

CONSEQUENCES OF A NONATTAINMENT DESIGNATION FOR THE TULSA AREA

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BACKGROUND: Recent attention has been focused on Tulsa's very near violation of the ozone standard and issues concerning a foreseeable nonattainment designation. As of the date of this paper, only two more ozone exceedances at Tulsa's north monitor will trigger the violation. Although Tulsa's challenge with EPA's ozone standard is long-established, this year finds us facing some unique differences and many unknown variables – translating into more uncertainties than in past years. Many questions are being asked regarding the consequences of a nonattainment designation for the Tulsa area. Some of these questions have clear answers. Unfortunately, many do not. This paper will address the questions and issues, providing answers when possible and professional opinion and explanation to the uncertainties.

→ What is a Nonattainment Area and how much of the Tulsa Metropolitan area could or would be 'in nonattainment'?

A nonattainment area is a federal designation given to an area not meeting one or more National Ambient Air Quality Standards (NAAQS). The designation process provides opportunity for local and state negotiation with the Environmental Protection Agency (EPA) to best determine the appropriate nonattainment boundary. In the boundary determination, EPA considers factors such as locations and concentrations of industrial sources, county population density and traffic and commuting patterns. The Tulsa area boundary could be as small as Tulsa County or as large as our Combined Metropolitan Statistical Area (CMSA) consisting of Tulsa and seven surrounding counties. The Oklahoma Department of Environmental Quality (ODEQ) is the lead agency responsible for negotiations with EPA to determine the boundary. Within 30 days of a violation of the ozone standard, ODEQ will provide the Tulsa area an initial boundary designation recommendation with technical support justification. Upon local concurrence, ODEQ will submit the boundary recommendation through the Governor to EPA for approval.

→ How soon after a violation of the standard will nonattainment occur?

The designation *process* begins once the area violates the standard; however, the actual *nonattainment designation* is not immediate. The area is officially placed in nonattainment when EPA publishes the designation in the Federal Register. The table below identifies the expected timeline for nonattainment designations:

EPA expected timeline for nonattainment designations	
Milestone	Date
Signature – Final Rule	March 12, 2008
State Designation Recommendations	No later than March 12, 2009
Final Designations	No later than March 12, 2010*
Attainment Demonstration - SIPs Due	2013*
Attainment Dates	2013 – 2030 (depends on severity of problem)

** In the event the Administrator has insufficient information to promulgate the designations by March 12, 2010, the date of final designations may be extended up to one year, but no later than March 12, 2011. SIPs will be due three years from final designations.*

→ What are the requirements of an ozone nonattainment area?

The Clean Air Act (CAA) requires that EPA review the national air quality standards at least every five years; and when setting the standard, the CAA restricts EPA from considering economic costs to achieving the standard. When an area is designated not in compliance with the standard (nonattainment), the CAA requires state and local governments to take steps to reduce ozone pollution and regain compliance with the standard. The steps must be detailed in technically supported and legally enforceable plans known as State Implementation Plans (SIPs), and must be submitted and approved by EPA within three years of the date of

nonattainment designation as published in the Federal Register. Potential reduction strategies are listed in the next section.

It is important to note that the CAA does not clearly identify the requirements for an area designated nonattainment for the new 8-hour ozone standard. The CAA bases requirements on the 1-hour ozone standard promulgated nearly twenty years ago. In 1997, the EPA made a significant change to the NAAQS for ozone. Whereas the CAA provides for a classification system for ozone nonattainment areas (marginal, moderate, severe, extreme) and prescribes what 'requirements' go with each classification, the 8-hour ozone standard is not compatible with this classification system. Intending to fix the problem of this regulatory disconnect, the U.S. Supreme Court instructed EPA to issue 'implementation guidance' to explain the general requirements of ozone nonattainment areas under that new standard. EPA did issue implementation guidance for the 1997 revised ozone standard – in 2003. EPA revised the ozone standard again in 2008. The nation is still waiting for EPA to issue the 'implementation guidance' for this revised standard. We are told it will be released...soon...

→ **Since exact consequences cannot be pinned down, what are the 'likely' consequences to a nonattainment designation for the Tulsa area?**

A nonattainment designation for any area not only reflects a health concern, but also brings a business and economic development concern. Attaining the standard will likely require a diversity of emission reduction measures. Although these exact measures cannot be known (until the EPA new standard implementation guidance is issued at minimum, and possibly until the lengthy SIP process would be completed), a nonattainment designation will result in both direct and indirect costs to both citizens and business in the Tulsa Area.

The sections below define potential direct and indirect consequences:

Potential direct economic consequences could include:

- ✓ More costly summer gasoline than currently available through our voluntary program – specifically designed for further reducing ozone-forming emissions
- ✓ More stringent and expensive control equipment for industry – including the requirement for emission offsets to new industry or existing industry expansion. Industries most effected would include sources using burners, boilers and heavy engines
- ✓ Automobile inspection and maintenance programs – emission inspections
- ✓ Reduced speed limits on highways and expressways in the metropolitan area
- ✓ Increased energy cost – Oklahoma's energy is fairly inexpensive due to the accessibility and abundance of coal-fired electricity. Because coal-fired power generation is a primary source for nitrogen oxide (NOx) emission, significant technology improvements would probably be required on these plants. All NOx emission improvements to coal-fired facilities are costly and this regulated industry would likely pass costs to the consumer, business and industry

Potential indirect consequences could include:

- ✓ Cost of establishing the State Implementation Plan (SIP) – The SIP is the technical and strategic documentation of the emission reduction strategies which will bring the area back into compliance with the standard. SIPs include the enforceable strategies for implementation and must be approved by EPA no later than three years from nonattainment designation. To develop the SIP, photochemical modeling may be required to support the effectiveness of the emission reduction strategies within the SIP. This type of computer modeling would also likely require significant resources to upgrade local emissions inventories (off and on-road mobile, area source industry, large point source industrial and biogenic) and dedicated ongoing resources to keep the inventories and model current.
- ✓ Nonattainment areas are subject to 'Transportation Conformity'. This conformity analysis requires extensive transportation and air quality coordination and computer modeling to ensure transportation projects do not affect the area's ability to regain and/or maintain attainment. Transportation conformity requirements are time consuming, costly and include establishing a mobile emissions 'budget' from which to determine the impact transportation projects, once implemented, would have on regional air quality. In nonattainment areas, transportation projects can proceed only if it can be demonstrated that they will not result in increased emissions.

→ Why are we unable to determine an actual 'cost of a nonattainment designation' at this time?

Many issues create significant challenge to determining clear and concise economic cost analysis of a nonattainment designation for the Tulsa area. There is a massive disconnect between estimating the cost of various emission control strategies and what the Tulsa area may or may not actually be required to do upon a nonattainment designation. Explanations to some of these challenges include:

- **EPA guidance has not yet been issued.** Although EPA has legally tightened the ozone standard, they have not yet provided the necessary guidance and information explaining the requirements areas will need to comply with upon nonattainment designation. This pending implementation guidance will specify criteria for nonattainment, degrees of severity and corresponding industrial emission requirements, whether or not photochemical modeling is required and if so to what degree, and how long areas will have to get back into attainment.
- **The extent of emission reductions necessary is unknown.** Costs of emission reduction strategies for ozone precursors are most often proportional to the amount of ozone reduction required to regain compliance with the standard. Importantly, until the actual nonattainment designation occurs, we will not know how much ozone we must reduce to get back into compliance. Unknowns at the federal level (i.e. policy and economic uncertainties, lawsuits regarding the ozone standard) may force EPA to delay designations. Every year designations are delayed provides Tulsa opportunity to continue ozone improvement to achieve compliance with the standard and an attainment designation.
- **We cannot simply look to other areas already in nonattainment to identify emission reduction strategies we will need to implement.** Many other metropolitan areas, including Oklahoma City, are facing the same challenges we are; however, there are no metro areas to look to as a reference or example.
 - EPA has made no designations under the current new standard. When designations were made under the previous standard (2004), all 'new' nonattainment areas were either already in nonattainment/ maintenance under the former standard, or were new nonattainment areas in states which already had defined nonattainment boundaries. States with nonattainment areas have existing air shed boundaries, emissions inventories, transportation conformity analyses are being performed, etc. With all of Oklahoma currently in attainment, our metro areas are in a unique situation without example to reference or precedence to follow.
 - Changing technologies (industrial, automobile engines/emission standards, fuel standards/requirements) have eliminated the effectiveness of many previously consistent, quantifiable, and EPA approved emission control strategies. One example is the Stage II Vapor Recovery devices currently found on gasoline pumps in many nonattainment areas throughout the nation. Although many nonattainment areas formerly included this strategy in their SIPs, it is no longer a viable emission reduction strategy for new nonattainment areas. Auto manufactures now install simple onboard vapor recovery systems in all vehicles, making Stage II Vapor Recovery devices obsolete and a strategy no longer considered by EPA.
 - The chemical structure of an area's ground-level ozone is complex and will not be the same in any two metropolitan areas. It is possible for a NOx emission reduction strategy to effectively decrease ozone in one metro area, and for that same strategy in another area to result in an ozone increase.
- Even though Tulsa area ozone levels have continued to improve, **the EPA standard for ozone continues to tighten.** It is anticipated that the standard may tighten even sooner than the every-five-year timeline as the CAA requires. As the standard changes, the implementation and industrial requirements will change.

→ What is the EPA ozone standard and why has Tulsa been struggling to meet it?

The EPA sets the ozone standard to protect the public from ozone exposure over an extended period of time. The standard is calculated by averaging hourly ozone data throughout the highest eight-hour ozone period of the day. These highest daily '8-hr averages' are captured for each monitor. At the season's end, each monitor's fourth highest is the value which counts – and is averaged with the 4th highest value for the two previous years. Thus, the standard calculates a 'rolling' 3-year average of 4th highest 8-hour ozone

values. A violation of the standard occurs if the 3-year average is greater than 0.075 ppm. The table below reflects Tulsa's current ozone data in relation to meeting the EPA ozone standard.

Tulsa Area Ozone Scorecard Highest 8-Hr Averages

Exceedance Days (5 to date): April 22, June 24, June 26, July 2, July 15

As Of 7-15-09

Monitor Site			2009 Highest 8-Hr Ozone Averages (ppm)				DESIGN VALUE		2009 Nonattainment Breaking Point
			(1 st through 4 th highest readings)				3-Year Average of the 4 th highest readings		
2006 4 th High	2007 4 th High	2008 4 th High	1 st Highest date	2 nd Highest date	3 rd Highest date	4 th Highest date	06-08 Avg	Current 2007-2009 Avg	4 th Highest
West (#144 Mannford)			0.083	0.074	0.069	0.068	0.075	0.069	.088
0.085	0.071	0.069	24-Jun	8-Apr	30-Jun	2-Jul			
East (#178 Lynn Lane)			0.083	0.083	0.074	0.072	0.076	0.072	.084
0.084	0.075	0.069	26-Jun	15-Jul	13-Jul	5-Jul			
Central (#1127 Tulsa)			0.094	0.078	0.078	0.070	0.074	0.070	.087
0.081	0.072	0.069	24-Jun	26-Jun	2-Jul	30-May			
North (#137 Skiatook)			0.077	0.077	0.075	0.073	0.078	0.075	.076
0.084	0.073	0.079	22-Apr	24-Jun	26-Jun	2-Jul			
South (#174 Glenpool)			0.075	0.069	0.069	0.067	0.071	0.067	.093
0.078	0.069	0.066	1-Jul	8-Apr	30-Jun	18-Mar			

An ozone exceedance = .076 ppm or greater
 Is our 2007-2009 Design Value currently meeting the ozone standard? **Yes**
 How to Calculate the standard: North monitor example (0.073 + 0.079 + 0.073) / 3 = 0.075 ppm
 Does our 2006-2008 Design Value meet the ozone standard? **NO**

➔ **How will we proceed?**

Tulsa's ozone levels continue to improve. Although it is still too early to tell, our improvement may or may not be soon enough to avoid a nonattainment designation. The Tulsa area and all of Oklahoma has remained in attainment since 1990. Cleaner air quality and lower costs of living are obvious benefits to many years of having met the challenge and avoiding the significant and long-term economic costs of a nonattainment designation.

Tulsa area's aggressive public education campaign, and exemplary community and corporate voluntary efforts continue to improve our air quality. As the 2009 ozone season progresses, we will continue to work in close partnership with ODEQ and EPA. Although there many uncertainties regarding the consequences of a nonattainment designation, we continue to pursue solutions, promote economic development, and improve air quality in our community.

For Further Information:
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