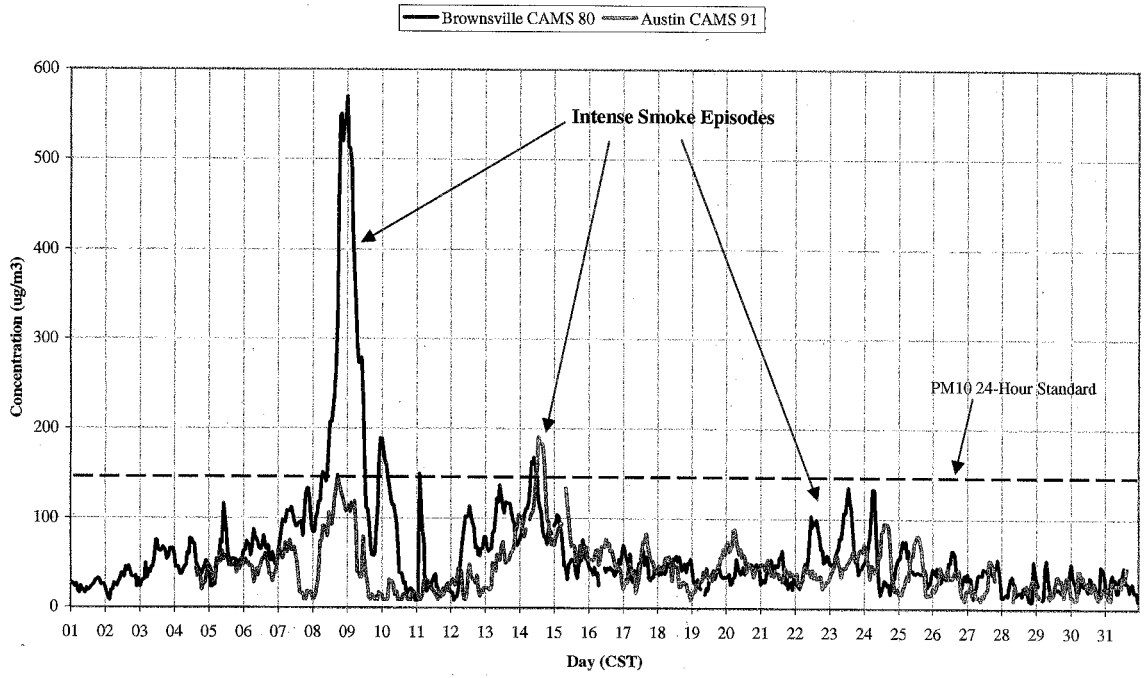


Figure 13
April 1998 PM10 Hourly Measurements



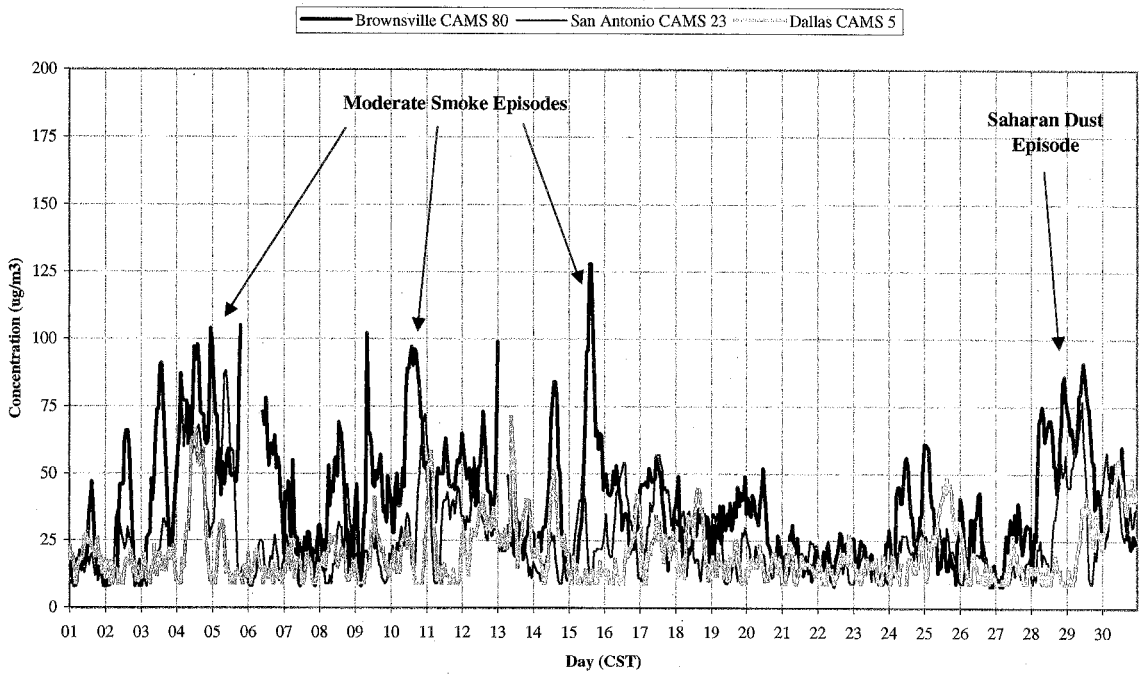
TNRCC OCE/MO/MDMA

Figure 14
May 1998 PM10 Hourly Measurements



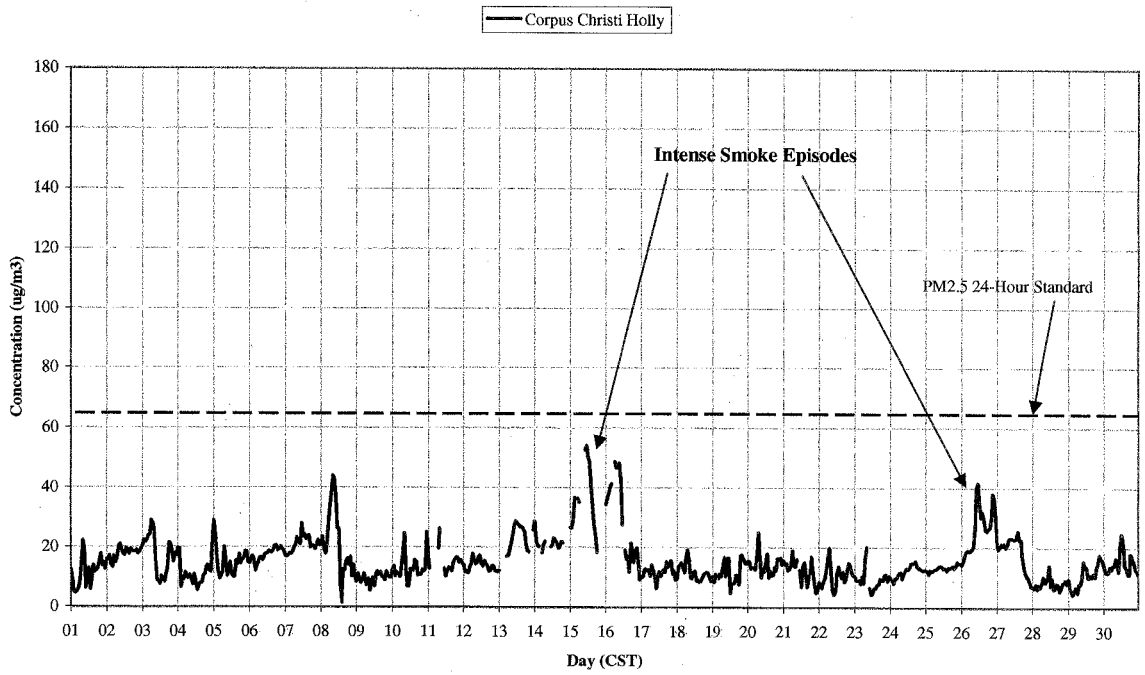
TNRCC OCE/MO/MDMA

Figure 15
June 1998 PM10 Hourly Measurements



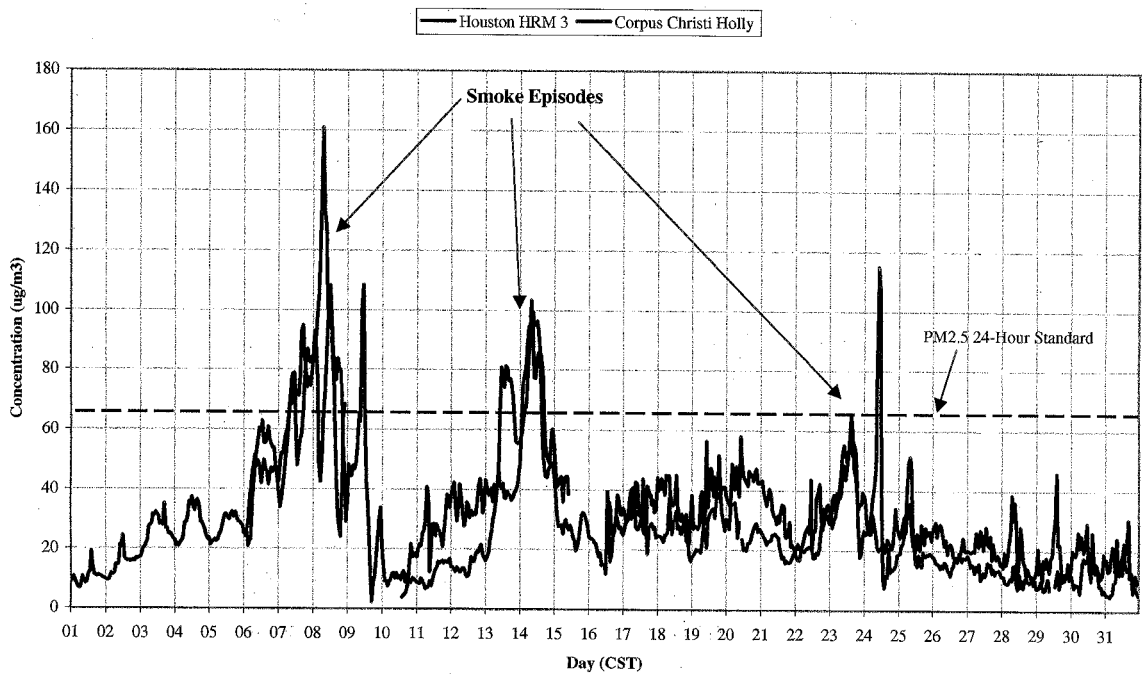
TNRCC OCE/MO/MDMA

Figure 16
April 1998 PM2.5 Hourly Measurements



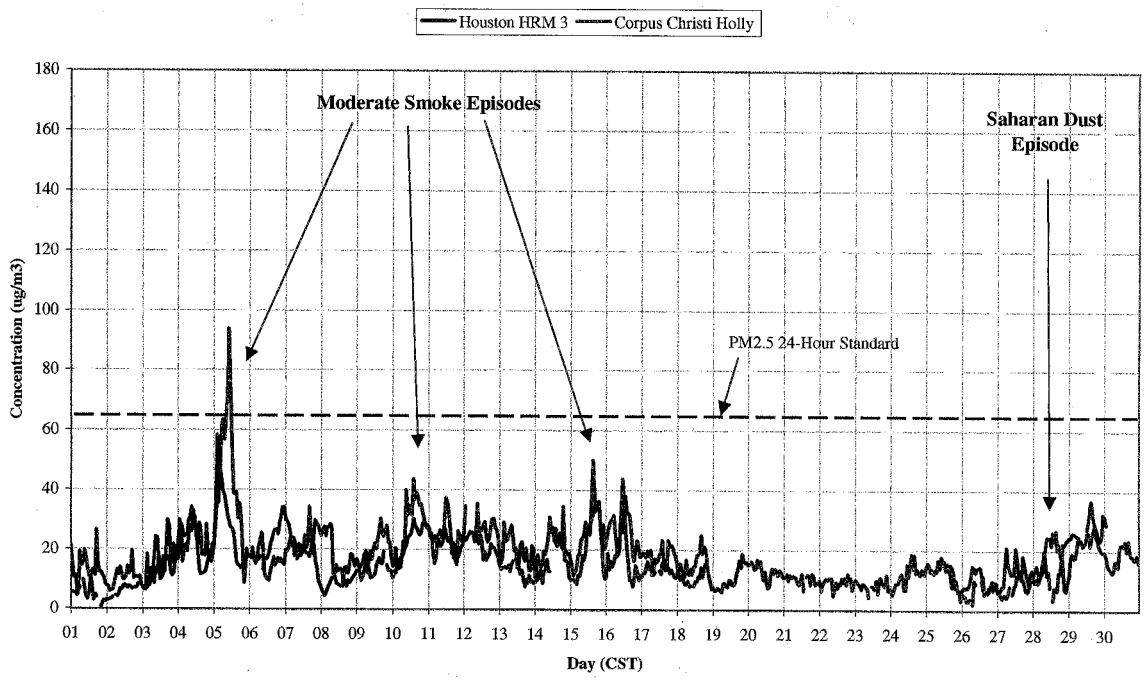
TNRCC OCE/MO/MDMA

Figure 17
May 1998 PM2.5 Hourly Measurements



TNRCC OCE/MO/MDMA

Figure 18
June 1998 PM2.5 Hourly Measurements

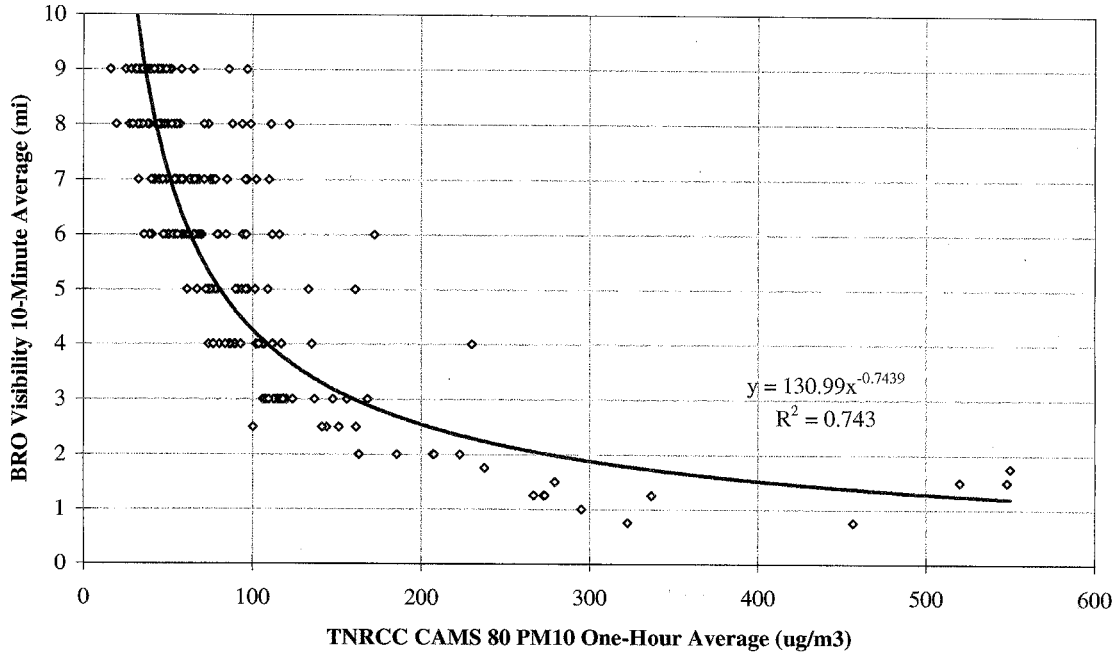


TNRCC OCE/MO/MDMA

Figure 19

Brownsville PM10 versus Visibility

May 1998 Cases with Temperature-Dew Point Separation of Five Degrees Fahrenheit or Greater

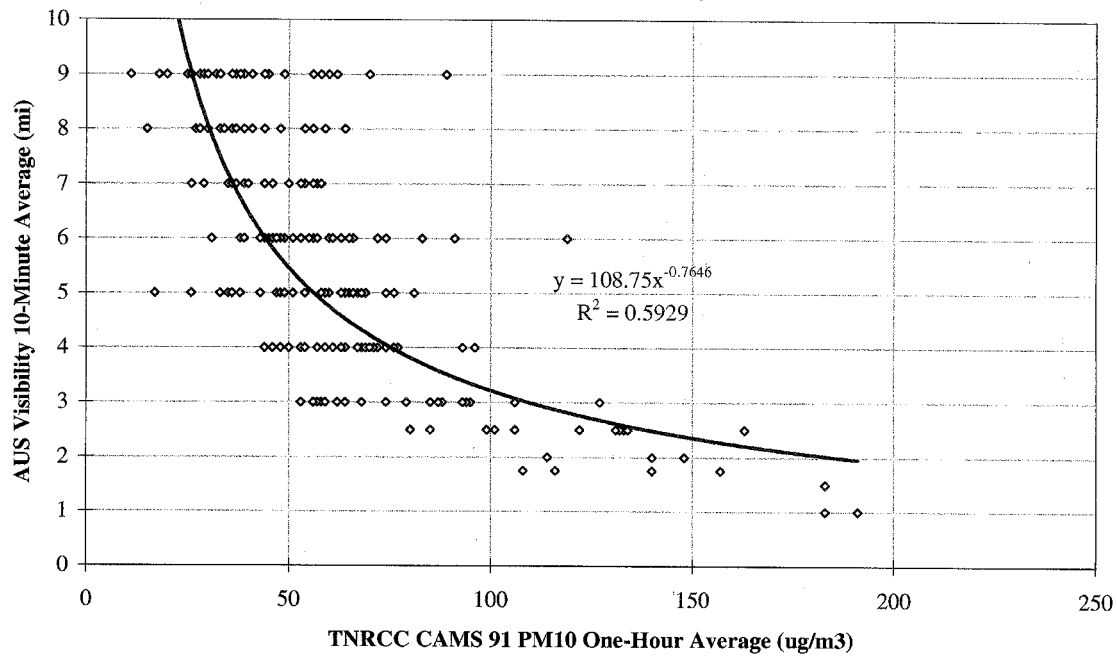


TNRCC OCE/MO/MDMA

Figure 20

Austin PM10 versus Visibility

May 1998 Cases with Temperature-Dew Point Separation of Five Degrees Fahrenheit or Greater



TNRCC OCE/MO/MDMA

File EPA decision on smoke study

Jim Thomas

From Randy Wood

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAY 14 1999

MAY 19 1999
RECEIVED
OFFICE OF CONSERVATION COMMISSION

Mexican Smoke File

MAY 17 1999
OFFICE OF ENVIRONMENTAL POLICY, ANALYSIS & ASSESSMENT

Mr. Randolph Wood, Deputy Director
Office of Policy & Regulatory Development
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711

Dear Mr. Wood:

The letter is in response to your technical submittal of February 11, 1999, requesting exceptional events classification of air quality data from April 1, 1998, through June 1998. Both EPA Region 6 and EPA's Office of Air Quality Planning and Standards have reviewed your technical submittal and have reached agreement on this response.

Because of the large size of the state and the regional differences in smoke impacts, we divided Texas into three geographic regions; Region I, Southern/Gulf Coast (Brownsville, Laredo, Corpus Christi, San Antonio, Houston, Galveston, Beaumont), Region 2, North/East Texas (Dallas/Fort Worth, Tyler, Longview); and Region 3, West Texas (Abilene, Lubbock, El Paso).

Our analysis of the impact of the 1998 Mexican/Central American encompassed a review of available technical information including visibility observations, ambient monitoring data, aircraft measurements and satellite imagery. All of this data were merged into the attached matrices. Utilizing these matrices, Region 6 and OAQPS staff were able to evaluate all data for individual days in April, May, and June and concluded that the following days were impacted by Mexican smoke:

Region I - April 14-17, 26-27, May 4-31, June 4-6;
Region II - May 8-10, 13-27;
Region III - May 8, 12-20, 26-27.

We have enclosed the briefing sheet explaining our analysis and the Regional matrices used to determine daily impacts. Thank you for your efforts in preparing your technical analysis. If you have any question or if you would like to discuss this issue further, please contact me at (214) 665-2290.

Sincerely yours,

Mary G. Kemp, Chief
Air Quality Analysis Section

Enclosure

REGION 6 EXECUTIVE SUMMARY

DATE: May 10, 1999

TOPIC: Mexican Fires Impact on Texas Air Quality

DEADLINE: NA

BACKGROUND:

- On February 11, 1999, the Texas Natural Resource Conservation Commission submitted their final technical document packet requesting the exclusion of ozone data from April 1, 1998 through June 20, 1998.

- As outlined in the Mexican wildfires technical guidance document, the following are the major data tools for determining the presence of the smoke plume:

  - **satellite imagery** (multiple images; i.e., TOMS, GOES)

  - **visibility and surface meteorological measurements**

  - **PM concentrations and other monitoring information**

CURRENT STATUS:

- Based upon the developed guidance for evaluating impacts of the Mexican wildfires, Region 6 created a method of evaluating the haze impact on individual days. In determining impacts on individual days, Region 6 required definitive indication of the smoke's presence by two data types as justification for exemption. As stated in the guidance, days following impacted days could also be granted exemption.

- EPA Region 6 staff input all of the data submitted by Texas and the additional data collected by Region 6 into a matrix(spreadsheet). Using this matrix, Region 6 and OAQPS staff were able to evaluate all available data for individual days in April, May, and June. The matrix includes: satellite data, visibility observations(light extinction), particulate monitoring data, and ozone data.

- In reviewing this matrix, Region 6 staff divided the state into three geographic regions for evaluating impacts to particular regions of the state. These regions are; Region I, Southern/Gulf Coast(Brownsville, Laredo, Corpus Christi, San Antonio, Houston, Galveston, Beaumont), Region 2, North/East Texas (Dallas/Fort Worth, Tyler, Longview); and Region 3, West Texas(Abilene, Lubbock, El Paso).

- Our analysis concluded that impacts to Texas from the Mexican smoke occurred during the following periods:
  Region I - April 14-17, 26-27, May 4-31, June 4-6;
  Region II - May 8-10, 13-27;
  Region III - May 8, 12-20, 26-27.

CONTACT/TELEPHONE NUMBER: Mary Kemp, (214) 665-2290

TEXAS, Region I

	TOMS Satellite Images	Visibility (Light Extinction)	Visibility Observations	Brownville C80 BG	Ozone Exceedances (1-hr and 8-hr)
April	Region of State	Noon Airport Observations	TNRCC		
	I				
1	no	no			
2	yes	no			
3	yes	no			
4	no	no			
5	no	no	10+ miles, Houston		110 ppb (8-hr), 149 ppb (1-hr), Houston (Region I)
6	no	no			
7	no	no		34	
8	no	no		58	
9	no	no		34	
10	no	no	10+ miles, Corpus Christi	38	85 ppb (8-hr), Corpus Christi (Region I)
11	no	no	10+ miles, Houston	44	89 ppb (8-hr), Houston (Region I)
12	no	no		43	
13	no	no		53	
14	yes	no		65	
15	yes	yes, Region I		80	
16	yes	yes, Region I	7 miles, Houston	95	85 ppb (8-hr), Houston (Region I)
17	yes	no		57	
18	yes	no		16	
19	no	no		12	
20	no	no	10+ miles, Houston	16	129 ppb (8-hr), 164 ppb (1-hr), Houston (Region I)
21	no	no		20	
22	no	no	10+ miles, Houston	17	95 ppb (8-hr), 129 ppb (1-hr), Houston (Region I)
23	no	no	10+ miles, Houston	23	97 ppb (8-hr), 134 ppb (1-hr), Houston (Region I)
24	no	no	10+ miles, Houston	27	85 ppb (8-hr), Houston (Region I)
25	no	no		36	
26	yes	no		66	
27	yes	yes, Region I		51	
28	yes	no		16	
29	yes	no		21	
30	yes	no	10+ miles, Houston and Corpus Christi	20	110 ppb (8-hr), 156 (1-hr) Houston; 98 ppb (8-hr), Corpus Christi (Region I)
	Data based on visibility contours				
	generated by CAPITA, Washington University				

TEXAS, Region I

		Satellite Images	Visibility (Light Extinction)	Visibility Observations	Brownville C80 BG	San Antonio C23 BG
May	TOMS	GOES	Noon Airport Observations			
	Region of St	Region of State	Region of State			
	I	I	I			
1	no	NA	yes		24	
2	no	NA	no	10 miles(Dallas)	29	
3	no	NA	no		53	
4	yes	no	yes	7-10 miles(Houston)	51	
5	yes	no	yes		56	
6	yes	no	yes		66	
7	yes	yes	yes	2 miles(San Ant) 4 miles(Houston)	100	
8	yes	yes	yes	2.5 miles(Brownsville) 2 miles(Houston), 2.5 miles(Austin)	257	
9	yes	yes	no		244	
10	yes	no	no	10 miles(San Ant) 10 miles(Houston), 10 miles(Corpus)	79	
11	yes	yes	no	10 miles(Houston),10 miles(Victoria)	36	
12	yes	yes	yes	9 miles(Houston)	63	
13	yes	yes	yes		97	
14	yes	yes	yes		110	
15	yes	yes	yes		62	
16	yes	yes	yes		43	
17	yes	yes	yes	7 miles (Houston)	47	
18	yes	yes	no	8 miles (Houston), 8 miles (Beaumont)	47	
19	yes	yes	no	10 miles (Houston), 10 miles (Beaumont)	32	
20	yes	yes	yes	4-6 miles (Houston)	42	39
21	yes	NA	no		39	35
22	no	inconclusive	no		60	23
23	no	yes	yes		73	47
24	yes	inconclusive	yes		52	49
25	yes	yes	yes		47	38
26	yes	yes	yes		40	33
27	yes	yes	no		37	18
28	yes	yes	no		21	23
29	yes	yes	no	10 miles(Houston)	25	25
30	no	yes	no		29	15
31	yes	inconclusive	no		26	15

TEXAS, Region I

	PM 10 impact	PM 2.5 impact	Ozone Exceedances (1-hr and 8-hr)
May			
1			
2			
3			
4			126 ppb (8-hr), 164 ppb (1-hr), Houston (Region I)
5			
6			
7		very high, 67 ug (Houston)	114 ppb (8-hr), Houston, 101 ppb (8-hr), 140 (1-hr), San Ant., (Region I)
8	very high, 257 ug (Brownsville), 89 (Austin)	very high, 93 ug (Houston)	95 ppb (8-hr), 130 ppb (1-hr) Houston, 89 ppb (8-hr) Brownsville, 85 ppb (8-hr) Austin (Region I)
9			
10		low, 12 (Houston)	125 ppb (8-hr), 136 ppb (1-hr) Houston, 89 ppb (8-hr) San Ant., 86 ppb (8-hr) Corpus Christi (Region I)
11	moderate, 22-93 (Houston-DFW)	moderate, 27 (Houston)	106 ppb (8-hr) Houston, 87 ppb (8-hr) Victoria, (Region I)
12		moderate, 35 (Houston)	91 ppb (8-hr) Houston (Region I)
13			
14			
15			
16			
17	moderate, 32-54 (Houston)	moderate, 30-35 (Houston)	86 ppb (8-hr) Houston (Region I)
18	moderate, 32-82, (Houston)	moderate, 28-36 (Houston)	98 ppb (8-hr) Houston, 90 ppb (8-hr), 143 ppb (1-hr) Beaumont (Region I)
19	moderate, 41-105 (Houston)	moderate, 37 (Houston)	93 ppb (8-hr), 135 ppb (1-hr) Houston, 92 ppb (8-hr) Beaumont (Region I)
20	moderate, 46-96 (Houston)	moderate, 43 (Houston)	85 ppb (8-hr) Houston (Region I)
21			
22			
23			
24			
25			
26			
27			
28			
29	low, 14-22 (Houston)	low, 9-17 (Houston)	86 ppb (8-hr), 134 ppb (1-hr) Houston (Region I)
30	low, 21 (Dallas)		
31			

TEXAS, Region I

Satellite Images			Visibility (Light Extinction)	Visibility Observations	Brownville C80 BG	San Antonio C23 BG	PM 10 and PM 2.5 impacts
June	TOMS	GOES	Noon Airport Observations				
		Region of State					
	I	I					
1	no	yes, (Region I)	yes, Region I and II		19	13	
2	no	yes, (Region I)	no		28	20	
3	no	yes, (Region I)	no		43	21	
4	yes		yes, Region I and II		76	57	
5	yes		yes, Region 1		62	44	
6	no		no		59	16	
7	no		yes, Region 1	10+ miles, Houston	25	21	22-23 ug PM 2.5 (moderate)
8	no		no		39	22	
9	no		no		44	17	
10	no		no		65	33	
11	no		no		49	34	
12	no		no		50	35	
13	no		no		32	24	
14	no		no		40	16	
15	no		no	10+ miles, Austin	56	25	29 ug PM-10 (low)
16	no		no		38	34	

TEXAS, Region I

	Ozone Exceedances (1-hr and 8-hr)
June	
1	
2	
3	
4	
5	
6	
7	142 ppb (1-hr) Houston (Region I)
8	
9	
10	
11	
12	
13	
14	
15	86 ppb (8-hr) Austin (Region I)
16	

TEXAS, Region II

	TOMS Satellite Images	Visibility (Light Extinction)	Visibility Observations	Ozone Exceedances (1-hr and 8-hr)
April	Region of State	Noon Airport Observations	TNRCC	
	II			
1	no	no		
2	no	no		
3	no	no		
4	no	no		
5	no	no		
6	no	no		
7	no	no		
8	no	no		
9	no	no		
10	no	no		
11	no	no		
12	no	no		
13	no	no		
14	no	no		
15	no	yes, Region I		
16	no	yes, Region I		
17	no	no		
18	no	no		
19	no	no		
20	no	no		
21	no	no		
22	no	no		
23	no	no		
24	no	no	10+ miles, Longview	86 ppb (8-hr), Longview (Region II)
25	no	no		
26	no	no		
27	yes	yes, Region I		
28	yes	no		
29	no	no		
30	no	no		
	Data based on visibility contours			
	generated by CAPITA, Washington University			

TEXAS, Region II

	Satellite Images		Visibility (Light Extinction)	Visibility Observations	Dallas North C5 BG
May	TOMS	GOES	Noon Airport Observations		
	Region	Region	Region		
	II	II	II		
1	no		no	10 miles(Longview)	
2	no		no	10 miles(Dallas)	
3	no		no		
4	no	no	no		
5	no	no	yes		
6	no	no	yes		
7	no	yes	yes	5 miles(Dallas and Midlothian)	
8	yes	yes	yes		
9	yes	no	no		
10	yes	no	no		
11	no	inconclusive	no	10 miles(Dallas)	
12	no	yes	no		
13	yes	yes	yes		
14	yes	yes	yes		
15	yes	yes	no		
16	yes	yes	yes	5-10 miles(Dallas) 5 miles(Longview)	
17	yes	yes	no		
18	yes	yes	no		
19	yes	yes	no		
20	yes	inconclusive	yes		
21	yes		yes		
22	yes	inconclusive	no		30
23	yes	no	yes		30
24	yes	inconclusive	yes		49
25	yes	inconclusive	yes		36
26	yes	yes	yes		25
27	no	inconclusive	no		16
28	no	yes	no		27
29	no	yes	no	10 miles(Longview), 7 miles(Dallas)	30
30	no	no	no	10 miles (Dallas)	22
31	no	inconclusive	no		19

TEXAS, Region II

	PM 10 impact	PM 2.5 impact	Ozone Exceedances (1-hr and 8-hr)
May			
1			97 ppb (8-hr), Longview (Region II)
2			87 ppb (8-hr), Dallas (Region II)
3			
4			
5			
6			
7			89 ppb (8-hr) Dallas, 89 ppb (8-hr) Midlothian (Region II)
8			
9			
10			
11	moderate, 22-93 (Houston-DFW)		99 ppb (8-hr) Dallas, 97 ppb (8-hr) Midlothian (Region II)
12			
13			
14			
15			
16		high, 56 (Dallas)	99 ppb (8-hr) Dallas, 90 ppb (8-hr) Longview (Region II)
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			98 ppb (8-hr) Dallas, 112 ppb (8-hr), 142 ppb (1-hr) Longview (Region II)
30	low, 21 (Dallas)		90 ppb (8-hr) Dallas (Region II)
31			

TEXAS, Region II

June	TOMS	GOES	Visibility (Light Extinction)	Visibility Observations	Dallas North C5 BG	PM 10 and PM 2.5 impacts
	Region of State		Noon Airport Observations			
	I					
1	no	no, (Region I)	yes, Region I and II		20	
2	no	no, (Region I)	no		14	
3	no	no, (Region I)	no		16	
4	yes		yes, Region I and II		35	
5	yes		no, (Region 1)		16	
6	no		no		14	
7	no		no, (Region 1)		15	
8	no		no		18	
9	no		no		18	
10	no		no		18	
11	no		no		21	
12	no		no		29	
13	no		no		33	
14	no		no		25	
15	no		no	10+ miles, Longview, Tyler	12	29 ug PM-10 (low), Longview
16	no		no	10+ miles, Dallas	18	18 ug PM-10 (low)

TEXAS, Region II

	Ozone Exceedances (1-hr and 8-hr)
June	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	100 ppb (8-hr), 128 ppb (1-hr) Longview, 86 ppb (8-hr) Tyler (Region II)
16	94 ppb (8-hr) Dallas (Region II)

TEXAS, Region III

April	TOMS Satellite Images Region of State	Visibility (Light Extinction) Noon Airport Observations	PM 10 data (not submitted)	Ozone exceedances (8-hr and 1-hr)
	III	III		
1	yes	no		
2	yes	no		
3	yes	no		
4	yes	no		
5	yes	no		
6	yes	no		
7	yes	no		
8	no	no		
9	no	no		
10	yes	no		
11	no	no		
12	yes	no		
13	yes	no		
14	yes	no		
15	yes	no		
16	yes	no		
17	yes	no		
18	no	no		
19	yes	no		
20	yes	no		
21	yes	no		
22	no	no		
23	no	no		
24	no	no		
25	no	no		
26	yes	no		
27	yes	no		
28	yes	no		
29	yes	no		
30	no	no		
	Data based on visibility contours			
	generated by CAPITA, Washington University			

TEXAS

		Satellite Images	Visibility (Light Extinction)	PM 10 impact	Ozone Exceedances (1-hr and 8-hr)
May	TOMS	GOES	Noon Airport Observations	El Paso Lindbergh	
	Region of State	Region of State	Region of State		
	III	III	III		
1	yes				
2	yes				
3	yes				
4	no	no			
5	yes	no		16	
6	yes	no			
7	yes	no			
8	yes	yes	yes		
9	yes	no			
10	yes	no			
11	yes	no		13	
12	yes	yes			
13	no	yes	yes		
14	yes	yes	yes		
15	yes	yes			
16	yes	inconclusive	yes		
17	yes	yes		34	
18	yes	yes			
19	yes	yes			
20	yes	inconclusive			
21	yes				
22	yes	inconclusive			
23	yes	no		19	
24	no	inconclusive	yes		
25	yes	inconclusive			
26	yes	yes	yes		
27	yes				
28	yes				
29	yes			72	
30	yes				
31	yes	inconclusive			

TEXAS

		Visibility (Light Extinction)	PM 10 and PM 2.5 impacts	Ozone Exceedances (1-hr and 8-hr)
June	TOMS	Noon Airport Observations	El Paso Lindbergh	
	Region of State	Region of State		
	III	III		
1	yes	no		
2	yes	no		
3	yes	no		
4	yes	no	18	
5	yes	no		
6	yes	no		
7	yes	no		
8	no	no		
9	yes	no		
10	no	no	14	
11	no	no		
12	no	no		
13	no	no		
14	no	no		
15	no	no		
16	no	no	12	

Science Reprint

The Influence of Canadian Forest Fires on Pollutant Concentrations in the United States

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The Influence of Canadian Forest Fires on Pollutant Concentrations in the United States

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High carbon monoxide (CO) concentrations from uncertain origins occurred episodically in the southeastern United States during the summer of 1995. We show that these episodes were caused by large forest fires in Canada. Over a period of 2 weeks, these natural emissions increased CO concentrations in the southeastern United States as well as along the eastern seaboard, a region with one of the world's highest rates of anthropogenic emissions. Within the forest fire plumes, there were also high concentrations of ozone, volatile organic compounds, and aerosols. These results suggest that the impact of boreal forest fire emissions on air quality in the mid-latitudes of the Northern Hemisphere, where anthropogenic pollutant sources have been considered predominant, needs to be reevaluated.

Forest fires are known to be a major source of CO and other air pollutants on a global scale (*1*). Large forest fire plumes, however, have been found mostly in tropical regions and above the oceans (*2*, *3*). A number of studies dealing with the influence of fires in boreal forests on trace gas concentrations in high northern latitudes were conducted as part of the NASA Arctic Boundary Layer Expeditions (*4*, *5*). It was shown that summertime sub-Arctic haze events were primarily a result of forest fires (*6*), that fires, together with stratospheric intrusions, contribute a major fraction of total oxidized nitrogen species (NO_y) in the remote sub-Arctic troposphere (*7*), and that these fires provide a net source

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of CO and volatile organic compounds (VOCs) into the mid-latitudes (*8*). Specific studies dealing with boreal forest fire emissions in northern Canada indicate that high CO emissions can be expected from high-intensity crown fires there (*9*). Recent measurements in Siberia also exhibited elevated CO levels across a large area as a result of burning (*10, 11*). However, the influence of such fires on CO concentrations measured at mid-latitude monitoring sites has not been quantified before.

In the summer of 1995, a field measurement campaign (SOS95) was conducted in central Tennessee as part of the Southern Oxidants Study (*12*). During this campaign, episodes of high CO concentrations that could not be attributed to anthropogenic activity occurred simultaneously at all level-II (*13*) ground sites. Using ground measurements, aircraft measurements, and model simulations, we show that these episodes were caused by forest fires in Canada (*14*) before and during the campaign period and demonstrate how natural emissions from forest fires strongly influenced CO concentrations in the southeastern and eastern United States during a period of 2 weeks. These plumes were transported across more than 3500 km. They also contained high concentrations of ozone (O_3), VOCs, and aerosols.

On the basis of CO measurements at four background stations in the SOS95 region (*15*) and two background stations in the eastern United States (*16*), we statistically reconstructed CO source regions causing the measured variations. For this purpose, backward air trajectories ending at these stations were calculated (*17*) with the FLEXTRA trajectory model (*18*) based on meteorological analysis data contributed by the European Centre for Medium-Range Weather Forecasts (ECMWF) (*19*). A method of trajectory statistics (*20*), the redistributed concentration field method (*21*), was applied on CO measurements and corresponding trajectories. Besides the expected anthropogenic CO source regions, our statistics indicated the existence of even stronger emission sources in northwestern Canada (see Fig. 1). This is unusual, because previous studies showed that CO concentrations in the eastern United States are normally lower when trajectories arrive from the far northwest (*22*). The main fire spot during June 1995, located in the Northwest Territories (*23*), was well identified by the statistics, together with other known fire locations (*24*). The results also indicate that CO emission strengths from forest fires exceeded those from anthropogenic sources.

Model simulations of CO transport from forest fires and from anthropogenic sources were performed by applying the particle diffusion model FLEXPART (*25*) to the ECMWF wind field analyses. Because of the long lifetime of CO, the simulations were carried out without considering chemistry or deposition. The simulation period was 17 June to 13 July 1995 (*26*). For the simulation of CO transport from Canadian forest fires, five emission areas were identified (*27*). To each of these regions, we attributed the area burned in the respective province (*28*) during the simulation period. CO emissions were assumed to be proportional to the burned area. A measurement-based estimate for the Northwest Territories suggests a CO emission of 4250 ± 425 kg per ha of burned forest (*9*). On the basis of this estimate, we assumed an emission of 4500 kg of CO per ha of forest. In total, about 1.2×10^{10} kg of CO was assumed to be emitted from the forest fires in the given time period. For the simulation of transport from anthropogenic CO sources, we made use of an emission inventory for 1996 on a U.S. county basis (*29*). For Canada, we used an inventory with base year 1985 (*30*). In total, 0.65×10^{10} kg of CO were assumed to be emitted from anthropogenic sources during the simulation period, which implies that the estimated total emissions from forest fires exceeded the estimated emissions from anthropogenic sources by a factor of two. In the model simulation, anthropogenic emissions were released between the surface and 300 m, and forest fire emissions between 500 and 3000 m, both equally distributed between minimum and maximum emission height. The elevated emission heights for forest fire emissions were selected to account for both the buoyancy of the emitted gases and the convection above the fire spots. Elevated effective emission heights from forest fires are documented in literature (*6, 31*)

During the SOS95 campaign, the model calculated three episodes of large forest fire CO plumes. The major plume was transported behind a cold front on 1 July 1995 (Fig. 2), covering large parts of the central and southeastern United States. According to the model, other CO plumes passed by the end of June and 7 to 10 July. These simulations were validated by comparing them with surface measurements in the SOS95 region and on the East Coast. For this comparison, a summertime background CO concentration of 70 parts per billion (ppb) (*32, 33*) was added to the modeled contributions from anthropogenic sources and from fires.

As a result, it turned out that forest fire emissions are needed to explain the observed time series of CO. At Giles County, Tennessee, only 3% of the variance of the average afternoon (18 to 21 UTC) CO concentrations can be explained by nonlocal anthropogenic influence, 74% by forest fire influence, and 90% by a combination of both sources (see Fig. 3). Similar results were also obtained for other SOS95 ground stations (Table 1). Looking at the afternoon CO concentrations at all sites together, transport from the forest fires explained between 52 and 74% of the variance of the afternoon CO concentrations. Long-range transport from anthropogenic sources explained only 0 to 6% of the variance during this episode. Thus, it can be concluded that, besides some local influence not accounted for, measured CO concentrations at the SOS95 ground measurement locations were dominantly influenced by Canadian forest fires during these 2 weeks.

Similar results showing the high influence of forest fire emissions on CO measurements were obtained for four sites at

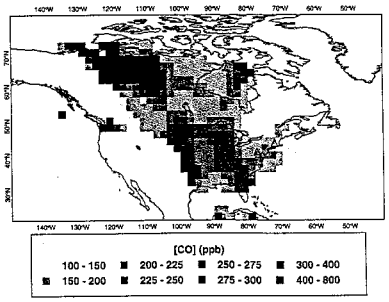

Fig. 1. Emission field of CO (in ppb) as reconstructed by the trajectory statistics (redistributed concentration field method) during the summer of 1995. Measurement sites are indicated by triangles. Data from the Wye River (MD) and Shenandoah (VA) stations are not included in this analysis. Regions with insufficient trajectory coverage are left blank. The principle of the statistics is to attribute measured pollutant concentrations to grid cells crossed by the respective trajectories. Afterward, an average, residence-time weighted concentration was computed for every cell. A high concentration value indicates the existence of a substantial source of the measured quantity within the cell.

the U.S. East Coast (Harvard Forest, MA; Arendtsville, PA; Wye River, MD; Shenandoah, VA), although the situation was more difficult to interpret. Forest fire influence there was not confined to well-defined episodes but persisted during much of the simulation period. Despite this, the percentage of explained variance by long-range transport from the fires ranged between 52 and 64% (Table 1) and again exceeded the percentage of variance explained by the simulation of transport from anthropogenic sources. The unexplained variance, coming probably from local influence, was higher at some of these sites.

For the SOS95 region, we observed no pronounced bias between model simulation and measurements. This absence of bias provides a strong confirmation of the large-scale validity of the Northwest Territory forest fire emission measurements (*9*). The model simulation, however, showed an overestimate of 33% at the four East Coast sites. But this bias could not be attributed to the forest fire simulation (*34*).

No high correlation coefficient between measured O_3 surface concentrations and calculated forest fire CO concentrations was found. Forest fire CO plumes were transported behind cold fronts, and the lower temperatures and the faster dilution of anthropogenic pollutants normally do not provide an environment favorable for local or regional photochemical O_3 production. However, the correlation between daily average O_3 and forest fire CO concentrations amounted to 0.46 (Giles County) and was significantly different from zero. Regional background O_3 concentrations were elevated by 10 to 20 ppb (*13*) on the two SOS95 intensive observation days (2 and 8 July) within the major forest fire episodes, compared with other days.

Forest fires changed the photochemical property of the air mass, as measured by the ratios of O_3 to NO_y and O_3 to CO. Measurements in Giles County showed that the correlation coefficient between O_3 and NO_y concentrations decreased from 0.91 to 0.67, the ozone production efficiency (slope of the regression line) dropped from 6.5 to 3.7 on days with strong forest fire influence, and the slope of O_3 versus CO dropped from 0.20 to 0.05. The first value is typical for summertime conditions in North America (*35*); the second can be explained by a combination of O_3 deposition during the transport toward the station and lower NO_x to CO emission ratios in the fires, consistent with results from previous studies (*7*, *36*, *37*).

From the SOS95 aircraft measurements as well as from model simulations, a lot can be learned about the properties of the boreal forest fire plumes reaching the midlatitudes. These plumes are transported behind cold fronts within subsiding air masses. The transport height decreases with increasing transport time. During the flights, the influence of forest fire plumes could be detected between the surface and 3000 m above the ground, whereas studies in the sub-Arctic region identified plumes in heights up to 4500 m. Although forest fire plumes were always well defined with respect to CO, they gradually lost their definition with respect to O_3 after being integrated in the boundary layer (dry deposition). The amount of O_3 being transported from these plumes directly toward surface measurement sites thus depended on when and where these plumes reached the ground. Elevated plumes were always marked by enhanced O_3 concentrations. For instance, the elevated plume encountered

Table 1. Comparison between modeled and measured CO concentrations at different sites, with C_{meas} being the average measured concentration, C_{mod} the average modeled concentration, $C_{a,meas}$ the average measured afternoon (18 to 21 UTC) concentration, and $C_{a,mod}$ the average modeled afternoon concentration (all in ppb). r_a is the correlation coefficient of measured versus simulated daily afternoon concentrations only from anthropogenic sources, r_f is that only from forest fires, and r_b is that from both sources. The first four stations are SOS95 sites; the others are NARSTO (North American Research Strategy for Atmospheric Ozone) sites near the East Coast. The investigation period was 25 June to 10 July 1995.

	No.	C_{meas}	C_{mod}	$C_{a,meas}$	$C_{a,mod}$	r_a	r_f	r_b
SOS sites								
Giles County, TN	13	231	231	225	213	0.18	0.86	0.95
Cove Mountain, TN	12	219	235	223	226	0.25	0.72	0.77
Mammoth Cave, KY	15	237	242	237	228	0.00	0.73	0.70
Land between the Lakes, KY	14	230	241	226	244	0.00	0.77	0.81
East Coast sites								
Arendtsville, PA	8	188	288	173	280	0.46	0.80	0.80
Harvard Forest, MA	5	174	207	170	225	0.71	0.72	0.92
Wye River, MD	8	172	225	173	186	0.41	0.79	0.70
Shenandoah, VA	9	219	283	204	261	−0.25	0.73	0.47

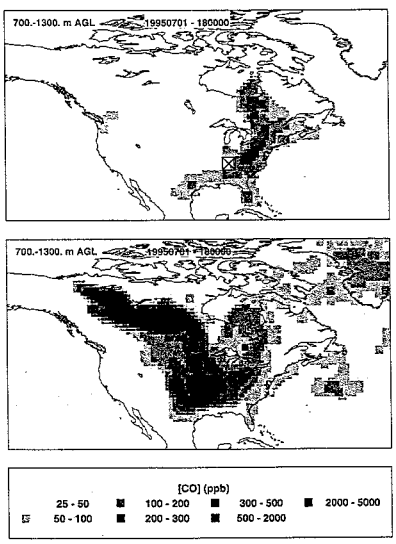

Fig. 2. Calculated CO concentrations (in ppb) from anthropogenic emissions (top) and from forest fires (bottom) for 1 July 1995, 18 UTC. Forest fire release locations are marked with black filled squares; the SOS95 Middle Tennessee study region is indicated by an open square. The anthropogenic concentrations are high ahead of a cold front crossing the southeastern and eastern United States, whereas forest fire concentrations are high behind the cold front. AGL, above ground level.

during the flight on 10 July above Indiana and Illinois showed O_3 values of 80 to 100 ppb over a tropospheric background of 50 ppb (Fig. 4). The observed O_3 versus CO ratio (0.11) suggests, well in accordance with other studies (*36, 37*), a reduced O_3 enhancement with respect to CO within forest fire plumes, compared with plumes from cities. However, fire plumes provide an enhanced background on which local-scale as well as regional-scale anthropogenic O_3 episodes can build up. Photochemical model simulations indicate that excess O_3 concentrations of tens of ppb can be expected over the eastern and southeastern United States as a result of the forest fires. In addition to the O_3 enhancement, aircraft measurements showed increased concentrations of VOCs and particulate matter within these plumes.

Using the emission estimate confirmed by our model results and combining it with the Canadian forest fire statistics (*28*), the contribution of Canadian forest fire CO emissions can be compared with the CO emissions of the United States (*29*), amounting to about 8.15×10^{10} kg/year. On the basis of the forest area burned in Canada annually on the 10-year average (3×10^6 ha), we estimate that these sources amount to 17% of the U.S. CO emissions. In 1995, the forest fire CO emissions in Canada amounted to 36% of the total U.S. emissions annually and to 280% during June 1995. Emission estimates of total nonmethane volatile organic compounds (NMVOC) emitted by Canadian forest fires (*9*) suggest that the contributions of Canadian forest fires to NMVOC concentrations in the southeastern and eastern United States during the summer of 1995 should have also been substantial. With these results, we extend the conclusion already drawn in a previous study (*8*). Boreal forest fires provide a substantial source of CO (and presumably also VOCs) into the mid-latitudes. Episodically, CO emissions from boreal fires are the dominant source of regional levels of CO for the eastern and southeastern United States, one of the highest emission regions worldwide.

The SOS95 measurements together with first photochemical model results indicate that forest fires influenced the build-up of ozone episodes in the southeastern United States by increasing background air pollution after passages of cold fronts that normally would clean the atmosphere. High O_3 concentrations were observed within these large plumes. Enhanced O_3 concentrations from the 1995 Canadian forest fires were also reported from a location closer to one fire spot (*38*). We therefore have to wonder whether tropospheric ozone pollution in the United States and elsewhere in the midlatitudes is, at least episodically, more influenced by these natural sources than currently believed and whether ozone reduction scenario calculations should account for these additional sources in the future.

These results are also relevant in the context of climate change. The number of forest fires in Canada has increased from 6000 annually during the 1930–1960 period to 10,000 in the 1980s (*39*). The area burned increased correspondingly. Although most of the Canadian fires can be attributed to human activity, 85% of the area burned is caused by lightning (*39*). The subsequent transport of forest fire plumes toward the United States is not uncommon. A recent study demonstrated close links between circulation anomalies in the midtroposphere and area burned in Canada (*40*). It was shown that in years such as 1995 with high forest fire activity in the west-central regions of Canada, there was typically a persistent high-pressure system located above northwestern Canada and the northern Pacific and a low-pressure system above northeastern Canada. Between these systems, transport of Canadian forest fire emissions toward the United States can take place. Situations similar to the 1995 case were observed in 1981, 1989, and 1994 (*40*).

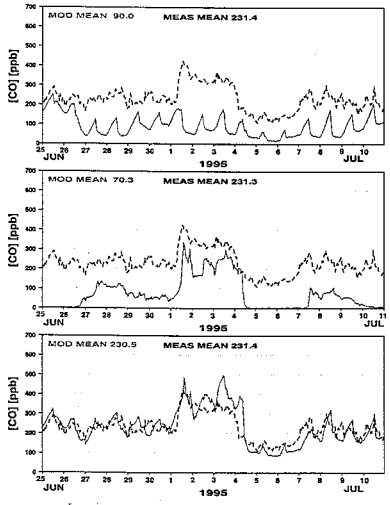

Fig. 3. Hourly values of measured CO (dashed line) and simulated CO (solid line) concentrations (in ppb) from anthropogenic sources (top), from forest fires (middle), and from both sources plus background (bottom) at station Giles County, Tennessee. The background concentration was taken as 70 ppb.

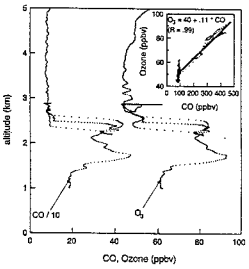

Fig. 4. Vertical distribution of CO (in ppb) and O_3 (in ppb) as measured by the aircraft on the afternoon of 10 July above the border between Indiana and Illinois (between 87° and 88°W along 39.7°N). The forest fire plume is marked by increased CO as well as by increased ozone concentrations. The aircraft probed the haze layer three times in a time span of 15 min, covering a distance of 55 km. The vertical extent of the layer varied somehow along this flight leg. The data for the O_3 to CO correlation and slope calculation are vertically restricted below 2600 m (red points in the scatter diagram) to avoid introducing an O_3 peak at 3 km of probably stratospheric origin (black points). All data represent 1S averages smoothed over 11 s.

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15. Cove Mountain in eastern Tennessee (Great Smokey Mountains National Park), Giles County (150 km south of Nashville), Land between the Lakes (Tennessee Valley Authority reservation between Tennessee and Cumberland rivers, KY), and Mammoth Cave (Mammoth Cave National Park, KY). These stations cover an area of about 7700 km^2.
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27. Area 1, Northwest Territories; area 2, Northeastern Alberta; area 3, northern central Saskatchewan; area 4, northern central Manitoba; and area 5, Ontario (James Bay).
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18 November 1999; accepted 23 February 2000

PREPARED STATEMENT OF DENNIS HEMMER, DIRECTOR, WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Good afternoon, Mr. Chairman and members of the committee. My name is Dennis Hemmer, Director of the Wyoming Department of Environmental Quality.

Thank you for the opportunity to address you on reauthorization of the Clean Air Act.

My comments today will primarily focus on those portions of the Clean Air Act dealing with stationary sources. With less than 500,000 people in Wyoming, I don't have much experience with mobile sources or most of the urban issues related to the Clean Air Act. We also have good "atmospheric ventilation," our clean air is often passing by at 30 miles per hour.

I think if you look at the results we have achieved in this country, the Clean Air Act has been very effective. It has focused on and addressed the issues.

However, since the original passage of the Clean Air Act, each reauthorization has added another layer to the Act. While each was effective in addressing the issues of the day, the layers do not necessarily complement each other. More importantly, some of the layers create disincentives for emission reductions and penalize facilities that voluntarily make early reductions.

I believe it is time to start with a clean sheet of paper. With respect to stationary sources, we need to start fresh and create a system that provides incentives for reductions.

The first priority must be human health. The current health standards, essentially the National Ambient Air Quality Standards or NAAQS, should be retained. It is paramount that we protect the health of those around facilities and our general population. I would ask that more emphasis be placed on good science and data related to what is needed to protect public health. One only has to look back on the debate over the proposed fine particulate and ozone standards to see the need for better science and better data.

Once we have protected public health, I believe the other goals related to stationary sources encompassed by the Clean Air Act are best served by a market-based system. I believe a properly constructed market system could provide incentives for emission reductions and incentives for the development of technology to reduce emissions.

Before I proceed I must give proper credit. Many of the particulars I will suggest were developed in a paper written by Mr. Bob Neufeld.

For a market system to work, a market must be created by some sort of limit similar to what was done for sulfur dioxide in the 1990 Clean Air Act Amendments. This limit usually takes the form of a cap or benchmark below which emissions must be maintained. Benchmarks would be set for each pollutant depending on the goal you wish to achieve. Benchmarks would need to be periodically reviewed. If the results desired are not being achieved, the benchmark would need to be lowered. Ideally, the benchmark would create a situation that achieves the goals and creates an economy that stimulates the development of new technology to accommodate growth.

However, we need to be realistic. The benchmark may need to be raised if it is so low that it is determined it cannot accommodate society. As much as we would all like to see air quality gains similar to those made over the last 30 years, we need to recognize the population is expanding and today's technology demands materials and power.

Remember, these are goals beyond health so I am not suggesting we sacrifice health for growth.

Setting the benchmarks would be a Solomon-like task. If we embroil them in the morass associated with today's rulemaking, like today's rules, needed adjustments will only happen through litigation. A system is needed that allows adjustments to balance reductions with societal needs. The Federal Reserve could serve as a model.

The parameters for the benchmarks must be clearly articulated and be closely tied to an intelligent national energy policy. I am concerned that today some decisions are being made to reflect agendas not articulated in the Act. I also believe we are dictating national energy policy through decisions made under the Clean Air Act. While the two must complement each other, energy policy needs to be thoughtfully debated in its own right.

If a market-based system is used, the initial allocation of emissions is again a taxing task. Most systems use historic emissions as the baseline. Unfortunately, that system penalizes the cleaner facilities and rewards dirty facilities. Basing allocations on a market-based value, I would suggest gross revenue, would be a system more consistent with market principles.

I believe there are vast opportunities for such a system. We would be able to create an environment where emission reductions can become revenue enhancers rather than revenue drains. We can create an environment that makes technology advances which reduce emissions very marketable.

When our concern is visibility, there would also be opportunities for interpollutant trading. The light-disrupting properties of a particle of one species should be able to be related to the light-disrupting properties of another species. While the trades may not be on a 1 to 1 basis, we should be able to equate the resource gains.

I am not so naive as to believe that in a market system everyone will comply because they are good citizens or because they are making money. It would require limits allocated or obtained through the market be contained in an enforceable permit and that those limits be closely monitored for compliance.

I also recognize that there would still be categories of emissions from these facilities, for instance fugitive emissions, that cannot be accommodated in the market.

While we have a good law, if we continue to layer old on new, we will stifle significant opportunity for innovation. However, if we build on the advances of the last thirty years, take advantage of today's technology and mold a system that addresses today's issues, we can achieve even more without rancor and confrontation.

RESPONSES BY DENNIS DEMMER TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. From the Sate and local government point of view, what aspects of the Clean Air Act are currently working well?

Response. Overall, the Clean Air Act is working well. If you look at the gains we have made under the Act, I don't think you can reach any other conclusion.

Question 2. From the State and local government point of view, what needs to be improved in the Act in order to provide you more flexibility and responsibility?

Response. I believe the Act currently provides adequate flexibility and responsibility to the States. I also believe the regulations provide adequate flexibility and responsibility to the States. However, it is the guidance and oversight by the Environmental Protection Agency that hinders the States. It is the insertion of EPA guidance, which changes from time to time and, which while carrying no legal standing is treated as dogma, that most hinders the States from tailoring the Act to the State.

Question 3. When the Clean Air program began in the 1970's, no one had much experience. When the Act was amended in 1990, the States had little experience compared to the Federal Government. With the experience and expertise of everyone today, what parts of the Federal program can effectively be delegated to the States?

Response. I first have to disagree with your basic premise. I agree that in the 1970's we all had very little experience. However, since the 1970's it has been the States that have implemented the Act. The experience and expertise in actual implementation resides in the States to the point that today, I believe the States have more practical experience implementing the Act than the Federal Government. What is needed from EPA is national oversight, more research and better science.

As I stated earlier, the Act and Regulations give the States a lot of authority, the States need to be allowed to exercise it.

Question 4. I believe the trading program for acid rain has worked well. We are constantly being told we should expand the free market concepts of the Clean Air Act. My question is in which areas of the Act would a free market approach work?

Response. A market-based system would work in most of the non-health standard areas of the Act. Regional Haze and Prevention of Significant Deterioration are certainly receptive to a Market approach.

RESPONSES BY DENNIS DEMMER TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. What would be the consequences to your State if EPA moves forward with designations of "non-attainment areas" under the 8-hour national ambient air quality standard for ozone before the Supreme Court renders a decision in the case?

Response. Wyoming does not anticipate any non-attainment areas under the 8-hour standard and therefore would anticipate no impact.

Question 2. Is EPA providing sufficient resources currently, as well as commitments for future resources, to conduct appropriate ambient air monitoring within your State, including monitoring of fine particulate matter and determination of the composition of fine particulate matter in the air?

Response. No. However, Wyoming has convened several multi-stakeholder groups to increase ambient air monitoring throughout the state, but especially in areas of concern. I do not think the States can rely on EPA to provide the resources for monitoring. We are required to make more and more decisions based on modeling. Unfortunately, in many cases we don't have enough data to validate the accuracy of the models. While EPA needs to be a player, States must work with all parties to ensure an adequate base of credible data.

Question 3. Is EPA providing adequate flexibility and appropriate guidance to State and local air pollution agencies to administer the program for operating permits under Title V of the Clean Air Act?

Response. There is adequate flexibility in Title V of the Clean Air Act. However, EPA guidance is a day late and a dollar short. Under Title V, the States were given a tight timeline to pass needed law and regulations and to issue the permits. While having one of the highest percentage of Title V permits issued in the country, Wyoming did not meet the timeline. However, we did hit the ground running with very little guidance from EPA. As the program has progressed EPA has promulgated guidance and expected us to modify our programs accordingly. Their guidance is too late, has slowed down the process, and in some cases is contrary to common sense.

Question 4. Are EPA's regulations under the Act sufficiently clear, consistent and timely to allow your State to properly implement Clean Air Act programs for which it is responsible?

Response. Yes. While the regulations could be more definitive, they are adequate. It's the guidance that gives us problems in its timeliness and prescriptiveness.

RESPONSES BY DENNIS DEMMER TO ADDITIONAL QUESTIONS FROM SENATOR BAUCUS

Question 1a. What is the fee (per ton of emissions) which your State currently charges for permitting under Title V of the Clean Air Act?

Response. $10 dollars per ton.

Question 1b. How much does that generate annually and what is your State's annual budget for permit activities, implementation and enforcement matters, emissions and ambient monitoring, modeling, analyses, demonstration, inventory preparation and emissions tracking relating to air quality?

Response. The $10 per ton fee generates on the average $1,950,763.

Our budget is not separated out by the categories specified. While we track Title V and Federal expenditures as required we do not break it into specific categories. Our air quality annual budget is $2,751,407. Of this amount $217,668 is State funding, $445,122 is Federal funding and $2,088,617 is appropriated from fees.

Question 1c. What, if any additional categories of spending are necessary to support air quality programs?

Response. In addition to emission fees, Wyoming charges for permit review, that charge is the actual cost of review. For Wyoming the current budget and revenue has been sufficient. In addition to budget amounts, we have facilitated several cooperative efforts in recent years to increase monitoring or to calibrate models for specific areas of the state. In those instances we have used state, Federal, (both EPA and land managing agencies) and industry funding. These efforts have been overseen by stakeholder groups comprised of State, Federal, industry, environmental and tribal representatives. These efforts have been very successful.

Question 2. Flexibility was mentioned repeatedly during the hearing as necessary for efficient conduct of States' programs. The Clean Air Act Amendments of 1990 created relatively strict deadlines and established numerous requirements largely because insufficient progress had been made prior to 1990 in achieving attainment. How can we be certain that increasing flexibility will not result in slowing current progress? What specific changes in the Act would be necessary to enhance flexibility?

Response. For Wyoming I saw the 1990 Clean Air Act Amendments not so much as addressing a lack of progress as in changing the way we approach permitting. Prior to 1990 we had essentially a "permit to construct" system. It addressed the technical aspects of the facility. The 1990 Clean Air Act Amendments instituted the Operating Permit Program, a more comprehensive approach.

I don't believe there is a problem with flexibility in the Act so much as, in many areas I think the current tools in the Act are not the most efficient way to address the issues. In each of the re-authorizations we have added another layer to the Act, Prevention of Significant Deterioration and Title V for example. While each addressed the issue of the day, they were not necessarily compatible. They may also

not be the most efficient means to address issues and indeed, in some cases conflict. We need a system that addresses the issues in the most efficient manner possible.

Question 3. In your testimony you said that, "One only has to look back at the debate over the proposed fine particulate and ozone standards to see the need for better science and better data." What would need to be "better" about the science and data that EPA used to justify those standards? What public health indicators would justify setting more stringent ozone and $PM_{(2.5)}$ standards than the ones that existed prior to EPA's action?

Response. We need more science and data. When the 2.5 standards were set, the Science Advisory Board still couldn't agree on what the standards should be. EPA's ozone and $PM_{2.5}$ standards may have been correct or they may have been too high or too low. If we had better monitoring data in conjunction with better health data, I believe we could have made a better determination. I would hope that when the review comes around again, we have learned and compiled data that will give us the ability to make the best determination for the health of our citizens. The point of my testimony was that we need more and better data and science.

Question 4. Ms. Studders of Minnesota called for a comprehensive, integrated national power generation strategy that regulates multiple pollutants, including NO_X, SO_X, CO_2, mercury and other toxic pollutants. This would seem to be a sensible combination of energy and environmental policy. What are your views on such a strategy?

Response. I suspect Ms. Studders and I are not too far apart. I called for a comprehensive national energy policy addressing both energy needs and environmental issues. However, I think that we need to separate health standards from those addressing other aspects of air quality. I believe the National Ambient Air Quality Standards have worked well. While we can debate the levels, we need to maintain individual facility requirements that assure the health of those around them.

However, to address issues other than health (Prevention of Significant Deterioration, visibility, etc.) I fear we are on a collision course between energy supply and environmental issues. The last time we encountered this our solution were fast track proposals under the Department of Energy. I don't believe we have the correct tools to address this collision. I believe if we create a market-based system that creates incentives to reduce emissions and makes emission reduction profitable, we can achieve greater environmental gains.

Likewise, if we focus on the desired result, there is ample opportunity for interpollutant trading. In visibility, often a particle is a particle.

Question 5. Transport of ozone and other long range pollutants continues to be a serious problem for public health and for State and local air quality planners. Do you have any suggestions for ways that the Act could better deal with this phenomenon?

Response. Ozone transport and visibility demand regional rather than local efforts. We need to determine the levels that give us the desired results and then create systems that achieve those levels. The Western Regional Air Partnership, while not perfect, is an attempt headed in the right direction. I believe we can get there only through a market-based system. We need to go back and structure the Act in a manner that focuses on the result and then provide mechanisms that allow achieving that result.

Thank you for the opportunity to respond.

PREPARED STATEMENT OF JOHN E. TERRILL, JR., AIR QUALITY DIVISION DIRECTOR

Mr. Chairman, and members of the committee.

My name is John Terrill and I am the Air Quality Division Director for the Oklahoma Department of Environmental Quality. I respectfully request that the Department's written statement be included in today's hearing record. It is a pleasure to appear before you today to share with you our thoughts as you begin the hearing process to reauthorize the Clean Air Act. Our experience indicates a number of areas in which the Act has allowed us to be successful and other areas in which there needs to be improvement.

AGENCY BACKGROUND

The Clean Air Act, last amended in 1990, provides the national framework for efforts to protect air quality. The Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (ODEQ) implements the State and Federal Clean Air Acts. As part of this implementation, the agency adopts rules, promotes compli-

ance efforts, enforces rules, and develops pollution prevention strategies to reduce emissions and improve air quality.

An EPA-approved State Implementation Plan (SIP) provides strategies and procedures for the daily operations of AQD. This SIP is reviewed and amended as necessary. It includes rules and strategies developed at the State level for implementing the various Federal air quality programs. To date, ODEQ has acquired all appropriate EPA air quality programs.

OZONE ALERT AND FLEXIBLE ATTAINMENT REGION SUCCESS

Probably nothing illustrates our experience with the Act better than our struggle in the Tulsa area to attain and then stay in attainment with the 1-hour ozone standard. Just prior to the passage of the Clean Air Amendments in 1990, the Tulsa area was designated attainment for all National Ambient Air Quality Standards, including ozone.

During the summer of 1991, Tulsa experienced two exceedances of the 1-hour ozone standard. Two more exceedances of the standard in either 1992 or 1993 would likely have placed the Tulsa area back into nonattainment. Rather than wait for the fate of whatever the summer weather of the next 2 years might bring, a group of concerned public officials, citizens and industry leaders voluntarily cooperated to create and implement the Ozone Alert! Program.

Based on community outreach, public education and voluntary reduction measures, the program has become a model throughout the United States. As an outgrowth of the success of the Ozone Alert! Program, the Environmental Protection Agency, Oklahoma Department of Environmental Quality, the city of Tulsa, Indian Nation Council of Governments and various other State and local governmental entities entered into a memorandum of understanding creating the Flexible Attainment Region for the Tulsa area. Because of the cooperative efforts at the local, State and Federal level, Tulsa was able to avoid violation of the 1-hour ozone standard until this past Labor Day weekend.

During two of the past three Labor Day weekends, truly exceptional weather events involving record high temperatures and persistent high pressure ridges, conspired to produce 3 of the 4 exceedances the Tulsa area has experienced over that 3-year period. The two exceedances, which occurred this past Labor Day weekend, places the Tulsa area in jeopardy of being designated nonattainment for the 1-hour standard, even though when you look at trends over the past several years the ozone levels continue to decline. However, the mandatory measures contained within the Flexible Attainment Region agreement may provide a mechanism to allow Tulsa to avoid this fate. The Tulsa area and quite possibly large portions of the State of Oklahoma will not be so fortunate under the 8-hour scenario if reinstated by the Supreme Court.

8-HOUR OZONE STANDARD DIFFICULTIES

Let me emphasize that we support the concept of a standard for ozone that looks at exposure over an 8-hour period. We believe that this form of the standard best represents real world exposures likely to be experienced by the population most at risk. We disagree with the level at which the standard was implemented.

It is our belief that any time a standard such as this is changed and the bar is raised as it clearly has been in this case, the statute should require clear and incontrovertible evidence that such a change is necessary. In addition, once it has been established that a change in an existing standard is necessary, it should be mandatory upon the EPA that all guidance necessary to help the States and local agencies with implementation must be formulated and made available prior to the beginning of any implementation of that program.

Ideally, this guidance would be written in cooperation with the State and local programs or at least there should be an opportunity for comment before the guidance becomes effective. For example, we never have received guidance that outlines EPA's position relative to the consequences of nonattainment under the 8-hour standard as it relates to New Source Review (NSR) transition areas. The Act itself is specific to the 1-hour standard only. It has also become quite obvious that the things we understood about the 1-hour standard do not necessarily apply to the 8-hour version.

Voluntary measures that worked well to help shave the peaks on days of concern do not work as well under the 8-hour scenario. Ozone forecasting under the 8-hour standard is much more difficult and unpredictable. This is illustrated by the dramatic increase in the number of ozone alerts that have been called under the 8-hour standard as opposed to those that were called when the 1-hour standard was controlling.

It has also become apparent that transport of ozone and ozone precursors on a near-regional basis such as between neighboring States is very important in forecasting ozone formation and in meeting the new standard. Until we know the effect of national measures such as low sulfur gasoline and Tier 2 standards, as well as regional measures such as implementation of control strategies in areas still in violation of the 1-hour standard, planning to meet attainment with the new standard is problematic. The resultant issues, such as development of an unnecessary State implementation plan to meet a standard beyond the control of the State, should have been thought through and clarified before the standard was changed.

LOW SULFUR GASOLINE

This leads me to examples implemented under the existing Clean Air Act that we feel will be very productive if done correctly. The first is low sulfur gasoline. Unless overturned by the Supreme Court, it will be very difficult for Oklahoma to ever meet the 8-hour standard as it presently exists without the emission reduction benefits from the lower sulfur gasoline. This measure along with stricter automotive emission standards, will lower mobile source emissions in local metropolitan areas, which would otherwise have to be lowered through forced mass transit, inspection and maintenance programs, or other more onerous and less effective control strategies. It will also help reduce the formation of ozone that would be available for transport between neighboring States. However, it will be several years before those requirements are fully implemented. An opportunity to see what air quality changes these significant measures will make on monitored data before near attainment areas are penalized is the only course of action that makes sense.

REGIONAL PLANNING BODY

The Regional Planning Body concept formulated in response to mandated requirements to reduce regional haze is also a good tool that has come out of the existing Act. This program allows adjoining States with like concerns and similar airsheds to work together in a regional context to analyze and propose strategies to address regional haze and fine particulate problems, should they be found to exist. We believe that addressing air pollution on a regional basis is likely to be a strong tool for future regulatory activities.

States working together and exchanging data relative to the impact each State's emissions has on its neighbors will allow for more effective control strategies that will achieve greater reductions at a lesser cost. We believe that this concept should be expanded to include multipollutant strategies covering other criteria pollutants such as ozone, oxides of nitrogen, and sulfur dioxide. It is imperative under this concept however that the State and local programs continue to be viewed as partners in this endeavor.

NEED FOR CONSISTENCY

If there were one word that would summarize our concerns with the current system it would be consistency or the lack thereof. Consistency in the interpretation of statutes, as well as rules and regulations as they apply from State to State and region to region is fundamental to the integrity of any Federal law. The same is true for consistency in the data bases that are used for a variety of purposes throughout the State and Federal system.

Statutes, Rules, and Regulation Consistency

The consistent interpretation of statutes, rules, and regulations is vitally important to both the regulators and the regulated community. It is important to know that when we obtain an applicability determination or some other type of rule interpretation from EPA that we are getting the same interpretation as that which would be given to another State with a similar fact situation. It is very damaging to our credibility and that of the EPA when industry points out that the same fact circumstance has resulted in a different interpretation in a different State or region. It can also create an unfair competitive advantage for like industrial facilities operating in different States and regions. The regulated community deserves to know what the rules are and that they are being applied the same throughout the country.

Data base Consistency

Data base consistency, including the handling of the data, who should have access to that data and when, is also an area that needs to be addressed. The vast majority of the activities done by the EPA are driven by the data collected in the State and local programs. Currently, there is no consistent understanding as to what these

data are useful to determine and what they are not; consequently, there is little consistency from State to State and region to region. This is especially troublesome when outside parties such as industrial, environmental, and other special interest groups attempt to use the data in support of their particular issue.

We believe that the EPA should be required to establish standards for data to be submitted by States and utilized by EPA, yet allow State programs great flexibility in the design of their data management systems. EPA should also be encouraging and supporting the States movement toward electronic data submittal to ease the paperwork burden on the regulated community and the State and local agencies. We would also encourage further definition of what and when data are accessible by the public. We are supportive and believe in the public's right to have access to any data that are used to make decisions relative to the air quality programs. However, Congress should statutorily insist that before any data is made public by any agency, it is carefully evaluated as to its accuracy and made available for public viewing only in the context in which it was collected.

For example, if ambient air sampling is conducted to determine possible toxic exposure, these data should reflect clearly the local area sampled and who likely exposure candidates might be. There should be no manipulation of the data that could cause the general public unnecessary alarm without justifiable cause. In addition, under no circumstances should Federal extractions or other manipulations of the data be made available to the public without first notifying the affected State or local program as to where the data will be made available and an opportunity provided to view and correct where warranted such data in the context in which it will be presented.

NEW SOURCE REVIEW/PREVENTION OF SIGNIFICANT DETERIORATION REFORM

New Source Review/Prevention of Significant Deterioration (NSR/PSD) reform is a concept that has been in the discussion stages for a number of years now with very little apparent progress. Unless a significant modification of the whole process is undertaken which would make the current system totally obsolete, much good could be accomplished by evaluating the existing applicability determinations, guidance, and other decisions that EPA has made since the inception of the original program.

For example, there are literally thousands of various applicability determinations, some of which are outdated and others that contradict each other. There should be a statutory requirement that these determinations go through a process where duplicative, conflicting, and ambiguous applicability determinations are eliminated. Once these determinations have undergone this process, they need to then be made available in an easily accessible data base through the Internet so that each State, region, and affected industry can have access to the information. This would help give each facility undergoing NSR or PSD review reasonable assurance that the same answer will be given regardless of where they are located. However, the better approach would be statutorily to require EPA to make meaningful reforms to this system. Included in this should be the requirements that the PSD modeling continue to be improved especially as it relates to the impacts on the Class 1 areas.

OKLAHOMA TRIBAL ISSUES

In Oklahoma we have a unique situation relative to the tribal air rule as currently implemented. EPA has defined "reservation" by this rule to mean ". . . all land within the limits of any Indian reservation under the jurisdiction of the U.S. Government . . .", while under Federal law "reservations" are "Indian reservations, public domain Indian allotments, former Indian reservations in Oklahoma and land held by incorporated Native groups." Under these definitions, most of the State of Oklahoma is considered "former Indian reservation". Further it appears that EPA has given tribes the authority to regulate businesses on non-Indian-owned fee lands within the exterior boundaries of a reservation, which in effect is the State of Oklahoma with the exception of Greer County, the Panhandle and Unassigned Lands.

EPA is now referring to this rule interpretation as "treatment in a manner similar to States" rather than "treatment as a State". Unlike the State of Oklahoma, the tribe does not have to qualify for eligibility under established criteria. The tribe must simply show that it is a federally recognized tribe, that it has a governing body carrying out substantial governmental duties and powers and that it is capable of implementing the program. There are no criteria for a capability determination.

The EPA Regional Administrator has the discretionary authority to decide on a case by case basis whether a tribe should have a program or not. Unlike a State, the tribe may develop portions of programs that are most relevant to the air quality needs of the tribe rather than enact the whole program. Unlike the State, the tribe

is not required to provide an opportunity for permit applicants or other interested persons to seek judicial review of the tribe's implementation of the rule. Nor is the tribe subject to citizen suits. Given the number of tribes in Oklahoma, we have a confusing situation regarding this issue.

We believe that each entity assigned responsibilities under the Act should have to meet the same criteria in carrying out that assignment. Further, we believe that it is mandatory upon EPA that they insure that no industry receives an unfair advantage as a result of EPA's interpretation of this rule. Compounding the problem, the EPA has been unable to assure us that they understand exactly what the tribes having air grants are doing with the money or what data is being collected and how it will be used.

ROLE OF THE RESPECTIVE AGENCIES

The final topic we would like to discuss is, in our opinion, the most important—the respective roles of various offices within the Federal environmental agency and the roles of the State and local environmental agencies. We strongly support the regional office concept as it relates to EPA's structure. We believe there are research and planning functions that should be performed by EPA headquarters, an oversight and technical assistance role to be performed by the regional offices, and monitoring, permitting, inspection, and enforcement roles to be performed by the State and local programs.

Headquarters

EPA headquarters should be primarily responsible for looking at the big picture while the regional offices should be responsible for the day-to-day oversight of State activities. The gathering and analysis of data submitted to Washington by the regional offices and the State and local programs should be EPA Headquarter's primary objective. From this analysis, national trends could be identified which should lead to national initiatives as needed. The writing and promulgating of rules and regulations, after input from appropriate stakeholders, should also be a major responsibility. Headquarters should also be responsible for insuring that data bases are accurate and that the rules and regulations are interpreted and administered equitably in all regional offices. They should also insure that each regional office is providing the appropriate oversight of the States within their jurisdiction through consistent interpretation of the Federal regulations.

Regional Offices

The primary role of the regional office should be as technical resource for the States within their jurisdiction. They should also be responsible to see that each State equitably enforces all Federal requirements within their jurisdiction. States must carry out their responsibilities as the primary authority under the Federal Clean Air Act and if not, the regional office must assume that responsibility. The regional office should also be able to act, when requested by a State or local agency, in a timely and effective manner.

States

Finally, the States must be given the latitude to carry out their functions as provided under the Clean Air Act. Greater deference must be given to decisions made by the States within established guidelines. This does not mean that EPA should give up its' oversight authority. EPA is welcome to Oklahoma whenever they want to go with us and see how we do our job and work side by side with us to augment our programs. We welcome them to examine and participate in any activity we do—from how we run our monitoring program, to how we write permits, to how we enforce those permits. We also invite constructive criticism and believe there is much we each can learn from the other.

Further, EPA should be capable of assisting us in those technical areas where we don't have expertise. Expectations should be the same for all States or other agencies with similar program responsibilities. States must have a special opportunity to comment on all rules and guidance that are issued by EPA. While rule input is usually not an issue, guidance is often used as though it is a rule and thus should be subject to the same public input as a rule.

CONCLUSION

In our view, reauthorization of the Clean Air Act offers a wonderful opportunity to make meaningful changes to an area of environmental law that over the years has provided the framework for a number of advances resulting in cleaner, healthier air for our citizens. This also provides a wonderful opportunity to evaluate the over-

all program enhancing the areas that are working well and making some necessary corrections in those that are not.

The entire regulatory scheme as it applies to air quality is too complicated. While this may be good for the attorneys, consultants, and special interest groups that are involved in the process on a daily basis, it is not good for those implementing the vast number of rules and regulations that have been enacted over the years. Nor is it good for the regulated community or the citizens the Act was designed to protect.

We would urge you to take this opportunity and give careful consideration to making those changes that will simplify the final product. This will not be an easy task and will likely be met with some resistance. However, we believe the long-term benefits of making the Act easier to understand and implement will make whatever efforts we need to make to facilitate this change insignificant. We look forward to working with this committee in any capacity necessary as you continue this important work.

Thank you for the opportunity to submit this testimony. I would be pleased to answer any questions that you may have.

RESPONSES BY JOHN E. TERRILL TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. From the State and local government point of view, what aspects of the Clean Air Act are currently working well?

Response. We continue to support the concept of State Implementation Plan process contained in the Act in which the States are given the lead responsibility in air pollution control matters.

Question 2. From the State and local government point of view, what needs to be improved in the Act in order to provide you more flexibility and responsibility?

Response. EPA should be required by the Act and given the necessary funding to provide guidance, rules and technical assistance to the States in a timely manner.

Question 3. When the Clean Air program began in the 1970's, no one had much experience. When the Act was amended in 1990, the States had little experience compared to the Federal Government. With the experience and expertise of everyone today, what parts of the Federal program can effectively be delegated to the States?

Response. Just about all parts of the Federal program, except oversight, technical assistance, research, and the development of national regulations and standards can be delegated to the States. This would include permitting, monitoring, and enforcement activities.

Question 4. I believe the trading program for acid rain has worked well. We are constantly being told we should expand the free market concepts of the Clean Air Act. My question is in which areas of the Act would a free market approach work?

Response. We feel a free market approach would work best where a cap and trade system can be implemented. Such an option should be available to the States as control strategies for criteria pollutants where specific emission budgets have been established.

RESPONSES BY JOHN E. TERRILL TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. What would be the consequences to your State if EPA moves forward with designations of "nonattainment areas" under the 8-hour national ambient air quality standard for ozone before the Supreme Court renders a decision in the case?

Response. Our two largest metropolitan areas could then be declared nonattainment for a standard that a Federal court has deemed unenforceable. This could cause undue confusion, and present impediments to these area's economic development and their ability to secure Federal highway funding

Question 2. Is EPA providing sufficient resources currently, as well as commitments for future resources, to conduct appropriate ambient air monitoring within your State, including monitoring of fine particulate matter and determination of the composition of fine particulate matter in the air?

Response. Present funding from EPA for monitoring activities is adequate. We are concerned however, if 103 funding is dropped, there will be a shortfall. If such monies become part of our 105 grant, we will experience difficulties having sufficient matching funds. We are also concerned that when the results of the National Air Toxics Assessment study are available to the public for comment, the need for toxic

monitoring will arise. There will be a dramatic increase in the need for additional funds for toxics monitoring that has not yet been addressed.

Question 3. Is EPA providing adequate flexibility and appropriate guidance to State and local air pollution agencies to administer the program for operating permits under Title V of the Clean Air Act?

Response. Our communications with our EPA regional office concerning the administration of Title V have been good. EPA has been extremely slow in giving us full approval of our Title V program.

Question 4. Are EPA's regulations under the Act sufficiently clear, consistent and timely to allow your State to properly implement Clean Air Act programs for which it is responsible?

Response. It seems that guidance for implementing new programs and standards is consistently late or lacking.

RESPONSES BY JOHN E. TERRILL TO ADDITIONAL QUESTIONS FROM SENATOR BAUCUS

Question 1. You said that the current system is inconsistent, though most of the examples that you cited seem more related to EPA's performance and organization. Please point out any specific inconsistencies in the Act which are impacting States' ability to protect public health and the environment.

Response. There are none specifically in the Act.

Question 2. In your testimony before the committee you stated that if the 8-hour ozone standard went into effect it would cost your State $43 million in the first year. Could you please elaborate on how you calculated that sum and what programs you expected to generate that cost? Please include specifics on the timeline of when such programs would take effect.

Response. I don't recall citing such an amount, but the $43 million figure has been used as an estimate of the cost to establish an Inspection/Maintenance Program and Stage 2 Vapor Recovery Systems in the Oklahoma City metropolitan area.

Question 3. Can you cite any studies that evaluated instances where ozone action days were forecasted but never actually occurred? If so, is that type of error more frequently occurring than ozone action days that occurred but were not predicted?

Response. During the 2000 ozone season, the Oklahoma DEQ forecasted 20 ozone alert days. Exceedances occurred on six of those days. Exceedances occurred, however, on 10 days when no alerts were called.

Question 4. Do you have any evidence to suggest that the 8-hour ozone standard is more variable than the 1-hour standard?

Response. Evidence exists that in Oklahoma the 8-hour ozone standard is much more stringent than the 1-hour standard. So much in fact than depending on weather conditions, and transport the standard can be exceeded virtually anywhere in the State. This also makes forecasting under the 8-hour standard much more difficult and unpredictable.

Question 5. What is the fee (per ton of emissions) which your State currently charges for permitting under Title V of the Clean Air Act? How much does that generate annually and what is your State's annual budget for permit activities, implementation and enforcement matters, emissions and ambient monitoring, modeling, analyses, demonstration, inventory preparation and emission tracking, relating to air quality? What if any, additional categories of spending are necessary to support air quality programs?

Response. Our current fee is $17.51 per ton of regulated pollutant for Title V facilities billed January 2000. It is projected to generate $4,233,596. Annual budget is $6,003,612. The money from 105 funds continue to shrink with no corresponding decrease in responsibility. The time is upon us to revisit what the Title V fees were supposed to pay for and to clarify for the States and industry what is expected.

Question 6. Flexibility was mentioned repeatedly during the hearing as necessary for efficient conduct of States' programs. The Clean Air Act Amendments of 1990 created relatively strict deadlines and established numerous requirements largely because insufficient progress had been made prior to 1990 in achieving attainment. How can we be certain that increasing flexibility will not result in slowing current progress? What specific changes in the Act would be necessary to enhance flexibility?

Response. States should not be held to rigid timelines, without receiving the appropriate and timely guidance and technical assistance from EPA. The Act could be

modified to require EPA to develop such guidance and assistance prior to the imposition of requirement on the State.

Question 7. Transport of ozone and other long-range pollutants continues to be a serious problem for public health and for State and local air quality planners. Do you have any suggestions for ways that the Act could better deal with this phenomenon?

Response. The Act could be modified as to include ozone as a pollutant of concern in the Regional Planning Body regional haze process.

Question 8. Are you aware of any State efforts to improve the consistency of data collected by the States? Has your State formally requested that EPA develop such standards?

Response. We have made no such formal request. We, however, are concerned about the qualify and consistency of ambient data being collected by the tribes in our State, and have made our regional EPA office aware of our concerns. Our Assistant Executive Director is currently involved in an ECOS committee specifically formed to work with EPA to develop data standards. Hopefully the work will generate a position outcome.

STATEMENT OF KENNETH A. COLBURN, DIRECTOR OF THE AIR RESOURCES DIVISION, NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

Good day. My name is Ken Colburn. I am New Hampshire's air director, and I appreciate the opportunity to share with the subcommittee some of my ideas regarding reauthorization of the Clean Air Act.

Four thoughts come immediately to mind: The first is "Thank God, at last." The Act is certainly showing its age. With the benefit of a decade of hindsight, several fundamental flaws are evident in its structure, approaches, and scientific presumptions including, for example, that it generally ignores the existence of wind. I think EPA has done a reasonably good job of implementing the Act; though I do wish the Agency had come back to you sooner to fix some of its problems.

Second, great good has nevertheless resulted from the Act, so we must undertake a "mend it, don't end it" reauthorization. Many new ideas were tried out in the 1990 Amendments, and some—like cap and trade programs—have proven extraordinarily successful. Others, however, have proven counterproductive and must be revised.

Third, this reauthorization is far too important to public health, functioning ecosystems, and our nation's global competitiveness for it to devolve into partisan political or regional bickering. I am a witness to the power of collaboration; I have seen first-hand the progress that can be made when dedicated leaders like your chairman, Republican Senator Bob Smith, and New Hampshire's Democratic Governor, Jeanne Shaheen, work together. There is broad agreement among States that the Act should employ much less prescriptive approaches, provide greater opportunity to innovate responsibly and accountably, and incorporate new scientific developments much more readily. There is also broad agreement that progress in reducing air pollutant emissions, particularly from our transportation and electric power sectors, and the technology development that rises to meet this challenge, must continue.

Finally, thorough, independent analysis of State air programs has determined that the Federal Government provides only enough resources to fund about half of what it asks States to do. And contrary to popular belief, Title V's "polluter-pays" provisions do not fill this gap; Title V added more work than it funded. Furthermore, the responsible, accountable regulatory flexibility that States should have—and which our companies deserve—is much more costly than traditional one-size-fits-all, command-and-control regulation. Simply put, Congress has to get serious about funding clean air, or something has to give.

Air issues are among the most complex and difficult of all environmental matters, so much so that it is impossible to go into any real detail in a single hearing, let alone 5 minutes. Nevertheless, having lived and breathed these issues for the last 6 years, I can and do confidently represent to you that there *are* better ways to conduct air policy; better for the environment, better for the regulated community, and less costly to administer. I only have time for a few examples here today:

• *New Source Review (NSR) and Prevention of Significant Deterioration (PSD)*—While States generally support requirements that new facilities install state-of-the-art pollution controls, the Act "lets the excellent get in the way of the good" by encouraging sources to keep their old equipment running instead of installing new cleaner units. We can fix this.

• *Integrated, Multi-Pollutant Approaches.*—Traditional pollutant-by-pollutant approaches maximize control costs, public policy battles (statutory and regulatory), and associated litigation to the detriment of public health, environmental quality, and economic well-being. Substantial opportunities exist for effective control measures that address multiple pollutants simultaneously with declining caps over time. We can fix this, and indeed, your committee has already begun constructive deliberation regarding an integrated, four-pollutant approach for the electric power sector.

• *Encouraging Innovation and Superior Environmental Performance.*—By its very prescriptiveness, the Act makes it difficult if not impossible for EPA to approve innovative new approaches to pollution reduction. We can fix this by providing EPA with the authority *and responsibility* to approve non-standard solutions that provide equal or better environmental benefits.

• *Better Ways to Control Pollution.*—Requiring like categories of sources to pay for emissions, and then distributing the revenues back to those sources based on production, would encourage both lower emissions and higher productivity, with many attendant economic and regulatory benefits (e.g., continuous improvement, more flexibility, lower overhead, faster technology development, greater use of market forces, etc.). Similarly, if we internalized environmental costs (e.g., "externalities") into the price of goods and services in the first place, then market forces rather than regulation would drive environmental improvement. We can fix this by adopting better approaches to regulating sources.

• *Transported Pollution.*—Too much time and money has been wasted—both at the Federal and State levels—arguing about the nature and extent of transported pollution. We should adopt a new definition of States' responsibility concerning transported pollution, perhaps by requiring that the air leaving a State be as clean or cleaner than the air entering the State. We can fix this.

• *Zero-Threshold Pollutants.*—Science is increasingly showing that several pollutants, including ground level ozone and fine particulate matter, are "zero-threshold pollutants." Unlike the traditional "dose-response" approach, there is no level of exposure that is "safe." As a result, traditional approaches to setting and meeting National Ambient Air Quality Standards need revision, and costs should probably factor more greatly into this process. We can fix this.

• *Fairest or Least Cost.*—The application of consistent emission standards across the Nation is widely regarded as a fair approach. However, due to widely varying emission densities across the country, this approach does not represent a least cost solution. Since both approaches have merit, there is a public policy quandary here. This is a decision that is appropriately resolved by Congress, however, so it's one we can fix too.

• *NO_X* vs. *VOCs.*—There are two precursors to ground level ozone, nitrogen oxides (NO_X) and volatile organic compounds (VOCs). The Clean Air Act focuses overwhelmingly—and very prescriptively on—VOCs. Yet science has shown that NO_X is by far the greater cause of ozone, in part because most VOCs are emitted from trees. We can fix this too.

• *Best Available Control Technologies (BACT) and Lowest Achievable Emission Rate (LAER).*—New sources are required to install these controls, but nobody can tell them promptly and reliably what the "best technologies" are. We can fix this; indeed, your committee has already begun to do so by proposing adequate funding for a BACT/LAER information clearinghouse.

• *Section 126.*—Section 126 of the Act appropriately allows downwind jurisdictions impacted by emissions from upwind jurisdictions to petition EPA for relief. Unfortunately, however, this relief can now only be sought from stationary sources, even if mobile sources (vehicles) are the predominant source of emissions upwind. We can easily fix this.

• *Designation of Nonattainment Areas.*—EPA has typically designated nonattainment areas based on "Metropolitan Statistical Areas" derived from the census. Notably absent is any consideration of the science regarding what emissions from what areas triggered what monitors into nonattainment. EPA has begun to take steps to revise this practice, but how it does so remains to be seen. We can fix this.

• *Combined Heat and Power.*—Our current regulatory structure often makes it easier to construct two units (boilers, turbines, etc.)—one each for heat and power—than it does to construct just one capable of meeting both needs. We can fix this.

• *Plantwide Applicability Limits (PALs).*—PALs regulate sources under a facility-wide emission cap instead of on a device-by-device basis. They can allow sources much greater operational flexibility and reduce regulatory overhead, but PALs can be tricky to enforce. We can fix this.

• *Once In, Always In.*— EPA currently regulates some sources even if the devices that led them to be regulated in the first place no longer exist. We can fix this.

• *Energy Efficiency.*—Finally and most importantly, there is widespread recognition that the production and use of energy—in all sectors—is the primary cause of most significant air pollution problems: ozone, mercury deposition, ongoing acid rain, toxic air pollution, and climate change. Further, small sources and even individuals account for more and more of this pollution. We need to do everything we can to encourage and assist States in making more efficient use of energy. In doing so, we will also reap the benefits of faster technological development and greater international economic competitiveness. I think we can address this too.

I want you to know that you have New Hampshire's commitment, as well as my personal commitment, to assist you in any way we can in the daunting but doable task of defining, describing, developing, and drafting the ways to fix these problems.

Thank you again for the opportunity to share these views. I look forward to responding to any questions you may have.

ATTACHMENT

ISSUES RELATING TO UTILITIES

New Source Review (NSR) and Prevention of Significant Deterioration (PSD)

States strongly support installation of good controls when new construction or major modifications are undertaken.

Thus, States conceptually support aggressive requirements for "Best Available Control Technology (BACT)" under PSD and "Lowest Achievable Emission Rate (LAER)" under NSR. However, . . .

Problem.—Letting Excellent Get in the Way of The Good.

Substantial environmental benefits (e.g., 90–95 percent emission reductions) can often be secured economically, but diminishing returns requirements for "excellence" (e.g., 95–99 percent emission reductions) often render projects uneconomic.

• Trigen example.

Solution.—EPA must develop yardsticks or thresholds that provide sources greater timeliness and certainty (e.g., project cost as a percent of book value). Alternatively, develop yardsticks for exemptible environmental improvements (e.g., a project will be exempt from NSR if facility emissions per MWH will drop by 50 percent). Even relatively arbitrary yardsticks would be better than the current gridlock.

Caution.—Capacity expansions with marginal environmental benefits cannot be exempted from NSR because they:

• Delay or prevent the much greater multi-pollutant environmental benefits that result from capital stock turnover.
• Discourage adoption—and thus development—of new, more competitive technologies. Better alternative: an Integrated Approach to Utility Emissions (see below).

Problem.—What is BACT/LAER Anyway?

EPA has never adequately funded the Federal BACT/LAER clearinghouse.

Precisely when is a technology commercially "available"?

• Example: NH and CT appeals.

BACT sometimes conflicts with LAER in areas to which both apply.

Shunting the BACT/LAER discovery and substantiation burden onto sources threatens projects through unnecessary delay and increased regulatory risk, retarding capital stock turnover.

Solution.—Provide sufficient support for the Federal BACT/LAER Clearinghouse. Also, require EPA to define default BACT/LAER technologies to streamline project approvals.

Caution.—Beware of the "*technology* vs. *results cycle*," wherein sources vacillate between "EPA should just specify the technology necessary to comply" and "EPA should just specify the result and let sources pick the technologies."

• Best of both worlds: EPA should specify default compliant technologies, but sources can choose to "do as good or better."
• (See "Encouraging Innovation and Superior Environmental Performance" below.)

Multi-Pollutant Strategies (Co-Benefits)

Pollutant-by-pollutant approaches maximize control costs, public policy battles (statutory and regulatory), and associated litigation to the detriment of public health, environmental quality, and economic well-being.

Substantial opportunities exist for effective control measures that address several pollutants simultaneously.

• See modeling results from STAPPA/ALAPCO's *Reducing Greenhouse Gases and Air Pollution: A Menu of Harmonized Options* (attached).

Note.—The proposed Federal "Clean Air Partnership Fund (CAPF)" originated out this State-based effort. Not surprisingly, then, the States strongly support implementation of a CAPF.

Nobody plans future coal capacity, so don't wed national policy to the past.

Exit strategy: A reasonably gentle but firm glide path for coal interests.

An Integrated Approach to Utility Emissions

A current opportunity for compromise on NSR/PSD through the use of multi-pollutant strategies.

Sources would commit to substantial reductions in at least NO_X, SO_2, CO_2 (to Rio levels), and Hg (mercury) in a specified timeframe.

Reduction commitments would inoculate sources against NSR/PSD.

Emissions budgets, if used, should be output-based (i.e., emissions per MWH); our interest is in the societal goods produced, not in rewarding production inefficiencies.

Approach should include requirements for disclosure of the environmental characteristics of the power generated (i.e., "Environmental Disclosure").

Would eliminate current expensive, time-consuming litigation and attendant uncertainty.

Would avoid the patchwork quilt of State-specific regulations that will otherwise result.

Would enable a competitive power marketplace sooner and with greater certainty.

Would provide lower overall societal cost through multi-pollutant reduction strategies.

Control Cost Concerns

Doomsday scenarios typically cite aggregate costs.

Must ask: How much per KWH? How will ratepayer bills be impacted?

If adding 2–5 mills to 5¢ electric rates (i.e., 5.2– 5.5¢ per KWH) for NO_X controls will be economically disastrous, why isn't the Northeast economy—with rates 2–3 *times* as high as this (i.e., 10–18¢ per KWH)—a basket case? Instead, it is leading the Nation economically.

System Reliability Concerns

Doomsday scenarios premised on multiple, simultaneous, low-probability worst-case scenarios occurring.

Still only produces a manageable "cause for concern" in summer 2002.

Applicable maxim: "*Ask* an engineer about doing something and you'll get nothing but problems; *tell* an engineer to do something and you'll get nothing but solutions."

ADDITIONAL CLEAN AIR ACT (CAA) PROBLEMS

Oxides of Nitrogen (NO_X) *vs. Volatile Organic Compounds* (VOCs)

Both are "precursors" (i.e., essential ingredients) in forming ozone smog.

However, most VOCs are biogenic (i.e., are emitted naturally; oaks emit isoprene, pines emit terpene, etc.).

And NO_X reductions have been clearly demonstrated to be more effective at lowering ozone concentrations (e.g., OTAG modeling).

Based presumably on mid-1980's science, the CAA imposes far more specific and onerous requirements for VOCs, the pollutant that is least effective, much more expensive to control, and whose primary source is natural emissions.

Why does EPA persist in implementing these ineffective statutory requirements (e.g., VOC RACT, I/M) when cheaper and more effective results can be had through NO_X reductions?

• NH I/M example.
• It's the law is no excuse. EPA has a moral responsibility to seek revision to the law when science shows the need to do so.

Setting Health-Based Standards (NAAQS) for Zero-Threshold Pollutants

Old health premise regarding air pollution was "Dose-Response"—i.e., once below a certain level pollutant concentrations did not impact public health.

New understanding is "Zero-Threshold"—i.e., pollutant reduction improves public health all the way down to zero.

Impact on the *form* of the NAAQS: With a zero-threshold pollutant, overall exposure is the best measure of health impact, so NAAQS should reflect the longest fea-

sible averaging time (ideally, a seasonal or annual average). The 8-hour form is better than 1-hour, but still a weak reflection of public health impact.

Impact on setting the *level* of NAAQS: Must consider costs; what other yardstick is there? (Must include public health and environmental costs as well, however!)

A Public Policy Quandary: Broadly Applicable Regulations or Least Cost Solutions?

EPA's 22-State NO_X SIP Call creates a "level playing field" by applying the same emission limit to the entire region—even for sources in areas that have less impact on air quality.

- Fair, understandable, and easier to apply and enforce.

Analytical techniques and technologies exist today that can reasonably accurately quantify and apportion culpability.

- Result: Geographically targeted and pro-rated control measures produce least cost solutions.
- Emissions trading would still be workable through the use of "discounting" or "trading ratios."

Section 126 (Downwind Areas Petition EPA for Relief from Upwind Stationary Source Emissions)

Currently Section 126 of the CAA only provides for relief from stationary sources such as power plants and large industrial facilities.

Power plants comprise only about 25–33 percent of NO_X emissions (though controlling these sources is one of the most cost-effective options).

Section 126 should be modified to provide relief from *non*-stationary source pollution as well (e.g., heavy duty diesel engines, area sources, etc.).

Designation of Nonattainment Areas Under the 8-Hour Ozone NAAQS

In determining nonattainment areas, EPA typically applies designations across census-based Consolidated Metropolitan Statistical Areas (CMSAs).

Instead, science would suggest approaching designations on the basis of an "Area of Violation (AOV)" with an accompanying "Area of Influence (AOI)."

Use of CMSAs can lead to ridiculous and ineffective regulatory outcomes.

- Example: NH vis-à-vis Cape Cod.

Combined Heat and Power (CHP)

Also known as "Cogeneration."

Current regulations, together with economies of scale, disadvantage CHP, resulting in higher emissions since two boilers (i.e., one for electric power and one for the heating load) are otherwise required.

- Trigen Example.
- CHP is often a victim of "Letting excellent get in the way of the good."

Plantwide Applicability Limits (PALs)

Concept: Adopt a more stringent limit on overall plantwide emissions of a given pollutant in exchange for operational flexibility under this cap.

Better for sources, better for regulators (e.g., permit writers), but possibly harder to enforce.

EPA has simply stopped approving permits that incorporate PALs.

"Just Say No" is not an optimal or acceptable solution; if EPA won't implement PALs, the CAA should be modified to explicitly authorize them.

Once In, Always In

EPA's "Reasonably Achievable Control Technology (RACT)" regulations (and perhaps others) require "Once in, always in" provisions.

Even if a source has permanently eliminated emissions sources, it is still regulated and subject to record keeping and reporting requirements.

The CAA should be modified to explicitly exempt such sources from regulation.

IDEAS FOR A "SECOND GENERATION" OF ENVIRONMENTAL REGULATION

The Industry Average Performance System (IAPS)

Until environmental "externalities" are internalized, public policy battles (statutory and regulatory), litigation, and control costs will be maximized—to the detriment of public health, environmental quality, and economic well-being.

If environmental externalities were internalized, then economics rather than regulation would drive environmental improvement (less or no litigation; fewer or no "command and control" approaches, fewer or no congressional or regulatory battles, etc.)

Requiring like categories of sources to pay for emissions, and then distributing the revenues back to those sources based on production, would encourage both lower

emissions and higher productivity, with many attendant economic and regulatory benefits. (See IAPS attachment.)

Not a tax; not a revenue source for government.

Encouraging Innovation and Superior Environmental Performance

EPA either cites the CAA to dissuade those interested in pursuing environmental innovation, or struggles to find a legal basis for allowing them to do so.

EPA also fears litigation from third parties if it allows innovative initiatives, let alone if they fail to deliver on their anticipated promise.

Result: Minimal environmental innovation, risk-taking, and potentially productive experimentation.

Solution.—Provide EPA with explicit, appropriate authorization to allow and encourage non-traditional innovation and experimentation. (See the National Academy of Public Administration's report on this topic.) Further, require EPA to approve non-standard regulatory approaches that it determines are reasonably likely to equal or exceed the environmental performance of the controlling traditional regulatory approach(es).

A New Definition for States' Responsibility Concerning Transported Pollution

Debates about causality and "significant contribution" could be easily avoided simply by requiring that each State have a reasonable opportunity to achieve attainment.

In many cases at present, the air pollution entering a State would cause non-attainment of NAAQS even if *all* of the State's own emissions were eliminated.

Solution.—Require that the air leaving a State must be as clean or cleaner than that entering the same State. Hold downwind States harmless from Federal sanctions until this outcome is achieved.

Note.—Such a requirement would eliminate the need for Section 126 provisions in the CAA.

A New Approach to Air Pollution Regulation...

THE INDUSTRY-AVERAGE PERFORMANCE SYSTEM (IAPS)

IDEA:

Within a given category of polluters (electric utilities, industrial boilers, etc.), require all companies to pay a fee for each ton of pollution emitted, then refund the revenues collected back to these companies based on their production. For pollution sources like cars and large trucks, vary registration fees (within vehicle classes) based on pollution emitted.

RESULT:

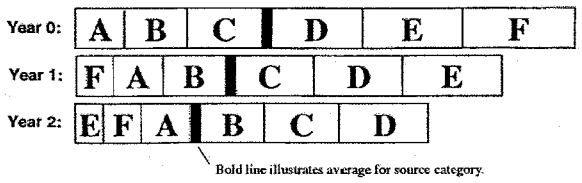
Emissions are discouraged and production efficiency (productivity) is encouraged, because the companies or sources that emit pollutants at a higher rate per unit of production than the category average end up paying (on a net basis) those which emit at a rate lower than the category average.

BENEFITS:

- Protects public health from air pollution that can be eliminated inexpensively, and simultaneously protects industry from unreasonable regulatory costs and cross-industry subsidies.
- Creates strong financial and market incentives to reduce emissions: for net payers, both pocket-book and market image suffer; for net payees, both are enhanced.
- Treats pollution from old sources the same as pollution from new sources.
- Encourages emission reductions all the way to zero, not just to regulatory compliance levels.
- Eliminates traditional battles over culpability among regions, responsibility among industrial sectors, and estimated costs to control; adjustments are easily implemented.
- Eliminates the traditional "boom or bust" regulatory cycle ("Set a standard, meet it, stop, wait, set a new standard"). Industry makes technology choices, not regulators.
- Less regulatory volatility reduces risk for technology developers; spurs development of new, more cost-effective environmental technologies.
- Creates a continuous improvement dynamic; each reduction lowers the category average.
- Allows all pollutants to be integrated into a single regulatory framework.
- Easily incorporates geographically differentiated controls based on different pollution impacts.
- Requires much less bureaucracy; largely self-administered and self-policing.
- Not a government revenue program (i.e., not a "pollution tax").

EXAMPLE:

- A, B, C, etc. are individual companies in the same category of polluters; width of box illustrates their emissions per unit of production.
- When F, a net payer, installs pollution controls (or more efficient production equipment) in Year 1, it becomes a net payee. F's action also reduces the category average, so C, a net payee in Year 0, becomes a net payer.
- Similar effects occur for E, and B, in Year 2 after emission reductions are made by E.



STATEMENT OF RON METHIER, CHIEF, AIR PROTECTION BRANCH, GEORGIA ENVIRONMENTAL PROTECTION DIVISION

Good afternoon ladies and gentlemen:

My name is Ronald Methier. I am the Chief of the Air Protection Branch of the Georgia Environmental Protection Division. On behalf of the State of Georgia, I would like to thank you for this opportunity to testify on what is a very important issue, not only to the people of Georgia, but I believe to the people of the United States as a whole.

You have asked me to address the important topic of what, if anything, needs to be "fixed" in the Clean Air Act. What is working in Georgia and what is not? What can be done to address the problems? In thinking about these questions, we have concluded that the single most valuable "fix" that Congress could effect would be to increase the flexibility given to both EPA and the individual States, to allow the States to take advantage of solutions most relevant and most effective for their regions. Today, I will give you our perspective on the Clean Air Act and discuss two specific areas where the Act's lack of flexibility makes it difficult for Georgia to address its air quality problems in a timely and cost-effective manner. First, I will address the difficult situation Georgia faces in trying to meet the Act's strict attainment dates—an unachievable goal, because these dates apply even to areas which, like Georgia, are significantly affected by the transport of pollutants from other States. Second, I will show how the rigidity of the Act's specific mandated control measures—such as Federal fuel requirements—may be more hindrance than help in Georgia's struggle to achieve attainment.

The Federal Government and the States share the same goal—national clean air, as soon as possible. It is self-evident that this goal cannot be achieved without Federal and State cooperation and partnership. The complexities of some aspects of the air pollution problem make it almost impossible for either the Federal Government or States acting on their own, to develop and carry out all the programs necessary to achieve nationwide attainment of Ambient Air Quality Standards. This is especially true for a State like Georgia, which, like most eastern and southern States, must contend with pollutants transported from upwind States over which it has no control. Georgia has developed what it believes are workable and scientifically sound solutions to these problems. Some of these solutions are based on science developed long after the Clean Air Act Amendments of 1990. EPA must be given the flexibility to allow States like Georgia to take advantage of such state-of-the-art technology and scientific knowledge in crafting regional solutions that will meaningfully contribute to clean air throughout the Nation. The last major amendments to the Clean Air Act were made, as you know, in 1990. These amendments impose strict and specific controls, ranging from required vehicle inspection programs to the required use of specially formulated gasoline, on areas that fail to reach attainment by a specific date. The decade since 1990, however, has seen exponential advances in scientific knowledge about the causes of air pollution and the solutions to it. The technology to implement these solutions has likewise changed dramatically. Specific requirements prescribed by the 1990 Clean Air Act Amendments are, in some cases, no longer the most effective or efficient ways to achieve clean air. The Clean Air Act, however, has not been amended to reflect these scientific advances. As a result, EPA and the States are left with limited ability to take advantage of new knowledge and technology, to craft creative, regionally-specific solutions. If the Clean Air Act is to remain relevant in this new millenium, something must be done to give EPA and the individual States the flexibility to take advantage of the knowledge and technological explosion of the 1990's.

EVOLUTION OF THE CLEAN AIR ACT

To understand this issue better, it may be useful to briefly revisit the evolution of the Clean Air Act and how emerging scientific knowledge has shaped that evolution. It seems apparent that for the last thirty years, Congress has struggled with ways to mandate a solution to the nation's air pollution problem. This seems especially true for Georgia's largest air pollution problem—ground-level ozone.

Congress first addressed the ground-level ozone problem in 1970, when it directed EPA to establish National Ambient Air Quality Standards for ozone and other pollutants and directed the States to develop implementation plans for the "implementation, maintenance and enforcement" of these standards by 1973. In early recognition that partnerships between the States and the Federal Government were crucial given the national character of the ozone problem and the impact of ozone transport among States, Congress required that these plans include provisions for "intergovernmental cooperation," in achieving attainment of the Air Quality Standards.

For a wide variety of reasons, despite congressional mandates, very little progress was made during the 1970's and 1980's toward attainment of the ozone standard. This failure was in large part traceable to a lack of scientific understanding of the effects of ozone transport, leading to an inability to quantify with specificity the control measures necessary to reduce ozone transport impacts on downwind areas.

By 1990, when most areas had still not achieved attainment, Congress decided to employ a much more specific and prescriptive plan in the Clean Air Act Amendments of 1990. Attainment deadlines were set and sanctions contemplated for failure to meet those deadlines. Strict control measures were prescribed. The record clearly shows that Congress felt it was crucial to force the development of technology and science to correct the air problems.

Congress also understood the need for partnerships between the States and the Federal Government. Congress recognized that ". . . [a]reas in some States may be unable to attain the Ozone standard despite implementation of stringent emissions control because of pollution transported into such areas from other States."[1] In 1990, Congress entrusted EPA with the authority to convene "ozone transport commissions" to study and propose additional control measures necessary to enable downwind States to attain the ozone standard by the attainment date. With the transport commission provisions, the "Good Neighbor" provision in section 110(a)(2)(D), and section 126 authorizing States to bring suit to require control measures in upwind States, Congress endeavored to provide the tools necessary for EPA and the States to address transported pollution.

Although we clearly understood more about air pollution in 1990 than we had in 1970, scientific knowledge about the causes and the solutions, however, was still in relative infancy. For example, in 1990, the scientific community did not fully understand how ozone itself was formed, nor did it recognize the significance of nitrogen oxides (NO_X) in this formation process. We did not yet recognize that, for the southeast, NO_X rather than volatile organic compounds (VOCs) were the critical factor in ozone formation. Likewise, although transport was recognized to be a significant hurdle, the regulatory agencies had limited ability to quantify or rectify its impact.

PROGRESS TOWARD ACHIEVING CLEAN AIR ACT GOALS

Despite the problems with scientific understanding, the 1990 Amendments have forced progress toward attainment. Under the 1990 Amendments, Atlanta was designated a "serious" ozone nonattainment area, with an attainment date of November 15, 1999. After some initial problems, this plan is working. The 1999 attainment date proved not to be practicable for Atlanta or for numerous other serious nonattainment areas; but we have nevertheless made considerable progress in reducing pollution. Despite the tremendous population growth of the metropolitan Atlanta area, controls are already in place which have reduced peak ozone concentrations and both NO_X and VOC emissions. With additional controls coming on line, the Atlanta area is now projected to attain the 1-hour standard for ozone by 2004.

Georgia recognizes that much of the progress that it has made toward attainment is a direct result of the various controls required by the 1990 Amendments. For example, Georgia has benefited from the acid rain reduction controls, the requirements for enhanced vehicle inspection programs, the gasoline vapor recovery requirements, as well as the requirement to prepare implementation plans showing specific rates of progress toward attainment.

Now, however, some of the specific controls enumerated in the 1990 Amendments have served their purpose and have, in fact, outlived their usefulness. During the last 10 years, vast strides have been made in understanding the science of ozone formation. Likewise, the understanding of the mechanisms and impacts of ozone transport are much improved. Consequently, some of the specific control measures set out in 1990 are now obsolete. Likewise, some of the attainment dates imposed by Congress in 1990 proved to be unrealistic and, where attainment has been impeded by ozone transport, should be extended.

ATLANTA ILLUSTRATES MAJOR PROBLEMS WITH THE CLEAN AIR ACT

As stated above, Atlanta was unable to meet its 1999 attainment deadline. Atlanta was not alone. More than 20 metropolitan areas all over the county are still classified as nonattainment for ozone, as shown on the attached map. Except for those areas ranked "extreme" or "severe," shown in red on the map, all of the areas missed their statutory attainment dates. These areas range from California to Connecticut, from Texas to Wisconsin, from relatively small cities like Louisville, KY and Springfield, MA, to large cities like Dallas and Atlanta. The reasons for non-

[1] S. Rep. No. 101–228, at 48 (1990), *reprinted in* U.S.C.C.A.N. 3385, 3434.

attainment vary from location to location; there are important regional and technical distinctions that affect the attainment efforts. The very fact, however, that so many areas have failed to attain itself demonstrates that something is not working the way Congress intended and certainly is not working as effectively as it could. Atlanta's experience is illustrative of problems that are common to many of these nonattainment areas.

The reasons that the attainment dates set by Congress proved unrealistic are clear now in a way that they were not a decade ago. The attainment schedule began to fall apart when the first attainment demonstration State Implementation Plans (SIPs) became due. For serious non-attainment areas, these were due on November 15, 1994. As it turned out, however, scientists at that time were just beginning to understand the complexity of the transport problem. These gaps in knowledge made it impossible for the States to forecast attainment by the given deadlines, or to determine what additional controls might be required short of draconian, very costly measures with uncertain efficacy. Because the modeling data was not available to forecast attainment by the statutory deadlines, EPA, of necessity, extended the deadlines for these submittals.

In an effort to develop better models for forecasting attainment and to propose solutions to the ozone transport problem, the Ozone Transport Assessment Group ("OTAG") was formed in 1995 by representatives of 37 States east of the Rocky Mountains, along with representatives from EPA and industry and environmental groups. OTAG conducted comprehensive studies of interstate ozone formation and transport. The group concluded its work in June 1997, 6 months after EPA had expected, and only 18 months before the serious-area attainment deadline. Even then, while the group was able to conclude that NO_X reductions were necessary to address transport, it was not able to reach consensus on specific control recommendations. Once again EPA took the reasonable step of extending the deadline for submittal of the States' attainment demonstration SIPs, this time until April 1998. EPA took final action on the ozone transport problem in September 1998. This final rule, generally referred to as the "NO_X SIP Call," required 22 States and the District of Columbia to revise their SIPs to provide for NO_X reductions specifically quantified in the rule. The chosen control measures were to be implemented no later than May, 2003. The NO_X SIP Call has been upheld by the D.C. Circuit, but the court recently extended the final implementation date until May 2004.

Thus, while Congress expected that it would be feasible, with diligence, for serious nonattainment areas to come into compliance by 1999, the protracted timetable required for EPA to finalize regulations to address the complex problem of interstate transport of NO_X has prevented us from meeting that statutory deadline in Atlanta, despite our concerted efforts. Georgia has already implemented regulations to obtain major reductions in NO_X emissions and is imposing controls at least equal to those which will be imposed by the NO_X SIP Call. Georgia projects that Atlanta will attain the 1-hour standard for ozone in 2004 as soon as the NO_X SIP Call controls reduce NO_X emissions from our neighboring States.

The uncertainties and difficulties presented by Atlanta's failure to meet the statutory attainment deadline illustrate critical problem areas in the Clean Air Act. Georgia has already adopted extensive control measures on both stationary and mobile sources, all of which work to reduce ground level ozone in Atlanta. Once the NO_X SIP Call is fully implemented, ozone levels in Atlanta will meet the Air Quality Standard. In the meantime, however, uncertainty as to EPA's authority and discretion may result in the absurd consequence of the imposition of costly control measures which are scientifically obsolete and which will not result in faster attainment.

CONGRESS SHOULD EXTEND OR CONFIRM THAT EPA HAS THE AUTHORITY TO EXTEND THE ATTAINMENT DEADLINES

In the 1990 amendments to the Clean Air Act, Congress imposed sanctions for a failure to meet the attainment deadlines. Because Congress clearly assumed that the attainment deadlines were reasonable, the Act provides that if EPA determines that an area has not attained the standard, such area "shall be reclassified by operation of law." § 181(b)(2). In the case of Atlanta, for example, such a determination by EPA could result in "bump up" of the Atlanta area to classification as a "severe" nonattainment area. With a "bump up" to severe, automatic consequences would result, such as a requirement that we use Federal reformulated gas (RFG), stricter standards on industrial facilities, and monetary penalties for failure to attain. §§ 182(d), 185, 211(k). Recognizing the unfairness that would result from requiring bump-up and the attendant sanctions upon States with areas unable to show attainment due to interstate transport of ozone, EPA has proposed a policy which allows

it to extend attainment dates where interstate transport is a significant contributor to non-attainment (the "Extension Policy").[2]

In issuing the Extension Policy, EPA recognized that downwind States have been operating in a "climate of uncertainty" as to the allocation of responsibility for pollutants transported from upwind States. EPA has stated its view that "Congress, had it addressed the issue, would not have intended downwind areas to be penalized by being forced to compensate for transported pollution by adopting measures that are more costly and onerous and/or which will become superfluous once upwind areas reduce their contribution to the pollution problem." Id. at 14,444. EPA's Extension Policy reasonably allows downwind States to assume the benefit of the NO_X SIP Call reductions in making their attainment demonstrations, so long as areas can demonstrate that they meet the criteria.[3]

EPA has acknowledged that Atlanta's ozone problem is significantly affected by transport and in December 1999, EPA proposed to apply the Extension Policy to Atlanta upon approval of the attainment demonstration SIP.[4] EPA has also proposed to apply the Extension Policy to a number of other nonattainment areas affected by ozone transport, such as Beaumont/Port Arthur,[5] Louisville,[6] and St. Louis.[7] The practical effect of the Extension Policy is to allow EPA to extend attainment dates for serious ozone non-attainment areas such as Atlanta to June, 2004, the date on which NO_X SIP Call reductions are to take effect. EPA believes, and Georgia agrees, that the Extension Policy is within EPA's authority under the Clean Air Act and that it is consistent with congressional intent.

CHALLENGES TO THE EXTENSION POLICY

In spite of the reasonableness of the Extension Policy, it has come under severe criticism. There are many who contend that the Extension Policy is beyond EPA's authority and that EPA has no power to vary the strict attainment dates set forth in the Clean Air Act amendments of 1990.

In the case of Georgia, we are currently involved in litigation in which the validity of the Extension Policy has been attacked. The case is pending before the Court of Appeals for the Eleventh Circuit and has not yet been resolved. Very recently a suit was filed seeking an order to require EPA to bump up 15 areas, including Beaumont/Port Arthur and Louisville, to the next higher classification, in spite of EPA's proposal to extend the attainment dates for some of those areas. We have received a notice of intent to file such a suit seeking to force "bump up" of the Atlanta area.

If the Extension Policy were held invalid in current or future litigation, the necessary result is that Atlanta and all other areas which have failed to reach their statutory attainment dates must be "bumped up" to the next higher classification. In the case of Georgia, bumping up Atlanta to classification as a severe area would have significant punitive consequences, which do nothing to promote better air quality objectives and which impose needless extra costs upon Georgia consumers.

Georgia urges Congress to address the Clean Air Act and to remedy the problem of automatic bump-up where the failure to attain is due to circumstances beyond the State's control, such as interstate ozone transport.

THE CLEAN AIR ACT DOES NOT ALLOW SUFFICIENT FLEXIBILITY IN THE DEVELOPMENT OF STATE-SPECIFIC OR REGION-SPECIFIC CLEAN FUELS

In its ongoing efforts to reach attainment in Atlanta, Georgia is also struggling with compliance with the Clean Air Act requirements on clean fuels. Georgia has worked cooperatively with all stakeholders, including the oil industry, to develop a

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[2] Extension of Attainment Dates of Downwind Transport Areas, 64 Fed. Reg. 14,441 (March 25, 1999).

[3] To qualify for application of the extension policy an area must:

(1) be identified as a downwind area affected by transport from either an upwind area in the same State with a later attainment date or an upwind area in another State that significantly contributes to a downwind non-attainment;

(2) submit an approvable attainment demonstration with any necessary, adopted local measures and within an attainment date that reflects when the upwind reductions will occur;

(3) adopt all local measures required under the areas current classification and any additional measures necessary to demonstrate attainment; and

(4) provide that it will implement all adopted measures as expeditiously as practicable, but no later than the date by which the upwind reductions needed for attainment will be achieved. *Id.* at 14,444.

[4] 64 Fed. Reg. 70,478 (Dec. 16, 1999).

[5] 64 Fed. Reg. 18,864 (April 16, 1999).

[6] 64 Fed. Reg. 27,734 (May 21, 1999).

[7] 64 Fed. Reg. 13,384 (May 18, 1999).

Georgia fuel which is designed to address Georgia's pollution issues and is cost effective.

The Clean Air Act should be revised to permit States to implement State-specific control measures, so long as they satisfy the Clean Air Act goals.

CLEAN AIR ACT AMENDMENTS OF 1990 MANDATE FEDERAL REFORMULATED FUEL UPON RECLASSIFICATION TO SEVERE

The Clean Air Act currently provides that when an area is reclassified from serious to severe, it is subject to the Federal reformulated gas requirements.[8] As with so many other provisions of the 1990 amendments to the Clean Air Act, the clean fuel provisions of the Act are very prescriptive and extremely detailed.

Since 1990, technology has advanced and knowledge of ozone non-attainment has changed. We now know that pollution is different in the southeast than in other parts of the country. Air pollution in general, and ground level ozone specifically, form differently in the south than in other areas of the country. Transport in the southeast is significant, but distances of transport are not as extensive as in the midwest and northeast. In addition, in Atlanta as in most of the southeast, the ozone problem is largely caused by NO_X. That is, because of the tremendous amount of biogenic (natural) VOCs from forests and other vegetation, control of VOCs has not proved to be as effective in reducing ground-level ozone. Rather, it has been determined by numerous studies that the best method to address ozone in the southeast is by reduction of NO_X emissions.

For this reason, the fuel issue as well is simply not appropriate for a "one-size-fits-all" solution. It is important that Congress allows the States sufficient flexibility to tailor solutions which address their specific air quality problems in the most efficient and cost-effective manner.

THE GEORGIA FUEL IS CAREFULLY DESIGNED TO ADDRESS ATLANTA'S AIR QUALITY PROBLEM

In June 1997, at the conclusion of the OTAG process, Georgia began immediately to craft the mobile source control strategy needed to bring Atlanta into attainment. We started by meeting with oil industry representatives to identify the best fuel program for the metro area. We hosted an extensive consultative process with the Georgia Petroleum Council and its members, representing refiners, marketers and pipeline operators. Together we determined that low sulfur gasoline is the most cost-effective fuel to reduce NO_X emissions from gasoline-powered vehicles operated in the Atlanta region.

With the support of the oil industry, Georgia adopted regulations in May 1998 that lowered the average sulfur concentration in gasoline sold during the summer ozone season to 150 ppm. The industry began delivering this gasoline in 1999 for use in a control area encompassing Atlanta and 25 counties. This fuel reduces NO_X emissions from gasoline-powered vehicles by 6.6 percent at a cost of approximately 1 to 2 cents per gallon, as estimated by the oil industry.

In 2003, Georgia is going to a more stringent low sulfur fuel, one that requires an annual average sulfur content of 30 ppm, in a larger 45-county control area. This gasoline will reduce NO_X emissions by 12.0 percent, or 23.54 tons per day, at a cost of 2.2 to 2.4 cents per gallon, as estimated by an oil industry consultant. Also, because of a 7.0 pound per square inch Reid vapor pressure limit instituted in Georgia in 1995, VOCs and toxics will both be reduced by more than 25 percent. This fuel is a critical part of the targeted strategy to improve air quality and bring Atlanta into attainment with the ozone Air Quality Standard by 2004.

FEDERAL REFORMULATED GAS (RFG) WOULD BE LESS EFFECTIVE AND MORE COSTLY

Federal reformulated gas (RFG), if required in Georgia, would not only be less effective in combating Atlanta's ozone pollution but would also be more costly. Under the Federal Phase RFG program, which started January 1 of this year, gasoline sold in RFG areas will reduce NO_X emissions by up to 8.8 percent at a cost of about 4 to 6 cents per gallon, as estimated by the U.S. Environmental Protection Agency.[9] Compared with the Georgia low sulfur gasoline that is slated for arrival in 2003, the implementation of Phase 2 RFG in the Atlanta area would result in a fuel at least 27 percent less effective in reducing NO_X at about twice the incremental cost. Federal Phase 2 RFG is not the right fuel solution for Atlanta but might be forced on us by prescriptive Clean Air Act requirements and EPA's limited discretion.

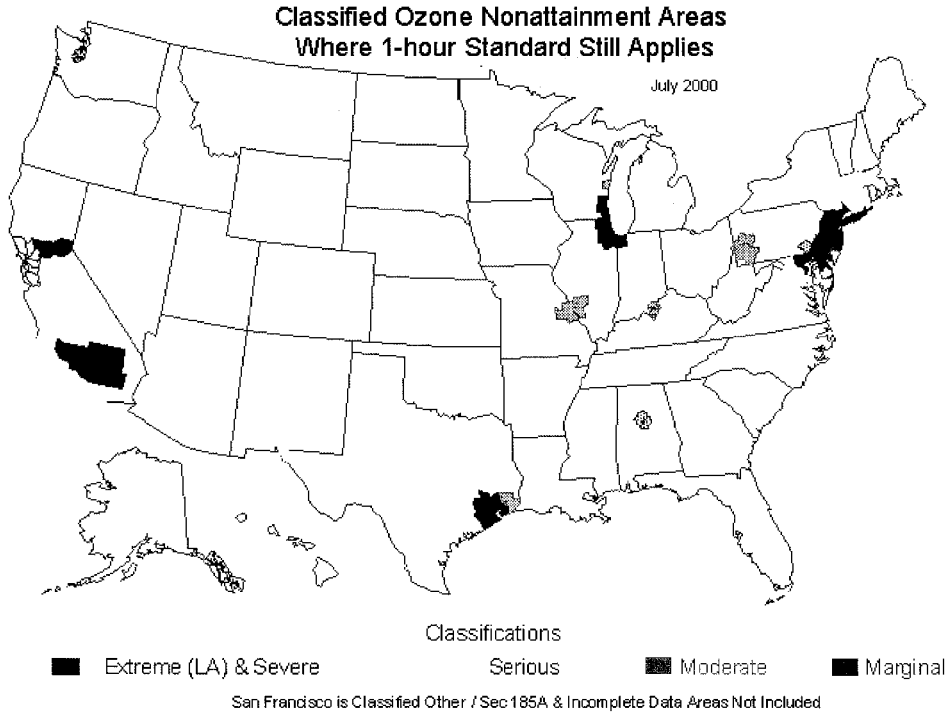
[8] CAA § 211(k)(10)(D), 42 U.S.C. § 7545(k)(10)(D).
[9] 59 Fed. Reg. 7810 (1994).

CONCLUSION

During the debates on the 1990 amendments to the Clean Air Act, Senator Baucus noted that the transport provisions were designed to avoid placing an "unfair burden on any State which is the victim of transported air pollution.[10] Nevertheless, Atlanta and other areas which have been significantly affected by ozone transport are indeed on the brink of being sanctioned, when it is clear that their failure to attain results not from lack of effort on their part but on the time required to address the very complex problem of ozone transport. We do not believe that Congress intended this result. We urge you to act expeditiously to address these unintended consequences of the strict prescriptive provisions of the 1990 Amendments. We request that Congress either extend the attainment dates, where the failure to attain is a result of interstate transport or, in the alternative, make it clear that EPA has authority to extend. Second, we urge you to revise the Clean Air Act to allow the States more flexibility in developing specific control strategies, such as clean fuels that are best suited to their particular air quality problems. With clean fuels, the one-size-fits-all prescription in the Clean Air Act simply does not work. Giving EPA the authority to approve State-specific fuels would promote the goal of better air quality. Moreover, as a general rule we believe that it is appropriate for Congress to invest EPA and the States with more flexibility and discretion, so that they can continue to utilize developments in science and technology to craft improved solutions to the critical national issue of air quality. On the part of Georgia, I want to express our commitment to continue to work hard to ensure that Atlanta and all other areas in our State meet the national air quality standards. If Congress gives us more flexibility, I believe that the public will benefit.

I thank you for giving me the opportunity to tell you about some of the critical issues which Georgia is facing under the Clean Air Act.

[10] 136 Cong. Rec. S 16895, at S16970 (1990).


Classified Ozone Nonattainment Areas
Where 1-hour Standard Still Applies
July 2000
Classifications
Extreme (LA) & Severe
Serious
Moderate
Marginal
San Francisco is Classified Other / Sec 185A & Incomplete Data Areas Not Included

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RESPONSES BY RON METHIER TO ADDITIONAL QUESTIONS FROM SENATOR INHOFE

Question 1. From the State and local government point of view, what aspects of the Clean Air Act are currently working well?

Response. Georgia believes that the Clean Air Act as a whole is working well. Proof of the Act's effectiveness can be found in the United States Environmental Protection Agency's (EPA) air quality trends reports. These reports indicate that, overall, pollutant emissions are decreasing and air quality is improving all across the country. This improvement in air quality can in large part be attributed to the deadlines and mandates in the Act, which have forced technology and the development of new control measures. Forcing such innovation has resulted in substantial emission reductions.

Additionally, Georgia believes that the "division of labor" the Act creates between EPA and the States is generally effective. EPA has the resources and responsibility to do research and develop standards that can be broadly applied across the country. States rely on EPA to make such regional and national policy decisions, since doing so would require many more resources than most States have. Once EPA develops these standards, the States can then use the standards and the resulting rules promulgated by EPA to develop a locally-specific plan to improve air quality.

Question 2. From the State and local government point of view, what needs to be improved in the Act in order to provide you more flexibility and responsibility?

Response. Of major concern to the State of Georgia is the specificity with which the Act outlines and requires control measures for ozone nonattainment areas. It seems that in the Year 2000 these "one-size-fits-all" solutions—such as requiring Federal reformulated gasoline—may have outlived their usefulness. There is little question that the specific control measures outlined in the Act helped facilitate the attainment of the 1-hour ozone air quality standard by a large number of areas classified nonattainment under the 1990 Amendments to the Act. The controls may, however, have reached a point of diminishing returns in at least some of the areas that still remain nonattainment for ozone. These areas are, for the most part, larger urban areas with individual characteristics that require individualized approaches to solving their ozone problems.

For example, the Section 181 reclassification provisions which would require Atlanta and other areas to "bump up" to higher ozone area classifications result in mandated control measures that do not make sense for all areas. Atlanta would be especially adversely affected by these control measures because "bump up" to a "severe nonattainment area" would require Atlanta to use Federal reformulated gasoline (RFG). This formulation of gasoline is simply not appropriate for Atlanta, because it reduces volatile organic compounds (VOCs), not oxides of nitrogen (NO_X), the problem in Atlanta.

RFG, if required in Georgia, would not only be less effective in combating Atlanta's ozone pollution but would also be more costly. Under the Federal Phase 2 RFG program, which started January 1 of this year, gasoline sold in RFG areas will reduce NO_X emissions by up to 8.8 percent at a cost of about 4 to 6 cents per gallon, as estimated by the U.S. Environmental Protection Agency. Compared with the Georgia low sulfur gasoline that is slated for arrival in 2003, the implementation of Phase 2 RFG in the Atlanta area would result in a fuel at least 27 percent less effective in reducing NO_X at about twice the incremental cost. Federal Phase 2 RFG is not the right fuel solution for Atlanta but might be forced on us by prescriptive Clean Air Act requirements and EPA's limited discretion. This is just one example of the way that EPA and the States need more flexibility and discretion to utilize new developments in science and technology and to take advantage of what we are learning about the successes of voluntary control measures. These could be solutions that were not available or recognized in 1990. They could also be multi-state, regional solutions that require more time to implement than single-state plans.

Question 3. When the Clean Air program began in the 1970's, no one had much experience. When the Act was amended in 1990, the States had little experience compared to the Federal Government. With the experience and expertise of everyone today, what parts of the Federal program can effectively be delegated to the States?

Response. Georgia believes that as a whole, programs now delegated to the States are sufficient.

Question 4. I believe the trading program for acid rain has worked well. We are constantly being told we should expand the free market concepts of the Clean Air Act. My question is in which areas of the Act would a free market approach work?

Response. Georgia agrees that a free market trading approach has worked well for acid rain pollutants. This approach could probably also work well for regional

NO_X reductions impacting urban ozone nonattainment areas and for reducing regional haze.

As a caveat, however, it seems that the free market approach works best for large national or regional areas, where an overall reduction in pollutants is needed to solve a large air quality problem. Such programs become less effective in smaller areas where individual sources or groups of sources can have localized impacts. Congress should also be mindful that such programs require significant additional resources to administer.

ENDNOTE

59 Fed. Reg. 7810 (1994).

RESPONSES BY RON METHIER TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. What would be the consequences to your State if EPA moves forward with designations of "nonattainment areas" under the 8-hour national ambient air quality standard for ozone before the Supreme Court renders a decision in the case?

Response. If the 8-hour national ambient air quality standard is upheld, Georgia will have three additional ozone nonattainment areas in addition to Atlanta. Simply put, if EPA designates these areas nonattainment, and the Supreme Court eventually strikes down the standards, Georgia may have unnecessarily wasted time and resources in response to these designations. That said, we understand that such premature designation is no longer an option, as a result of the recent Appropriations bill, H.R. 4635, which effectively bars EPA from designating these areas before U.S. Supreme Court action.

H.R. 4635 has reduced some of the uncertainty for States. Nonetheless, the whole situation makes it difficult for Georgia to properly plan. The eventual timing of designations should reflect the time needed for Georgia, as well as other States, transportation planning agencies and the regulated community to meet the new nonattainment area requirements with as smooth a transition as possible, while still maintaining progress on meeting those standards.

The timing involved in the eventual designations is very important. The earlier the designations, the less time States will have to prepare for this new rule. Georgia, like most other States, is proceeding with the initial planning activities to prepare for whatever the outcome may be. This includes evaluating air monitoring data, improving emission inventories of the ozone-forming pollutants, and developing the tools and relationships needed to work with local transportation planning agencies in these new areas that will be faced with planning for conformity. This period of uncertainty has minimized Georgia's effectiveness in all of these areas, since we are balancing our resources to work on this rule—that may or may not become effective—with other more certain rules we must implement now.

Question 2. Is EPA providing sufficient resources currently, as well as commitments for future resources, to conduct appropriate ambient air monitoring within your State, including monitoring of fine particulate matter and determination of the composition of fine particulate matter in the air?

Response. Initial necessary funding is adequate. Future necessary funding is uncertain. Congress has ensured so far that funding has been sufficient to begin monitoring for the fine particulate matter network. Without assurances of continued funding, however, the ability to maintain such monitoring is unclear.

In many cases, such as providing the monitoring equipment, the training required to operate that equipment, or decisions on implementation, EPA has not been timely. This has resulted in less time for States to act, delaying the collection of some data that will be required to determine whether areas are meeting the standard and what the possible causes of non-compliance may be. For example, new speciation monitors have now been delivered and are ready to operate to better determine the composition of fine particulate matter. Georgia has been unable, however, to obtain the training required to properly operate this equipment. EPA, due to insufficient resources, is unable to offer enough training courses. This will delay our ability to begin gathering this important data.

Question 3. Is EPA providing adequate flexibility and appropriate guidance to State and local air pollution agencies to administer the program for operating permits under Title V of the Clean Air Act?

Response. No. EPA has provided guidance to State and local permitting agencies relating to the implementation of Title V, some of which was intended to provide flexibility to State and local agencies. Much of this guidance, however, was not provided on a timely basis.

EPA has had to issue dozens of guidance memos and is working on a third White Paper to interpret the Part 70 regulations. As a result of a fairly tight schedule imposed by Title V for States to submit Title V plans, for facilities to submit applications, and to issue all Title V permits, much of this guidance has come relatively close to or after the statutory deadlines. For example:

• EPA issued "Questions and Answers—Operating Permits Program" only 4 months before the deadline for States to develop plans;

• EPA issued White Paper 2 dealing with the development of permit applications 4 months before companies were required to submit completed applications;

• EPA is still working on two documents related to the content of Title V permits when approximately 50 percent of all Title V permits nationwide have already been issued.

As a result of EPA's delay, permitting agencies have been forced to develop and implement their Title V programs without guidance, only to later be faced with EPA guidance that is contradictory to developed, and implemented, programs.

A solution to this problem may be to provide more realistic deadlines, by extending the statutory requirements for initial permit issuance and for full program approval. Such an extension would allow EPA additional time to finalize guidance currently under development and to promulgate the proposed revisions to Part 70. It would also allow State and local permitting agencies to complete the initial Title V permit issuance in a reasonable and consistent fashion.

Question 4. Are EPA's regulations under the Act sufficiently clear, consistent and timely to allow your State to properly implement Clean Air Act programs for which it is responsible?

Response. No. EPA is not always timely, as evidenced by so many court-ordered deadlines for new actions and rules. These late actions adversely affect Georgia, which relies on these national rules in developing its State implementation plans to meet air quality standards. If Georgia is late with these plans the Act mandates sanctions, even though there are no such penalties for late EPA action.

Many of EPA's rules are overly complex. It takes a battery of State engineers, private consultants, and lawyers, to develop, review and issue many new industrial air permits. And even then, as can be seen with EPA national enforcement actions on power plants, the wood products industry, and others, interpretation of the rules can vary. This has proven very disruptive to Georgia's air quality planning and for the regulated community in Georgia. Transportation conformity rules, also, have proven to be unclear, resulting in disruption and lawsuits in Atlanta and many other areas.

There are many aspects of the Title V regulations that are unclear and require additional guidance. EPA has issued close to 40 national policy guidance memos and is about to issue its third White Paper on Title V. As is discussed in the previous answer, many of these guidance documents have not been timely.

An important point to remember here is that EPA, like the States, is underfunded to perform the broad range of responsibilities needed to implement the Clean Air Act. This has, no doubt, limited EPA's ability to act in a more timely manner with clear, consistent regulations.

RESPONSES BY RON METHIER TO ADDITIONAL QUESTIONS FROM SENATOR BAUCUS

Question 1. What is the fee (per ton of emissions) which your State currently charges for permitting under Title V of the Clean Air Act? How much does that generate annually and what is your State's annual budget for permit activities, implementation and enforcement matters, emissions and ambient monitoring, modeling, analyses, demonstration, inventory preparation and emissions tracking, relating to air quality? What, if any, additional categories of spending are necessary to support air quality programs?

Response. Georgia currently charges a fee of $28/ton for calendar year emissions of permitted Title V major sources. Georgia does not have a Title V permit application fee. In State Fiscal Year 2000 (the latest available), we collected $7.00 million in Title V fees. The total FY2000 budget for all air quality related activities (excluding the vehicle emission inspection and maintenance program, which is funded by emission inspection fees) was $14.54 million. The air quality related activities that are not covered by Title V fees are supported by Federal grants, non-Title V permit fees from Acid Rain sources, and State funding. Beginning in fiscal year 2001, the non-Title V Acid Rain fees will become Title V fees and will only be available to fund Title V eligible permitting activities.

There are a number of federally required programs (such as development and implementation of State implementation plans for attainment and new source permitting required by Parts C and D of Title I) that are not eligible to use Title V permit

fees. With the conversion of Acid Rain fees to Title V fees and the continued growth of non-Title V fundable activities, Georgia will need to identify other funding mechanisms if these programs are to be carried out.

Question 2. Flexibility was mentioned repeatedly during the hearing as necessary for efficient conduct of States' programs. The Clean Air Act Amendments of 1990 created relatively strict deadlines and established numerous requirements largely because insufficient progress had been made prior to 1990 in achieving attainment. How can we be certain that increasing flexibility will not result in slowing current progress? What specific changes in the Act would be necessary to enhance flexibility yet avert backsliding?

Response. Georgia is concerned with achieving the goals of the Clean Air Act (Act) as expeditiously as possible. We believe, however, that allowing States the flexibility to develop State implementation plans (SIPs) using that mix of controls that the State has determined are necessary to achieve those goals, versus the imposition of federally-mandated controls, properly delegates that responsibility to the States, without slowing progress toward those goals.

Georgia agrees that the deadlines and mandates of the 1990 amendments to the Act were necessary due to the lack of progress in many areas up to that time. Some of these deadlines, however, have proven to be unachievable and some of the mandated controls have outlived their usefulness. Georgia's experience attempting to attain the 1-hour ambient air quality standard for ozone, while dealing with the issue of transport, illustrates both of these points.

Since 1990, we have learned at least two important facts about ozone. First, much of the lack of progress toward achieving the 1-hour ozone standard stemmed from our limited understanding of how ground level ozone is really formed. Second, Federal mandates requiring specific control measures—a "one-size-fits-all" approach, such as reformulated gasoline (RFG) in section 211(k)—make less sense for some ozone nonattainment areas, such as Atlanta, because of that area's unique situation.

Of all the criteria air pollutants, ozone is the most complicated in its formation and control. The mandates and deadlines in the 1990 amendments forced EPA and the States to work aggressively on the ozone problem to gain a better understanding of possible causes and solutions. Through the Ozone Transport Assessment Group (OTAG), convened by EPA in 1995, the EPA, 37 eastern States, and stakeholders worked under tight deadlines to try to obtain a much better understanding of the causes of ozone, the significant effect of transported ozone and ozone precursors (oxides of nitrogen or NO_X and volatile organic compounds or VOCs), and to develop possible solutions. Unfortunately, even with its aggressive schedule, OTAG was not able to finish its work in time to help serious nonattainment areas, such as Atlanta, achieve attainment by the deadlines in the Act. (See also answer to question 3 below.) Atlanta now faces possible "bump up" to the "severe" classification, which mandates the use of RFG.

Ten years after the 1990 amendments, we also have a better understanding of what really needs to be done for Atlanta to attain the 1-hour ozone standard, i.e., that the control of NO_X emissions is key. RFG will not control NO_X emissions as well as the low sulfur gasoline proposed in Georgia's attainment SIP, which is also estimated to be less costly to the consumer than RFG.

If Atlanta is bumped up to "severe," and we don't believe it should be (see answer to question 3 below), Georgia should have the flexibility to opt out of RFG and use its low sulfur gasoline so long as it will achieve attainment as expeditiously as practicable, but no later than the attainment date in the Act. To allow nonattainment areas to opt out of the RFG requirement, we recommend that Congress revise section 211 (k)(10)(D) of the Act as follows:

(D) Covered area.— The 9 ozone nonattainment areas having a 1980 population in excess of 250,000 and having the highest ozone design value during the period 1987 through 1989 shall be "covered areas" for purposes of this subsection.

Effective 1 year after the reclassification of any ozone nonattainment area as a Severe ozone nonattainment area under section 7511 (b) of this title, such Severe area shall also be a "covered area" for purposes of this subsection; *provided, however, that no area shall be deemed a "covered area" pursuant to this paragraph if the current or proposed implementation plan for that area includes State or local gasoline rules, and if the Administrator has determined that gasoline conforming to those State or local rules will achieve the necessary reduction in ozone or ozone precursors at least as expeditiously as the federally-certified gasoline.*

Another area in which we believe the States should be granted flexibility is in the utilization of multi-pollutant control measures, e.g., in complying with the 1-hour ozone standard and the particulate matter standard. Such flexibility would encourage more multi-pollutant planning and should reduce the cost of compliance. We

know, for example, that Atlanta's ozone and fine particulate matter levels are both high. There are many control measures we could consider that help control both of these pollutants, yet the planning deadlines and SIP submittal dates in the Act as it now stands may force Georgia to utilize single-pollutant control measures in order to meet those near-term deadlines. If, instead, we had some additional time to plan, we could utilize multi-pollutant controls that would achieve overall cleaner air at a somewhat later date.

EPA and the States should be provided the flexibility to set reasonable, yet aggressive timeliness for attainment of the air quality standards for multiple pollutants in the most cost-effective way, so long as public health will be protected.

Question 3. Transport of ozone and other long-range pollutants continues to be a serious problem for public health and for State and local air quality planners. Do you have any suggestions for ways that the Act could better deal with this phenomenon?

Response. Yes. Based on what we have learned about transport since 1990 through the OTAG process and the initial work on regional haze, we now understand that regional analysis and planning are much more critical to meeting air quality goals than we ever thought. The Act should recognize this and build in sufficient time and proper mechanisms to deal with transport in the most effective way. Again, Georgia's experience in trying to attain the 1-hour ozone standard while dealing with the issue of transport illustrates the need to revise the Act so that nonattainment areas affected by transport are not unfairly penalized for circumstances entirely beyond their control.

Congress, through the 1990 amendments to the Act, provided the States and EPA with a variety of measures to address the problems caused by the transport of ozone and ozone precursors. A lack of knowledge regarding ozone formation, transport, and control, however, rendered these statutory tools all but useless for most of the 1990's.

Specifically, section 110(a)(2)(D) of the Act required States to ensure that their SIPs included sufficient controls to prevent local emissions from contributing significantly to nonattainment in downwind States. In addition, section 126(b) authorized States to petition EPA for a finding that any major source or group of stationary sources emits or would emit any air pollutant in violation of section 110(a)(2)(D). Last, pursuant to sections 176A and 184, States could petition EPA to convene an interstate ozone transport commission(s), if EPA had reason to believe that the transport of ozone or ozone precursors from one or more States contributed significantly to a violation of a national ambient air quality standard in one or more other States. All of these tools, however, required the States to have sufficient emissions data and modeling technology to utilize them. Additionally, these tools would have had to have been utilized early in the process so that the necessary controls on transport were in place prior to the States' attainment dates. Because many States did not have the resources and expertise to acquire such data and/or perform such modeling, they were unable to use the tools provided by Congress.

Georgia, like most eastern States, chose instead to deal with the ozone transport problem by participating in OTAG. However, OTAG did not conclude its work until June 1997, and while OTAG was able to agree that NO_X reductions were the key to transport, the group was not able to propose specific additional controls. As a result, the final NO_X SIP Call was not issued by EPA until October 1998, and its reductions will not take effect until May 2004. For Atlanta, Georgia and other "serious" nonattainment areas, these control measures are too late, because their statutory attainment date of November 15, 1999, has already passed. Because Atlanta has missed its attainment date, it is faced with possible bump up to "severe" pursuant to section 181 (b)(2) of the Act, even though its air quality has actually improved.

To resolve the inequities in the Act related to transport, EPA adopted a policy in March 1999 to extend the attainment dates of ozone nonattainment areas, like Atlanta, significantly affected by transport. *See* Extension of Attainment Dates for Downwind Transport Areas, 64 Fed. Reg. 14,441 (Mar. 25, 1999). We recommend that Congress either extend the attainment dates in the Act where the failure to attain is a result of transport, or make it clear that EPA has the authority to extend in those circumstances. EPA's Extension Policy can be adopted into the Act by adding the following paragraph to section 181 (a):

(6) Upon petition of a State, the Administrator may grant an extension of the attainment date specified in table 1 of paragraph (1) of this subsection for nonattainment areas affected by transport from either an upwind area in the same State with a later attainment date or an upwind area in another State that significantly con-

tributes to nonattainment; any such extension shall provide for attainment of the national ambient air quality standard for ozone as expeditiously as practicable.

Question 4. You expressed concern about EPA's "bump-up" policy and its impact on the Georgia economy. Congress created those nonattainment designation categories and their requirements to encourage States to act expeditiously to control pollution. If the air that Georgians are breathing falls into the category that Congress designated, why shouldn't "bump-up" occur?

Response. The Atlanta nonattainment area should not be bumped up to "severe," because bump up will not result in attainment of the 1-hour ozone standard any sooner, but will actually hinder attainment. Thus, the only effects of bump up will be punitive.

In 1990, the Atlanta area was re-designated as nonattainment for the 1-hour ozone standard and its air quality classified as "serious." Since then, as a result of strong local control measures, Atlanta's air has been cleaned up to the "moderate" level, i.e., the most recent design value for the Atlanta area is 0.157 ppm, which if Atlanta was classified today pursuant to section 179 of the Act, Atlanta's air quality would be classified as "moderate." This improvement in air quality was achieved in spite of the significant contribution to nonattainment of ozone and ozone precursors transported into Atlanta from other States. (*See* footnote 2.)

Not only would bumping up to a "severe" classification not reflect the air quality in Atlanta, it would also not result in any new ozone control measures that will achieve attainment sooner. In fact, the mandated RFG requirement for "severe" areas in section 182 of the Act will impede attainment, because RFG does not address NO_X as well as Georgia's low sulfur gasoline. Atlanta's current attainment SIP, using Georgia's low sulfur gasoline and factoring in the new controls provided by the NO_X SIP Call, demonstrates attainment of the 1-hour ozone standard in 2003; however, that date will probably have to be revised to 2004 based on the extension for compliance with the NO_X SIP Call to 2004. Even so, Atlanta's projected attainment date of 2004 is sooner than the attainment deadline in the Act for severe areas of November 15, 2005.

Bumping up Atlanta to "severe" and requiring Georgia to adopt the additional control measures mandated for "severe" areas, when Georgia already has a plan for attainment, will unduly penalize the Atlanta nonattainment area for transported pollution beyond Georgia's control. More importantly, the time and expense to adopt such measures will be for naught, because such measures will become superfluous once the NO_X SIP Call is implemented.

ENDNOTES

1. EPA's document entitled "Air Quality Modeling Technical Support Document for the NO_X SIP Call," dated September 23, 1998, shows that, on average, over 20 percent of exceedances of the 1-hour ozone standard in the Atlanta, Georgia nonattainment area are caused by emissions from sources in other States.

2. The NO_X SIP Call was challenged and substantially upheld in *Michigan* v. *EPA*, D.C. Cir., No. 98–1497. Pursuant to an Order of this Court entered on August 30, 2000, the deadline for implementation of the controls required by the NO_X SIP Call was extended from May 1, 2003, to May 21, 2004.

3. Although EPA has not yet been sued over its failure to "bump up" Atlanta, EPA has received a notice of intent to sue from Georgians for Transportation Alternatives, the Georgia Coalition for the People's Agenda, Southern Organizing Committee for Economic and Social Justice, and the Sierra Club.

STATEMENT OF RICHARD P. HOMRIGHAUSEN, MAYOR, DOVER, OHIO

Chairman Inhofe, Senator Graham, members of the subcommittee, thank you for this opportunity to testify before you today on the important subject of reauthorization of the Clean Air Act. As a mayor from the heart of the industrial Midwest, I know both the value that citizens have received from the passage of the Clean Air Act, and its amendments, as well as the hardships imposed from inflexible, overzealous and overreaching administration.

Dover, Ohio has a population of about 13,000—with more than 900 commercial and industrial entities calling Dover home. As you would expect, our goal is to provide reliable, affordable power to our consumers—including helping our local businesses remain viable and attracting new development. One of the primary attractions that Dover holds is our status as a municipal electric community. The city of Dover also owns and operates a 14-megawatt coal-fired power plant (which is co-fired with natural gas), a 16-megawatt gas turbine, a 2.5-megawatt diesel generator

and we recently installed six 1.8-megawatt diesel generators in a joint effort with AMP-Ohio and other municipal electric communities. Over the last 9 years as mayor, and as a prior member of city council, I have had considerable experience (and frustration) in working with the EPA on the regulatory treatment of our small electric utility.

In addition to our local generation, we purchase power through and are a member of American Municipal Power-Ohio (AMP-Ohio), the nonprofit wholesale power supplier and services provider for 78 municipal electric systems in Ohio, three in Pennsylvania and two in West Virginia. AMP-Ohio's largest generating resource is the Gorsuch Station, a 213-megawatt coal-fired facility located in Marietta, Ohio.

As a small-town mayor, local municipal utility operator of a small coal-fired power plant, participant in AMP-Ohio and president of the Ohio Municipal Electric Association (OMEA) Board of Directors, I want to share with you my observations on the Clean Air Act—its successes and failures—as well as my views on how to fix the problems that communities like mine are experiencing.

I shared many of these thoughts in testimony before your subcommittee on April 29, 1997, when I testified about concerns regarding EPA's then-proposed ozone and particulate matter standards.

OVERVIEW OF THE CLEAN AIR ACT

As the members of this subcommittee are aware, the Clean Air Act was passed in 1970 with the goal of achieving and maintaining healthy air quality in the United States. The Act established a process for the U.S. Environmental Protection Agency (EPA) to develop ambient standards for various "criteria" pollutants, with the standards set to protect human health and welfare. Once these standards were developed, an evaluation process was employed by EPA and the States to determine which areas where not in compliance. The States were to develop enforceable State Implementation Plans (SIPs) for achieving and maintaining these National Ambient Air Quality Standards (NAAQS), including the establishment of emissions limits for those existing major and minor air pollution sources thought to be contributing to a non-attainment problem. EPA then set emissions limits—or New Source Performance Standards (NSPS)—for new major air pollution sources (and major rebuilds).

A key feature of the Clean Air Act deserves to be spotlighted—Congress did not direct EPA to regulate existing sources (e.g., pre-1970). Rather, EPA set the ambient air standards and left to the States the responsibility for meeting those standards. This division of responsibility between EPA and the States was carefully crafted (and maintained through subsequent amendments to the Act), and has been repeatedly threatened by recent EPA actions.

The 1977 amendments to the Clean Air Act created an advanced set of regulation for new major sources of pollution and established a three-part test for new sources—first, it cannot cause an exceedance of the ambient air standards; second, it must meet the applicable Prevention of Significant Deterioration (PSD) standard; and, third, it must utilize the Best Available Control Technology (BACT).

As you know, among other provisions, the 1990 Clean Air Act Amendments created the innovative "cap and trade" acid rain program.

THE SUCCESSES

Under the Clean Air Act, significant improvement has been made in air quality. The benefits to public health, agriculture, building and "enjoyment of life" are considerable. As a local official, I must emphasize that these accomplishments were realized largely through the efforts of State and local governments through innovative development and implementation of the SIP program. These improvements must continue. There are still areas of non-attainment in our country. Furthermore, we need to provide for continued economic expansion without degrading our air quality and associated public health and welfare. However, these further improvements must continue to be driven at the State and local level—not dictated by a central bureaucracy—and must feature a balanced cost/benefit approach.

The second crowning success of the Clean Air Act is the innovative sulfur dioxide (SO_2) trading program. This "market approach" has been highly successful overall, with the cost of compliance being far less than what would have resulted from the traditional "command and control" approach. The successful SO_2 approach to emission reductions should be extended to other pollutants.

THE FAILURES

Regrettably, my list of Clean Air Act failures is much longer than my list of successes. Following is a list of key areas in which I believe Congress and the EPA must seek improvement:

1. Minimizing Impacts on Small Business and Local Government

Under the Unfunded Mandates Act, the Small Business Regulatory Enforcement Fairness Act (SBREFA) and similar provisions, EPA and other Federal agencies are to consider and respond to the specific and differing needs of small business and local government. Regrettably, all too often the needs of these interests are ignored, with EPA imposing a "cookie cutter" approach where the costs of compliance are as high for a small facility or operator as they are for facilities many times larger. EPA's selection of particulate matter ($PM_{2.5}$) and 8-hour ozone standards are prime examples of actions taken without regard to the impacts on small business and local government.

Moreover, the laws intended to provide special recognition for the unique needs of small business and local government often have little impact, because EPA circumvents their responsibility under these provisions by delegating final action to the States—who do not operate under the same provisions and procedural requirements.

2. Fostering Participation and Market-based Solutions

The Title IV acid rain program exempts units under 25 MW. The Act encourages their participation in the market-based SO_2 reductions by allowing these units to "opt in" to the program—with the assumption that the units would be shut down and the operator could use the "allowances" to secure an alternative power supply. Regrettably, despite the diligent efforts of AMP-Ohio, OMEA and others, EPA has not constructed the "opt in" program in a workable manner. They have failed to foster participation in the market-based program by small generators and have consequently penalized us and failed to pursue a cost-effective means of bringing numerous small emitters under the Act's acid rain program.

3. Exceeding Agency Authority

In adopting and amending the Clean Air Act, Congress did not give EPA the authority to set emissions limits for "grandfathered" plants. Yet EPA has taken numerous approaches to target these plants and attempt to force their retirement. It is worth noting that EPA has frequently overstepped its congressionally-granted authority, earning the dubious distinction of losing the majority of appeals of its rules to the D.C. Circuit.

However, even if eventually overturned by the Court, EPA's actions have a serious chilling effect on our industry and economy. For instance, as a result of EPA's unilateral reinterpretation of the NSPS and NSR rules, utility routine maintenance and plant improvements have virtually come to a halt, thereby threatening the reliability of the Nation's electric system.

EPA also appears to be attempting to exceed its authority through back-door imposition of carbon dioxide (CO_2) limits—even though EPA lacks authority to regulate CO_2 and Congress has expressly taken action to preclude back-door implementation of the Kyoto Treaty. Under a 1996 proposed rule to revise the NSR program, EPA is attempting to get coal-burning utilities to "voluntarily" agree to a suite of emissions reductions—including CO_2—to obtain relief from what undoubtedly will be a stringent new NSR rule.

4. Usurping State Authority

The Act creates a careful partnership between EPA and the States. In general, EPA sets the broad standard, and the States have the flexibility to implement various means of achieving that standard. However, EPA has increasingly undermined the authority of the States by seeking to impose plant-specific limits on "grandfathered" plants, overturning State BACT determinations, and indiscriminate use of its veto power over State Title V permitting decisions.

5. Departing From "Technological Feasibility" and "Cost Effectiveness"

Since its inception, Congress expected that technological feasibility and cost effectiveness would be taken into account in establishing NSPS and the determination of BACT. Historically, EPA and the States have generally balanced pollution control technology and cost, and the required BACT removal efficiency standards have improved impressively. However, in 1998, EPA issued revised nitrogen oxide (NO_X) standards for utility and industrial boilers, basing the standard on a single, very expensive control system regardless of boiler or fuel type. In addition, several southeastern States have recently had their BACT determinations overturned by EPA.

6. Failure to Employ a Multimedia Approach

As the recent experience with methyl butyl tertiary ether (MTBE) standards demonstrates, EPA's failure to take a "holistic" approach to pollution prevention and regulation leads to deployment of technologies to reduce one form of pollutant that

merely causes or contributes to another source problem. By taking a multimedia (e.g., air, water, waste) approach, the agency will maximize the environmental benefits of its actions and facility managers will avoid conflicting requirements and have the flexibility needed to meet permit limitations in a manner best suited to a given facility.

7. Disregard for the Energy Needs of The Country

I understand that EPA's mission is not to provide for the energy sufficiency of the country. However, recent regulatory and enforcement actions by the agency suggest an agenda to prevent future development of coal-fired generation and reduction or elimination of existing coal-fired generation. The economy is growing at a rapid clip, and the past few summers have demonstrated the strains that occur from inadequate supply. The majority of new facilities that are being built are gas-fired and built to serve "peak" demand. The lack of base-load plants and the over-dependence on a single fuel source should be of concern to all of us.

RECOMMENDATIONS

Mr. Chairman, members of the subcommittee, I have shared with you numerous concerns. I want to also share with you my views on how to help fix these deficiencies. In some cases, statutory revisions are necessary; in other cases, I believe that the EPA needs simply to be told it has "crossed the line".

I offer the following suggestions:

- Revise SBREFA by creating an independent advisory commission to develop binding regulations for SBREFA implementation and to prevent EPA efforts to circumvent SBREFA by delegating actions to the States. In addition, the "direct/indirect" standards for review should be revised so that the EPA cannot unfairly determine that the impacted community is too small to warrant SBREFA treatment.
- Expand the use of market-based mechanisms to achieve pollution reduction objectives and adopt language to fix the acid rain "opt in" program.
- Continue rigorous oversight—such as this hearing—to prevent EPA from overreaching its statutory authority and take action (such as the Byrd-Hagel resolution and Knollenberg funding limitation) when necessary to curb agency efforts to create new regulations and programs without congressional authorization.
- Reaffirm the role of the States in implementing key elements of the Act.
- Explicitly amend the Act to require the use of scientifically-supported standards and technologies and impose cost-effectiveness tests on agency actions.
- Adopt multimedia pollution management in order to encourage innovation, flexibility and cost-effectiveness.
- Ensure that the country maintains a diverse fuel supply.

CONCLUSION

The Clean Air Act has worked well in many of the areas envisioned by Congress, including developing a mechanism for setting and attaining ambient air standards. When standards are based on scientific consensus and designed to address human health and welfare, the system works. Most criticisms of the Clean Air Act are actually criticisms of EPA's efforts to use the Act to achieve objectives and impose restrictions beyond congressional intent.

STATEMENT OF MARCIA WILLHITE, ASSISTANT CHIEF OF ENVIRONMENTAL HEALTH, LINCOLN-LANCASTER COUNTY HEALTH DEPARTMENT

Mr. Chairman and members of the subcommittee, I am Marcia Willhite, Assistant Chief of Environmental Health at the Lincoln-Lancaster County Health Department in Lincoln, Nebraska. Thank you for this opportunity to provide some comments on the Clean Air Act as you begin considering its reauthorization.

Our local health department's air quality program administers the Clean Air Act within Lancaster County, Nebraska. Lancaster County is home to about 240,000 people and includes air pollution sources ranging from small dry cleaners to Goodyear Tire and Rubber to grain elevators to a coal-fired power plant. We are currently in attainment of all National Ambient Air Quality Standards and anticipate remaining so. Our scope of activities includes all levels of air permitting, compliance inspections, enforcement, air toxics, collection of emission inventories, air quality planning and technical assistance. Our guiding principle is pollution prevention. We have a separately delegated Title V program supported by fees which we collect. We are an implementing agency for the Risk Management Planning program (112r). In summary, our local health department administrates a small air quality program

which is experienced in administering a large range of air quality program activities.

The main message I bring to you today from Lincoln, Nebraska is that the Clean Air Act is working. It is holding the line on air emissions increases in our community. Title V permits, which contain all applicable air quality requirements in one document for easy reference, are causing regulated entities to pay closer attention to those requirements. Air toxics standards are being implemented and complied with. We have received virtually no complaints from the 120 regulated businesses in our community about the process or substance of Clean Air Act requirements. Light- and heavy-duty vehicle and low-sulfur fuel standards are coming on-line in the next few years which will reduce the air quality impact of increasing vehicle miles traveled which, in Lancaster County, is outpacing population growth by more than 3 to 1.

The secondary message I offer to you today is that there are some concepts we, as a local air quality program in a growing community, encourage Congress to consider as the Clean Air Act is reauthorized.

Prevention-based strategies.—The Clean Air Act is a tool for public health risk reduction: the greater the air pollution reduction, the greater the risk reduction. Interestingly, the greatest air pollution reductions achieved in Lancaster County in the past 5 or 6 years were not mandated by the Clean Air Act. Between 1994 and 2000, a 53 percent reduction in hazardous air pollutants and a 43 percent reduction in volatile organic compounds occurred because of voluntary choices made by businesses to use less toxic materials and less-polluting processes. The coal-fired power plant in Lancaster County even reduced sulfur dioxide emissions by 2000 tons per year voluntarily by switching to ultra-low sulfur coal. These choices to prevent pollution rather than control it need to be encouraged and rewarded. Somehow, the lesson learned in Lancaster County, that significant environmental benefits occur through voluntary pollution prevention, needs to be applied to the Clean Air Act of the 21st century. Specifically, incentives for pollution prevention need to be incorporated for those regulated businesses willing to take that option or to go beyond the minimum air quality requirements.

Another area where prevention-based strategies are needed is in the area of maintaining clean air while cities grow. Lincoln is currently an attainment area. However, in the next 20–30 years, our population is likely to increase substantially. The land use choices and transportation plans made today may affect our ability to maintain non-attainment status in the future. The tools and funding to support assessment, innovation and "best management practices" to reduce air quality impacts of transportation should be available to communities like Lincoln that are trying to prevent unhealthy air as well as to areas that are solving air quality problems.

Multi-Pollutant Strategies.—The next version of the Clean Air Act needs to achieve risk reduction more efficiently and comprehensively by incorporating multi-pollutant control strategies. Certain source sectors, mainly combustion sources such as utilities and internal combustion engines (mobile and stationary), are significant sources of criteria and hazardous air pollutants and greenhouse gases. Harmonizing control options to simultaneously reduce all pollutants of concern for a particular sector is easier to implement for both industry and State/local regulatory agencies and is more cost-effective.

Examples of opportunities for better harmonization are plentiful. Coal-fired power plants have gone through separate requirements and permitting for acid rain and NO_X reduction and are likely to face regulation for air toxics reduction. Similarly, the recent light- and heavy-duty vehicle and fuel standards are focused on ozone precursors. Had they been optimized to include air toxics reduction as well, a separate rulemaking process under 202 (1) would not have been necessary. Reformulated gasoline (RFG), although intended for ozone reduction, has been effective in reducing levels of air toxics such as benzene, which national assessments indicate is a concern in every county in the United States. Yet, RFG may only be sold in ozone non-attainment areas. The next version of the Clean Air Act should be structured to enable multi-pollutant strategies for air pollution management.

Authorize State and Local Air Toxics Risk Reduction.— The current Clean Air Act calls for a substantial reduction in cancer risk from air toxics in urban areas. To implement this, the U.S. Environmental Protection Agency (EPA) has drafted a strategy centered on identifying the pollutants and sources which contribute most significantly to public health risk based on national, regional or local-level assessments. In this draft strategy, EPA would address sources and risks ranking highly on a national-level assessment and States or localities would address risks and sources of high priority based on regional or local assessment. This is an efficient, common sense approach. Although EPA is authorized to reduce risk through national standards, the mandate and authority under the Clean Air Act for States or

localities to require actions which reduce air toxics emissions identified as posing unacceptable health risk is unclear. Thus, in the reauthorized Clean Air Act, a clear mandate and authority for States and localities to cause risk-based reductions would assist our local community when national standards do not address our most pressing air toxics risks.

While other aspects of the Clean Air Act could be addressed, we have purposely limited our community's comments to these three key issues that we, as a local air quality program in Lincoln-Lancaster County, Nebraska believe are of utmost importance. Please keep prevention-based strategies, multi-pollutant strategies, and authorizing State and local air toxics risk reduction in mind as you craft the reauthorization of the Clean Air Act.

Again, thank you for this opportunity to provide comments to this subcommittee. We hope you will consider these concepts worthy of further study. I will be happy to answer any questions you may have.

STATEMENT OF ZACH D. TAYLOR, EXECUTIVE DIRECTOR, ASSOCIATION OF CENTRAL OKLAHOMA GOVERNMENTS (ACOG)

I am Zach Taylor, Executive Director of the Association of Central Oklahoma Governments in Oklahoma City, which also serves as the Metropolitan Planning Organization under TEA–21. (Show clear jar with lid.) I brought you a breath of fresh air from Oklahoma in case you need it during this dialog.

The Central Oklahoma region has been in compliance with national ambient air quality standards for ozone since 1978. In addition, we have been in compliance with the standards for carbon monoxide since 1990. This accomplishment has been due to the continuing proactive efforts of our civic leaders, local businesses, government officials and residents. However, we are fearful that changes to the NAAQS for ozone and particulate matter in September 1997 will thwart the progress made by grass roots efforts in Central Oklahoma.

The last 3 years have brought exceptionally difficult weather to Central Oklahoma, in which the best efforts of our community haven't always been able to combat the power of Mother Nature. Hot, dry weather, coupled with a persistent high-pressure system permeated the region in the summers of 1998–2000. Though our region appears to remain in compliance, it is likely or inevitable that with another hot summer, we will violate the current National Ambient Air Quality Standards for ozone. Being labeled a "non-attainment" region, even a marginal one based on the EPA's definitions, would be an unfortunate label for the region to be tasked with, as it would wipe away years of proactive and concerted work from the citizenry to address this issue.

In addition, such a label would have major financial impact on our citizens; we estimate a cost of *at least* $43 million just for our motoring public, not to mention ramifications for our businesses.

As Congress addresses reauthorization of the Clean Air Act, we appreciate this opportunity to express some concerns from a heartland regional perspective:

(1) Consistent with the position of the Oklahoma Department of Environmental Quality, leaders in Central Oklahoma also support an 8-hour measuring standard for ground-level ozone. We believe that this mode of measuring allows for a more realistic method of gathering air quality data. However, we feel that the measure currently in place is too strict and limiting, and would favor a measure that is more scientifically sound. We urge that the EPA's Science Advisory Board revisit its studies regarding air quality standards, and that EPA take *smaller steps* in implementing the scientists' recommendations. (More specifically, the Board's recommendation for an ozone standard was *a range* of .07–.09 ppm. *If* more stringent requirements were shown to be scientifically justifiable, we would favor a more gradual implementation schedule, beginning with .09 ppm).

(2) Congress should allow States and local governments to use flexibility in determining the most effective control measures for their particular regions. Geography, climate, transport issues, in addition to the cultural values and habits of the people of a given area, are all factors that affect the success of given actions. Along those lines, we also encourage EPA to invest in additional research related to the effectiveness of various measures in different regions of the country.

(3) We strongly encourage national emphasis to be put on research and technological solutions rather than heavy-handed enforcement. We encourage national research for nationwide remedies, including new technologies for mitigating industrial pollution as well as mobile source pollution, such as the rapid acceleration of the use of alternative fuel vehicles (hybrid/dual powered, electric, compressed natural gas, propane and so forth).

(4) It is clear that current motor vehicle emission standards, including the new laws regarding light and heavy duty trucks and sport utility vehicles, will be necessary to continue to make progress on the clean air front. The positive effect of these new regulations are likely to have a dramatic effect in Oklahoma since a relatively large portion of our population is prone to driving trucks and SUVs. One thought would be to direct EPA to refrain from declaring new non-attainment areas until such time as the new mobile source emissions regulations have had time to make an impact.

(5) Then, there is the conformity "hammer". Should a region be declared non-attainment, the State and local governments in that area should be given ample time (at least 3 years) to adjust their transportation plans before Federal transportation dollars are withheld in the name of conformity. In the current Act, federally-funded transportation projects must be found to conform to State air quality plans before they are adopted, accepted, approved or funded. The dilemma, however, is that it takes several months to develop an emissions budget (requires an inventory of all emission sources and the use of a photochemical dispersion model to identify reductions through transportation control measures) which must be done before a draft State Implementation Plan is developed. Once a draft plan is on the table, it takes *at least* one legislative session to get the plan and pertinent laws approved by the State legislature, and still additional time to measure Transportation Improvement Programs (TIPs) against the State plan once it's approved. In Oklahoma, this process would take no fewer than 2 years and probably three. It is ludicrous for the Federal Government to hold up progress in a regional community, as long as good faith efforts in response to air quality have been made and are being made to work toward adoption and implementation of a plan.

(6) Because anomalous weather patterns have aggravated the region and the State for the past 3 years, we are particularly sensitive to how weather or other situations (such as wild fires in Mexico a couple of summers ago) can affect adversely local efforts to maintain clean air. Therefore, we ask that EPA expand its current guidelines and parameters regarding exceptional events such as those attributed to wildfires, industrial fires and accidents and other anthropogenic phenomenon that affect air quality conditions. Proposed guidance offered a few years ago by the EPA addressed this situation, but did not make it through the rulemaking process.

Thank you for listening. Thank you for your efforts to maintain the country's clean air status, but please keep in mind the economic and financial ramifications of your decisions. As long as there is true scientific basis for the decisions made in this regard, we will all be the winners. The local elected officials of ACOG recognize that we can't each live in a bubble, and we can't pass out jars of clean air to each of our citizens. Given that reality, we're anxious for your wisdom in finding solutions that will help us all breathe a little easier. Thank you.

NATIONAL ASSOCIATION OF LOCAL GOVERNMENT ENVIRONMENTAL PROFESSIONALS,
Washington, DC, October 11, 2000.

Hon. MAX BAUCUS,
Committee on Environment and Public Works,
U.S. Senate,
Washignton, DC.

DEAR SENATOR BAUCUS: In response to your invitation to submit written testimony regarding local government officials' perspectives on the Clean Air Act, I am writing on behalf of the National Association of Local Government Environmental Professionals (NALGEP) to submit testimony.

In July 2000, NALGEP joined with mayors and county officials from across America to issue a new report titled, "Profiles of Local Clean Air Innovation: Empowering Communities to Meet the Air Quality Challenges of the 21st Century." This NALGEP report provides the view of local environmental, economic development, transportation, and planning officials on how the Clean Air Act can help promote improved air quality through locally-driven innovation. The report finds that the Clean Air Act has already promoted substantial progress in cleaning the air, but that Federal environmental policy must provide more incentives, resources and flexibility for localities to improve air quality. The report emphasizes how air quality can be improved through new Federal/local/State partnerships, and through local innovation in smart growth, clean energy, transportation choice and pollution prevention.

To develop the report, NALGEP convened a "Clean Air Task Force" of 32 of the nation's leading local environmental and air quality managers. In coordination with the Clean Air Task Force, NALGEP interviewed more than 85 local officials to determine their views on how air quality can be improved for the long term. From these interviews, NALGEP developed 20 findings, 10 recommendations for action, and 20 profiles that illustrate local clean air innovation.

I am pleased to submit a copy of the report's executive summary, which provides the views of local government environmental officials across America on the important topic of cleaning the air in partnership with the Federal Government. Thank you for your invitation and for your consideration.

Sincerely,

KENNETH A. BROWN,
NALGEP Executive Director.

PROFILES OF LOCAL CLEAN AIR INNOVATION

Empowering Communities to Meet the Air Quality Challenges of the 21st Century

National Association of Local Government Environmental Professionals 2000

Clean Air Task Force

Bill Anderson, Environmental Services Supervisor, City of Minneapolis Department of Operations and Regulatory Services, Minnesota

Chris Bird, Director
Alachua County Environmental Protection Department, Florida

Brian Boerner, Director
City of Forth Worth Environmental Management Department, Texas

Timothy Brennan, Executive Director
Pioneer Valley Planning Commission Massachusetts

Carol Brown, Environment Coordinator
City of Chicago Department of Environment, Illinois

Jim Caldwell, Director
Montgomery County Department of Environmental Protection, Maryland

Cory Chadwick, Director
Hamilton County Department of Environment, Ohio

Robert Colby, Director
Chattanooga-Hamilton County Air Pollution Control Bureau, Tennessee

Elsa Coleman, Deputy Director
City of Portland Office of Transportation, Oregon

Peter Conrad, Planner
City of Baltimore Department of Planning, Maryland

Bruce Coward, Area and Mobile Sources Section Head, Miami-Dade County Department of Environmental Resources Management, Florida

Bryan Glascock, Director
City of Boston Air Pollution Control Commission, Massachusetts

Lavinia Gordon, Air Quality Projects Coordinator, City of Portland Office of Transportation, Oregon

Mark Gregor, Manager
City of Rochester Division of Environmental Quality, New York

Jim Gross, Monitoring and Analysis Supervisor, Regional Air Pollution Control Agency, Ohio

John Hills, Environmental Services Manager, Anaheim Public Utilities California

Robert Holm, Environmental Resources Administrator, City of Indianapolis Department of Public Works, Indiana (former)

Jacqueline Lentz, Air Quality Control Bureau Chief, City of Houston Department of Health and Human Services, Texas

Tony Malone, Air Quality Coordinator
Alachua County Environmental Protection Department, Florida

Rick Martin, Air Quality Director
City of Indianapolis Department of Public Works, Indiana

Angel Martinez, Air Quality Manager
City of Albuquerque Environmental Health Department, New Mexico

Randy Meyer, Environmental Affairs Manager, American Municipal Power – Ohio

Dennis Murphey, Director
City of Cincinnati Office of Environmental Management, Ohio

David Padgett, Director
Colorado Springs Utilities Environment, Health, and Safety Department, Colorado

John Paul, Supervisor
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Wendy Richmond-Powers, Conservation Program Specialist, City of Austin Planning, Environmental, and Conservation Services Department Texas

James Sadelfeld, Air Quality Manager
City of Cincinnati Office of Environmental Management, Ohio (retired)

Wayland Walker, Senior City Planner
City-County of Denver Department of Environmental Health, Colorado

Marcia Willhite, Assistant Chief
Lincoln-Lancaster County Health Department, Nebraska

Art Williams, Director
Air Pollution Control District of Jefferson County, Kentucky

Patrick Wong, Air Quality Management Chief, Miami-Dade County Department of Environmental Resources Management, Florida

Doug Yoder, Assistant Director, Miami-Dade County Department of Environmental Resources Management, Florida

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EXECUTIVE SUMMARY

Local governments across the nation are seeking new ways to clean the air and preserve local quality of life as they face tough air pollution challenges. Although Clean Air Act regulatory mandates since the early 1970s have resulted in substantial progress toward cleaner air, lasting approaches to improved air quality will require local innovation through the use of smart growth, transportation choice, clean energy, pollution prevention, regional collaboration, public participation, and other practices that current regulations do not foster. The National Association of Local Government Environmental Professionals (NALGEP) launched the Clean Air Partnership Project in 1999 to identify promising approaches to cleaner air at the local level and to promote federal and state policies and programs that can foster those approaches. This report, *Profiles of Local Clean Air Innovation*, presents the perspectives of local government officials who work every day to combat air pollution and create innovative programs to improve air quality.

Localities recognize that clean air is a foundation for preserving local quality of life, remaining economically competitive, and protecting the health of citizens

Across America, local governments play a key role in improving air quality in their communities. These localities recognize that clean air is a foundation for preserving local quality of life, remaining economically competitive, and protecting the health of citizens. However, localities face increasing air quality challenges from sprawl, mounting traffic congestion and vehicle emissions, and widespread emissions from industrial sources. There are increasing examples of local innovation taking place to address these air pollution challenges. This report profiles a number of innovative community-based initiatives and demonstrates the need for more incentives for these local activities.

Despite the progress achieved through controlling large smokestack and car emissions under the Clean Air Act, local environmental officials believe that one half of the clean air equation is still missing: incentives that empower communities to make innovative clean air practices a standard way of doing business at the local level. In fact, most localities believe that, although traditional Clean Air Act controls have led to cleaner air, federal and state air quality regulations must be coupled with innovative approaches to reducing emissions that involve shaping the way our communities grow and develop, transport citizens, power our homes and businesses, and manufacture and consume goods. By combining Clean Air Act controls with incentives for local innovation, America can better achieve clean air and healthy communities into the 21st century.

Local officials are ready to work in partnership with the U.S. Environmental Protection Agency (EPA) and other federal agencies, state governments, regional bodies, environmental organizations, and the private sector to launch a new approach to cleaner air. Local governments are uniquely situated to lead clean air strategies because they understand local conditions and can best influence local practices that connect environmental, economic development, and community goals. NALGEP has identified a number of ideas that can help empower localities to adopt new air quality strategies, create new resources and incentives for clean air innovation, foster regional cooperation on air quality goals, and enhance communication among all levels of government and the public. By

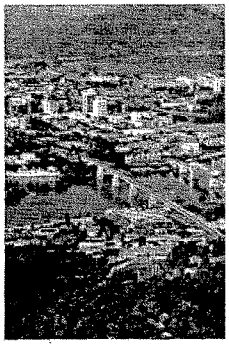
complementing the command-and-control requirements of federal law, this community-based approach to clean air can ensure the health and prosperity of American communities for the long term.

Profiles of Local Clean Air Innovation includes 20 findings that present the views of local government officials on new approaches and partnerships for clean air communities. Key conclusions that emerge from this report include:

- LOCAL GOVERNMENTS ARE PLAYING A KEY, EMERGING ROLE in air quality improvement.
- Local government officials believe that lasting CLEAN AIR PROGRESS REQUIRES NEW, COMMUNITY-BASED APPROACHES that complement traditional Clean Air Act controls.
- Localities need more Clean Air Act FUNDING TO SUPPORT LOCAL CLEAN AIR INNOVATION as well as stable sources of FUNDING TO SUPPORT ONGOING AIR QUALITY PROGRAMS.
- Localities need improved TOOLS TO MEASURE THE EMISSION BENEFITS OF INNOVATIVE, COMMUNITY-BASED PRACTICES such as smart growth, clean energy, alternative transportation, pollution prevention, and public outreach.
- EPA and the states should provide REGULATORY CREDIT UNDER THE CLEAN AIR ACT FOR INNOVATIVE AIR QUALITY PRACTICES.
- Localities need state and federal support to establish REGIONAL AIR PARTNERSHIPS TO COORDINATE air monitoring, planning, and control measures ACROSS METROPOLITAN REGIONS with common air pollution issues.
- EPA should launch NEW OUTREACH AND TECHNICAL ASSISTANCE PROGRAMS TO ASSIST LOCAL GOVERNMENTS in promoting innovative air quality projects.

To produce this report, NALGEP convened a Clean Air Task Force of 32 of the nation's leading local government environmental officials. NALGEP interviewed more than 85 local environmental, economic development, and transportation officials in cities, counties, and regional entities nationwide. The findings in this report propose many promising ideas for empowering local communities to achieve lasting air quality progress. From these ideas, NALGEP has identified 10 recommended actions for promoting community-based air innovation through new partnerships among local, state, and federal government as well as the private sector and nonprofit organizations.

Clearly, local innovation for cleaner air can make a major difference. For example, if all commercial and industrial building owners implemented existing strategies for energy-efficient buildings, they would shrink their cumulative energy bills by $130 billion by 2010



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and reduce greenhouse gas emissions by more than 350 million metric tons of carbon equivalent, eliminating emissions equivalent to those produced by 20 million to 30 million cars. (See EPA's *1998 Annual Report on Energy Star and Other Voluntary Programs.*) Likewise, new studies show that the redevelopment of urban infill areas with efficient designs could reduce energy use by 50 percent, decrease vehicle miles traveled by as much as 62 percent, reduce nitrogen oxide (NOx) emissions by as much as 87 percent, and reduce volatile organic compounds (VOCs) by up to 73 percent, compared to conventional development in greenfield areas. In this report, local officials explain that communities have only begun to tap the potential of these innovative strategies in smart growth, clean energy, transportation choice, and pollution prevention.

Rising public concern and the emergence of innovative partnerships, technologies, and strategies for reducing air pollution have created new opportunities to encourage innovative air quality practices at the local level. Moreover, many local clean air practices can result in benefits beyond public health and environmental achievements by promoting better patterns of growth, cleaner industry, more choices for consumers, and opportunities for collaboration. Without the dedication of all levels of government as well as the private sector, however, many American communities will remain teetering on the brink of dirty and unhealthy air, barely in compliance with complicated regulatory mandates. Local officials are eager for a more sustainable approach to clean air, and hope that this report will enhance the national dialogue on these increasingly important issues and spark further leadership to promote clean air communities.

SUMMARY OF NALGEP PROJECT FINDINGS

Interviews with local government environmental, air quality, transportation, planning, and economic development officials yielded 20 findings on fostering innovative clean air practices at the local level.

Cleaning the Air from the Ground Up: The Important Role of Local Governments

Local governments can serve as the foundation of a new approach to cleaner air, one that is based on innovative local practices that enhance and go beyond regulatory compliance.

FINDING 1: Local governments increasingly recognize that healthy air is fundamental to quality of life and economic progress.

FINDING 2: Local environmental officials believe that new, community-based approaches are needed to supplement command-and-control requirements.

FINDING 3: Local governments are uniquely suited to implement community-based clean air solutions.

FINDING 4: Local governments face a number of difficult barriers to clean air innovation, including lack of funding, lack of integrated air quality strategies, lack of regional cooperation, lack of measurement and credit for innovative air practices, and lack of information and outreach.

Empowering Clean Air Communities

To empower clean air communities, all levels of government must foster community-based innovation, promote regional cooperation among localities, expand public funding for local clean air projects, and enhance intergovernmental communication.

Fostering Community-Based Innovation: Smart Growth, Clean Energy, Transportation Choice, and Pollution Prevention

Finding 5: Local governments seek ways to improve air quality through smart growth practices that decrease sprawl and associated air emissions.

Finding 6: Local governments seek incentives for green building and clean energy practices.

Finding 7: Localities seek increased federal resources and incentives to provide transportation choices that reduce vehicle miles traveled and automobile emissions.

Finding 8: Local air improvements require additional efforts to promote pollution prevention by municipalities and businesses.

Finding 9: Local environmental officials seek regulatory credit for voluntary local air practices along with tools for measuring the emission benefits of those practices.

Clean Air Cooperation across Local Boundaries: The Need for Regional Approaches

Finding 10: Air quality planning must be addressed at metropolitan and regional levels and integrated with development, transportation, and other cross-boundary issues.

Finding 11: Airshed planning and control boundaries should coincide with regional sources of air quality problems.

Finding 12: Additional air monitoring is needed to determine the regional sources of local air quality problems.

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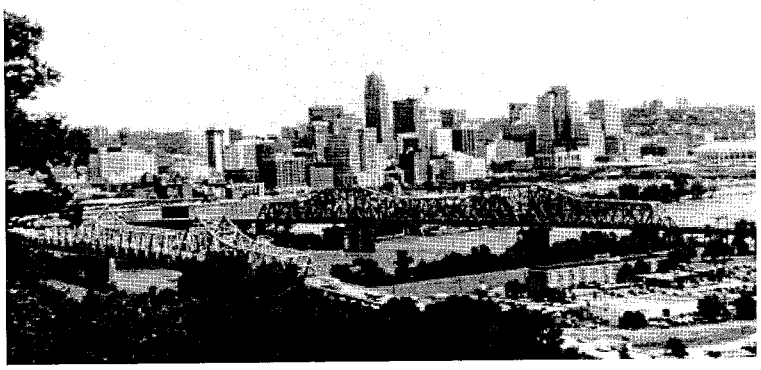


Funding Local Clean Air Innovation: The Need for More Clean Air Resources

Finding 13: Local governments need direct federal funding for innovative local air quality projects.

Finding 14: Local environmental officials face increasing responsibility for meeting air quality mandates, even as Clean Air Act Section 105 funding decreases.

Finding 15: Local governments are concerned about the loss of funding that results from reaching attainment goals and seek more resources to preserve clean air.

Finding 16: Local environmental officials believe that the CMAQ process must be improved so that more funds are directed toward air quality initiatives rather than road-upgrade projects.

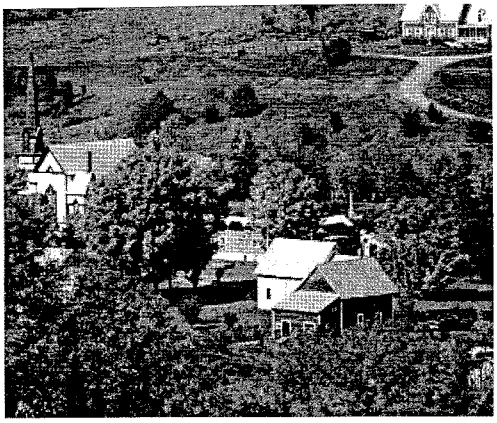
Finding 17: Local officials are developing new mechanisms to obtain local funding for innovative air improvement programs.

Spread the Word: The Need for Improved Communication and Public Education

Finding 18: Local governments seek improved communication with federal, regional, and state air officials as well as better access to information on emerging air quality issues and innovations.

Finding 19: Local air officials need to improve both local interagency coordination, and communication to local elected officials about the benefits of continued air quality improvement.

Finding 20: EPA, states, and local governments seek improved communication tools to inform the public about the link among citizen practices, clean air, and quality of life.



RECOMMENDED ACTIONS TO PROMOTE CLEAN AIR COMMUNITIES

NALGEP AND THE CLEAN AIR TASK FORCE found that local government officials are eager to work with EPA and the states to launch new strategies for cleaner air – strategies based on fostering innovative local air practices in smart growth, clean energy, pollution prevention, and citizen participation. NALGEP presents the following recommended priority actions that EPA, states, and local governments can implement in partnership.

Action Item 1

EPA SHOULD ESTABLISH A FEDERAL FUND UNDER SECTION 103 OF THE CLEAN AIR ACT FOR LOCAL CLEAN AIR DEMONSTRATION PROJECTS that promote cleaner air through smart growth, vehicle emission reductions, pollution prevention, clean energy, multi-pollutant reduction strategies, and other innovative approaches to meeting clean air mandates and objectives. The proposal for a "Clean Air Partnership Fund" under Section 103 is strongly supported by local governments.

Action Item 2

EPA SHOULD FINALIZE GUIDANCE PROVIDING STATE IMPLEMENTATION PLAN (SIP) CREDIT AND OTHER REGULATORY INCENTIVES FOR COMMUNITY-BASED PRACTICES THAT REDUCE AIR POLLUTANT EMISSIONS. EPA already has issued guidance that allows voluntary vehicle emission-reduction measures taken at the local level to count for up to 3 percent of the reductions required in SIPs. In addition, EPA is considering guidance that would allow localities to receive credit for better land use policies and practices in SIPs and transportation conformity determinations. EPA has also issued draft guidance allowing voluntary actions by local sources of pollution — such as retail stores, farms, municipalities, and individual consumers — to count for another 3 percent of the reductions required in SIPs. NALGEP found that local environmental officials strongly support the EPA guidances providing Clean Air Act credit for smart growth and voluntary local practices and urge them to be finalized. For all of these potential policies aimed at providing incentives for local clean air practices, NALGEP urges EPA and the states to provide outreach and technical assistance to local governments on their use as well as funding for pilot demonstration projects by localities.

Action Item 3

EPA, STATES, AND ACADEMIC INSTITUTIONS SHOULD DEVELOP BETTER TOOLS TO HELP LOCALITIES QUANTIFY THE EMISSION BENEFITS OF SMART GROWTH, ALTERNATIVE TRANSPORTATION, CLEAN ENERGY, PUBLIC OUTREACH, AND POLLUTION PREVENTION PRACTICES. Without improved modeling tools to determine the emission benefits of community-based, innovative air practices, local governments will not be able to use those practices effectively or get regulatory credit for their implementation. Several tools are currently under development at EPA. NALGEP encourages EPA's Office of Research and Development and Office of Air and Radiation to continue to work with academic institutions and other credible entities to establish enhanced modeling tools. EPA also should work with its regional offices to consider how modeled emissions reductions from innovative local practices can be incorporated into air quality planning. In addition, EPA should widely disseminate information about the modeling tools developed to measure innovative local air practices, and provide technical assistance and training to state and local air planners on the use of these new mod-

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Recommended Actions to Promote Clean Air Communities
CONTINUED

eling tools.

Action Item 4

EPA AND THE STATES SHOULD IDENTIFY ADDITIONAL FUNDING TO SUPPORT LOCAL AIR QUALITY PROGRAMS, PARTICULARLY FOR MONITORING URBAN AIR TOXICS, PM-2.5, AND TRANSPORTED OZONE POLLUTION IN METROPOLITAN REGIONS. Local governments expect to face a number of new air quality responsibilities associated with the new PM-2.5 standard, the developing Urban Air Toxics Strategy, and the pending designation of 8-hour ozone standard areas. However, localities will be unable to effectively monitor for these pollution concerns without a dedication of adequate Clean Air Act resources for additional monitoring. Localities need additional federal and state resources for these clean air priorities, in addition to the commitment of local resources.

Action Item 5

EACH REGIONAL EPA OFFICE SHOULD DESIGNATE A STAFF PERSON AS A "CLEAN AIR COMMUNITY LIAISON" TO PROVIDE TECHNICAL ASSISTANCE AND OUTREACH TO LOCAL GOVERNMENTS ON CLEAN AIR ACT COMPLIANCE AND INNOVATIVE APPROACHES TO CLEAN AIR. These coordinators would help connect local officials with useful contacts in the federal government, private sector and nonprofit organizations, and other communities; provide education and outreach to help local officials implement clean air projects; and spend significant time in the field working with localities.

Action Item 6

EPA SHOULD ESTABLISH A NATIONAL "CLEAN AIR SHOWCASE COMMUNITIES" PILOT PROGRAM THAT PROVIDES GRANT FUNDING, STAFF, TECHNICAL ASSISTANCE, AND FEDERAL INTERAGENCY RESOURCES TO SUPPORT INNOVATIVE AIR QUALITY INITIATIVES IN A TARGETED NUMBER OF LOCAL GOVERNMENTS. Modeled on the Brownfields Showcase Communities initiative, EPA would provide each pilot community with a federal staff person under the Intergovernmental Personnel Act. Clean Air Showcase pilots also would receive Clean Air Act Section 103 research grants to help support innovative air quality projects. In addition, Clean Air Showcase pilots would receive coordinated interagency assistance from federal agencies whose actions can influence local air quality, including EPA, the Departments of Transportation, Energy, Housing and Urban Development, the Economic Development Administration, the General Services Administration, the National Institute for Environmental Health Sciences, and other appropriate agencies.

Action Item 7

EPA AND THE STATES SHOULD SUPPORT THE ESTABLISHMENT OF "REGIONAL CLEAN AIR PARTNERSHIPS" AT THE METROPOLITAN LEVEL TO COORDINATE AIR MONITORING, PLANNING, AND CONTROL MEASURES ACROSS LOCAL BOUNDARIES. Regional Clean Air Partnerships would convene local air quality, transportation, planning, and development officials along with state officials to identify strategies for reducing air emissions associated with expanding metropolitan areas and their bedroom communities. The Regional Clean Air Partnerships could be convened and promoted through existing bodies such as councils of government or metropolitan planning organizations, or could be newly created, as appropriate for local and regional circumstances. With EPA seed funding and facilitation, the partnerships could develop regional air action plans and identify areas for further federal and state support.

Action Item 8

THE U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHOULD ISSUE RULES TO PRIORITIZE CONGESTION MITIGATION AND AIR QUALITY (CMAQ) FUNDING FOR LOCAL AIR IMPROVEMENT PROJECTS OVER ROAD-UPGRADE PROJECTS. Local environmental officials need CMAQ funding to pursue local reductions in vehicle miles traveled and other air quality strategies. But in many localities the criteria and practices used for the award of CMAQ funding are skewed toward road projects. DOT should work with EPA, local governments, and other stakeholders to identify how CMAQ funding can be directed to local air quality projects. One DOT priority could be the issuance of regulations or guidance directing state and local funding agencies to dedicate some portion of CMAQ funding to local projects that focus on the "AQ" aspect of the program. DOT could also direct CMAQ funding organizations to revise their funding criteria to eliminate the bias against air quality projects that are not designed to relieve traffic congestion. Any DOT action should be accompanied by efforts to educate state and local funding organizations about the benefits of local clean air projects and air quality improvement.

Action Item 9

THE FEDERAL AND STATE GOVERNMENTS SHOULD ESTABLISH FUELING STATIONS FOR ALTERNATIVE FUEL VEHICLES AT GOVERNMENT FACILITIES AND OTHER STRATEGIC LOCATIONS THAT ARE ACCESSIBLE TO MUNICIPAL AND PRIVATE SECTOR ALTERNATIVE FUEL VEHICLE FLEETS. The establishment of these fueling centers can help overcome a major hurdle to increased local use of alternative fuel vehicles and help stimulate the markets for these vehicles. A comprehensive effort by EPA, DOT, and allied federal and state agencies to establish a nationwide network of compressed natural gas, electric charging, biofuel, and other alternative fueling stations could provide a backbone of infrastructure for one of the most promising clean air options available to local communities. Coupled with ongoing local, state, and federal efforts to convert vehicle fleets to alternative fuels, this infrastructure network could make a major improvement in local air quality. Furthermore, by using strategically located federal and state facilities to place these alternative fueling stations, the effort could send a strong signal to citizens about the importance of the effort. Other strategic locations for fueling stations could include "USTfields," which are abandoned gas stations in local communities that have been contaminated by leaking underground storage tanks.

Action Item 10

LOCAL GOVERNMENTS SHOULD FORM A "CLEAN AIR COMMUNITIES NETWORK" TO SHARE INFORMATION ABOUT PROMISING LOCAL AIR INNOVATIONS, PROMOTE NEW AIR QUALITY INITIATIVES, AND COORDINATE AMONG LOCAL, REGIONAL, STATE, AND FEDERAL AIR QUALITY OFFICIALS. The network would ensure that the recommended actions in this report are actually implemented. The network should include local officials from a broad cross-section of areas, including officials from environmental, air quality, transportation, planning, public health, public works, and economic development departments. A focus of the network would be to promote cleaner air through innovative local practices in smart growth, transportation choice, clean energy, and pollution prevention. Once established at a national level, the network could serve as a model for the establishment of similar air quality networks for localities at the regional level.

SECTION 3: PROFILES OF LOCAL CLEAN AIR INNOVATION

cross America, local environmental officials have launched innovative efforts to improve the health and air quality of their communities. With few available resources or incentives, local governments have initiated innovative air quality approaches to address the air quality challenges that federal and state mandates do not recognize or credit.

This section profiles 20 local governments that serve as national models of clean air innovation. The profiles are grouped in categories that illustrate the findings of the report and demonstrate the value and promise of further incentives for local clean air action. Although air quality challenges undeniably remain for the profiled local governments, by highlighting the following examples, NALGEP hopes to encourage other localities to examine how voluntary, beyond compliance approaches can be used within their communities to reach clean air objectives.

PROFILES OF LOCAL CLEAN AIR INNOVATION

This chart shows the actions that localities profiled in this report are taking to foster community-based air quality improvement and demonstrate the value and promise of local innovation for cleaner air.

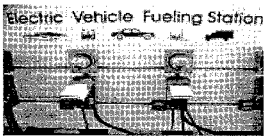
Community	Smart Growth	Pollution Prevention	Transportation Choices	Regional Cooperation	Outreach — Communication	Clean Energy	Location in Report
Anaheim, CA		x				x	Page 34
Atlanta, GA	x		x				Page 64
Boulder, CO		x				x	Page 66
Chattanooga, TN	x		x				Page 68
Chicago, IL (Brightfield)						x	Page 23
Chicago, IL (Clean Air Counts)	x	x	x	x		x	Page 70
Cincinnati, OH		x			x		Page 72
Columbus, OH					x		Page 74
Fort Collins, CO					x		Page 76
Fort Worth, TX					x		Page 78
Indianapolis, IN					x		Page 61
Jefferson County, KY		x			x		Page 80
Lincoln-Lancaster County, NE		x			x		Page 82
Maricopa County, AZ				x			Page 84
Miami-Dade County, FL		x					Page 86
Minneapolis, MN						x	Page 88
Montgomery County, MD			x			x	Page 90
Pioneer Valley Planning Commission, MA			x				Page 32
Portland, OR	x		x	x			Page 92
Puget Sound, WA		x					Page 35
San Francisco Bay Area, CA			x				Page 94
Santa Barbara County, CA			x				Page 96
Santa Monica, CA						x	Page 98
Tucson, AZ	x	x					Page 100
White Plains, NY			x				Page 102

PROFILES OF SMART GROWTH FOR CLEAN AIR

Atlanta Seeks Flexibility for Better Urban Redevelopment

Portland Adds Car Sharing Program to Smart Growth Tool Box

Tucson Advances Smart Growth and Clean Air with Public Investment in Civano Community



PROFILES OF TRANSPORTATION CHOICES FOR CLEAN AIR

Chattanooga Turns Air Quality Crisis into Vehicle for Innovative Transportation Systems

Santa Barbara County Encourages Visitors to Leave their Keys Behind

San Francisco Bay Area Establishes Transportation Fund for Clean Air

White Plains Plugs in and Sheds Weight to Reduce Fuel Consumption

PROFILES OF REGIONAL COOPERATION FOR CLEAN AIR

Chicago Metropolitan Area Aims to Make Clean Air Count

Maricopa County Area Identifies Measures to Control Brown Cloud

PROFILES OF OUTREACH AND COMMUNICATION FOR CLEAN AIR

Cincinnati Combats Smog at the Gas Cap

Columbus Builds Community Support to Clear Ozone

Fort Collins Provides Community with Breathing Lessons

Fort Worth Rewards Air-Conscious City Employees

PROFILES OF CLEAN ENERGY FOR CLEAN AIR

Minneapolis Targets Greenhouse Gases, Protects Air Quality, and Saves Money

Montgomery County Adopts Energy Policy to Reduce Costs and Pollution

Santa Monica Sets the Standards for Sustainable Air Quality

PROFILES OF POLLUTION PREVENTION FOR CLEAN AIR

Boulder Partners with Small Business to Prevent Pollution

Jefferson County Prevents Pollution in Partnership with Industry

Lincoln-Lancaster County Provides Clean Air Technical Assistance to Small Businesses

Miami-Dade County Plants Trees to Reduce Carbon Dioxide Emissions

US $20

"The profiles in this report illustrate the innovative actions that communities across the nation are taking to clean up their air. I am committed to doing all that I can to support these local efforts to create more healthy, livable communities."

— Vice President Al Gore

"We must empower local officials to keep the air clean over the long term, and this report highlights the tools that communities need to get that job done."

— Mayor Richard Daley, Chicago, IL

"This report shows that American communities are ready to lead a new, sustainable approach to cleaner air, and points out that state and federal policies that enable partnerships among government, private sector and civic leadership at the local level are the key to innovative solutions."

— Councilman David Crockett, Chattanooga, TN

"Communities across the country have used innovative approaches to improving air quality and reducing public health risk, as demonstrated in these profiles of local action. Just think what could be accomplished through a little more partnership and a few more resources!"

— Marcia Willhite, Lincoln-Lancaster County Health Department, NE and President of the Association of Local Air Pollution Control Officials

"Business cannot thrive in a region that lacks a clean environment and a high quality of life. This report shows how local innovation for cleaner air is an important investment in local economies."

— Carl Guardino, President and CEO Silicon Valley Manufacturers Group

"EPA has made clean air and healthy communities a priority for the 21st century and is committed to building partnerships that meet this goal. We look forward to working with local governments on innovative approaches to improve air quality."

— Administrator Carol Browner, U.S. EPA

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CLEAN AIR ACT: STATE REAUTHORIZATION ISSUES

MONDAY, NOVEMBER 13, 2000

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON CLEAN AIR, WETLANDS, PRIVATE PROPERTY AND NUCLEAR SAFETY,
Oklahoma City, OK

The subcommittee met, pursuant to notice, at 2 p.m., at Oklahoma City Community College, 7777 South May Avenue, Oklahoma City, OK, Hon. James M. Inhofe (chairman of the subcommittee) presiding.

Present: Senator Inhofe.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Could I have your attention?

OK. Here are our four guests. First of all, I'll start our meeting today. I've been told we're competing today with an energy symposium, transportation symposium and a couple of other things, so that we're not probably going to have the same size of crowd as we had the last time we had an EPW hearing in Tulsa.

But we will officially call it to order. Today's hearing will look at the issue of weather-related events on air quality and nonattainment status. We chose Oklahoma City because of the nonattainment days in 1998 which were the direct result of the fires in Mexico. I'm sure many of you remember those fires and the effect it had on the air here in Oklahoma.

In addition to fires, many other weather-related or natural events such as exceptional humidity, volcanic activities, dust storms, which are prevalent here in Oklahoma which can cause areas to violate the air quality standards.

In addition to creating the air quality problems, which of course, is a problem, these events trigger the air monitors causing local areas to violate the air standards, resulting in nonattainment days. It's important to realize that these violations are caused by naturally occurring events, not man-made sources. Therefore, States and local governments should not be penalized for these violations. I believe we and the EPA agree on these points.

Some of you know that I spent three terms as mayor of Tulsa. During that time we went through some nonattainment times, and I think it's very difficult for people in Washington and hearings in Washington to really, really understand what you have to go

through and the dangers that you face and the disasters locally that can come from getting into nonattainment areas for something which really isn't your fault.

The EPA has a process for States to submit data to the EPA in order to request a waiver for particular dates, due to natural events such as the Mexican fires. The problem arises concerning the process EPA uses to make determinations and to grant waivers. For Mexican fires they granted some dates for most States, but their decisions contradicted the recommendations from the States. I hope today we can get a better understanding of how the process works.

We would have three questions. What information do the States use in seeking waivers? Second, what is the process the EPA uses to examine that data? Third, the criteria used or the process used by the EPA in making the decision.

Over the last 2 years, I've received conflicting information from the EPA officials on these questions, and I hope we can get a more definitive answer today. I hope with Mr. Seitz here, we will.

Mexican fires involve the ozone standard, and these naturally occurring events such as fires will also play a role in the Particulate Matter standard, if the Supreme Court rules in EPA's favor; and it will play a role in the Regional Haze Rule, which I know will have a big impact on your State of Colorado, Representative Mitchell.

With the increasing number of fires, particularly controlled burns on Federal land, the impact on designations and nonattainment days will continue to grow. Because of this, I believe it makes more sense to provide the governors with the clear ability to have such dates disregarded when it is shown that noncompliance is caused by these natural events.

Now, I'm going to be introducing a bill tomorrow. With all this uncertainty going on right now, I'm not sure we'll have votes, but we're supposed to right now. But if we do have to go back, I will be introducing a bill that will require the EPA administrator to disregard monitoring data if the data had been influenced by exceptional events such as fires, if it is requested to do so by the Governor of the State.

I don't intend to even do anything with this bill this year, but I want to get it in to start people talking about it. Then when we get Clean Air re-authorization next year, this will be a part of that. Now, I don't expect anyone to comment on that because you weren't aware of that in advance, but if anyone wants to address it, they certainly can.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Today's hearing will look at the issue of weather-related events on air quality and nonattainment status. We selected Oklahoma City because of the nonattainment days in 1998 which were a direct result of the fires in Mexico. I'm sure many of you remember those fires and the effect it had on the air here in Oklahoma. In addition to fires, many other weather-related or natural events such as exceptional humidity, volcanic activities, dust storms, etc., can cause areas to violate the air quality standards.

In addition to creating air quality problems, these events trigger the air monitors causing local areas to violate the air standards, resulting in nonattainment days.

It is important to realize that these violations are caused by naturally occurring events, not man-made sources. Therefore, States and local governments should not be penalized for these violations. I believe on this point the EPA agrees with me.

The EPA has a process for States to submit data to the EPA in order to request a waiver for particular dates, due to natural events such as the Mexican fires. The problem arises concerning the process EPA uses to make determinations and to grant waivers. For the Mexican fires they granted some dates for most States, but their decisions contradicted the recommendations from the States. I hope today we can get a better understanding of how the process works.

- What information do the States use in seeking waivers?
- What is the process the EPA uses to examine the data?
- What is the process EPA uses for making the decision?

Over the last 2 years I have received conflicting information from EPA officials on these questions. I hope we can get the definitive answer today.

The dates in question from the Mexican fires involve the ozone standard. These naturally occurring events such as fires will also play a role in the Particulate Matter standard, if the Supreme Court rules in EPA's favor; and it will play a role in the Regional Haze rule, which I know will have a big impact on the State of Colorado.

With the increasing number of fires, particularly controlled burns on Federal land, the impact on designations and nonattainment days will continue to grow. Because of this, I believe it makes more sense to provide the Governors with the clear ability to have such dates disregarded when it is shown that noncompliance is caused by these natural events."

Therefore, I will be introducing a bill tomorrow when I return to Washington, D.C., which will require the EPA administrator to disregard monitoring data if the data has been influenced by exceptional events such as fires, if it is requested by the Governor of the State.

I do not intend to move the bill this year, but instead I intend for it to be wrapped into Clean Air Reauthorization next year. I will not put any of the witnesses on the spot by asking them to comment on the bill, but if you like you are free to comment on the ideas behind the bill.

Senator INHOFE. Our panel is now seated at this table, includes Mr. John Seitz who is director of the Office of Air Quality Planning and Standards, and Mr. Seitz has been good enough to be—let's see—it was in Ohio, I believe Mr. Seitz.

Mr. SEITZ. Correct.

Senator INHOFE. We appreciate your moving around for us.

Colorado State Representative Shawn Mitchell. Mr. Mark Coleman, executive director of Oklahoma Department of Environmental Quality, and Mr. Jim Thomas, director of the Technical Analysis Division of Texas Natural Resources Conservation Division.

Normally we have a little stop/caution bell and lights here, but we're not going to use them this time since we do have right up to 5 minutes until 4 p.m., to complete this, so there is no reason to keep our four witnesses down to within the normal 5-minute hearing.

So with that, we'll go ahead and we'll start with you, Mr. Seitz, for your opening statement. Then we'll all respond to a questions and answers. All right?

Mr. Seitz.

STATEMENT OF JOHN SEITZ, DIRECTOR, OFFICE OF AIR QUALITY PLANNING AND STANDARDS, RESEARCH TRIANGLE PARK, NC

Mr. SEITZ. Thank you, Mr. Chairman. Thank you for the opportunity to testify for you today. It is my pleasure to be here in Oklahoma City.

Today I'm going to discuss how EPA's policies try to protect the public health by addressing the man-made sources of air pollution in the context——

Senator INHOFE. Could you get a little closer to the microphone? I think that will be helpful.

Mr. SEITZ. Today I'm going to discuss how EPA's policies try to protect the public health by addressing the man-made sources of air pollution in the context of unusual but foreseeable meteorological episodes as well as exceptional events.

As in the case with the others testifying here today, our primary mission at EPA is to protect public health. Air pollution is associated with a variety of serious health and environmental problems. For example, breathing particulate matter can aggravate pre-existing respiratory ailments, reduce lung capacity and even result in premature death. Carbon monoxide can aggravate angina. Photochemical smog can impair lung function, cause chest pains and cough, worsen respiratory disease, and a few will actually sunburn the lungs.

The Clean Air Act, a law created and amended with strong bipartisan support, provides a very successful blueprint for our efforts to clean up the Nation's air.

Before I describe how EPA's air programs account for exceptional natural events such as volcanoes, wind storms, and fires, I would like to use one historical event to highlight the role of meteorological and geographic factors, how they play into our exposures.

In 1948, a fog descended over Donora, PA. An unusual set of weather circumstances—a stagnant temperature inversion—trapped the smog from coal-burning fireplaces and industrial plants in the valley. By the time the episode was over with, 20 people had been killed and 5,000 illnesses had been reported. That unusual and horrific combination of human-made pollution and weather, ushered in a new era for us in understanding air pollution.

We've made tremendous progress since then. Since 1970, we've reduced emissions of sulfur dioxide by 37 percent, lead, 98 percent, carbon monoxide, 31 percent. In the last 10 years ambient levels of particulate matter have been reduced by 18 percent. Since 1990, EPA has put in place rules that have removed 1.5 million tons of toxics from the air.

The role of weather and other natural factors in air pollution remains a fact of life. It has long been known that weather plays a role in many kinds of air pollution problems. The tragedy in Donora involved an unusual meteorological episode, but what made it deadly was the human-caused pollution in the air. Our knowledge about these kinds of interactions has evolved over the years and so have our policies.

Widespread regional stagnation conditions have occurred repeatedly in the United States, most recently in 1983, 1988, 1991, 1993, 1995, and 1998. Air quality did exceed the national standards during this period of time.

For 30 years the Nation's program for controlling smog has been based on recognitions that stagnation in hot weather occurs frequently. Therefore we require in States planning for attainment

demonstrations to consider these types of events in their planning for control strategies.

Breathing is not a seasonal activity, and the Nation's programs to reduce air pollution work to protect citizens year-round. Emissions of smog-formed chemicals, toxics and carcinogens must be controlled so that air pollution levels do not endanger public health even on very hot stagnant days.

States reduce emissions so they can meet the air quality standards even during stagnant periods of the summer. Over the years, this approach has been very successful. Even California, where the air has been known to be very dirty and the weather's very hot, for the last 10 years, the exceedance of the standards there have gone from 133 to 39.

At the same time, EPA has developed a series of policies and programs to address the fact that weather and other uncontrollable natural and exceptional events can influence air quality.

EPA has worked with the States to address these exceptional events over the years, and a few examples include Mount St. Helens, the clean-up after Hurricane Andrew, and the 1998 Mexican fire situation. I'd like to take a moment now to focus on those exceedances dealing with the Mexican fire situation. In 1998, we worked with the States, including Oklahoma, to address the catastrophic fires of Mexico and Central America. Together we set up a work group comprised of national air quality experts and developed technical guidance for identifying when and where the fires affected these levels.

The guidance included sophisticated technical tools such as satellite imaging, ground-level visibility measurements, airport measurements, and on-the-ground information provided by the States.

Our regional office received requests from nine States to exclude certain days of ozone data from compliance calculations due to these fires. We conducted an extensive technical review of these requests in consultation with NOAA, NASA and academia, as well as the technical staff of EPA.

As a result of that review, 92 of the 153 days requested were excluded, including some in Oklahoma. I'd be happy to talk about this in more detail including the event that's been raised earlier about May 11, that's shown on the chart in front of you.

In summary, it's been long recognized that weather plays a role in forming certain pollutants, like photochemical smog. Our goal has always been the same—focus Federal, State, and local efforts on those aspects of the problem that we can control, the emissions from industrial, automotive, and other sources in the area.

At the same time, EPA has worked with States, and others, on the balance and protective approach to address truly exceptional events.

The bottom line is that even on hot summer days, people breathe. Children, asthmatics, and elderly, and even healthy adults are vulnerable to air pollution. Our policies are designed to protect all Americans.

Mr. Chairman, this concludes my oral remarks, and I'll be happy to answer any of your questions.

Senator INHOFE. Thank you, Mr. Seitz.

Representative Mitchell.

STATEMENT OF HON. SHAWN MITCHELL, STATE REPRESENTATIVE, BROOMFIELD, CO

Mr. MITCHELL. Good afternoon, Senator Inhofe, staff of the subcommittee. I understand that one of the things you will be considering today, is information from States on innovative strategies that we have adopted to protect our air quality from impairment due to federally-prescribed burns, and to preserve air quality from other activities that take place on public lands.

Colorado has been a leader with respect to this issue, and I appreciate you having this hearing and making the subcommittee available.

Let me begin by explaining that I'm an elected State representative from Broomfield, CO, and although I would be proud to be from Oklahoma, as I was introduced, I can't claim that honor. I'm from Broomfield, CO, which is between Denver and Boulder. I serve on the Health, Environment, Welfare and Institutions Committee, known by the acronym HEWI, and also serve on the Judiciary Committee, and the Legislative Leadership Committee, which is known as Legislative Council

I've sponsored State legislation on clean air, and on dealing with State and Federal relations in the environmental protection arena. I hope today to discuss with you mandates that the Federal Government has placed on the State of Colorado that do not adequately allow the States to account for and regulate the major source of air pollution, wildfire, and prescribed fire, occurring on Federal lands. This is an area that I suggest Federal and State legislators can be working in tandem to rectify.

Colorado has taken substantial action to protect air quality and visibility, as well as public welfare in our State. The visibility issue is of particular importance to Colorado because of our unique status as a receptor State of air pollution generated in other States, combined with our large numbers of natural parks and wilderness areas. I will include in my testimony ways in which Federal legislation could make our job easier at the State level and also promote and protect clean air.

Colorado is blessed with 13, and that's soon to be 14, pristine national parks and wilderness areas. We're proud of these beautiful areas and proud of the work we do to keep the air clean, and the scenic vistas from Rocky Mountain National Park to Mesa Verde to Black Canyon of the Gunnison, and the soon-to-be Great Sand Dunes National Park. We welcome visitors to our State to enjoy these natural wonders.

We are also proud of our achievements and the improvements that we made to air quality in our city. The Denver Metropolitan Area, we are happy to report, has attained the National Ambient Air Quality Standards for Carbon Monoxide, 1-hour summertime ozone, and PM_{-10}. We have not had a violation of those standards for some time, and have established programs to continue to improve or maintain our air quality.

I would ask that this recent report from the Colorado Air Quality Control Commission on its activities and their public results be included in this record.

Senator INHOFE. OK.

Mr. MITCHELL. Unfortunately, we cannot claim such good news with regards to the EPA's new 8-hour summertime ozone standard. Unusually high measurements recorded during the summer of 1998 have potentially put us back into nonattainment. Those high readings, some knowledgeable observers believe, were affected by wildland fires during that hot summer, and again similar effects took place during the summer of 2000.

I would like to point out four areas where we have taken action to improve and protect our current air quality and visibility.

First, a smoke management memorandum of understanding between the State of Colorado and local, State, and Federal land management agencies, which lays out the responsibility of all the parties to a prescribed burn. The Department of Public Health and Environment, is the State's lead environmental protection agency, and its role is to review and to authorize prescribed burns by public land holders.

Second, legislation that I sponsored, and that was passed by the Colorado General Assembly, to require the Colorado Public Health and Environment and the Colorado Air Quality Control Commission to establish an inventory of emissions from Federal and State lands. This inventory will help Colorado's Air Quality Control Commission develop programs to further protect visibility in our beautiful wilderness areas.

Third, actions taken by Governor Bill Owens of Colorado, after the disastrous National Park Service prescribed fires in New Mexico, to review existing permits and permit applications, to ensure that adequate plans are in place to protect the environment and public safety, before starting another prescribed fire in Colorado.

Fourth, legislation passed by the Colorado General Assembly, which we believe is consistent with section 118 of the Clean Air Act, that requires land managers to prepare plans for burns, to receive permits from the State Department of Health, and to pay fees for the emissions of criteria air pollutants, the same as any other source in Colorado.

The State of Colorado and other Western States are being squeezed by the dual pressures of tighter national air quality standards, new visibility standards, and also facing increased emissions from natural and prescribed fires on Federal lands.

I would like to ask that this chart that I pulled off the Department of Interior's web page be included in the record.

Senator INHOFE. OK.

[The referenced chart was not supplied to the committee:]

Mr. MITCHELL. The chart shows that on all Federal lands in 1996, prescribed burns were conducted on 915,000 acres. By 1997, that had increased to 1.6 million acres. In 1998, 1.9 million acres, and in 1999, 2.24 million acres, an increase of almost 2½ times in just 3 years.

These are huge increases and we believe they are contributing to adverse visibility impacts and regional haze in Class I, or wilderness, or near wilderness areas across the country, and increased pollution in the areas near where the burns occur.

Now to put this issue and our State efforts in context, I would like to provide a little more background on the four particular efforts that I described.

As I mentioned, we have a Smoke Management Memorandum of Understanding. This agreement was forged between State, local, and Federal Government in 1994, and updated in 1999. It provides a framework for governments to address the issue of prescribed burns. It is a first step toward constructive State, Federal, and local relations. It requires the Federal Government to minimize visibility impacts from its activities and to demonstrate that no State or Federal air quality standards will be exceeded as a result of the proposed burn, and to maintain assistance for establishing an inventory of burn emissions

This was a good first step, but many of us in the legislature believed that more could be done. So in 1999, we passed two additional pieces of legislation to protect and enhance air quality and visibility in Colorado.

The first law made the provisions of our State Clean Air Act regarding permitting applicable to Federal land managers. Activities on Federal lands are the last clearly identifiable major source of air pollutants that we had yet to require programs for air quality management.

Colorado's Senate bill 145, legislatively required the establishment of a management program for prescribed burning. It required Federal agencies to submit a document that describes their future emissions of air pollutants. It required that the agencies use "all available practical methods that are technologically feasible and economically reasonable in order to minimize the impact or reduce the potential for such impact on both the attainment and maintenance of" State and Federal air quality and visibility standards.

To put this law in context, it simply requires Federal agencies to provide information to States' clean air regulators that will allow them to impose the same standards and obligations on government activities that industry has already been meeting for 20 years.

Another issue we faced in this regard is that Western States have not previously required Federal agencies to inventory the pollution generated by prescribed burns. This leaves States like Colorado with inadequate information about pollutants being transported into the State from wildfires and prescribed burns in adjacent States as well as in Class I areas or other Federal or public lands in the State of Colorado.

This is important because without emissions inventory from wild land and prescribed fires, States cannot adequately prepare the EPA mandated State Implementation Plans for Regional Haze, due, beginning as early as 2003. One remedy I would suggest is that Congress direct the Federal land management agency to inventory their emissions from both prescribed and wildfire

I would also suggest that Congress require Federal agencies to provide those inventories to all downwind States so that we can adequately prepare our State implementation plans for Regional Haze and take account of contribution of Federal lands.

The second piece of legislation, to manage this issue within our State, I sponsored a bill that will require State and Federal land managers to prepare inventories of all emissions from their lands. This information will give us an idea of the amount of haze and ozone precursors that prescribed fires are contributing to air pollution in Colorado. The legislation requires those agencies to prepare

emissions inventories, also for stationary sources and mobile sources, as well as the prescribed fires that they control.

However, there is some uncertainty regarding the willingness of the Federal executive branch to comply with this law. It would help if Congress were to clarify with land management agencies the compliance with permitting programs and State clean air laws, as required under the Federal Clean Air Act.

The final step that Colorado has taken with respect to prescribed fires after the tragedy in New Mexico, was an order by Governor Bill Owens to ensure the protection of the people in Colorado, as well as our courts. The Governor placed a moratorium on the issuance of new permits for prescribed fires. He also suspended existing permits until they could be reviewed by State officials to ensure that adequate protections were in place. The Air Quality and Forestry officials worked together to establish criteria under which the permits were reviewed to ensure the protection of public safety, as well as the environment. The Air Quality Control Commission is reviewing the current smoke management MOU and will consider adding new criteria to be reviewed before a burn can be started, such as checking for the most up-to-date meteorological conditions and forecast, before starting a fire.

I would also like to recommend that money not be appropriated to regional organizations such as the Western Regional Air Partnership or WRAP, but instead be sent directly to the State for their use.

As you know, Senator Inhofe, the Regional Haze Rule has been very controversial and will be very difficult to implement. One of the difficulties for a State like Colorado, is we don't believe we have sufficient data to make an informed decision. We believe that money being sent to the WRAP, could better be used by States such as Colorado for monitors along borders that could help identify pollutants being transported into State land.

Also, additional monitors could help us better understand what air pollution's coming from Federal lands within our State.

Finally, I would like to recommend that Congress examine the impacts of Federal use of prescribed fire on air quality standards, as well as examine what impediments there are to the kind of efforts I have described by States to hold the Federal Government liable for the pollution it causes. If our experience is similar to that of other States, then it seems the law should be clarified so that Federal agencies have a directive from Congress that they must comply with the Clean Air Act and with the State efforts to protect clean air.

Thank you again for having this hearing, and thank you for allowing me to testify. I would be pleased to answer any questions you may have for me.

Senator INHOFE. Thank you, Representative Mitchell.

Mr. Coleman.

STATEMENT OF MARK COLEMAN, DIRECTOR, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY, OKLAHOMA CITY, OK

Mr. COLEMAN. Thank you, Senator. It is a pleasure to appear before you today, and speak to you on the topic of exceptional events, and how they are related to air pollution control strategies.

Such events, by definition, are those that are out of the ordinary. Their very nature makes them unrealistic to control through the environmental planning process. We are no stranger to significant changes in weather in our part of the State. Very hot days and very cold days are something we can ordinarily plan for.

However, we are also no stranger to truly exceptional events, even in that exceptional pattern. Extreme meteorological conditions associated with the "Dust Bowl" days of the late 20's and early 30's, were responsible for the loss of millions of tons of topsoil and resultant air pollution.

To the extent that it was dark, even in the middle of the day, we can only imagine what the particulate loadings to the atmosphere were back then. Exceptional events continue to affect us today.

During the spring of 1998, there were significant forest fires in the Yucutan Peninsula. Those fires produced an air pollution episode that was truly an extraordinary event, and certainly beyond the control of the environmental agency. Besides causing high particulate levels, these fires were also responsible for high levels of ozone. The haze and particulates were so severe, that during the episode, there were areas in Texas and Louisiana that issued health advisories.

We have a video that we would like to show. We will show that, while I'm talking, and you will be able to see it.

On May 11, abnormally-elevated ozone levels were observed in the Oklahoma City area. These values were higher than expected because they occurred on a day with relatively high wind speeds, and mild temperatures, conditions not normally conducive to ozone formation.

Four sites, Senator. I suspect, I have you at a bad position in order to be able to see it, but, I believe we've shown that to you before.

These are conditions which are not normally conducive to ozone formation, which are the relatively high wind speeds and mild temperatures. Four sites in the Oklahoma City area experienced 8-hour maximum ozone levels that became the fourth highest ozone values for the entire year. It is these fourth highest values of course that are the critical ones that are used in calculations to determine attainment status. This occurred about the time of the height of the fire's impact on Texas and the Gulf Coast.

Later, after reviewing ambient data investigating meteorological conditions, observing pollution levels throughout our entire part of the country, and making use of extensive satellite photography, it became apparent that the Mexican fires were the cause of the elevated ozone values on May 11. We, of course, wanted to exclude those data from this particular extraordinary event in determining our attainment status.

Using the available satellite photography, we felt we had very convincing evidence. We feel like we still do, that the plume from the Mexican fires impacted central Oklahoma on that day and met EPA's exclusion criteria.

Nevertheless, to date we've been unable to convince EPA of our position. If you look, you can see the plume rising up. You can actually see it far better from the back, than your angle. You can see the plume rising up, and going across central Oklahoma. It comes from actually below the Dallas area and then goes on up.

Now, this year, one of our monitoring stations in Tulsa, experienced an ozone concentration that caused a violation of the 1-hour ozone standard, and this was the only violation of the 1-hour ozone standard experienced in Oklahoma, Senator, we're proud to say, since the early 90s.

Nevertheless, the necessary four exceedances occurred at that site over the last 3 years. Three exceedances, surprisingly, occurred during the Labor Day Weekend of 1998, and again during the Labor Day Weekend of 2000.

On the Labor Day Weekend of 1998, the high temperature in Tulsa on September 4, was 107°. That, as you would recognize, is an all-time record for that day. In fact, that day was the hottest day of the hottest summer, since recordkeeping began in 1895. The only comparable period was the "Dust Bowl Era," which peaked in 1931.

The reason for this extraordinary heat wave was primarily an abnormally long-lasting high pressure ridge, accompanied by light surface winds. According to NOAA, northeastern Oklahoma can expect less than 10 total days annually for air stagnation. In 1998, we set an all-time record for air stagnation with 33 days. The two Tulsa exceedances on Labor Day Weekend of this area occurred on September 1 and 2. The high temperature in Tulsa on September 1, was 108°, which was another all-time record for that particular day.

The high temperature of September 2, which was 107°, was the highest on that date since 1939. These hot days followed the driest month since 1896. Since these abnormal conditions are completely beyond our scope and control, we will be requesting the EPA to exclude those data when determining the areas of attainment status for the 1-hour standard.

Declaring an area of nonattainment using data collected during an exceptional event doesn't make good sense, much less good science.

We feel that EPA guidance on exceptional events, particularly related to ozone, needs revision to allow abnormal stagnation events and inversions to be considered the exceptional events they in truth are. We feel the draft guidance published by EPA in 1994, though never finalized, goes a long way to meeting that objective and is much more appropriate than the Agency's official 1986 version.

We further contend that it's the affected State, not EPA, that is in the best position to determine whether an event should be considered exceptional or not. It's also our suggestion that the Clean Air Act be amended to specifically exclude air quality monitoring data shown to be influenced by truly exceptional events when de-

termining compliance for the national ambient air quality standards, and we certainly support the legislation you mentioned at the beginning. Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Mr. Coleman.

Mr. Thomas.

STATEMENT OF JIM THOMAS, DIRECTOR, TECHNICAL ANALYSIS DIVISION, TEXAS NATURAL RESOURCES CONSERVATION COMMISSION, AUSTIN, TX

Mr. THOMAS. Mr. Chairman, thank you for allowing me to be here and make a statement. My name is Jim Thomas. I'm the director of Technical Analysis investigation at the Texas Natural Resource Conservation Commission.

Our agency implements a broad range of regulatory and nonregulatory activities that protect the health of Texans in their environment. The agency is led by a three-member commission appointed by the Governor. About 3,000 staff members work in Austin and 16 regional offices around the State.

The statement I would like to make today will deal with recurring natural events, and particularly the 1998 Mexican smoke event. Recurring natural events in the United States and foreign countries often influence air quality in Texas. Southwestern dust storms, Saharan dust storms, agricultural fires, and forest fires are just a few of the influences that we face.

Today I would like to discuss one case in particular, the agricultural fires that occurred in 1998, in Mexico and Central America, the effect of the smoke and air quality on Texas, and the need for a consistent policy and guidance at the national level on exceptional events like this one. During the period from April 1, 1998 through June 20, 1998, large amounts of smoke were transported into Texas from fires in Mexico and Central America.

Even though agricultural burning is conducted every year in Central America, the smoke's intensity was unprecedented in recent history. The fires were unusually intense and widespread because of severe drought conditions in Mexico and Central America.

The smoke also produced high levels of ozone and carbon monoxide. These pollutants accompanied the smoke into Texas.

The first illustration here gives the extent of the plume as it existed on May 8, and I think we have pointed out on that, and is somewhat legible, that the smoke plume wraps all the way around up into Texas to the Dallas-Fort Worth area, and then follows the coastline across Florida and out into the Atlantic.

The extent of that plume is amazing when you look at it, and that is not unusual. By May 1998, smoke intensity climbed up to levels that threatened public health. Concerned by this threat, the Texas Natural Resource Conservation Commission stepped up its air quality monitoring activities and worked with the news media and other governmental agencies to make the public aware of the dangers posed by these smoke levels. When our agency became aware of unusual air quality monitoring readings, we shifted additional ground monitors into the Rio Grande Valley, and made numerous flights with an airborne sampling platform operated by Baylor University.

In addition, our agency posted information and warnings on our website, established a toll-free hotline, and issued public health alerts through the news media.

After the conclusion of this event, we undertook an analysis of the association of high ozone and carbon monoxide levels with smoke transported from Central America. Evidence of this relationship came from aircraft data and from a comparison of the peak smoke day with a non-smoke day.

Jim, if you will take that first one down. This is a vertical profile as flown by the Baylor aircraft, and what you see in brown is a nephelometer reading, or a measurement of light scatter, which indicates particulate matter, and the red line is the associated ozone readings.

If you look at the bottom, down below the mixing layer or the boundary layer, you can see the nephelometer readings were quite high, indicative of tremendous particulates. Accompanying that are high levels of ozone at very low levels.

Then as you move up vertically, you can see a spike in the nephelometer reading accompanied by an ozone spike associated with that plume that jumps from something on the order of 60 PPB up to 120 PPB.

Normally the background level at this time of the year would probably be in the 40 PPB range, and all through that spiral, vertical spiral, you see that the ozone levels are elevated.

Evidence of this relationship came from aircraft data, from the comparison of the peak smoke day with a non-smoke day. Numerous aircraft flights during the smoke period found layers of smoke aloft that contained greatly increased ozone levels. Ozone levels aloft as high as 100 to 140 parts per billion were found in association with the smoke layers.

The comparison of the peak smoke day at Brownsville on May 8, 1998, with a non-smoke day, October 3, 1998, showed that ozone, carbon monoxide, and particulate levels were much higher on the smoke day, even though the wind speed, wind direction, and temperature of the 2 days were almost identical.

Ozone levels on the peak smoke day reached peak 1-hour values near 100 parts per billion, whereas on the non-smoke day the ozone peaked at only 20 parts per billion. In Brownsville, we had a reading that reached 90 parts per billion with the wind blowing 15 miles an hour, which is an unusual situation, one that we had not seen before.

Satellite imagery and air trajectories were used to show the origin of smoke and its transport into Texas. Numerous large fires in Mexico and Central America produced large clouds of smoke that were visible in satellite imagery from March through June 1998.

The heaviest smoke production occurred in early to mid-May, whenever winds were from the south to southeast in the southwestern portion of the Gulf of Mexico, and the smoke was transported across the Gulf and into Texas.

Airport visibility measurements from the National Weather Service automated stations were used to supplement particulate measurements for determining smoke intensities at various locations in Texas. A strong correlation between visibility and particulate levels was shown in measurements from both Brownsville and Austin.

The combination of visibility and particulate measurements was then used to estimate the smoke impact on high ozone days during the smoke period. This investigation showed that 14 high ozone days from Texas also had moderate to high smoke levels and were therefore likely to have been influenced significantly by the ozone associated with the smoke. As early as May 1998, our agency began consultation with the EPA, Region 6. We provided significant amounts of data to EPA's technical working group for the Central American forest fires through the Region 6 office.

We also presented the EPA with the results of our own analysis of the fire's air quality impacts on Texas as part of our request to have ozone exceedance days during the period of April 1, 1998 through June 20, 1998, declared as exceptional events.

As of this hearing date, the EPA has declined to grant an exceptional event status for all of the days that Texas has identified as being influenced by Central American smoke.

Of some 81 days that we requested exceptional event status for, EPA, rated by region, they divided the State into three regions, Region 1 being the Gulf Coast area, Region 2 being northeast Texas and Region 3 being northwest Texas.

In Region 1 we were granted 40 days of the 81 requested. In Region 2 we were granted 17 days of the 81 requested, and in Region 3 we were granted 11 days out of the 81 requested. The Texas National Resource Conservation Commission believes that there exists a need for the EPA at a national level to increase its awareness of these exceptional natural events and their impact on ambient measurements, pollutant and pollutant precursors.

In addition, there's a need for a coherent flexible policy that provides guidance not only for one-time exceptional events, but also recurring or long-term exceptional events that are beyond the control of air quality agencies.

We also think that the EPA should track these exceptional events and quantify those, archive the data in a way that is available to the States for their use in air quality planning.

I thank you for the opportunity to make a statement and would be happy to answer any questions.

Senator INHOFE. Thank you, Mr. Thomas.

I think first of all, it might be beneficial to see what areas we all agree on, and I think, Mr. Seitz, you would agree and the rest of the table, obviously, that naturally occurring events such as fires or dust storms should not be counted against the State or a city for the purpose of determining nonattainment dates. What are your feelings about that?

Mr. SEITZ. Senator, with respect to wildfires and dust storms, to the extent that it is consistent with our policy, the data is recorded to be in compliance. We would agree with that.

Senator INHOFE. I assume the three of you agree with that.

You know, we passed legislation having to do with emergencies and it's called our pre-disaster mitigation legislation. We actually came up with some things where we are prone, for example, in Oklahoma to have the emergency of tornadoes and what you can do to minimize the damage done there.

Is there anything a State can do to mitigate against the effects of naturally-occurring events that you can think of

Mr. SEITZ. Is that addressed to me?

Senator INHOFE. Anyone. What I'm trying to get at here is we all agree that naturally-occurring events should not be scored against a political subdivision in terms of attainment. Then the next thing you do is determine whether or not there is something that the State or political subdivision can do, and I don't know the answer at the moment.

Mr. SEITZ. I think Mr. Coleman touched on a policy that was put in place in 1986—is that which acknowledges, as you suggest, Mr. Chairman, that fire, volcanoes, dust storms, this type of a thing clearly is where you would flag the data. It does not provide for meteorological events, but to the extent it's fire or dust, that that data should be flagged.

But it also suggests that although the State agencies certainly have no control over it, to the extent practical and practicable. I think most States do this already. As you have mentioned, States can give advisories to the public so the public can protect themselves. The policy goes on to say what can be done to protect the public in light of this event States should do. But as far as controlling it, I would agree.

Senator INHOFE. Yes, that's my point. I think we can say "yes, there is a tendency in this area for this to happen." We know that in Mexico they do burn, but we have no way of knowing where the predominant winds are going to be, and how it's going to affect us.

I would ask all four of you, does the current process of the State's petition of the EPA and the EPA making a decision work in an expeditious manner?

Mr. COLEMAN. Well, I guess that the question is, did we get what we asked for? And we would not have asked for that which we didn't think we had sufficient reason to ask for it.

I think all of us are very much interested in having an environment that is an acceptable environment that's conducive to good health, and that's what we have dedicated our careers to provide.

Senator INHOFE. Yes, I was really trying to get at the process as opposed to that, and is there a process that we can use in petitioning the EPA and then the EPA responding to that that's better, or what flaws do you see in that process right now?

Mr. COLEMAN. I think that those of us at the State level are far closer to the issue than those at the Federal level.

My personal belief is that that call should be made by the State instead of us requesting with the EPA having the "no" and having the "yes." My own belief is that that should be our determination with EPA having the burden, not just to turn it down, but have a good reason to overturn it.

Senator INHOFE. Well, I think that obviously Mr. Seitz has heard me agree with that in the past. I've had the experience of being the mayor of the city, as well as State government and national government. It always seems to me that the closer you get to home, the more you can have an understanding of the problems, which comes to another area.

You guys from the States that we have represented here, Colorado, Oklahoma, and Texas, have you ever tried to put down the cost of these things? If you're proposing, such as I'm proposing, to perhaps involve the Governors more than just everything being

done in Washington, the cost that is having to be borne by your respective States? Have you ever quantified that in this process?

Mr. THOMAS. With regard to control strategies aimed at the nonattainment situation? We're wrestling at this moment with a SIP for the Houston area. We have not fully quantified the cost, but we have had cost numbers come back to us that are astronomical. The controls alone for point sources in the Houston area are something on the order of $20 billion.

Mr. COLEMAN. Million or billion?

Mr. THOMAS. Billion. Big bucks.

Senator INHOFE. Yes.

Mr. MITCHELL. Mr. Chairman, on behalf of Colorado, I'm sure the executive branch or the State health department could give you a close to precise number on quantifying that cost. From the legislative branch I cannot, but I'd like to briefly comment on the previous question you asked on whether the current procedure for requesting waivers works well. One quick observation is that we have to recognize the incentives of the various parties.

Of course the States would like anything that tends to drive a low result, have that characterized as an irregular event. The EPA, which is a regulator for public health, would like to lay everything to the charge of the States and be able to find nonattainment and impose stricter regulations on the States.

So perhaps what should happen in the process in requesting a waiver? I don't know if I can agree that the State should have final and absolute say, but neither do I think the EPA should have as much control and authority over that decision. But if there could be some impartial forum or venue for reaching that decision short of mounting Federal litigation against the administration for its determination, the process might work in a little more fair and evenhanded way.

Senator INHOFE. I want you to respond, Mr. Seitz, but I want to clarify what we're talking about here. There is a cost to preparing the data that is required when you're requesting a waiver. I've been told there's confusion in that you spend a lot of resources sending things in that later on you really didn't have to. That's really what I was getting at.

Mr. Seitz.

Mr. SEITZ. Thanks for the clarification, Senator, and I'd like to respond to Representative Mitchell on the first point, with respect to the desire of the EPA to capture someone under our natural events policy. That policy of 1986 was originally put in place at the request of the States to avoid just that situation. So I think there's currently a mechanism in place to exclude data for these natural events. The process question which you raised, Senator, is a fair one. With respect to the fires, I'd be the first to say that this one was catastrophic. It came to our attention as a result of Texas and we looked at the data. We put this policy for this particular set of fires in place. The process we provided access to satellite information to States, such as Texas. You heard Mr. Thomas' explanation of data they explained to us. So I think the process, if anything, was wide open as to the type of data needed to be presented and as to what could be presented by the State. The review process was not only EPA. It was a group of, as we said before, NASA, NOAA,

and academia. We had heard the message, and Senator, you've made your point clear to me numerous times about the need for EPA not to do things alone, but rather to put it before the public, into a process for peer review so it's good technical data.

I agree with Representative Mitchell. It is not all EPA's decision. It's not all the State's decision. It's a process that gets the proper technical personnel involved. In this case NASA, NOAA, academia, as well as technical staffs in the States and the local agencies put the data forward. To the extent that EPA had the final decision, that is correct. In terms of a national air quality standard being in place and the need for consistency, that's the process that was followed.

So in terms of the cost, some was clearly borne by EPA and the Federal Government for some of the satellite data. Some of the monitoring data was generated from a monitoring network that you were responsible for putting in place with $PM_{-2.5}$, and some of the burden was on the States. But the overall benefits from these programs is to protect public health. As you know from the benefit studies, the benefits exceed costs by 4 to 1.

Senator INHOFE. The data that was generated from Oklahoma and going back to this May. First of all, you have accepted a lot of the dates that we had except for May 11, and the data from Oklahoma appears to be convincing to me, and I understand it's based on Federal data, so I'm not sure why the two different sets of data would disagree so much and why you discount the data that Mr. Coleman used in that case.

Mr. SEITZ. The agency did not discount Mr. Coleman's data. As a matter of fact, we took the video and sent it to NOAA. If not, Mark, I owe you an apology for not receiving that. It was reviewed by the scientists at NOAA, and they concluded that this was not part of the plume.

In addition, the satellite which was used by the State of Oklahoma for the that purpose, I think, is the GOES satellite, which is at a height of 36,000 kilometers. The TOMS satellite, which was used to generate our data point, is merely 740 kilometers. So the resolution from the TOMS' image is a lot better.

In addition, what we tried to do was use a series of technical data. If in fact the TOMS satellite did not show the plume there, that is not where we stopped. We then went to airport data, monitoring data or any other data that were available and you've heard a good explanation from the State of Texas of other data that was submitted.

The data from the TOMS satellite as well as airport observations in Oklahoma on the day in question, May 11, did not report any impairment of visibility or smoke. So it wasn't a question of excluding the data Mr. Coleman provided. It was that the overall data set showed that May 11 was not a day when Oklahoma was being impacted by smoke. I would agree. Mr. Coleman and I talked earlier about the fact that there is clearly movement of something from Texas into Oklahoma.

But one final point of technical information, and this is where I just want to keep it technical, the GOES satellite is not particularly strong at registering aerosols. As a matter of fact, it's not designed for aerosols. Aerosols are what we're looking for.

Senator INHOFE. I thought that's what we were looking at on your chart that you put up.

Mr. SEITZ. This is aerosol. This is a different satellite. We're talking two different satellites. The total ozone mapping spectrometer satellite, GOES is another satellite that was used by the agency. So we're talking two different images.

Senator INHOFE. Let's see the one that we had up. I thought was a pretty good image and it's not that one.

Mr. SEITZ. That's GOES.

Mr. COLEMAN. Ours is the other one. This is the TOMS. This is the data that we don't think present our picture very fairly. Obviously, Senator, we think that a picture is worth 1,000 words. I think anyone can pretty clearly see the plume arise. In fact you can see two plumes arise and come up out of that smoke and come into our State, and we clearly had an impact that was observed on that particular day.

Now, it wasn't the extreme high level of smoke. In fact, if it had been dense smoke, it might have been of some benefit to us in that it would have cut down the sunlight and we might not have had as much formation of the ozone.

But you can see two different plumes. One kind of rises out of the southwestern side of the State and goes up and that's rather thin. Then the heavy one comes clearly up and goes up through central Oklahoma. In fact, from the imagery, we believe that if the sun had been in a slightly different angle, it would have been even more clear when the pictures were taken.

Senator INHOFE. Well, Mr. Thomas, the 1998 fires were worse than anything you had before, coming from Central America and from Mexico——

Mr. THOMAS. Yes, sir.

Senator INHOFE. Was there any particular reason that you determined, because I haven't looked to see whether those were planned, or what caused them—or was it a condition that where the Mexican fires were different than they had been before—but the conditions, wind, temperature and all that was different. What caused that to be the worst?

Mr. THOMAS. Well, I think the severity of the fires themselves contributed to that. There was a very severe drought in central Mexico—Central America and Mexico, and the smoke off of that was—you know, we see a little smoke every year, but it got so dark that the street lights came on. It's just something that we haven't seen before. It was severe. Elderly people and young people were having asthma attacks, severe health conditions. My own father-in-law was not getting outside because he couldn't breathe.

Senator INHOFE. I thought I mentioned to you that I was there during that time in the Brownsville area when we were having some problems.

Mr. THOMAS. It was very severe.

Senator INHOFE. I want to get back to your chart in just a minute. Representative Mitchell, I was surprised I hadn't heard you talk about this before, when you were talking about under controlled burns. It's gone from 900,000 to 2.5 million in a 3-year period.

Now, these are—this is something we have control over. Why was it increased that much during that time period?

Mr. MITCHELL. Prescribed burns have received recently renewed attention as an environmentally sound way to manage Federal lands. The strategy used to be to suppress all fires, and then instead of suppression, environmental and public land management just shifted to try to recreate the occasional natural fire, and that philosophy has taken over.

They burned a lot more acres, a lot more land, almost 2½ times from 915,000 acres in 1996 to 2.24 million in 1999. Now, that's Federal policy. So I can only comment on it from that level of familiarity. I can't tell you exactly why they have increased so dramatically.

Mr. SEITZ. Let me tag on and help, maybe, Representative Mitchell. He is absolutely correct. As you recall, Senator Inhofe, we went through some of the Regional Haze hearings. The Department of Interior, Department of Agriculture, in cooperation signed an agreement to put in place more prescribed burns for the exact purpose Representative Mitchell talks, to try to get hold of or return the forest to the natural conditions, and it was thought this was clearly better than the catastrophic burns that are otherwise subject to happen.

They indicated at that time there would be more burning to try to capture to get ahead of it, and that's why in fact, some of the policies have been in place for Regional Haze Rule to make this—don't punish States with this smoke, but the Representative is absolutely correct. It's for the purpose of trying to return these lands to a natural condition.

Senator INHOFE. Did I understand, Representative Mitchell, that you said that in the process of the controlled burns, you authorize it at some point? It comes from the State in advance so that even though it may be the Federal Government doing it, the State has the final authorization?

Mr. MITCHELL. Under the Federal Clean Air Act, the States are delegated authority to, No. 1, administer the Federal clean air program, but No. 2, to apply State clean air standards not only to private industry within the State, but the Federal activities that go on within the State. Included in that grant of authority is the authority to regulate and permit any major pollution-producing activity such as the prescribed Federal burn.

So the short answer is yes, the State does have the authority to review and to authorize or to permit specific Federal burns.

Senator INHOFE. Is there anything you can add to that, Mr. Seitz, as to what the EPA is doing to try to make that easier?

Mr. SEITZ. Well, there are two issues. One is the burns. There, the Representative is correct. There is a program—and I think you touched on it in your testimony—a cooperative effort between the land managers as well as the State of Colorado to agree in a permit process.

The issue that the Representative mentioned was a debate on a piece of legislation directed, I believe, at the Federal sector to require permits.

It wasn't that the Federal land managers are disagreeing with the thought because they are in fact cooperating under the MOU.

It is that under the Clean Air Act, we will comply in Federal sectors. We'll comply as long as the legislation isn't directed solely at us and no one else.

So to the extent—I'm just not familiar with the legislation, so I apologize. But to the extent the legislation is broad-based and affects us, States, ranchers, other landowners that burn, then in fact, under section 118 of the Clean Air Act, we would, as the Representative indicates, comply.

Senator INHOFE. Mr. Seitz, do you want to put that chart back up? Is there something you want to address?

Mr. SEITZ. I just wanted to point out to Mr. Coleman that this is, I believe, the day of the 13th, and as you can see, the plume is touching right to the border of Oklahoma, but clearly is not there by TOMS.

On the other hand, ground level observations and ground level data on the ground in Oklahoma submitted by the State of Oklahoma said there was impairment.

So although TOMS did not support a granting of this date, other data did. So on balance, again, looking at all the data, we granted the 14th.

Senator INHOFE. The 14th, but not the 13th. Mr. Seitz. The day of the 13th, the day in question, it was granted. Even though the plume—I'm just making the point that it wasn't one data point that was used.

So what you're saying, Mr. Seitz, is that you are willing, the EPA, to use your TOMS data, but also that that's submitted by the States and work out the conclusion working with them.

Mr. SEITZ. Correct. Again, we relied heavily on the technical panel from NOAA, NASA, and academia to review it all in cooperation with the technical staff in my office, the EPA regional offices, and the State.

Senator INHOFE. The EPA pays for the monitors, and they determine where the monitors are going to be within the State, is that—my understanding correct?

Mr. SEITZ. The overall monitoring network, there's two types of monitors. First, there's a Federal list of monitors that are placed in a given location based upon our guidance for the purpose of attainment/nonattainment regulatory decision.

Second, there's a group of monitors that are allowed to be placed at the discretion of the State and local agencies.

For instance, as mentioned in Colorado, I believe the section 105 money and grant money provide for running the basic program and monitoring program is somewhere around $3.5, or $4 million annually. That money goes directly to the States. Certainty of that monitoring is at the discretion of the States.

Senator INHOFE. OK. It's my understanding, Representative Mitchell, that Colorado wanted to have more monitors placed on the borders to show, to demonstrate where this was coming from. The EPA wanted to have the monitors in the large cities. Is that correct?

Mr. MITCHELL. That's consistent with my understanding, but we have about reached the outer boundary of my factual basis to comment.

Senator INHOFE. How about that, Mr. Seitz, on the determination of placement of monitors, we have had—we actually had a similar problem in Tulsa some time ago, and how do you think that can be improved, or how do you think it can be a little more cooperative with the political subdivisions in making those determinations?

Granted, we want to present the best case we can, but I don't think you should be in the position to try to present the worst case you can.

Mr. SEITZ. The monitoring network itself, as I'm sure you're aware, covers ozone, PM, lead. It's a very large network. It covers multi-purposes.

As I said, part of that network is designed for regulatory purposes. The remainder of the network is up to the State. Maybe, Mr. Thomas can help me here, but I don't know what it is in any given State. There's certain latitude in the State and local governments to move monitors.

I'm not quite sure what the percentages are, but some can be moved. I think what the States and STAPPA/ALAPCO would say very quickly to you and to me, Senator, is the problem is there aren't enough. They would like to get more monitors because there are competing demands for even the ones they have the latitude to move—demands for this purpose or that purpose, so they would like more.

So, I think the real question and we currently have it underway with STAPPA/ALAPCO is to take a look at the deployment of the entire network.

Is there a way that we can, in a more efficient manner, in a cooperative manner at both the State and local level, deploy the network differently?

I hope your issue would be addressed. I call it the integrated monitoring strategy. We currently have an evaluation under way with STAPPA/ALAPCO, the State and local programs, to look at that exact issue.

Senator INHOFE. You want to say something, Mr. Coleman?

Mr. COLEMAN. Yes, sir. I want to go back to the TOMS data, and of course, we had an opportunity with the recent fires to be able to examine how predictive that was, and I—my staff tells me, that there are problems from the—this particular system as it relates to being able to accurately depict where problems would occur.

The ground truth and the truth from this particular data set do not match up terribly well in a number of instances.

Senator INHOFE. Well, yes, but as you heard Mr. Seitz say, that they will consider theirs, but also consider whether the monitoring that you have, do you think that you end up getting, a fair representation as to what the problem is? Averaging out——

Mr. COLEMAN. No, sir. We can see a problem, and if we don't get agreement on the problem, we have grave difficulties. That's what our bottom line is, we can see it, you can see it with a picture, and to not receive the attention that we think that deserves, is something that just gives us great heartburn.

Mr. SEITZ. Again, I agree with Mr. Coleman, of course, that a picture speaks 1,000 words. But I'm not the expert to review it. All I can say is that a panel of experts reviewed the data and concluded that it was not smoke.

Senator INHOFE. You know, Mr. Seitz, in your opening statement, the phrase always captures my attention when you talk about premature deaths.

I remember back when we were having the big fight on the ambient air thing and Administrator Browning quite often used that as it was convenient for her to use. We heard during that debate, it started out there were 20,000 premature deaths, and then after looking at that it came down to 15, then down to something less than 1,000, but the interesting thing that I noticed is my dear mother-in-law died during that timeframe.

She was 97 years old and by using the criteria of premature deaths, she was one of them in that statistic. What's your definition?

Mr. SEITZ. Of a premature death?

Senator INHOFE. Yes.

Mr. SEITZ. In my mind, any death, any premature death, is anyone that dies early. What I see is a child, or a senior citizen in respiratory distress, as a result of environmentally-induced particles who goes into an asthmatic attack and dies.

Senator INHOFE. I don't think that's a very good answer. In fairness to you, you inherited that phrase. You didn't invent it.

Mr. SEITZ. Well, Senator, I think there are statements concerning EPA that have been explained to me twice, once by Representative Mitchell and once by you, that the mission of EPA is to try to take the worst-case scenario data and capture the impact it may have on people. I think that is an overstatement as well.

We have the 1986 policy that was put in place dealing with excluding data, and the 1994 policy that was put in for excluding particle data. In addition, the fact that EPA excluded 92 of the 153 days requested by States, certainly gives EPA, at least the technical staff at EPA, the chance to acknowledge that we may occasionally look critically at the data.

Mr. THOMAS. Senator.

Senator INHOFE. Yes, go ahead. I'm getting some information.

Mr. THOMAS. If I could comment on the TOMS satellite, we have found that certainly visible satellite imagery is useful. There are some drawbacks. One thing, it's not available at night, and does not indicate how much smoke is mixing to the surface.

There are some drawbacks with the TOMS satellite. An example of satellite measurements produced by the national or NASA group from the TOMS satellite, has some problems. The NASA aerosol imagery does not indicate that clouds are obscuring the ability to see smoke, for instance.

The data that is used is day-old data, and you have to fill the gaps in between the satellite passes. So there are some real drawbacks, and in my technical staff's evaluation of using TOMS we use both TOMS and GOES–8 satellite imagery to make our determinations.

Senator INHOFE. Are you satisfied, Mr. Thomas, as far as the State of Texas is concerned, that that information other than TOMS is being considered equally with TOMS information at the EPA level in Washington?

Mr. THOMAS. I'm not real sure how that was done. We have their letter, and it defines to a large extent how that was done. We had

requested a total of 81 days. Our feeling is that we really don't understand the science involved with these types of events because we see such unusual things happen such as a 90-PPB reading for an 8-hour standard when the wind is blowing 15 miles an hour. That just doesn't occur normally.

So we ask that the whole event be set aside because we're not sure in our mind what's going on with the science. I think we need to develop the technical skills and the science where we understand this much better, and then we will have a better basis for making these determinations.

Senator INHOFE. Do you think the State of Colorado and Oklahoma need to devise a way that comes up with more accurate information?

Mr. COLEMAN. Senator, I guess my great concern is that in order for us to have not only the proper information, but given whatever information we have, particularly if it is information from an extreme event that causes us to fall into nonattainment, our responsibility then is to develop and design a system that would bring us into attainment, and it is my position that we cannot in anyway do that because we don't know where to go. How much do we need to get in order to control the weather, which we cannot do?

Mr. MITCHELL. Yes, Senator, Colorado would like to develop better ways to have better information about pollutant sources, both from out of State, and from Federal activities in-State.

I just realized that your question to me about the location of the monitors may have been a reference to something in my testimony about funding for monitors and what that was was a reference to, in this case, the WRAP or regional—Western Regional Air Partnership, a sub-national but super-state kind of regulatory body that does not seem to be the most beneficial approach to dealing with the problem

Rather than appropriating funds to these kind of big State collective think-tanks and regulatory boards, we suggested that the money could be better spent, appropriated directly to the States for air quality protection, including purchasing monitors and placing them strategically.

It's not a debate of where the monitor should go, it's a debate of whether to send the money to sub-national groups, or to put into good science, and Colorado votes for good science.

Senator INHOFE. Mr. Seitz, your response?

Mr. SEITZ. Just in terms of the clarification for the monitoring money, that money again is, and does, go straight to the State of Colorado. The money Representative Mitchell refers to is the regional planning body money, which is, I think, in total a $6 million appropriation. That money is allocated to the correct sub-regional groups. It is for the purpose that Representative Mitchell talked about—the sharing of information.

For instance, in this area of the country CENSARA is a group of the technical experts from the group of States. They get together to share information on inventories, emissions, wind information, such as that.

I'm not sure what funds we are talking about. I think generally from the States, those funds for the regional planning groups in order to plan, cross each other, and have been very well received.

That does not in any way change the allocation of the monies to the States for the purpose of monitoring. That's a separate process altogether.

Senator INHOFE. Mr. Seitz, when I was asking the question about, "Is it the policy of the EPA to present the worst case as opposed to the case of the States," I asked Andrew Wheeler here to refresh my memory on the cost figures back during the ambient air fight, and he did.

The EPA was saying in direct response to my question during that time what is going to be the cost on ozone and particulate matter on an annual basis, and the EPA's estimation was between $6 and $8 billion.

Shortly after that, the present technical adviser, said it would be $60 million for ozone alone, and the region foundation out in California came along and said it would be $120 million for ozone and particulate matter.

It seems to me, and I get this more when we are having hearings in Washington, that we get this extreme case presented, as opposed to what we find out later to be the case.

So it is not you making these estimates, that's why it occurred to me to ask the question.

Mr. SEITZ. Well, if we are just talking history here, you recall the acid rain program, when we were talking about trading acid rain credits when those numbers first came around, and industry was projecting it would cost $4,000 a ton, and I think the last time I saw it was a $100.

I think the economic projections certainly move around. Let us say that.

Senator INHOFE. Well, that may be true, but I'll wait until we have the hearing where we have the witnesses who can defend that assertion.

Mr. SEITZ. I have given thought to your question about premature death. Anyone that died, before their time, would be my opinion.

Senator INHOFE. I plan to be one.

Mr. MITCHELL. I suggest that Mr. Seitz missed the more important issue, which is that premature death depends on whether it was your mother-in-law or my mother-in-law.

Senator INHOFE. Mr. Coleman, you discussed your testimony, the problem that Oklahoma had during the two Labor Days of 1998 and 2000. Can you explain why you believe these dates should be considered exceptional events and what the EPA has said about those dates?

Mr. COLEMAN. We have not yet submitted those data, and I'm sure that John will be very, very receptive to our data when we do submit it, but when you have peaks in temperature that are all-time peaks, our planning is not such that we can deal with that.

As a matter of fact, planning itself doesn't envision a worst case, but a predictable worse case. That's what planning is all about. The events that are beyond the pale of normal planning are the sorts of things that we are not able to predict, and it would be very unjustified on our part to attempt to design a control program that was based on things which had not yet happened. That is by definition, what does happen when you have record temperatures.

Senator INHOFE. Yes.

Mr. MITCHELL. Mr. Chairman, I would like to underscore something that Mr. Coleman just said, and I think it's just sort of two ships passing in the night, between the State position, and the view that Mr. Seitz has expressed.

In his opening remarks, he said that we have to plan for hot, smoggy days, too. We can't just set standards that apply to perfect weather, and none of us on the State side are asking for standards that apply only to perfect weather, but we are asking when something is truly aberrational, something, an extraordinary event causes conditions that in Mr. Coleman's words cannot be planned for or in common sense, can't be budgeted for, like building a freeway that never has a traffic jam, not even on the biggest, highest, most extraordinary traffic volume of the year, then those are issues that the States should not be accountable for, in the ordinary course of planning an operation.

Mr. SEITZ. Back to EPA. Senator, I would agree that there was hot weather. I also would agree that in the State of Oklahoma, over the last 25 years, 80 percent of the days when the temperature's been over 106°, there have been no exceedances of the ozone standard.

We talk about stagnation days. We talk about stagnation days in Tulsa. What about Springfield, MO? It is located relatively close to Tulsa, and I forget what the number of days for Tulsa exceeding the ozone standard was—33, I believe—which was the record. Springfield, MO, had 55. Wichita, KS, had stagnation of the same level. Oklahoma City had stagnation. How come there were no violations of the 8-hour standard in any of those places?

If you take a look at the emissions profile over the past 30 years, this has been no surprise. Hot temperature and precursors to ozone equals ozone. If you take a look at the emissions profile, and if I recall, and Mark, you're going to have to help me out here, in that same episode, Tulsa had called and indicated their biggest concern were the NO_X emissions, that were in their opinion, uncontrolled in the Tulsa area.

It was their hope that their working to control those emissions, would in fact, be a step in a positive direction.

I understand the weather is hot. I will never forget 1983. We were meeting with Georgia, and they said you can't make me design a plan to account for 1983. This year of stagnation will never repeat itself. It will just never happen again. Don't let me look at that.

Well, it was 1983, 1988, 1991, 1993, 1995, and 1998. These conditions are not that exceptional. We have seen the only difference is the emissions. Are the temperatures hot? Yes. Have they been hot in the past? Yes. Have they been hot in this region of the country? Yes. Have there been exceedances everywhere in this region of the country? No. You take a look at the emission profile of VOC to NO_X in these areas and they are the precursors. You see a spike for NO_X in this area.

Senator INHOFE. Mr. Coleman, do you have anything in response to that?

Mr. COLEMAN. Yes, sir. I would—I recall your days when you were mayor, and you were struggling, trying to come up with a way

to bring—return ourselves to attainment, and we took some rather stringent measures at that time, and we were successful, and we were the first State in the Nation to return completely to attainment, having been partially in nonattainment.

So we are very proud of the actions that we have taken to come back in attainment. Our situation is such that because of our planning, we sit right on the cusp of being in nonattainment at any given point in time, and it doesn't take much to cause us to fall over.

That is the nature of the system that we were supposed to design, is one which did what we needed to do to come to the edge, and we have.

Senator INHOFE. Yes.

Mr. COLEMAN. Thus, when there's an exceptional event like the hottest day, in the hottest summer on record, we did not plan for that, and furthermore, I would still say we would be derelict if we did. Now, should we plan for hot days? Of course we should. Do we? Yes, we do.

But, we don't plan for events that are just simply not predictable. We plan for events that are predictable.

Senator INHOFE. Yes.

Mr. COLEMAN. Even that causes a very high level of cost to our citizens to pay for the elevated cost of electricity, because we have additional controls that are necessary because of that.

Throughout our entire system, all the goods that are produced in our State, that added burden is there. A reasonable added burden is what we are responsible to add, and that's all we plan to add.

Senator INHOFE. Mr. Thomas, in your testimony, you called for the EPA to develop a coherent and flexible policy for dealing with long-term exceptional events that are beyond the control of the air quality agencies. Could you explain, what is wrong with the current EPA policy, and describe how such a policy should work, specific suggestions on what would make this easier?

Mr. THOMAS. I think our concern is that we, technically, do not understand the science that is occurring in these unusual events. Ozone generally forms, when precursors in presence of temperature and sunlight occurs.

In the case of these types of events, it appears that the ozone is carried in with the plume, that it's already there, or it may be forming in that plume. But when you have an event, where you have very high wind conditions, and you get very high ozone readings, that is completely contradictory to what normally happens.

Normally, you have stagnation, very low wind speeds, 3 to 4 miles an hour or 5, somewhere in that neighborhood, and you start to see a build-up of ozone over time, and it will wrap up over days, and you will see an episodic event several days long.

I think that we collectively need to advance the technology and the science for these types of events, and understand them better, and then develop a policy based on that new science that is coherent, that makes sense, that's reasonable, where you can define what is occurring.

Senator INHOFE. So you might say this falls into the category of "ready, fire, aim." You don't have the science there, to be able to

do something, and you have no control over the circumstances, and that's what becomes costly.

Mr. THOMAS. Yes, sir. It can become very costly to a State. For instance, in 1995—Texas experienced in 1994, a very low number of exceedance days, compared to past history. In 1995, that jumped very high. In 1996, it came back down. The explanation would be, I think, if you looked at just from a logical standpoint, the emissions had not changed that much over those 3 years. So something has changed, and we have generally attributed that to the meteorology.

There was a variability in the meteorology that caused that. Well, last year, I discovered that the northern Canada fires called the "Barille fires," occurring in 1995, had a tremendous impact on the State of Texas.

How that impact occurred, I'm not sure, or what occurred because we have not devoted the resources and time and effort to understand that science, that far downwind, but it definitely had an impact, and I just think we need to devote some resources to looking at these types of episodes and understanding them better, the science that's taking place.

Senator INHOFE. Representative Mitchell, you raised a number of valid concerns about how the Federal Government handles its burn policy on Federal lands. Of course, this includes a lot of different agencies, your forest service, Department of Interior, but what can the EPA do to help resolve this issue, the guy sitting next to you?

Mr. MITCHELL. I guess I would answer on two levels. Thank you, John. First, when a prescribed burn is obviously the source of particulate matter, or other pollutants that are then registered in a metropolitan area, they shouldn't be counted against the metropolitan area's attainment and pollution standards. The EPA should be aware that the State has no control over Federal lands, but indeed there's no control over the prescribed burn, but indeed it's an activity affirmatively caused by Federal activity.

That is in the strong case or in the exceptional case, particularly when a fire burns out of control. But as a more generally applicable matter, what Colorado would like, and I think when other States look at the issue, what they will want as well, is accurate information about the general contribution to haze and ozone problems that comes from prescribed burns, because information is always useful in valid policymaking.

If we are going to impose stringent new standards on metropolitan areas for haze and air quality, we want to know what baseline of pollution already exists, just by virtue of the burns on Federal lands.

So, what the EPA can do is encourage Federal agencies to comply with State efforts to get information, and to get pollution inventories from Federal agencies, so that policy can take into account whatever contribution to the problem comes from Federal agencies.

Senator INHOFE. Well, that is what I want to hear, is specific things like that. You know, these hearings, field hearings are not here for a lovefest. We really want to find out what the problems are.

Now, I would say this, and I know Mr. Seitz would agree, when we have our hearings in Washington, they are much more com-

bative, for some reason, than when we get out in the real people world.

But you know, we're embarking upon starting to—we've had three hearings already on the re-authorization to clean up. We are not going to string it out like it has been strung out before. We plan to do it in this coming Congress, and get it done.

So when we have these hearings, we want to find out, just like the hearing we had in Ohio, new source review, we want to know what is out there, can be done, and what is not working, and what to make of jobs, what things we can transfer to the States, to the local subdivisions, because if we don't hear from the States on this, then we're going—I can assure you we are going to be hearing from the Federal side on this, and that is why this is so important. Yes.

Mr. MITCHELL. Well, if you're looking for argument, I can give you a little more specific comment. With regards to the two bills in Colorado that I mentioned, one specifically regulating Federal burns, and saying Federal Government, you need to demonstrate that this is the most environmentally sound way to approach the problem, and you need to demonstrate your plan to avoid pushing the State to nonattainment.

That was Senate bill 145. The other bill that I sponsored, that said public land managers and owners, you need to inventory your activities on those Federal lands, on the Federal lands that you manage, and tell us what pollutants are likely to come out of those activities.

The response has been troubling, in that prescribed burns are valued land management tools for the reasons that we earlier described, because the suppression—I mean, I'm talking in a circle. Let me back up for a minute, and say we used to suppress fires on public lands, and the problem that that produced was, you have a buildup of tremendous tinderbox conditions, and when fires do strike, they burn out of control.

So, a more sound approach, and more environmentally approximating what nature does, is to have these occasional fires in these areas.

When a State comes along and says, "Well, wait a minute, we want to know how much pollution you are producing, and how much we are being held responsible for, or particularly, if you burn out of control, we don't want to be pushed into nonattainment, so we want to take some steps to gather information about these burns," the reaction is one of, "No, we don't want you to look at that, because we like prescribed burns, and we think it's a good environmental tool, and we don't want this information to come out, because it might question our policy judgments on prescribed burns."

On my bill on inventories, on activities in Federal lands, we had a witness from the Army Corps of Engineers, I believe, and also a witness from the Sierra Club, just come talk about what a wonderful thing prescribed burns were, and why it was a terrible idea we should be trying to get this information.

To which I think the reasonable response is, that's great, that prescribed burns are a valid tool of land management, but we still want to know what they are doing to the environment, what they

are doing to the atmosphere, so that other broader policy can take that into account.

So what can the EPA do? It can cooperate with such efforts, instead of opposing such efforts, and it can encourage other Federal agencies and land managers to cooperate with such efforts, instead of opposing such efforts.

Senator INHOFE. You're wiggling, Mr. Seitz.

Mr. SEITZ. I am in agreement, and as a follow-up to this, we need to personally call Representative Mitchell back. As you know, we testified last year about the memorandum agreement that was signed by these agencies, and I believe the State of Colorado has a smoke management plan in place at the State level. If they do, and a State SIP, there is a requirement of those agencies to share the exact information that Representative Mitchell is talking about, with the State agencies, to accomplish the exact purpose that you're referring to.

For instance, last year in Colorado, for prescribed burns, I believe PM_{-10} in the Federal sector, were somewhere around 1,200 tons of emissions expected from that, versus the 46,000 tons from mobile sources, and 19,000 tons from stationary sources.

So, if I have the inventory in my office in North Carolina, I will follow up with Representative Mitchell personally, and dig into this a little bit, and find out there's a State plan. The Federal agencies are supposed to be at the table working with the State on the exact information that Representative Mitchell is talking about.

Senator INHOFE. Well, we've had a lot of hearings addressing things we will be considering in the re-authorization of the Clean Air Act such as the new source review.

But, in this case, we're talking about how States deal with problems over which they have no control. I would ask these three. Probably, Mr. Seitz, you would not want to speak, certainly not on behalf of the EPA, but I mentioned a bill of legislation that we're going to introduce that would very simply say those things. It would require the EPA administrator to disregard monitoring data if the data has been influenced by exceptional events, events that are beyond your control, if it is requested by the Governor of the State. Would that be helpful?

Mr. THOMAS. I think it would be very helpful to the State of Texas. We have enough occurrences of high ozone, primarily the only pollutant that we are having difficulty with when we're not having exceptional events. I think to have a law that allowed for the setting aside of the entire event, would be acceptable to us.

Mr. COLEMAN. Yes, sir. We obviously believe that would be very much the case. There probably does need to be some mechanism for EPA to challenge those days or challenge that determination, but we believe the shoe ought to be on the other foot, from the current situation, and that gets to the exact issue we are here.

Senator INHOFE. Any thoughts, Representative Mitchell?

Mr. MITCHELL. I will take the comments of Mr. Thomas and Mr. Coleman.

Mr. SEITZ. Me, always ready to tread where I shouldn't.

Senator INHOFE. Well, you know, the big issue, we are—I've chaired this committee now for 4 years, and regardless of which area we're addressing, the argument seems to come, is there an in-

ordinate amount of influence of power and decisionmaking in Washington, as opposed to the political subdivisions.

Right now, we're not sure what the administration is going to be in Washington in the next term. It might shock you, Mr. Seitz, to know that I have a preference, but when it does happen, and we have a different——

Mr. SEITZ. Senator, as you know, I'm a career civil servant.

Senator INHOFE. Then I think the thrust, and you find this in both party platforms, the Republicans do want to get as close to the problem as possible and we have tried to divest the power from Washington.

And the other extreme is, and I know it's hard for Oklahomans to understand this, but there are people I deal with, on the floor of the Senate, on a daily basis, who believe that no good decisions are made, unless they are made in Washington.

So this is going to be—we wanted to know these things. As we get prepared for continuing our hearings, which we will be having when we get back in January, the re-authorization of the Clean Air Act, we want to come to you in your States, find out what specific things that you want to talk about, the ideas you have.

You have expressed some today. I would ask you, at this point, if there are any more that you want to express. This is your time to do it.

Now, what we are going to do for the next, what, next 7 days, have you submit, after we have had this hearing, specific ideas that you would like to have considered during the time that we go through this re-authorization process.

So I expect you to do that in writing, at a later date, but for right now, is there any real strong recommendation that you would have from the State of Oklahoma, Mr. Coleman.

Mr. COLEMAN. Senator, as you know, we worked on the Clean Air Act when it was rewritten. Our position is that there are a number of places that the Act goes further than was necessary.

An act may have—may have more meaning, or may have more need on the two coasts, than it does in our portion of the country, but in our portion of the country, I think it's very clear that there needs to be a whole lot more ability to make determinations here, than making them somewhere else, particularly, when they're made somewhere else, based on conditions that do not exist here.

Senator INHOFE. In other words, one-size-doesn't-fit-all.

Mr. COLEMAN. No, sir.

Senator INHOFE. Mr. Thomas.

Mr. THOMAS. I think we will submit some ideas. Right now I'm not——

Senator INHOFE. All right.

Mr. THOMAS. I'm not going to throw any out.

Senator INHOFE. Anything else, Mr. Mitchell?

Mr. MITCHELL. No, thank you, Mr. Chairman. I wouldn't have anything at this time to add to my testimony and the discussion.

Senator INHOFE. All right. Mr. Seitz, any comments you want to make?

Mr. SEITZ. Just one final thought. As we go down the requests that are submitted, we need to think about what we've learned over the last several years. Mr. Coleman and the State of Texas

had a few debates recently, about putting monitors for ozone on the border.

A Governor that makes one decision with respect to that data, doesn't necessarily make a decision that may be endorsed by another Governor. Any process that vests authority in one particular subdivision without, as Representative Mitchell testified, a good process which would involve technical review, national consistency is a process that will ensure only that section 126 petitions will be filed by one Governor to another Governor.

So as we move forward with moving the decision point away from Washington to the States, which is what the Clean Air Act has always envisioned—the State Implementation Plan—those plans have got to be developed with the awareness that wind blows pollution.

Senator INHOFE. And we understand that and it's not a piling on down here, and there's a lot of things these three would disagree with each other, and I'm sure Mr. Coleman would want Mr. Thomas to keep his ozone from the Dallas-Fort Worth area from coming into southern Oklahoma.

So we realize that those boundaries don't exist, but we are out here and close to the problem, and for that reason, I am soliciting your recommendations as we progress along, and we talk about other specific areas as we do that.

Mr. THOMAS. Thank you, sir.

Senator INHOFE. Any last comments anyone would like to make?

Mr. SEITZ. Thank you very much.

Senator INHOFE. Thank you. Thank you all for coming. We appreciate your attendance here today. We are adjourned.

[Whereupon, at 4 p.m., the subcommittee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

TESTIMONY OF JOHN S. SEITZ, DIRECTOR, OFFICE OF AIR QUALITY PLANNING AND STANDARDS, U.S. ENVIRONMENTAL PROTECTION AGENCY

Good morning Chairman Inhofe. Thank you for the opportunity to testify today. It is my pleasure to be here in Oklahoma City.

Today I am going to discuss how the Environmental Protection Agency's (EPA's) policies preserve public health protections by addressing the man-made sources of air pollution in the context of both unusual, but foreseeable, meteorological episodes, as well as truly exceptional or unpredictable natural events.

As is the case with others testifying here today, our primary mission at EPA is to protect public health. Air pollution is associated with a variety of serious health and environmental problems. For example, breathing particulate matter can aggravate pre-existing respiratory ailments, reduce lung capacity and even result in premature death. Carbon monoxide can aggravate angina (heart pain). Photochemical smog can impair lung function, cause chest pain and cough, and worsen respiratory diseases and asthma. We have made great strides as a nation reducing levels of all of these pollutants. EPA's role in this has entailed a wide variety of actions ranging from setting national air quality standards that protect the public health, to requiring power plants to reduce emissions of harmful air pollution, to setting standards for vehicle emissions, to working with State and local governments to ensure that they have the necessary tools to implement plans to reduce air pollution and to inform the public about air quality.

The Clean Air Act, a law created and amended with strong bipartisan support, provides the blueprint for our efforts to clean the nation's air. Between 1970 and 1999, total emissions of the six principal air pollutants decreased 31 percent. This dramatic improvement occurred simultaneously with significant increases in economic growth and population. For 30 years, the Clean Air Act has provided critical health protection to the American public. The 1990 Clean Air Act alone will bring

huge health benefits. For example, EPA's central estimate is that the annual benefits in 2010 when the 1990 Clean Air Act is fully implemented will include: 23,000 fewer incidences of premature mortality; 67,000 fewer cases of chronic and acute bronchitis; 64,000 fewer respiratory and cardiovascular hospital admissions; and 1.7 million fewer asthma attacks.

Over the past 30 years, EPA has developed a series of policies and programs to address the fact that weather and other uncontrollable natural and exceptional events can influence air quality. Our implementation of those policies and approaches confirm our commitment to balanced, common-sense, cost-effective strategies to protect the public from the dangers of air pollution. EPA and the States have worked together under a variety of different circumstances, such as the Mount Saint Helens eruption, clean-up of debris after Hurricane Andrew devastated south Florida, and the pollution from the 1998 Mexican wildfires situation, to determine the most appropriate way to deal with air quality data associated with natural or exceptional events.

Before I describe how EPA accounts for various exceptional and natural events such as volcanoes, wind storms and fires in our regulations, I would like to provide a brief background on the role of meteorological and geographic factors in people's exposure to air pollution.

In 1948, a fog descended over Donora, Pennsylvania. An unusual set of weather circumstances—a stagnant temperature inversion—trapped the smoke from the coal-burning fireplaces and industrial plants in the valley. The air grew heavier. By the time the weather shifted, the air pollution trapped over Donora had killed 20 people and over 5,000 people reported illness. That unusual and horrific combination of man-made pollution and weather ushered in a new era of understanding regarding the health impacts of air pollution, and awakened a new awareness of the impact of human activity on our quality of life.

Obviously, we have made tremendous progress since that terrible incident. Since 1970, we have reduced emissions of sulfur dioxide by 37 percent, lead by 98 percent and carbon monoxide by 31 percent. In the last 10 years, ambient levels of particulate matter (PM_{-10}) have dropped 18 percent. Since 1990, EPA has also put in place rules that will prevent 1.5 million tons of toxics from being released into our air. The work of the States, local governments, Federal Government and the various industries have brought about these dramatic improvements, and all Americans are better off because of it.

The role of weather and other natural factors in air pollution remains a fact of life. Weather can exacerbate air pollution problems. The tragedy in Donora involved an unusual meteorological episode, but what made it deadly was the human-caused pollution in the air. Our knowledge about these kinds of interactions has evolved over the years, and so have our policies and standards.

The history of how States and EPA have worked together to develop programs to address ground-level ozone is an excellent example of how EPA's approaches factor in unusual climatic episodes in developing plans to reduce emissions. Ozone is unhealthy to breathe, even at low levels. It affects a variety of individuals, including healthy children and adults who are active outdoors during the summer. Ozone can also aggravate asthma, and make people more sensitive to allergens. Ozone also increases people's susceptibility to respiratory infections. It can inflame and damage the lining of the lungs, much like a sunburn.

Unlike many other pollutants, ozone is not emitted directly into the air. It is formed when emissions of nitrogen oxides (emitted from power plants, motor vehicles and other industrial sources) chemically react with volatile organic compounds (emitted from motor vehicles, petroleum refineries, chemical plants and other sources) in the presence of heat and sunlight. Because it is triggered by sunlight and heat, ozone in the air we breathe tends to reach its highest levels during the summer months, often when the air is stagnant.

When States are developing their emission reduction control programs to meet the air quality standards for pollutants like ozone, EPA requires them to take into consideration stagnation episodes and other periods that are conducive to ozone formation. The States must reduce emissions to the point that they can meet the air quality standards even during hot, stagnant periods of the summer. This approach has been very successful. Southern California, for example, has reduced its number of days exceeding the national ozone standard from 133 to 39 in the past 10 years alone, despite its hot summer temperatures.

The history of our national air quality standard for ground-level ozone demonstrates how EPA's approaches to providing public health protection have evolved while also allowing us to address other factors, including unusual climatic episodes. The air quality standards are set in a way that balances the level and form of the standard so that public health is protected, and, at the same time, provides a stable

benchmark on which to develop implementation programs. In the 1970's EPA set a national air quality standard for photochemical oxidants, measured as ozone. That standard was set at 0.08 part per million and was not allowed to be exceeded for more than 1 hour per year. By 1979, the review of new scientific health effects studies served as the basis for EPA's revision of the ozone standard. This revision took into account the fact that it is the level and the form of an air quality standard that together determine the degree of public health protection. EPA set the revised air quality standard at a level of 0.12 parts per million over a 1-hour period. EPA also changed the form of the standard so that it could be exceeded any 3 days over a 3-year period. In part, this inherently made some allowance for unusually high ozone levels that could result from unusual weather during any given year.

Then, in 1997, based on an extensive review of the most recent peer-reviewed science, EPA again revised the ozone standard, changing the averaging time from 1 hour to 8 hours, setting the level at 0.08 part per million, and establishing a new, more flexible form that is based on the fourth highest daily concentration in a year, averaged over 3 years. This revised standard will protect public health from the prolonged exposures to ozone at lower levels—shown by the new research to adversely affect people's health—while better taking into account unusual, but foreseeable meteorological episodes. In a nutshell, that means an area may have many more exceedances of the 8-hour standard than was the case with previous ozone standards before EPA determines that an area is violating the national air quality standard.

EPA provided similar additional flexibility when we revised the ambient air quality standards for particulate matter in 1997 by establishing new fine particle standards with levels set in conjunction with more flexible forms.

EXCEPTIONAL EVENTS POLICY

In 1986, EPA worked with States to develop what has become known as the Exceptional Events Policy. This policy was designed so that singular events—such as a volcanic eruption—that create air pollution levels above the health-based air quality standards are excluded from the data used to determine if an area is meeting the standards.

The definitions and associated criteria in the policy provide some flexibility in their application to an individual event. Under the policy, an "exceptional event" is one that is not expected to recur routinely at a given location, that is uncontrollable or that is unrealistic to control through State implementation plans. Judgment is needed to identify whether an event is exceptional in the area of the country where it has occurred. For example, the dust caused by salting and sanding streets in a southern city may occur infrequently, but such conditions would not be exceptional in the northeast. Similarly, 40-mile per hour winds may occur infrequently in the southeast, but they may be the norm in central and western States.

This policy also addressed other events, such as stratospheric ozone intrusion; chemical spills and industrial accidents; infrequent large gatherings, events expected to occur less than once per year; as well as clean-up activities after a major disaster.

NATURAL EVENTS POLICY (1996)

The Natural Events Policy was created because certain events, such as wildfires and dust storms, were affecting particulate matter (PM_{-10}) concentrations in many areas several times a year. As a result, EPA worked in partnership with State and local air pollution control agencies to develop a policy for addressing violations of the air quality standards for particulate matter (PM_{-10}) caused by natural events. This policy supersedes the Exceptional Events Policy for three events: wildfires, high winds (dust storms), and volcanic and seismic activity.

The Natural Events Policy helps provide increased public health protection by minimizing exposures and reducing levels of particulate matter emissions during forest fires, dust storms, volcanos, and earthquakes. Under this policy, when such a natural event is determined to be the cause of a violation of the particulate matter (PM_{-10}) standard, EPA works with the States to ensure that they are not penalized for this violation if the State develops and implements a natural events action plan.

Natural Event Action Plans include public notification and education programs, procedures to minimize public exposure to high PM_{-10} concentrations, and measures to abate or minimize PM_{-10} emissions from industrial and other sources that are controllable and are contributing to the problem with best available control measures. When the best control measures for an emissions source are not known, the States must commit to identify, study and implement practical control measures in the future.

OZONE EXCEEDANCES DUE TO THE 1998 MEXICAN AND CENTRAL AMERICAN FIRES

In 1998, EPA began working with several States, including Oklahoma, to determine how best to address the impact on ground-level ozone and particulate matter levels in the United States caused by catastrophic fire events that burned out of control in Mexico and Central America. We set up a workgroup comprised of national air quality experts and developed technical guidance for identifying when and where the fires affected air pollution levels. The guidance included the use of sophisticated, yet readily accessible technical tools such as satellite imagery and ground-level visibility measurements to assess the smoke plume location and movement. The guidance addressed possible impacts on peak daily monitored ozone levels downwind of these fires and methods for technically justifying the exclusion of certain ozone values above the level of the standard from use in subsequent compliance calculations.

EPA received requests from nine States to exclude certain days of ozone data from compliance calculations due to these fires. Using our guidance, we carefully reviewed the various requests in consultation with other outside experts from the National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA), and academia. As a result of this process, we were able to concur with most of the requests from those nine States, including Oklahoma.

CONCLUSION

In summary, EPA has a long history of developing policies and approaches that protect the public health, while taking into account truly exceptional events. We have worked with States to fashion very balanced and protective approaches to address the effects of uncontrollable events that contribute to air pollution episodes.

Regardless of what causes any given air pollution event, people must breathe. Children, asthmatics and the elderly are especially vulnerable to the health problems caused by air pollution. Our policies are designed to protect people, while at the same time focusing Federal, State and local air pollution control strategies on those aspects of the problem over which EPA and State and local governments can control—emissions of industrial and other pollutants into the air.

Mr. Chairman, this concludes my written remarks. I would be happy to answer any questions that you may have.

TESTIMONY OF REPRESENTATIVE SHAWN MITCHELL, REPRESENTATIVE FOR THE STATE OF COLORADO

Good morning Mr. Chairman and members of the subcommittee. I understand that today you would like to hear from States on some of the innovative strategies we have used to protect our air quality from impairment due to Federal fires and also to take recommendations for Federal legislation on this issue. Colorado has been a leader with respect to dealing with this issue, and I truly appreciate you making the subcommittee available.

Let me begin by explaining that I am an elected State Representative from Broomfield, Colorado, which is located between Denver and Boulder. I serve on the Health, Environment, Welfare, and Institutions Committee, as well as the Judiciary Committee, and the Legislative leadership committee (Legislative Council). I have sponsored State legislation regarding both Federal lands and air quality protection. As you know the roles of State and Federal Government dealing with both federally managed lands in western States and with environmental protection are muddled at best. I hope today to present to you mandates that the Federal Government has placed on the State of Colorado that do not adequately allow the States to account for and regulate a major source of air pollution—wild land fire and prescribed fire occurring on Federal lands. This is indeed an area I suggest Federal and State legislators should be working in tandem to rectify.

Colorado has taken action designed to protect air quality and visibility as well as public welfare in our State. The visibility issue is of particular importance to Colorado because of our unique status as a receptor State of air pollution generated in other States combined with our large number of National Parks and Wilderness Areas. I will include in my testimony ways in which Federal legislation could make our job at the State level easier while also promoting cleaner air.

Colorado is blessed with 13 (soon to be 14) pristine national parks and wilderness areas. We are proud of these areas and take great pride in our air quality programs to protect visibility and air quality in those areas, and throughout our great State. From Rocky Mountain National Park and Mesa Verde, to Black Canyon and the

soon to be Great Sand Dunes National Park, we welcome visitors to our State to enjoy these natural wonders.

These pristine natural wonders are sources of great pride to Coloradans, however, they are also significant sources of air pollution that impair our air quality.

We are also very proud of the improvements we have made to air quality in our cities. The Denver metropolitan area, we are pleased to say, has attained the National Ambient Air Quality Standards for Carbon Monoxide, 1 hour summertime ozone, and PM_{-10}.

We have not had a violation of those NAAQS for sometime, and have established programs to continue to improve or maintain our air quality. I would ask that this recent report from the Colorado Air Quality Control Commission be included in the record.

Unfortunately, we cannot claim such good news with regards to EPA's new 8-hour summertime ozone standard. Unusually high measurements recorded during the summer of 1998 have potentially put us back into nonattainment. These high readings, some believe, have contribution from wild-land fires during that hot summer, and again in the 2000 summer.

I would like to point out four areas where we have taken action to improve or protect our current air quality and visibility. These areas are:

1. A smoke management memorandum of understanding between the State of Colorado and local, State, and Federal land management agencies that lays out the responsibilities of all the parties to a prescribed burn. The Department of Public Health and Environment is the lead environmental protection agency and their role is to permit the prescribed burns of Federal Government and State land management agencies.

2. Legislation authored by me and passed by the Colorado General Assembly that will require the Colorado Department of Public Health and Environment and the Colorado Air Quality Control Commission to establish an inventory of emissions from Federal and State lands. This inventory will help Colorado's Air Quality Control Commission develop programs to further protect visibility in our pristine areas.

3. Actions taken by Governor Owens of Colorado, after the disastrous National Park Service prescribed fires in New Mexico, to review existing permits and permit applications to ensure that adequate plans are in place to protect the environment and public safety prior to the ignition of a prescribed fire in Colorado.

4. Legislation passed by the General Assembly, we believe is consistent with Section 118 of the Clean Air Act, that requires land mangers to prepare plans for burns, receive permits from the Department of Health and pay fees for the emissions of criteria air pollutants the same as any other source in Colorado.

The State of Colorado and other Western States are being squeezed with the dual vices of tighter national air quality standards, and new visibility standards while also facing increased emissions from natural, and prescribed fires on Federal lands. I would like to ask that this chart which I pulled off of the Department of Interior's web page be included in the record. It clearly shows there has been a dramatic increase in the use of prescribed fires over the past 5 years. In 1995, the USDA and Department of the Interior used prescribed fires on 918,300 acres of land across the United States. In 1996, that total went slightly down to 915,163 acres, in 1997 that total was 1,601,158 acres, in 1998 it was 1,889,564 acres, and in 1999 the total acres burnt in the United States rose to 2,240,165. This is a staggering increase that we believe is contributing to adverse visibility impacts and regional haze in Class I areas across the country and increased pollution in the areas surrounding where the burns occur.

As I mentioned earlier, we have a Smoke Management Memorandum of Understanding. This agreement was forged in 1994, and updated in late 1999 and provides some framework for the relationship between the State, the Federal Government, and local governments. This MOU was a productive first step toward compliance by the Federal Government with our environmental laws. It required them to minimize visibility impacts from their activities, demonstrate that no State or Federal air quality standards will be exceeded as a result of the burn, and to maintain a system for establishing an inventory of emissions.

While this was a good first step, many of us at the State legislature believed that more should be done. So, in 1999 we passed two pieces of legislation that protect and enhance air quality and visibility in Colorado.

The first law made the provisions of our State Clean Air Act regarding permitting applicable to the Federal land managers. Activities on Federal lands are the last clearly identifiable, major source of air pollutants that we had yet to require programs for air quality management. SB 145 legislatively required the establishment of a management program for prescribed burning. It required the Federal Government to submit a document that describes their future emissions of air pollutants.

It required that the Federal agencies use, "all available practicable methods that are technologically feasible and economically reasonable in order to minimize the impact or reduce the potential for such impact on both the attainment and maintenance of" State and Federal air quality and visibility standards.

To put this law into context, it simply required Federal land managers to provide information to the Air Quality Control Commission so they could establish permitting and regulatory programs to meet the same EPA mandated Federal standards for air quality that industry was forced to comply with over 20 years ago.

Another issue we faced in this regard is that western States have not required the Federal agencies to inventory the pollution generated from prescribed burns. This leaves States like Colorado with inadequate information about pollutants being transported into the State from wildfires and prescribed burns in adjacent States.

This is important because without the emission inventories from wild land and prescribed fires States cannot adequately prepare the EPA mandated State Implementation Plans for Regional Haze due beginning as early as 2003.

One remedy that I would suggest, is that you, Congress, direct the Federal land management agencies to inventory their emissions from both prescribed and wildfires. I would also suggest that you require them to provide those inventories to all downwind States so that we can adequately prepare our State Implementation Plans for Regional Haze and begin to effectively work to demonstrate reasonable progress toward attaining the Federal mandates.

To manage this issue within our State, we passed a second piece of legislation that will be very important in future years for policymakers in Colorado. It requires that the State and Federal land managers prepare inventories of all emissions from their lands. This information will give us an idea of the amount of haze and ozone precursors that prescribed fires are contributing to air pollution in Colorado. This legislation also requires that emissions inventories be prepared for government agency controlled stationary sources and mobile sources, as well as prescribed fires. However, there is some uncertainty with respect to the willingness of the Federal executive branch to comply with this law. It would be helpful if Congress were to clarify with the land management agencies that compliance with State permitting programs for air quality purposes is required.

The final step that Colorado has taken with respect to prescribed fires occurred after the tragedy in New Mexico. In order to ensure the protection of the people in Colorado as well as our forests, Governor Owens placed a moratorium on the issuance of new permits for prescribed fires. He also placed a suspension on existing permits until they could be reviewed by State officials to ensure that adequate protections were in place. Air Quality and Forestry officials worked together to establish criteria under which the permits were reviewed to ensure the protection of public safety as well as the environment. The Air Quality Control Commission is reviewing the current Smoke Management MOU mentioned earlier and will consider adding the new criteria to be reviewed before a burn could be initiated, such as checking for the most up to date meteorological conditions prior to setting the fire.

I would also like to recommend that money not be appropriated to regional organizations such as the Western Regional Air Partnership (WRAP) but instead be sent directly to the States for their use. As you know Mr. Chairman, the Regional Haze Rule has been very controversial and will be very difficult to implement. One of the difficulties for a State like Colorado is that we don't believe we have sufficient data to make an informed decision. We believe that money being sent to the WRAP could be better used by States such as Colorado for monitors along our borders that could identify pollutants being transported into our State. Also, additional monitors could help us better understand what air pollution is coming from Federal lands within our State.

Also, I would like to recommend that Congress examine the impacts of Federal use of prescribed fire on air quality standards as well as examine what impediments there are on States in holding the Federal Government liable for the pollution they cause. If our experience is similar to those of other States then it seems that the law should be clarified so that Federal agencies have a directive from Congress that they need to comply with the Clean Air Act.

Thank you again for having this hearing and thank you for allowing me to testify.

TESTIMONY OF MARK S. COLEMAN, EXECUTIVE DIRECTOR, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

Mr. Chairman, and members of the committee, it is a pleasure to appear before you today and speak to you on the topic of exceptional events and how they are re-

lated to air pollution control strategies. Such events can be natural or manmade, but are usually considered exceptional because they are either so out of the ordinary that they are not expected to recur routinely; or their very nature makes them unrealistic to control through the environmental planning process. How can a control agency effectively plan for meteorological conditions that could significantly affect air pollution levels when those conditions are expected to occur only once or twice in a century? Should our control strategy be predictable or unpredictable events?

We feel it is appropriate to hold such hearings in Oklahoma, as our State is no stranger to such exceptional events. It seems we truly get more than our fair share. In just the past few years, Oklahomans have experienced drought, floods, fires, a major tornado and a tragic bombing. A prime example of an exceptional event in Oklahoma and its relationship to air pollution is a vivid and integral part of our State's history. The extreme meteorological conditions associated with the Dust Bowl Days of the late 1920's and early 1930's were responsible for the loss of millions of tons of topsoil and the resultant air pollution, which devastated the environment and economy in our area of the country. We can only imagine what the particulate loadings to the atmosphere were back then, but I would surmise that present day National Ambient Air Quality Standards were greatly exceeded.

And exceptional events continue to affect us today. Dust storms and wildfires, which can greatly contribute to air pollution, still occur with some regularity; likewise, periods of drought, dominant high-pressure ridges, and abnormal wind patterns can greatly exacerbate various air pollution levels.

Let's examine a recent exceptional event that had environmental impacts on Oklahoma. During the spring of 1998 there were numerous significant forest fires in Mexico and Central America's Yucatan Peninsula. These fires made national news and produced an air pollution episode that was a truly extraordinary event and beyond the control of State and local air pollution control agencies. It was definitely documented that besides causing high particulate levels and haze, these fires were also responsible for high levels of ozone. Air pollution from these fires affected many areas of the United States, but the haze and particulates were so severe that during the episode, areas of Texas and Louisiana were issued health advisories. Those fires began in early spring, and were not extinguished until in the summer.

On May 11, 1998 abnormally elevated ozone values were observed in the Oklahoma City area. These values were higher than expected because they occurred on a day with relatively high wind speeds and mild temperatures, conditions not normally conducive to ozone formation. In fact on May 11 the Edmond, Moore, Oklahoma City, and Goldsby sites experienced 8-hour maximum ozone values that became the 4th highest ozone values for the entire year. It is these fourth highest values that are the critical ones used in the calculations to determine an area's attainment status. And all this was occurring about the time of the height of the fires' impact on Texas and the Gulf Coast. Later after reviewing ambient data, investigating meteorological conditions, observing pollution levels throughout our part of the country, and making use of extensive satellite photography, it became apparent to our Air Quality Division that the Mexican fires were the most probable cause for the elevated ozone values in the Oklahoma City area on May 11. During 1998 and 1999 the DEQ worked diligently with the Environmental Protection Agency to try to exclude data from the extraordinary event when determining our attainment status. Using available satellite photography, we felt we had some very convincing evidence that the plume from the Mexican fires impacted central Oklahoma on May 11 and met EPA's exclusion criteria. Nevertheless, we were unable to convince EPA of our position.

(Visual demonstration on proximal showing plume impacting Oklahoma City area)

Even more recent exceptional events have influenced air pollution concentrations observed in Oklahoma. This year, one of our monitoring stations in Tulsa experienced ozone concentrations that caused a violation of the 1-hour ozone standard. This was the first violation of the 1-hour ozone standard experienced in Oklahoma in many years. In fact, it is the only violation of the standard that has occurred since additional SIP control measures were required in 1988 and our nationally copied ozone alert programs were implemented in the early 1990's. Nevertheless, four exceedances occurred at the site over the last 3 years: three of the exceedances surprisingly occurring during the Labor Day weekends of 1998 and 2000. Coincidentally, during both these weekend periods, the Tulsa area found itself under extremely abnormal meteorological conditions, which we feel qualify as exceptional events.

On September 4, 1998 the day of one of the ozone exceedances in question, the high temperature in Tulsa was 107° F., an all-time record for the day and 14° above the normal daily high. In fact, this day was the hottest day of the hottest summer

since record keeping began in 1895! The only comparable period was the "Dust Bowl Era" which peaked in 1931! The reason for this extraordinary heatwave was primarily an abnormally long lasting high-pressure ridge that dominated the region. Such high-pressure ridges are accompanied by light surface winds and "sinking" air which traps pollutants. According to the National Oceanic and Atmospheric Administration (NOAA), northeastern Oklahoma can expect two or fewer stagnation cases per year and less than 10 total days of air stagnation. In 1998 we set an all time record for Oklahoma air stagnation with 33 days!

The two Tulsa exceedances on Labor Day weekend of this year occurred on September 1 and 2. The high temperature in Tulsa on September 1 was 108° F., which was another all-time record for the day and 14° above the normal high. The high temperature of September 2, 107° F, was the highest on that date since 1939. These hot days followed the driest month since 1896. Stagnation days were again much more prevalent than normal during this period. The particular air stagnation event, which immediately preceded the Labor Day weekend 2000 high ozone values, was in its 12th and 13th consecutive days when the high value occurred.

Clearly, the truly exceptional weather conditions that occurred in the Tulsa area during the Labor Day weekends of 1998 and 2000 significantly contributed to our ozone violation. As you are aware, ozone is formed by unique photochemical reactions between volatile organic compounds, oxides of nitrogen, and sunlight. High temperature and stagnant conditions accelerate the process. Since we feel that these abnormal conditions are completely beyond our scope of control, we will be requesting that the EPA exclude data collected on the days in question when determining the areas attainment/nonattainment status for the 1-hour standard.

As you can see, exceptional events have uniquely impacted environmental planning in Oklahoma. The Clean Air Act requires the States to monitor their air sheds for specific criteria pollutants. The concentrations observed are then compared to health standards. If the standards are exceeded, then control plans must be developed and implemented. The problem arises when data collected are skewed by exceptional events whose occurrence is almost always infrequent or outside the control of the regulatory agency. Declaring an area a nonattainment area using data collected during an exceptional event just doesn't make good sense. EPA must make its guidelines on how to exclude such data as clear and concise as possible, and yet be flexible enough to accept valid scientific arguments. Specifically, we feel that EPA guidance on exceptional events particularly relating to ozone needs revision, especially allowing abnormal stagnation events and inversions to be considered the exceptional events they in truth are. We feel that draft guidance published by the Agency in 1994, though never finalized, goes a long way in meeting this objective. We believe this draft guidance is much more appropriate than the Agency's official 1986 version because it provides a mechanism for "flagging" extreme weather events.

We further contend that it is the affected State, not EPA, that is in the best position to determine whether an event is considered exceptional or not. It is also our suggestion that the Clean Air Act be amended to specifically exclude air quality monitoring data shown to be influenced by truly exceptional events when determining compliance with the National Ambient Air Quality Standards.

Thank you, Mr. Chairman.

STATEMENT OF JIM THOMAS, DIRECTOR OF TECHNICAL ANALYSIS, TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Good afternoon Mr. Chairman. My name is Jim Thomas. I am director of Technical Analysis at the Texas Natural Resource Conservation Commission. Our agency implements a broad range of regulatory and nonregulatory activities that protect the health of Texans and their environment. The agency is led by a three-member commission appointed by the Governor. About 3,000 staff members work in Austin and at 16 regional offices around the State.

Thank you for the opportunity to testify today about weather-related events and their effect on ozone nonattainment under the Clean Air Act. Recurring natural events in the United States and foreign countries often influence air quality in Texas. Southwestern dust storms, Saharan dust, agricultural fires, and forest fires are just a few of the influences that we face. Today, I'd like to discuss one case in particular—the agricultural fires that occurred in 1998 in Mexico and Central America, the effect of the smoke on air quality in Texas, and the need for consistent policy and guidance at the national level on exceptional events like this one.

AGRICULTURAL FIRES IN MEXICO AND CENTRAL AMERICA

During the period from April 1, 1998 through June 20, 1998, large amounts of smoke were transported into Texas from fires in Mexico and Central America. Even though agricultural burning is conducted every year in Central America, the smoke's intensity was unprecedented in recent history. The fires were unusually intense and widespread because of severe drought conditions in Mexico and Central America. The smoke also produced high levels of ozone and carbon monoxide. These pollutants accompanied the smoke into Texas.

By May, 1998, smoke intensity climbed to levels that threatened public health. Concerned by this threat, the Texas Natural Resource Conservation Commission stepped up it's air quality monitoring activities and worked with the news media and other governmental agencies to make the public aware of dangers posed by these smoke levels. When our agency became aware of unusual air quality monitor readings, we shifted additional ground monitors into the Rio Grande Valley and made numerous flights with an airborne sampling platform operated by Baylor University. In addition, our agency posted information and warnings on our Web site, established a toll-free information hotline, and issued public health alerts through the news media.

ANALYSIS OF THE SMOKE

After the conclusion of this event, we undertook an analysis of the association of high ozone and carbon monoxide levels with smoke transported from Central America. Evidence of this relationship came from aircraft data and from a comparison of the peak smoke day with a non-smoke day. Numerous aircraft flights during the smoke period found layers of smoke aloft that contained greatly increased ozone levels. Ozone levels aloft as high as 100 to 140 parts per billion were found in association with smoke layers.

The comparison of the peak smoke day at Brownsville on May 8, 1998, with a non-smoke day, October 3, 1998, showed that ozone, carbon monoxide, and particulate levels were much higher on the smoke day—even though the wind speed, wind direction, and temperatures were almost identical on both days. Ozone levels on the peak smoke day reached peak 1-hour values near 100 parts per billion, whereas on the non-smoke day the ozone peaked at only 20 parts per billion.

Satellite imagery and air trajectories were used to show the origin of the smoke and its transport into Texas. Numerous large fires in Mexico and Central America produced large clouds of smoke that were visible in satellite imagery from March through June, 1998. The heaviest smoke production occurred in early to mid-May. Whenever winds were from the south to southeast in the southwestern portion of the Gulf of Mexico, the smoke was transported across the Gulf and into Texas.

Airport visibility measurements from National Weather Service automated stations were used to supplement particulate measurements for determining smoke intensities at various locations in Texas. A strong correlation between visibility and particulate levels was shown in measurements from both Brownsville and Austin. The combination of visibility and particulate measurements was then used to estimate the smoke impact on high ozone days during the smoke period. This investigation showed that 14 high ozone days in Texas also had moderate to high smoke levels and were therefore likely to have been influenced significantly by the ozone associated with the smoke.

CONSULTATION WITH EPA

As early as May 1998, our agency began consultations with the U.S. Environmental Protection Agency (EPA). We provided significant amounts of data to the U.S. EPA's technical working group for the Central American forest fires through the Region 6 office. We also presented the U.S. EPA with the results of our own analysis of the fire's air quality impacts on Texas as part of our request to have ozone exceedance days during the period of April 1, 1998 through June 20, 1998, declared as exceptional events. As of this hearing date, the U.S. EPA has declined to grant an exceptional event status for all of the days that Texas has identified as being influenced by Central American smoke.

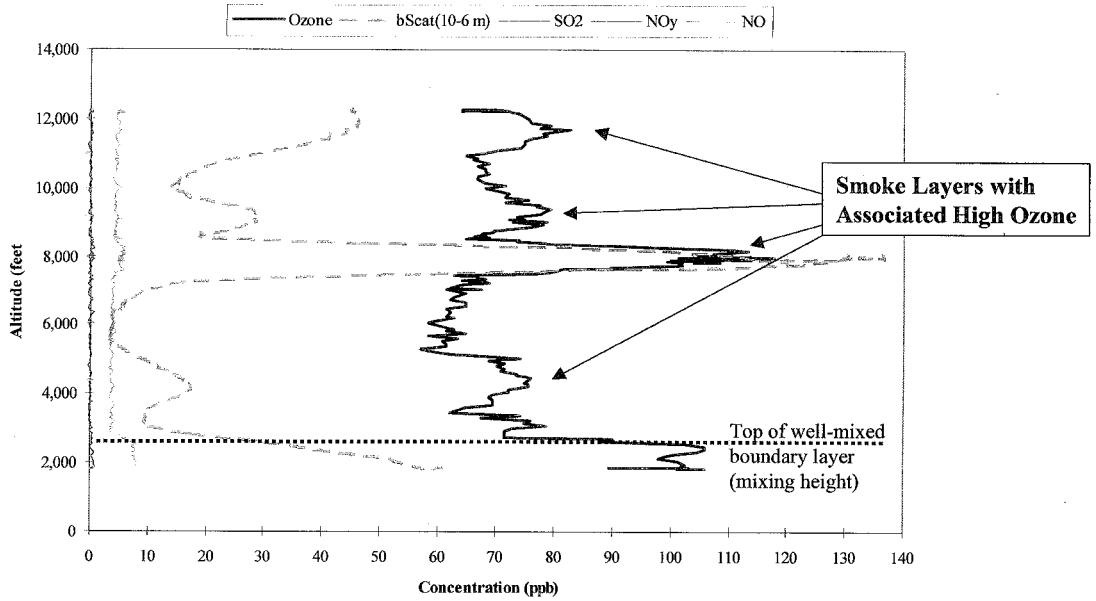
The Texas Natural Resource Conservation Commission believes that there exists a need for the U.S. EPA, at a national level, to increase its awareness of these exceptional natural events and their impact on ambient measurements of pollutants and pollutant precursors. In addition, there is a need for a coherent, flexible policy that provides guidance not only for one-time exceptional events, but also recurring or long term exceptional events that are beyond the control of air quality agencies.

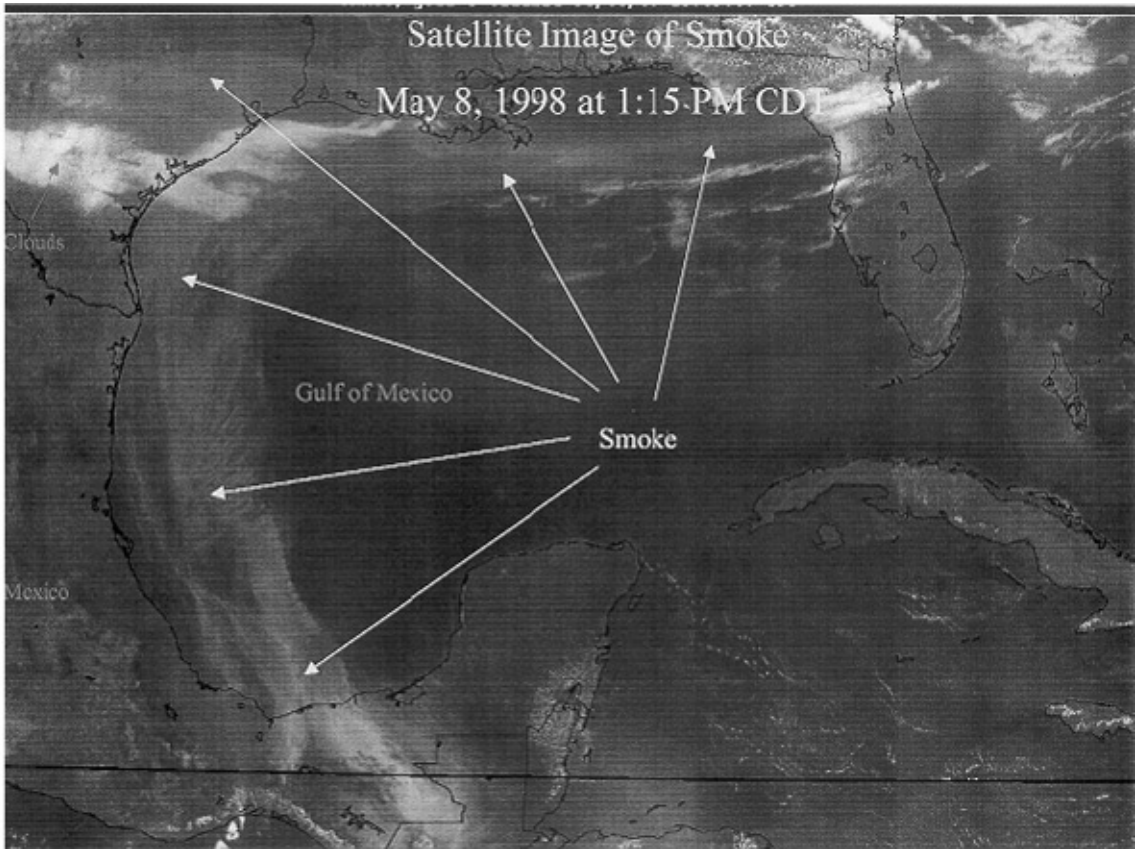
We look forward to working with Congress and the U.S. EPA on the development of such a policy.

Comparing the TNRCC and EPA Approaches to Analyzing Smoke Episodes

TNRCC	U.S. EPA
TNRCC REQUEST Exclusion of all ozone monitoring data for the period of April 1, 1998 through June 20, 1998 from comparison with the ozone NAAQS.	
SUPPORTING DATA Satellite Imagery (GOES-8, TOMS) Air Parcel Trajectories Ozone Monitoring Data Particulate Matter Monitoring Data "Real Time" Airborne Monitoring Data Meteorological Measurements Visibility Measurements	**SUPPORTING DATA** Satellite Imagery (GOES-8, TOMS) Air Parcel Trajectories Ozone Monitoring Data Particulate Matter Monitoring Data "Real Time" Airborne Monitoring Data Meteorological Measurements Visibility Measurements
TECHNICAL APPROACH Establish connection of ozone and smoke through comparison of monitor levels on a smoke day and non-smoke day, and analysis of airborne sampling data. Document evidence for the locations and times of impact through satellite imagery, air parcel trajectories, particulate matter measurements, visibility measurements, and meteorological measurements.	**TECHNICAL APPROACH** Divide Texas into three regions: **Region I: Southern/Gulf Coast** (Brownsville, Laredo, Corpus Christi, San Antonio, Houston, Galveston, Beaumont) **Region II: North/East Texas** (Dallas/Fort Worth, Tyler Longview) **Region III: West Texas** (Abilene, Lubbock, El Paso) Analyze Satellite Imagery to detect presence of smoke plume If necessary, use other corroborating data to detect presence of smoke plume
CONCLUSION Fires from Central America represented an extended episode that significantly influenced all monitored levels of ozone from April 1, 1998, through June 20, 1998.	**CONCLUSION** The following days were impacted by Central American smoke: Region I: April 14-17, 26-27, May 4-31, June 4-6 Region II: May 8-10, 13-27 Region III: May 8, 12-20, 26-27

5/17/98 Baylor Aircraft Flight 48 Level 1 Data - 8 Miles North of Conroe
Vertical Pollutant Descending Profile 1339-1357 CDT




Satellite Image of Smoke
May 8, 1998 at 1:15 PM CDT
Clouds
Gulf of Mexico
Smoke
Mexico

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