

# Clean Air Basics: PSD/NSR

Environmental Law Forum

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# Clean Air



# Basics Covered

- NAAQS – Attainment vs. Nonattainment
- PSD Applicability
- NA NSR Applicability
- PSD/NSR Requirements
- NSR is not
  - NSPS or
  - NESHAPS

# The Starting Point

- National Ambient Air Quality Standards
  - CAA directs EPA to establish NAAQS
    - Key word is ambient (are not smokestack limits)
  - Based on threshold levels of air pollution beyond which there will be no adverse effects
  - In plain English, are maximum permissible concentrations of certain pollutants in outside air

# NAAQS Apply to Criteria Pollutants

- Six Criteria Pollutants
  - Sulfur Oxides -  $\text{SO}_2$
  - Nitrogen Dioxide -  $\text{NO}_2$
  - Ozone (important: precursors - VOCs &  $\text{NO}_x$ )
  - PM10; PM2.5 (recent supplement to PM10)
  - Carbon Monoxide (CO)
  - Lead

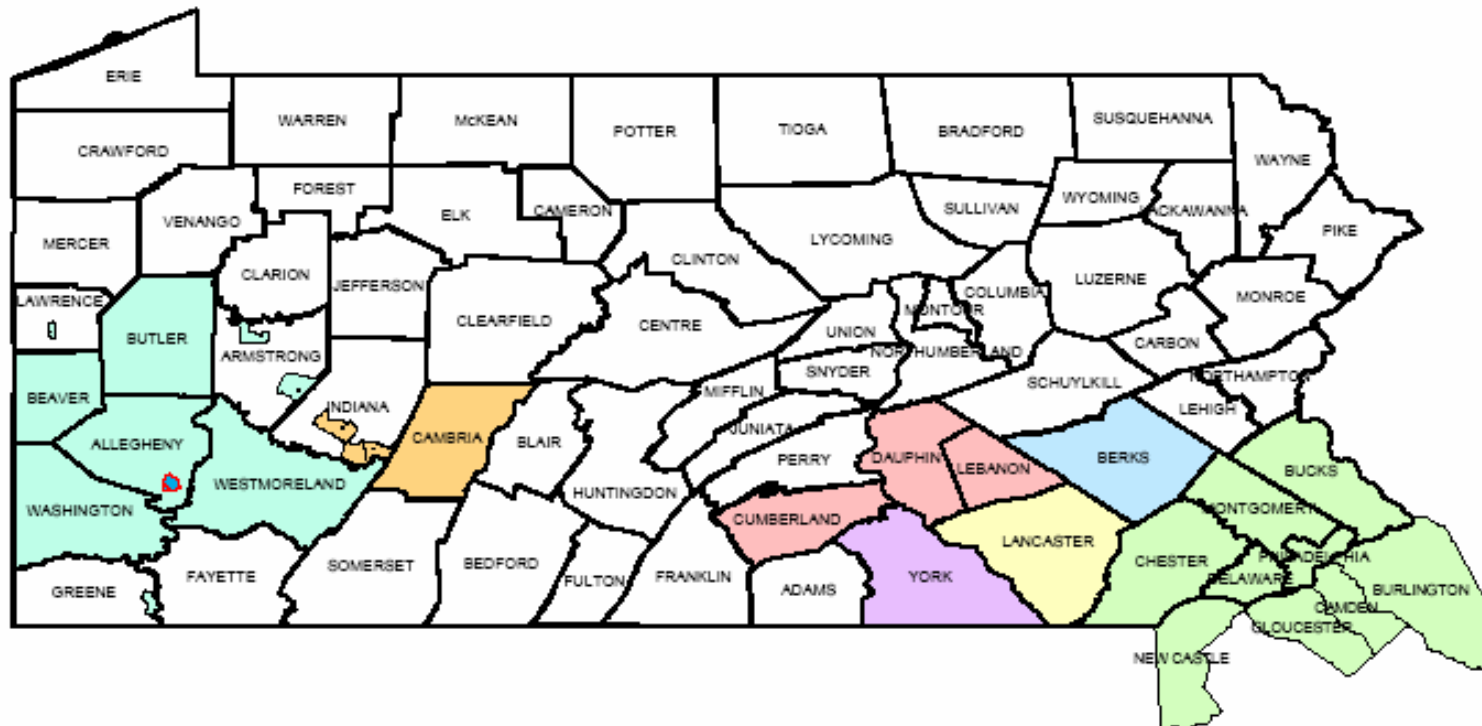
# Attainment vs. Nonattainment

- Attainment (“Clean”) Areas: Have attained the NAAQS for a given pollutant
- Nonattainment Areas: Have not attained the NAAQS for a given pollutant
- Unclassifiable Areas: Cannot be classified as one of the above; for our purposes today, generally treated as attainment


# PA NAAQS Designations

- Found at 40 CFR 81.339
- PA Generally –
  - Attainment/unclassifiable for SO<sub>2</sub>, CO, NO<sub>2</sub> and PM<sub>10</sub>
  - Mix of attainment/unclassifiable and nonattainment for PM<sub>2.5</sub> (see map)
  - Mix of attainment/unclassifiable and nonattainment for ozone (see map), but is somewhat more complex . . .

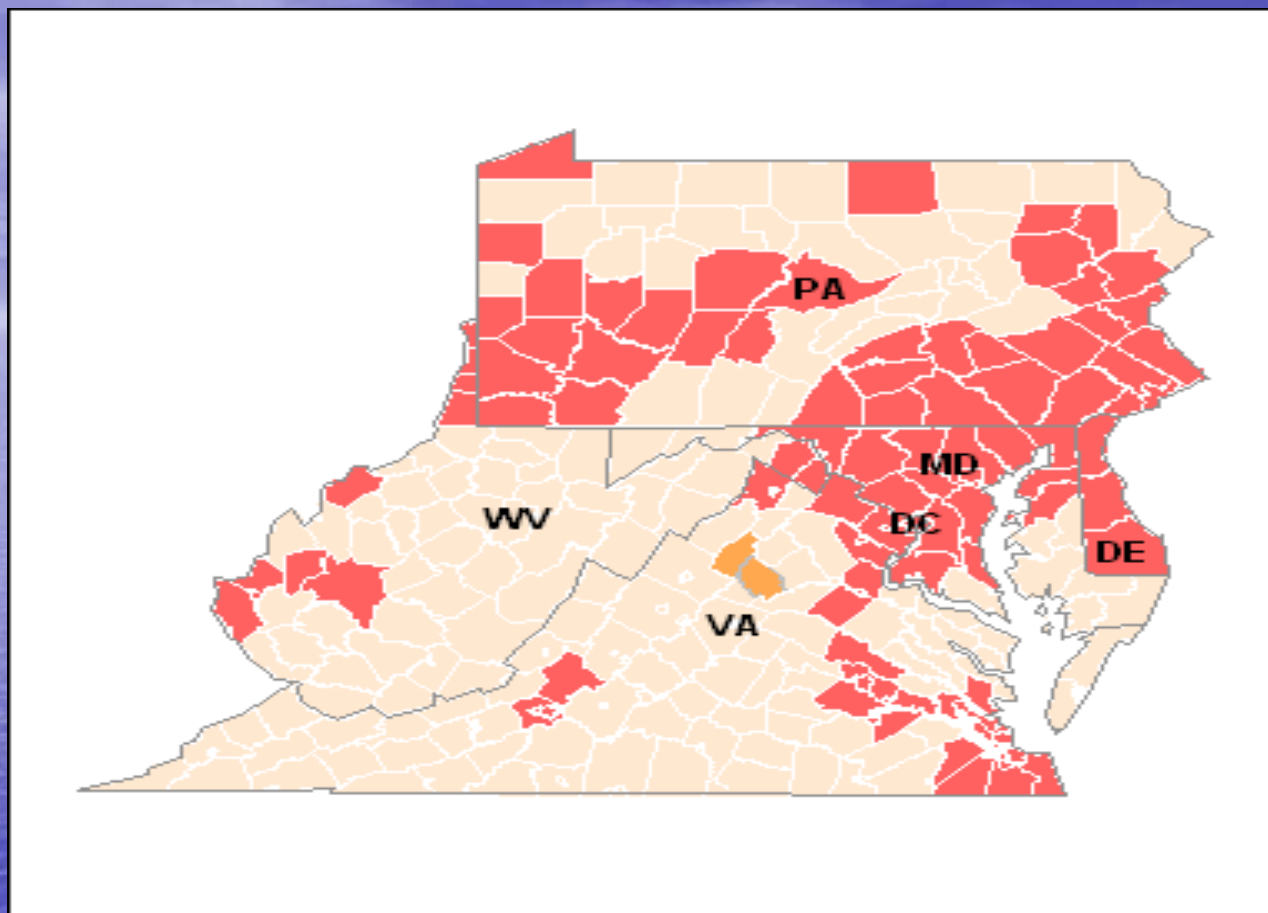
## PM 2.5 Designations for Pennsylvania



### PM 2.5 Designations

 Attainment Counties	 Lancaster, PA	 Reading, PA
 Harrisburg-Lebanon-Carlisle, PA	 Philadelphia-Wilmington, PA-NJ-DE	 York, PA
 Johnstown, PA	 Pittsburgh, PA	 Liberty-Clairton

Areas are Shaded Based on EPA's December 17, 2004 Designations and as Amended on April 14, 2005



8-Hour Ozone Designations  
April 15, 2004

- Unclassifiable/Attainment
- Nonattainment
- Nonattainment (part county)
- Unclassifiable

# Ozone Designations

- CAA establishes categories of ozone nonattainment areas:
  - Basic (added when changed from 1-hr to 8-hr standard, eff. June 2005), marginal, moderate, serious, severe and extreme
- CAA establishes an ozone transport region (“OTR”) (D.C. to Maine)
  - All OTR areas, including PA, treated as though at least moderate nonattainment for ozone
- VOCs and NO<sub>x</sub> treated as nonattainment pollutants in PA – are precursors to ozone

# What is Relationship between NAAQS and PSD/NSR?

- PSD program applies in attainment & unclassifiable areas
  - to preserve, or prevent, significant deterioration (“PSD”) of, air quality
- Analogous program in nonattainment areas
  - to enable areas to achieve NAAQS/restore air quality
  - i.e., the nonattainment new source review program or “NNSR”
- Together, PSD and NNSR = NSR

# What Are the PSD and NNSR Programs?

- At the most basic level:
  - are preconstruction permitting programs required by federal law under the CAA
  - generally implemented by states,
  - permits impose tough/costly requirements
- PA adopts EPA's PSD program (40 CFR 52.21) at 25 Pa. Code 127.83
- PA has own NNSR program at 25 Pa. Code, Ch. 127, Subchapter E

# What Triggers NSR?

- General Rule – NSR Programs Apply To:
  - the construction of new major stationary sources of air pollutants; or
  - the major modification to existing major stationary sources of air pollutants
- Focus on major modifications

# What Is a Major Source?

- PSD = 100 tpy if in one of 28 industrial categories; 250 tpy for all other sources
  - 28 categories: utility plants, steel plants, refineries, boilers >250 MMBtu/hr heat input
- NNSR = 100 tpy, or less, depending on severity of the pollution problem in area
  - PA in OTR (i.e., treated as moderate ozone NA area): 50 tpy VOCs, 100 tpy NOx
  - but, for 5-County Philadelphia area . . .

# NNSR Major Source Status for Philadelphia Area – Ozone

- 1-hr ozone standard (revoked): Phila. area severe ozone NA; major source thresholds at 25 tpy VOCs and NO<sub>x</sub>
- 8-hr ozone standard (eff. 6/15/05): Phila. area moderate ozone NA; VOCs/NO<sub>x</sub> thresholds same as rest of State
- But, DEP's proposed revisions to NNSR program would retain 25 tpy thresholds

# Actual or Potential Emissions?

- Caution: Whether a source is major depends not just on its actual emissions, but its “potential-to-emit” (PTE)
- PTE = maximum capacity of a source to emit a pollutant under its physical and operational design; includes –
  - enforceable emissions or other limits
  - inherent physical or design constraints

# What is a major modification?

- Modification=a physical change or change in the method of operation that results in an increase in emissions or a new pollutant not previously emitted
- Major modification=one that results in (1) a significant emissions increase from the project and (2) a significant net emissions increase

# What Is a Significant Emissions Increase?

- PSD=40 tpy for each of NO<sub>2</sub>, SO<sub>2</sub>, and ozone (VOCs or NO<sub>x</sub>), 25 tpy for PM and 15 tpy for PM<sub>10</sub>, 100 tpy CO
- PA NNSR=40 tpy for each of NO<sub>x</sub>, SO<sub>x</sub>, and VOCs, unless in 5-County Philadelphia area, where was, and likely will be again, 25 tpy for VOCs and NO<sub>x</sub>

# How Do You Determine if There Is a Significant Emissions Increase?

- In theory, could compare:
  - Pre-project actual to projected actual emissions after the project
  - Pre-project actual to post-project potential emissions
  - Pre-project potential to post-project potential emissions (hourly rate or tons per year)

# Emissions Test of the Day for Modifications to Existing Units

- PSD Program
  - Actual-to-projected actual emissions (eff. in PA March 3, 2003) (was the rule for EGUs since early 1990s), unless in 4<sup>th</sup> Circuit, where is hrly potential to potential
- NNSR Program
  - In PA, current program is potential-to-potential, based on tons per year
  - Will change shortly to actual-to-projected actual emissions test, after proposed DEP revisions are made final

# Actual-to-Projected Actual Test

- Formula: Projected Actuals – Pre-Change Baseline Actuals = Emissions Increase
  - Baseline: average of any 24 consecutive months within 10 yrs prior to project (5 yrs for EGUs)
    - PA NNSR – lookback period 5 yrs for all sources
  - Projected actuals: an annual rate reflecting maximum annual emissions (tpy) that will occur during any one of 5 (some circumstances, 10) yrs after project
  - Adjust downward by subtracting emissions that could have been accommodated prior to the change

# How to Determine if is a Significant Net Emissions Increase

- Remember Definition of Major Modification
  - Must have (1) significant emissions increase from project, and (2) significant net emissions increase facility-wide to have NSR trigger
  - If emissions increase from project is significant must do “netting,” to determine if have a significant net emissions increase

# Netting

- Complex, but basics are:
- Net emissions change = emissions increases from the project, plus “creditable” emissions increases and decreases at the facility over the past 5 years
- If net emissions change equals/exceeds the significance thresholds, there is a significant net emissions increase and NSR applies
- PA NNSR de minimis emission aggregation rule

# Routine Maintenance Repair Replacement (RMRR)

- A number of exclusions from definition of major modification (40 CFR 52.21(b)(2))
- Most important and controversial is RMRR
- Bush administration Equipment Replacement Provision (ERP) Rule (2003)
  - broad application of exclusion
  - stayed 12/03; vacated 3/17/06 by D.C. Circuit in *NY et al. v. EPA*

# What happens if Trigger NSR?

- PSD – In addition to permit:
  - Best Available Control Technology (BACT)
    - Max degree of reduction that is achievable on a case-by case basis (includes consideration of costs and other impacts)
  - Modeling to show no violation of NAAQS and that PSD “increment” is not consumed
  - Other environmental impacts analysis (visibility, soils, vegetation)

# What happens if Trigger NSR?

- NNSR – In addition to permit:
  - Lowest Achievable Emissions Rate (LAER)
    - Stricter of most stringent emission limit in State's rules or achieved "in practice" within source category (generally does not consider economics or other factors); tougher than BACT
  - Emission offsets (emission reduction credits)
  - Owner/operator must be in compliance at all PA facilities
  - Cost/benefit analysis

# Do Not Confuse NSR with Other Programs

- New Source Performance Standards
  - Triggered by new construction/modification, but applies only to specific types of equipment; different applicability tests (40 CFR Part 60)
- National Emission Standards for Hazardous Air Pollutants (HAPs)
  - Applies to specific categories of operations that emit HAPs, and applies to existing and new equipment (40 CFR Part 63)