Stationary Source Control Requirements in SIPs

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MARAMA State Implementation Plan Workshop

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Stationary Source Control Requirements in SIPs

Overview:

Attainment Areas

- Prevention of Significant Deterioration
- Major New Source Review
- Minor New Source Review

Nonattainment Areas

- Reasonably Available Control Measures Reasonably available Control Technology (RACT)
- Nonattainment New Source Review
- Minor New Source Review

Attainment Areas

- **New Source Review (NSR)**
- **Prevention of Significant Deterioration** (PSD) permits are required for new major or major sources making modifications in attainment and maintenance areas
- Major New Sources
- Major Modifications at Existing Sources

- Major Stationary Source considers All pollutant-emitting activities and:
  - Same industrial group (same SIC code)
  - Contiguous or adjacent properties
  - Common ownership or control

PSD Regulations and Guidance

- **40 CFR 51.166**: Specifies the minimum requirements that a PSD air quality permit program under Part C of the Act must contain in order to warrant approval by EPA as a revision to a State implementation plan (SIP).

- **40 CFR 52.21**: Delineates the federal PSD permit program, which currently applies as part of the SIP

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28 Major Source Categories subject to the PSD 100 TPY Threshold

- Coal cleaning plants
- Kraft pulp mills
- Portland cement plants
- Primary zinc smelters
- Iron and steel mills
- Primary aluminum ore reduction plants
- Primary copper smelters
- Municipal incinerators
- Hydrofluoric acid plants
- Sulfuric acid plants
- Nitric acid plants
- Petroleum refineries
- Lime plants
- Phosphate rock processing plants
- Coke oven batteries
- Sulfur recovery plants
- Carbon black plants
- Primary lead smelters
- Fuel conversion plants
- Sintering plants
- Secondary metal production plants
- Chemical process plants
- Fossil-fuel or combination of boilers
- Petroleum storage/transfer units
- Taconite ore processing plants
- Glass fiber processing plants
- Charcoal production plants
- Fossil fuel fired steam electric plants

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-other sources Major at 250 TPY

What pollutants are regulated under NSR?

- Criteria Air Pollutants:

  CO, SO2, VOC, NOx, NO2, Pb,PM2.5 and PM10

- Some pollutants not covered by NAAQS are subject to PSD
- GHGs - https://www.epa.gov/nsr/clean-air-actpermitting-greenhouse-gases
- Total PM
- Fluorides, sulfuric acid mist, reduced sulfur compounds
- Metals
- HAPs are not covered

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Major Modifications

Defining modification

- All units with physical or operational change
- Few exclusions
  - Routine maintenance repair and replacement
  - Increase in hours of operation
- Artificial separation of a project is not allowed

Thresholds for applicability very depending on the pollutant

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Attainment Areas NSR

- Apply Best Available Control Technology (BACT) for each NSR-regulated pollutant emitted at, or above, the applicable threshold
- Perform an additional impact analysis that assess the impact on soils, vegetation and visibility caused by any increase in the emission of any regulated pollutant from the new facility or modification under review
- Perform an air quality analysis to demonstrate that new emissions emitted from the proposed source or modification, in conjunction with other applicable emissions increases and decreases from existing sources, will not cause or contribute to a violation of any applicable NAAQS or PSD increment
- Provide an opportunity for public input and involvement

Attainment Areas NSR

Apply Best Available Control Technology (BACT) for each NSR-regulated pollutant emitted at, or above, the applicable threshold

BACT Analysis Considers:

- BACT is an emissions limitation which is based on the maximum degree of control that can be achieve. It is a case-by-case decision that considers energy, environmental, and economic impact. BACT can be add-on control equipment or modification of the production processes or methods. This includes fuel cleaning or treatment and innovative fuel combustion techniques. BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.

Nonattainment Areas General

Reasonably Available Control Measures (RACM)

- *Section 172(c)(1) of the CAA applies to all Nonattainment Areas*
- *EPA guidance interprets RACM provision to require a demonstration that:*
  - *State has adopted all reasonable measures to meet Reasonable Further Progress requirements and to demonstrate attainment expeditiously as practicable*
  - *No additional measures that are reasonably available will advance the attainment date or contribute to Reasonable Further Progress for the area.*

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Reasonably Available Control Technology (RACT)

- Subset of RACM
  - Minimum requirement for existing sources
    - Lowest Achievable Emissions Rate (LAER) is applied to new or modified sources. ***Does not consider cost, energy or other environmental factors.***
- EPA RACT definition (not in the CAA):
  - "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility" (44 FR 53762; September 17, 1979).
- Nonattainment Area SIPs must demonstrate the application of RACT in the attainment plan emissions control strategies

Control Technologies continued

- Engineering and efficiency solutions for reducing air pollution from sources
- The EPA **Control Techniques Guidelines** (CTGs) provides control technology options
- **Alternative Control Techniques Documents** (ACTs) describe other available control technologies and their respective cost effectiveness
- https://www.epa.gov/ground-level-ozone-pollution/control-techniques-guidelines-and-alternative-control-techniques
- The **Control Strategy Tool** (CoST) integrates inventories, control technologies, and costs to develop control strategies
- https://www.epa.gov/sites/default/files/2018-09/documents/cost_equations_documentation_0.pdf

Reasonably Available Control Technology (RACT)Technical References for Ozone

- **Ozone Transport Commission Stationary and Area Source Committee Work Products**

  1. RACT and Control Measures Tool- March 27,2023
  2. RACT Cost Effectiveness March 27,2023
  3. Municipal Waste Combustor Workgroup Report April 25, 2022
  4. Analysis of Technical Feasibility & Cost Effectiveness for Gas Pipeline Compressors… May 23, 2019.
  5. Regulatory & Technical Guideline for Consumer Products Phase V November 20, 2018

Nonattainment New Source Review (NNSR)

- *In order for a source to obtain a NNSR permit in a nonattainment area, the source must meet at least the following:*
- Apply Lowest Achievable Emission Rate (LAER) to any pollutant for which the area is designated as in nonattainment, and for which source emissions are at or above the applicable threshold
- Obtain "offsets" (emission reductions from other sources that impact the same area) for the proposed emissions from the nonattainment pollutant. Must be, >1.1 Ratio, quantifiable, enforceable, real, and permanent.
- Certify that all other facilities owned by the same company, within the same state as the proposed construction, are in compliance with the CAA
- Provide an opportunity for public input and involvement

Minor New Source Review

- *Since the CAA is not very prescriptive for what requirements apply to minor NSR permits, states are able to customize the requirements of their programs as long as they meet the minimum requirements (e.g., public participation) established by the EPA. Additionally, a state's minor NSR program must not allow the construction of air pollution sources that would interfere with the attainment or maintenance of a NAAQS.*
- *Parts of state's minor new source review may or may not be part of the SIP*
- *Areas where the state may not want to have federal enforceability*
- *EPA Reviewing Public Participation Requirements*

Startup, Shutdown, Malfunction (SSM) SIP Call

- Many SIPS allowed sources to be exempt from specific requirements when sources were starting up, shutting down or under an unavoidable malfunction.
- These provisions were in general found to not conform to the Clean Air Act.
- EPA issued letters to agencies to correct these deficiencies.
- When there are EPA changes or court decisions changing understandings of the CAA SIP calls can result.

Air*Knowledge* (https://airknowledge.gov)

- *EPA' Learning Management System*

  Self Instructional (SI) and Instructor Led (CL) Courses and Materials for permitting classes.

  Permitting Classes Designated by PERM# and either an SI or CL

https://epaapti.csod.com/catalog/CustomPage.aspx?id=221000405

Questions?

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