



PM_{2.5}, GHGs, and Job Security

Air & Waste Management Association
Louisiana Section

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PM_{2.5}: Applicable Regulations

AQ318 – PM_{2.5} NSR Implementation Rule

- Promulgated June 20, 2011.
- Mirrors the federal rule promulgated May 16, 2008.
- SO₂ and NO_x are now regulated as precursors to PM_{2.5}.
- Addressed condensable PM.

PM₁₀ Surrogate Policy has been formally repealed.





How is LDEQ Addressing PM_{2.5}?

Title V Renewals and Significant Modifications

Applications for Title V renewals and significant modifications submitted on or after **March 1, 2011**, should address PM_{2.5} for all sources.

Minor Modifications

Applicants proposing physical changes or changes in the method of operation should address PM_{2.5} emissions for the affected sources to show that the project increase (or net emissions increase, if necessary) is below 10 TPY.



Condensable Particulate Matter

On or after January 1, 2011, condensable PM must be accounted for in applicability determinations and in establishing emissions limitations for PM, PM₁₀, and PM_{2.5} in PSD permits.

Compliance with emissions limitations for PM, PM_{2.5}, and PM₁₀ issued prior to this date shall not be based on condensable PM. Applicability determinations made prior to this date without accounting for condensable PM shall not be considered in violation of PSD provisions.



What is Condensable Particulate Matter?

Condensable PM is

“gaseous emissions from a source or activity which condense to form particulate matter at ambient temperatures.”

The formation of condensable PM may occur within a few seconds after discharge from the stack.

- Sulfuric Acid





Quantifying PM_{2.5} and Condensable PM

On December 1, 2010, EPA revised two test methods for measuring PM.

Method 201A

- Measures filterable PM_{2.5}.
- Can also be used to measure PM₁₀.

Method 202

- Measures condensable PM.



PM_{2.5} Limits in Air Permits

PM_{2.5} limitations will be added to the “Emission Rates for Criteria Pollutants” table.

- A TEMPO SSR is pending.

Such limits currently appear in the “Specific Requirements” section.

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO₂e

AI ID: 83609 - Test AI #1 Production Test

Activity Number: PER19960013

Permit Number: 3086-V0

Air - Title V Regular Permit Initial

Subject Item	VOC			Lead			PM _{2.5}			CO ₂ e		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
Direct Reduction Iron Facility												
ARE 0073							0.01	0.01	0.06			
ARE 0074							0.17	0.29	0.73			
EQT 0506							0.03	0.23	0.14			
EQT 0507							0.81	0.89	3.24			



Regulation of Greenhouse Gases (GHG)

As you know, “Step 2” of the GHG Tailoring Rule began on July 1.

Projects can trigger PSD (BACT) based solely on increases of GHGs.

- Major Source Threshold = 100,000 TPY CO₂e
- Significance Level = 75,000 TPY CO₂e





Regulation of Greenhouse Gases

“The only applicable control ... is regular performance monitoring and maintenance”

is not a BACT analysis
(even though it's probably true).



Regulation of Greenhouse Gases

BACT

“PSD and Title V Permitting Guidance for Greenhouse Gases” (March 2011)

- Provides the basic information that permit writers and applicants need to address GHG emissions in permits.
- Stresses energy efficiency.



Regulation of Greenhouse Gases

Energy Efficiency (First Category)

Focuses on the efficiency of the individual emissions unit.

- Subcritical versus supercritical or ultra-supercritical boilers (steam pressure)
- Combined cycle versus simple cycle turbines
- Should not change the applicant's basic or fundamental business purpose for the proposed facility.



Regulation of Greenhouse Gases

Energy Efficiency (Second Category)

Focuses on improving the utilization of thermal energy and electricity that is generated and used on site.

- Appropriate for greenfield sites.
- Concentrates on the energy efficiency of equipment that uses the largest amounts of energy (e.g., induced draft fans, electric water pumps), since energy efficient options for such units and equipment will have a larger impact on reducing the facility's emissions.



Regulation of Greenhouse Gases

Energy Efficiency (Second Category)

EPA provides several examples:

- Optimization of new heat exchangers; and
- Optimization of the steam distribution and utilization system.

In short, anything done to minimize fuel use could be an aspect of a GHG BACT analysis.

These are likely to be things the applicant is doing already – just document them!



Regulation of Greenhouse Gases

The BACT analysis should not be a
“Sisyphean labor where there was always
one more option to consider.”





Regulation of Greenhouse Gases

Carbon Capture and Storage (CCS)

For the purposes of a BACT analysis for GHGs, EPA classifies CCS as an add-on pollution control technology that is “available” for facilities emitting CO₂ in large amounts, including fossil fuel-fired power plants, and for industrial facilities with high-purity CO₂ streams.





Regulation of Greenhouse Gases

CCS (cont.)

LDEQ has taken the position that for most gas-fired sources, carbon capture is currently technically infeasible (eliminating it in step 2 of the top-down process).

- See proposed permit for Cheniere Energy.

If you deem carbon capture and storage technically feasible, it must be eliminated based on adverse energy, environmental, or economic impacts (step 4).



Regulation of Greenhouse Gases

EPA Resources

- Greenhouse Gas Mitigation Strategies Database
- RACT/BACT/LAER Clearinghouse (RBLC)
- GHG “Permitting Action Team”
 - Region 6: Melanie Magee and Jeff Robinson

All resources can be accessed at
<http://www.epa.gov/nsr/ghgpermitting.html>.



Regulation of Greenhouse Gases

EPA Resources (cont.)

Technical “white papers” summarizing available info. on control techniques and emerging technologies for reducing GHGs from specific industrial sectors.

- Portland cement industry
- Iron and steel industry
- Nitric acid production industry
- Pulp and paper manufacturing industry
- Petroleum refining industry
- Coal-fired electric generating units
- Industrial, commercial, and institutional boilers
- Municipal solid waste landfills





Regulation of Greenhouse Gases

EPA Resources (cont.)

Implementing GHG Permitting - Questions and Answers

- <http://www.epa.gov/nsr/ghgqa.html>
- Only 3 entries to date.

Estimating GHG Emissions

- <http://www.epa.gov/nsr/ghgresources.html>



Regulation of Greenhouse Gases

GHG BACT Determinations on Public Notice

Entergy Louisiana, LLC – Ninemile Point

- Major modification to add two new natural-gas fired combined cycle turbines/duct burners.
- BACT is gross heat input ≤ 7630 BTU/kW-hr (HHV) on an annual average.
- Comment deadline is July 28; EPA deadline is August 4.



Regulation of Greenhouse Gases

GHG BACT Determinations on Public Notice (cont.)

Cheniere Energy, Inc. – Sabine Pass Liquefaction, LLC

- Major modification to add four new natural gas liquefaction trains.
- Primary sources of GHGs emissions are 24 natural gas-fired turbines (8 combined cycle; 24 simple cycle).
- BACT is good combustion/operating practices to limit CO₂e emissions below a ton per year value.
- Comment deadline is August 15.



Regulation of Greenhouse Gases

What's New?

On July 1, 2011, EPA deferred, for a period of 3 years, the application of the PSD and Title V permitting requirements to CO₂ emissions from bioenergy and other biogenic stationary sources.

- Yet to be published in the *Federal Register*.
- LDEQ submitted comments in support of this action.





Regulation of Greenhouse Gases

LAC 33:III.501.C.14

If there is a change in federal law or the U.S. Court of Appeals for the D.C Circuit or the U.S. Supreme Court issues an order which limits or renders ineffective the regulation of GHGs from stationary sources under Part C of Title I (Prevention of Significant Deterioration of Air Quality) or Title V (Permits) of the CAA, the regulation of GHGs under the corresponding programs in this Chapter [LAC 33:III.Chapter 5] shall be limited or rendered ineffective to the same extent.



Job Security

Cross-State Air Pollution Rule – Final July 6, 2011

8-Hour Ozone NAAQS – Final July 2011

PM_{2.5} NAAQS – Proposed Summer 2011

Utility MACT – Final November 2011

NSR Reasonable Possibility – Proposal Fall 2011

NSR Anti-Backsliding for 1-Hour Ozone – Final Fall 2011

GHG Tailoring Rule, Step 3 – July 2012

Cross-State Air Pollution Rule 2 – TBD





Questions / Comments?

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