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The Danger Zone

Without widespread recognition and regional cooperation, further failure to meet the federal ozone standard is inevitable, putting the Knox County area in the

**By J.J. STAMBAUGH, stambaugh@knews.com
May 23, 2004**

A little more than a month ago, East Tennessee got yet another jarring wake-up call about the quality of its air.

This time, however, the call didn't come from physicians, health organizations or environmentalists. It came from the federal government, which is poised to take a bite out of the region's economy if something isn't done — and soon — about the high levels of ground-level ozone that saturate the air during hot, dry summer days.

On April 15, the U.S. Environmental Protection Agency designated Knox and five adjoining counties — plus Cocke County and the entire Great Smoky Mountains National Park — as "non-attainment" areas, meaning ozone levels within their borders often reach unhealthy levels as defined by the latest medical research.

Although it's too early to know for certain exactly what the federal penalties for exceeding the new ozone standard will be, everyone involved in the process agrees they could conceivably be severe. New industries may be prevented from moving to East Tennessee, existing industries could be kept from expanding and some road projects, including the proposed "Orange Route" beltway in Loudon and Knox counties, could be canceled.

The reasons behind the area's non-attainment designation are complex and not easy to solve, experts say. Politics and pollution both play a role, for instance, but so do urban planning, geography and weather patterns.

Some environmentalists maintain that the state and local governments failed in their duty to aggressively address pollution by implementing measures like emissions testing for all vehicles and reduced speed limits.

Government leaders, however, maintain that none of the measures they looked at would have brought Knox and its surrounding counties into compliance with the new ozone standards.

Everyone, however, agrees on at least one point: The problem can only be solved by regional cooperation and a willingness on the part of everyone who lives in the Tennessee Valley to rethink how their actions contribute to the quality of the air they breathe every day.



JOE HOWELL
NEWS SENTINEL

Truck exhaust is part of the pollution problem in East Tennessee and a focus of the new Environmental Protection Agency restriction that will go into place on June 15.



But as leaders at all levels of government prepare for what will almost certainly be a long and painful process, they must also cope with another looming problem: The Knoxville region is expected to be hit with yet another non-attainment

SENTINEL
Today: Clearing the air on our pollution problem
Tuesday: Paying the price — now and later
Wednesday: Area facing a hazy future


 11 p.m. broadcast


Tonight: Mary Loos reports on the geographical and meteorological reasons behind our dirty skies.
Loos

THE SERIES
 The News Sentinel and WBIR, Channel 10, have joined forces for a series of stories and broadcast reports to examine the Knoxville area's mounting air pollution problems — the causes, the economic and health effects and what local, state and national leaders are planning to do about it.



designation by the end of this year, this time for having excessive levels of particle pollution in the air.

Experts say Knoxville and its environs will certainly fail the standard, triggering a new round of economic penalties and further tarnishing the region's already smoggy image.

How bad is the problem?

So exactly how bad is the air around Knoxville?

That all depends on whom you ask.

East Tennessee has been targeted numerous times in the past few years by studies from the American Lung Association, the Surface Transportation Policy Project, and the Asthma and Allergy Foundation of America claiming that it has some of the worst air the nation.

But to Lynne Liddington, air quality management director for Knox County, the seemingly endless barrage of bad news obscures an important fact.

"The air is actually getting better," she said. "(Ozone levels) just haven't gotten down to the new health-based standard set by the EPA."

According to Liddington, Knox County began monitoring ozone levels for the current eight-hour standard in 1998. To determine the ozone average, or "design value," officials must use a complicated formula developed by the EPA that takes "the three-year average of the fourth-highest eight-hour average in a year," she said.

In 1998, the design value in Knox County was 100 parts per billion, Liddington said. In 1999 and 2000 it was 102, in 2001 and 2002 it was 96, and last year it was 92, she said.

The area's goal is to reach the 84 ppb threshold set by the federal government.

Liddington pointed out that the Knoxville region's air was designated as being a "basic" non-attainment zone by the EPA last month, meaning it was in the "least worst" category of cities facing EPA sanctions.

"Memphis is at a 'moderate' level because their problem is considerably worse," she said. "If you go out to California, you're talking about levels around 140 ppb. I do have a problem when some of these publications show (Knoxville's bad air rankings) but they don't really show the true level (in perspective). A lot of people don't understand that."

Politics of non-attainment

In 1997, the EPA changed its rules under the Clean Air Act governing how much ground-level ozone could be present in the air, Liddington said.

The newest medical research had indicated the prior standard of 120 ppb of ozone measured over a one-hour period wasn't strict enough to protect public health, Liddington said.

The standard adopted in 1997 requires that ozone concentrations be no higher than 84 ppb over an eight-hour period because the new tests showed that ozone at lower concentrations and over longer periods of time are causing more health problems than previously believed.

Although the standard was adopted in 1997, it was delayed by a number of industry-led court challenges. After several years of legal wrangling, the EPA was issued a court order to name areas that weren't going to meet the standard by April 15, 2004.

"In September of 2002 Mike Ragsdale was elected Knox County mayor, and before he even had a chance to be sworn in I told him we were going to be in non-attainment," Liddington said.

Ragsdale immediately began making phone calls and scheduling meetings with the mayors of Anderson, Blount, Jefferson, Loudon, Sevier and Union counties to address the problem, she said.

In December 2002, the counties sought to prevent the EPA's ax from falling by forming an early action compact, or EAC, which would have staved off sanctions until 2007 had they been able to come up with a plan that sufficiently lowered ozone levels. Although it was made up of seven counties, the compact was referred to as the Knoxville EAC.

Knoxville wasn't alone. Across the United States, about 30 urban areas created EACs, including four others in Tennessee — Chattanooga, the Tri-Cities, Nashville and Memphis.

In the Knoxville EAC, more than 15 months was spent reviewing proposals that included mandatory vehicles inspections, dropping speed limits to 55 mph on interstates for tractor-trailer trucks, and anti-idling ordinances.

Officials were initially optimistic at their chances for bringing the level down to 84 by 2007 as required, but as the March deadline drew closer, a serious problem emerged, Liddington said.

"When we modeled non-attainment, we could not reach the goal of 84 ppb," she explained. "The best we could do was 89 ppb, and that was throwing all kinds of measures at the problem, including statewide inspection and maintenance, additional regulations on our industry. ... We also figured in federal programs, fuel programs that are being phased in nationally, and additional requirements of TVA to put in more controls."

When the seven counties submitted their plan to the EPA, it included provisions to ban open burning on high ozone days, buy hybrid vehicles for county fleets and synchronize traffic signals to curb idling.

Also, Knox County's legislative delegation in Nashville was "encouraged to" support a statewide vehicle inspection and maintenance program, vapor controls at gas stations, anti-idling legislation and a speed limit reduction.

In the end, it wasn't enough.

On April 15, when the EPA announced its non-attainment designations, it rejected the EACs prepared by Knoxville, Chattanooga and Memphis, opening the door for the economic penalties officials had tried to avoid. Union County wasn't placed on the non-attainment list because its air quality turned out to be within the new limits, officials said.

The three EACs rejected in Tennessee were the only ones in the nation to be turned down, according to the EPA.

Ragsdale said he thought the Knoxville EAC did all it could to earn an EAC waiver.

"I think we put together a very good program that cleaned up the air," he said. "I was disappointed that it was turned down."

Ragsdale said he is focused now on taking action that will allow Knoxville to reach the federal ozone standard by the new 2009 deadline.

"We want to be as complete and focused as we can possibly be, looking at the true source of much of our problem, which is other states," he said. "I wish there was a magic bullet, but I don't think one is out there."

'It's deemed our fault'

Liddington said she warned Ragsdale in February that the computer models showed the proposed measures didn't do enough to meet the EPA's approval. But she also stressed that everyone involved in the process had been optimistic until the latest computer modeling runs showed ozone levels staying over the 84 ppb limit.

"Up until that point, we had a lot of faith, this was going to be close," she said. "I had to tell the mayor, 'This is not going to do it. You're holding out, but you have to start facing reality.' "

Liddington said Ragsdale and the other mayors worked diligently to address the problem.

"This is truly a regional problem," she said. "This echoes through this whole thing. We're trying to tackle this on a regional basis. That's why Mike Ragsdale is so superb — he brought them (all the county mayors) to the table."

Liddington also pointed out that two key problems facing East Tennessee are its unique climate and the fact that huge amounts of pollution called "transport" drifts into the Tennessee Valley from other regions.

"We have some very untypical topography with mountains on both sides of us," she said. "It allows all the emissions to just hang in this area and not blow easily. It can travel for hundreds of miles, hit the Smokies, and in turn come down into the valley.

"They (other areas) are not punished," she said. "It's us. If we pick it up on the ozone monitors here, it's deemed our fault."

When EPA Administrator Mike Leavitt stopped by Knoxville recently, he said the federal government wants to work as closely as possible with non-attainment communities. He also said that new federal rules requiring low-sulfur fuels for diesel trucks and fewer emissions from power plants should have a positive impact.

According to Leavitt, the economic sanctions feared by local officials will depend on the specific plan the EPA formulates to help bring Knoxville, Chattanooga and Memphis back into attainment.

"We will have state-by-state plans and within those state plans — depending on the severity of non-attainment — there are certain things that are not options and some that are," he said. "There is some flexibility."

'A cop-out'

Stephen Smith, the executive director of the Southern Alliance for Clean Energy in Knoxville, believes the Knoxville and Memphis EACs were pretty much doomed from the start.

In fact, Smith's group — along with a host of other environmental organizations — were skeptical of the entire EAC process, although Smith said it hasn't turned out to be as bad as they had initially feared.

Smith said the EAC process was developed under the Bush administration in 2002 to give communities a chance to avoid sanctions under the Clean Air Act if they volunteered in good faith to take proactive measures to comply with the ozone stand.

"EACs are not in the Clean Air Act and therefore are, in many people's opinions, are what we call extralegal," he said. "If there is a lawsuit challenging the EACs, there's a very good chance the whole concept could be thrown out by the courts.

"To (the EPA's) credit, we began to feel more comfortable with it and we began to see some value, although we have always felt this voluntary effort was destined to fail when politicians were forced to take action that had political consequences, and I still think that's the weakest link in the process."

He added: "If a politician has to burn political capital to make something happen, they're going to resist as long as they can. That's all played out at the local level, the state level, and the federal level."

Smith said the EAC process was designed for "borderline areas" like Chattanooga, which had an average ozone reading last year of 85, only one point above the EPA's standard.

Knoxville and Memphis, on the other hand, were so far over the standard that it was questionable if they should have even been allowed to apply for EAC waivers, Smith said.

"If they had gotten into the EAC process, it would have invalidated the entire process," he said. "If they had granted waivers to Knoxville and Memphis, the environmental community would have seriously considered suing, and that could have threatened all the EACs all across the country."

Smith said that environmentalists were in contact with the EPA "up to the minute" the non-attainment designations were announced.

Smith said the threat of legal of action wasn't the reason Knoxville's waiver was turned down. Rather, it was the fact that the Knoxville EAC was unwilling to take aggressive steps to clean the air, he said.

"We have yet to see the Knox County areas really set forth an aggressive plan to get us clean air," he said. "Will the politicians continue to blame other people? Leadership is what's missing at both the state level and the county level. ... They should basically do everything in their power to clean up our state and then go after other states.

"I'm afraid, though, that local politicians will say 'We can't get to the levels ourselves' and then sit around and do nothing. That's a cop-out."

'We failed on the technical side'

Smith cited North Carolina as a good example of a state that has taken a proactive approach to its air problems. The state is implementing a massive expansion of vehicle emissions tests, has dragged 14 surrounding states — including Tennessee — into court and passed restrictive laws governing how much pollution power plants can emit.

According to Tom Mather, spokesman for the North Carolina Division of Air Quality, non-attainment doesn't necessarily spell the death of economic growth.

"North Carolina's had some of the fastest growing metro areas in the last 10-20 years, and we've had non-attainment areas," he said. "It hasn't stopped economic growth here."

According to Mather, state officials realized "over the last couple of years" that North Carolina would have several areas in non-attainment under the new ozone standard.

"We got the jump on things here and enacted some new programs," he said. "One thing we're doing is expanding emissions testing for cars and trucks from nine to 48 counties, or about 80 percent of the registered vehicles in the state."

Also, the state's general assembly required low-sulfur gasoline to be phased in ahead of the federal deadline and passed the "Clean Smokestacks Act," which required power plants to cut nitrogen oxide emissions by 78 percent by 2009.

Next, the state filed a "Section 126" complaint with the EPA under the Clean Air Act to force states that were exporting pollution to North Carolina to cut their emissions.

"All of our EACs were accepted," he said. "We were trying to be proactive."

Richard Bolton, vice-chair of Tennessee's Air Pollution Control Board, said the state probably could have done more in retrospect but emphasized the complex nature of the problem. The air board is made up of representatives from government, industry and environmental organizations, Bolton said. Among the board's powers are the authority to pass rules governing air pollution and resolve permit disputes.

Late last week, the state Legislature passed a bill giving the board the authority to mandate emissions testing in non-attainment counties with more than 50,000 registered vehicles.

When asked about the EAC process, Bolton replied: "Could we have done more? Sure. Monday morning quarterbacking now, people say we should have tried more. But they (the measures examined) don't give you a lot of reductions in air pollution. They just don't get ... tons of pollution out of the air." "We failed on the technical side, not enough local control measures or statewide measures. ... We've got three metro areas to go back to the drawing board with. We're trying to have conversations with the EPA in Washington to find out why they failed so we can learn from them. The state has three years to develop these plans." He continued: "I've heard people say you could park every car and truck in Knox County and you're still going to have non-attainment. That's a little bit hard for me to conceive — people need to understand that air pollution is caused by a lot of things."

On the horizon

For now, ozone pollution is the main topic that state and local leaders are struggling to fix. But when the EPA issues its next round of non-attainment designations at the end of the year, the region could find itself facing a new host of economic problems that may turn out to be even harder to tackle.

Unlike ozone — which is formed in the air by a chemical reaction — particle pollution is emitted directly into the atmosphere by almost anything that burns, according to Wayne Davis, associate dean for research and technology at the University of Tennessee College of Engineering.

"About 25 percent (of particle pollution) ... comes from automobiles and trucks, which emit directly from their tailpipes," he said. "Then you have brake wear, you have road wear, you have tire wear — you can only drive 45,000 miles on a set of tires, and that's a half-inch of rubber off each tire."

Aside from mobile sources like cars and trucks, coal-fueled power plants like those operated by TVA are a major culprit in particle pollution, he said.

"About 45 percent of particulate matter is sulfate in origin, and that's mostly from the fact that coal-fired power plants burn coal that has sulfur in it," he said.

Davis said that none of TVA's plants in East Tennessee have controls on them to reduce sulfur emissions "although there are plans to install them."

The remainder of the particle pollution apparently comes from "a little bit of everything," he said, including charcoal grills and fires.

"It's bad because we breathe it in, and if it's smaller than 2.5 microns (the current EPA standard)

then it can get through your nasal passages and deposit in your lungs," he said. "It's made up of everything — iron, aluminum, trace metals. You've got the potential for exposure to occur to whatever is in it."

According to a recent American Lung Association report, Knoxville is the 12th worst area in the nation for year-round particle pollution. The ALA also says particle pollution is "responsible for tens of thousands of premature deaths in the U.S. each year."

Liddington said the challenge of curbing particle pollution is especially hard because the sources are hard to pinpoint.

"As a problem, this one will be harder to solve than ozone because we don't know where all of it's coming from," Liddington said. "We know some of it's from power plants, some is from vehicles, and some of it's road dust. We don't know the answers yet, but we're going to have to find out really quick because the designations are due out in December of this year."

J.J. Stambaugh may be reached at 865-342-6307.

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