New Ozone NAAQS…

Topics to Cover

- National Ambient Air Quality Standards (NAAQS)
- 2008 8-Hour Ozone Standard
- Opportunities for early actions/Success Stories
- Successful public/private collaborations
- Measures for reducing air pollution

NAAQS for Criteria Pollutants

- Levels of wide-spread air pollutants which EPA has deemed harmful to public health and the environment
- The “criteria pollutants” are:
  - Particulate matter
  - Ozone
  - Lead
  - Carbon monoxide
  - Nitrogen dioxide
  - Sulfur dioxide

Clean Air Act Sections 108 and 109

CAA requires review of NAAQS every 5 yrs:

- Establish *primary* NAAQS that "are requisite to protect the public health"
  - need to protect sensitive subgroups
- Establish *secondary* NAAQS protect crops/environment
- Use different considerations in setting NAAQS than in choosing how to achieve them:
  - Setting NAAQS: health and environmental effects
  - Achieving NAAQS: account for cost, technical feasibility, time needed to attain

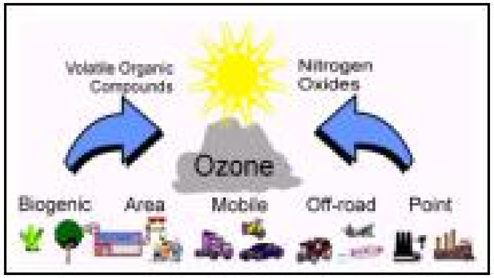
Elements of the NAACS

- Indicator(s) (e.g., $PM_{2.5}$, ozone)
- Averaging time(s) (e.g., 8-hour, annual)
- Level(s) (e.g., 15ug/m^3, 0.08 ppm)
- Form (e.g., 98 percentile, 4^{th} maximum)

Current NAAQS

Pollutant	**Primary Standards**	**Secondary Standards**
PM_{10}	50 ug/m^3 (annual) 150 ug/m^3 (24 hr)	Same as primary
$PM_{2.5}$	15 ug/m^3 (annual) 35 ug/m^3 (24 hr)	
Ozone 1997 standard **Ozone 2008 standard**	**0.08 ppm (8 hr)** **0.075 ppm (8 hr)**	**Same as primary** **Same as primary**
Lead	1.5 ug/m^3 (quarterly)	Same as primary
Carbon monoxide	9 ppm or 10 mg/m^3 (1 hr) 35 ppm or 40 mg/m^3 (8 hr)	None
Nitrogen dioxide	0.053 ppm or 100 ug/m^3 (annual)	Same as primary
Sulfur dioxide	0.03 ppm (annual) 0.14 ppm (24 hr)	0.5 ppm (3 hr)

A Quick "Ozone" Reminder ….



- Ozone --- not directly emitted … formed when VOCs and NOx interact in the presence of heat and sunlight (a summertime problem).
- Under the Clean Air Act a "Nonattainment Area" is:
  - ✓ an area that does not meet the national primary or secondary National Ambient Air Quality Standards (NAAQS) … or
  - ✓ an area that contributes to air quality in a nearby area that does not meet the NAAQS.
- Ozone tends to be a broad, region-wide issue.
- Designation decisions made for one area have ripple effects on many other areas/states.

EPA United States Environmental Protection Agency

Ozone NAAQS Revisions

- **1971 1-hour Photochemical Oxidant Stnd 0.08 ppm**
- **1979 1-hour Ozone Stnd 0.12 ppm**
- **1997 8-hour Ozone Stnd 0.08 ppm**
- **2008 8-hour Ozone Stnd 0.075 ppm**
  - **March 27, 2008 - New Ozone Standard published (73 FR 16436)**

2008 8-Hour Ozone Standard

March 12, 2008 – Administrator Revised Ozone NAAQS – Signature date

March 27, 2008 – Published New Ozone NAAQS

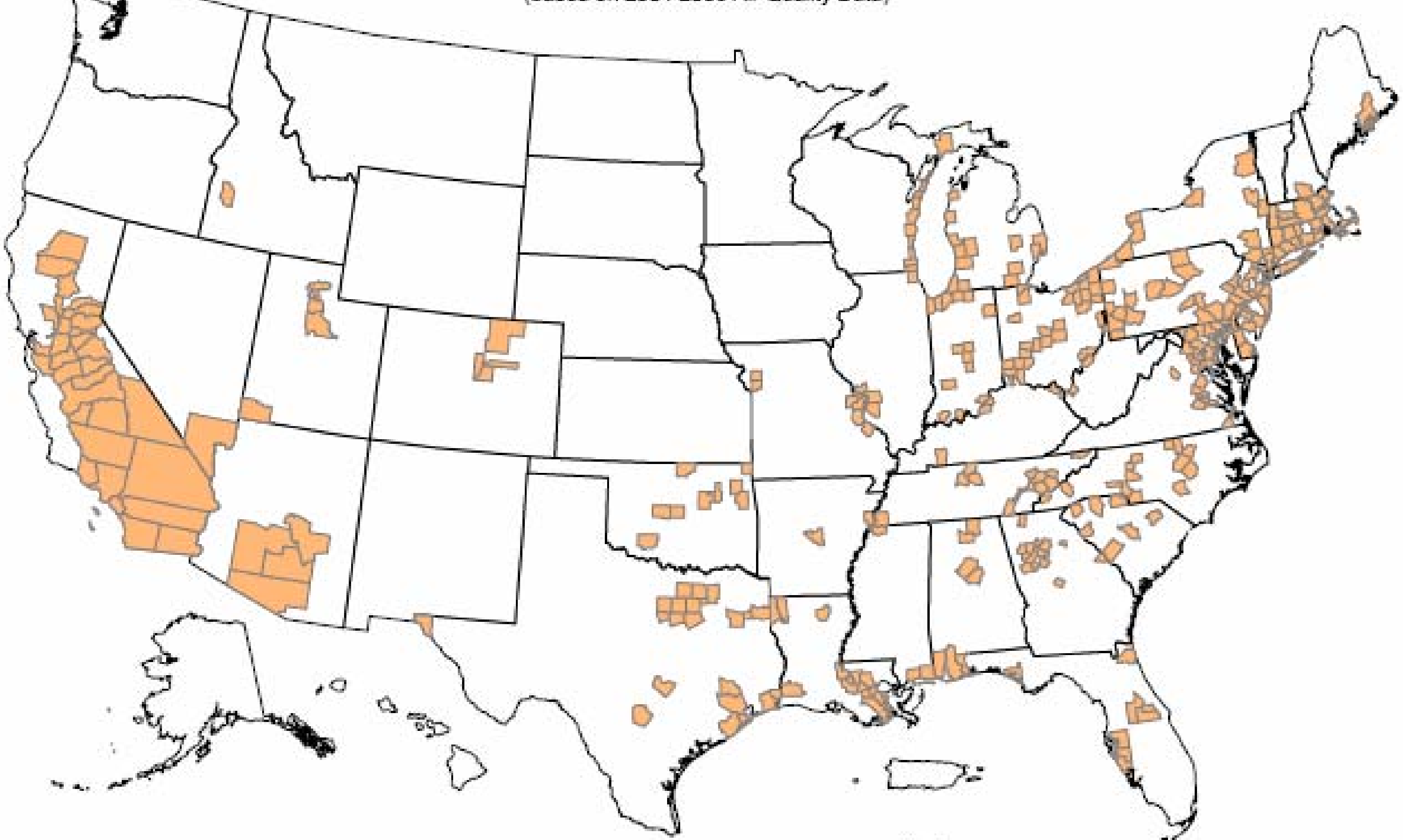
- Primary Standard and Secondary Standard
  - 0.075 ppm (3^{rd} decimal place, no rounding)
- Air Quality Index (AQI) – changed to reflect new standard
  - States encouraged to implement immediately

United States Environmental Protection Agency

Estimates are based on the most recent data (2004 – 2006). EPA will not designate areas as nonattainment on these data, but likely on data from 2006 – 2008 or later, which we expect to show improved air quality.

Counties with Monitors Violating the 2008 8-Hour Ozone Standard of 0.075 parts per million (ppm)

(based on 2004-2006 Air Quality Data)



Notes:

[1] 345 monitored counties violate the 2008 8-hour ozone standard of 0.075 parts per million (ppm).

[2] Monitored air quality data can be obtained from the AQS system at http://www.epa.gov/ttn/airs/airsaqs/

What's Next After Revised NAAQS?

Next Steps:

- Designations
  - May include 2008 and 2009 monitoring data
- Development of Attainment Plans
  - Due 3 years after designation

Designations

As required by Section 107(d)(1), EPA designates areas as:

- **Nonattainment**
  - *does not meet the standard, or*
  - *contributes to an area that does not meet the standard*
- **Attainment**
  - *meets the standard for the pollutant, and*
  - *does not contribute to an area that does not meet the standard*
- **Unclassifiable**
  - *cannot be classified based on available information*

Draft Timeline for Designations Process

Milestones	2008 Ozone NAAQS Dates
Final decision on level of NAAQS	March 12, 2008
State/Tribal recommendations due	March 12, 2009
EPA response	No later than December 12, 2009 (120 days prior to final designations)
State & Tribes may provide additional comments	Prior to final designations
Final designations	No later than March 12, 2010*

* If the EPA Administrator determines that there is insufficient information to make final designations, then the date of final designations may be extended by up to one year but no later than March 12, 2011.

What 11 factors determine ozone designations?

EPA guidance …factors to consider when defining NA boundaries

- **Emissions and air quality in adjacent areas**
- **Population density & urbanization including commercial development (including adjacent areas)**
- **Ozone air quality data ….. What it represents… local or larger areas (urban or regional scale)**
- **Location and magnitude of emission sources ... in and nearby the area**
- **Traffic and commuting patterns**
- **Expected growth (including extent, pattern and rate of growth)**
- **Meteorology (weather and transport patterns)**
- **Geography/topography (mountains or other air basin boundaries**
- **Jurisdictional boundaries**
- **Level of control of emission sources**
- **Regional emission reductions (e.g., enforceable regional strategies)**

Nonattainment Areas for the 2008 Ozone Standard

- State Implementation Plans (SIPs) due in 2013 for ozone
- Nonattainment NSR applies upon effective date of nonattainment designations
- Transportation conformity applies 1 year from effective date of designations
- Subpart 2 Classifications:
  - Additional mandated controls
  - Must attain by attainment date or reclassified to next higher classification

Early Actions

Benefits:

- Cleaner Air Sooner
- Possible Attainment vs. nonattainment
- Ozone – possible lower classification

Ozone Control Requirements (NOx and VOC)

Based on the 1997 Standard

8-hr Ozone Subpart 2 Areas

EXTREME
equal to or above 0.187

- TRAFFIC CTROLS DURING CONGESTION
- CLEAN FUELS RQT FOR BOILER (PLAN IN 3 YRS)
- NO WAIVERS FROM 15 OR 3% REDUCTION RQT

SEVERE
from 0.120 up to 0.187

- EMPLOYEE TRIP REDUCTION PROGRAM
- MEASURES TO OFFSET VMT GROWTH... DUE 2 YRS

SERIOUS
from 0.107 up to 0.120

- CONTINGENCY MEASURES IF "MILESTONE" MISSED
- SPECIFIC NSR REQUIREMENTS FOR EXISTING SOURCE MODS
- VMT DEMONSTRATION (& TCMs IF NEEDED)...6 YRS
- CLEAN FUELS PROGRAM (IF APPLICABLE)....42 MOS
- ENHANCED I/M....DUE 2 YRS
- ENHANCED MONITORING....SIP > 18 MOS.
- DEMONSTRATION OF ATTAINMENT...4 YRS
- PLAN FOR 3% ANNUAL AVERAGE REDUCTIONS...DUE 4YRS

MODERATE
from 0.092 up to 0.107

- BASIC I/M (IF NOT ALREADY REQUIRED)....IMMEDIATELY
- NOx RACT...2/4 YRS
- VOC RACT "CATCHUPS"...2 YRS
- CONTINGENCY MEASURES..SEC 172(c)(9)
- PLAN FOR 15% VOC REDUCTIONS WITHIN 6 YRS...DUE 3 YRS

MARGINAL
from 0.085 up to 0.092

- NEW SOURCE REVIEW PROGRAM (INCLUDING CORRECTIONS)...2 YRS
- RACT "FIXUPS"...6 MOS.
- I/M CORRECTIONS...IMMEDIATELY
- EMISSION INVENTORY DUE IN 2 YRS.
- EMISSION STATEMENTS...2 YRS.
- PERIODIC INVENTORIES

How Will Ozone Reductions be Achieved?

- Local emissions reductions
- National reduction measures
- KY DAQ and EPA are providing technical assistance
- Public/private partnerships

$PM_{2.5}$ Success Story
Lexington, Kentucky

- KY DAQ and Lexington Fayette Urban County Government (LFUCG) convened stakeholders
- Memorandum of Intentions to increase use of biodiesel:
  - Local treatment plant and Univ. of KY using 10% mix of biodiesel in their diesel vehicles and equipment
  - Fayette County Public Schools began a biodiesel pilot program
  - Riley Oil Co. awarded CMAQ funds to purchase a biofuels storage tank
- University of Kentucky
  - Installed new large natural gas-fired boilers
  - Using low-sulfur fuel as the back-up to natural gas

Emission Reductions -Triad Area, North Carolina

Measures	Projected Reductions VOC	Projected Reductions NOX
Open Burning Ban statewide	2.1 TPD	1.5 TPD
Expand vehicle I&M	1.7 TPD	4.0 TPD
Reduce Fleet Emissions	1.1 TPY	0.9 TPY
Add 20 Park and Ride lots	1.8 TPY	3.2 TPY
Truck Stop Electrification	1.8 TPY	35 TPY
Sidewalks/greenways/bike routes	279 TPY	229 TPY
School bus retrofits	17 TPY	23 TPY

Federal Measures and Programs

- Regulatory Measures
  - Power Plants and Industry
  - Mobile Sources
- Voluntary Programs
  - Clean diesel
  - List of resources

Power Plants and Industry

- [Clean Air Interstate Rule (CAIR)] - permanently caps SO_2 and NOx emissions in the East
- [Clean Air Visibility Rule (CAVR)] - requires emission controls for industrial facilities emitting air pollutants that reduce visibility
- [Acid Rain Program] - cap and trade program that reduces power plant emissions of SO_2 and NOx
- [NOx SIP Call] - reduces fine particle formation by reducing emissions of NOx in the East

Mobile Sources

- 2004 Clean Air Nonroad Diesel Rule - set emission standards for engines; reduces sulfur in fuel
- 2007 Heavy Duty Highway Rule (the "2007 Highway Rule") - building a fleet that will be 95% cleaner than today's trucks and buses
- Tier 2 Vehicle Emission Standards and Gasoline Sulfur Program - setting tailpipe emissions standards for all passenger vehicles; requiring reduced sulfur in gasoline
- Motorcycle and other engine rules – setting emissions standards for highway motorcycles and other engines
- Locomotives and marine diesel engine rules - to propose more stringent standards for locomotives and marine diesel engines

Clean Diesel Program

- ❖ Southeast Diesel Collaborative
- ❖ Voluntary Diesel Retrofit, Idle Reduction, Clean Fuels Program
  - Construction
  - Agricultural Biodiesel
  - On-Road Trucks & transit & public fleets
  - Ports, Parks
  - School buses

EPA's Innovative Air Connections

http://www.epa.gov/ttn/airinnovations/

Web page lists dozens of control measures sorted by pollutant

- **Specific section on ozone that provides VOC and NOx control measures**

Examples of Voluntary Measures

Facilities implementing local NOx emissions reductions

- Duke Power Lee Steam Station
- Transcontinental Gas Pipeline Corp
- International Paper
- RJ Reynolds

Examples of Voluntary Measures

- Truck Stop electrification - SC, NC
- Idle Reduction Policies – GA, FL, KY, SC, AL, NC
- School Bus Retrofits – TN, SC, NC
- Public Transit increased ridership – TN, NC, SC
- Bike trails & Bike racks @ worksites – TN
- Ozone Action Days – SC, TN

- SC SIP Maintenance for growth Plan

http://www.epa.gov/ttn/naaqs/ozone/eac/20041231_eac_measures_full_list.pdf

Continuing Beneficial Collaboration

Early Action Compact Summit – August 16-17, 2006
EAC stakeholders came together to share experiences that have been beneficial in improving air quality.

Energy Conservation, Diesel Retrofits, Land Use Planning, Alternative Fuels, Commuting Options & Multi-Modal Transp., Innovative Education & Outreach, Health Impacts/Lifestyle, Finding the Funding and Tools/Misc.

Additional Information

- 2008 8-Hour Ozone Standard
  - http://www.epa.gov/groundlevelozone/actions.html#mar07s
- Jane Spann – Region 4 Ozone Expert
  - (404) 562-9029
  - Spann.jane@epa.gov

Seize the Day!

- Take Action Now to Achieve Actual Emission Reductions
- The Benefits are Huge – Cleaner, Healthier Air!!!