Air Quality Rules Update:

NSR Reform

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NSR Reform

PSD Scope

- What triggers PSD applicability?
  - ✓New “Major” stationary sources constructed in attainment areas
  - ✓“Major Modifications” to existing major stationary sources in attainment areas
- Attainment areas are those areas that are meeting the various NAAQS
  - ✓SO_2, NO_X, PM10, CO, Ozone, Lead and now PM2.5

PSD Scope (cont'd)

- What is a major stationary source under PSD?
  - ✓One of 28 "listed" major source categories with PTE > 100 tons per year (after control) of any pollutant regulated by the CAA including fugitive emissions
  - ✓Any stationary source (other than the listed 28) with PTE > 250 tons per year of any pollutant regulated by the CAA excluding fugitive emissions

PSD Scope (cont'd)

- What is a major modification?
  - ✓Any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a PSD pollutant and a significant net emissions increase of that pollutant from the major stationary source.

Determining PSD Applicability

- Review and define the entire project (i.e., new/modified equipment and affected equipment)
  - ✓ What project is being proposed?
  - ✓ What new equipment will be added?
  - ✓ Is the project part of previous changes?
  - ✓ Is the project part of future changes?
  - ✓ Will the operation or emissions from other facility emissions units be affected by the change (i.e., de-bottlenecking)?
  - ✓ Will existing equipment be changed/removed?

Determining PSD Applicability (cont'd)

- If the proposed change does not affect other emissions units or if the affected emissions units do not emit regulated PSD pollutants:
  - ✓The project is limited to the change only
- If the proposed change affects other emissions units:
  - ✓The project will include both the change and the equipment affected by the change

Determining PSD Applicability (cont'd)

- Evaluate the project-related emissions
  - ✓ Determine whether the project by itself (i.e., emissions from new or modified emissions unit plus incremental changes in emissions from affected units) will emit regulated PSD pollutants
  - ✓ Determine baseline actual emissions
  - ✓ Determine potential emissions increase following the modification
  - ✓ Determine the project-related emissions from new, modified and affected emissions units

Determining PSD Applicability (cont'd)

- Evaluate the "project" emissions to determine if the project is a major modification using the "actual to potential test"
  - ✓ Actual emissions = average emissions (tpy) over 2 years preceding the project
    - Fugitive emissions must be quantified for 28 listed source categories
  - ✓ Potential emissions = PTE of the project (tpy)
    - Project potential emissions include PTE of new/modified sources and incremental increases at affected sources
  - ✓ Potential emissions minus actual emissions = project emission increase

Determining PSD Applicability (cont'd)

- If project emission increases are not significant, the project does not trigger PSD
- If project emission increases are significant, evaluate "contemporaneous" changes in emissions
  - ✓ Contemporaneous changes are site-wide increases or decreases in actual emissions that have occurred at the site in the 5 years preceding the project
- Determine whether the "net" change in emissions is significant

PSD Significant Emission Rates

(Mercury 0.1 tpy; NMOC 50 tpy; MWC acid gases 40 tpy; MWC organics 3.5 x 10^{-6} tpy)

Pollutant	Major Modification Threshold
Particulate Matter (TSP)	25 tpy
Particulate Matter < 10 microns (PM10)	15 tpy
Sulfur Dioxide (SO_2)	40 tpy
Oxides of Nitrogen (NO_X)	40 tpy
Volatile Organic Compounds (VOC)	40 tpy
Carbon Monoxide (CO)	100 tpy
Lead (Pb)	0.6 tpy
Fluorides	3 tpy
Sulfuric Acid Mist	7 tpy
Hydrogen Sulfide (H_2S)	10 tpy
Total Reduced Sulfur (TRS)	10 tpy
Any increase resulting in a > 1 µg/m^3 24 hour concentration if the source is within 10 km of a Class I area	

PSD Permit Application Content

- Description of proposed project
- Summary of applicable requirements
- Emissions inventory
- Determination and defense of best available control technology (BACT) evaluation
- Air quality impact analyses
- Other Class II impacts analysis

What is BACT?

- Any major stationary source or major modification subject to PSD must conduct an analysis to ensure the application of best available control technology (BACT)
- BACT is fundamentally an emissions limitation

BACT Applicability (40 CFR 52.21(j))

- (2) A new major stationary source shall apply BACT for each PSD pollutant that it would have the potential to emit in significant amounts
- (3) A major modification shall apply BACT for each PSD pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a *net emissions increase* in the pollutant would occur as a result of a *physical change or change in the method of operation in the unit.*

NSR Revision - Background

- Why was NSR Revised?
  - ✓General industry concern over NSR regarding:
    - Complicated applicability determinations
    - Extended permit preparation and review timelines
    - Volumes of precedent decisions, policy memos, and guidance documents pertaining to NSR
- NSR Revision discussions began in the early 1990's
- EPA initially proposed changes in 1996

NSR Revision - Final Rules

- Most of the proposed Revisions were finalized and published in the Federal Register on December 31, 2002
- Effective in Florida February 2, 2006

Final NSR Revisions

- Revised Baseline Actual Emission Calculation Procedure
- New “Actual-to-Projected-Actual” Applicability Test
- Actuals Based Plantwide Applicability Limits (PALs)

Baseline Actual Emissions

- Revised Baseline Calculation for Non-Electric Utility Steam Generating Units (Non-EUSGUs)
  - ✓The facility may use the annual average emissions that occurred during <u>any consecutive 24-month period in the past 10 years</u> (5 years for EUSGUs)
  - ✓Emissions must be adjusted to reflect current emission factors/control requirements
  - ✓Baseline emissions cannot exceed applicable standards/limits

Baseline Actual Emissions

- Revised Baseline Calculation for Non-Electric Utility Steam Generating Units (cont'd)
  - ✓Adequate emissions data must be available
  - ✓All emissions units are subject to same 24-month period for a given pollutant
  - ✓Different 24-month periods may be used for different pollutants

Actual-to-Projected-Actual Applicability Test

- New applicability determination option for all emissions units
  - ✓ Baseline emissions are compared to projected actual emissions following the change
    - Facility must project post change actual annual emissions by source for 5 years (10 years post change if change increases unit's PTE or capacity)
    - Emissions that the unit could accommodate pre-change may be excluded (i.e., demand exclusion)
    - Facility must maintain records of actual annual emissions for 5 or 10 years, and report to regulatory authority if projection is exceeded

Plantwide Applicability Limits

- What is a PAL?
  - ✓ An annual, facility-wide, pollutant specific, emission limitation under which the facility can make any changes without triggering PSD for that pollutant
- PALs, as defined in 40 CFR Part 52, are:
  - ✓ Set using actual facility baseline emissions
  - ✓ Pollutant-specific
  - ✓ Issued for a 10-year term
  - ✓ Renewable

Calculating Annual Emissions

62-210.370

Emissions Computation and Reporting

- Applicability. This rule sets forth required methodologies to be used by the owner or operator of a facility for computing actual emissions, baseline actual emissions, and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for computing emissions for purposes of the reporting requirements of Rules 62-210.370(3) [AORs, beginning with 2007 annual emissions] and 62-212.300(1)(e) [projected actual emissions], F.A.C., or of any permit condition that requires emissions be computed in accordance with this rule.
- This rule is not intended to establish methodologies for determining compliance with the emission limitations of any air permit.

62-210.370
Emissions Computation and Reporting (cont'd)

- Computation of Emissions
  - Basic Approach
  - *Continuous Emissions Monitoring System (CEMS)*
  - *Mass Balance Calculations*
  - *Emission Factors*
  - *Accounting for Emissions During Periods of Missing Data from CEMS, PEMS, or CPMS*
  - *Accounting for Emissions During Periods of Startup and Shutdown*
  - *Fugitive Emissions*
  - *Recordkeeping.*

Basic Approach

- The owner or operator shall employ, on a pollutant-specific basis, the most accurate of the approaches set forth below to compute the emissions of a pollutant from an emissions unit;
- however, nothing in this rule shall be construed to require installation and operation of any continuous emissions monitoring system (CEMS), continuous parameter monitoring system (CPMS), or predictive emissions monitoring system (PEMS) not otherwise required by rule or permit,
- nor shall anything in this rule be construed to require performance of any stack testing not otherwise required by rule or permit.

BASIC APPROACH (cont'd)

- If the emissions unit is equipped with a CEMS meeting the requirements of Rule 62-210.370(2)(b), F.A.C., the owner or operator shall use such **CEMS** to compute the emissions of the pollutant, unless the owner or operator demonstrates to the department that an alternative approach is more accurate because the CEMS represents still-emerging technology.

BASIC APPROACH (cont'd)

- If a CEMS is not available or does not meet the requirements of Rule 62-210.370(2)(b), F.A.C, but emissions of the pollutant can be computed pursuant to the mass balance methodology of Rule 62-210.370(2)(c), F.A.C., the owner or operator shall use such methodology, unless the owner or operator demonstrates to the department that an alternative approach is more accurate.

BASIC APPROACH (cont'd)

- If a CEMS is not available or does not meet the requirements of Rule 62-210.370(2)(b), F.A.C., and emissions cannot be computed pursuant to the mass balance methodology, the owner or operator shall use an emission factor meeting the requirements of Rule 62-210.370(2)(d), F.A.C., unless the owner or operator demonstrates to the department that an alternative approach is more accurate.

62-210.370(2)(b) Continuous Emissions Monitoring System (CEMS)

An owner or operator may use a CEMS to compute emissions of a pollutant for purposes of this rule provided:

a. The CEMS complies with the applicable certification and quality assurance requirements of 40 CFR Part 60, Appendices B and F, or, for an acid rain unit, the certification and quality assurance requirements of 40 CFR Part 75, all adopted by reference at Rule 62-204.800, F.A.C.; or

b. The owner or operator demonstrates that the CEMS otherwise represents the most accurate means of computing emissions for purposes of this rule.

62-210.370(2)(b) Continuous Emissions Monitoring System (CEMS) (cont'd)

Stack gas volumetric flow rates used with the CEMS to compute emissions shall be obtained by the most accurate of the following methods as demonstrated by the owner or operator:

a. A calibrated flowmeter that records data on a continuous basis, if available; or

b. The average flow rate of all valid stack tests conducted during a five-year period encompassing the period over which the emissions are being computed, provided all stack tests used shall represent the same operational and physical configuration of the unit.

62-210.370(2)(b) Continuous Emissions Monitoring System (CEMS) (cont'd)

The owner or operator may use CEMS data in combination with an appropriate f-factor, heat input data, and any other necessary parameters to compute emissions <u>if such method is demonstrated by the owner or operator to be more accurate</u> than using a stack gas volumetric flow rate.

Mass Balance Calculations

An owner or operator may use mass balance calculations to compute emissions of a pollutant for purposes of this rule provided the owner or operator:

a. Demonstrates a means of validating the content of the pollutant that is contained in or created by all materials or fuels used in or at the emissions unit; and

b. Assumes that the emissions unit emits all of the pollutant that is contained in or created by any material or fuel used in or at the emissions unit if it cannot otherwise be accounted for in the process or in the capture and destruction of the pollutant by the unit's air pollution control equipment.

Mass Balance Calculations (cont'd)

Where the vendor of a raw material or fuel which is used in or at the emissions unit publishes a range of pollutant content from such material or fuel, the owner or operator shall use the highest value of the range to compute the emissions, unless the owner or operator demonstrates using site-specific data that another content within the range is more accurate.

Mass Balance Calculations (cont'd)

In the case of an emissions unit using coatings or solvents, the owner or operator shall document, through purchase receipts, records and sales receipts, the beginning and ending VOC inventories, the amount of VOC purchased during the computational period, and the amount of VOC disposed of in the liquid phase during such period.

Emission Factors

An owner or operator may use an emission factor to compute emissions of a pollutant for purposes of this rule provided the emission factor is based on site-specific data such as stack test data, where available, unless the owner or operator demonstrates to the department that an alternative emission factor is more accurate. An owner or operator using site-specific data to derive an emission factor, or set of factors, shall meet the following requirements...

Site Specific Emission Factors

If stack test data are used, the emission factor shall be based on the average emissions per unit of input, output, or gas volume, whichever is appropriate, of all valid stack tests conducted during at least a five-year period encompassing the period over which the emissions are being computed, provided all stack tests used shall represent the same operational and physical configuration of the unit.

Site Specific Emission Factors (cont'd)

Multiple emission factors shall be used as necessary to account for variations in emission rate associated with variations in the emissions unit's operating rate or operating conditions during the period over which emissions are computed.

Site Specific Emission Factors (cont'd)

- The owner or operator shall compute emissions by multiplying the appropriate emission factor by the appropriate input, output or gas volume value for the period over which the emissions are computed.
- The owner or operator shall not compute emissions by converting an emission factor to pounds per hour and then multiplying by hours of operation, unless the owner or operator demonstrates that such computation is the most accurate method available.

Emission Factors (cont'd)

- If site-specific data are not available to derive an emission factor, the owner or operator may use a published emission factor directly applicable to the process for which emissions are computed.
- If no directly-applicable emission factor is available, the owner or operator may use a factor based on a similar, but different, process.

Accounting for Emissions During Periods of Missing Data from CEMS, PEMS, or CPMS

In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of missing data from CEMS, PEMS, or CPMS using other site-specific data to generate a reasonable estimate of such emissions.

Accounting for Emissions During Periods of Startup and Shutdown

In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of startup and shutdown of the emissions unit.

Fugitive Emissions

In computing the emissions of a pollutant from a facility or emissions unit, the owner or operator shall account for the fugitive emissions of the pollutant, to the extent quantifiable, associated with such facility or emissions unit.

Recordkeeping

The owner or operator shall retain a copy of all records used to compute emissions pursuant to this rule for a period of five years from the date on which such emissions information is submitted to the department for any regulatory purpose.

Questions?