

## Intermediate Permitting (APTI 461)

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### Welcome and Introductions

- Name
- Organization
- Role
- Experience – overall and major or minor NSR and/or Title V permitting
- What you hope to get out of this class

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### Agenda

- New Source Review (NSR) Background and Overview
- Prevention of Significant Deterioration (PSD) Applicability
- PSD Requirements: BACT, Impact Analyses, Other
- Nonattainment NSR (NNSR) Applicability
- NNSR Requirements: LAER, Offsets, Other
- Title V Operating Permits

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## BACKGROUND AND OVERVIEW

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## Background

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- Federal Clean Air Act (CAA) history:
  - Enacted in 1955 as a non-regulatory statute
  - Amended in 1967 to regulate interstate pollution (abatement actions)
  - Amended in 1970 as a regulatory statute
  - Significant amendments in 1977 and 1990
- Codified in Title 42, Chapter 85 of the U. S. Code, with six subchapters (Titles in the CAA):
  - I. Programs and activities
  - II. Mobile sources
  - III. General provisions
  - IV. Acid rain
  - V. Operating permits
  - VI. Stratospheric ozone protection

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## Background

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- Two core requirements in Title I regulate ambient air quality:
  - National Ambient Air Quality Standards (“NAAQS”)
  - Prevention of Significant Deterioration (“PSD”) increments
- Title I also includes:
  - New Source Performance Standards (“NSPS”)
  - National Emission Standards for Hazardous Air Pollutants (“NESHAP”)
  - Requirements for State Implementation Plans (“SIP’s”), including NSR permits

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## Background

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- NAAQS for six “criteria” pollutants
  - particulate matter (PM10 and PM2.5 indicators)
  - sulfur oxides (SOx)
  - nitrogen dioxide (NO<sub>2</sub>)
  - Ozone (O<sub>3</sub>)
  - carbon monoxide (CO)
  - Lead (Pb)
- PSD increments for only the first three of these

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## Overview of Permit Programs

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- Two major NSR programs under CAA:
  - Prevention of Significant Deterioration (“PSD”) in attainment and unclassifiable areas under part C of title I
  - Nonattainment NSR (“NNSR”) in nonattainment areas under part D of title I.
- Both include substantive requirements for:
  - Construction of a new major stationary source
  - Major modifications to an existing major stationary source

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## Overview of Permit Programs

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- Each state must have a PSD program
  - 40 CFR § 52.21 applies until EPA approves a state/local rule meeting “blueprint” minimum requirements under 40 CFR § 51.166
- Each state with nonattainment areas must have a Nonattainment NSR (NNSR or NA NSR) program for every nonattainment pollutant/area
  - Per 40 CFR § 52.24(k), Appendix S to 40 CFR part 51 applies unless EPA approves a state/local rule meeting 40 CFR § 51.165 (“Part D SIP”)
  - EPA can also develop a Federal Implementation Plan (FIP) for an area in the absence of a state plan

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## PSD Implementation

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- PSD implemented one of three ways:
  - **Direct:** EPA implements its own rule (40 CFR 52.21)
  - **Delegation:** State/local agency implements EPA’s rule (40 CFR 52.21) through delegation. Delegation is either:
    - Partial: State/local agency prepares permit, sends to EPA Regional Office for signature and issuance
    - Full: State/local agency prepares, signs and issues permit
  - **SIP-Approved:** State/local agency implements its own PSD rule as approved by EPA into the SIP

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## PSD Implementation

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- PSD implementation process is important
  - Administrative Review Process (Appeals)
    - SIP-approved agencies use their own administrative appeal process when permits are challenged
    - Administrative appeals of permits issued under EPA’s rules, including those issued by delegated States, are reviewed by EPA’s EAB
    - EAB denial of petition is reviewable final agency action; remand is not
  - Interpretations/policy: more deference given to agency’s interpretation of its own rule, even if based on EPA’s rule. Note: the 9<sup>th</sup> Circuit has ruled that once a SIP is approved by EPA, it is federal law and EPA is given deference, not the State agency. [65Y] State courts, however, separately give deference to their agency. [68E]
  - Processing time: EPA takes far longer than more experienced permitting agencies
  - SIP Gap: if revised State rule is in effect but not yet approved by EPA, sources must comply with revised rule and the last rule EPA approved into the SIP

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## NSR Implementation Comparison

NSR Permit Action	Type of Implementation			
	By EPA: Direct	By State: Partial Delegation	By State: Full Delegation	By State: SIP-approved State Rule
Permit Issuance	EPA	EPA (State prepares)	State	State
Deference	EPA	EPA	EPA	State
Administrative Appeals	EAB (permit suspended during appeal)	EAB (permit suspended during appeal)	EAB (permit suspended during appeal)	State Administrative Appeals System
Judicial Appeals	Federal Court	Federal Court	Federal Court	State Court

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### NSR Implementation Comparison

NSR Permit Action	Type of Implementation			
	By EPA: Direct	By State: Partial Delegation	By State: Full Delegation	By State: SIP-approved State Rule
EPA Rule Revisions	No effect on State	State may have to revise its authority/date of incorporation by reference	State may have to revise its authority/date of incorporation by reference	If EPA requires, revise rule per schedule. If not required, State has option to keep current rule.
SIP Gap	N/A	N/A	N/A	Between effective date of revised State rule and date EPA approves revised rule, sources must comply with both previous approved and revised rules.

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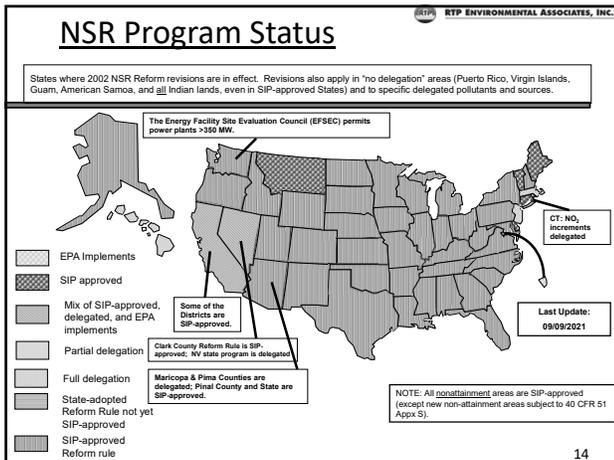
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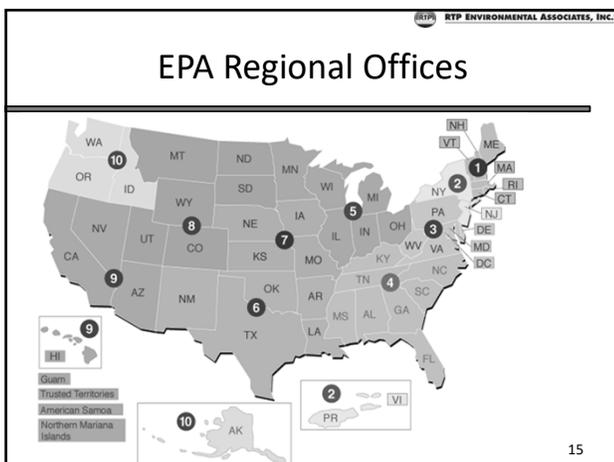
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## NNSR Implementation

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- NNSR also implemented one of three ways:
  - **New NA Areas:** 40 CFR 52.24 and Appendix S
    - For new nonattainment areas without a plan
    - Administered by EPA (but also possible to delegate)
    - Sanctions may apply if an attainment plan with NSR element is not approved in timely manner
  - **Approved Plan:** EPA approves attainment plan submitted by State/local agency
  - **Federal Implementation Plan (FIP):** EPA develops and promulgates an attainment plan into the SIP
- Most nonattainment areas develop approved plans as soon as possible because:
  - Agencies don't want sanctions applied
  - Attainment plans are very location-specific, so local agency better able to assess and decide how to proceed
  - No one, including EPA, wants a FIP

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## Overview of Permit Programs

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- CAA requires major and minor NSR programs
- Minor NSR
  - § 110(a)(2)(C) requires that each SIP include “a program to provide for ... regulation of the modification and construction of any stationary source ... as necessary to assure that national ambient air quality standards are achieved.”
  - § 161 requires that each SIP include “measures as may be necessary” to protect the PSD increments in clean air areas

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## Overview of Permit Programs

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- Each State must have a minor NSR program:
  - 40 CFR §§ 51.160-164 establish minimum criteria
  - Consistent with statute, these criteria are much less prescriptive and detailed than major NSR rules

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## Overview of Permit Programs

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- CAA-mandated NSR programs are federally enforceable under SIP
  - Consistent with § 110(a)(1) requirements for SIP incorporation in 40 CFR § 51.166(a)(6)(i)
  - SIP revision for new NAAQS:
    - EPA set 3 year timeframe for PSD-approved programs
    - Frequently not the same as the current state/local program, leading to “SIP gaps”

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## Overview of Permit Programs

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- CAA also requires operating permits
  - Title V (or “Part 70”), added with 1990 amendments, requires that each state implement an operating permits program
  - Facilitates enforcement and compliance assurance and certification, public participation
  - Codified at 40 CFR parts 70 and 71
  - State programs approved by EPA

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## History of Federal NSR Permitting Programs

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- 1971: Initial NSR rule (36 FR 22398)
  - No distinction by source size; simply for NAAQS protection
- 1972: *Sierra Club v Ruckelshaus* court decision [66C] for SIP to explicitly “prevent significant deterioration” of cleaner areas:  
“to protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare and the productive capacity of its population.” 42 U.S.C. § 7401(b)(1) (old 42 U.S.C. § 1857(b)(1))
- 1974: First PSD rule promulgated
- 1976: First NNSR rule (“Interpretative Ruling”) promulgated
- 1977: Prescriptive PSD/NNSR statutory requirements added in 1977 CAA amendments
- 1978-1980: Court decision in *Alabama Power v. Costle* and numerous PSD/NNSR rule revisions

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## History of NSR Program

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- **1990:** Clean Air Act Amendments
  - Very slight changes to PSD requirements (removed HAP from PSD regulation)
  - Very significant changes to NNSR requirements, especially for ozone nonattainment areas
  - **Added Title V operating permits program**
- **1992:** Revisions to federal PSD/NNSR rules
  - Revised applicability test for modifications at electric utility steam generating units (EUSGU)
- **2002:** Significant changes to federal PSD/NNSR rules
  - Again revised applicability test for modifications
  - Commonly known as the “Reform Rule”
- **2002-Present:** Minor rule tweaks, but a wildly swinging political pendulum reflected in policy changes

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## NSR Rules and Policy

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- Current understanding is a compilation of:
  - Plain meaning of rule language
  - 30+ yrs. of case law
  - 30+ yrs. of U.S. EPA interpretive policy, including
    - Preambles
    - Administrative decisions
    - Letters
    - Memoranda

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## Environmental Appeals Board

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- Until 1992, U.S. EPA Administrator heard appeals of PSD permits and other final actions
- 40 CFR part 124 revised in 1992 to create the Environmental Appeals Board (“EAB”)
- Panels of administrative law judges at the EAB now hear appeals of PSD permitting actions taken by EPA and are responsible for final actions
- Permits issued by delegated States implementing EPA’s PSD rule are appealable to the EAB
  - PSD permits not effective until 30 days after issuance
  - If appealed, permit is not in effect until appeal decided

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## NSR BASICS

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## New Source Review (NSR) Basics

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- Stationary source “preconstruction” air emissions permitting program
  - Applies when an applicant undertakes a project that will increase emissions of a regulated air pollutant above certain thresholds
  - Applicable nationwide
  - Requirements may differ by jurisdictions
- Title V (or Part 70 Permit) covers operating requirements for major sources (different, broader, definition of major compared to NSR)

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## NSR Program Elements

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- NSR includes three sets of regulations:
  - Prevention of Significant Deterioration (PSD)
  - Nonattainment NSR (NNSR)
  - Minor NSR
- “Projects” may be subject to one or more of these regulations depending on:
  - Size of the stationary source
  - Type of pollutant and amount of emissions increase that will result from a project
  - Attainment status of the area in which the source is located

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## Stationary Sources – Size for NSR

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- Stationary sources are “major” or “minor” depending on Potential to Emit (PTE) of regulated NSR pollutants
- PSD and NNSR apply only to major stationary sources
- Major for PSD: PTE ≥ 100 or 250 TPY for a regulated NSR pollutant (a criteria pollutant or a noncriteria air pollutant) (*GHG exception*)
- Major for NNSR: PTE ≥ major source threshold for the pollutant for which the area is nonattainment
- In general, a source is minor if it is not major
- State minor NSR programs contain different levels of applicability for minor sources
  - Some States exclude small emitters from some or all of the permitting requirements

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## Regulated NSR Pollutants [52.21(b)(50)]

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<p><b>Criteria Air Pollutants</b></p> <ul style="list-style-type: none"> <li>• Nitrogen Dioxide (NO<sub>2</sub>)</li> <li>• Ozone (O<sub>3</sub>)</li> <li>• Sulfur Dioxide (SO<sub>2</sub>)</li> <li>• Lead (Pb)</li> <li>• Carbon Monoxide (CO)</li> <li>• PM2.5 and PM10</li> <li>• Precursors of Ozone (VOC &amp; NO<sub>x</sub>) &amp; PM2.5 (SO<sub>2</sub> &amp; NO<sub>x</sub>)</li> </ul>	<p><b>Non-Criteria Air Pollutants</b></p> <ul style="list-style-type: none"> <li>• Pollutants subject to any standard under CAA Section 111, including PM (particulate matter)</li> <li>• Class I or Class II substance subject to standard under Title VI</li> <li>• Pollutant that is otherwise subject to regulation under the Act, except for CAA Section 112(b) listed pollutants {Note: EPA by policy also excludes §112(r) pollutants from PSD review.}</li> </ul>
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PSD applies to both types of air pollutants. NNSR applies to only criteria air pollutants. Minor NSR programs vary by State but, at a minimum, minor NSR must apply to criteria air pollutants. GHGs are addressed separately as ‘pollutants subject to regulation.’

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## Terminology

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graph TD
    A[New Source Review [NSR]] --> B[Prevention of Significant Deterioration [PSD]]
    A --> C[Minor NSR]
    A --> D[Nonattainment New Source Review [NNSR]]
    
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### Physical or Operational Changes (Modifications) ...

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- Are addressed differently for
  - Minor existing sources and
  - Major existing sources
- AND
- May require different calculations, depending on the type of source, situation, and regulation in effect:
  - 1980 Rule and Policies
  - 1992 Rule (WEPCO Rule)
  - 2002 Rule (Reform Rule)
  - States’ Rules
- We will focus on the 2002 Reform Rule calculations

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### DEFINITIONS

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### General

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- Definitions presented here are from:
  - PSD Regulations – 40 CFR § 52.21
  - NNSR Regulations – 40 CFR 51 Appendix S and 40 CFR § 52.24
- Categories of definitions:
  - Proposed
  - Promulgated
    - Currently in the general air regulations
    - Currently in specific NSR regulations (e.g., PAL)
    - Currently in other regulations
    - No longer in the regulations
  - Terms/definitions from other sources, including policy documents

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## EMISSIONS UNIT

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### Emissions Unit (40 CFR § 52.21(b)(7))

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- Defined as “...any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant...” {Post-2002 Reform Rule}
  - New emissions unit:
    - That is (or will be) newly constructed or
    - Has existed for less than 2 years from the date unit first operated
  - Existing emission unit – not a “new” emission unit
  - Replacement unit (per definition in (b)(33)) – for “major modification” applicability purposes, is considered an existing emission unit
    - Use of “replacement unit” here is different than under “net emissions increase” for shakedown period
- Pre-Reform rules did not specify two types of units (new/old)

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### Definition: “Emissions Unit”

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- By U.S. EPA policy, includes emitting equipment and “any installations necessary to accommodate that unit” [40H]
- EPA policy appears to be that an emissions unit is “new” if, on the date of filing of an NSR permit application or a PAL, it has been less than 2 years since that unit first operated [65V]

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### Definition: “Emissions Unit”

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- Subjective, case-by-case determination is important in major NSR for two reasons:
  - Emissions increase calculation differs depending on whether a project is a modification of an existing unit (e.g., by component replacement) or installation of a new unit
  - BACT/LAER apply only to emissions units at which emissions subject to PSD permitting (i.e., the increase for the entire project and after netting is significant) will increase due to a physical or operational change “in the unit”

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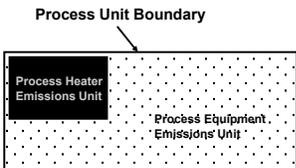
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### Emissions Unit and Process Unit

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The diagram illustrates a 'Process Unit Boundary' which is a large rectangle with a dotted pattern. Inside this boundary, on the left, is a solid black rectangle labeled 'Process Heater Emissions Unit'. On the right, there is a dotted rectangle labeled 'Process Equipment Emissions Unit'.

- Two different emissions units making up process unit
- Two different BACT analyses: one for each emissions unit
- If the process equipment is the “modified” emissions unit
  - Process heater is an “affected unit”
  - BACT applies to modified unit

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### Definition: “Emissions Unit”

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- Interpretation clarified through EPA decisions in *Rochester Public Utilities* [12L, 15B, 16C]
  - Definition was amended in 2002 NSR Reform rule to include electric utility steam generating units
  - Steam lines are not part of the emissions unit

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### Electric Utility Steam Generating Unit (40 CFR § 52.21(b)(31))

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- A steam electric generating unit that is constructed for the purpose of supplying to any utility power distribution system for sale:
  - More than one-third of its potential electric output capacity, and
  - More than 25 MW electrical output.
- Steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the facility

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### STATIONARY SOURCE

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### Stationary Source & Building, Structure, Facility, Installation 40 CFR § 52.21(b)(5) & (b)(6)

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- “Stationary Source” is a “Building, Structure...” that emits or may emit regulated NSR pollutants
- “Building, Structure...” is all of the pollutant emitting activities (emissions units) that are:
  - Located on one or more contiguous or adjacent properties;
  - Under common control; and
  - In the same industrial category (same 2-digit SIC per 1972 manual and 1977 Supplement).
    - Except the activities at any vessel (vacated and remanded by DC Circuit [21N])
    - See next slide
- All three criteria need to be met for a single source determination [9S, 11X, 11S, 21S, 28X]

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### Building, Structure, Facility, or Installation (40 CFR § 52.21(b)(6))

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- Regulatory definition includes all pollutant-emitting activities “except the activities of any vessel”
- Rule doesn’t mean what it appears to say
  - 1980 rule didn’t include this exception. EPA stated in preamble that it intended the final definition of stationary source “to encompass the activities of a marine terminal and only those dockside activities that would serve the purposes of the terminal directly and would be under the control of its owner or operator.” [45 FR 52676 at 52696]
  - The exception for vessel emissions was added to the rule in 1982 [47 FR 27554]
  - The 1982 rulemaking was vacated and remanded to EPA by the D.C. Circuit Court of Appeals in 1984 [21N] but EPA has never revised the rule or even removed the vacated phrase
  - In a 2003 letter from Region 6 to El Paso Energy, EPA acknowledged the deficiency in the current rule: “the vacatur leaves no legally effective regulation that would exempt ‘the activities of any vessel’ from consideration...” [14Q]

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### Stationary Source 42 U.S. Code 7602(z) (CAA 302(z))

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- “Stationary Source”
  - Any source of an air pollutant
  - Except those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine or nonroad vehicle as defined in USC §7550 [54U] {Note: [54U] is the U.S. Code (USC) version of the CAA}
- Emissions units are grouped together as a stationary source if the units meet all 3 criteria

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### Stationary Source: Same Industrial Grouping

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- “Same industrial grouping” is defined by EPA as having a common 2-digit SIC code
  - “pollutant-emitting activities are considered to be part of the same industrial grouping if they belong to the same ‘major group’ (i.e., that have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972 (as amended by the 1977 Supplement...)”
  - Under the SIC Manual, a code is assigned to each establishment based on its primary economic activity; “where distinct and separate economic activities are performed at a single physical location..., each activity should be treated as a separate establishment” [1972 SIC Manual, p 10]

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### Stationary Source: Same Industrial Grouping

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- So, by definition, EPA follows the SIC Manual approach:
  - The primary economic activity of an emissions unit determines its SIC code
  - Different SIC codes generally means that the emissions units are separate sources
- However, the preamble to the 1980 rule states that if a unit is considered a “support facility” for the other emissions unit(s), that affects assignment of the SIC code

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### Stationary Source: Same Industrial Grouping

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- Therefore, “Support Facilities” are treated as having the SIC code of the host (supported) facility/unit:
  - “Each source is to be classified according to its primary activity, which is determined by its principal product or group of products produced or distributed, or services rendered. Thus, one source classification encompasses both primary and support facilities, even when the latter includes units with a different two-digit SIC code. Support facilities are typically those which convey, store, or otherwise assist in the production of the principal product.” [45 FR 52695] (Preamble to 1980 NSR rule)

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### Stationary Source: Same Industrial Grouping

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- EPA feels this is consistent with the SIC Manual, which noted that auxiliary establishments (units) “performing supporting services for other establishments of the same company” are classified industrially on the basis of the primary activity of the operating establishment(s) they serve (Introduction to 1972 SIC Manual)
- The problem for EPA is that the support facility concept is not in the rule itself

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### Stationary Source: Same Industrial Grouping

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- The support facility concept has not been challenged in federal court, but has been addressed twice in state courts.
  - In 1997, the IL Supreme Court denied an appeal of the Fourth District Appellate Court of IL's decision that Color Communications (CC) and two Chicago plants were separate facilities. The Appellate Court ruled that the support facility concept is part of neither the Federal nor State regulations and that the regulatory text is unambiguous on its face that two facilities with different SIC codes are not the same source. [10L]
  - In 2020, the Lancaster County (NE) District Court, in a case concerning two Pacific Aurora ethanol plants and a grain elevator, concluded that the 'support facility' criterion (based on the 1987 SIC Manual) is not applicable as the elevator has its own SIC [68J]. The Judge also cited to and agreed with the Color Communications decision.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Same Industrial Grouping

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- Power plant and coal mine have different SIC codes and are separate sources [28K-106]
- Coal preparation plant and surface coal mine belong to same major group SIC [28K-144] (remember, however, that they must also meet the other two criteria to be combined as a single stationary source)
- Activities at military installation can be classified by the most appropriate SIC code, but some activities may still need to be evaluated as possible support facilities [2F-15]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Same Industrial Grouping, Support Facility

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- Valero Transmission Company is a support facility for Valero Gathering Company because [32D]:
  - Same product (natural gas)
  - For Valero Gathering, no other means of introducing the product into commerce
- Valero Hydrocarbon Company located in close proximity to Valero Gathering and Valero Transmission is a separate source [30T]
  - Has different products (ethane and heavy hydrocarbons removed from the natural gas)
  - Removal of these compounds is not necessary to make the gas marketable
  - Does not assist in production of natural gas at Valero's Gathering and Transmission plants
  - It has a different two digit SIC code (13)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Stationary Source:**  
Same Industrial Grouping, Support Facility

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- Madison Gas & Electric proposed six electrical generating units at Oscar Mayer’s property [5E]
  - Planned to supply backup supply to Oscar Mayer and surplus to the grid
  - EPA outlined a 50% test, which is not in or supported by the 1980 preamble: A unit is a support facility if more than 50% of its output or service is provided to the primary facility
  - EPA did consider it unlikely that 50% of the output will be supplied to Oscar Mayer
  - EPA determined that the proposed addition and Oscar Mayer were not a single source based on the common control criterion (but left the final decision up to the permitting agency)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Stationary Source:**  
Support Facility

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- In the past, EPA policy extended the “support facility” concept {incorrectly, we feel} to facilities with separate economic activities [1L, 5E, 5U, 9V, 12H, 19V]
  - Waste processing
  - Cogeneration
  - Raw material suppliers
  - Related manufacturing

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Stationary Source:**  
Contiguous or Adjacent

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- Early policy applied literal interpretation. From 1980 rule preamble : [45 FR 52695]
  - 20 miles apart is categorically too far apart
  - Long-line sources (e.g., pipelines, electric power lines) not considered single source
- Post-1990 policy statements vary greatly by EPA Region
  - Proximity is most important factor for Region II [8P]
  - Interdependence also viewed as important by Region V [1G, 1M] and Region VI [14V]
  - In Region VIII, as much as 40 miles apart is “adjacent”: “Distance between the operations is not nearly as important in determining if the operations are part of the same source as the possible support that one operation provides for another.” [1J]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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- Two cogeneration turbines located ½ mile apart that share water supply and other utilities are considered a single source [4N]
- Great Salt Lake Minerals' two facilities 21.5 miles apart are a single source based on functional interrelationship [1J]
  - Distance “is not an overriding factor that would prevent them from being considered a single source”
  - However, Utah subsequently re-evaluated this determination and concluded that the facilities, actually located 30 miles apart, are “too far to conclude a single source” [11X]
- Anheuser-Busch brewery and land farm located about 6 miles apart treated as one source due to “functional interrelationship” using pipeline connection for disposal [1L]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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- ACME Steel operated blast furnaces (Chicago) and BOFs (Riverdale) [1M]
  - ~3.7 miles apart
  - Hot metal transported by commercial rail
  - Sites separated by Lake Calumet, landfills, I-94, and the Little Calumet River
  - Grouped as one source by EPA due to close proximity and interdependence
- American Soda owns a commercial mine and a processing plant [1H]
  - ~ 40 miles apart connected by a 44 mile pipeline
  - EPA determined two facilities are “adjacent” based on:
    - “Common sense” notion of a source
    - Functional interrelationship

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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- EPA *rejected* St Lawrence Cement’s proposal to consider two facilities as one source [8P]
  - Located 6 miles apart
  - Planning changes resulting in true interdependence (clinker at one location and finishing at other)
  - Use planned reductions from one facility to consolidate production
  - EPA noted that “majority” of decisions regarding “adjacent” are facilities located less than 6 miles apart, except for cases where a physical connection exists
  - {Note: EPA doesn’t really go with its “majority” of past decisions—they just didn’t like the results of netting between the two facilities, which would avoid PSD review.}

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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- EPA determinations for Oil and Gas facilities:
- 2007 guidance for oil and gas surface sites (Wehrum memo) [20C]
  - Emphasized proximity as the most informative factor
  - Well sites located over large geographical area need not be aggregated with the downstream processing plants
  - Properties that are physically associated with the source are not necessarily “nearby, connected, or in any way proximate”
  - Highlighted that CAA Section 112 mandated that the emissions from pipeline compressors or pump stations are not to be aggregated [§112(n)(4)(A)]
  - Recommendations for permitting agencies:
    - Consider Section 112 approach
    - Evaluate whether surface sites are in close proximity
    - Single surface site is the most appropriate definition of source

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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EPA determinations for Oil and Gas facilities:

- In 2009, Wehrum memo was withdrawn by EPA [25X]
  - Reverted back to case-by-case determination using the “fundamental criteria” from 1980 preamble and regulations
  - Simplified approach from Wehrum memo is not to be relied upon as “a sufficient endpoint in the decision-making process”
- 2010 Summit determination by EPA [29N]
  - EPA used evaluation of “nature of relationship” and “degree of interdependence” for determining whether “adjacent”
  - In this case, wells were located from 500 feet to 8 miles apart and company considered them not adjacent
  - Wells are interdependent on sweetening plant
  - Consistent with historical precedence, EPA considered wells, flares, sweetening plant “adjacent”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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EPA determinations for Oil and Gas facilities:

- In 2012, Court in Summit Case [50E]
  - Rejected EPA’s “functional relatedness” arguments to establish “adjacency”
  - Determined that “adjacent” is purely physical and geographical
- In response, EPA issued a Dec 2012 memorandum (“Summit Directive”) [50K]
  - Summit decision only applies in the 6<sup>th</sup> Circuit jurisdiction
  - EPA will continue “longstanding” practice of considering “interrelatedness” in EPA permitting actions in other jurisdictions
- In 2014, the DC Circuit overturned the “Summit Directive” [53T]
  - Directive was a final agency action and claim was ripe for review
  - Memorandum contrary to EPA’s own regulation to maintain national uniformity
- 2015 proposed rule, addressing oil and gas facilities [80 FR 56579]
  - Preferred option “adjacent” if proximate (within a short distance)
  - Use “exclusive functional interrelatedness” for “adjacent”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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- 2016 final rule for the onshore oil and natural gas sector (SIC 13) established criteria for “adjacent”
  - Activities are adjacent (or part of a Title V major source) located on the same surface site; or
  - If located on surface sites that are within ¼ mile of one another (measured from the center of the equipment on the surface site) and they share equipment [81 FR 35622]
- 2018 draft and 2019 final memoranda interpret ‘adjacent’ to mean physical proximity for all sources except SIC 13; the perceived “functional interrelatedness” of operations is not a relevant consideration. There is no bright line, but EPA feels that ‘adjacent’ requires the operations to be truly in physical proximity to each other and to comport with the “common sense notion of a plant.” [65Z, 66P]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Contiguous or Adjacent

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- Refineries in Philadelphia and Marcus Hook
  - Two different regulating agencies
  - ~17 miles apart
- In 2012-13 Sunoco planned to shutdown Marcus Hook and sell Philadelphia refinery
- Historically considered separate sources
- New owners requested two sites as single source and use emission reductions in netting or offsets at Philadelphia site [66R,54L]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- Phase 1 (used until 1980): Common ownership
  - Common ownership constitutes common control [3I]
- Phase 2 (used until ~1995 and after in some decisions): SEC definition of control [45 FR 59874][4X]
  - Power to direct or cause the direction of the management and policies of a person or company
  - Through ownership of shares or contract or otherwise
  - Control is determined at the time of construction [32L]
- Phase 3 (post-1995): Dictionary definition [3I]
  - To exercise restraining or directing influence
  - To have power over
  - Power of authority to guide or manage and the regulation of economic activity

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- EPA has by policy extended common control to contractual relationships [3I]
  - “Indirect control” exists when the goods or services provided by a collocated, contract-for-service entity are integral to or contribute to the output provided by a separately owned or operated activity
  - Factors include whether one entity sells all of its product to the other and whether one is dependent on the other such that it would not exist *but for* the other

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- TEX-USS and USS Novamont [4X]
  - TEX-USS partnership of Texaco and US Steel where US Steel has power to “cause the direction of management”
  - USS Novamont owned by US Steel
  - Determined to be under common control
- United Technologies and Precision Components were under common control [4U]
  - United Technologies indirectly owned 50% of Precision Components and exercised 50% voting power

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- “Hamlin” letter (Region 7 to Iowa) extended the “common control” concept [3I]
  - Variety of factors to be considered: nature of contractual, lease, or other agreements
  - Direct control (ownership) or indirect control (good or services provided are integral to or contribute to output)
- Established seven questions for determination of control:
  - What is the dependency?
  - Does one operation support the other?
  - Do facilities share intermediates, products, byproducts?
  - Do facilities share equipment, other property?
  - Who accepts compliance responsibility?
  - Is the workforce, plant manager, security, corporate boards shared?
  - Do they share common payroll, employee benefits, health plans, retirement funds, others?
- Further evaluation [16B]
  - Location of a source “but for” presence of the other

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- Al Turi landfill and Al Turi gas to electric (LFGTE) facility were under common control [230]
  - LFGTE receives/purchases all gas from landfill
  - Landfill is fully dependent on controls by LFGTE (engines and flares)
  - Since two sources are interdependent, they are under common control
- In contrast, at Maplewood Landfill [230-4]
  - Backup flares were owned by landfill
  - Maplewood provides 70% of fuel supply for INGENCO, not all of it

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- An attempt by EPA Region VII and Iowa DNR to apply a broad “contractual relationship” or “indirect control” test was rejected by Iowa courts [21C, 240, 25G]
  - Factors cited by EPA can be considered, but
  - Common control requires that, at a minimum, one entity has the right or permission to be involved in the decision-making of the other entity, especially regarding pollution controls
  - This is the only instance of this issue coming before a court and the decision strongly rejects EPA’s approach

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- EPA in April 2018 revised its interpretation to return to the SEC definition regarding Meadowbrook Energy and Keystone Landfill [65Q]
  - Acknowledges that some EPA determinations considered shared workforce, shared pollution control responsibilities, or other “mutually beneficial contractual arrangements”
  - Revised policy requires “power or authority to dictate the outcome of decisions of another entity,” not “the ability to merely influence.”
  - “... the fact that an entity is influenced, affected, or somewhat constrained by contractual relationships that it negotiated at arm’s length, or by external market forces, does not necessarily mean that one entity is actually controlled or governed by these influences”
  - “Control” in terms of applicability of or compliance with air permitting requirements

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Common Control

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- In a 2/12/20 letter to Eastman Chemical, EPA Region 3 opined that the Meadowbrook and Ocean County Landfill policies need not be applied retroactively, leaving 3 facilities (Eastman, Arkema, and Solenis) near Courtland, VA, classified as a single stationary source. [66S]
  - The main reason was that there were no new facts to drive a redetermination.
  - Eastman had for a determination that each facility was a separate stationary source.
  - Agencies can still apply this policy retroactively if they wish to do so

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Internal Combustion Engines

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- Addressed in federal CAA:
  - § 302(z): “The term ‘stationary source’ means generally any source of an air pollutant except those emissions resulting directly from an internal combustion engine for transportation purposes or from a nonroad engine or nonroad vehicle as defined in section 216.”
  - § 209(e) preempts states and their political subdivisions from adopting or enforcing standards and other requirements relating to the control of emissions from nonroad engines. But, EPA is authorized to waive this requirement for certain standards adopted by California.
  - The preemption is codified in regulations 40 CFR § 1074.10, but the exception of nonroad engines from the definition of “stationary source” isn’t reflected anywhere in federal rules.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Internal Combustion Engines

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- “Nonroad engine” defined at 40 CFR §1068.30 (and at §89.2, although that rule may be rescinded) as “any internal combustion engine:
  - (i) In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or
  - (ii) In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or
  - (iii) That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Internal Combustion Engines

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- “Nonroad engine” definition at 40 CFR § 89.2, cont’d...
  - An internal combustion engine is not a nonroad engine if:
    - used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the Act (motor vehicle emissions and fuel standards); or
    - regulated by an NSPS; or
    - will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Stationary Source: Internal Combustion Engines

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- “Nonroad engine” definition at 40 CFR § 89.2, cont’d...
  - A location is any single site at a building, structure, facility, or installation.
  - Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period.

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## PSD/NSR EXERCISES 1-4

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**MAJOR STATIONARY SOURCE**

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**PSD - Major Stationary Source  
(40 CFR § 52.21(b)(1))**

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- Stationary source that emits or has the potential to emit (“PTE”) any regulated NSR pollutant (including pollutants for which the area is nonattainment) which equals or exceeds thresholds under the rule:
  - 100 TPY threshold applies to “named” source categories
  - 250 TPY threshold for all other sources
  - Per the US Supreme Court decision from 2014 and 10/3/2016 proposed rule revisions, GHGs not considered for applicability here
- Once a stationary source is determined to be major, based on PTE of any regulated NSR pollutant other than GHGs, then PSD review applicability must be evaluated for all regulated NSR pollutants other than nonattainment pollutants using the “significant” emission rates
  - Nonattainment pollutants excluded (affirmed by EAB) [53W]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**PSD - Major Stationary Source**

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For GHG, whether “Subject to Regulation”:

- Beginning 1/2/2011, GHG “subject to regulation” for a source if the source is subject to PSD anyway\* due to its non-GHG pollutants and the CO<sub>2</sub>e PTE is at least 75,000 TPY [40 CFR § 52.21 (b)(49)]
- Per 8/19/2015 rulemaking [80 FR 50199] removed severable portions of the PSD and Title V requirements under Step 2 provision for GHG-only major sources under PSD
- On 10/3/2016, EPA proposed [81 FR 68110] to amend its rules to fully implement the Supreme Court decision: [54J]
  - Revise definitions of major stationary source, major modification, significant, and “subject to regulation:
  - Proposed a significant level, or de minimis rate, for GHG of 75,000 tpy CO<sub>2</sub>e (dropped mass value)

\* Note - The “anyway” concept is not reflected in the rule language but is consistent with EPA’s policy statements and with the Supreme Court decision in *UARG*; PSD will not apply to GHG’s “subject to regulation” for a source or modification that is major only for a nonattainment pollutant

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## GHG Example

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- Assume a proposed new source (listed source category) in an ozone nonattainment area with PTE of:
  - 80,000 TPY CO<sub>2</sub>e
  - 300 TPY VOC
  - 35 TPY NO<sub>x</sub>
- Applicability
  - Per EPA rule, source would be subject to PSD for CO<sub>2</sub>e because it is major for VOC and CO<sub>2</sub>e is regulated and above the threshold
  - Per court decision, this source would not be subject to PSD
    - It is major (due to 300 tpy VOC), but no pollutants subject to PSD except CO<sub>2</sub>e
    - Court held that CO<sub>2</sub>e alone could not trigger PSD review—source must be an “anyway” source (non-GHG pollutant subject to PSD)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Named/Listed Source Categories

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- Two lists at 40 CFR 52.21(b)(1):
  - 28 named source categories that have a 100 tpy threshold
  - 28+ listed source categories (the same 28 named *plus* those for which a NSPS or NESHAP was in effect (regulated) as of 8/7/1980) for which fugitive emissions are counted in calculating PTE
- We’ll refer to the threshold categories as “named” and the fugitives-count categories as “listed”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PSD - Major Stationary Source: Named Source Categories with 100 TPY Threshold

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<ol style="list-style-type: none"> <li>1. Coal cleaning plants (with thermal dryers)</li> <li>2. Kraft pulp mills</li> <li>3. Portland cement plants</li> <li>4. Primary zinc smelters</li> <li>5. Iron and steel mills</li> <li>6. Primary aluminum ore reduction plants</li> <li>7. Primary copper smelters</li> <li>8. Municipal incinerators capable of charging more than 250 tons of refuse per day</li> <li>9. Hydrofluoric acid plants</li> <li>10. Sulfuric acid plants</li> <li>11. Nitric acid plants</li> <li>12. Petroleum refineries</li> <li>13. Lime plants</li> <li>14. Phosphate rock processing plants</li> </ol>	<ol style="list-style-type: none"> <li>15. Coke oven batteries</li> <li>16. Sulfur recovery plants</li> <li>17. Carbon black plants (furnace process)</li> <li>18. Primary lead smelters</li> <li>19. Fuel conversion plants</li> <li>20. Sintering plants</li> <li>21. Secondary metal production plants</li> <li>22. Chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140)</li> <li>23. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels</li> <li>24. Taconite ore processing plants</li> <li>25. Glass fiber processing plants</li> <li>26. Charcoal production plants</li> <li>27. Fossil fuel-fired steam electric plants of more than 250 million British thermal units (BTU) per hour heat input</li> <li>28. Fossil-fuel boilers (or combination thereof) totaling more than 250 million BTU/ hour heat input</li> </ol>
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## PSD - Major Stationary Source

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- Courts have upheld EPA’s general policy that categorization is based on primary economic activity as set forth in the SIC Manual. [13W, 15U]
  - For manufacturing, use “value of production”
  - For services, use “value of receipts or revenues”
- Categories are considered as broadly as possible to protect air quality to the maximum degree [7C]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## PSD - Major Stationary Source

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- Nested source –
  - A source belonging to named (listed) source category within a source in non-named (non-listed) source category (primary activity is non-named)
  - Separate applicability for the named/listed source

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## PSD - Major Stationary Source

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- Nested source example:
  - Proposed new coal mine with a coal processing plant (with thermal dryer)
    - Primary activity is coal mine (produces coal)
    - Coal mine is non-named (250 tpy threshold) and non-listed (fugitives not counted)
    - Coal processing plant/thermal dryer is named (100 tpy threshold) and listed (fugitives count)
  - Two-step PSD applicability test:
    - Coal Mine/Prep Plant (entire source):
      - Count fugitives from prep plant but not from mine
      - Count all stack emissions
      - Compare to 250 tpy threshold
      - If 250+, entire source is major and subject to PSD for significant emissions
    - If entire source is not PSD, evaluate nested source (prep plant) only:
      - Count all prep plant fugitive and stack emissions
      - Compare to 100 tpy threshold
      - If 100+ tpy PTE, only the prep plant is subject to PSD

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### PSD - Major Stationary Source

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- Nested source example:
  - Assume the following PM emissions (25 tpy significance level):
    - Coal Mine
      - Stack: none
      - Fugitive: 800 tpy
    - Prep Plant/Thermal Dryer
      - Stack: 90 tpy
      - Fugitive: 20 tpy
  - Test 1: (Mine Stack)+(Prep Stack + Fugitive)=(0)+(90+20)=110 Below 250 tpy threshold, so not major.
  - Test 2: (Prep Stack + Fugitive)=(90+20)=110 Above 100 tpy threshold for named category, so Prep Plant is major and subject to PSD review for at least PM.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### PSD - Major Stationary Source: Named Categories

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- Coal preparation plants with thermal dryers
- Fuel conversion plants
  - Defined in policy as those plants that accomplish a change in state of a fossil fuel [4K, 15U]
  - Gasification of wood waste is not fuel conversion [20T]
  - Vaporization of LNG is not fuel conversion [14G, 14Q]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### PSD - Major Stationary Source: Named Categories

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- Fossil fuel-fired steam electric plants of more than 250 million Btu/hr heat input
  - Includes combined-cycle systems [10S]
  - Based on HHV of all fuels combusted, including in combustion turbine portion of combined cycle systems, and regardless of the portion used for electricity generation [7C, 32G, 32Y]
  - Petroleum coke is not a fossil fuel [9P]

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New Source Review

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**MAJOR STATIONARY SOURCE –  
NONATTAINMENT AREAS**

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition (NNSR):  
“Major Stationary Source”**

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- Definition at ¶ II.A.4 of Appendix S is the same as the PSD definition, except that:
  - 100 tpy threshold applies regardless of source category
  - Lower thresholds under 1990 CAA Amendments for some areas, based on nonattainment classification

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition (NNSR):  
“Major Stationary Source”**

NA SEVERITY	POLLUTANT	THRESHOLD, TPY
Serious Ozone	VOC/NOx	50
Ozone Transport Region (OTR)	VOC/NOx	50
Severe Ozone	VOC/NOx	25
Extreme Ozone	VOC/NOx	10
Serious CO	CO	50
Serious PM10/PM2.5	PM10 /PM2.5 (direct and precursors)	70

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### NNSR - Major Stationary Source (40 CFR Part 51 Appendix S.II.A.4)

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- Applicability of major NSR review extends only to nonattainment pollutants or their precursors for which the source PTE exceeds the major source threshold
  - “Different pollutants, ... are not summed to determine applicability of a major stationary source or major modification.” [40 CFR 51.165(a)(2)(i)]
- 2016 Rule for Subpart 4 “The EPA is revising the NNSR regulations at 40 CFR 51.165(a)(2)(i) to codify the EPA’s policy that direct emissions of a pollutant and emissions of any applicable precursor are to be considered independently for purposes of determining the applicability of the NNSR requirements for PM2.5 sources. For example, in order for a source to be subject to the NNSR requirements for PM2.5 with respect to NOx as a PM2.5 precursor, the source must be either (1) a new stationary source that emits or has the potential to emit major amounts of NOx (new major source of NOx); or (2) an existing major source of NOx that proposes to increase its emissions of NOx by a significant amount and also results in significant net emissions increase.” [81 FR 58115]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### NNSR - Major Stationary Source (40 CFR Part 51 Appendix S.II.A.4)

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- Applicability of major NSR review extends only to nonattainment pollutants and their precursors for which the source PTE exceeds the major source threshold
- Major stationary source threshold under subpart 1 of Part D of CAA is generally PTE of 100 TPY
- Generally, source that is major for VOC or NOx is considered major for ozone [40 CFR 51 App S.II.A.4.(ii)]
- For PM2.5, major determination is on separate direct and/or precursor basis [49I, 49N]
  - Major for PM2.5 direct does not subject precursor emissions to significant rates
  - Precursor emissions, individually, need to be above major source threshold to be regulated under NNSR

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### NNSR - Major Stationary Source (40 CFR Part 51 Appendix S.II.A.4)

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- Energy Answers in Arcibo P.R. proposed to construct a resource recovery operation [53W]
  - Receive 2,100 tons/day of municipal solid waste to generate 77 MW of electricity
- Area nonattainment for Pb NAAQS
- Pb increase at 0.31 TPY below the 100 TPY threshold so project not subject to NNSR
- EAB noted “..that nonattainment pollutants are excluded from PSD permitting”

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## NNSR New Major Source Example

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- Assume:
  - Area is moderate nonattainment for PM2.5 and Ozone
  - Proposed new source would have PTE of:
    - 150 tpy VOC
    - 50 tpy NOx (Under 40 CFR 51 Appendix S)
    - 95 tpy PM2.5 direct
    - 110 tpy SO2
  - Source is:
    - Ozone: VOC subject to ozone NNSR because major for VOC
    - By policy, NOx not subject to NNSR (source not major for NOx)
      - Per 40 CFR 51 App S, NOx may be subject to NNSR because a source major for NOx or VOC is major for ozone, “major” for both
    - PM2.5: SO2 subject to PM2.5 NNSR because major for SO2. PM2.5 direct and NOx not subject to NNSR (not major)

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## REGULATED NSR POLLUTANT

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## Regulated NSR Pollutant

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- Statute refers to “each pollutant subject to regulation under this Act” and exempts HAP
- Regulatory definition at 40 CFR § 52.21(b)(50) includes:
  - Criteria pollutants
  - NSPS (or “111(d)”) pollutants
  - Class I or II ozone depleting substances (ODS)
  - Any other pollutant “subject to regulation” under the CAA
- Measurement and reporting conventions are important

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## Regulated NSR Pollutants

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<p><b>Criteria Air Pollutants</b></p> <ul style="list-style-type: none"> <li>• Nitrogen Dioxide (NO<sub>2</sub>)</li> <li>• Ozone (O<sub>3</sub>)</li> <li>• Sulfur Dioxide (SO<sub>2</sub>)</li> <li>• Lead (Pb)</li> <li>• Carbon Monoxide (CO)</li> <li>• PM<sub>2.5</sub> and PM<sub>10</sub></li> <li>• Precursors of Ozone (VOC &amp; NO<sub>x</sub>) &amp; PM<sub>2.5</sub> (SO<sub>2</sub> &amp; NO<sub>x</sub>)</li> </ul>	<p><b>Non-Criteria Air Pollutants</b></p> <ul style="list-style-type: none"> <li>• Pollutants subject to any standard under CAA Section 111, including PM (particulate matter)</li> <li>• Class I or Class II substance subject to standard under Title VI</li> <li>• Pollutant that is otherwise subject to regulation under the Act, except for CAA Section 112(b) listed pollutants (Note: EPA by policy also excludes §112(r) pollutants from PSD review.)</li> </ul>
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PSD applies to both types of air pollutants. NNSR applies to only criteria air pollutants. Minor NSR programs vary by State but, at a minimum, minor NSR must apply to criteria air pollutants.

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## Regulated NSR Pollutant

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- HAP exclusion is complex
  - Excluded unless it is also regulated as a constituent or precursor of a criteria pollutant
  - Criteria pollutants and precursors (e.g., PM<sub>10</sub> and VOC) include HAP constituents (e.g., benzene and nickel)
    - Except direct emissions of O<sub>3</sub> are not regulated [50L]
  - NSPS pollutants exclude HAP constituents [67 FR 80186 at 80239]
    - Fluorides excludes HF
    - Reduced Sulfur Compounds excludes COS and CS<sub>2</sub>

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## Regulated NSR Pollutant

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- Measurement and reporting
  - NO<sub>x</sub> is reported as NO<sub>2</sub>, even the portion that is emitted as NO [7V, 10R]
  - VOC are to be reported in terms of the actual organic compounds emitted (Method 18), not as carbon (Method 25) or calibration gas (Method 25A) [12W, 12X, 14T, 19D]
  - Sulfuric acid mist includes SO<sub>3</sub> and vapor H<sub>2</sub>SO<sub>4</sub>

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### Regulated NSR Pollutant

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- Measurement and reporting
  - PM does not include condensable fraction [77 FR 65107]
  - PM10 has generally included condensable fraction [3J, 10N, 10P, 10Q, 19C]
  - PM2.5 direct emissions include condensables
  - PM2.5 and PM10 are “indicators,” not separate pollutants [19C]
    - not separately subject to statutory requirement for regulation under PSD

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### Regulated NSR Pollutant

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- PM2.5 implementation rule: [73 FR 28321]
  - Requires inclusion of condensable matter under PM10 and PM2.5 (October 2012 rulemaking excluded condensable from PM)
  - Provided for an optional transition period under SIP-approved PSD programs
  - Appendix S applicable as of 7/15/2008 for all PM2.5 nonattainment areas with no approved Part D SIP
- Resolutions:
  - Transition for inclusion of condensables ended in 2010
  - “Surrogate Policy” considering PM10 as PM2.5 surrogate ended in July 2011

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### Regulated NSR Pollutant

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- PM2.5: Precursors-EPA policy shift:
  - Originally, two precursors (SO<sub>2</sub>, NO<sub>x</sub>) to be regulated nationwide.
    - State could rebut NO<sub>x</sub> presumption by demonstrating no significant effect on PM2.5 concentrations.
    - VOC and ammonia precursor regulations optional.
- On 3/23/15, EPA proposed to require control of all 4 PM2.5 precursors in PM2.5 nonattainment areas unless the State demonstrated that controls were not needed.
  - Rule isn’t final, but EPA already acting on it: disapproved AZ attainment plan because did not address VOC and ammonia as PM2.5 precursors in PM2.5 nonattainment areas
  - (Alternative was to demonstrate that a particular precursor does not contribute significantly to PM2.5 levels that exceed the standard in those areas).

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## Regulated NSR Pollutant

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- 8/24/2016 final rule implements Part D Subpart 4 for PM2.5 in 40 CFR § 51.165 [81 FR 58010]
  - Established precursors for PM2.5 nonattainment applicability: SO<sub>2</sub>, NO<sub>x</sub>, and VOC (40 TPY significance level), and NH<sub>3</sub> (significance level to be set by State if treated as a precursor in attainment plan)
  - Precursors exempt from “control requirements” upon EPA-approved demonstration that they do not contribute significantly to PM2.5 levels
- Revokes 1997 primary annual standard for areas designated as attainment for that standard

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## Regulated NSR Pollutant

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- 8/24/2016 final rule implements Part D Subpart 4 for PM2.5 in 40 CFR 51 Appendix S [81 FR 58010]
  - SO<sub>2</sub> and NO<sub>x</sub> (40 TPY significance level) always
  - For areas designated NA by 4/15/2015, VOC and NH<sub>3</sub> are precursors beginning 4/15/2017 unless State submits a ‘complete’ precursor demonstration
  - For areas designated NA after 4/15/2015, VOC and NH<sub>3</sub> will be regulated as precursors beginning 24 months from the designation date unless the State submits a ‘complete’ precursor demonstration

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## Regulated NSR Pollutant

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- *Precursor demonstration*: State can demonstrate why it decided not to treat VOC or ammonia as a precursor in the attainment plan per 40 CFR § 51.1006(a)(3)
- Examples:
  - On 6/5/19, EPA proposed to approve Utah’s SIP revisions (1) providing a technical demonstration for exempting ammonia as a PM2.5 precursor in the Logan PM2.5 nonattainment area and (2) providing a technical basis for setting an ammonia SER of 70 tpy in the Salt Lake City and Provo PM2.5 nonattainment areas. [84 FR 26049]
  - On 3/5/20, EPA proposed approval of Allegheny County, PA, SIP with 40 tpy significance levels for all four precursors and a 1:1 offset ratio for VOC and ammonia for flue gases and fugitive emissions. [85 FR 12882]
  - In *Ameren*, the judge cited to studies that on average, about five percent of the SO<sub>2</sub> emitted by a facility will convert into PM2.5 each hour, with a range of one to ten percent depending on meteorological variables. [66K-65] This was at a power plant in the Midwest.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition (PSD):  
“Subject to Regulation”**

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- For proposed new stationary sources, GHG are subject to regulation only if stationary source:
  - Is major due to PTE another pollutant and
  - Would have GHG PTE  $\geq 75,000$  tpy CO<sub>2</sub>e

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition (PSD):  
“Subject to Regulation”**

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- For existing stationary sources, GHG is subject to regulation for a particular project only if:
  - Stationary source is major due to PTE of a non-GHG pollutant, and
  - Project would cause both significant increase and significant net increase for a non-GHG pollutant, and
  - Project would cause both CO<sub>2</sub>e increase and CO<sub>2</sub>e net increase  $\geq 75,000$  tpy

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition (PSD):  
“Subject to Regulation”**

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- UARG decision calls for additional rulemaking for de minimis level for BACT applicability to GHG
- Pending additional rulemaking, EPA is applying the “subject to regulation” criteria at 40 CFR § 52.21(b)(49)(iv) (i.e., those for “anyway” sources) for GHG BACT applicability [54F]

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**POTENTIAL TO EMIT (PTE)**

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**“Potential to Emit” (52.21(b)(4))**

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- Two elements:
  - The unit’s maximum capacity to emit under its physical and operational design (does not have to be made enforceable) *and*
  - Physical or operational limitations on the capacity of the source to emit a pollutant. These limits are treated as part of its design but only if the limitation or the effect it would have on emissions is enforceable.
- “Secondary emissions” are not counted in determining the PTE of a stationary source

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**“Potential to Emit”**

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- Step 1: Maximum capacity to emit
  - Emissions are treated as uncontrolled
  - Continuous operation at maximum emissions rate
  - Takes into account only limitations that are inherent to the process, such as product collection systems [31L, 12K]
  - Worst-case assumptions, but only within intended design and operation [30X]
    - Can mean using a different fuel/raw material for each pollutant to determine PTE

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## Potential to Emit

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- Step 2: Enforceable limits
  - Rule states “federally enforceable,” but this was vacated by D.C. Circuit in *Chemical Manufacturers Ass’n v. EPA* [25D]
  - EPA policy, affirmed by federal court in Utah, requires consideration of a limitation if it, or the effect it would have on emissions, is legally enforceable by a governmental entity and also is enforceable as a practical matter [41M, 45I]
  - Unenforceable limits, such as blanket emission limits with no monitoring or recordkeeping, aren’t considered enforceable and are not used in determining PTE [30X]

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## Potential to Emit

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- Step 2: Enforceable limits (Cont..)
  - Some EPA policy appeared to require short-term limits and/or independently enforceable limits on production or operation, but this policy isn’t supported by the regulations [30Y, 12I, 12J, 67Q-17]
  - Interpretation has now been clarified to consider all limits, including annual emission limits, that are enforceable as a practical matter in determining PTE [15U, 15V, 58V]
  - Biennial stack tests, in conjunction with monitoring control device performance and maintenance, was deemed practically enforceable by the EAB for Tucson Electric NOx emissions. [68Z]
  - NSPS and NESHAP limits are considered practically enforceable [30Y, 68E] and monitoring requirements at least as stringent as those for an NSPS are considered practically enforceable [68E]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Significant Emission Rates

Regulated NSR Pollutant	Tons per Year
PM10 (filterable + condensable)	15
PM2.5 direct (filterable + condensable)	10*
SO <sub>2</sub> (Criteria pollutant and PM2.5 precursor)	40*
NOx (Criteria pollutant and O <sub>3</sub> and PM2.5 precursor)	40*
Ozone (O <sub>3</sub> ) (VOC and NOx (unless exempt) precursors)	40**
CO	100
Lead	0.6

[40 CFR § 52.21 (b)(23)]

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### Significant Emission Rates – 2

Regulated NSR Pollutant	Tons per Year
PM	25
Sulfuric Acid Mist	7
Fluorides	3
Hydrogen Sulfide (H <sub>2</sub> S)/RSC/TRS	10
Municipal Waste Combustor	
Acid Gases	40
Metals	15
Organics	3.5x10 <sup>-6</sup>
MSW Landfill Emissions	50

[40 CFR § 52.21 (b)(23)]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Significant Emission Rates – 3

Regulated NSR Pollutant	Tons per Year
Stratospheric Ozone Depleting Substances (ODS) (CFCs, Halons, etc.)	Any Increase (100 TPY proposed)
Any other pollutant including greenhouse gases (GHG)	Any Increase
Plus, For Sources Within 10 km of a Class I area	Any emissions increase resulting in a ≥ 1 µg/m <sup>3</sup> , 24-hour impact in that area

\*For PM<sub>2.5</sub> and precursors, PSD review only applies to the pollutant for which there will be significant emissions increase, i.e., for a project with NOx emissions >40 TPY and SO<sub>2</sub> emissions <40 TPY, only NOx emissions subject to PSD review [EPA Permit Support for Pioneer Valley]  
\*\*Ground level emissions of ozone directly to the atmosphere are not subject to review [50L]

[40 CFR § 52.21 (b)(23)]

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### CO<sub>2</sub>e “Significant” Emission Rate for “Subject to Regulation”

Pollutant	GWP
CO <sub>2</sub>	1
CH <sub>4</sub>	25
N <sub>2</sub> O	298
HFC	12-14,800
PFC	6,500-17,340
SF <sub>6</sub>	22,800

[40 CFR 98 Subpart A Table A-1 as revised]

- Consider six GHG specifically regulated under 40 CFR § 86.1818-12(a) for applicability
- CO<sub>2</sub>e -multiply the mass amount by GWP
- Significant CO<sub>2</sub>e if ≥75,000 TPY

GWP – Global Warming Potential

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Example 1

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- Existing listed source (100 TPY threshold) has PTE of:
  - 80 TPY SO<sub>2</sub>
  - 95 TPY PM<sub>10</sub>
  - 60 TPY PM
- Not ‘major’ because no one pollutant has a PTE above 100 TPY
- Note that total is >100 tpy, but individual regulated NSR pollutants are not added together to calculate PTE (although some regulated NSR pollutants consist of more than one compound: PM<sub>2.5</sub>, VOC, GHG, etc.)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Example 2

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- New listed source (100 TPY threshold) has PTE of:
  - 235 TPY SO<sub>2</sub>
  - 95 TPY PM<sub>10</sub>
  - 60 TPY PM
- Will be ‘major’ because SO<sub>2</sub> PTE is above 100 TPY threshold
- PSD review will be required not only for SO<sub>2</sub>, but also for any other regulated pollutants with significant increases: PM<sub>10</sub> and PM

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Example 3

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- New nonlisted source (250 TPY threshold) has PTE of:
  - 150 TPY SO<sub>2</sub>
  - 50 TPY NO<sub>x</sub>
  - 300 TPY VOC (ozone precursor)
- Area is moderate nonattainment for ozone
- Source is ‘major’ for PSD purposes due to VOC (even though area is nonattainment for ozone)
  - PSD review required for SO<sub>2</sub> and NO<sub>x</sub>, but not for VOC
  - NOTE: Even though VOC emissions make the source major for PSD purposes, the VOC increase would be subject to nonattainment NSR, not PSD

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Example 4

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- Existing nonlisted source (250 TPY threshold) has PTE of:
  - 90 TPY SO<sub>2</sub>
  - 200 TPY NO<sub>x</sub>
  - 150 TPY VOC
  - 400 TPY fluorides
- Source is major for PSD purposes due to fluorides (any regulated NSR pollutant can make a source a major source, not just criteria pollutants), so any modifications are evaluated as modifications to an existing major stationary source

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Example 5

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- New nonlisted source (250 TPY threshold) has PTE of:
  - 30 TPY SO<sub>2</sub>
  - 200 TPY NO<sub>x</sub> (but no N<sub>2</sub>O)
  - 150 TPY VOC
  - 5 TPY SF<sub>6</sub>
    - (5 TPY X GWP of 22,800 = 114,000 TPY CO<sub>2</sub>e)
- Proposed source is not an “anyway” PSD source because no pollutant has a PTE at or above the threshold of 250 tpy, so do not even begin test for whether GHG are “subject to regulation”

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Example 6

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- New nonlisted source (250 TPY threshold) has PTE of:
  - 30 TPY SO<sub>2</sub>
  - 355 TPY NO<sub>x</sub>
  - 150 TPY VOC
  - 20 TPY CO<sub>2</sub>
  - 5 TPY SF<sub>6</sub>
    - (i.e. 5 TPY X GWP-22,800 = 114,000 TPY CO<sub>2</sub>e)
- Source is ‘major’ due to NO<sub>x</sub> (≥ 250 TPY)
- GHG “subject to regulation” because source is major for a non-GHG regulated pollutant and CO<sub>2</sub>e ≥ 75,000
- PSD review is required for significant increases of regulated pollutants: NO<sub>x</sub>, VOC, and GHG (GHG significance = ‘any’ mass increase)
  - A reasonable interpretation of Supreme Court decision [54F]
  - Note: If required to undergo PSD review for GHG, all GHG are subject to PSD (essentially BACT) review (in this case, SF<sub>6</sub> and CO<sub>2</sub>)

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

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## FUGITIVE AND SECONDARY EMISSIONS

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Fugitive Emissions (40 CFR § 52.21(b)(20))

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- “Those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.”
  - Emissions that are actually collected/captured are not fugitive [1E]
  - Where emissions are not actually collected, a factual, case-by-case determination of reasonableness is required [1E]
- Reasonableness [35D, 2B, 6K, 23Y, 1F]
  - EPA’s policy was to construe broadly and to presume that collection would be reasonable if any similar sources collect
  - Courts have not looked favorably on these presumptions

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Fugitive Emissions (40 CFR § 52.21(b)(20))

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- EPA’s guiding principles appear in the preamble to a reconsideration of fugitive emissions: [73 FR 77882 at 77891]
  - Case-by-case determination if emissions could “reasonably pass” based on whether can be reasonably collected or captured
  - It is not a presumption, but one of the factors for consideration, if similar facility using capture and/or control systems (*explained further on next slide*)
  - Cost to collect or capture emissions is a consideration of “reasonable” determination (*see discussion on the following slide*)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Fugitive Emissions (40 CFR § 52.21(b)(20))

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- Similar facility uses collection capture or control systems [73 FR 77882 at 77891]
  - Factor for consideration if emissions are fugitive
  - If emissions are already collected or captured and discharge through stack or vent or opening, then non-fugitive
  - If national emission standard or regulation is established for source category that requires collection, capture, and/or control
  - More source capture in a source category, the more it is considered reasonable

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Fugitive Emissions (40 CFR § 52.21(b)(20))

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- Cost of collect or capture and control is a factor for “reasonableness” [73 FR 77882 at 77891]
  - Combined cost to collect or capture and control can be used in place of simply capture or collection
  - Air quality in the area (e.g. nonattainment) can be a consideration for determining if cost is reasonable
  - If not technically or economically feasible to control emissions, then collection or capture of such emissions may not be reasonable
- However, EPA in 2022 has proposed to repeal the entire Fugitive Emissions Rule cited above, including the use of cost as a factor in determining whether emissions are fugitive [87 FR 62322 at 62335]

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### Fugitive Emissions

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- For both PSD and NNSR, count fugitive emissions if source is one of 28+ listed source categories [40 CFR 52.21(b)(1)(iii) & (i)(1)(vii)]
  - 28+ categories (28 named + NSPS & NESHAP regulated categories prior to 8/7/80) listed in 1990 Workshop Manual, p. A.12-15 [2W]
  - Date Regulated - Proposal date for NSPS, Promulgation date for NESHAP
- Fugitive emissions not included for major stationary source determination for sources belonging to unlisted categories
- If a source in unlisted category is major due to non-fugitive emissions, then all significant emissions (calculated as stack plus fugitive) are subject to PSD review [31X, 19S-581]

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## PSD Fugitives Applicability Example

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- A new non-listed (250 tpy threshold) source locating in an attainment area for all pollutants has a PTE of:
  - 80 tpy of TRS,
  - 300 tpy of NOx,
  - 20 tpy of sulfur dioxide,
  - 12 tpy of fugitive and 9 tpy of stack PM2.5,
  - 13 tpy of fugitive and 16 tpy of stack PM10,
  - 18 tpy of fugitive and 5 tpy of stack PM,
  - 240 tpy of fugitive and 30 tpy stack VOC, and
  - 50 tpy of hydrogen sulfide.
- Is it subject to PSD review? If so, why and which pollutants must be reviewed?

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## Definition: “Secondary Emissions”

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Defined in 40 CFR 52.21(b)(18) as emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself.

- Includes emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification;
- Does not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel; and
- Must be specific, well-defined, quantifiable, and impact the same general area as the stationary source or modification that causes the secondary emissions.

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## Secondary Emissions

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- Are not counted for applicability purposes
- Are counted in PSD air quality impact analysis and in emission offsets

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## EXERCISES 5-10

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## MAJOR/MINOR

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“Major Source” from Minor Source Modification  
Converting a Major Source to a Minor Source

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### Definition: “Major Stationary Source”

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- Construction at the site of an existing minor source can be a “major stationary source” in and of itself:  
  
    “[A]ny physical change that would occur at a stationary source not otherwise qualifying under this definition if the change would constitute a major stationary source by itself.” (PSD)  
  
    “Any physical change that would occur at a stationary source not qualifying under paragraphs (a)(1)(iv)(A)(1) or (2) of this section as a major stationary source, if the change would constitute a major stationary source by itself.” (NNSR)

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## Major to Minor Stationary Source

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- Converting a major source to a minor source
  - Allows concurrent modification to occur without evaluating major modification applicability [19Y, 30O, 33F, 12I]
    - Equipment covered under synthetic minor limit must remain minor
  - Generally, “Once In, Always In” does not apply to PSD
  - By policy, major sources operating in violation can become minor sources, but only with “proper penalties” [1C, 40Z]

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## CONSTRUCTION

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## Construction and Related Terms

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- Begin v. Commence
  - Sources cannot begin actual construction without a permit (40 CFR § 52.21(i)(1))
  - Documentation of PSD applicability analysis must be in place prior to date on which source begins actual construction (52.21(r)(6)(i))
  - Sources must commence construction within 18 months of receiving a permit or the permit becomes invalid (40 CFR § 52.21(r)(2))
    - This provision exists only in 40 CFR § 52.21, not Appendix S or the blueprint rules in Part 51
    - Generally, SIP-approved State rules include the 18-month provision, but they do not have to
  - In calculating the net emissions increase, the contemporaneous period depends on the date on which construction commences (40 CFR § 52.21(b)(3))

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**Definition:**  
**“Begin Actual Construction”**

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- Defined as “in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature.
  - “Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures.
  - “With respect to a change in method of operation, this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.” [40 CFR 52.21(b)(11)]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition:**  
**“Begin Actual Construction”**

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- Activities allowed prior to permit issuance
  - Planning, ordering of equipment and materials, site-cleaning, grading, and on-site storage of equipment and materials are allowed. Activities undertaken prior to PSD permit issuance would be solely at the operator’s expense, and would not guarantee permit approval. [9Q, 40D, 40E, 40G, 40J]
  - All on-site activities of a permanent nature are prohibited, including installation of building supports and foundations, paving, laying of underground pipe work, construction of permanent storage structures, and activities of a similar nature.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition:**  
**“Begin Actual Construction”**

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- However, sources may enter into binding agreements or contractual obligations prior to receiving the permit. [40K]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Definition:**  
**“Commence” Construction**

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- Defined to mean the source has all necessary preconstruction approvals or permits and either has
  - Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or
  - Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source, to be completed within a reasonable time. [40 CFR § 52.21(b)(9)]

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**Commence Construction**

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- Necessary preconstruction approvals or permits (40 CFR § 52.21(b)(10)) means:
  - Those permits or approvals required under Federal air quality control laws and regulations and
  - Those air quality control laws and regulations which are part of the applicable State Implementation Plan

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**Commence Construction**

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- 1980 memo by EPA for Guardian Industries flat glass plant in Corsicana, Texas [30F, 28K-113]
  - “substantial loss” and “irrevocable commitment” are determined on a case-by-case basis
  - Substantial loss – losses of 10% or more of total construction cost of a project
  - Losses of <10% could be considered “substantial” if:
    - Commitment to a specific site where relocation was not possible, and
    - Delay or modification would be severely disruptive
  - “irrevocable commitment” is entering into contracts or agreements for off-site construction of a source that can only be located at the proposed site (unique characteristics)

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## Commence Construction

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- Permits expire per 40 CFR § 52.21(r)(2) if construction is:
  - Not commenced within 18 months of permit issuance
  - Not completed within a reasonable time
  - Discontinued for longer than 18 months
- 2014 EPA guidance addressed permit extensions [53L]
  - With detailed justification, first extension can be granted without need to redo PSD review
  - Second extension will require redo of PSD review
- Permit extension provisions do not apply to phased construction

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## MODIFICATIONS

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## DEFINITIONS

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Major Modification  
Minor Modification

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Definition (PSD and NNSR): “Major Modification”

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- Regulatory definition of major modification at 40 CFR § 52.21(b)(2):  
“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 any regulated NSR pollutant ... and a significant net emissions increase of that pollutant from the major stationary source.”
  - Complicated definition
  - Each underlined phrase important and controversial
- Regulatory definition of major modification for NNSR at ¶ II.A.5 of Appendix S is essentially the same as PSD definition

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Major Modification

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- Notes on definition:
  - Existing (prior to the effective date of the rule) Major Stationary Sources are grandfathered from PSD review - only “major modification” projects at these existing major stationary sources are subject to PSD review
- Rule provides:
  - Narrow exclusions from physical change or change in the method of operation
  - For emissions increases to be determined on an annual basis
  - De minimis* exemption levels
  - For consideration of both intra-project and net emissions increases

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Definition (PSD and NNSR): “Major Modification”

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- Definitions of “significant,” “significant emissions increase,” and “net emissions increase” are necessary and will be discussed in detail later.
- In several respects, these four definitions collectively narrow or clarify the ambiguous statutory definition:
  - Provides narrow exclusions from what is considered a physical change or change in method of operation
  - Provides for consideration of both intra-project and net emissions increases
  - Provides for emissions increases to be determined using actual emissions as measured on an annual basis
  - Provides *de minimis* exemption levels
- Reform rule clarifies that increase must be significant for both the project emissions increase (“project net”) and net emissions increase (“contemporaneous net”)

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## Causation

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- Causation is discussed in the 1992 WEPCO Rule preamble [57 FR 32314]
- Phrase ‘...would result in...’ refers to what is termed as ‘causal’ link:
  - For a physical change or change in the method of operation to be a modification, that change must cause (result in) an emissions increase
  - Many obviously physical changes at a source have no effect on emissions
    - New fence, sidewalk, non-emitting unit (unless it requires increased output from an emitting unit)
    - These are not considered modifications, despite being capital expenditures, because there is no effect on emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Causation

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- Potential ‘physical change or change in the method of operation:’
  - new or replaced equipment,
  - improving reliability,
  - reducing manufacturing costs

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Applicability Determinations

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- Done on a pollutant by pollutant basis
  - Means going through determination all over again for each pollutant
  - Each pollutant that has a significant project emissions increase (project net) and a significant net emissions increase (contemporaneous net) is subject to PSD review
  - Allows projects to avoid PSD review by finding enough reductions to keep net increase below the significant emissions rate for the particular regulated NSR pollutant

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Overview...

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- The rule provides exclusions from “a physical change or change in the method of operation”
- But, if there is no exclusion, then the project is a ‘physical or operational change’
  - Need to determine if there is a ‘modification’ (an emissions increase resulting from the change) and, if so,
  - Whether it is a major modification (i.e., project and net emissions increases greater than significant emission rate)
- **SUMMARY NOTE:**
  - The exclusions are for whether there is a change (physical or operational)
  - If there is no change (by definition), then there is no modification

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Overview...

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- The project emissions consist of
  - The PTE of any new emissions units being added to the source
  - The emissions increase anticipated from any modified existing emissions units
    - Default approach depends on rule
    - This calculation has been very controversial
  - The emissions increase anticipated from debottlenecking any units up- or down-stream, and
  - The emissions increase anticipated from increased utilization of supporting units, such as steam from a boiler

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Overview...

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- If project emissions increase for a pollutant is
  - Zero or negative, project is not a modification but may still require a permit\*
  - Not significant, project is a minor modification, usually requiring a minor NSR permit\*
  - Significant, project can either
    - Undergo PSD review by obtaining a PSD permit, or
    - Attempt to net out of “major modification” (will require a minor NSR permit\* to make reductions enforceable)

\*Jurisdiction-specific permit programs address these permitting requirements

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Overview...

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- **Replacement Units:** a special case
- When an emissions unit is being replaced,
  - Under the 1980 and WEPCO Rules,
    - EPA (by policy) considered the project to consist of the new unit's PTE only.
    - The actual emissions decrease from the existing unit was not used except when the source used net emissions increase calculations to remain below significant emission rates
  - Reform Rule provides a modification-type calculation for replacement units meeting the rule's definition

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## Modifications

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- Are defined differently for
  - Minor existing sources and
  - Major existing sources
  - An existing source is classified as minor or major based on its PTE at the time the project would begin

AND
- Uses calculations that depend on the type of source, situation, and regulation in effect:
  - 1980 Rule and Policies
  - 1992 Rule ("WEPCO Rule")
  - 2002 Rule ("Reform Rule")
- We will focus on the 2002 Reform Rule

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Types of NSR Modification

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Type of Modification	Modification Occurs at a:	
	Minor Stationary Source	Major Stationary Source
"Minor"	<ul style="list-style-type: none"> <li>• Does not constitute a major stationary source by itself</li> <li>• <u>Not</u> subject to PSD permitting for that pollutant</li> </ul>	<ul style="list-style-type: none"> <li>• Emissions increase or net emissions increase is below the significance (threshold) level for that pollutant</li> <li>• <u>Not</u> subject to PSD permitting for that pollutant</li> </ul>
"Major"	<ul style="list-style-type: none"> <li>• "...would constitute a major stationary source by itself..."</li> <li>• Subject to PSD permitting for that pollutant</li> </ul>	<ul style="list-style-type: none"> <li>• Project emissions increase <b>and</b> net emissions increase equal or exceed significance level</li> <li>• Subject to PSD permitting for that pollutant</li> </ul>

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Exclusions

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- The following are not a ‘physical change or change in the method of operation:’
  - Routine maintenance, repair and replacement (RMRR)
  - *Pollution control projects (PCP) [VACATED 6/24/05]*
  - Use of alternate fuel or raw material if
    - Source was capable (and still is) of accommodating the fuel/material prior to 1/6/1975 or
    - The alternate is allowed by PSD/NNSR permit
  - Increasing operating hours or production rate (and no other physical or operational changes required) (unless restricted by permit)
  - Change of ownership
  - (There are other exclusions, but they are very narrow)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Exclusions

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- Sources evaluate the proposed project to see if it qualifies for an exclusion
  - If so, the project is not a “physical change in or change in the method of operation,” so the source is not ‘modified’ for PSD/NSR purposes
  - However, a permit or notification may still be required

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Exclusions: Review of Recent Case Law

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- In 2005, D.C. Circuit in *New York v EPA I* vacated longstanding PCP exclusion [18T]
  - “Absent clear congressional delegation ... EPA lacks authority to create an exemption from NSR by administrative rule.... Indeed, ‘this court has consistently struck down administrative narrowing of clear statutory mandates.’”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Exclusions: Review of Recent Case Law

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- In 2006, D.C. Circuit in *New York v EPA II* vacated 2003 Equipment Replacement Provision regulation [17K]
  - “Congress’s use of the word ‘any’ indicates the intent to cover all of the ordinary meanings of the phrase.”
  - “Reliance on the *de minimis* doctrine invokes congressional intent that agencies diverge from the plain meaning of a statute only so far as is necessary to avoid its futile application.”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Alternate Fuel/Raw Material Exclusion

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- Some fuel changes are not “alternative fuels” and are not operational changes, such as:
  - Switch from low sulfur oil to high sulfur oil [33G]
    - However, if the switch necessitates relaxation of an NSR permit term, it is a change in method of operation [33T]
  - Switch from western sub-bituminous coal to a coal blend [38T]
- Exclusion covers only the use of the alternate fuel/material, not necessary physical changes
  - But changes covered under RMRR may be permissible
  - Adding gas canes to existing burners was OK, but replacing burners is generally not [34I, 14W]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Alternate Fuel/Raw Material Exclusion

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- Pre-1975 emissions units, only if “capable of accommodating”
  - Early policy was clear: The exclusion applies if on and since the listed date (generally, 1/6/1975 for PSD and 12/21/1976 for NNSR), the unit is actually, physically capable of accommodating the alternative fuel
- New guidance in 1998 (but not consistently followed by EPA):
  - “[T]he alternative fuels exemption [applies] only to fuels which were contemplated in the design and construction of a unit prior to January 6, 1975 and which the unit remained continuously able to burn.” [3R]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Alternate Fuel/Raw Material Exclusion

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- For post-1975 emissions units, an alternate can be used only if authorized in a PSD or NNSR permit
  - Policy appears to require explicit authorization, not just the absence of prohibition
  - By policy only, agencies generally also apply this exclusion to authorizations under minor NSR permits

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – Increasing Hours/Rate Exclusion

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- Exclusion applies where not prohibited by permit term
  - By implication, any increase that would be prohibited by a permit term is “a change in the method of operation”
- Exclusion doesn’t apply to increases associated with other physical or operational changes [10I, 13I]

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### Step 1 – Increasing Hours/Rate

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- Notwithstanding plain language of rule, EPA policy since 1999 provides that increases in hours of operation associated with reactivation may not be eligible for the exclusion [1T, 11Z]
  - “Analysis of whether restart of a facility constitutes a mere increase in the hours of operation or production rate must consider whether the proposed activity is of the kind intended to be covered by the provision.” [1T]
  - “In general, reactivation after long periods of shutdown, though obviously motivated by long-term changes in the market, is not a response to the same type of market fluctuations and does not merit the same permitting flexibility envisioned by the regulations.” [1T]

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### Step 1 – Routine Maintenance, Repair and Replacement (RMRR) Exclusion

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- No definition in rules
- “WEPCO” policy from late 1980’s set forth five factors, in the context of a massive renovation project [34C, 34D, 10I]
  - Nature: Involves replacement of several major components
  - Extent: Significantly enhances the present efficiency and capacity of the plant
  - Purpose: Substantially extends the plant’s useful economic life
  - Frequency: Rarely performed on this type of unit
  - Cost: Is costly in both relative (~15% of replacement cost) and absolute (~ \$90 million) terms

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### Step 1 – RMRR Exclusion

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- EAB decision in TVA appeal [5P] identified many additional factors, including:
  - Implemented by central office group rather than plant maintenance staff
  - Capital rather than O&M budget
  - High-level funding approval
  - Costs would have consumed plant O&M budget

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### Step 1 – RMRR Exclusion

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- More recent guidance from EPA has applied these factors to smaller projects, consistent with the court decisions mandating narrow interpretations of regulatory exclusions [2V, 5F, 8G, 13I, 13X, 14E, 14S]
- EPA has had a good record of success pursuing narrow RMRR interpretations in utility NSR enforcement cases [13I, 13N, 13O, 20P, 54Q]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 – RMRR Exclusion

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- Broad RMRR interpretations adopted in *NPCA v. TVA* (E.D. Tenn 2010) and *Pennsylvania v. Allegheny Energy* (W.D. Penn. 2014) [53G]
  - Replacement of superheater tubes (\$2 million), economizer (\$6 million), lower slope (\$6 million), secondary superheater outlet header (\$2.5 million), pendant reheater (\$6 million) were RMRR
  - These were non-EPA cases & the courts upheld that large projects were routine

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 - Not RMRR: Coal-fired Boiler Projects

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- Subject to EPA’s NSR Enforcement Initiative:
  - Replacement of all or significant portion of:
    - Coal handling equipment (e.g., coal bunkers, coal pulverizers, coal pipes);
    - Burners and burner assemblies;
    - Air heaters;
    - Fans, fan motors, and fan wheels; and
    - Control systems.
  - “[O]verhauling the turbine, generator, excitor, boiler feed pump turbine, and boiler feed pump....”
  - “[R]ehabilitation and modification of the boiler, turbine, and controls....”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 1 - Not RMRR: Coal-fired Boiler Projects

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- Subject to NSR Enforcement Initiative:
  - Replacement of all or significant portion of:
    - Boiler tubes and tube assemblies (e.g., reheaters, economizers, superheaters, water wall panels, floor tubes);
    - Feedwater heaters;
    - Condensers;
    - Furnace structural components (e.g., rear arch, floor, ash hopper, tube hangers, penthouse casing and insulation);
    - Cyclones (in cyclone-type furnaces); and
    - Main steam stop valves and bypass valves
    - Steam turbine; and
    - Turbine components (e.g., inner shell, nozzle, casings, seals, rotors, rotating blades).

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### Step 1 - Not RMRR: EPA letters

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- Replacement of all or significant portion of:
  - Air grid in petroleum refinery fluid catalytic cracking unit
    - Focus was on nature (minor differences in design) and frequency (30-year component life)
    - EPA not swayed by cost/extent (0.5 percent of unit replacement cost, expense budget, cheaper and faster than the repair alternative) or purpose (lower maintenance costs; no impacts on operation or efficiency) [13X]

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### Step 1 - Not RMRR: EPA letters

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- Safety project at pulp mill recovery boiler:
  - Following a tube rupture, company initiated investigation and instituted a temporary derate
  - One year later, added tubes from the upper steam drum to lower water drum in order to reduce water carryover
  - EPA deemed non-routine based on:
    - Nature (added equipment)
    - Purpose (increase in safely achievable capacity, relative to derate)
    - Cost (< 1% of replacement cost, but more than typical annual maintenance costs for this boiler) [6Z]

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### Step 1 - Not RMRR: 'Restoration'

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- Detroit Edison Dense Pack Project [2V] :
  - Would increase efficiency by 12%, restoring 7% lost efficiency
  - Overall turbine efficiency would be increased by 4.5% and efficiency deterioration would be decreased by 70%, extending repair/replacement frequency from every 4 years to every 10 years
  - Addressed the comment received on NSR Reform [34T]
    - "Restoration" exclusion for activities that restore a unit to the highest capacity achievable in the previous five years
    - EPA responded that restoration of lost capacity would be resolved using proposed approaches (such as the PAL), but then stated:
      - "EPA believes that the routine maintenance exclusion already included in the existing NSR regulations also has the effect of excluding "routine restorations""
      - EPA later stated that Nichols was referring only to "routine restorations" not all "restorations"

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### Step 1 - Not RMRR: 'Restoration'

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- Therefore, to the extent the restoration is itself "routine," the exclusion applies
  - Piecemeal repairs and replacement of individual rotor blades at Monroe restored some portion of the efficiency lost since the last scheduled outage
  - Those activities, far different from the proposed Dense Pack upgrade, are more likely to be properly characterized as excluded "routine restorations"

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### Step 1 - Examples of Activities of Interest

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- Agency Information Request Radar:
  - Capital outlay exceeding \$25,000/\$50,000 (based on various Section 114 requests)
  - Restart of idled emissions unit/equipment at existing operation
  - Other activities – not meeting RMRR – five factor test
- Other Activities:
  - Increased utilization of existing units/equipment due to proposed changes – Reduced downtime or reliability improvements
  - Upgrades to existing systems

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### Process Unit - Definition

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- Any collection of structures and/or equipment that processes, assembles, applies, blends, or otherwise uses material inputs to produce or store an intermediate or a completed product
- Stationary source may contain more than one process unit, and a process unit may contain more than one emissions unit
- Pollution control equipment is not part of the process unit, unless it serves a dual function as both process and control equipment

Definition stayed by ERP vacatur, but being used for replacement units

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### Process Unit - Examples

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For a steam electric generating facility, the process unit consists of those portions of the plant that contribute directly to the production of electricity.

- For example, at a pulverized coal-fired facility, the process unit would generally be the combination of those systems from the coal receiving equipment through the emission stack (excluding post-combustion pollution controls), including the coal handling equipment, pulverizers or coal crushers, feedwater heaters, ash handling, boiler, burners, turbine-generator set, condenser, cooling tower, water treatment system, air preheaters, and operating control systems.
- Each separate generating unit is a separate process unit.

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### Process Unit - Examples

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For a petroleum refinery, there are several categories of process units:

- those that separate and/or distill petroleum feedstocks;
- those that change molecular structures; petroleum treating processes;
- auxiliary facilities, such as steam generators and hydrogen production units; and
- those that load, unload, blend or store intermediate or completed products.

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### Process Unit - Examples

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For an incinerator, the process unit would consist of components from the feed pit or refuse pit to the stack, including conveyors, combustion devices, heat exchangers and steam generators, quench tanks, and fans.

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## Replacement Unit Determination

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- In a 2015 letter for ADM Project, EPA observed the following:
  - Replacing existing units with fewer new units may not meet the ‘identical,’ ‘functionally equivalent,’ or ‘basic design parameters’ criteria
  - Questioned how having ‘nominal’ capacities of new and existing units as ‘approximately equivalent’ satisfies ‘identical’ or ‘functionally equivalent’
  - For the two sets of equipment to be identical or functionally equivalent, all parameters pertaining to unit’s operation must be evaluated

ADM Letter [55P]

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## Project Aggregation (“circumvention”)

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- EPA’s concern is that a project, otherwise subject to major NSR permitting, would be deliberately split up so that the two or more split projects avoided major NSR review
- Therefore:
  - All activities undertaken as part of a single project must be evaluated together for NSR applicability purposes
  - Some EPA policy statements appear to indicate that timing is key [39J, 14M, 11E, 11J]

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## Step 2 – Circumvention (“project aggregation”)

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- EPA in June 1989 issued a final rule [54 FR 27274] (with no changes to codified PSD/NNSR rule language) and concurrently issued detailed guidance for implementing this rule [30Y].
  - Intentionally misrepresenting the capacity or operating level of a source or project in order to evade preconstruction review is improper circumvention and is grounds for enforcement.
  - Source owner’s intent is key.
  - Agencies must review “economic realities” to determine whether the project as initially permitted was viable; if not, this is evidence of an intent to circumvent.

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### Step 2 – Circumvention ("project aggregation")

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- Some subsequent EPA memoranda purport to expand this rule to cover "aggregation" of emissions increases from separate projects [11E, 11J, 14M, 39J]
  - Timing, rather than intent, is suggested as key: "net increases should be aggregated for each 'planning period' of the plant." [39J] (known as the "3M Maplewood" memorandum)
  - This would directly contradict long-standing interpretation: major NSR is not triggered if the project increase is not significant [33J, 33O, 33P, 33R]

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### Step 2 – Circumvention ("project aggregation")

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- September 2006 preamble [71 FR 54235] clarifies that timing is less important than interdependence.
  - "This proposal clarifies our existing policy and provides specific circumstances where emissions should be aggregated for purposes of NSR applicability. EPA proposes to revise the regulations to state that a source must aggregate emissions from projects that are technically or economically dependent."

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### Step 2 – Circumvention ("project aggregation")

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- September 2006 preamble, continued
  - Technical dependence "means that, absent another project, the process change cannot operate without significant impairment, or for the planned amount of hours, or at the planned rating or production level, or that it operates in a manner that results in a product of inferior quality."
  - Economic dependence means that one project "is no longer economically viable without the completion of the other project(s)."

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Project Aggregation ("circumvention")

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- EPA finalized the aggregation rule in January 2009 [74 FR 2376]
  - No changes to the rule language
  - Sources and permitting authorities should combine emissions only when nominally separate changes are "substantially related."
  - Two nominally-separate changes are not substantially related if they are only related to the extent that they both support the plant's overall basic purpose
  - Adopted a rebuttable presumption that nominally-separate changes at a source that occur three (3) or more years apart are presumed to not be substantially related

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### Project Aggregation ("circumvention")

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- Obama EPA stayed and proposed to revoke the 2009 final rule [75 FR 19567] but took no final action
  - Proposed reversal relied heavily on comments from NRDC
  - Proposal hinted at multi-tiered aggregation, where a change would trigger PSD if it is a major modification under any possible aggregation scenario

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### Project Aggregation ("circumvention")

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- In November 2018 [83 FR 57324], Trump EPA completed reconsideration, lifted the stay of the January 2009 final rule, and provided clarifications:
  - Three-year presumption is affirmed, but timing alone is not determinative
  - Any suggestion that all changes consistent with the "overall basic purpose" of the plant should be aggregated, as in the 3M memo, is incorrect
  - Nothing in D.C. Circuit decision in *New York v EPA I* supports required aggregation of nominally separate, not substantially related, activities as a single project
- In Aug. 2019 "project emissions accounting" rule proposal, EPA indicates no concerns with voluntary over-aggregation by source owners [84 FR 39244]

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### Project Aggregation - Determination

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- 2007 EPA letter regarding United Refinery’s ULSG project that started in 2002
- Subsequent application for a coker project in 2007
- EPA suggested two projects to be aggregated as a single project
- “[I]f the prospective .. coker project .. or other modifications are being taken to comply with Tier 2 requirements, they are to be considered same project”  
United Refining Letter [55L]

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### Project Aggregation - Guidance

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- In April 2018, EPA determined two projects proposed by Limetree Bay Terminals are independent and should not be aggregated [650]
  - One project would revamp and restart certain idled petroleum refinery process units; second project would involve construction of a hydrogen production unit and revamp/restart of an idled hydrotreater to produce renewable diesel
  - Analysis focuses on viability and absence of dependency; no mention of “overall basic purpose” or broader measures of relatedness

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### Project Aggregation - Guidance

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- On 8/28/19, EPA advised Illinois EPA to document whether several projects at Phillips 66’s Wood River refinery should be aggregated based on technical or economic interdependence [66L]
  - Both upstream and downstream interdependence should be considered (there had been several large projects and 18 minor NSR projects over the last 3 years).
  - Factors to consider include whether:
    - There is a decision-making and timing dependency
    - There is significant interaction between the units undergoing the changes (process technologies used, feedstocks involved, products)
    - Raw materials, piping, process equipment and material transfer systems are shared
    - Increased utilization may occur

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Project Aggregation – Case Law

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- Jan. 2017 liability decision in *U.S. v. Ameren* [60C] treated air preheater replacement and replacement of various boiler tubes as a single project (at each unit)
  - Air preheater replacement had been subjected to its own funding justification process, but
  - Air preheater justification documents specifically combined the air preheater replacements with the boiler tube replacements in what was described as a “major refurbishment” and
  - Replacement of both air preheater and boiler tubes was covered by a single purchase order

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## EXERCISES 11-16

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Major Modification Applicability

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Step 1

Physical or Operational Change?

No → No Modification  
 Yes ↓

Step 2

Proposed Project Emissions Significant?

No → Project Not Major  
 Yes ↓

Step 3

Can Project Net Out of Major NSR?

Yes → Project is Minor  
 No ↓ Subject to NSR

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## Step 2 – Major Modification

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- 40 CFR § 52.21(b)(2) defines:
  - [A]ny physical change in, or change in the method of operation of, a major stationary source
  - [T]hat would result in a significant emissions increase and a significant net emissions increase of a regulated NSR pollutant from the major stationary source
- “Significant emissions increase” calculation procedures established in 40 CFR § 52.21(a)(2)(iv)(b)
  - Noted here-on as ‘project emissions increase’

Note: Ignore 40 CFR § 52.21(b)(2)(v), which has been stayed indefinitely

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## Step 2 – Pollutant-Specific

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- Applicability determinations for modifications at major sources are made on a pollutant by pollutant basis
  - Means going through calculation process all over again for each pollutant
  - Each pollutant that has a significant project emissions increase (project net) and a significant net emissions increase (contemporaneous net) is subject to major NSR
  - Allows projects to avoid major NSR by finding enough reductions to keep net emissions increase below significant
  - Significant emission rates for various pollutants range from ‘any increase’ to 100 TPY

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## Step 2 – Focus of Rule Changes

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- “Major Modification” definition is essentially the same for all three rules
  - WEPCO rule provides for new and different ways to calculate increases
  - Reform rule:
    - Extends WEPCO-like provisions to units other than electric utility steam generating units (EUSGU)
    - Clarifies that increase must be ‘significant’ for both the project emissions increase (“project net”) and net emissions increase (“contemporaneous net”)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Step 2 – Project Emissions Increase

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- Several components
  - Initial permitting of new emissions unit(s)
  - Subsequent changes affecting new emissions unit(s)
  - Impacts to existing emissions units
    - Existing units undergoing changes
    - Upstream and downstream debottlenecked units
    - Increased utilization at non-modified units due to the project
- Sum the emissions increases from all of the components
  - New, existing, or “hybrid” tests
- Total is projected actual emissions increase
  - If increase is not significant, project is not subject to PSD review
  - If increase is significant, source still has option to evaluate net emissions increase to stay out of PSD review

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## Step 2 – Definitions Used in Determining Emissions Increases

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- “Net emissions increase” (pre-reform only)
- “Actual emissions” (pre-reform only)
- “Potential to emit” (PTE) (all rules)
- “Representative actual annual emissions” (WEPCO only)
- “Baseline actual emissions” (BAE) (reform only)
- “Projected actual emissions” (PAE) (reform only)

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## Summary of Allowed Calculations per EPA Rule/Policy

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Calculation	1980 Rule	WEPCO Rule	Reform Rule
Actual to PTE	Yes	Yes	No
BAE to PTE	No	No	Yes
Baseline actual to projected actual (BAE to PAE) <small>Although EPA and courts have allowed use of this approach in litigation</small>	No	No	Yes
Actual to representative future actual (deduct demand growth)—electric utilities only	No	Yes	No
Actual to future actual (no demand growth deduction specified, but taken in practice) for like-kind replacements	Yes	Yes	No
NSPS-type (hourly or emission rate max)—electric utilities only	No	No	No (Proposed but withdrawn)

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<small>RTP ENVIRONMENTAL ASSOCIATES, INC.</small>
<b>PROJECT EMISSIONS INCREASE CALCULATIONS</b>
Significant Emissions Increase Baseline Actual Emissions Projected Actual Emissions

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<small>RTP ENVIRONMENTAL ASSOCIATES, INC.</small>	
<b>Significant Emissions Increase (40 CFR 52.21(b)(23))</b>	
<u>PSD Pollutant</u>	<u>Tons per Year</u>
PM10	15
SO <sub>2</sub>	40
NO <sub>x</sub>	40
VOC (Ozone)	40
CO	100
Lead	0.6
PM2.5	10
<small>212</small>	

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<small>RTP ENVIRONMENTAL ASSOCIATES, INC.</small>	
<b>Significant Emissions Increase– 2</b>	
<u>PSD Pollutant</u>	<u>Tons per Year</u>
PM	25
Sulfuric Acid Mist	7
Fluorides	3
Hydrogen Sulfide (H <sub>2</sub> S)	10
Municipal Waste Combustor	
Acid Gases	40
Metals	15
Organics	3.5x10 <sup>-6</sup>
MSW Landfill Emissions	50
<small>213</small>	

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Significant Emissions Increase– 3

PSD Pollutant	Tons per Year
Total Reduced Sulfur (TRS), including H2S	10
Reduced Sulfur Compounds (RSC), including H2S	10
Stratospheric Ozone Depleting Substances (ODS) (CFCs, Halons, etc.)	Any Increase (100 tpy proposed)
Greenhouse gases (GHG)	Any Increase
Plus, For Sources Within 10 km of a Class I area	Any emissions increase resulting in a $\geq 1 \mu\text{g}/\text{m}^3$ , 24-hour impact in that area

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## Step 2 – Consideration of Fugitive Emissions (FE)

- For non-categorical stationary sources, EPA policy has varied on whether fugitive emissions are counted in determining whether a non-listed source project is a major modification.
- The latest development is a 10/14/22 FR notice proposing to repeal a 2008 FE rule that has been stayed repeatedly for reconsideration. [87 FR 62322]
  - The 2008 rule, among other things, embodied an approach that non-listed major sources (which have a 250 tpy major source threshold) would not have to count FE in determining whether a modification was major.
  - The 2022 proposal is to do the opposite: revert to the pre-2008 rule language and “reaffirm” that all major sources, regardless of category, would have to count FE in making a major modification determination.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## CALCULATIONS

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NEW UNITS  
EXISTING UNITS  
REPLACEMENT UNITS  
DEBOTTLENECKED UNITS  
INCREASED UTILIZATION

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Step 2 – Project Emissions Increase

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- Several components
  - Initial permitting of new emissions unit(s)
  - Subsequent changes affecting new emissions unit(s)
  - Impacts to existing emissions units (e.g., debottlenecking, increased utilization, change in emissions rate)
- Sum the emissions increases from all of the components
  - New, existing, or “hybrid” tests
- Total is project emissions increase
  - If increase is not significant, project is not subject to major NSR
  - If increase is significant, source still has option of “netting out”

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## CALCULATIONS

NEW UNITS

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Step 2 (PSD and Appendix S) – Initial Permitting of New Units

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Pursuant to 40 CFR § 52.21(a)(2)(iv)(d), emissions increase from a new unit is its PTE:

(PTE) – (baseline actual emissions, “BAE”),

where:

BAE = zero by definition (40 CFR § 52.21(b)(48))

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 (PSD and Appendix S) – Subsequent Changes to New Units

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- Remember 40 CFR § 52.21(b)(7): new emissions unit is any “unit which is (or will be) newly constructed and which has existed for less than two (2) years from the date such emissions unit first operated”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 (PSD and Appendix S) – Subsequent Changes to New Units

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Pursuant to 40 CFR § 52.21(a)(2)(iv)(d), emissions change is the change in the unit’s PTE:

$(PTE_{\text{AFTER PROJECT}}) - (BAE),$

where:

BAE = current PTE by definition ( $PTE_{\text{BEFORE PROJECT}}$ )

[40 CFR § 52.21(b)(48)]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## CALCULATIONS

EXISTING UNITS

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Projects Affecting Existing Units (Reform Rule)

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- An existing emissions unit is any unit that is not a new emissions unit
- Project emissions increase must include all units whose emissions could be affected by the project
  - This language is explicit in the Reform rule [40 CFR § 52.21 (r)(6)(i)(b)]
  - Similar positions taken by EPA enforcement in interpreting pre-reform rules
  - Sources need to address downstream units that are not being modified [51X, 55L]
  - For a boiler replacement project at the ADM plant, EPA asserted that ‘increase in steam production’ could increase utilization of downstream units [55X]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Projects Affecting Existing Units (Reform Rule)

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- Emissions change from an affected existing unit (including “replacement units”):  
Projected actual emissions (“PAE”) minus  
Baseline actual emissions (“BAE”) [40 CFR § 52.21(a)(2)(iv)(c)]
- Applicable to all project-affected existing units: modified units, debottlenecked units, units undergoing increased utilization

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Baseline Actual Emissions (“BAE”)

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- Defined at 40 CFR § 52.21(b)(48)
- For electric utility steam generating units (“EUSGU”), codifies the presumption adopted in the WEPCO preamble
- Extends a similar fix to non-utilities
- Is mandatory: sources and agencies must use BAE instead of “actual emissions” for major modification applicability purposes
  - Does not replace definition of “actual emissions,” but replaces its use in determining emissions increases for NSR applicability purposes

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Step 2 – BAE for Existing EUSGU

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- Average rate, in TPY, at which the unit actually emitted the pollutant [40 CFR § 52.21(b)(48)(i)]
  - During any consecutive 24-month period selected by the owner/operator
  - Within the 5-year period immediately preceding when the owner/operator begins actual construction of the project
    - Note: although not specifically noted for a PAL, the 5-year lookback period will be from the date a PAL application is submitted [20K]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Step 2 – BAE for Existing EUSGU

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- Different time period can be used if more representative of normal source operation, subject to agency approval
  - Prior policy under WEPCO rule provided for consideration of periods other than 24 consecutive months [57 FR 32314]
  - EPA R4 in 2007 stated “EPA interprets the phrase ‘different time period’ to mean a period other than the 5-year period immediately preceding project construction, not a period shorter than 24 consecutive months” [23B]
  - In June 2017, for the Tesoro Carson/Wilmington refinery integration project, which affected both EUSGU and non-EUSGU, EPA R9 approved 2011-2012 as more representative of normal source operation “since the largest sources of these pollutants were operating normally (i.e., not in a turnaround)” [64K]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Step 2 – BAE for Existing EUSGU

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- Includes
  - Quantifiable fugitive emissions
  - Emissions associated with startups, shutdowns, and malfunctions
- Is adjusted downward to exclude non-compliant emissions that occurred while the source was operating above any emission limitation that was legally enforceable during the consecutive 24-month period
- Note: Although malfunction emissions are to be included, these may be adjusted downward to the limit (noncompliant emissions do not count toward BAE)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – BAE for Existing Non-EUSGU

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- Average rate, in TPY, at which the unit actually emitted the pollutant [40 CFR § 52.21(b)(48)(ii)]
  - During any consecutive 24-month period selected by the owner/operator
  - Within the 10-year period immediately preceding the earlier of:
    - When the owner/operator begins actual construction of the project
    - When the complete permit application for an NSR permit is filed
  - Baseline period cannot include any period prior to 11/15/1990

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – BAE for Existing Non-EUSGU

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- Includes
  - Quantifiable fugitive emissions
  - Emissions associated with startups, shutdowns, and malfunctions
- Is adjusted downward to exclude non-compliant emissions that occurred while the source was operating above any emission limitation that was legally enforceable during the consecutive 24-month period
- *Note: Although malfunction emissions are to be included, these may be adjusted downward to the limit (noncompliant emissions do not count toward BAE)*

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – BAE (non-EUSGU only)

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- Additional downward adjustment mandatory for any emissions that would have exceeded a limitation with which the source must currently comply, including
  - Voluntary limits, if enforceable
  - Limits derived from consent decrees, permit terms, NSPS, BACT, LAER, RACT, etc.
  - MACT only if relied on by state in attainment planning
  - Numeric emissions limits, limitations on fuel and raw material use and composition, limits on operating hours, work practice requirements, equipment design standards
- “Currently,” for contemporaneous changes, means any requirement that existed just prior to the date of the contemporaneous change [67 FR 80197]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – BAE for Existing Non-EUSGU

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- Enforceable voluntary limits [26W]:
  - If a pollution control system is made enforceable, the requirement to adjust downward may go beyond the applicable limit
  - Considering requirement to “operate” the control as “emission limit”, especially if condition is to operate so as to minimize emissions
  - Adjustment may need to be down to actual performance in place of applicable limit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 (PSD and Appendix S)– BAE

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- Can use different consecutive 24-month periods for each pollutant, but:
  - For projects involving multiple units, only one consecutive 24-month period may be used per pollutant
  - Cannot use a 24-month period where information is inadequate to
    - Determine annual emissions and
    - Adjust for non-compliant emissions

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – BAE Determinations

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- 2015 EPA comments on Exxon Joliet project [15M]
  - CEMS data should be used if available even for part of the 24 month period
  - Where no CEMS data, should include basis for emission factors and methodology
  - Emissions that exceed the currently applicable CD limitations will need to adjusted downward

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### Step 2 – Actual-to-Projected-Actual (BAE to PAE) Under NSR Reform Rule

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- Preconstruction applicability test for existing emissions units is based on actual-to-projected-actual test, but...
- According to 40 CFR § 52.21(a)(2)(iv)(b): “Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.”

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### Step 2 – Projected Actual Emissions (“PAE”)

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- From 40 CFR § 52.21(b)(41)(ii)(d): Owner/operator may elect to use PTE rather than making a projection
  - Upside (per EPA):
    - Less work
    - Avoid recordkeeping obligations
    - Less enforcement liability
  - Downside:
    - Likely overstates the emissions increase that will actually result from the project
    - Cannot exclude unrelated emissions that the units could have accommodated [55P][55I]

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### Step 2 – Projected Actual Emissions

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- Enforceability of PAE?
- “We (EPA) also believe that it is not necessary to make future projections enforceable in order to adequately enforce the major NSR requirements. The Act provides ample authority to enforce the major NSR requirements if physical or operational change results in a significant net emissions increase at a major stationary source” [67 FR 80204]

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### Step 2 – Projected Actual Emissions

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- Use of emissions control systems at the affected units
- “For the purposes of projected actual emissions, the design and operational parameters can include air pollution control equipment installed and operated on a unit regardless of whether such equipment is legally enforceable. This approach provides consistency between the way voluntary controls are considered in calculating projected actual emissions and baseline actual emissions, thereby more accurately resolving increases in emissions resulting from physical or operational changes” [46B, 53R]

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### Step 2 – Projected Actual Emissions

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- Defined at 40 CFR § 52.21(b)(41)
- Estimated by the owner/operator
- The maximum annual emissions rate, in tons per year, at which the existing emissions unit is projected by the owner/operator to emit the regulated NSR pollutant
- Projection period is
  - “any consecutive twelve (12) month period of the five (5) years following the date the unit resumes regular operation after the project”
  - Extended to 10 years if the project involves increasing the emissions unit’s design capacity or its potential to emit that regulated NSR pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase

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### Step 2 – Projected Actual Emissions

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- Includes fugitive emissions and emissions associated with startups, shutdowns and malfunctions [19S]
- *Note: Here malfunction emissions are to be included, but with no downward adjustment to the limit*

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## Step 2 – Projected Actual Emissions

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- In determining PAE, source owner/operator “shall consider all relevant information,” including but not limited to:
  - Historical operational data
  - The company’s own representations
  - The company’s expected business activity and the company’s highest projections of business activity
  - The company’s filings with the State or Federal regulatory authorities
  - Compliance plans under the approved SIP
- PAE and any subsequent revisions will need to be justified based on factors above [15M] [55P]

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## Step 2 – Projected Actual Emissions

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- EPA’s 2002 preamble says PAE is calculated as the product of:
  - “hourly emissions rate, which is based on the emissions unit’s operational capabilities following the change(s), taking into account legally enforceable restrictions that could affect the hourly emissions rate following the change(s)” and
  - “the projected level of utilization, which is based on both the emissions unit’s historical annual utilization rate and available information regarding the emissions unit’s likely post-change capacity utilization.” [67 FR 80186 at 80196]

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## Step 2 – Projected Actual Emissions

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- Codified rule language does not prescribe how PAE is calculated
- Using EPA’s terms, “capacity utilization” is more than utilization of production capacity, but comprises all factors affecting utilization of the unit’s capacity to emit:
  - Fuel and raw material composition and other impacts to emission factors
  - Production capacity
  - Reliability, efficiency, economics, and other impacts to utilization of production capacity

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## Step 2 – Projected Actual Emissions

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- Projection may be based on the highest capacity factor for the post project period
- However, highest emissions may not coincide with highest capacity factor if there's a pollution control project or a fuel switch
- Projection period may be 10 years if there's an increase in capacity or PTE and full utilization will result in significant emissions increase

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## Step 2 – PAE: Excludable Emissions

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- 40 CFR § 52.21(b)(41)(ii)(c):
- In calculating the increase that results from the project, the source shall exclude:
  - That portion of the unit's emissions following the project that could have been accommodated during the consecutive 24-month period used to establish BAE, and
  - That are unrelated to the particular project, including any increased utilization due to product demand
- Excludable portion of emissions increase includes those that:
  - (1) The unit could have accommodated

*AND*

  - (2) Are unrelated to the project

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## Step 2 – PAE: Excludable Emissions

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- For purposes of calculating emissions increases at 40 CFR § 52.21(b)(41), PAE is addressed as follows:
  - As the projected actual emissions, including "excludable" emissions, per (b)(41)(ii)(a)-(b)
  - As the projected actual emissions, excluding "excludable" emissions, used in calculating emissions increases, per (b)(41)(ii)(c)
    - Sometimes referred to as "demand growth exclusion"
- Excludable emissions *portion* of unit's emissions after the project [53S]
- PAE after exclusion for calculating increase will be termed "adjusted PAE" or "APAE"

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## Step 2 – PAE: Excludable Emissions

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- EPA’s explanation of some of the situations where demand growth exclusion may apply:
  - Skyrocketing demand because the product becomes a fad
  - Mishaps at a factory causing production increases at remaining supplier sources
  - Decrease in raw material prices
  - Opening of new markets
  - Improved economic conditions

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A More Detailed Look

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## EXCLUDABLE EMISSIONS OR “DEMAND GROWTH” EXCLUSION

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## Excludable Emissions: Example

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- Major Source consists of Units A, B and C
- Unit A
  - Manufactures widgets that are conveyed to nearby Unit B.
  - VOC PTE of 900 tpy
  - VOC BAE of 400 tpy
- Source proposes to add a conveyor line going to Unit C to expand its market (in anticipation of a slowdown in orders from Unit B)
  - Either conveyor (A-B or A-C) could handle the full 900-tpy equivalent amount of material from Unit A.

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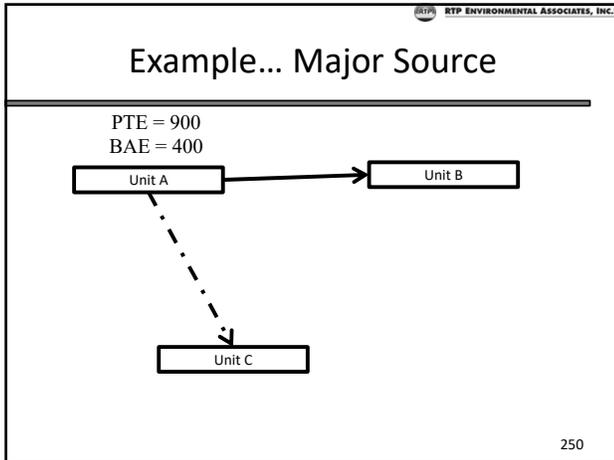
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### Example...

– All of Unit A's PAE resulting from production for Unit B are excludable

- Unit A *could have accommodated those emissions* during the baseline period (possibly up to 900 tpy)
- Emissions associated with production for Unit B are *unrelated* to the A-C conveyor project

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### Example...

– None of Unit A's emissions resulting from production for Unit C are excludable

- Unit A *could have accommodated those emissions* during the baseline period (possibly up to 900 tpy), *but*
- Emissions associated with production for Unit C are *related* to the A-C conveyor project

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### Example...

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- Source must project its emissions following the project and exclude the “demand growth” emissions
- Let’s look at the Unit A emissions projections for the first two years

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### Year 1 Example...Unit A

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- Unadjusted PAE is estimated at 485 tpy
  - 35 tpy emissions attributable to Unit C and
  - 450 tpy attributable to Unit B.
- There is a projected increase of 85 tpy (485 tpy PAE v. 400 tpy BAE)
- In calculating the amount of the increase that results from the A-C conveyor project, some portion of PAE is obviously excludable, but what portion?

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### Year 1 Example...

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- All the Unit B-related emissions (all 450 tpy) meet both exclusion criteria, but:
  - 400 tpy of that 450 is also, in effect, part of the BAE of Unit A
  - We are supposed to adjust PAE by excluding demand growth emissions and then subtracting out BAE
  - But using 450 as the demand growth exclusion is, in effect, double-counting the 400 tpy BAE
- Therefore, the most logical approach is to assign only the 50 tpy increase as demand growth (DG) and the 400 tpy as baseline, so  $485 - 400 - 50 = 35$  tpy

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### Year 1 Example...

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- So, for Year 1:  
 $DG = (PAE_{w/o\ project} - BAE) =$   
 $450 - 400 = 50\ tpy$
- And  
 $\Delta = (PAE_{w/project} - DG) - BAE =$   
 $(485 - 50) - 400 =$   
 $435 - 400 = 35\ tpy$

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### Year 1 Example...

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- Rule language therefore is not very useful
- One way to reduce confusion is to project PAE with and without the proposed project
  - Determine the difference between PAE without the project and BAE
  - That difference is the DG emissions (the emissions increase that would occur regardless of the project)
  - Then subtract DG from PAE with the project and, finally, subtract BAE from that amount to get the increase in emissions due to the project

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### Step 2 – Projected Actual Emissions

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- This can be better understood using a diagram to provide an overview of the relationship between PAE with and without the project, BAE, and Excludable Emissions (EE) (see next slide)
- As the diagram shows,
  - EE is the difference between PAE without the project and the BAE
  - Emissions attributable to the project are PAE with the project minus the BAE, minus EE (although more formally we deduct EE from PAE with the project first, then deduct BAE)

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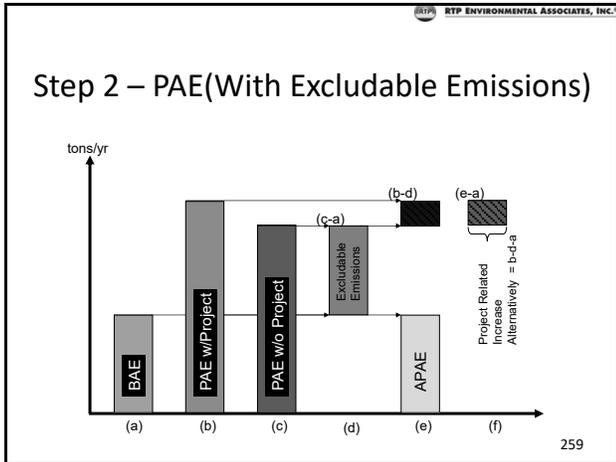
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### Year 2 Example...

- PAE is estimated to be 400 tpy with the project, but
  - 400 tpy emissions attributable to Unit C and
  - 0 tpy attributable to Unit B.
- PAE without the project is 0 tpy (Unit B won't be used and Unit C can't be used without the project)
- We don't really need to do the calculations for this one, because it's obvious there is no increase (PAE is the same as BAE)
  - This illustrates an important point: DG emissions are useful and needed only when an increase in emissions over BAE is anticipated

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### Step 2 – Projected Actual Emissions

- Note that the portion of PAE that the unit could have accommodated during the baseline period should be based on either
  - The rate actually achieved over some time period, extrapolated to an annual rate, with appropriate adjustments (such as for outages)
  - Engineering analysis, identifying physical constraints and determining capability based on those constraints [29K, 53S]

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## Step 2 – Exclusions from Emissions Increases

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- Excludable Emissions Questions:
  - Are those emissions unrelated to the project? Factors to consider related to pre-project baseline:
    - Will the emission factor change? Why?
    - Will production capacity increase? Why?
  - Will utilization of production capacity increase? Why?
    - Demand growth?
    - Efficiency/economics?
    - Reliability?
  - Could the affected unit have emitted up to the level above BAE if called upon (availability factor)
- BAE and excludable emissions should be based on identical emission factors unless difference can be justified [55P]

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## Step 2 – Excludable Portion of Emissions Increases, EPA Guidance

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- 2013 EPA comments on Columbian Chemicals’ Heat Exchanger Project (slide 1 of 2)[535]
  - Columbian used ‘efficiency’ or ‘yield’ of the unit before the project as the level existing unit ‘could have accommodated’ following the project
  - Since the project will improve production yield and lowered emissions per unit produced
    - Use yield of the unit after the project and the production rate the unit could have accommodated during the baseline and “exclude” any demand growth related to the project (some or all of the increased production may be related to the project)
    - Results in emissions that the unit the could accommodate and that are unrelated to the modification
  - Columbian used pre-project emission factor to calculate the excludable emissions; EPA noted that PAE is based on a lower emission factor (project would improve yield) so post-project emission factor should be used

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## Step 2 – Excludable Portion of Emissions Increases, EPA Guidance

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- 2013 EPA comments on Columbian Chemicals’ Heat Exchanger Project (slide 2 of 2)[535]
  - Two potential methods for establishing production level the unit could accommodate
    - Identify actual production rates over some period of time that the unit could consistently achieve, and then annualize those rates
    - Identify the physical constraints at the unit that limited its production and determine the unit’s capability based on the maximum rate allowed by these constraints. This method would require more detailed justification and supporting engineering analysis/calculations since it would not solely rely on actual production data
  - Other acceptable methods for providing additional support for determining the production rate the unit could accommodate may be available
  - EPA expressed skepticism regarding whether “demand growth” is unrelated to the project and recommended KDHE “look at company documents related to the funding request for the project, to see if Columbian discussed the project as being unrelated to the projected future production rates”

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## POST-PROJECT EMISSIONS

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### Step 2 – Projected Actual Emissions

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- Getting back to PAE, there is still considerable controversy regarding
  - The role of PAE versus actual post-project emissions (which may well be different from PAE)
  - DG and the rationale and justification for excluding these emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Project Emissions Increases: Role of Post-Project Actual Emissions

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- EPA has consistently held that what is actually emitted after a project is less important than what was (or should have been) projected
- This issue has been raised in litigation for DTE Monroe project and other cases
- So far courts have sided with EPA as noted in various court opinions (DTE, Ameren etc.)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- EPA in 2010 initiated enforcement against DTE for a boiler tube replacement project, alleging PSD violation
  - Based on disagreement with DTE’s applicability analysis, particularly exclusion of projected emissions increases

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- EPA’s objection to DTE’s analysis:
  - “The company also artificially inflates the price of electricity from time-to-time with the express purpose of temporarily depressing generation from a given unit, such that no annual emissions increase would be reported to regulatory authorities.”
  - “These tactics are temporary measures to avoid NSR, but the types of ‘life extension’ projects at issue can add decades to the life of a power plant.”

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- EPA’s objection to DTE’s analysis, cont’d.:
  - “EPA has also stated, in an applicability determination from Administrator Lisa Jackson, that a source cannot avoid NSR by artificially managing emissions to stay within its baseline.... The Columbia Generating order rejects precisely what DTE asks to do here: go ahead with the project and then ‘manage’ emissions to stay within baseline levels.”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Projected Actual Emissions--DTE

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– In August 2011, a Michigan District Court determined in a Summary Judgment Opinion that DTE had complied with its obligations under the Reform Rule and had not, as yet, violated the CAA by constructing without a PSD permit. [44R]

- In USA and NRDC and Sierra Club v. DTE Energy Company and Detroit Edison Company, plaintiffs argued that DTE violated the CAA by renovating an EUSGU at their Monroe, Michigan power plant without first obtaining a NSR permit for a major modification from Michigan. DTE contended that no such permit was required and sought summary judgment, which was granted.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Projected Actual Emissions--DTE

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- *Background (per EPA)*
  - The night before beginning a \$65 million overhaul at Monroe Unit #2, Detroit Edison sent state regulators an analysis predicting pollution increases 100 times larger than required for NSR applicability
  - Detroit Edison “claimed to be exempt from NSR for certain purely legal reasons unrelated to the issues on appeal” [50C-11]
  - Now Detroit Edison says only post-project pollution data can trigger NSR
  - Meanwhile, Detroit Edison “puts off installing pollution controls that would sharply decrease emissions and save nearly 100 lives per year by reducing air pollution downwind of the plant.”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 2 – Projected Actual Emissions--DTE

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- In granting summary judgment to DTE, the U.S. District Court (E.D. Michigan) held that:
  - DTE abided by its statutory and regulatory obligations because no permit (as yet) was required for the project
  - DTE’s Notice Letter, while “not very specific,” met the regulatory requirements

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- Plaintiff argued that the project was a major modification and should have had a PSD permit
  - DTE argued that their projection indicated that the increase would not be significant
  - Projections were reported to the DEQ and actual emissions would be monitored
  - DTE acknowledged that they did not obtain a (major NSR) permit and that, based on actual measurements, the project “may eventually prove to be a ‘major modification.’”
  - However, DTE argued that that determination “cannot be made until the completion of the first year for which such measurements are required.” Therefore, any post-construction enforcement action is premature.

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**Step 2 –  
Projected Actual Emissions--DTE**

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- The judge agreed with DTE’s analysis and rejected EPA’s arguments:
  - The 2002 NSR rules (and Michigan’s SIP) lessen the pre-construction burden on existing facilities so long as certain requirements are met. Source can either:
    - Get a permit before commencing its project, or
    - Measure emissions afterward and run the risk of an enforcement action
  - Allows source to “pursue necessary maintenance work without the expensive, burdensome and potentially unnecessary permitting requirements”

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- The Judge also dismissed arguments that:
  - DTE’s notice was untimely (filed the day before construction commenced, but no requirement in rule regarding how far in advance notice must be submitted)
  - Notice Letter contained “boilerplate” language (contained all information expressly required by the rule)
  - DTE should have provided an explanation of the basis for excluding emissions, but did not (explained, although not very specifically)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- Very unhappy with the DTE decision, EPA appealed and took steps to limit the effect of decision:
  - In January 2013, Region 5 takes the position that if Saint-Gobain Containers deliberately lowers its production rate to avoid PSD, it is not using the “representative actual annual emissions of the unit” following the change. [51A]
  - In March, Region 5 issues a Notice and Finding of Violation to DTE for alleged PSD, NSR and Title V violations at 5 power plants [51K]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- 3/28/13 -- 6<sup>th</sup> Circuit reverses and remands District Court’s DTE decision
  - However, the Court cautioned that
    - (a) it was not endorsing EPA’s preconstruction calculation approach and
    - (b) it is “entirely consistent with the statute and regulations” for an operator to intentionally keep post-construction emissions down.
  - In effect, the remand is limited: the projections must be made pursuant to the regulations and can be enforced against if they are not.
  - A number of statements in the opinion were extremely damaging to EPA’s position [51H]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Step 2 –  
Projected Actual Emissions--DTE**

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- *The original District Court and the 6<sup>th</sup> Circuit decisions were bad enough (for EPA), but then, on 3/3/14, came the District Court’s opinion on remand: [53J]*
  - The District Court ruled on defendants’ (DTE) renewed motion for summary judgment
    - *The Court incorporated its earlier summary of the underlying facts and regulatory scheme*
    - *Instructions from the 6<sup>th</sup> Circuit were to “evaluate whether defendants adhered to EPA’s regulations governing preconstruction emission projections...”*
  - *“The Court concludes that they have.”*

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## DTE...

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- The Judge again sided with DTE granting its summary judgment [53J-2]
  - Operators have to make projections according to the requirements in the regulations
  - “This does not mean that EPA possesses unfettered authority to challenge the methodology and factual assumptions defendants’ used to predict their post-project emissions.”
  - “EPA is only entitled to conduct a surface review of a source operator’s preconstruction projections to determine whether they comport with the letter of the law.
    - Anything beyond this cursory examination would allow EPA to “second-guess” a source operator’s calculations; an avenue which the Sixth Circuit explicitly foreclosed to regulators.”

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## DTE...

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- EPA does not contend that defendants violated any of the agency’s regulations when they computed PAE
- Rather, EPA takes defendants to task over the extent to which they relied upon the demand growth exclusion to justify their projections. (emphasis added by the Court)
  - “This is exactly what the Sixth Circuit envisioned when it precluded EPA from second-guessing” the preconstruction projections.
  - Moreover, EPA does not point to any regulation requiring source operators to demonstrate the propriety of their demand growth exclusion calculations. And without adequate proof that defendants violated the regulations governing preconstruction emission projections, “the instant action cannot withstand summary judgment.”

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## DTE...

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- “[S]ince its own preconstruction emission projections are now verifiably inaccurate, the government is unable to show that the renovations to Unit 2 constituted a major modification.”
- “Even assuming that EPA’s reviewing authority is as broad as the agency claims, the Court is bewildered by the prospect of what, if anything, the agency stands to gain by pursuing this litigation.” [53J-3]
  - The assertion that defendants misapplied the demand growth exclusion is belied by the fact that the actual post-project emissions from Unit 2 never increased
  - “Therefore, since its own preconstruction emission projections are now verifiably inaccurate, the government is unable to show that the renovations to Unit 2 constituted a major modification.”
  - Until an emissions increase traceable to the construction occurs, any EPA enforcement action related to Unit 2 renovations would be premature

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## DTE Appeals Court 2

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- EPA appealed the district court’s decision to the 6<sup>th</sup> Circuit Court of appeals for a second round [60I]
- 6th Circuit panel in Jan 2017 again remanded [59M]:
  - “[I]n reviewing an operator’s attribution of increased emissions to demand growth, the EPA definitely is not confined to a ‘surface review’ or ‘ cursory examination’”
  - “The district court erred initially and again on remand when it ruled that post-construction data could be used to show that a construction project was not a ‘major modification’”
  - “EPA cannot evaluate a fact-dependent claim on a case-by-case basis unless the operator supplies supporting facts, which the record establishes was not done here”

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## DTE Appeals Court 2

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- 6th Circuit panel in Jan 2017 again remanded [59M]: (continued)
  - “[R]egulation [does] not say that the EPA has to accept projections at face value or that it is prohibited from questioning their legitimacy”
  - “DTE did not and could not establish that the increase in emissions could have been accommodated during the baseline period”
  - “DTE did not and could not establish that the increase in emissions was unrelated to the construction process”
- The case was appealed to the US Supreme Court. Cert was denied in 12/2017, so the case went back to the District Court. Then, the 2017 Pruitt Memorandum [62J] effectively ended EPA’s appeal efforts, so there has been no new District Court opinion.

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## Pruitt Memorandum for ATPA

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- Issued on 12/7/2017 to address presidential priorities for streamlining permitting and provide clarity [62J]
- Addresses how EPA intends to apply ATPA test
  - OK to manage future emissions as “all relevant information” is to be considered in PAE
  - Exercise judgement to exclude increases in emissions where the project is not the “predominant cause” [45 FR 32,237]
  - Post project actual emissions can be used in determination
  - EPA does not intend to ‘second guess’ projections
  - Future enforcement based failure to follow ATPA process or on actual emissions showing significant emissions increases
- However, on 12/9/22, EPA rescinded the Pruitt Memorandum “in its entirety”. [62J]

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## CALCULATIONS

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REPLACEMENT UNITS

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## Units That Replace an Existing Unit ("Replacement Units")

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- Prior to reform rule, 'replacement units' were not treated differently than other new units
  - Post-change actual emissions were presumed equal to PTE
  - Emissions from replaced unit were not considered (i.e., no "project netting")
- But EPA has acknowledged that agency adherence to this policy was inconsistent [71 FR 54235 at 54248]

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## Replacement Units

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- Policy "clarified" in November 2003 NSR Reconsideration Rulemaking [68 FR 63021]
  - "We have decided to continue to allow the owner or operator of a major stationary source (you) to use the actual-to-projected-actual applicability test to determine whether installing a replacement unit results in a significant emissions increase"
  - Revised definition of "emissions unit" provides that "replacement units" are "existing emissions units"

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### “Replacement Unit” (40 CFR § 52.21(b)(33))

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- Is defined as an emissions unit meeting following criteria:
  - The emissions unit is a reconstructed unit within the meaning of 40 CFR § 60.15(b)(1), or it completely takes the place of an existing emissions unit
  - It is identical to or functionally equivalent to the replaced emissions unit
  - The replacement does not alter the *basic design parameters* of the *process unit*
  - The replaced emissions unit is permanently removed, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter
- No creditable emission reductions shall be generated from shutting down the existing emissions unit that is replaced

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### “Basic Design Parameters” {Vacated}

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- This was a definition added to the rule with the October 2003 Equipment Replacement Provision (“ERP”) rulemaking [68 FR 61248]
  - Term was relied on in November 2003 NSR Reconsideration Rulemaking
  - ERP rulemaking was vacated for other reasons, so rule provisions regarding basic design parameters are not in effect, but the definition still indicates EPA’s intent in defining “replacement unit”
  - On 12/20/19, EPA proposed removing the vacated language, but adding definitions of “basic design parameters” and “process unit” into the definition of “replacement unit” [84 FR 70092]
  - However, based on comments received, EPA decided in the final rule on 7/19/21 [86 FR 37918] to remove all of the ERP rule from the regulations. EPA noted in the preamble that EPA and stakeholders can continue to look to the vacated definitions to “guide their understanding” of “replacement unit”.
  - But EPA approves of the addition of these definitions into State PSD rules, as evidenced by EPA’s proposed approval of Illinois’ PSD rule on 4/28/21 [86 FR 22372]. The FR Notice cites to similar approvals for Arizona, Texas, and Georgia (at p. 22375)

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### “Basic Design Parameters”- Definition

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- For steam electric generating units, either maximum hourly heat input and maximum hourly fuel consumption rate or maximum hourly electric output rate and maximum steam flow rate.
- For other process units, maximum rate of fuel or heat input, maximum rate of material input, or maximum rate of product output.
- Determined using “credible information, such as results of historic maximum capability tests, design information from the manufacturer, or engineering calculations.” Where design information is not available, must use performance data from the five-year period immediately preceding the planned activity.
- “Efficiency” is not a basic design parameter as major NSR is not “intended to impede industry in making energy and process efficiency improvement” [68 FR 63024]

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## Process Unit - Definition

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- Any collection of structures and/or equipment that processes, assembles, applies, blends, or otherwise uses material inputs to produce or store an intermediate or a completed product
  - Stationary source may contain more than one process unit, and a process unit may contain more than one emissions unit
  - Pollution control equipment is not part of the process unit, unless it serves a dual function as both process and control equipment

This definition, like “basic design parameter” was stayed by ERP vacatur. In 2019, EPA proposed to remove the vacated language but then add the definitions of “process unit” and “basic design parameters” to the section on replacement units. [84 FR 70092]. However, based on comments received, EPA decided in the final rule on 7/19/21 [86 FR 37918] to remove all of the ERP rule from the regulations. EPA noted in the preamble that EPA and stakeholders can continue to look to the vacated definitions to “guide their understanding” of “replacement unit”.

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## Process Unit - Examples

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For a steam electric generating facility, the process unit consists of those portions of the plant that contribute directly to the production of electricity. For example, at a pulverized coal-fired facility, the process unit would generally be the combination of those systems from the coal receiving equipment through the emission stack (excluding post-combustion pollution controls), including the coal handling equipment, pulverizers or coal crushers, feedwater heaters, ash handling, boiler, burners, turbine-generator set, condenser, cooling tower, water treatment system, air preheaters, and operating control systems. Each separate generating unit is a separate process unit.

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## Process Unit - Examples

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For a petroleum refinery, there are several categories of process units: those that separate and/or distill petroleum feedstocks; those that change molecular structures; petroleum treating processes; auxiliary facilities, such as steam generators and hydrogen production units; and those that load, unload, blend or store intermediate or completed products.

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## Process Unit - Examples

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For an incinerator, the process unit would consist of components from the feed pit or refuse pit to the stack, including conveyors, combustion devices, heat exchangers and steam generators, quench tanks, and fans.

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## Replacement Unit

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- In a Feb 2020 draft guidance, EPA clarified that baseline actual emissions from the unit that was replaced carry over to the 'replacement unit' [66T]
  - For initial and any subsequent NSR analyses
  - For purposes of PAL level calculations

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## Replacement Unit

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- In a 2015 letter for ADM Project, EPA observed [55P]
  - Replacing existing units with fewer new units may not meet the 'identical,' 'functionally equivalent,' or 'basic design parameters' criteria
  - Questioned how having 'nominal' capacities of new and existing units as 'approximately equivalent' satisfies 'identical' or 'functionally equivalent'
  - For the two set of equipment to be identical or functionally equivalent, all parameters pertaining to unit's operation must be evaluated

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## Replacement Unit

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- In a May 2017 letter for Hilcorp Project (replacing 5 old engines with 3 new units), EPA observed [60X]
  - Heat input for three engines being ‘essentially’ equal to the five older engines does not satisfy “basic design parameter” criteria
  - Proposed to replace 5 engines (2 diesel and 3 NG) with 3 new engines (diesel); total hp increases by 21%
  - Agencies assumed, without deciding, that the process unit is the group of engines rather than each engine
  - “Clearly, the basic design parameters ... - fuel type and horsepower output - have been altered with this modification.”

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## Replacement Units

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- In a March 2018 letter, EPA R3 responded to a “general question about whether ... a change in fuel type precludes the use of the Replacement Unit provision” [65M]
  - EPA declined to weigh in on specifics of proposed boiler replacement at Newport News Shipbuilding
  - “... in no instance do the rules identify ‘fuel type’ as determinative in Replacement Unit qualification. Accordingly, a change in fuel type, in and of itself, does not preclude an equipment replacement from satisfying the requirements of the Replacement Unit provision.”
  - Acknowledged that change in fuel type “contributed to” the determination regarding basic design parameters in [60X], but distinguished based on “fundamental design differences - specifically, spark ignition versus compression ignition.”

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## CALCULATIONS

### DEBOTTLENECKED UNITS

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## Debottlenecked processes

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- EPA policy since 1983 to count emissions changes due to debottlenecking [14M]
- Bottlenecking means that a process is physically limited by at least one unit in the process to a level below what at least one other unit can achieve
- When the unit creating the bottleneck is modified to eliminate or partially alleviate the bottleneck, the process is considered debottlenecked

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## Bottlenecked Process

Units A and C are bottlenecked by Unit B. Unit B cannot handle the amount Unit A can process and cannot provide the amount Unit C can process.

The diagram shows three cylindrical units in a row, labeled A, B, and C. Unit A is on the left with an arrow pointing into it from the left and an arrow pointing from it to Unit B. Unit B is in the middle with an arrow pointing from it to Unit C. Unit C is on the right with an arrow pointing from it to the right. Below each unit is its name and capacity: A: 120 Units/hr, B: 60 Units/hr, C: 100 Units/hr.

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## Debottlenecking Unit A

Unit A is not bottlenecked if there is physical equipment that can, combined with Unit B, handle all of Unit A's throughput. Note in this example that Unit C is still bottlenecked.

The diagram shows three cylindrical units in a row, labeled A, B, and C. Unit A is on the left with an arrow pointing into it from the left and an arrow pointing from it to Unit B. Unit B is in the middle with an arrow pointing from it to Unit C. Unit C is on the right with an arrow pointing from it to the right. Below each unit is its name and capacity: A: 120 Units/hr, B: 60 Units/hr, C: 100 Units/hr. A callout box with an arrow pointing to Unit B contains the text: "60+ Units/hr capacity to ship elsewhere and bypass Unit B".

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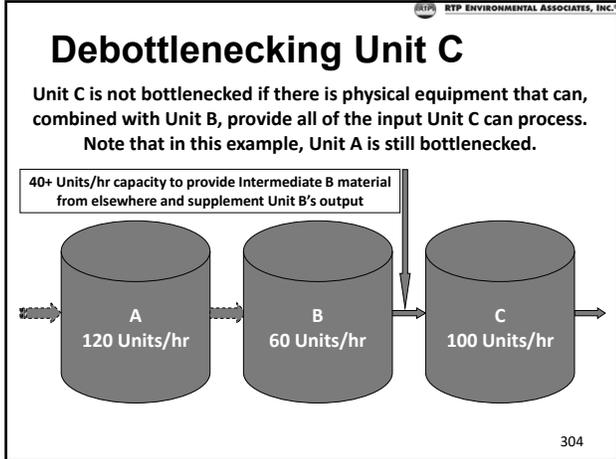
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## Partially Debottlenecking Entire Process (Unit B Capacity Increased)

Parameter	Units	Unit A	Unit B	Unit C
Unit capacity	Widgets/hr	120	60	100
Bottlenecked process capacity	Widgets/hr	60	60	60
Unit PTE	TPY	240	120	200
Bottlenecked PTE	TPY	120	120	120
2-yr Average Actual Emissions (BAE)	TPY	<b>80</b>	<b>80</b>	<b>80</b>
Debottlenecked process capacity	Widgets/hr	100	100	100
Debottlenecked Future Emissions (PAE)	TPY	<b>140</b>	<b>140</b>	<b>140</b>
Δ Emissions Increase (PAE-BAE)	TPY	<b>60</b>	<b>60</b>	<b>60</b>

NOTE: Emission factor is: each widget/hour (operating continually) = 2 tpy

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## CALCULATIONS

INCREASED UTILIZATION

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## Increased utilization

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- Has existed as policy since about 1993
  - Often confused with debottlenecking
  - However, these units are not bottlenecked. They will be used more as a result of the proposed modification
  - Calculation used in 1993 memo is to multiply the maximum utilization increase by the appropriate emission factor
  - Reform rule instead requires PAE (or PTE) to BAE calculation

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## CALCULATIONS

STEP 2: PROJECT EMISSIONS INCREASE

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## Step 2 – Project Emissions Increase

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- So, getting back to the emissions increase that will occur as a result of the project, we need to know whether the project consists of only new emissions units, only existing emissions units, or both types

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### Step 2 – Project Emissions Increase ("PEI")

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- Calculate PEI in accordance with 40 CFR § 52.21(a)(2)(iv). If the 'project' affects:
  - only new emissions units, use the 'new emissions unit' test
  - only existing emissions units, use the 'existing emissions unit' test
  - both new and existing emissions units, use the hybrid test
- Compare with significant emission rates for regulated NSR pollutants in 40 CFR § 52.21 (b)(23)
- Remember, units less than two years old are "new emissions units"
- "Reasonable possibility" determination also uses PEI

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### Step 2 – Project Affects only New Units

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- "Sum of the difference" between PTE and baseline for each unit
  - For initial installation, always an increase
  - For subsequent changes, could be a decrease if project reduces PTE
  - 'Project netting' is allowed based on 2002 preamble and rule language and explicitly allowed in 11/24/2020 final rule [85 FR74890]

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### Step 2 – Project Affects only Existing Units

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- "Sum of the difference" between PAE and BAE for each unit
- Counts decreases from each unit at which PAE is less than BAE
- 'Project netting' is allowed under the regulatory text
  - "Use of the phrase 'sum of the difference' between projected and baseline emissions indicates that one must look at the difference between the projection and the baseline. That difference may either be a positive number (representing a projected increase) or a negative number (representing a projected decrease). In either case, the values must be taken into consideration in determining the overall increase, or decrease, in emissions resulting from the project." See September 2006 preamble [71 FR 54235]
  - EPA changed policy in 2010 to reverse this interpretation without required rulemaking re project emission calculations [27], 28W, 46B, 46U]
  - EPA reversed the earlier reversal in Project Emissions Accounting (Pruitt) memo issued in 2018 discussed in later slides [65H]
  - EPA explicitly allowed project netting in 11/24/2020 final rule [85 FR 74890]

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### Step 2 – Hybrid Test for Project Increase

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- Rather than sum of the differences, rule requires “sum of the emissions increases for each emissions unit, using the method specified in paragraphs (a)(2)(iv)(c) through (d) of this section as applicable with respect to each emissions unit”
- From 2006 preamble [71 FR 54235]:
  - “... in this case, the phrase ‘sum of the emissions increases for each emissions unit’ is used, which challenges whether an emissions increase at an individual emissions unit can be a negative number.
  - “The current rule, however, would not allow a source to include reductions from units that are part of the project until Step 2 of the calculation.”
- However, EPA explicitly allowed project netting in 11/24/2020 final rule [85 FR 74890]

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### Step 2 – Hybrid Test for Project Increase

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- Use the new unit test for each new unit
- Use the existing unit test for each existing unit
- Sum the increases

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### OTHER ISSUES UNDER MAJOR MODIFICATION APPLICABILITY

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## Step 2 – Project Netting

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- EPA Administrator issued “Project Emissions Accounting” or “PEA” memo on 3/13/2018 [65H]
  - “EPA no longer subscribes to the reading of the NSR regulations reflected in March 30 HOVENSA letter.” [27] Footnote 16
  - Recognizes that “use of the phrase ‘sum of the difference’ in the existing unit and new unit tests makes the allowance for project netting (i.e., counting both increases and decreases in determining the emissions impact of the project)
  - Also interprets the rule language governing the hybrid test to allow consideration of decreases, at least on a unit type-by-unit type basis.
  - Policy formally announced Mar. 30, 2018 [83 FR 13745]
  - Litigation in D.C. Circuit (Case #18-1149) currently held in abeyance pending “project netting” rulemaking
  - On 8/9/19, EPA proposes to revise the NSR applicability regulations to clarify that both emissions increases and decreases that result from a given proposed project are to be considered at Step 1 of the NSR major modification applicability test. Also, the proposal replaces and withdraws the 2006 Project Netting Proposal. [84 FR 39244]
  - On 11/24/2020, EPA explicitly allowed project netting in a final rule [85 FR 74890]

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## Re-starting Sources

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- A source that was shut down and is now being restarted may trigger PSD review:
  - Reactivation Policy – 2 year presumption (to be discussed next)
  - Physical Changes – is the work necessary to make unit operational “routine maintenance?”
  - “Change in the Method of Operation” – Even if the two methods above don’t trigger major NSR review, the increase in emissions may be enough to support a “change in the method of operation” finding [1T]

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## Re-starting Sources

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- Reactivating a “permanently” shut down source makes it ‘new’ under PSD
- A source shutting down for more than 2 years is a new source if restarted, unless State continued to carry the source in the emission inventory.
  - This presumption can be rebutted by providing evidence that the shutdown was not intended to be permanent
  - Necessary maintenance work was performed to allow startup in a timely manner with minimum amount of work
  - Another factor is whether the shutdown was considered as a decrease in a netting calculation
  - Also, the allowable emissions level as of the date of shut down cannot increase upon reopening

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## Re-starting Sources

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- Permanence is determined by the intention of the owner or operator at the time of the shutdown as determined from all the facts and circumstances, including the cause of the shutdown and the handling of the shutdown by the State
- Amerada Hess demonstrates that a 1974 shutdown was not intended to be permanent and avoids PSD when the units are reactivated in 1982 [32A]

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## Re-starting Sources

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- The key determination is whether, at the time of shutdown, the owner or operator intended the shutdown to be permanent.
  - In practice, after two years, statements of original intent are not considered determinative. Instead, EPA assesses whether the owner or operator has demonstrated a continuous intent to reopen.
  - To make this assessment, EPA looks at activities during the shutdown that provide evidence of the continuing validity of the original intent not to permanently shut down.

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## Re-starting Sources

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- Owners/operators must continuously demonstrate concrete plans to restart the facility sometime in the reasonably foreseeable future.
- If they cannot, this suggests that for at least some period of the shutdown, the shutdown was intended to be permanent.
- Once it is found that there is no real plan to restart a particular facility, the owner/operator cannot overcome this suggestion by later pointing to the most recent efforts to reopen the facility.

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## Re-starting Sources

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- Restarting a shutdown facility can also trigger NSR as a ‘major modification,’ not just as a new source. The major modification may be a non-routine physical change or a change in the method of operation of the facility

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## Re-starting Sources

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- In one case, a utility (Entergy’s Monroe, LA, plant) was formally placed on “extended reserve shutdown (ERS) 7/1/88. The ERS plan indicated the shutdown would be temporary [1T]
  - There were multiple inspection or maintenance visits throughout the shutdown period
  - The source continued to pay annual state air quality maintenance fees and applied for (and received) a title IV acid rain permit for the facility
  - On the other hand, EPA noted that Entergy until “very recently” (1999) had no definite plans to restart these units
  - As a result of the disparity in these indicators, EPA said it would reevaluate its Reactivation Policy (that hasn’t happened yet)
  - However, EPA then went on to examine whether the reactivation constituted a major modification and decided that it was

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## Re-starting Sources

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- AES shutdown Greenidge station in NY was shutdown in 2011 and transferred to new owners
- 2016 order by EPA deemed reactivation triggered PSD as new source [56M]
  - Intent of the owner is one factor however after two years, not determinative
  - Must demonstrate concrete plans to restart
  - However, statements such as “Plants are no longer operating and have been permanently retire” as part of the bankruptcy proceedings deemed intent to be permanently shutdown
  - NYSDEC relied on performing maintenance activities
  - However relinquished Title IV and V permits

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## Re-starting Sources

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- In Oct. 2017, EPA R2 determined Johns Manville Penbryn facility, idled 2009 and proposed to be restarted in 2018, will not be considered as new. [61U]
- In April 2018, EPA determined former HOVENSA refinery process units in St. Croix, idled 2011-2012 and proposed to be restarted by Limetree Bay Terminals, will not be considered as new. [65O]
  - Important hint in footnote: “EPA has not cited any specific regulatory provisions of the NSR program to support its position on source ‘reactivation.’ We are applying the current Reactivation Policy to resolve the LBT issue, but we intend to reconsider the policy in the near future.”

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## Re-starting Sources

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- In 2020, EPA issued a PAL for Limetree Bay [67R-108]
  - Partly shut down for 8 years
  - In response to comments
    - Rejected the reactivation policy as established in the Monroe Entergy decision in 1999
    - Also concluded that even if that reactivation policy was applied, the Limetree facility would not be considered a new source

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## Restarting Emission Units (not the entire source)

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- In a 2006 determination for St. Croix Renaissance Group, EPA applied the reactivation policy to an emission unit [51P]
  - Power generating equipment was maintained, kept in emissions inventories, permits and thus deemed not to be permanently shutdown
  - However, two alumina kilns were deemed shutdown as there were no plan to make aluminum
  - Removed operating conditions for kilns from the PSD permit
  - However, on 11/16/22, EPA reaffirmed its 1999 Monroe Energy reactivation policy in determining that the refinery would have to obtain a new PSD permit before it could restart. [70C]
- On 1/15/2021, EPA denied a petition to object to a Title V permit for AK Steel Dearborn Works in Michigan. Petitioners alleged that inclusion of prior permit conditions for a shutdown unit in the issued permit authorized rebuild and startup of a shutdown unit, the B Blast Furnace, which had suffered a major explosion in 2008. The agency at the time had agreed that a new permit was not required to rebuild the furnace, but the company has not yet done so. EPA indicated that the state agency may re-evaluate permitting requirements after such a long time, but that continuing to include operating requirements did not constitute an authorization to rebuild. [67Y]

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**EXERCISES 17-22**

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**NET EMISSIONS INCREASES**

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**Major Modification Applicability**

**Step 1**

Physical or Operational Change? → No → No Modification

↓ Yes

**Step 2**

Proposed Project Emissions Significant? → No → Project not Major

↓ Yes

**Step 3**

Can Project Net Out of Major NSR? → Yes → Project not Major

↓ No

Subject to NSR

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### Step 3 – Net Emissions Increase

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- Defined at 40 CFR § 52.21(b)(3) as the sum of
  - Emissions increase from the project as calculated pursuant to 40 CFR § 52.21(a)(2)(iv) and
  - “Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable.”

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### Step 3 – Net Emissions Increases (“Netting”)

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- Generally, netting is used when a project results in a “significant emissions increase” of at least one regulated NSR pollutant
- Applicability determination can be a combination of project emissions increase and netting for various regulated NSR pollutant
  - e.g. NG-fired boiler project may have PM10 increase less than significant but require netting for NOx
- Netting calculations must include all creditable and contemporaneous
  - Emission increases and
  - Emission decreases
- At that stationary source for that regulated NSR pollutant

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### Step 3 - Contemporaneous...

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- 40 CFR § 52.21(b)(3)(ii) and (viii) contemporaneous period is:
  - Begins on the “date five years before construction on the particular change commences”...
    - Must estimate construction date in preconstruction analysis
    - Agency can reject netting analysis if unreasonable processing or other times are assumed
    - Note: Federal rule use 5-year timeframe, but check the specific jurisdiction regulations
  - Ends on the “date that the increase from the particular change occurs” (another estimated date)
    - This date is generally “when the emissions unit on which construction occurred becomes operational and begins to emit”
    - A replacement unit is deemed to become operational “only after a reasonable shakedown period, not to exceed 180 days”

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### Step 3 – Contemporaneous...

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- 40 CFR § 52.21(b)(3)(ii) and (viii) contemporaneous period is:
  - The period covers the duration of construction for the project
  - When netting, other increases at the source during this period must be included
- Netting timing [26B]
  - For decreases from shutdowns or controls or other factors, the “actual emissions decrease” has to occur within the contemporaneous period
  - Cannot claim for a unit that last operated outside the contemporaneous period that the source intended to restart the unit

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### Step 3 - Contemporaneous Period...

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Contemporaneous time period determined by dates construction and operation are expected to commence:

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### Step 3 - Creditable...

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- Note that the net emissions increase definition is for actual emissions increases and decreases
- Reductions are already actual emissions, so don't change
- Increases may have been permitted as PTE or allowable emissions
  - Regulatory text indicates that source can use “actual emissions” for past increases instead, if available
    - 1980 rule and preamble say so, but
    - 1990 Draft NSR Workshop Manual says use PTE [2W]
  - Importantly, a 2011 Region 5 letter explicitly requires use of PTE to BAE even if source previously used PAE to BAE test for the contemporaneous increase [44Q]
    - May require enforceable limits
    - Has a long (but we think weak) explanation of basis for this
    - {We don't yet know if this an outlier or indicator of future EPA policy. Either way, it appears to conflict with the rule language.}

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### Step 3 – Creditable...

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- Pursuant to 40 CFR § 52.21(b)(3)(i)(b):
  - When determining the creditable amount of an increase or decrease in actual emissions, BAE is used (in lieu of the defined term “actual emissions”) to quantify pre-project actual emissions. But:
  - A different 24-month period can be used for each contemporaneous project
  - For adjustments to reflect current limits, “‘Current’ in the context of a contemporaneous emissions change refers to limitations on emissions and source operation that existed just prior to the date of the contemporaneous change.” [67 FR 80186 at p. 80197]

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### Step 3 - Creditable...

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- Creditable increases
  - Are generally associated with permitted or registration actions resulting from a physical or operational change
    - By policy, netting includes only increases which “occur[] as the result of a physical change or change in the method of operation at the source.” [2W]
  - Increasing production rates or operating hours (unless permit revision is required) is not a creditable increase

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### Step 3 - Creditable (for increases)

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- Pursuant to 40 CFR § 52.21(b)(3)(v):
  - “An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level”
- But, pursuant to 40 CFR § 52.21(b)(3)(ix):
  - “Paragraph (b)(21)(ii) of this section shall not apply for determining creditable increases and decreases”
  - (This is the only part of the definition of “actual emissions” that is explicitly based on the rate at which a unit has actually emitted over a particular time period)
  - Be aware that 1990 draft NSR Workshop Manual [2W] and April 2011 EPA letter to Indiana DEM [44Q] incorrectly state that PTE must be used for post-project actual
    - May require enforceable limits
    - Has a long (but we think weak) explanation of basis for this

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### Step 3 - Creditable (for decreases)

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- Pursuant to 40 CFR § 52.21(b)(3)(vi):
  - A decrease in actual emissions is creditable only to the extent that:
    - (a) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions; and
    - (b) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins.

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### Step 3 - Creditable...

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- Creditable increases and decreases
  - Are not “used up”
  - Available as long as contemporaneous and otherwise creditable
  - Decreases, to be creditable, must be:
    - Real (actual emissions decreases)
    - Quantifiable
    - Enforceable as a practical matter {rule still says federally enforceable, but this was overruled by courts}
    - Permanent

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Step 3 - Creditable...

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- Creditable increases and decreases
  - Are not “used up”
  - Available as long as contemporaneous and otherwise creditable
  - Decreases, to be creditable, must be:
    - Real (actual emissions decreases)
    - Quantifiable
    - Enforceable as a practical matter {rule still says federally enforceable, but this was overruled by courts}
    - Permanent

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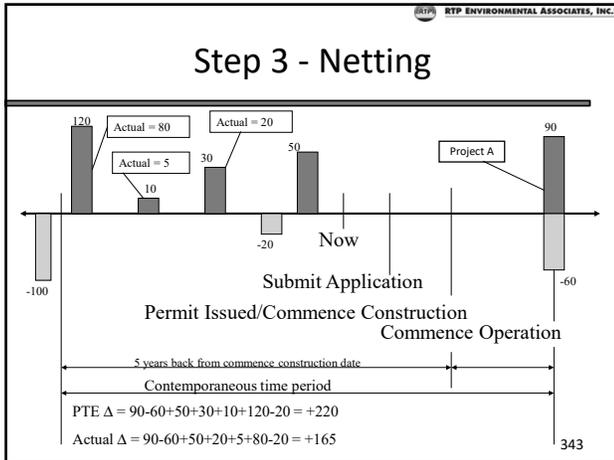
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**Step 3 - Creditable**

- Pursuant to 40 CFR § 52.21(b)(3)(iii):
  - An increase or decrease in actual emissions is not creditable if the permitting authority “relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs.” Clarified in 1980 preamble:
 

*“a reviewing authority ” relies ” on an increase or decrease when, after taking the increase or decrease into account, it concludes that the proposed project would not cause or contribute to a violation of an increment or ambient standard. The purpose of that rule is to “wipe the slate clean.” Once the reviewing authority has evaluated a significant net increase in issuing an NSR permit the net increase should not be a factor in deciding whether subsequent events should undergo scrutiny, too.” [45 FR 52676 at p. 52701]*

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**Step 3 - Creditable...**

- Creditable increases (and decreases) can, however, be “wiped out” by “relying” on them in the issuance of a major NSR permit
  - The emissions must have been included in assessing impacts [34F]
  - Creditable decreases can be preserved by not relying on them in the issuance of the major NSR permit
    - Model emissions as if still emitting at pre-decrease levels when conducting impact analyses
    - Preserves decrease for future netting

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### Step 3 - Creditable...

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- Assume the source in the previous example had gone through PSD review for the recent 50 tpy project and had 'preserved' the -20 tpy decrease by NOT relying on the decrease in the PSD impact analyses (in other words, that project was modeled as though it was still emitting the 20 tpy)
- The netting diagram for the new project would look like this:

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### Step 3 – Netting (“Relied Upon”)

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### Creditable...

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- Going back to the original situation, with four other contemporaneous increases and one contemporaneous decrease, assume:
  - That Project A (for the 90 tpy new unit and the -60 tpy decrease) netted out of major NSR by moving up the commence construction date (to make the -100 tpy creditable) and finding an additional 30 tpy decrease that would occur prior to the operating date
  - It is now 2 years later, and the source is proposing new Project B, a 70 tpy increase, as shown:

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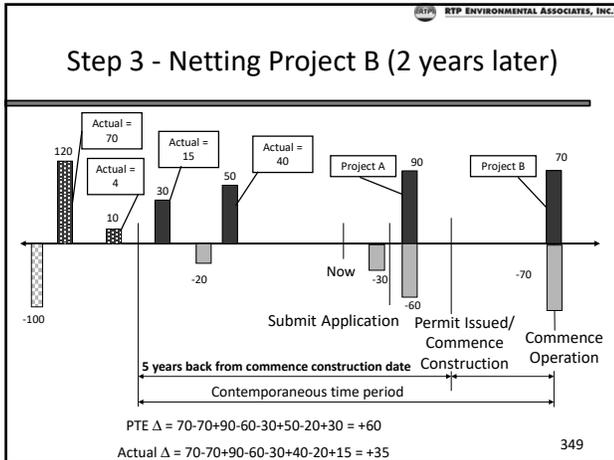
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**Step 3 - Reform Rule Netting Impacts**

- Contemporaneous period did not change: still 5 years preceding commencement of construction on a particular change until the date that the increase from the particular change occurs
- But, the increase or decrease associated with a contemporaneous change is determined by the BAE of the unit experiencing a contemporaneous change, i.e., 5 (for EUSGU) or 10 year look-back for a 24-month period (but not earlier than 11/15/90)
  - A different 24-month period can be used for each contemporaneous change

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**Step 3 - Reform Rule Netting Impacts**

- Post-project actual emissions for contemporaneous projects. The Reform Rule is vague on whether to use PAE, PTE, or something else:
  - Most logical approach appears to be:
    - Use PAE until have two years post-project actual emissions data
    - Use actual emissions after gathering two years representative data
  - But recall the 2011 Region 5 letter explicitly requiring use of PTE to BAE even if source previously used PAE to BAE test for the contemporaneous increase [44Q]

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## SOURCE OBLIGATION

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Relaxing Limits  
Monitoring, Reporting, Recordkeeping

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### Steps 1 and 2 – Relaxation of Existing Permit Limits

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- Two separate considerations:
  - First, under the definition of modification, increases in operating hours or rate and uses of alternative fuels or raw materials that would be prohibited by a currently effective NSR permit term are changes in the method of operation
  - Second, under the “source obligation” provisions at 40 CFR § 52.21(r)(4), certain relaxations of “synthetic minor” limits require re-evaluation of prior applicability determinations that relied on those limits

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### Steps 1 and 2 – Relaxation of Existing Permit Limits

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- Specifically:
  - “At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980 on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of paragraphs(j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.” 40 CFR 52.21(r)(4)

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**Steps 1 and 2 –  
Relaxation of Existing Permit Limits**

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- Requests for relaxation of synthetic minor limits can fall within three categories:
  1. The request is not solely a relaxation, but involves new construction that necessitates a relaxed limit.
  2. The request is solely a relaxation and stems from a legitimate change in business plans that necessitates relaxation of limits that were taken in good faith.
  3. The request is solely a relaxation of limits that were not taken in good faith. Rather, the limits were accepted in order to allow the source to begin construction without a major NSR permit, with the intent to operate as a major source or major modification.

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**Steps 1 and 2 –  
Relaxation of Existing Permit Limits**

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- Under the third scenario, enforcement action may be appropriate for circumventing the preconstruction permitting requirements:
  - “EPA deems the new source or modification to have been major *ab initio*, and EPA considers seeking injunctive relief, civil penalties, and criminal sanctions, as appropriate, against the source under sections 113 and 167 from the beginning of actual construction.” [54 FR 27274]

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**Steps 1 and 2 –  
Relaxation of Existing Permit Limits**

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- There is considerable controversy regarding the proper determination of whether a request for relaxation falls within the first scenario (not solely relaxation) or the second (solely relaxation of limits taken in good faith)
- Two questions:
  - Does it matter whether the requested relaxation is necessitated by new construction?
  - If yes, then what factors are considered in deciding whether the proposed construction is the root cause of the requested relaxation?

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### Relaxation of Synthetic Minor Limits

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- The intent of the rule provision, as evidenced by the use of the word “solely,” dictates that the answer to the first question is “yes.” Written policy of the Texas CEQ adopts this interpretation and outlines the factors to be considered in answering the second question: [11Q]

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### Relaxation of Synthetic Minor Limits

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- Is the only thing that is holding the facility below major a permit condition? In other words, is the already permitted equipment capable of emitting at a “major rate” with no physical modifications?
- Is the proposed change resulting in increased emissions at the previously permitted facility the result of the use of alternate fuel or raw materials, increased operating hours, or increased throughput?
- Does the proposed change not require any significant construction? Changing out a little pipe and a few pumps would not be considered significant construction.
- After the proposed change, will the emissions be increased to above the relevant major source or major modification threshold? [11Q]

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### Relaxation of Synthetic Minor Limits

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- Some EPA policy statements adopt an interpretation similar to that of the Texas policy. [19X, 19Y]
  - An important factor is that the equipment in existence at the time of acceptance of the synthetic minor limit will continue to comply with that limit.
- Other EPA policy statements appear to indicate that any relaxation falls within the second scenario, regardless of whether it is necessitated by new construction. [11C, 12I, 17R, 19A]

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## Relaxation of Synthetic Minor Limits at Minor Sources

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- Synthetic minor limits to avoid review taken in past at an MSS that is now minor source can be relaxed without triggering (r)(4)
  - For the Pfizer Puerto Rico facility, Region 2 in 2015 allowed NOx emission limit relaxation from 56 TPY to 90 TPY as this would not constitute major modification as it is now a minor source [55Q]
  - Region 7, in 2021, addressed this issue for John Deere facility in Dubuque, Iowa [68S]
    - Confirmed relaxing a limit at a minor source is permissible
    - No time constraint is applicable for remaining minor source so long as “there is no indication of circumvention”
    - Future permitting action should be evaluated based on the facility’s status at the time of the new project

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## Permitting Implications

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- Pre-2002 NSR Reform Rules:
  - May need to establish enforceable emission limitations / throughput restrictions / control requirements
  - Add conditions for monitoring, recordkeeping and reporting
  - Requirements to remain in place unless modified by subsequent permit actions or unit(s) removed from service
- Changes that become ‘major,’ solely by relaxation of enforceable limitations are subject to review as if construction has not yet commenced [40 CFR § 52.21 (r)(4)]

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## Permitting Implications...

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- Post-2002 NSR reform rules:
  - For new emission units
    - Continue to follow pre-2002 reform rule approach with enforceable emission limitations (where needed)
  - For project-affected existing emission units, Permittee’s obligations vary by jurisdiction
  - However, generally, use of PAE will not require enforceable permit conditions

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### Source Obligation – Applicability

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- “Enhanced” recordkeeping is required when, for a project affecting existing emissions units: [67 FR 80197, 40 CFR 52.21(r)(6)]
  - Source elects to use PAE instead of PTE for any affected unit
  - There is a “reasonable possibility” that the project will result in a “significant emissions increase”
  - The project will not constitute a “major modification”
  - Project is not at a major stationary source subject to PAL for that pollutant

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### Source Obligation – Applicability

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- As a practical matter, monitoring and recordkeeping are required for all projects
  - Data are needed for compliance tracking and for future netting analyses
  - Applicability determination is an “applicable requirement” and will require compliance certification under Title V

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### Source Obligation – “Reasonable Possibility”

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- This was an EPA rulemaking on remand using “Projected Actual Emissions Increase” (“PEI”)
  - A “reasonable possibility” exists when either of the following is at least 50% of the Significant Emissions Rate for that pollutant:
    - **RP1:** PEI excluding emissions that are excludable
    - **RP2:** PEI without excluding emissions that are excludable

[72 FR 72607, December 21, 2007]

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### Source Obligation – “Reasonable Possibility”

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- New Jersey’s 2009 petition for reconsideration was denied by EPA in November 2019 because (1) the CAA does not mandate reconsideration and (2) additional public comment is neither necessary nor warranted. [66O]
- NJ had also filed a petition with the DC Circuit, which then took up review of the petition:
  - Court upheld EPA’s 50% reasonable possibility threshold. [68D]
  - This portion of the 2002 Reform Rule had been remanded to EPA by the DC Circuit in 2005 because “reasonable possibility” was undefined in the 2002 rule [18T]

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### Source Obligation - Recordkeeping

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- All sources meeting either reasonable possibility criterion (RP1 or RP2) must document & maintain a record of the following:
  - Description of project
  - Identification of emission unit(s) affected
  - Description of applicability test used to determine the project was not major including:
    - BAE
    - PAE
    - Amount of emissions excluded and an explanation for such exclusion
    - Any netting calculations, if applicable
- Note: check jurisdiction-specific requirements

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### Source Obligation – Post-construction Monitoring

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- All sources meeting RP1 criterion must:
  - Monitor emissions of any pollutant that could increase as a result of the project from each unit affected by the project
  - Calculate and maintain a record of the annual emissions , in TPY on a calendar year basis, for a period of 5 to 10 years following the resumption of regular operations after the change
    - 10 years if increase in design capacity or PTE
    - 5 years for all other changes
- Note: check jurisdiction-specific requirements

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### Source Obligation - EUSGU Reporting

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- Applies only to projects meeting RP1 criterion:
  - Submit a copy of the record relating to the project applicability to the agency before beginning actual construction
    - No obligation to obtain a permit / determination from the permitting agency
  - Report annual emissions during the recordkeeping period within 60 days of the end of each calendar year
- Note: check jurisdiction-specific requirements

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### Source Obligation - Non-EUSGUs Reporting

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- Applies only to projects meeting the RP1 criterion:
  - Submit report to the agency within 60 days after the end of such calendar year if:
    - Annual emissions from project exceed the BAE by a significant amount;  
AND
    - Such emissions 'differ' from the preconstruction projection as documented and maintained
  - Report must contain:
    - Name, address and phone number of the major stationary source
    - Annual emissions
    - Any other information that the source wishes to include in the report, e.g., an explanation as to why the emissions differ from the preconstruction projection
- Rule is unclear as to how or whether emissions from new units are considered in this analysis (see next slide for example)
  - Should be negotiated with permitting agency up front
  - Note: check jurisdiction-specific requirements

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### Source Obligation - Non-EUSGUs Reporting

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- Example based on literal reading of rule:
  - The phrase “projected actual emissions increase” is not defined, but the context of the rule (especially the “projects at existing units” language) suggests that it omits any consideration of PTE at new units.
  - Therefore, reading the rule literally (and not trying to infer the intent of the rule drafters), the following example could occur:

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### Source Obligation - Non-EUSGUs Reporting

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– Example:

- Project affects two units: Unit A (existing) and Unit B (new).
  - Unit A: VOC BAE = 50 tpy; VOC PAE = 69 tpy; excluded emissions = 18 tpy
  - Unit B: VOC PTE = 38 tpy
- The “projected actual emissions increase” is 1 tpy (PAE – EE – BAE = 69 – 18 – 50), so no reasonable possibility under (vi)(a). Note that the new unit is ignored. Post-project monitoring is not required.
- The “projected actual emissions increase” plus excluded emissions is 19 tpy (PAE – BAE = 69 – 50), so no reasonable possibility under (vi)(b). Again, the new unit is ignored. Records of preconstruction analysis are not required.

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### PLANTWIDE APPLICABILITY LIMITS (“PALS”)

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### Plantwide Applicability Limits

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- What is a PAL?
  - An annual, facility-wide, pollutant specific, emission limitation under which the facility can make any changes without triggering NSR 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

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### EPA PAL EXAMPLE

Existing Source:  
Actual Emissions= 150 tpy VOC  
Potential Emissions = 400 tpy VOC

➔

Plantwide Limit =  
 $150+40^* = 190$  tpy VOC

Source can make any changes for 10 years without triggering major NSR for VOC if plantwide emissions remain below 190 tpy VOC.

*\*40 tpy is significant emissions rate for VOC  
Note: this is not necessarily a listed source category. The source could be major for another pollutant.*

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### “Actuals” Plantwide Applicability Limits

- Who is eligible for an Actuals Plantwide Applicability Limit (PAL)?
  - Existing major stationary sources that meet certain additional criteria
  - Can have either a CO2e or GHG PAL
- How does a PAL benefit a major facility?
  - Modifications under a PAL are not considered “major modifications” for the PAL pollutant
  - Modifications do not have to be approved through the major NSR program
  - Facility changes are not dictated by major NSR concerns
- Approximately 70 PAL permits issued since 2003 in 20 states and DC. About 12 of those have been renewed. Includes electric utilities, pulp and paper, cement, petroleum refineries, iron and steel, semiconductors, pharmaceuticals, automobile and truck manufacturing, chemicals, minerals, oil and gas, and landfills. [66T-17]
- EPA presents two case studies on analyzing whether a PAL would be advantageous for a source [66T-14]

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### “Actuals” PALs

- How does a facility obtain a PAL?
  - Interested facilities must submit a complete permit application specifically requesting a PAL or PALs
  - Minimum application requirements include:
    - Listing of emissions units
    - Size of emissions units (small, significant or major)
    - All Federal/State applicable requirements
    - Emission limits/work practice requirements
    - Baseline actual emissions
    - Supporting documentation

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## Emissions Unit Classification

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- **Small:** PAL pollutant PTE below significance level of that pollutant
- **Significant:** PAL pollutant PTE equal to or greater than the significance level of that pollutant, but less than the amount that would qualify the unit as major
- **Major:**
  - Attainment area: PAL pollutant PTE of 100 tpy or more
  - Nonattainment area: PAL pollutant PTE equal to or greater than the major source threshold for the PAL pollutant

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PALs

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- What type of application is required for a PAL?
  - PALs must be established via a federally enforceable permit. Can be:
    - Minor NSR construction permit
    - Major NSR permit (i.e., PSD permit)
    - SIP-approved operating permit program
  - Regulatory authority must provide opportunity for public participation
    - 30-day public notice
    - Opportunity for public comment

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PALs

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- How are PAL levels determined?
  - Identify all emissions units that were included in the baseline period
  - Establish baseline emissions - select any consecutive 24-month period within the 10-year period preceding the PAL (5-year period for EUSGUs)
    - Only one 24-month period may be used per pollutant
    - Differing baseline periods may be used for different pollutants
  - Identify any emissions units constructed since the baseline period
  - Identify any emissions units for which a binding contract is in place for its construction

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PALs

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- How are PAL levels determined? (cont.)
  - For each emissions unit that existed during the baseline period:
    - Calculate the average rate, in tons per year, at which each of the emissions units emitted the PAL pollutant
  - Sum the baseline actual PAL pollutant emission rates of each emissions unit at the source
    - For a new unit (for which, at a minimum construction has commenced) PTE is considered baseline
  - Add an amount equal to the applicable significant emissions level (SEL) for the PAL pollutant

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PALs

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- How are PAL levels established? (cont.)
  - Subtract baseline PAL pollutant emissions associated with emissions units that have been permanently shut down since the baseline period
    - Shutdowns of more than 2 years or that have resulted in the removal of the source from the State’s inventory are presumed to be permanent
  - Add PTE of PAL pollutant for the newly constructed units for which construction began after the baseline period

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PALs

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- How are PAL levels established? (cont.)
  - Baseline PAL pollutant emissions cannot exceed emission limits allowed by your permit or newly applicable requirements at the time the PAL is set
  - Adjust baseline PAL pollutants to reflect applicable requirements since the baseline period
    - RACT, NSPS, BACT, LAER, etc.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PALs

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- How are PAL levels established? (cont.)
  - Baseline Actual Emissions (BAE) for Replacement Units [66T-13] (draft guidance)
    - A replacement unit effectively takes the place of the unit it replaced and thereby carries with it the BAE from that replaced unit for purposes of subsequent applicability calculations and permitting actions (e.g., setting a PAL level)
    - Therefore, once a 24 month period is selected, use the emissions from the replaced unit to determine BAE for purposes of setting a PAL limit

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## “Actuals” PAL Example

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- Surface coating facility with 7 emissions units defined as Units A through G
- PAL pollutant is VOC
- New State requirement in 1999 affected Unit D
- Unit F was permanently shut down in 2000
- Unit G was added in 2004
- Unit C allowable VOC is 60 tpy

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Example

**Choose representative baseline period (1997-1998)**

Year	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G	Total	Baseline
1995	52	10	50	199	19	54	0	384	---
1996	46	12	52	200	23	51	0	384	384
1997	42	16	68 <sup>1</sup>	205	22	54	0	399	392
1998	45	15	65 <sup>1</sup>	201	23	50	0	394	397
1999	49	20	60	210	23	30	0	392	393
2000	55	21	59	210	20	30	0	395	394
2001	45	16	59	19	22	0	0	161	278
2002	44	18	67 <sup>1</sup>	18	22	0	0	162	162
2003	45	16	65 <sup>1</sup>	16	23	0	0	160	161
2004	46	17	62 <sup>1</sup>	17	20	0	40	200	180

<sup>1</sup> Emissions in excess of 60 tons are subtracted from baseline

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- What does a PAL permit look like?
  - PAL permits must include:
    - Identification of PAL pollutant(s) and limits(s)
    - PAL effective and expiration dates
    - PAL renewal/transition provisions
    - Requirement to include emissions from start-ups, shutdowns, and malfunctions in compliance calculations
    - Requirement to comply with PAL expiration requirements

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- PAL permits must include (continued)
  - PAL calculation procedures
  - Monitoring requirements
  - Record retention requirements
  - Reporting requirements
  - Other “necessary” requirements

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- How long are PALs and PAL permits good for?
  - The effective period for a PAL is 10 years
- Can PALs be re-opened by the regulatory authority?
  - Yes - mandatory reopening of PAL permits to:
    - Correct errors
    - Reduce PAL for creditable reductions
    - Revise to reflect a PAL increase
  - Permitting authority has discretion to reopen PAL permit to:
    - Reduce the PAL to reflect newly applicable requirements with compliance dates after the PAL effective date
    - Reduce the PAL as necessary to avoid causing or contributing to a NAAQS or PSD increment violation, or to an adverse impact on an air quality related value that has been identified for a Federal Class I area by a Federal Land Manager and for which information is available to the general public
      - (Note: 2/13/20 draft policy on PALs opines that such reopening is rare (none so far) and that lowering a tpy PAL is the least effective way to reduce unacceptable short-term impacts (like 3- or 24-hour) [66T]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Do PALs/PAL permits expire?
  - Yes – PALs/PAL permits not renewed expire at the end of their effective period (10 years)
- What happens if a PAL is allowed to expire?
  - New emission limits are established
    - Source proposes distribution of PAL emissions to each emissions unit that existed under the PAL
    - The reviewing authority decides the ultimate distribution of PAL emissions to emissions units
    - EPA expects agencies generally to accept source proposal, noting that a limit on a group provides more flexibility for the source. Can propose same limit on same group of units as had under the PAL. [66T-5] (Note: this is 2/13/20 DRAFT guidance)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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**PAL emissions are “distributed” to individual emissions units if the PAL expires**

Emissions Unit	PAL Level (tons)	Emissions at PAL Expiration (tpy)
A		61.7
B		24.5
C	255	70.6
D		25.0
E		25.5
G		47.4

† In this example, emissions were apportioned to individual emissions units at PAL expiration based on the distribution of emissions during the baseline period

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- PAL Expiration Notes
  - Compliance with new enforceable tpy limits is based on a 12-month rolling basis (presumably a monthly rolling frequency)
  - Required monitoring systems may be similar to those under PALs
  - Compliance with a site-wide emissions “cap,” equivalent to the previous PAL, is required until a revised permit is issued
  - Physical changes or changes in the method of operation are subject to major NSR if change is a major modification
  - State or federal requirements (BACT, LAER, RACT, NSPS, etc.) remain applicable
  - None of the limits covered by 52.21(r)(4) that were eliminated by the PAL are required to be reestablished. Also, none of the limits resulting from PAL expiration are potentially subject to 52.21(r)(4) [66T-5]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Are PALs adjusted when they are renewed?
  - Yes – PALs are evaluated at renewal using the same process used to set the original PALs
  - If the new PAL level is > or = 80% of existing PAL level, PAL may be reset at original level
  - The reviewing authority has *discretion* in setting a new PAL level to :
    - Be more representative of actual emissions
    - Be in accordance with local air quality needs
    - Accommodate anticipated economic growth
    - Represent advances in air pollution control technology

Note: 2020 draft guidance indicates that EPA believes PAL adjustment would rarely be the primary mechanism for addressing the last 3 issues. [66T-8]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- PAL renewal adjustment notes:
  - The “new” PAL may not exceed the facility PTE
  - New PAL cannot exceed original PAL level unless undergoing PAL modification (increase) procedure
  - The PAL must reflect all requirements that became applicable during PAL term and that PAL was not adjusted for

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- How can PAL levels be increased?
  - An application for a PAL increase is required that:
    - Identifies all emissions units contributing to the increase
    - Demonstrates a PAL exceedance after inclusion of proposed new/modified emissions units and an assumption of current BACT-equivalent controls on all units except small units
  - A major NSR permit is required for emissions units associated with the increase, regardless of the magnitude of the emissions increase
    - Facility must comply with any resulting BACT/LAER requirements

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- How is a higher PAL level established?
  - The regulatory authority establishes a higher PAL level based on:
    - The sum of the allowable emissions from new/modified emissions units - PLUS -
    - The sum of the baseline actual emissions from all significant/major emissions units assuming BACT control - PLUS -
    - The sum of baseline actual emissions from small emissions units
  - The end result - the magnitude of the proposed increase is minimized by the potential PAL decreases resulting from assuming BACT control on significant and major emissions units

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- What type of monitoring requirements are specified in PAL permits?
  - PAL general monitoring requirements specify that:
    - PAL monitoring systems must be based on “sound science”
    - Must meet “minimum legal requirements for admissibility in a judicial proceeding to enforce the PAL permit”
    - Emissions must be quantifiable on an ongoing basis

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Acceptable PAL monitoring techniques include:
  - Mass Balance Calculations
    - For sources using paints, coatings, and solvents
  - Continuous Emission Monitoring Systems (CEMS)
  - Continuous Parameter Monitoring Systems (CPMS)
  - Predictive Emission Monitoring Systems (PEMS)
  - Emission Factors
  - Alternative methods as approved by the administrator
- EPA favors CEMS and PEMS as “most reliable approach to quantify emissions [66T-9] (draft)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Mass Balance Calculations
  - Requirements include:
    - A demonstrated means to validate pollutant content in material(s)
    - Assumption that emissions unit emits all of a pollutant if the pollutant cannot be accounted for
    - The use of the highest value of a pollutant where a range of the pollutant content is published
  - Mass balance calculations are acceptable and are widely used for activities using coatings or solvents

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Continuous Emission Monitoring Systems (CEMS)
  - Requirements
    - Systems must meet applicable Part 60, Appendix B Performance Specifications
    - Systems must sample, analyze, record data once every 15 minutes of operation

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Continuous Parameter Monitoring Systems (CPMS) and Predictive Emission Monitoring Systems (PEMS)
  - Requirements
    - The CPMS/PEMS system must demonstrate a correlation between monitored parameters and PAL pollutant emissions across the range of unit operation
    - The CPMS/PEMS system must sample, analyze, record data once every 15 minutes of operation

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Emission Factors: Requirements
  - “If appropriate, factors must be adjusted for the uncertainty or limitations in the factor’s development” {2020 draft guidance discussed this issue, but provided no additional information on how to adjust other than a reference to statistical methods, site-specific testing, or adjustment of a literature value [66T-10]}
  - Emissions units must operate within the range of the factor’s development
  - If technically practicable, the emission factors for significant units must be re-validated within 6 months of the PAL permit issuance
    - Unless reviewing agency determines that testing is not required
    - Agency may elect to accept data from similar units different sources; accept literature/vendor data as appropriate and representative; forego testing if unit’s emissions are not significant; or, if multiple similar units, test only one [66T-11]

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- How is missing monitoring data handled under a PAL? [66T-11]
  - Missing data procedures can be determined on a case-by-case basis and adopted into the permit if agency-approved
    - Lists factors to consider in determining whether an alternative method is warranted for an emissions unit
    - If so, EPA recommends first considering any procedures in EPA regulations or the source’s permits. Next, identify examples of procedures from other permits issued by the agency, including those for similar facilities
    - Provides examples
  - If no alternative method is specified, source must record and report maximum potential emissions without considering enforceable limitations or operating restrictions
- What happens when a source operates at non-correlated operating ranges?
  - A default value representing the highest potential emissions must be established and used, or
  - The source is deemed in violation when the unit is operating outside of a correlated parametric range

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- Do emissions monitoring systems under a PAL ever have to be re-validated?
  - Yes - data re-validation is required once every 5-years for all methods of monitoring
  - Re-validation is accomplished by emission testing or other scientifically valid means
  - The PAL applicant may want to consider including a re-validation protocol with the PAL application addressing each type of monitoring and the proposed re-validation procedures

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Data Requirements

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- Recordkeeping—Source must retain copy of:
  - All records necessary to determine compliance with the PAL, including a determination of each emissions unit’s 12-month rolling total emissions, for 5 years from the date of such record
  - For the duration of the PAL permit effective period plus 5 years,
    - The PAL permit application and any applications for revisions to the PAL
    - Each annual certification of compliance pursuant to Title V and the data relied on in certifying the compliance

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Data Requirements—2

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- Reporting and notification
  - Semi-annual report
    - Within 30 days of end of each reporting period
    - Must contain
      - Identification of owner and operator and the permit number
      - Total annual emissions (tpy) based on a 12-month rolling total for each month in the reporting period
      - All data relied upon in calculating the monthly and annual PAL pollutant emissions
      - A list of any emissions units modified or added to the source during the preceding 6-month period
      - Number, duration, and cause of any deviations or monitoring malfunctions (other than the time associated with zero and span calibration checks), and any corrective action taken

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Data Requirements—3

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- Reporting and notification
  - Semi-annual report
    - Must contain (continued)
      - Notification of a shutdown of any monitoring system, whether permanent or temporary, the reason for the shutdown, the anticipated date that the monitoring system will be fully operational or replaced, and whether the emissions unit monitored by the system continued to operate, and the calculation of the emissions of the pollutant or the number determined by method included in the permit
      - Signed statement by responsible official certifying the truth, accuracy, and completeness of the information provided in the report

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Data Requirements—4

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- Deviation report
  - Must promptly submit reports of any deviations or exceedance of the PAL requirements
  - Must contain:
    - Owner/operator identification and permit number
    - The PAL requirement that experienced the deviation or that was exceeded
    - Emissions resulting from the deviation or the exceedance
    - A signed statement by the responsible official certifying the truth, accuracy, and completeness of the information

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Data Requirements—5

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- Re-validation results
  - Submit the results within 3 months after completion of such test or method

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- How long must PAL related compliance records be retained?
  - Records necessary to demonstrate compliance with the PAL regulations must be retained for five (5) years from the date of the record
  - Other PAL related records must be retained for the duration of PAL plus 5 years
    - PAL application
    - PAL revision applications
    - Annual Title V certifications

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Termination

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- If source wants to terminate PAL prior to expiration
  - No specific mechanism in rule
  - EPA says source is to work with agency to decide whether a PAL can or should be terminated [67 FR 80209] and [66T-9] (2/13/20 draft guidance)
  - Minimum agreement likely would be an allocation of the PAL limit to individual or a group of units
  - No guarantee that termination will be allowed

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Guidance

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- On 8/4/20, EPA issued guidance addressing several PAL concerns:
  - (1) PAL permit reopening (can do so, but should not frequently or arbitrarily revise PAL limits—and survey shows no cases);
  - (2) permit expiration (uncertainty about how emissions would be allocated among the emissions units—source recommends, and agency generally would accept, allocation and none of the limits on capacity to emit that the PAL eliminated are required to be reestablished);
  - (3) PAL renewal (adjusting the PAL limits should rarely be the primary mechanism for achieving air management goals, such as maintaining NAAQS compliance—the rules do not require automatic downward adjustment);
  - (4) PAL termination (requests should not be common and such requests should be handled on a case-by-case basis);
  - (5) Monitoring requirements: (a) emission factor adjustment (when required, should be made using generally accepted statistical methods); (b) validation testing (only applicable to significant emissions units using an emission factor-based monitoring approach); (c) missing monitoring data (best determined on a case-by-case basis—source can propose procedures; examples given); and
  - (6) Baseline Actual Emissions (BAE) for replacement units (BAE from the replaced unit carry over to the replacement unit for purposes of both the initial and any subsequent NSR analysis). [67N]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PAL Permits

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- There have been about 70 PAL permits issued as of August 2020 [67N]. Most have been for only one or two pollutants. An exception is the late-2020 St. Croix Limetree Bay Refining and Terminals PAL, for 7 pollutants. [67R]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## MINOR NSR

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minor NSR Under the Federal Clean Air Act

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- Reminders:
  - § 110(a)(2)(C) requires that each SIP include “a program to provide for ... regulation of the modification and construction of any stationary source ... as necessary to assure that national ambient air quality standards are achieved.”
  - § 161 requires that each SIP include “measures as may be necessary” to protect the PSD increments in clean air areas

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minor NSR Applicability

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- Each plan must enable the agency to determine whether the new or modified source will result in:
  - A violation of applicable portions of the control strategy
  - Interference with attainment or maintenance of a NAAQS
- The procedures must include means to prevent such construction or modification if the above would occur  
40 CFR 51.160(a) and (b)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Minor NSR Program Requirements

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- The owner/operator must be required to submit information on:
  - Nature and amounts of emissions
  - Location, design, construction, and operation of such source as needed to make the determinations
- Procedures must provide that approval of the permit must not affect the owner’s responsibility to comply with applicable portions of the control strategy

40 CFR 51.160(c) and (d)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Minor NSR Program Requirements...

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- Procedures must identify the types and sizes of facilities subject to review and the plan must discuss the basis for determining this
- Procedures must discuss the air quality data and the dispersion or other modeling used to meet the requirements

40 CFR 51.160(e) and (f)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Minor NSR Program Requirements...

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- Procedures must require the opportunity for public comment (40 CFR 51.161)
  - Public information must include agency’s analysis of the effect of construction or modification on ambient air quality
  - “Opportunity” includes, at a minimum:
    - Availability for public inspection in at least one location in the area affected information submitted by the source and the agency’s analysis
    - A 30-day period for comment
    - A notice by “prominent advertisement in the area affected” of the location of the information
  - Notice must also be sent to EPA and affected States

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## MODIFICATIONS TO MINOR STATIONARY SOURCES

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### ‘Modifications’ to Minor Sources

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- Any physical change at a stationary source that “...would constitute a major stationary source by itself...” is considered a major stationary source and is subject to PSD. [40 CFR § 52.21(b)(1)(i)(c)]
  - The project’s PTE is evaluated and compared to the appropriate PSD major source threshold (100 TPY for listed and 250 TPY for nonlisted source categories)
  - Netting is not allowed for minor existing sources, so project (physical change) is evaluated as proposed
  - Note that this is in the definition of a “major stationary source”, not in the definition of a “major modification”

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### ‘Modifications’ to Minor Sources

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- Note that the rule states “physical change” and does not include “changes in the method of operation” (in contrast to the “modification” and “major modification” definitions at 40 CFR §52.01(d) and §52.21(b)(2))
- Two types of actions:
  - Adding new emissions units, such as a new process line
    - Calculate total PTE of new units
    - Remember: can’t net using actual emission reductions from elsewhere, such as from old units being replaced
  - Modifications to existing equipment
    - Determine emissions increase using appropriate calculation
    - Will discuss different calculations shortly

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Examples – Modifications to a Minor Source Using Reform Rule

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- Assume a listed minor source (100 TPY threshold) with:
  - 80 TPY BAE (2 year average) emissions
  - 90 TPY PTE

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  - Example 1: Source proposes adding new process line with 95 TPY PTE
    - Increase in PTE of new line = +95 TPY
    - Below Major Stationary Source threshold, so not subject to PSD review

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Examples – Modifications to a Minor Source Using Reform Rule

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- Assume a listed minor source (100 TPY threshold) with:
  - 80 TPY BAE (2 year average) emissions
  - 90 TPY PTE

\*\*\*\*\*

  - Example 2: Alternate proposal is to add new process line with 120 TPY PTE.
    - Increase in PTE of new unit = +120 TPY.
    - Above threshold, so new line would be subject to PSD review.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Examples...

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- Assume a listed minor source (100 TPY threshold) with:
  - 80 TPY BAE (2 year average) emissions
  - 90 TPY PTE

\*\*\*\*\*

  - Example 3: Alternate proposal is physical changes to existing equipment to improve economics, keeping current 90 TPY PTE. PAE estimate is 85 TPY
    - Calculation is  $(PTE - PTE) = 90 - 90 = 0$  TPY. Below 100 TPY threshold, so not subject to PSD review
    - Calculation could also be  $(PAE - BAE) = 85 - 80 = +5$  TPY. Below 100 TPY threshold, so not subject to PSD review

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Examples...

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- Assume a listed minor source (100 TPY threshold) with:
  - 80 tpy BAE (2 year average) emissions
  - 90 tpy PTE

\*\*\*\*\*
- Example 4: Alternate proposal is physical changes to existing equipment, increasing capacity equivalent to a new PTE of 175 TPY. PAE estimate is 165 TPY. *(Assume 40 CFR § 52.21(r)(4) is not triggered by the PTE increase)*
  - Calculation is  $(PTE - PTE) = 175 - 90 = 85$  TPY. Below 100 TPY threshold, so not subject to PSD review.
  - Calculation could also be  $(PAE - BAE) = 165 - 80 = 85$  TPY. Below 100 TPY threshold, so not subject to PSD review.

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## Examples...

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- Assume a listed minor source (100 TPY threshold) with:
  - 80 tpy BAE (2 year average) emissions
  - 90 tpy PTE

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- Example 5: Alternate proposal is physical changes to existing equipment, increasing capacity equivalent to a new PTE of 200 TPY. PAE estimate is 175 TPY. *(Assume 40 CFR § 52.21(r)(4) is not triggered by the PTE increase)*
  - Calculation is  $(PTE - PTE) = 200 - 90 = 110$  TPY. Above 100 TPY threshold, so would be subject to PSD review using this test.
  - Calculation could also be  $(PAE - BAE) = 175 - 80 = 95$  TPY. Below 100 TPY threshold, so not subject to PSD review using this test.

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## EXERCISES 23-24

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**PSD AND NNSR SUBSTANTIVE REQUIREMENTS**

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**Overview: Major NSR Substantive Requirements**

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**Air Quality Attainment Status?**

Attainment/  
Unclassifiable      Nonattainment

**PSD Review**

- Best Available Control Technology (BACT)
- Modeling
  - NAAQS
  - Increment
- Additional Impacts

**Nonattainment NSR**

- Lowest Achievable Emission Rate (LAER)
- Offsets
- Net Air Quality Benefits
- Alternatives Analysis
- Statewide Compliance

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**PSD SUBSTANTIVE REQUIREMENTS**

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### PSD Review: Substantive Requirements

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- Best Available Control Technology (BACT)
- Ambient Air Quality Impacts Analysis
  - NAAQS Compliance
  - Increment Compliance
- Additional Impacts Analysis
- Class I Impacts Analysis

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### BEST AVAILABLE CONTROL TECHNOLOGY (“BACT”)

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### BACT Applicability

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- 40 CFR § 52.21(j)(2) - For new major stationary sources, BACT is required for each pollutant for which the PTE of the entire source is significant
- BACT applied to each emissions unit emitting that pollutant
  - Emissions unit PTE is not a factor (e.g., even with a PTE of 0.001 TPY, BACT would apply) [19S]

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## BACT Applicability

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- For major modifications, from 40 CFR § 52.21 (j)(3)
  - BACT analysis required for each regulated NSR pollutant for which the project is major (i.e., each pollutant for which the net increase from the entire project is significant)
  - BACT applies to each emissions unit at which a “net emissions increase” of that pollutant would occur as a result of “a physical change or change in the method of operation” in the emission unit
    - Magnitude of increase at emissions unit is not a factor (even for a 0.001 TPY increase, BACT would apply) [19S]
    - But if no emissions units are modified, PSD permit need not include BACT [15B]

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## BACT Applicability

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- EPA Office of General Counsel in 2004 confirmed that BACT doesn't apply if no emissions units are modified. This opinion was later adopted by the EAB in *re: Rochester Public Utilities* (“RPU”) [16C, 15B]
  - RPU's Silver Lake Plant includes four coal-fired boilers and steam turbines
  - RPU proposed to add a steam line to supply steam to Mayo Clinic, so modification to Silver Lake Plant was a steam line
  - Would increase coal firing by 74,000 TPY and SO2 by more than 1,000 TPY
  - EPA concluded that BACT didn't apply because no “emission units” were modified, specifically the boilers (only the steam lines were)
  - Concluded that steam lines are not part of the emissions unit, notwithstanding the new definition of emissions unit which includes “electric utility steam generating units”

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## BACT Applicability: Debottlenecking

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- Not a physical or operational change to the emission unit, thus, BACT would not apply
- Affirmed by EPA Office of General Counsel in 2004, in *Rochester Public Utilities* [16C]
  - “... based on the facts before EPA in this matter, the modification at issue does not constitute a change in the method of operation of the boiler.”

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## BACT Applicability: Exclusions

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- The exclusions listed in the definition of “major modification” apply to the emissions unit-specific determination of BACT applicability
  - If equipment must be added to a source to accommodate an alternative raw material, but the emissions unit was capable of accommodating that material, then PSD for the facility may be triggered but BACT at the unit will not be. [330]

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## BACT Definition

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- From 40 CFR § 52.21(b)(12):
  - ... an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

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## BACT Definition

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- From 40 CFR § 52.21(b)(12), cont’d:
  - In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61.
- 1990 CAA Amendments added “clean fuels” after “including fuel cleaning” and added the following:
  - “Emissions from any source utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under this paragraph as it existed prior to November 15, 1990.”

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## BACT Definition

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- From 40 CFR § 52.21(b)(12), cont'd:
  - If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

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## BACT Determinations

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- In EPA's words: "[The top-down] methodology is a rigorous and reliable way of determining a level of control that conforms with the statutory definition of BACT and the core criteria" (1996 NSR reform proposal at 61 FR 38273)

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## BACT Determinations

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- Core criteria:
  - All of the available control systems for the source, including the most stringent, must be considered in the determination, and
  - The selection of a particular control system as BACT must be
    - Justified in terms of the statutory criteria
    - Supported by the record
    - Explain the basis for the rejection of other more stringent candidate control systems

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## BACT Top-Down Procedure

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- EPA firmly adheres to “top-down” procedure for its PSD permits
- EPA advocates “top-down” procedure for state-issued PSD permits
- EPA and most states use top-down procedure similar to that in the draft 1990 NSR workshop manual [2W]
- Although not mandated, if an agency uses this approach, it should be in reasoned and justified manner [12D]

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## BACT Statutory History

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- What was Congress Thinking?
  - A considerable amount of legislative history exists to help understand how Congress intended this provision to be implemented.
  - The following slides are excerpts from the Senate Report on the 1977 CAA Amendments [11T]
  - This background is important for several reasons to be discussed later
    - Roles of EPA and States
    - BACT determination process

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## BACT Legislative History

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- “The decision regarding the actual implementation of best available technology is a key one, and the committee places this responsibility with the State, to be determined in a case-by-case judgment. It is recognized that the phrase has broad flexibility in how it should and can be interpreted, depending on site.”

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## BACT Legislative History

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- “In making this key decision on the technology to be used, the State is to take into account energy, environmental, and economic impacts and other costs of the application of best available control technology. The weight assigned to such factors is to be determined by the State. Such a flexible approach allows the adoption of improvements in technology to become widespread far more rapidly than would occur with a uniform Federal standard. The only Federal guidelines are the EPA new source performance and hazardous emissions standards, which represent a floor for the State’s decision.”

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## BACT Roles

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- The agency is solely responsible for performing a BACT analysis and establishing BACT
  - “... which the Administrator ... determines is achievable...”
- Applicant’s role is at 40 CFR § 52.21(n):
  - “... submit all information necessary to perform any analysis or make any determination required under this section,” including a “detailed description as to what system of continuous emission reduction is planned for the source or modification...”
- But, if the agency doesn’t do its job in establishing a sufficient record, it’s applicant’s permit that gets overturned

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## BACT Context (Redefinition)

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- The definition creates inherent conflict between a narrow analysis (“... achievable for such source or modification...”) and a broad analysis (“... through application of production processes or available methods, systems, and techniques...”)
  - This is the so-called “redefining the source” issue
  - Begin by defining the source’s and project’s fundamental business objective and purpose and its inherent design aspects [19C, 19R, 20E, 24M, 37E, 37P, 39P, 39R, 50P, 51V, 56X]
  - Obama EPA took an unprecedentedly broad view [24K, 25Y, 25M, 26L, 26Y, 49F]

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## BACT Context (Redefinition)

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- Virginia minor source BACT determination was remanded by 4<sup>th</sup> Circuit in 2020 because: [66W-26]
  - Determination that electric turbines at a compressor station proposing natural gas turbines would constitute “redefining the source” was arbitrary and capricious
  - Agency conceded that they did not rely on Federal policy, since source was minor, and referred to Virginia’s “redefining the source” policy, which did not exist
- 1<sup>st</sup> Circuit in a 6/3/2020 ruling noted that Massachusetts agency erred in determining that use of electric turbines need not be considered as an alternative BACT for a compressor station.
  - This was a minor source, but the state rules required BACT and the agency had stated that it used EPA’s top-down approach; the judge ruled that the agency did not follow its own rule. [67C]

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## BACT: Top-Down Process Steps

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- Step #1 – Identify Control Options
- Step #2 – Technical Feasibility
  - Availability, Applicability
- Step #3 – Rank Remaining Control Options
- Step #4 – Consider
  - Environmental Impacts
  - Economic Impact
  - Energy Impacts
- Step #5 – Select BACT and set limit

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## Step 1 BACT: Identifying Technologies

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- Include all technologies, regardless of country
  - Consider technology transfer
  - Consider combination of techniques if results in more effective means of achieving reductions
- Technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation [2W]
  - No consideration of technical feasibility or demonstration status
  - Include inherently lower-polluting processes
- BACT should not “redefine the source” (2016 EAB)[57Y]
  - Adding battery storage for meeting site-specific peaking capacity needs under the project “fundamental business purpose” is not permissible for APS Ocotillo facility
- 1<sup>st</sup> Circuit rules that Massachusetts agency erred in determining that use of electric turbines need not be considered as an alternative BACT for a compressor station. This was a minor source, but the state rules required BACT and the agency had stated that it used EPA’s top-down approach; the judge ruled that the agency did not follow its own rule; among other things, it did not include electric turbines in Step 1. [67C] (6/3/20)

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## BACT: Identifying Technologies

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- Startup/Shutdown/Malfunction (SSM)
  - Must be addressed in the BACT analysis
  - Measures to minimize the occurrence of these periods, or to minimize emissions during these periods, are control options
  - Combinations of steady-state control options and SSM control options can be combined to create distinct control strategies
  - See further discussion in Step 5 (setting BACT limits)

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## BACT “NSPS as Floor” Issue

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- “Applicable standard” means the particular unit is an affected facility
  - If there is an NSPS for the category, but the unit is not subject, NSPS does not establish a legal floor for the BACT determination. [31V, 36J]

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## BACT: Technical Feasibility

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- Eliminate technically infeasible options
- Technologies that have not been demonstrated full-scale must be commercially “available” to be considered feasible
- Technical feasibility, from 1980 Workshop Manual [17B]
  - A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes

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### BACT: Technical Feasibility

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- Technical feasibility, from draft 1990 NSR Workshop Manual [2W]
  - if the technology has been installed and operated successfully on the type of source under review, it is demonstrated and technically feasible.
  - If not, then may still be technically feasible based on technology transfer. Two key concepts: availability and applicability

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### BACT: Technical Feasibility

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- More good guidance from draft 1990 NSR Workshop Manual on technology transfer [2W]:
  - “A source would not be required to experience extended time delays or resource penalties to allow research to be conducted on a new technique [or]
  - “to experience extended trials to learn how to apply a technology on a totally new and dissimilar source type.”
- But, this draft guidance document also includes unfortunate statements:
  - “a commercially available control option will be presumed to be applicable if it has been or is soon to be deployed on the same or similar source type”

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### BACT: Technical Feasibility – Example

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- 2006 CD for Minnkota’s Young Station in North Dakota
  - Unlike other utility NSR CDs, did not require SCR. (Boilers at M.R. Young burn ND lignite, which is high in soluble sodium and potassium, known SCR catalyst poisons.) Instead,
  - Required Minnkota to submit BACT analysis to EPA and NDDH and
  - Required NDDH to make BACT determination in accordance with CAA, applicable rules, and draft 1990 Workshop Manual. Established deadline of 12/31/2010.

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### BACT: Technical Feasibility – Example (Cont'd.)

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- Minnkota's Young Station in North Dakota
  - In 2008, NDDH sought public comment on preliminary conclusion that SCR was not technically feasible
  - Engineering evaluation yields concerns with catalyst poisoning, identifies no proven solutions
  - Information from Minnkota's survey of SCR catalyst vendors indicates pilot scale testing would be required
  - EPA submitted comments indicating SCR was technically feasible; included information gathered from vendors

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### BACT: Technical Feasibility – Example (Cont'd.)

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- Minnkota's Young Station in North Dakota
  - In 2009, based on information provided by EPA, NDDH requested that Minnkota provide additional analysis of technical feasibility and costs of SCR
  - In early 2010, relying on information provided by EPA, NDDH sought public comment on preliminary conclusion that SCR was technically feasible but was not BACT

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### BACT: Technical Feasibility – Example (Cont'd.)

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- Minnkota's Young Station in North Dakota
  - Comments and additional information submitted to NDDH in 2010, from Minnkota and catalyst vendors, showed that information submitted by EPA in 2008 was flawed
  - Catalyst vendors had been misled or provided incomplete information

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### BACT: Technical Feasibility – Example (Cont'd.)

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- Minnkota’s Young Station in North Dakota
  - In Nov. 2010, NDDH made final BACT determination, rejecting SCR
    - Engineering evaluation yielded concerns with catalyst poisoning, identifies no proven solutions
    - SCR catalyst vendors indicated pilot scale testing would be required and no guarantee would be provided
  - In Dec. 2011, court rejected EPA’s petition and upheld NDDH BACT determination [47H]
    - Not unreasonable, supported by extensive administrative record, not arbitrary or capricious

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### Step 3 BACT: Ranking Technologies

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- Rank by effectiveness, most effective first
- Ranking of technically feasible control options is based solely on achievable emission reduction for the pollutant in question
  - Other considerations arise elsewhere
- Use expected emissions performance levels
- Use common units (lb/MMBtu, % reduction, etc.)
- May need to include control strategies that are combinations of listed control options (e.g., low-NOx burners in combination with SCR)

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### Step 3 BACT: Ranking Technologies

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- Some control options/strategies may need to be evaluated at more than one level of emission reduction
- Example: wet limestone scrubbing is determined to be technically feasible at up to 95% SO<sub>2</sub> control
  - 90% SO<sub>2</sub> control can be achieved at half the cost
  - Wet limestone scrubbing at 90% efficiency is a good candidate for consideration as a separate control option in Step 4

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### Step 4 BACT: Evaluation

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- Begin with top (most effective) control option
- Consider energy, environmental, and economic impacts of control
- Consider both beneficial and adverse impacts
- If top option is eliminated, evaluate next most effective alternative
- Continue until option is not rejected. This is applicant's BACT.

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### Step 4 BACT: Evaluation-Special Considerations

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- Unless demonstrated otherwise, sources in the same source category are presumed to be similar with similar impacts and costs [1R-4, 3G, 5D]
- If a similar source has applied a control option, applicant needs to demonstrate that unique conditions exist that distinguish it from the other source in order to reject that option as BACT. [37A]

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### Step 4 BACT: Evaluation-Economic Analysis

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- Just one of the three factors required under CAA to be considered ... however ... typically this factor is given great weight in making top-down BACT determinations
- Concept as described in draft 1990 NSR Workshop Manual [2W]: The most stringent control option is selected as BACT unless the use of that option results in an adverse economic impact that is prohibitive and is greater than that of other sources
  - The presumption is that sources within the same category are similar in nature, and that cost and other impacts that have been borne by one source of given source category may be borne by another source.

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### Step 4 BACT: Evaluation-Economic Analysis

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- April 23, 1987 memo from OAQPS (EPA HQ) that forwarded R4 dispute with AL DEM regarding Huntsville Incinerator [36S]
  - AL DEM argued that acid gas scrubbers would “kill the project”
  - Per 40 CFR 52.21(r)(4), incremental cost at \$1,510/ton “appears reasonable”
  - HQ noted that “..States are to decide how their environmental resources (such as increments) are used”

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### Step 4 BACT: Evaluation-Economic Analysis

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- More guidance from draft 1990 NSR Workshop Manual [2W]:
  - In essence, if the cost of reducing emissions with the top control alternative, expressed in dollars per ton, is on the same order as the cost previously borne by sources of the same type in applying that control alternative, the alternative should initially be considered economically achievable, and therefore acceptable as BACT
  - To justify elimination [on the basis of economic impacts], the applicant should demonstrate ... that costs of pollutant removal (e.g., dollars per total ton removed) for the control alternative are disproportionately high when compared to the cost of control for the pollutant in recent BACT determinations

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### Step 4 BACT: Evaluation-Economic Analysis

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- Two primary measures of economic impacts in 1990 top-down procedure [2W]:
  - Average (or “Total”) cost effectiveness and
  - Incremental cost effectiveness
- Average cost effectiveness = (total annualized costs of control) / (annual emission reductions)
- Incremental CE = {(total annualized cost of option) - (total annualized cost of next option)} / {(next option annual emission rate) - (option annual emission rate)}

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### Step 4 BACT: Evaluation-Economic Analysis

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- Pre-1990 EPA guidance weighed incremental cost effectiveness and economic viability most heavily [17B, 36L]
- Draft 1990 NSR Workshop Manual [2W] and subsequent guidance [3C, 4R, 44X] suggest greater weight on average cost effectiveness
  - Costs (\$/ton removed) should be compared to costs of recent BACT decisions for that type of source
  - An option can be eliminated if costs are disproportionately high compared to recent BACT determinations

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### Step 4 BACT: Evaluation-Economic Analysis

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- Average Cost Effectiveness requires identifying a baseline
- Guidance from draft 1990 NSR Workshop Manual [2W]:
  - [The] baseline emission rate represents a realistic scenario of upper bound uncontrolled emissions for the source. The NSPS/NESHAP requirements or the application of controls, including other controls necessary to comply with State or local air pollution regulations, are not considered ...
  - [B]aseline emissions calculations can also consider inherent physical or operational constraints on the source. Such constraints should accurately reflect the true upper boundary of the source's ability to physically operate.
- Technologies such as low-NOx burners are considered inherent [SR]. Also, a Solar Turbines SoLoNox turbine's emissions of 9 ppm were considered baseline for cost-effectiveness purposes (in determining whether an add-on control such as SCR was cost-effective), since it was a low emissions design. [67C-27] (6/3/20)

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### Step 4 BACT: Evaluation-Economic Analysis

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- Incremental cost effectiveness is often downplayed by EPA and the courts, e.g., "[U]ndue focus on incremental cost effectiveness can give an impression that the cost of a control alternative is unreasonably high, when, in fact, the cost effectiveness, in terms of dollars per total ton removed, is well within the normal range of acceptable BACT costs." [66K-32] The judge ignored incremental cost calculations because they compared the highest efficiency option to the lowest efficiency option (instead of the next most stringent option). [66K-40]
  - In another case, during an analysis of adding SCR to a SoLoNox turbine, a judge agreed with the agency that both the average and incremental cost effectiveness were the same (\$41,541/ton) and were too high. [67C-30]

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### Step 4 BACT: Evaluation-Economic Analysis

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- Other key considerations in cost effectiveness calculations [2W, 21L]:
  - Control efficiency
  - Purchased equipment cost
  - Equipment life
  - Interest rate (capital recovery charges)
  - Contingency
  - Property taxes
- But some costs may not be accepted. In *Ameren*, the judge rejected Ameren’s expert’s calculations because he included \$150 million for financing, \$64 million for escalation, \$44 million for overhead, and \$22 million for property taxes. “Traditionally, these costs are excluded from the calculation because they are extrinsic to the technologies themselves and vary dramatically. For example, different companies have different cost recovery rates and execute projects on different timelines. Excluding extrinsic costs allows for a more consistent way to compare costs across the industry.” [66K-42]

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### Step 4 BACT Evaluation-Economic Analysis

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- On the other hand, a cost estimate does not have to be detailed. An estimate from the applicant was accepted as reasonable, despite even a lack of notes to back up the estimate, for using an electric turbine at a compressor station. As the judge noted: “So while the Presiding Officer fairly noted the unimpressive support for the estimate, we cannot say that the evidence was insubstantial as a matter of law.” Also, petitioners had not offered an alternative cost estimate. [67C-16] (6/3/20)
  - However, DEP had established that technologies falling in (or below) the range of \$11,000 to \$13,000 per ton of NOx removed per year will be considered cost feasible, but DEP never calculated cost effectiveness for an electric motor, nor did it compare that figure to the stated range. (Petitioners also argued that the DEP cost threshold was set in 1990 and should be adjusted for inflation. The administrative appeal reviewer rejected that, but recommended that DEP consider adjusting for inflation in the future. [67C-27])
  - The judge noted that there wasn’t even enough information to calculate cost effectiveness, since the baseline emissions and the annualized cost of the electric turbine were missing. However, rough calculations indicated a value below \$13,000/ton reduction, noting that since an electric turbine was a process control rather than an add-on control, the baseline was not the SoLoNox turbine, but instead was a regular turbine with water injection. [67C-21]

NOTE: This is the only case we’re aware of where the judge opines somewhat disdainfully that: “The record does not even contain a Fermi estimate fixing the magnitude of the quotient above the regulatory cost-effectiveness cut-off.” [67C-25]

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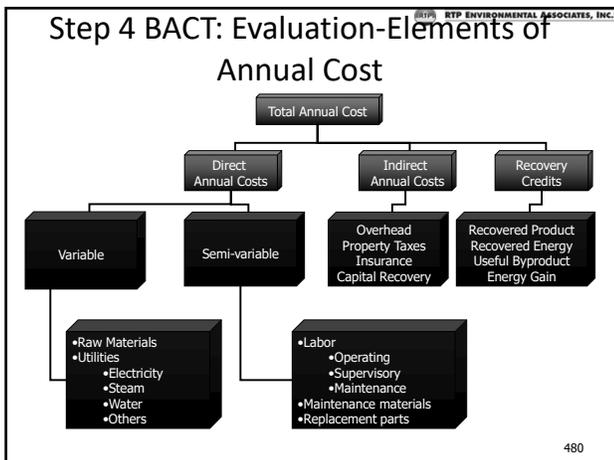
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### Step 4 BACT: Evaluation-Energy Impacts Analysis

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- This is typically the least important of the three factors. (This is less true with GHG BACT.)
- Guidance from draft 1990 NSR Workshop Manual [2W]:
  - Looking for significant or unusual energy penalties or benefits
  - Recommends looking only at direct (i.e., on-site) energy use
  - Can also consider availability of fuels
- In Ameren case, judge determined that energy use for wet FGD would not be unreasonable and that Ameren failed to show energy demand was different from that at other pulverized coal-fired power plants with wet FGD. [66K-54]

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### Step 4 BACT: Evaluation-Environmental Impacts

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- Determine impacts [2W, 25W, 36L, 36Y, 37D]
  - Collateral effects on emissions of pollutants other than the target pollutant, including air toxics?
  - Other multimedia effects, such as water discharge or solid waste?
- Air Toxics: For a proposed compressor station, petitioners challenged the agency’s decision to accept emissions of formaldehyde that were below their threshold without assessing the cumulative total from all sources in the area. The 1<sup>st</sup> Circuit upheld the agency approach. [67C-35]

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### Step 4 BACT: Evaluation-Environmental Impacts

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- In the Ameren case, judge determined: [66K-55]
  - Evidence does not show that wet FGD would impose unreasonable environmental impacts at Rush Island. Instead, Ameren would have the environmental benefit of producing saleable gypsum instead of landfill waste.
  - Additionally, water limitations would not be an issue for Rush Island, because it is in close proximity to the Mississippi River.
  - Ameren presented evidence at trial that wet FGD would require more wastewater treatment and new mercury controls, creating more costs for Ameren than DSI would impose. However, Ameren made no effort to explain how these environmental impacts made wet FGD unachievable. Nor did Ameren suggest that these environmental impacts are different from the kinds of impacts experienced at other pulverized coal-fired power plants

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### Step 4 BACT: Evaluation-Environmental Impacts

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- Pre-1990 EPA guidance encouraged consideration of air quality impacts as an environmental impact [17B, 36L]:
  - An air quality impacts analysis should be included in the environmental impacts analysis. It should consider the maximum ground-level impact and ground-level concentrations that would result from the emissions from the proposed new source or modification after each alternative control strategy is applied, as well as the size of the area significantly affected by these increased emissions.

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### Step 4 BACT: Evaluation-Environmental Impacts

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- Post-1990 guidance abruptly shifts [2W, 37U]
  - ... not to be confused with the air quality impact analysis [which is] conducted separately from the BACT analysis.
  - ... the environmental impacts portion of the BACT analysis concentrates on impacts other than impacts on air quality standards due to emissions of the regulated pollutant in question....
  - “As a matter of law, a facility’s or a technology’s impact on air quality is irrelevant to BACT determinations under the Clean Air Act.” {seriously.}

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### Step 5 BACT: Selection

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- BACT is an emission limitation
  - Permitting authority can default to non-numeric limits only if measuring emissions is technically or economically infeasible.
  - This requires an on-the-record determination of infeasibility. [24F]
- Cost data relatively objective
- Other impact evaluations subjective
- Option selected still cannot cause NAAQS or increment exceedance

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### Step 5 BACT: Selection

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- Emissions during SSM are not exempt from BACT.
  - EPA policy prefers short-term, numeric limits applicable during SSM.
  - At a minimum, if SSM emissions are not subject to same limits as steady-state emissions, must have an on-the-record determination of unachievability; an alternative limit applicable during SSM; and a determination of infeasibility if non-numeric limits are used [2Q, 16J, 19C, 20O, 24F, 24L, 28S].

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### Step 5 BACT: Selection

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- SSM/Affirmative Defense policy
  - On 6/12/2015, EPA's updated SSM policy is basis for SIP Call for 36 states (covering 45 jurisdictions) with inadequate provisions, including affirmative defense provisions. Automatic exemptions and director's discretion exemptions are not consistent with the CAA; exemptions during SSM are not allowed, but limits need not be numerical, do not have to be the same at all times, and may be a combination of numerical limits, control requirements, and/or work practices. [80 FR 33840]
  - Trump EPA reverses course on 2/7/2020, at least for Texas, withdrawing objections to the Texas affirmative defense provisions. [85 FR 7232]
  - Trump EPA goes further in 10/9/2020 guidance memorandum that certain automatic SSM exemptions and affirmative defense provisions may be acceptable. The 2015 SIP Call was not withdrawn; instead, EPA planned to review the 'called' SIPs by 2023 to determine whether as a whole they complied with the CAA. [67P]
  - On 9/30/21, Biden EPA withdraws the 10/9/20 memorandum addressing SSM SIP provisions and reinstates the 2015 SSM SIP Action viewing most exemption provisions as inconsistent with CAA requirements. [68U]

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### Step 5 BACT: Selection

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- Inherent conflict in setting BACT limits: Stringent enough to represent the maximum degree of reduction, yet still achievable
  - Margin of compliance is appropriate, but must be justified [9M, 10D, 18C, 19C, 19S, 24I, 29U, 44X, 51V, 66K].
  - Ameren judge accepted limits (historic and current) based in part on what other plants were achieving [66K-58]

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### Step 5 BACT: Selection for GHG

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- EPA reiterated top-down process [46U]
- Evaluate non-CO2 pollutants
  - CH4 equipment leaks, circuit breakers with SF6, etc.
- Ranking is on CO2e basis
  - Converting CH4 to CO2 increases mass GHG emission rate but should be considered a control option
- BACT for CO2 will include two broad categories of control options: carbon capture and storage (“CCS”) and options for reducing carbon intensity
  - CCS will not be BACT, but rationale for rejecting must be documented thoroughly in the record

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### Step 5 BACT: Selection for GHG

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- Identify all options:
  - Lower carbon fuels (even electric?)
  - Minimize wasting (e.g., flaring)
  - Maximize energy recovery
- Typically (both for GHG and other pollutants) most important impacts are expressed together as cost effectiveness (e.g., \$ per ton reduced)
- Energy recovery options not planned as part of project (i.e., insufficient ROR) may be required as BACT

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### Step 5 BACT: GHG Cost Effectiveness

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- Acceptable \$/ton levels for GHG BACT not well established
  - Permitting authorities have not imposed BACT for combustion sources based on CCS or other add-on controls at any cost
  - Permitting authorities other than EPA have routinely rejected CCS based on costs of ~ \$20 to \$30/ton
  - EPA has rejected CCS based on costs of as little as \$14/ton, but typically describes these costs in relation to total project cost rather than \$/ton values

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### Step 5 BACT: GHG Form of Emissions Limits

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- Hyperion (greenfield refinery in SD, issued 2011)
  - 30 heaters & 5 combined cycle turbines: 33 tons & 23.9 tons CO<sub>2</sub>e, respectively, per 1000 bbls crude (annual)
  - Coke drum blowdown: 4.66 tons CO<sub>2</sub>e per drum per cycle
  - Equipment leaks: LDAR for equipment in CH<sub>4</sub> service (5%)
- Sinclair Wyoming (issued Mar. 2013 by EPA Region 8)
  - Each heater: 146 lb CO<sub>2</sub>e/MMBtu (7-day), also tpy; rejected air preheat for heaters < 200 MMBtu/hr based on cost
  - Flare: operate flare gas recovery (work practice only)
  - Equipment leaks: no requirements

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### Step 5 BACT: GHG Form of Emissions Limits

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- Valero McKee (issued Sept. 2013 by EPA Region 6)
  - Each heater/boiler: 0.11 lb CO<sub>2</sub>e/scf fuel (365-day), also tpy
  - SRU: tpy CO<sub>2</sub>e limit only
  - Equipment leaks: LDAR for equipment in CH<sub>4</sub> service (5%)
- Phillips 66 – Lake Charles (issued Sept. 2013 by LDEQ)
  - Boiler: 81.6 tons CO<sub>2</sub>e per million lbs steam (12-month), based on 84.5% efficiency achieved with non-condensing economizer
- Marathon Catlettsburg KY (issued July 2015 by KDAQ)
  - Boiler: 85% minimum efficiency (API Method 560), annual average; 127.1 lb CO<sub>2</sub> per MMBtu; and 179,000 tons CO<sub>2</sub>e per year

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### PSD APPLICABILITY DIAGRAM AND EXERCISES

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## AMBIENT MONITORING

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## Ambient Data Requirements

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- Air quality monitoring data
  - 52.21(m)(1)(i), (iii): Pre-construction data required for criteria pollutants for which the project or stationary source is major
  - 52.21(m)(1)(i), (ii): Pre-construction data may be required for non-criteria pollutants for which the project or stationary source is major
  - 52.21(m)(2): Post-construction data may be required
  - 52.21(k) (discussed separately): Pre-construction data may be needed

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## Pre-Construction Monitoring

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- Pursuant to CAA § 165(e)(2), 40 CFR § 52.21(m) requires:
  - “an analysis of ambient air quality in the area that the major stationary source or major modification would affect”
  - including continuous air quality monitoring data for criteria pollutants
    - presumptively “gathered over a period of at least one year and shall represent at least the year preceding receipt of the application,” but a period as short as 4 months can be approved
  - pre-existing monitoring data can be used, subject to the requirements of section 8.2 of appendix W to 40 CFR part 51

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## Pre-Construction Monitoring

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- Data Can Come From:
  - Existing Monitors Representative of Area
  - Site-Specific Monitoring Network
- 1980 Rule provides exclusion:
  - if ambient air concentration or source impact is below SMC, data not required
    - {SMC were established based on sensitivity of monitors in 1979}
  - Rule at 40 CFR § 52.21(i)(5) provides an exemption from the preconstruction monitoring requirement if predicted project impacts are below Significant Monitoring Concentration (SMC) values

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## Pre-Construction Monitoring

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- DC Circuit decision vacated PM2.5 SMC [50M]
  - CAA is clear and “extraordinarily rigid” – source must provide ambient air quality analysis for criteria pollutants
- EPA guidance from May 2014 [54I]
  - Reaffirms that sources can continue to rely on data from existing monitors that are representative of the air quality in the affected area
  - Draft guidance update issued 2/10/2020 continues this policy, adding that the monitor should account for secondary formation of PM2.5 [66U]
- Court decision has shifted the focus back to quality and representativeness of existing data
  - Consistent with long-standing guidance [51U]

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## Significant Monitoring Concentrations

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Pollutant	Air Quality Concentration (µg/m <sup>3</sup> ) and Averaging Time	
Carbon Monoxide	575	(8-hour)
Nitrogen dioxide	14	(Annual)
Sulfur dioxide	13	(24-hour)
Particulate Matter, TSP	10	(24-hour)
Particulate Matter, PM <sub>10</sub>	10	(24-hour)
Particulate Matter, PM <sub>2.5</sub>	0*	(24-hour)
Ozone	A	
Lead	0.1	(3-month)
Fluorides	0.25	(24-hour)
Sulfuric Acid Mist	B	
Total reduced sulfur (including H <sub>2</sub> S)	B	
Reduced sulfur (including H <sub>2</sub> S)	B	

A - No significant air quality concentration for ozone monitoring has been established. Instead, applicants with a net emissions increase of 100 tons/year or more of VOC's subject to PSD would be required to perform an ambient impact analysis, including pre-application monitoring data.  
 B - Acceptable monitoring techniques may not be available at this time. Monitoring requirements for this pollutant should be discussed within the permitting agency.  
 \* - In accordance with Sierra Club v. EPA, 706 F.3d 428 (DC Cir. 2013), no exemption is available with regard to PM2.5.

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## Post-Construction Monitoring

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- Recommended by EPA when valid reason, e.g.,
  - When NAAQS are threatened
  - When there are uncertainties in the data bases for modeling
- Existing monitors OK if
  - Approved for PSD monitoring purposes
  - Still in appropriate location considering new source/modification

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## SOURCE IMPACT ANALYSIS

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## Source Impact Analyses

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- Types
  - Air Quality
    - Two separate analyses:
      - NAAQS
      - Increment
    - Not Required Unless Ambient Impact of Pollutant Is “Significant” (equal or greater than SIL), but see DC Circuit decision on PM2.5 SIL, EPA policy, and implications for use of other pollutant SIL
  - “Additional” impacts (soil, vegetation, visibility)
  - Class I impacts on AQRV

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## Source Impact Analysis

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- 40 CFR § 52.21(k) Source impact analysis - The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:
  - Any national ambient air quality standard in any air quality control region; or
  - Any applicable maximum allowable increase over the baseline concentration in any area.
- Estimates of ambient concentrations shall be based on applicable air quality models, data bases, and other requirements specified in appendix W to 40 CFR Part 51. 40 CFR § 52.21(l)
- Where guideline models are inappropriate, requires EPA approval of model substitution or modifications to guideline model

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## Source Impact Analysis

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- Appendix W revised 1/17/2017 [82 FR 5182]
- Revisions took effect 3/21/2017 [82 FR 8499]
- For ozone and PM2.5, requires consideration of secondary formation but does not provide a recommended guideline model
- Leaves two permissible approaches (“tiers”), both involving case-by-case EPA approval:
  - Screening techniques using Model Emission Rates for Precursors (MERPs)
  - EPA declined to publish presumptively acceptable MERPs, but on 4/30/2019 issued guidance on the development of MERPs as a tier 1 demonstration tool for ozone and PM2.5, including a range of modeled MERPs [66D]
  - Refined modeling (e.g., using CAMx or CMAQ photochemical grid models)

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## PSD Review: Source Impact Analysis

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- Definition of “ambient air” from 40 CFR § 50.1:
  - “[T]hat portion of the atmosphere, external to buildings, to which the general public has access.”
- Two policy questions:
  - Who is the general public?
  - When is a location not accessible?

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### PSD Review: Source Impact Analysis

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- “General public”
  - Includes anyone who is not employed by or under control of the owner/operator
  - Does not include persons who are permitted to enter restricted land for the business benefit of the person who has the power to control access to the land. [6B, 20S, 23C]

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### PSD Review: Source Impact Analysis

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- Precluding access:
  - Source owner’s property is not considered “ambient air” and can be excluded from modeling analysis, but only if access is restricted by physical means. [2W, 6Q, 20S, 35G, 37P]
  - Under revised policy as clarified in a 11/22/2019 memorandum from Administrator Wheeler “the atmosphere over land owned or controlled by the stationary source may be excluded from ambient air where the source employs measures, which may include physical barriers, that are effective in precluding access to the land by the general public.” [66Q]
  - Unlike NAAQS, EPA policy is that PSD increments apply only at ground level and not at a building rooftop, even if the rooftop is accessible by the general public [35N]

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### “Cause or Contribute”

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- Established “significant impact levels” for NNSR purposes using concentration levels listed at 40 CFR § 51.165(b)(2) and in Appendix S for “cause or contribute”
- Applied by policy for PSD purposes [36C, 2W, 8I, 8Z, 9F, 17W, 19C]
- Contribution is determined with respect to both time and space [33J, 35Q, 36C]
- Only the PM2.5 Significant Impact Levels (SIL) are listed in 40 CFR § 52.21 (k)(2) (but see next 3 slides)

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**PSD Review:  
Source Impact Analysis**

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- In Jan. 2013 decision in *Sierra Club v. EPA*, U.S. Court of Appeals for D.C. Circuit honored EPA's request for vacatur and remand of PM2.5 SIL language in federal PSD rule [50M]
  - Rule language (per EPA) was unintentionally drafted in a way that removes the permitting authority's discretion to require a cumulative modeling analysis
  - Court decision did not address the SILs as codified at 40 CFR § 51.165(b)(2)
  - Court decision did not address the use of SILs through policy

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**PSD Review:  
Source Impact Analysis**

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- March 2013 draft and May 2014 revised EPA guidance purports to change the way states are allowed to use SILs:
  - To the extent a permitting authority wishes to use a SIL as a screening tool to determine whether it is necessary to conduct a cumulative analysis, "the permitting authority must first examine background air quality concentrations to determine whether a substantial portion of the NAAQS has been consumed."
  - "EPA advises permitting authorities to consult with the EPA before using the SIL value for PM2.5 in section 51.165(b)(2) as the basis for concluding that a source with an impact below this value does not significantly contribute to a modeled violation." [50N, 54I]

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**PSD Review:  
Source Impacts Analysis**

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- Remember:
  - Guidance (especially draft guidance) is not binding on states.
  - *Sierra Club v. EPA* court decision did not address the SILs as codified at 40 CFR § 51.165(b)(2) or the use of these SILs, through policy, in PSD modeling analyses.
- Cause or contribute
  - EPA uses SIL in determining cause or contribute and this use was not addressed by the DC Circuit decision
  - Consistent with EPA's long-established policy, permitting authorities continue to have broad discretion to apply SILs as the unambiguous, quantitative representation of the ambiguous statutory term "cause or contribute" [2W, 17W, 19C, 51N]

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### PSD Review: Source Impacts Analysis

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- EPA in April 2018 issued new SIL guidance [65P]
  - Without explicitly reversing 2014 guidance [54I], EPA also recognizes that predicted impact less than the SIL “may be considered to be a sufficient demonstration that the proposed source will not cause or contribute to a violation of the applicable NAAQS or PSD increment,” with no mention of a headroom (“substantial portion of the NAAQS”) analysis
- Guidance also establishes presumptive PM2.5 and ozone SILs
  - Ozone SIL (8-hour) 1.0 ppb
  - PM2.5 (24-hour) 1.2 µg/m3
  - PM2.5 (Annual) 0.2 µg/m3
- Draft 2/10/20 guidance continues this approach [66U]

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### PSD Review: Source Impacts Analysis

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- Two levels of modeling for impact analyses
  - Project only
  - Cumulative
- Project only impacts analysis
  - Use the project emissions increase as input to the model
  - Screening for any potential to “cause or contribute to...” NAAQS or Increment violation (impacts below SIL)

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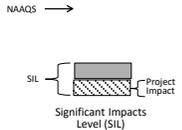
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### PSD Review: Source Impacts Analyses

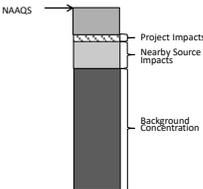
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- SIL analysis
  - Compares project impacts to SIL thresholds



Project Only Impacts Analysis

- Cumulative impacts analysis
  - Considers the background concentration, project's impacts, and impacts from other nearby sources
  - Cumulative impact is compared to the National Ambient Air Quality Standard (NAAQS)



Cumulative Impacts Analysis

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## PSD Review: Source Impacts Analysis

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- Components included in cumulative impacts analysis
  - Background concentration (representative of site while avoiding double counting)
  - Projects' impacts at receptors
  - Modeling domain (EPA Webinar presentation 8/3/2017, [https://www3.epa.gov/ttn/scram/appendix\\_w/2016/Appendix\\_W-Section8-WebinarPresentation.pdf](https://www3.epa.gov/ttn/scram/appendix_w/2016/Appendix_W-Section8-WebinarPresentation.pdf))
    - Impacts from all other sources, typically, within 10-20 km from the source under consideration (using professional judgement)
    - EPA no longer endorses the conservative practices described in draft Puzzle Book
    - Focus on "real air quality issues" of the new or modifying source

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## Significant Impact Determination

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- For each pollutant subject to PSD review, dispersion model impact
- If impact is significant, must conduct full impact analyses
- If impact is not significant, used to be exempted from NAAQS and impact analyses, but recall EPA's 3/4/13 guidance:
  - Cautioned about using SIL-based exemption from cumulative modeling
  - EPA feels that exclusion should generally be used only in cases where pre-construction monitoring data show that the NAAQS minus background concentration is greater than the SIL
  - But, EPA appears less concerned about this in 2/10/20 draft guidance [66U]

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## Cumulative Impacts Analysis: Concern About SIL Exclusion

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- Case 1. Little or no concern: cumulative impact is below the NAAQS by more than the SIL
- Case 2. EPA concerned that an increase below the SIL could avoid cumulative analysis, but result in NAAQS exceedance

Cumulative Impacts Analysis

Cumulative Impacts Analysis

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### Significance Levels ( $\mu\text{g}/\text{m}^3$ ) for Air Quality Impacts in Class II Areas<sup>a</sup>

Pollutant	Annual	24-hour	8-hour	3-hour	1-hour
SO <sub>2</sub>	1	5	--	25	3 ppb <sup>c</sup>
TSP	1	5	--	--	--
PM10	1	5	--	--	--
PM2.5	0.2 <sup>d</sup>	1.2 <sup>e</sup>	--	--	--
NO <sub>2</sub>	1	--	--	--	4 ppb <sup>c</sup>
CO	--	--	500	--	2000
O <sub>3</sub>	--	--	1 ppb <sup>c</sup>	--	-- <sup>b</sup>

<sup>a</sup> - This table from EPA's rules does not apply to Class I areas. If proposed source is located within 100 kilometers of a Class I area, an impact of 1  $\mu\text{g}/\text{m}^3$  on a 24-hour basis is significant.  
<sup>b</sup> - No significant ambient impact concentration has been established for the 1-hour ozone average. Instead, any net emissions increase of 100 ton per year of VOC subject to PSD would be required to perform an ambient impact analysis. 40 CFR 51, Appendix S, III A.  
<sup>c</sup> - In addition to the rules, EPA has issued guidance-based SILs. Guidance in 2018 [65F] recommended ozone and PM2.5 NAAQS SILs and PM2.5 PSD increment SILs.  
<sup>d</sup> - This is the recommended NAAQS SIL and Class II (and Class III) PSD increment SIL. The recommended Class I PSD increment SIL is 0.05  $\mu\text{g}/\text{m}^3$ . [65F]  
<sup>e</sup> - This value is in the current rule so is being recommended for the NAAQS SIL and Class II (and Class III) PSD increment SIL. The recommended Class I PSD increment SIL is 0.27  $\mu\text{g}/\text{m}^3$ . [65F]

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### Secondary Emissions

- Not counted in potential to emit, so not counted for applicability purposes
- However, secondary emissions are included in determining PSD air quality impact analysis
- Also, secondary emissions of nonattainment pollutants (and their precursors) subject to major nonattainment permitting must be offset along with the primary emissions

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### Meteorological Monitoring

- Offsite data can be used if representative of conditions
  - At proposed site and
  - At locations where source may have significant impact

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## Determining Impact Area

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Under the procedure set forth in the draft 1990 NSR Workshop Manual [2W], the impact area is the geographic area for which cumulative NAAQS and increment analyses are carried out

- It is a circular area with radius extending from source to:
  - Most distant point where modeling predicts a significant impact or
  - A distance of 50 km, whichever is less
- Impact area will vary by averaging time
- Most applicants use largest of the impact areas for that pollutant
- For the 1 hour NAAQS, guideline recommend that sources within 10 kilometers of the facility are the most important
  - Some sources can be eliminated from consideration due to their concentration pattern falling rapidly with distance (steep gradient)

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## DETERMINING IMPACT AREA

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## Emissions Used for Significance and Impact Area Determinations

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Under the procedure set forth in the draft 1990 NSR Workshop Manual [2W], the determination of whether the source has impacts exceeding a SIL and, if so, of the impact area:

- Includes all emissions, including fugitive
- For modifications, includes all contemporaneous increases and decreases (decreases as negative emissions)
  - Most agencies, including EPA, typically do not follow this aspect of [2W] guidance
- Excludes temporary emissions so long as those emissions do not impact
  - A Class I area or
  - An area with increment exceedances

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## NAAQS Emissions Inventory

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- Monitors provide background concentration, but need to model “nearby” existing sources and PSD applied for/permitted sources
- Nearby source is one expected to cause a “significant concentration gradient” in vicinity of proposed source
- Vicinity is
  - Within impact area or
  - Within a 10-20 km annular ring around proposed source

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## EMISSIONS INVENTORY SCREENING AREA

The diagram illustrates the screening area for emissions inventory. It features two concentric circles: an inner circle labeled 'Impact Area' and an outer circle labeled 'Screening Area'. The area between these circles is shaded with diagonal lines. Labels 'County ID Equipment' and 'County ID Hydrocarbon' are positioned near the circles. A legend at the bottom left identifies 'State line' and 'County line' with dashed lines.

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## Increment Emissions Inventory

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- All increment-affecting sources located
  - In the impact area and
  - Within 10-20 km of the proposed source
- Increment-affecting sources depend on whether and when the baseline date was triggered. May include major, minor, area, and mobile sources.

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## Non-criteria Pollutants Inventory

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- Required for all non-criteria pollutants emitted in significant amounts
- Includes sources within 50 km of proposed source or modification
- Model to estimate resulting ambient concentrations

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## Proposed Source Emission Rates

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- Maximum allowable
- May also need to model operating levels less than 100% if result in higher ground concentration

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## Receptor Network

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- Calculate impacts on locations that user selects
- Cartesian (rectangular) network with nested grids are used
  - Close to facility spacing between 50-100 m
  - Few kilometer distance spacing of 200-300 m
- Receptors along fence line at distance of 50 m
- Receptors are at ground level
- If preliminary analysis shows facility impacts above SIL, only receptors above SIL to be included in full NAAQS modeling

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## Good Engineering Practice: Stack Height

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- Stack height above GEP is not considered in modeling
- GEP is higher of:
  - 65 m, or
  - $H + 1.5 L$ , H is height of building or nearby structure and L is the lesser of the height or projected width of the building or nearby structure

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Stationary Point Source(s) Subject to SIP Emissions Limit(s) Evaluation for Compliance with Ambient Standards <i>(Including Area-wide Demonstrations)</i>			
Annual & quarterly	Maximum allowable emission limit or federally enforceable permit limit.	Actual or design capacity (whichever is greater), or federally enforceable permit condition.	Actual operating factor averaged over the most recent 2 years. <sup>1</sup>
Short term (≤ 24 hours)	Maximum allowable emission limit or federally enforceable permit limit.	Actual or design capacity (whichever is greater), or federally enforceable permit condition. <sup>4</sup>	Continuous operation, i.e., all hours of each time period under consideration (for all hours of the meteorological database). <sup>5</sup>
Nearby Source(s) <sup>6</sup>			
Annual & quarterly	Maximum allowable emission limit or federally enforceable permit limit. <sup>4</sup>	Annual level when actually operating, averaged over the most recent 2 years. <sup>7</sup>	Actual operating factor averaged over the most recent 2 years. <sup>1,8</sup>
Short term (≤ 24 hours)	Maximum allowable emission limit or federally enforceable permit limit. <sup>4</sup>	Temporarily representative level when actually operating, reflective of the most recent 2 years. <sup>7,9</sup>	Continuous operation, i.e., all hours of each time period under consideration (for all hours of the meteorological database). <sup>5</sup>
Other Source(s) <sup>6,9</sup>			
The ambient impacts from Non-nearby or Other Sources (e.g., natural sources, minor sources and distant major sources, and unidentified sources) can be represented by air quality monitoring data unless adequate data do not exist.			
<small>1. For purposes of emissions trading, NSR, or PSD, other model input criteria may apply. See Section 8.2 for more information regarding attainment demonstrations of primary PM<sub>2.5</sub>.                  2. Terminology applicable to fuel burning sources; analogous terminology (e.g., lb/throughput) may be used for other types of sources.                  3. Unless it is determined that this period is not representative.                  4. Operating levels such as 50 percent and 75 percent of capacity should also be modeled to determine the load causing the highest concentration.                  5. If operation does not occur for all hours of the time period of consideration (e.g., 3 or 24-hours) and the source operation is constrained by a federally enforceable permit condition, an appropriate adjustment to the modeled emission rate may be made (e.g., if operation is only 8 a.m. to 4 p.m. each day, only these hours will be modeled with emissions from the source. Modeled emissions should not be averaged across non-operating time periods).                  6. See Section 8.3.3.                  7. Temporarily representative operating level could be based on Continuous Emissions Monitoring (CEM) data or other information and should be determined through consultation with the appropriate reviewing authority (Paragraph 3.0(b)).                  8. For those permitted sources not in operation or that have not established an appropriate factor, continuous operation (i.e., 8760) should be used.                  9. See Section 8.3.2.</small>			

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## NAAQS Analysis

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- Modeled impacts of proposed new source or modification and existing sources with monitored background added must comply with national ambient air quality standards
- NAAQS have been established for SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, CO, O<sub>3</sub> (ozone), and Pb (lead)

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### PSD Increments

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- Maximum allowable increases in ambient concentrations in “clean” areas
- Source’s impact cannot exceed this “incremental” increase
- Intended to *prevent significant deterioration* of air quality

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### PSD Increment Consumption: Methodology

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- In 2020 draft guidance, EPA describes two “conceptually possible” methods for measuring increment consumption: [66U-58]
  - “The first way involves comparing a direct modeled projection of the change in air quality caused by all increment-consuming and expanding emissions to the increment in the area of concern (known as the baseline area...).
  - “The second approach is to make a determination of whether the current monitored ambient air quality concentration in the applicable baseline area, supplemented by the modeled impact of the proposed source, will exceed an allowable ambient air quality ceiling. This latter approach requires comparing such monitored concentration(s) to the sum of the increment and the baseline concentration for the baseline area.

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### PSD Increment Consumption: Methodology

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- “Historically, because of the lack of monitoring data to adequately represent the baseline concentration combined with various other limitations associated with the use of ambient air quality monitoring data for measuring increment consumption, the EPA has recommended that the required increment analysis be based exclusively on the first approach, which models the increment-related emissions increases or decreases to determine the resulting ambient air quality change and compares this value with the increments for a particular pollutant.”

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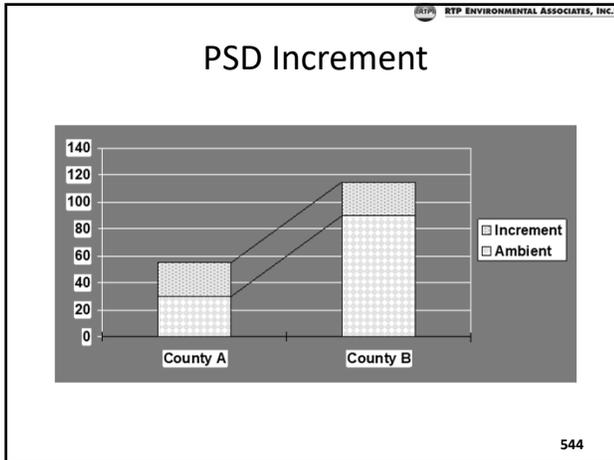
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- ### Increment Components
- Area Classification
  - Baseline Area
  - Important Dates:
    - Major Source Baseline Date
    - Trigger Date
    - Minor Source Baseline Date
  - Baseline Concentration

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- ### PSD Increments
- Established for PM-10, PM2.5, SO2, NO2 (Annual)
  - Limit amount of deterioration allowed
  - Amount of increment depends on area classification
    - Class I: about 2-5% of NAAQS; National Parks and Wilderness Areas
    - Class II: 25% of NAAQS; remainder of U.S.
    - Class III: 50% of NAAQS; currently none
- Note: there is no increment for CO, Ozone and Pb

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### PSD Increments ( $\mu\text{g}/\text{m}^3$ )

	Class I Areas	Class II Areas	Class III Areas
<b>Sulfur Dioxide</b>			
SO <sub>2</sub> , annual <sup>a</sup>	2	20	40
SO <sub>2</sub> , 24-hour <sup>b</sup>	5	91	182
SO <sub>2</sub> , 3-hour <sup>b</sup>	25	512	700
<b>Particulate Matter</b>			
PM10, annual <sup>a</sup>	4	17	34
PM10, 24-hour <sup>b</sup>	8	30	60
PM2.5, annual <sup>a</sup>	1	4	8
PM2.5, 24-hour <sup>b</sup>	2	9	18
<b>Nitrogen Dioxide</b>			
NO <sub>2</sub> , annual <sup>a</sup>	2.5	25	50
<sup>a</sup> Never to be exceeded.			
<sup>b</sup> Not to be exceeded more than once per year.			

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### Baseline Area

- For most States, baseline areas are established in 40 CFR Part 81, Subpart C
- However, States can seek different designations
  - Nevada has 256 baseline areas for PM10, SO<sub>2</sub>, and Nox, but it took considerable effort to get agreement from EPA for this [13R-9361] (footnote 1)
  - Nevada arguably also has 256 baseline areas for PM2.5 because EPA did not propose changes to baseline areas in its PM2.5 rule (other than a different impact level) [75 FR 64864 at 64888]
- Vary in size from entire State to very small areas
- Boundaries may be political (e.g., county), geographic, nonattainment area, or other

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### Baseline Area

- Example: Colorado [40 CFR 81.306]
- SO<sub>2</sub>

Designated Area	Does not meet primary standard	Does not meet secondary standard	Cannot be classified	Better than national standards
Entire State	.....	.....	.....	X

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## Baseline Area

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- Example: Colorado [40 CFR 81.306]
- PM10 (Example: first 3 areas of 17)

Designated Area	Designation	
	Date	Type
Archuleta County Pagosa Springs Area Township 38N-Range 2W: Sections 13, 14, 18; Section 21 NE, N 1/2 SE; Section 24 all except SWSW; Section 28 N 1/2NE, NE, NW. Township 38N-Range 1W; Section 18 W 1/2	8/14/01	Attainment
Adams, Denver, and Boulder Counties Denver Metropolitan area All of Denver, Jefferson, and Douglas Counties, Boulder County (excluding the Rocky Mountain National Park) and the Colorado automobile inspection and readjustment program portions of Adams and Arapahoe Counties	10/16/02	Attainment
San Miguel County, Telluride	8/14/01	Attainment

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## Baseline Area

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- Telluride is good example of how complicated the boundaries of a baseline area can get:
- The Telluride attainment/maintenance area begins at the intersection of Colorado State Highway 145 and the Telluride service area boundary, as it existed in 1991. The western edge of the nonattainment area until it meets Remine Creek is defined as follows: A tract of land located in a portion of the west one-half of Section 28 and the east one-half of Section 29, Township 43 North, Range 9 west, of New Mexico Principal Meridian, County of San Miguel, State of Colorado, described as follows: Beginning at the southwest corner of the said Section 28; Thence N 89 deg.36'00" W. 292.70 Feet; Thence S 04 deg.05'12" W. 538.63 Feet; Thence N 03 deg.29'42" W. 780.19 Feet; Thence N 22 deg.15'00" E. 3344.15 Feet; Thence S 31 deg.51'49" E. 570.44 Feet; Thence S 03 deg.15'36" E. 2106.22 Feet; Thence S 45 deg.24'42" E. 546.96 Feet; Thence S 28 deg.41'12" W. 549.62 Feet; Thence S 29 deg.40'09" E. 169.68 Feet; Thence S 44 deg.30'03" W. 649.51 Feet; Thence S 85 deg.54'00" E. 660.00 Feet; Thence S 04 deg.06'00" W. 660.00 Feet; Thence N 89 deg.56'00" E. 1318.68 Feet; to the true point of beginning containing 11249 acres as described above. Then, at Remine Creek, the attainment/ maintenance boundary follows the service area boundary for 9.55 miles to the 9,200 foot contour line. The boundary then intersects Bear Creek. Here the attainment/maintenance boundary diverges from the service area boundary (9,200 foot contour line). The attainment/maintenance boundary continues in a west, southwest direction for 0.92 miles from the intersection of the 9,200 foot contour line and Bear Creek to the top of ski lift number 9 in the Telluride Ski Area at an elevation of about 11,300 feet. The boundary then shifts and runs in a north-westerly direction for 0.83 miles from the top of lift 9 to the top of lift 7, which is located at an elevation of 10,490 feet. From the top of lift 7, the attainment/ maintenance boundary continues in a north-westerly direction for 0.5 miles to the intersection of lift 3 with the 10,000 foot control line. The attainment/maintenance boundary follows the 10,000 foot contour line in a south, south-west direction for 3.2 miles, until it intersects Skunk Creek. Here the boundary diverges from the 10,000 foot contour line and follows Skunk Creek in a northerly direction for 2.25 miles. At the intersection of Skunk Creek and Colorado State Highway 145, the attainment/maintenance boundary leaves the creek and follows Highway 145 in a northerly direction until it meets the service area boundary as it existed prior to changes adopted in 1991.

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## Baseline Area/Minor SBD

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- The determination of the minor SBD can get complicated.
  - First, a baseline area can be divided up, even if triggered, creating possible triggered and untriggered areas
  - Second, an area can be designated nonattainment, then revert back to attainment
- The second scenario has occurred. For example, Colorado had 20 separate areas listed in Part 81 for PM10 in 2000: 6 nonattainment, 1 in attainment, and 13 unclassifiable
  - So, 14 of those baseline areas could be triggered for PM10 increments
  - Currently (2021), however, all 20 areas are listed as attainment or unclassified, so Colorado has added 6 baseline areas where a PM10 minor source baseline date could be set (after the date the nonattainment classification was changed)
  - But those areas were not always designated NA. If the minor SBD was triggered when they were attainment, is that date carried forward when they become attainment again, or was it wiped out by the NA designation?
  - No EPA official policy, but the most logical approach is to treat them as newly established baseline areas (like the first scenario) regardless of past history

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### Major Source Baseline Date (MSBD)

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- Established in PSD rule for each pollutant
- Actual emissions changes from any major source on which construction commenced after this date affect increment
  - Even if the emissions don't begin until after the MSBD [66U-61]
  - Note: "The CAA section 169(2)(C) indicates that the term "construction," when used in connection with any source or facility, includes modifications defined in CAA section 111(a)(4)." [66U-61] (Footnote 25)
- Increases consume increment, decreases expand increment
  - If the decrease is from emissions that were part of the baseline, the decrease is modeled as negative emissions
  - If the decrease consists of reducing emissions that originally consumed increment, then the amount of increment-consuming emissions modeled is decreased, which results in less consumption of increment [66U-63]

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### Trigger Date

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- Date after which the first complete PSD application submitted can "trigger" the minor source baseline date
- Trigger dates established in rule

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### PSD Baseline Dates Table

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Pollutant	Major Source Baseline Date	Trigger Date
PM/PM10	January 6, 1975	August 7, 1977
PM2.5	October 20, 2010*	October 20, 2011
SO <sub>2</sub>	January 6, 1975	August 7, 1977
NO <sub>2</sub>	February 8, 1988	February 8, 1988

\*Note: EPA's draft guidance on ozone and PM2.5 modeling [66U-61] incorrectly lists this date as October 20, 2011. See, e.g., §52.21(b)(14)(i)(c).

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## Minor Source Baseline Date

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- Established by first complete PSD permit application received after Trigger Date for any baseline area in which proposed construction would:
  - locate or
  - cause at least 0.3 µg/m<sup>3</sup> for PM<sub>2.5</sub> or, for the other pollutants, at least a 1 µg/m<sup>3</sup> increase in the average annual concentration
- No increment consumption analysis required until this date established

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## “Triggering” a Baseline Area

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## PSD Increment Timeline

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### Determining Increment Consumption

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- Determine, for each baseline area impacted by the proposed project, whether the minor source baseline date has been established
- If so, determine change in concentration
  - States have broad discretion
  - The following discussion reflects the EPA policy set forth in the 1990 draft NSR Workshop Manual (2W)

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### Baseline Concentration

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- ‘Baseline concentration’ is established on the minor source baseline date, but is not an actual concentration
  - By EPA policy, it actually is a snapshot of actual emissions on the minor source baseline date
  - Changes in actual emissions after that date are used to determine increment consumption and expansion

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### Increment-affecting Emissions

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- Before major source baseline date:
  - No effect on increment from any source
- After major source baseline date (and by inference, up to the minor source baseline date):
  - Actual emissions increases and decreases which are associated with construction at a major stationary source
  - Intent was to not “grandfather” major source projects between the two baseline dates
- After the minor source baseline date:
  - Any change in actual emissions at any stationary source, area source, or mobile source

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### Implications of the “New” PM2.5 Increment Dates

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- Not only are the PM2.5 increments more stringent than the original PM increments (as are the PM10 increments), but also EPA (for the first time ever) “reset” the major and minor source baseline dates for a pollutant
- EPA used the original PM baseline dates for PM10 increments but did not do so for PM2.5

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### PM2.5 Increments

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- EPA instead set increments as if PM2.5 is a new pollutant
  - Kept PM10 increments, including annual increment, even though the annual PM10 NAAQS was repealed
  - Major NSR sources with significant net PM increases seeking a permit after 10/20/11 have to address up to four PM-based increments:
    - 24-hour and annual PM10, and
    - 24-hour and annual PM2.5

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### PM2.5 Increments: Secondary Emissions

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- On 2/10/20, EPA issued draft guidance that included how to address PM2.5 precursors (particularly NOx and SO2) in the increment analysis. [66U-72]
- The guidance discusses the “difficulties associated with combining primary and secondary impacts spatially and temporally”, then offers an alternative to modeling both primary and secondary emissions in certain areas:
  - “In some cases, the impacts of secondary PM2.5 emissions may be addressed by a demonstration that provides ambient monitoring data that generally confirms a downward trend in contributions of precursor emissions occurring after the applicable PM2.5 minor source baseline date (or the major source baseline date). If it can be confirmed that such secondary emissions reductions have occurred in a particular baseline area, it may be possible to complete the PM2.5 increments modeling analysis simply by focusing on potential increment consumption associated with direct PM2.5 emissions.”
  - For areas where PM2.5 precursor emission increases from other increment consuming sources have occurred since the major or minor source baseline dates, and are, thus, likely to have added to PM2.5 concentration increases within the baseline area (and, thus, consume PM2.5 increment), the chemical transport modeling methods (using the emissions input data applicable to increment analyses) “may be appropriate”.
- Includes examples at Appendices C and D

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### New Increment Dates...

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- Original PM major source baseline date set at January 6, 1975. EPA kept same date for PM10.
  - In most areas, PM emissions have declined due to more controls or shutdowns
  - Therefore, every PM and PM10 reduction at major sources since 1/6/75 expanded the available increment
  - “Resetting” the PM2.5 major source baseline date to 10/20/10 means that all those reductions are now part of the baseline, so all of that “expanded” increment is unavailable for PM2.5.

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### New Increment Dates...

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- Minor source baseline dates also “reset”—will be set by the first complete PSD permit application following the trigger date (10/20/11) for a source or modification that will locate in that baseline area or have a significant impact on a baseline area
  - Emissions increases and decreases at all sources since the minor source baseline date affect increment, but generally there have been more decreases than increases
  - All those decreases are lost when the date is reset—all the “expanded” increment disappears

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### New Increment Dates...

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- From the environmental side,
  - Since the minor source baseline date is set by the first complete PSD application in the area or impacting the area
    - The often rugged Class I areas and surrounding land see few PSD permits, so triggering increment consumption from non-major source growth is slow
    - Some Class I areas still not protected by increments, even after 35+ years
    - Could have odd situation where an area has triggered for PM10 increment, but not for PM2.5
  - Also, if PM2.5 emissions have increased (rather than decreased) in such an area, the new dates “reset” the count and the increases become part of the PM2.5 baseline

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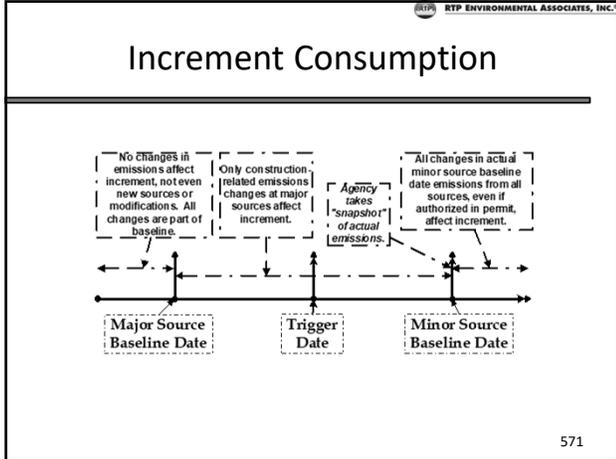
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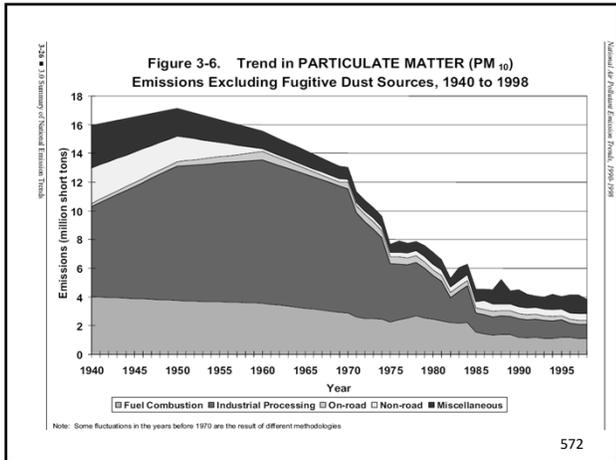
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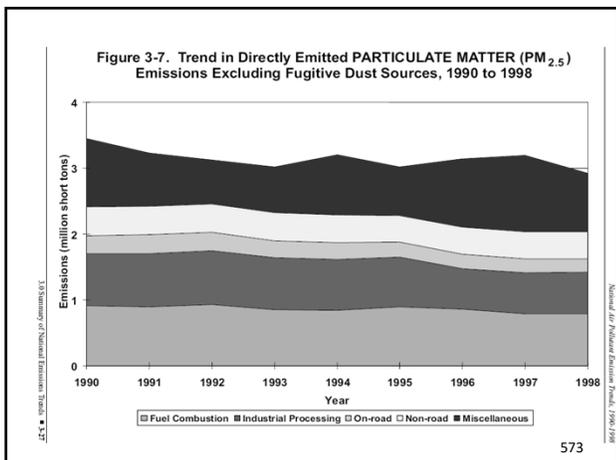
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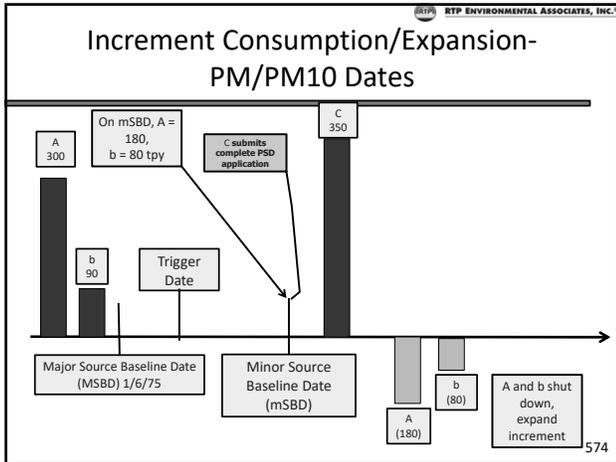
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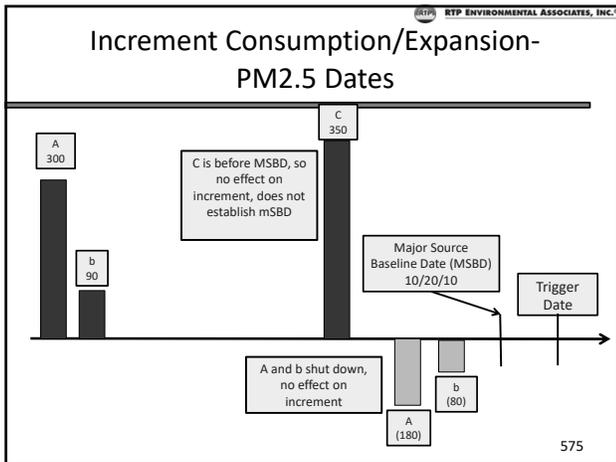
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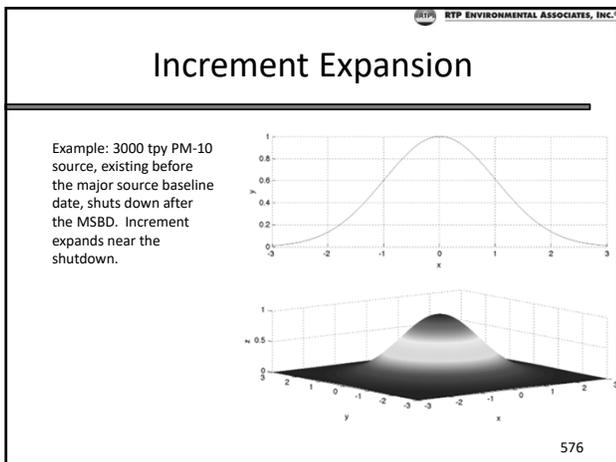
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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## Calculating Emissions

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- Regulations are silent on methods for determining increment consumption, so states have broad discretion [72 FR 31372]
- Annual rate is representative 2-year average actual emissions [2W]
  - Usually, the two years just prior to the date for which emissions are being calculated (the baseline date or the date emissions changed)
  - Use PTE if no representative actual emissions
- Short-term emission rates are highest achieved (during the 2-year period selected as representative) for that averaging period [300, 2W]
- Annual emissions are more likely to change than short-term
  - Annual emissions depend on utilization as well as rate of emissions
  - Short-term emissions likely to increase only if increase capacity or change emission factor

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## Establishing the Inventory

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- Proposed Source or Modification
  - Maximum Allowable [PTE] for new unit/source
  - Calculated emissions increase for modified units
    - May need to adjust if not all emissions increase is increment-affecting
  - May also need to model operating levels less than 100% if result in higher ground concentration

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related major source changes [after major source baseline date (MSBD) but before mSBD]
  - Includes changes in method of operation [40 CFR 52.21(b)(8)] as defined by NSR program
  - Usually determined from permitting records
  - Includes minor modifications
  - Calculation is difference between (Manual, p. C.48)
    - Current actual emissions rate, and
    - Actual emissions rate as of MSBD

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- All other point sources [Manual, p. C.11 & c.48]
  - Determine actual emissions on mSBD
    - Use average of 2 years just prior to mSBD
      - Can use some other 2 year period
      - If more representative of normal operation
    - If no representative actual emissions, use PTE
  - Determine current actual emissions
  - Subtract “mSBD actual” from “current actual” emissions
    - If negative, increment is expanded. Model as negative emissions
    - If positive, increment is consumed. Model as positive emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Will have different inventory for each averaging time
  - E.G., SO<sub>2</sub> has 3-hour, 24-hour, and annual averages
  - Annual rate is representative 2-year average actual emissions [2W, p. C.48]
  - Short-term emission rates are highest achieved (during the 2-year period selected as representative) for that averaging period [300; 2W, p. C.49]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD
  - Note that the “baseline” for these changes is given as the MSBD, unlike all other sources (which use the mSBD baseline)
  - Neither the rule and the Workshop Manual are definitive about this

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD
  - The rule tells us what is part of the baseline and what consumes increment:
    - (ii) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):
      - (a) Actual emissions, as defined in paragraph (b)(21) of this section, from any major stationary source on which construction commenced after the major source baseline date; and
      - (b) Actual emissions increases and decreases, as defined in paragraph (b)(21) of this section, at any stationary source occurring after the minor source baseline date.
  - The problem is that paragraphs (a) and (b) overlap

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD
  - Assume a major stationary source A was constructed prior to the MSBD. It had 2300 tpy of emissions on the MSBD and 3000 tpy on the mSBD. Now the source is shutting down and will be torn down. The definition of “construction” includes demolition.
  - Both paragraphs (a) and (b) appear to apply, but based on the Manual and the 1980 preamble, it appears that since the “construction” occurs after the mSBD, the mSBD is the baseline (3000 tpy rather than 2300 tpy).

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD
  - Another issue has been whether, when a major source undergoes construction after the MSBD, all of the emissions then affect increment or only the portion of the emissions affected by the construction
  - This was addressed in two cases [24K, 53Z]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD
  - NMU Ripley Heating Plant (2009) [24K]
    - On appeal, Sierra Club argues that there is no legal basis for the 1335 tons used and continues to claim that all of the emissions should have been used to calculate increment consumption.
      - Sierra Club points to the regulation which, in its view, specifies that all “actual emissions” from new and modified major stationary sources constructed after the major source baseline date should be excluded from the baseline concentration and instead analyzed as consuming increment.
      - The 2-year average of those emissions would be somewhere around 15,000 tpy

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD (Cont..)
  - NMU Ripley Heating Plant (2009) [24K]
    - The EAB agreed with Michigan that only emissions changes resulting from the modifications affect increment, construing the statutory, regulatory, and preamble language to mean that:
      - All actual emissions from the modifications to a source consume increment, NOT
      - All actual emissions from the modification to the source plus actual emissions from the portions of the source that were not modified

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD
  - The 7th Circuit in August 2014 addressed modifications to a Georgia-Pacific pre-1975 paper mill in Wisconsin. The court noted: [53Z]
    - The definition of baseline concentration does not explicitly address the treatment of emissions from a plant, only one part of which has been modified (and thus is treated as a new source)
    - “Two things are plain:”
      - Emissions from pre-1975 sources, up to the 1975 level, count as part of the baseline and toward the overall emissions allowances;
      - Emissions from post-1975 modifications to pre-1975 sources (in this case, the modified paper machine) count against a state’s pollutant allowance.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Construction-related changes at major sources after the MSBD (Cont..)
  - The 7th Circuit in August 2014 addressed modifications to a Georgia-Pacific pre-1975 paper mill in Wisconsin. The court noted: [53Z]
    - But the statute does not tell us what happens to the pre-1975 plant and its other machines, or whether a modification changes the relation between the baseline and the new allowance.
    - EPA's interpretation (that pre-1975 emissions remain in the baseline while emissions from post-1975 construction count against a state's pollutant allowance) is reasonable and sensible. Petitioners' approach could produce two undesirable outcomes:
      - The 1975 baseline would keep changing as old plants become "new" and this would "cause no end of trouble during the permitting process for all plants"
      - The other view of Petitioners involves double counting a "new" source's emissions: a modification could cause the pre-1975 emission to count against the state's allowance and remain in the baseline

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Area sources
  - Use emissions data base (if available) or
  - Procedures used to develop state area source emission inventories
  - Compare current emissions totals to mSBD totals
    - Difference in emissions expands or consumes increment

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Inventory...

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- Mobile sources
  - Do affect increment after minor source baseline date [53 FR 40662 (10/17/88) and 72 FR 31380 (6/6/07)]
    - Generally, include only for NOx
    - General approach:
      - Determine spatial arrangement of the vehicle miles traveled (VMT) within the area being modeled
      - Apply mobile source emission factors to transportation data:
        - » VMT
        - » Trip ends
        - » Vehicle fleet characteristics, etc.

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## Mobile Source Calculations

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- More detailed approach provided by EPA [40B] (2/22/92)
- Use Equation:  
$$\Delta Q = (VMTP * EFP) - (VMTB * EFB)$$

Where:

- $\Delta Q$  = change in emission rate (grams/yr)
- VMTP = total vehicle miles traveled in permit year
- VMTB = total vehicle miles traveled in baseline year
- EFP = NOx emission factor in permit year (grams/veh-mile)
- EFB = NOx emission factor in baseline year (grams/veh-mile)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Increment Compliance Demonstration

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- Must show that proposed source/modification will not cause or contribute to air pollution in violation of any increment (otherwise, cannot issue permit)
- Cause or contribute means source has a significant impact at a violating receptor at the time of the violation
- Therefore, source must have 1 of 3 results to obtain permit:
  - Project has no significant ambient impact anywhere within the modeled area, which means it could not cause or contribute to a violation (this modeling includes only the project's emissions increase)
  - Project has a significant ambient impact within the study area, but—in conjunction with existing sources—either:
    - There is no violation in the impact area, or
    - Project will not cause or contribute to a violation (requires modeling all increment-affecting emissions)
  - Project will cause or contribute to a violation, but will secure sufficient emissions reductions to offset its adverse air quality impact (reductions can come from any source(s) in the area)
- BUT, Class I increment waiver possible (see below)

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## Rounding Up or Down

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- Increments are absolute limits
- Modeling results are not rounded off
- Example for Class II NOx increment of 25  $\mu\text{g}/\text{m}^3$ 
  - A modeled impact of 25.1  $\mu\text{g}/\text{m}^3$  is an exceedance of the increment
  - A modeled impact of 24.9  $\mu\text{g}/\text{m}^3$  does not exceed the increment
  - In neither case is the modeled result rounded off [53 FR 40657]

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Increment Modeling Procedures Proposal

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- On 6/6/2007 [72 FR 31372], EPA made several statements and proposed several 'refinements' to the NSR increment modeling procedures
- General statements:
  - CAA does not specify how to determine increases in concentration
  - EPA has never prescribed a method in regulations
  - Guidance in NSR Workshop Manual is not binding

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Increment Modeling Procedures Proposal

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- Interpretive policy statements:
  - Mobile source emissions meeting the criteria affect increment, not just stationary source emissions
  - If EPA has approved a SIP containing certain increment exclusions, those exclusions are valid
  - Sources that have been permitted based in part on a FLM variance may be excluded from the increment consumption analysis for the Class I increment in the area for which the variance was issued

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Increment Modeling Procedures Proposal

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- Actual emissions definition and calculation
  - Define separately for increment modeling purposes
  - Calculation based on best judgment of agency
  - Short-term actual can be 24 month average or maximum during that 24 months
  - Can use another period if more representative, including 2 non-consecutive 12-month periods
  - Can use allowable instead of actual
  - For modifications that have not resumed normal operation on date of analysis, actual emissions equal projected actual emissions

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### Increment Modeling Procedures Proposal...

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- Class I area modeling
  - Sources that have been permitted based in part on a FLM variance may be excluded from the increment consumption analysis for the Class I increment in the area for which the variance was issued

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### PSD Increments Apply

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- Over plant property and bodies of water, unless general public is completely and effectively precluded from access [28K-18, 28K-29]
- Only at ground level (in contrast, NAAQS apply even on rooftops if the rooftop is accessible to the public) [35N]

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### SIP Relaxations

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- Submitted to EPA after the minor source baseline date consume increment [28K-107]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Non-Emission Changes

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- Changes that affect ground-level impacts affect increment, even if emissions do not change [2W, p. C.11]
- Examples:
  - Increasing (up to GEP) or decreasing stack height or effective stack height
  - Moving an emission unit closer to or further from a fenced property line
  - Changing the public-excluded property line

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Class I Increments

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- Compliance exception
- Increment exceedance allowed if no adverse impact on Air Quality Related Values (AQRV)
- Occurred at T. Roosevelt NP, ND

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## PSD Class I and Additional Impacts Analyses

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- Application must include analyses of
  - Impacts on visibility in Class I areas
  - Impairment to soils and vegetation
  - Impairment to visibility
- Analyses must include impacts due to general commercial, residential, industrial, and other growth associated with the source or modification
- Common thread for these analyses
  - No objective standards
  - Relatively little case law and policy

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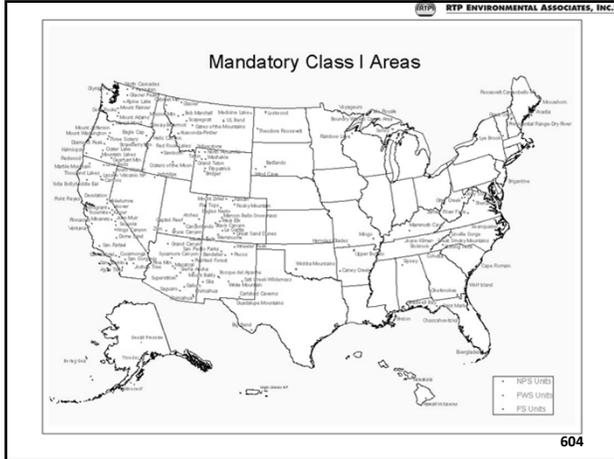
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### PSD Class I Impacts Analysis

- PSD rule at 40 CFR § 52.21(p)(1) requires only that a visibility impacts analysis be provided to the federal land manager ("FLM")
- Unless class I PSD increment will be exceeded, 40 CFR § 52.21(p)(4) places burden on FLM to demonstrate to the permitting authority that permit should not be issued due to adverse impacts on visibility or other air quality related values ("AQRV")
- FLM's have issued guidance on AQRV analyses [2H, 14L, 16F]
- Agency must address AQRV concerns raised by FLM [19C, 22S]

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### Additional Impacts Analysis

PSD rule at 40 CFR § 52.21(o)(1) requires that applicant provide analyses of

- Impairment to visibility, soils and vegetation that would occur as a result of the source or modification and general commercial, residential, industrial and other growth associated with the source or modification.
- Air quality impact is projected for the area as a result of general commercial, residential, industrial and other growth associated with the source or modification.

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## PSD Additional Impacts Analysis

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- Soils and vegetation impairment under 40 CFR § 52.21(o)(1):
  - Reliance on secondary NAAQS is acceptable, at least where there has been no identification of sensitive vegetation for which the NAAQS might not be protective [19C]
  - Frequently cited 1980 Screening Procedures report provides additional criteria [2W, 22R]
  - Site-specific concerns may necessitate additional inquiry, especially where identified during public comment [2W, 24F]
  - The 2020 Integrated Science Assessment for NO<sub>x</sub>, SO<sub>x</sub>, and PM Ecological Criteria compiles and summarizes numerous studies of the sources, deposition, and effects of these pollutants on ecosystems: air, water and land. [67V] 607

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## PSD Additional Impacts Analysis

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- Visibility impairment under 40 CFR § 52.21(o)(1):
  - Distinct from Class I visibility analysis [2W]
  - Concerned primarily with impacts that occur within the impact area of the proposed source or modification [2W]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## EXERCISE A – PROJECT EMISSIONS INCREASE

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## PERMIT REVISIONS

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## Revisions to Major NSR Permits

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- Neither statute nor rules specifically provide for revisions of PSD permits
- Draft policy document, followed by EPA, provides guidance for revision classification and procedures [1V, 12E, 17G]
  - For operating sources, evaluation includes determination of whether proposed change is source modification or solely permit revision
- Final document for permit extensions issued by EPA in 2014 [53L]

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## Revisions to Major NSR Permits

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- Draft guidance for permit revisions (continued)
  - Permit revision classifications include:
    - Administrative (no detailed review required);
    - Minor and significant changes (appropriate analyses required); and
    - Fundamental (new permit required).

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## Revisions to Major NSR Permits

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- Draft guidance for permit revisions (continued)
  - Factors include
    - Whether the source has begun operation
    - Increases in emissions
    - Changes in ambient impacts
    - Changes to BACT determinations
    - Nature of equipment design changes
    - Extension of deadline for commencing construction

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## Revisions to Major NSR Permits

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- Revisions to BACT limitations [39M, 53O, 55R]
  - Investigate alternative to reduce emissions
  - A current BACT reassessment using current technology and requirements
  - May consider retrofit costs
  - An emissions changes must be considered in updated PSD permitting (modeling etc.)
    - Analysis can get complicated when PM2.5 surrogate policy was ended [45Y]

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## Permit Rescission

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- 40 CFR 51.166 blueprint rule does not contain rescission
- For SIP approved rules, falls under State's preview
- The NSR rules have allowed rescission of permits only under limited circumstances, even if the major NSR permit is no longer necessary
- For a period up to 12/7/2016 40 CFR 52.21(w) contained dates in the rescission provision limiting what permits could be rescinded
- EPA revised the rescission requirements for PSD permits and added a corresponding permit rescission provision for major sources in nonattainment areas of Indian Country [81 FR 78048]
  - Permittee to show that PSD will no longer apply to that project
- Permit rescissions under EPA rules would be subject to EAB appeal [81 FR 38640]

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### PERMITS ON INDIAN LANDS (INDIAN COUNTRY)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Indian Country by EPA Region

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### Indian Country

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- In 1990, Congress amended the CAA to authorize the EPA “to treat Indian tribes as States” (TAS)
- In 1998, the EPA interpreted the geographic reach of the tribal jurisdiction created in 1990 to track the definition of “Indian country” in the federal criminal code. This is referred to as the Tribal Authority Rule. [63 FR 7254]
- In 2011, pursuant to this authority, the EPA issued the Indian Country NSR Rule. [76 FR 38,778] This rule established a federal implementation plan (FIP), including an NSR program, covering all Indian country nationwide except where the EPA had already approved a tribal NSR program (TIP) or expressly authorized a SIP to be enforced.

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## Indian Country

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- Regulatory Background Summary
  - 2/12/98—Final rule sets forth the CAA provisions for which it is appropriate to treat Indian tribes in the same manner as states (TAS), establishes the requirements that Indian tribes must meet if they choose to seek such treatment, and provides for awards of federal financial assistance to tribes to address air quality problems.
  - 4/8/05—Region 10 promulgates minor NSR rules for Indian country in Idaho, Oregon, and Washington. These are the only NSR rules for Indian country until 2011.
  - 7/1/11—FIP for Indian lands promulgated for all Indian country, to remain in effect until a TIP is approved.
    - Two rules:
      - Minor NSR
      - Nonattainment area NSR
    - The geographic scope of a reservation determines the area “treated as a State” (TAS) for CAA purposes. That area may be revised based on legal developments. For example, the Wind River Reservation area was revised by EPA per a 10th Circuit decision. The excluded lands had not been placed into trust status. [84 FR 7823]

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## Indian Country...

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- Background
  - 12/30/11—Amendments remove limits on delegating PSD authority to tribes
  - 12/19/12—EPA agrees to reconsider two issues:
    - Using general permits for synthetic minors
    - Shorter notice period for relocations
  - In 2013-14, EPA
    - Proposed 3 changes to the minor NSR rules (June 6, 2013):
      - Expand the list of exempt sources;
      - Clarify the definition of “commence construction” and add “begin construction”; and
      - Reconsider the advance notification period for relocation of a true minor source

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## Indian Country...

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- In January 2014
  - EPA proposes general NSR permits for 5 categories of minor sources (1/14/14)
  - DC Circuit rules that EPA cannot usurp State SIP authority on non-reservation land until it proves jurisdiction [53D] (1/17/14)
- On 5/30/14, EPA amends the Minor NSR Rule by adding to the list of exempt units and defining “commence construction” and “begin construction”
- On 6/5/14, an ANPR solicits comment on best way to implement minor NSR for oil and gas production

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Indian Country...

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- On 6/16/14, EPA amends the Minor NSR Rule (effective 7/16/14) by:
  - Extending the NSR minor source permitting deadline for true minor sources in the oil and natural gas sector to 3/2/16
  - Changing the registration deadline for the same sources to the same date to conform
  - Eliminating a requirement for all true minor sources that begin operation before 9/2/14 to obtain a minor NSR permit 6 months after EPA publishes a general permit because the provision no longer affects any source

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## Indian Country...

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- In 2015, EPA
  - On 5/1/15, promulgated a rule on General Permits and Permits by Rule for 5 source categories
    - General permits: hot mix asphalt plants and stone quarrying, crushing and screening
    - Permits by Rule: auto body repair and miscellaneous surface coating operations; gasoline dispensing facilities (except in CA); and petroleum dry cleaning facilities
  - On 9/18/15, proposes a FIP for new true minor sources and minor modifications at existing true minor sources in the production segment of the oil and natural gas sector in Indian country.
    - The FIP would impose emissions limits and other requirements for engines, compressors, fuel storage tanks, well site and station fugitives, and other equipment.
    - Includes proposed revisions to the Federal Indian Country Minor NSR Rule, including a revised definition of Indian Country based on a court decision. [80 FR 56554]
- On 6/3/16, EPA promulgated a final rule based on the 9/18/15 proposal. Major changes:
  - Adding a two-part source registration process
  - Updating applicability to comport with a court decision addressing the scope of EPA's jurisdiction to implement the Minor NSR Rule

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## Indian Country...

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- On 10/14/16, EPA promulgated a rule which provides general permits and permits by rule under the Indian Country Minor NSR Program for concrete batch plants, boilers and emergency engines, stationary spark ignition engines, stationary compression ignition engines, graphic arts and printing operations, and sawmill facilities. [81 FR 70944]
- On 5/13/19, a general permit was issued for gasoline dispensing facilities in certain areas of Indian country within California. [84 FR 20879]
- On 1/21/20, EPA proposed a FIP for managing emissions from oil and natural gas sources on Indian land within the Uintah and Ouray reservations in Utah. The FIP would impose emissions controls on this category of sources in an effort to alleviate an ozone NA problem in winter. [85 FR 3492]
- 2020 to present: More Indian lands accorded TAS status and/or TIPs.
  - For example, on 6/22/20, EPA determined that the Northern Cheyenne tribe qualified for TAS and on 2/26/21 proposed to approve a TIP for open burning. [86 FR 11674].
  - On 2/12/21, the Kalispel Tribe in Washington was granted treatment as a state (TAS) under several non-regulatory provisions of the CAA, including Section 105 funding, interstate pollution, and as an affected State in the context of Title V permits issued by other States. [86 FR 9334]

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## EPA Implementation of Indian Country NSR Permitting

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- In April 2020, EPA's Office of Inspector General reported on EPA's performance in processing NSR permits for Indian Country sources from 2011 to 2018 [66Z] {lots of information in report}
- Only 2 of 573 tribes had NSR permitting authority, so EPA issued nearly all the permits (EPA continues to approve TIPs: see proposed [85 FR 55628] and final [86 FR 12260] Mashantucket Pequot Tribal Nation TIP)
- Processing times specified in rules for all but NA NSR permits.
  - Only 2 PSD permits issued: both timely
  - 91 minor NSR permits issued: 61.5% were not timely

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## INDIAN LANDS

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## Class I Tribal Areas

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- \*North Cheyenne Reservation – Montana
  - Request submitted 3/1977, designated 8/5/1977.
  - Requested Class I in an effort to challenge the construction of an additional coal-fired power plant locating 15 miles from the reservation.
  - Redesignation was challenged by the State of Montana.
- \*Confederated Salish and Kootenai Tribes – Flathead Reservation, Montana
  - Request submitted 7/1979, designated 7/2/1982.
  - Sought Class I redesignation in an effort to protect the ability to see sacred sites. Reduced visibility disrupted tribal member's ability to communicate with past relatives and forefathers.
  - Not challenged by the states of Montana or Idaho.
- \*Assiniboine and Sioux Tribes – Fort Peck, Montana
  - Request submitted 1/1983, redesignated 4/9/1984.
  - Requested Class I in an effort to protect against a Canadian coal-fired power plant and several proposed synthetic fuel plants.
  - Not objected to by the States of Montana or North Dakota.

\*Joseph Drey, The Forest County Potawatomi Request Redesignation Under the Clean Air Act, 4 Wis.Env'tl. L.J. 87, 87 (1997)

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## Class I Tribal Areas

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- \*Spokane Reservation – Washington
  - Request submitted 4/27/1988, designated 6/11/1991.
  - Uranium Mines operating in the area.
  - No objection from the states of Washington or Idaho.
- Yavapai-Apache Reservation – Arizona
  - Request submitted 12/7/1993, designated 11/1/1996, reversed August 10, 1998, by 9th Circuit Court because EPA redesignated through a FIP instead of a TIP.
  - The request was for five parcels of land: the Clarkdale parcel (58.50 acres); the Middle Verde parcel (458 acres); the Lower Verde parcel (55 acres); the Montezuma Interchange parcel (74.84 acres); and the Rimrock parcel (3.7594 acres). The court ruled that only the Middle Verde parcel met the definition of a reservation.
  - Requested in an effort to keep the Phoenix Cement Plant from burning tires for fuel.
  - Challenged by the State of Arizona.

\*Joseph Drey, The Forest County Potawatomi Request Redesignation Under the Clean Air Act, 4 Wis. Env'tl. L.J. 87, 87 (1997)

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## Class I Tribal Areas

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- Forest County Potawatomi Reservation – Wisconsin
  - Request submitted 12/7/1993, designated 4/29/2008.
  - Requested in an effort to keep Exxon from developing a zinc/copper mine in Crandon, 5 miles from the reservation.
  - Challenged by the State of Michigan (within Class I radius), redesignation upheld by the 7th Circuit Court.
  - {Note: The Forest County Potawatomi Indian Reservation mainly lies on numerous non-contiguous plots of land in southern Forest County and northern Oconto County, Wisconsin, USA. There is also a small 6.95 acre (28,000 m<sup>2</sup>) plot of land in the city of Milwaukee. The total land area of the reservation is 50.5795 km<sup>2</sup> (19.529 sq. miles). The 2000 census reported a resident population of 531 persons on its territory.} (Wikipedia 2014)
  - {Note: EPA approved Class I designation only for parcels 80+ acres in size} [73 FR 23086, 23101]

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## Class I Tribal Areas

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- Forest County Potawatomi Reservation – Wisconsin
  - A lawsuit was finally decided by the U.S. Supreme Court in 2002, which interpreted the right of Indian nations to have "Treatment as a State" status on applicable issues as applying to setting and enforcing clean air and water standards. (Wikipedia 2014)
    - This meant the tribes could set their own, potentially far more restrictive limits than those of the state Department of Natural Resources, essentially meaning a potential Crandon mine would have to be completely free of pollution.
    - This was the end of the economic viability of the project, and on October 28, 2003, the Mole Lake Ojibwe and Forest County Potawatomi used \$16.5 million worth of casino revenue to purchase the mine site and Nicolet Minerals Inc., its latest owner.
    - Neither tribe has plans to develop the site in the foreseeable future. The death of the Crandon project disappointed many in the area who had hoped it would bring an economic boost to the depressed region, instead of what a former Crandon project manager referred to as the "end of mining in the state". Mining publications consistently rank the anti-mining climate in Wisconsin as the most hostile to the industry

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## Class I Tribal Areas

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- Kalispel Indian Reservation, Washington
  - Effective 8/19/19, the original-boundary Kalispel reservation (in Pend Oreille County) was redesignated to Class I. [84 FR 34306] (7/18/19)
  - Relying often on the 9<sup>th</sup> Circuit’s *Arizona v. EPA*, EPA noted that:
    - It had a very narrow role and could deny a redesignation only if procedural requirements had not been met.
    - Its role was not to assess the prudence of a proposal based on economic considerations or other factors. In fact, the CAA does not require a demonstration that the redesignation will have no adverse economic, social or energy effects.
    - Only governing bodies within the proposed Class I area need be consulted, not those “affected” by the redesignation
    - The “description and analysis of the health, environmental, economic, social, and energy effects” of the proposal is a low bar; the CAA does not assign any weight to the individual effects and does not suggest that one effect should be given priority over another.
    - The CAA does not require the entire reservation to be redesignated—there is no minimum size requirement. EPA did limit Class I status for the Potawatomi to parcels 80+ acres in size, but it was not required to do so by the CAA or its own regulations.

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## Class I Tribal Areas

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- What does Class I redesignation provide for Tribes: (from <https://www.fcpotawatomi.com/government/natural-resources/air-resource-program/class-i-redesignation/class-i-for-tribes/>)
  - Class I redesignation provides increased protection for the quality of the air in and around tribal lands through smaller increments of allowable increases in the concentration of a pollutant.
  - Perhaps more importantly, it opens up a place at the table for the tribe when a proposed pollution source applies for an air pollution application with the state.
  - With Class I, a tribe is notified when a permit application has been submitted for review by the state. This enables the tribe to review the permit and provide comments and concerns about the permit while it is being negotiated with the state.
  - Permit applications must include an increment consumption analysis, a cumulative impact analysis and an AQRV analysis, providing the tribe with valuable information to determine the potential for any impacts.
  - Comments provided by the tribe are also more weighted – meaning they carry more clout than comments from a tribe that does not have Class I.
  - And if the tribe is not satisfied with the final permit that is issued by the state, the tribe has the option of disputing it through the USEPA.

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## Class I Tribal Areas

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- The following map shows all the Class I tribal areas except the Forest County Potawatomi Reservation, which would actually be a series of dots on the map indicating various small acreages scattered through two counties.
- Note that the Yavapai-Apache Reservation is still shown as Class I on the map, despite the designation being reversed by the 9<sup>th</sup> Circuit.

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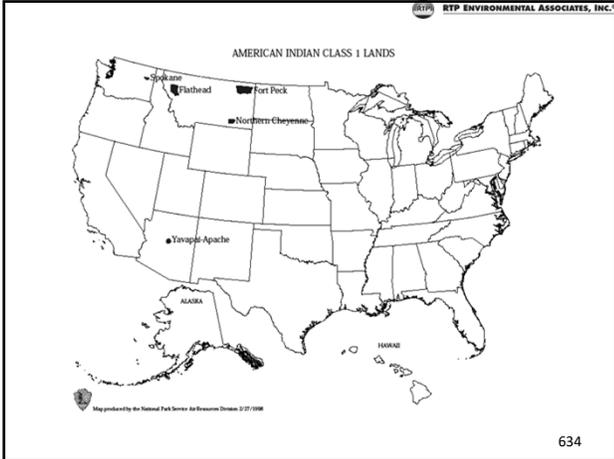
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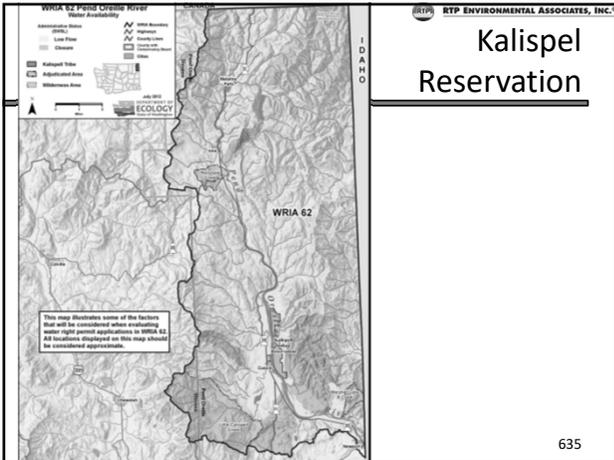
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**NONATTAINMENT MAJOR  
NEW SOURCE REVIEW (NNSR)**

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## NONATTAINMENT MAJOR NEW SOURCE REVIEW

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## NNSR Regulated NSR Pollutants

- Criteria pollutants
- Precursors of criteria pollutants
  - Ozone – VOC, NOx
  - PM2.5 – SO2, NOx, VOC, Ammonia

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## Nonattainment Areas

- Areas where a National Ambient Air Quality Standard (NAAQS) is being exceeded are designated nonattainment areas (NA)
  - Generally monitored data is used for designations
  - Listed in 40 CFR 81
- Governors can recommend any boundary that they can justify to the agency (political, geographic, etc.), but EPA designates and sets boundaries (and classifications) via 40 CFR Part 81

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## CAA Provisions

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- CAA addresses NA in Title I, Part D
  - Subpart 1: General Provisions for all NA
  - Subpart 2: Additional requirements for ozone
  - Subpart 3: Additional requirements for CO
  - Subpart 4: Additional requirements for particulate matter (PM10 and PM2.5)

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## NAAQS Development

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- CAA §§ 108 & 109 govern establishment, review, and revision of NAAQS to protect public health and welfare
  - Evaluate latest peer reviewed scientific studies
  - Reviewed every 5 years
- Clean Air Act Scientific Advisory Committee (CASAC) reviews scientific information and risk assessment and recommends NAAQS
- Upon promulgation of standards, new designations clock starts

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## NAAQS Designations

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- Use monitored data and other information to determine which areas exceed the NAAQS
- CAA § 107 establishes the designation process
  - 1 year after the NAAQS promulgation State Governors to provide recommendations for designations
  - EPA to issue final designations within 2 years of NAAQS promulgation (provides for 1 year extension)

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## NAAQS Attainment Planning

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- Typical NAAQS Implementation Timeline after NAAQS promulgation dates
  - 12 months for State area designation recommendations
  - 24 months for final designations
  - 5-6 years for States to submit attainment plans (include Part D SIP NSR component)
  - 5-22 years for attainment dates

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## NNSR Implementation

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- New NA areas
  - 40 CFR § 52.24(k) applies Emission Offsets Interpretative Ruling under 40 CFR 51 Appendix S to areas with no approved Part D SIP NSR rules
  - SIP approved NSR rules if already in place
  - Sanctions may apply if an attainment plan with NSR elements is not approved in timely manner
- Federal Implementation Plan (FIP): EPA develops and promulgates an attainment plan into the SIP
- Most nonattainment areas develop approved plans as soon as possible because:
  - Agencies don't want sanctions applied
  - Attainment plans are very location-specific, so local agency better able to assess and decide how to proceed

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NSR Permit Action	Type of Implementation		
	By EPA: 40 CFR 52.24 and Appendix S or FIP	By State: 40 CFR 52.24/App S (no delegation needed)	By State: SIP-approved Attainment Plan/Rule
Permit Issuance	EPA	State	State
Deference (given to agency's interpretation of its own rule)	EPA	State in State court/EPA in Federal court	State
Administrative Appeals	EPA Administrator (not EAB)	State	State Administrative Appeals System
Judicial Appeals	Federal Court	State	State Court

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## Subpart 2 Ozone NA Designations

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- Five classifications, each with different applicability thresholds and requirements:
  - Marginal
  - Moderate
  - Serious
  - Severe
  - Extreme
- In addition, an area can be in the Ozone Transport Region (OTR)

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## NNSR Applicability

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- Applies only to pollutants for which an area is designated nonattainment and
- If, for that pollutant, proposed construction is
  - New major stationary source or
  - Major modification to existing major stationary source

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## NNSR Applicability

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- NNSR generally applies to
  - Direct nonattainment criteria pollutants
  - Precursors for secondary formation (regional pollutant)
- Statute applies NNSR to following precursors
  - For ozone: NO<sub>x</sub> and VOC (CAA § 182(f))
  - For PM<sub>10</sub>/PM<sub>2.5</sub>: SO<sub>2</sub>, NO<sub>x</sub>, VOC, NH<sub>3</sub> (CAA § 189(e))

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## CAA Section 182(f) “Exemption”

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- States can exclude NOx emissions from the NNSR requirements by demonstrating that NOx reductions from sources would either increase or not reduce ozone concentrations
  - “(f) NOx REQUIREMENTS.—(1) The plan provisions required under this subpart for major stationary sources of volatile organic compounds (LAER, offsets, etc.) shall also apply to major stationary sources (as defined in section 302 and subsections (c), (d), and (e) of this section) of oxides of nitrogen. This subsection shall not apply in the case of oxides of nitrogen for those sources for which the Administrator determines (when the Administrator approves a plan or plan revision) that net air quality benefits are greater in the absence of reductions of oxides of nitrogen from the sources concerned.”

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## Sources Outside NA Area

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- Sources in attainment/unclassifiable area that would cause or contribute to NAAQS violations
- NNSR requirements apply to new major sources and major modifications in attainment or unclassifiable areas when:
  - EPA has not yet approved the State preconstruction review program required for a NA area; and the proposed source or modification would exceed the following significance levels at any locality that does not meet the NAAQS  
[51.165(b)(1)]

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## Significant Impact Levels

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Pollutant	Annual	Averaging Time (hours)			
		24	8	3	1
SO2	1.0 µg/m <sup>3</sup>	5 µg/m <sup>3</sup>		25 µg/m <sup>3</sup>	
PM10	1.0 µg/m <sup>3</sup>	5 µg/m <sup>3</sup>			
PM2.5	0.3 µg/m <sup>3</sup>	1.2 µg/m <sup>3</sup>			
NO2	1.0 µg/m <sup>3</sup>				
CO			0.5 mg/m <sup>3</sup>		2 mg/m <sup>3</sup>

By EPA policy  
 SO2 (1-hour) – 7.9 µg/m<sup>3</sup>  
 NO2 (1-hour) – 7.5 µg/m<sup>3</sup>

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## Sources Outside NA Area

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- Reviewing air quality impact
  - For stable air pollutants (SO<sub>2</sub>, PM, and CO), model allowable emissions as of startup date
  - For NO<sub>x</sub>, initially assume all NO goes to NO<sub>2</sub> by the time the plume reaches ground level
  - For ozone, VOC sources are presumed to have no significant impact on the designated NA area

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## NNSR Major Stationary Source

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- 100 or more TPY for new sources subpart 1 of Part D of CAA (lower thresholds in certain areas)
- Significant increase from modification
  - Significant values same as PSD
  - 100+ TPY increase at existing minor source is also subject
  - 25 TPY de minimis rule in serious/severe areas
- Not additive
  - Proposed new source with NO<sub>x</sub> PTE of 300 TPY and VOC PTE of 55 TPY in marginal ozone NA
  - It is major for ozone because of the NO<sub>x</sub> and must obtain NNSR permit for NO<sub>x</sub>, but not for VOC
    - (It would also go through PSD for NO<sub>2</sub>)

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## NNSR Major Source Thresholds by Area Classification

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• Ozone (VOC/NO <sub>x</sub> ) classifications	<u>TPY</u>
– Marginal.....	100
– Moderate.....	100
– Serious.....	50
– Severe.....	25
– Extreme.....	10
• PM <sub>10</sub> (PM <sub>2.5</sub> ) Serious.....	70
• CO Serious.....	50

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### NNSR Major Stationary Source (40 CFR 51.165(a)(1)(iv))

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- NNSR is applicable only to nonattainment pollutants and their precursors for which the source PTE individually exceeds the major source threshold
- Generally, source that is major for either VOC or NOx is considered major for ozone [40 CFR 51 App 5.II.A.4.(ii)]
  - However, must be 100+ tpy NOx for NOx NNSR; similarly, 100+ tpy VOC for VOC NNSR
  - Being major for one does not subject the other to NNSR
- For PM2.5, major determination is similarly on separate direct and/or precursor basis [49].
  - Major for PM2.5 direct does not subject precursor emissions to significant rates
  - “Different pollutant, .. are not summed to determine applicability of a major stationary source or major modification.” [40 CFR 51.165(a)(2)(i)]
- Precursor emissions, individually, (e.g., NOx, SO2, VOC, ammonia) need to be above the major source threshold to be subject to NNSR
  - e.g. the threshold is 100 tpy, a NOx PTE of 200 tpy would make NOx subject to NNSR, but ammonia with a PTE of 60 tpy would not be

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### NNSR MSS Nested Source

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- Nested source –
  - A source belonging to named (listed) source category within a source in non-named (non-listed) source category (primary activity is non-named)
  - Separate applicability for the named/listed source
- For NNSR, doesn’t affect threshold, but could affect whether source has to count fugitive emissions in determining PTE

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### NNSR Other Provisions

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- Lower “subpart 2” thresholds based on revoked 1-hr ozone standard continue to apply until an area has been redesignated to attainment [20A]
- EPA implements PM2.5 under Subpart 4 [2013 DC Circuit Court Decision and subsequent rulemaking for Subpart 4 areas] to regulate all PM2.5 precursors (NOx, SO2, VOC and ammonia) unless demonstrated to not be contributor

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## NNSR New Major Source Example

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- Area is nonattainment for PM2.5 and ozone (marginal)
- Proposed new source with PTE as follows
  - 150 TPY VOC
  - 50 TPY NOx
  - 95 TPY PM2.5 direct
  - 110 TPY SO2
- Ozone NNSR
  - VOC subject to NNSR because it is above the 100 tpy threshold
  - NOx not subject to NNSR (not above 100 tpy threshold for NOx)
    - What about NO2 under PSD?
  - (NOx could be considered subject to NNSR based on the Appendix S MSS definition)
- PM2.5 NNSR
  - SO2 subject to PM2.5 NNSR because major for SO2
  - PM2.5 direct and NOx not subject to NNSR (not major)
  - Unless State has demonstrated VOC does not contribute significantly to PM2.5 concentrations, VOC would be subject to PM2.5 NNSR because VOC emissions are above the 100 tpy threshold

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## Fugitive Emissions

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- For NNSR applicability, count fugitive emissions if source is one of 28+ listed source categories [40 CFR 51.165(a)(1)(iv)(C)]
  - 28+ categories (28 named + NSPS & NESHAP regulated categories prior to 8/7/80) listed in 1990 Workshop Manual, p. A.12-15 [2W]
  - Date Regulated: *NSPS proposal date*, *NESHAP promulgation date*
- Fugitive emissions not included for major stationary source determination for sources belonging to unlisted categories
  - But if source in unlisted category is major due to non-fugitive emissions, then all significant emissions (stack plus fugitive) are subject to PSD/NNSR review (BACT, LAER, impacts analyses, offsets, etc.) [31X, 19S-581]
  - Also, must include fugitive emissions in all analyses (modeling, LAER, etc) and requirements (offsets) for listed category new major sources

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## Fugitives Applicability Example

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- A new non-listed source locating in an area that is marginal nonattainment for ozone has a PTE of
  - 80 tpy of TRS stack emissions,
  - 300 tpy of NOx stack emissions,
  - 20 tpy of sulfur dioxide stack emissions,
  - 12 tpy of fugitive and 9 tpy of stack PM2.5,
  - 13 tpy of fugitive and 16 tpy of stack PM10,
  - 18 tpy of fugitive and 7 tpy of stack PM,
  - 80 tpy of fugitive and 50 tpy stack VOC, and
  - 50 tpy of hydrogen sulfide (H2S)
- NNSR: major for NOx (above 100 tpy threshold), so subject to review for NOx (LAER, offsets, etc.). Not major for VOC (only stack counted), so VOC not NNSR reviewed.
- PSD: major for NOx, so all significant pollutants for which area is attainment or unclassifiable are subject to PSD review: TRS, NO2, PM10, H2S. VOC not subject, even though stack increase is significant, because area is NA for ozone

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## NNSR Thresholds for Modifications

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- Significant levels same as PSD, except
  - 25 TPY *de minimis* rule in “serious” and “severe” ozone nonattainment areas
    - Special provision requiring accumulation against a threshold increase of 25 tpy over 5 calendar years (hence references to “25/5 rule”)
    - Mandated by 1990 CAA amendments
    - Applies to areas classified as serious/severe for prior 1-hour standard until redesignated as attainment [20A, 21J]
  - 0 TPY for “extreme” areas
- NNSR considered control measure [20A]

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## Example 1

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- Existing named source (100 TPY threshold) has PTE in a moderate ozone NA area of:
  - 80 TPY SO<sub>2</sub>
  - 95 TPY NO<sub>x</sub>
  - 60 TPY VOC
- Not ‘major’ under either PSD or NNSR because no one pollutant has a PTE above 100 TPY (note that NO<sub>x</sub> and VOC emissions are not combined, even though both are ozone precursors)
- Note that total is >100 tpy, but individual regulated NSR pollutants are not added together to calculate PTE (although some regulated NSR pollutants consist of more than one compound: PM<sub>2.5</sub>, VOC, etc.)

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## Example 2

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- Proposed new named source (100 TPY threshold) in a marginal ozone NA area has PTE of:
  - 50 TPY SO<sub>2</sub>
  - 95 TPY NO<sub>x</sub>
  - 120 TPY VOC
- Subject to VOC NNSR (100+ tpy VOC), but not NO<sub>x</sub> NNSR (below 100 tpy)
- Will be ‘major’ for PSD because VOC PTE is above 100 TPY threshold. PSD review will be required for SO<sub>2</sub>, but not for VOC. Because the area is attainment for the NO<sub>2</sub> NAAQS and the NO<sub>x</sub> increase is significant, NO<sub>x</sub> is subject to PSD review.

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### Example 3

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- New non-named, non-listed (don't count fugitives for applicability purposes) source (250 tpy PSD and 100 tpy NNSR threshold) has PTE of:
  - 300 TPY SO<sub>2</sub>
  - 50 TPY NO<sub>x</sub>
  - 300 TPY VOC (90 TPY stack and 210 TPY fugitive)
- Area is moderate nonattainment for ozone
- Source is 'major' for PSD purposes due to SO<sub>2</sub>. PSD review required for SO<sub>2</sub> and NO<sub>x</sub>, but not for VOC
- Not subject to NNSR: NO<sub>x</sub> PTE too low; stack VOC PTE too low

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### Example 4

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- Existing non-named source (250 TPY threshold) in moderate ozone NA area is considering a modification. It has PTE of:
  - 90 TPY SO<sub>2</sub>
  - 30 TPY NO<sub>x</sub>
  - 80 TPY VOC
  - 400 TPY fluorides
- PSD: Source is major due to fluorides (any regulated NSR pollutant can make a source a major source, not just criteria pollutants), so any modifications are evaluated as modifications to an existing major stationary source. SO<sub>2</sub>, fluorides subject to PSD review. VOC significant, but area is NA for ozone, so VOC not regulated under PSD.
- NNSR: Not major for ozone. Modification would have to be major in and of itself for NO<sub>x</sub> or VOC for those pollutants to be subject to review.

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### Example 5

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- Existing source in moderate ozone NA area is considering a new line. It has PTE of:
  - 30 TPY NO<sub>x</sub>
  - 120 TPY VOC
- Source proposes a proposed line with NO<sub>x</sub> PTE of 45 TPY and VOC PTE of 35 TPY
- NNSR: Major for VOC as ozone precursor
- Proposed line is not a major modification under NNSR
  - Source is not major for NO<sub>x</sub> as ozone precursor
  - VOC increase <40 TPY

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**EXERCISE B – NET EMISSIONS INCREASE  
(CONTEMPORANEOUS NETTING)**

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**NNSR REQUIREMENTS**

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**Major Elements of NNSR**

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- Lowest achievable emission rate technology (LAER): unlike BACT, does not consider economic, energy, or environmental impacts
- Emissions offsets (amount varies by nonattainment area type)
- Compliance certification (applies to all facilities in state)
- Alternate site, sizes, process technologies, and environmental control techniques analysis

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## Sources Outside NA Area

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- Appendix S(III):
  - Sources with significant impacts must meet:
    - Condition 1: LAER
    - Condition 2: Certifying all major sources in State owned by that company are in compliance
    - Condition 4: Provide a net air quality benefit
  - The source may be exempt from Condition 3 (offsets)

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## Sources Outside NA Area

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- If a proposed major stationary source or major modification (as defined in NNSR) would locate in attainment/unclassifiable area and would cause or contribute to NAAQS violation...
  - Under section III of appendix S, must meet LAER, demonstrate net air quality benefit, provide compliance certification (no explicit offset requirement)
  - Under § 51.165(b)(3), required provision “allows a proposed major source or major modification ... to reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for its adverse ambient impact where the major source or major modification would otherwise cause or contribute to a violation of” any NAAQS

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## Source Outside NA Area

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- Also, in Appendix S (III):
  - If a source locating in a clean area would cause a new violation, but would not contribute to an existing violation, approval may be granted only if:
    - The new source is required to meet a more stringent emission limitation and/or the control of existing source below allowable levels is required so that the source will not cause a violation; and
    - The new emission limitations for the new source as well as any existing source affected must be enforceable in accordance with the mechanisms

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## LAER

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- LAER, like BACT, is an emissions limit and is
  - The most stringent emissions limitation contained in the SIP of any state (not just the State where the source will locate) for such class or category of source (unless the applicant can demonstrate it is unachievable), OR
  - The most stringent emission limitation achieved in practice by such class or category of source
- No economic, energy or other environmental impact analyses are performed, although impacts are considered in rare circumstances

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## LAER Limitations

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- If an agency determines that technological or economic limitations would make the imposition of an enforceable numerical emission standard infeasible, the agency can instead prescribe a design, operational, or equipment standard. [App. S (IV)(A) Condition 1, footnote 4]

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## LAER Guidance

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- 1979 “Guidance for Lowest Achievable Emission Rates from 18 Major Stationary Sources of Particulate, Nitrogen Oxides, Sulfur Dioxide, or Volatile Organic Compounds” [51M]
  - LAER is evolving and that SIP limitations would likely decrease as states begin complying with new 1977 CAA requirements
  - Includes a chapter on cost estimating methodology, including factors affecting cost, capital cost estimates, methodology for estimating annualized costs, and cost-effectiveness and a chapter on financial and economic analysis techniques to aid in determining the economic impact of applying controls

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## LAER Guidance

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- EPA explained that: [51M]
  - “The House definition of “lowest achievable emission rate” is adopted for purposes of this section. In determining whether an emission rate is achievable, cost will have to be taken into account, but cost factors in the nonattainment context will have somewhat less weight than in determining new source performance standards under section 111 [CAA § 111].”
  - “Of course, health considerations are of primary importance. Facilities seeking to locate or expand in areas not meeting air quality health standards should be required to use the best control technology and processes available. The definition is intended to describe the lowest rate which is actually, not theoretically, possible. If the cost of a given control strategy is so great that a major new source could not be built or operated, then such a control would not be achievable and could not be required by the Administrator.”

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## LAER Guidance

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- Of course, the technology available in 1979 may be outdated today, but the document includes a number of features that are still helpful:
  - A discussion and interpretation of LAER based on the 1977 House report and EPA’s interpretation of the statute
  - A flow chart for addressing the most stringent SIP, achieved in practice (AIP), and the NSPS (LAER floor).
  - A description of how the information was gathered and how to compare limits with different test methods and averaging times (or at least consider them). This is useful in reviewing applications.
  - LAER determinations for specific source types that are can be used as models of how to make a LAER determination

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## LAER Guidance

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- A 1983 EPA determination for DELCO automobile parts manufacturing allows for relaxation of LAER emissions limitation [33E]
- Area subsequently redesignated to attainment for SO2
- “Inasmuch as this area has now been redesignated to attainment, EPA can no longer require the continued application of the nonattainment requirements. As long as any relaxed emission limit will not interfere with the maintenance of the NAAQS nor any applicable air quality increment, such a relaxation can be approved.”
- However, the emissions increase would trigger PSD because the amount of the increase is significant

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## LAER Guidance

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- 1989 EPA letter noted that little weight should be given to economics in a LAER analysis
  - {Note: the House report said “less weight”, not “little weight”}
- If no new plants could be built in that industry if a technology is used, then that technology would not be required as LAER
- However, if some other plant in the same (or comparable) industry uses that technology, then such use constitutes de facto evidence that cost is not prohibitive
- SIP limits need not be considered LAER if the SIP limit does not apply to any source in the state; the state acknowledges the limit cannot be met; or the state relaxed the limit. [43I] {Use [36S] for more guidance on economics. Also, [51M]}
- Note that the first criterion is different from the plain language of the statute (limitations .. contained in the ..plan.. for such class or category of source)

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## LAER Guidance

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- The 1990 NSR Workshop Manual [2W]
  - Several technological considerations are involved in selecting LAER. The LAER is an emissions rate specific to each emissions unit including fugitive emissions sources. The emissions rate may result from a combination of emissions-limiting measures such as
    - (1) a change in the raw material processed,
    - (2) a process modification, and
    - (3) add-on controls.
  - The reviewing agency determines for each new source whether a single control measure is appropriate for LAER or whether a combination of emissions-limiting techniques should be considered

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RTPE RTP ENVIRONMENTAL ASSOCIATES, INC.

## LAER Technology Transfer

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- EPA indicated in 1983 that appendix S does not provide for technology transfer in LAER determinations: [48 FR 38742]
  - “EPA [would not condition the approval of a SIP revision on a determination that] the revision required technology transfer. To the contrary, an express prohibition against technology transfer in the revision would not be grounds for disapproval.”
  - “[T]he Agency would not disapprove a SIP revision that required technology transfer for LAER determinations.”
- However, EPA more recently (1988) indicated that it considers technology transfer appropriate in establishing LAER [43F, 2W]
  - {No indication of how this interpretation is consistent with rule language}

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## LAER Technology Transfer

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- Technology transfer [2W]
  - The reviewing agency also can require consideration of technology transfer. There are two types of potentially transferable control technologies:
    - (1) gas stream controls, and
    - (2) process controls and modifications.
  - For the first type of transfer, classes or categories of sources to consider are those producing similar gas streams that could be controlled by the same or similar technology
  - For the second type of transfer, process similarity governs the decision

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## LAER: Class or Category

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- Since the BACT-type impacts are given less weight, the distinction between classes and categories is quite important
  - The more narrow the definitions, the more classes and categories
  - Allows a different LAER for each type
  - Also, categories can be important in considering technology transfer

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## LAER Guidance

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- A class or category includes any sources that produce similar gas streams that could be controlled by the same or similar technology
- Also LAER is “primarily an emissions unit determination”
- A second look at LAER should consider the entire source
- If more effective control can be achieved by controlling the entire source, then a “facility-wide” LAER should be considered, but LAER cannot be a “bubble”
- Also LAER can be considered for different aspects of the emissions unit, e.g. transfer efficiency, exhaust gas, coating composition. Incineration of spray booth emissions is a transferable technology. [43F]

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## LAER Cost

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- If some other plant in the same (or comparable) industry uses that control technology, then such use constitutes evidence that the cost to the industry of that control is not prohibitive. Thus, for a new source, LAER costs are considered only to the degree that they reflect unusual circumstances which in some manner differentiate the cost of control for that source from control costs for the rest of the industry. When discussing costs, therefore, applicants should compare control costs for the proposed source to the costs for sources already using that control. [2W-G.3]

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## LAER Limits

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- The 1990 NSR Workshop Manual [2W]
  - Where technically feasible, LAER generally is specified as both a numerical emissions limit (e.g., lb/MMBtu) and an emissions rate (e.g., lb/hr)
  - Where numerical levels reflect assumptions about the performance of a control technology, the permit should specify both the numerical emissions rate and limitation and the control technology
  - In some cases where enforcement of a numerical limitation is judged to be technically infeasible, the permit may specify a design, operational, or equipment standard; however, such standards must be clearly enforceable, and the reviewing agency must still make an estimate of the resulting emissions for offset purposes

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## LAER Guidance

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- In 1990, EPA issued “Lowest Achievable Emission Limits (LAER) for Ozone Nonattainment Areas.” EPA advised that an “old” LAER limit may be less stringent than a newer RACT limit. If so, the source will have to meet the RACT limit even it has already applied LAER. The action is not reopening LAER, but is instead applying RACT. The new RACT level can establish LAER for future determinations. [430, 43G (1988)]
- BACT can be more restrictive than LAER

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## LAER Guidance

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- 1992 EPA agreed that a LAER review would include review of the RACT/BACT/LAER Clearinghouse, and that the Clearinghouse could serve as the floor for LAER determinations
- EPA cautioned, however, that the Clearinghouse is not comprehensive enough to serve as the only information for LAER determinations.
- EPA also cautioned that Section 182(c)(8) allows BACT to be used instead of LAER only when achieving an internal (netting) offset ratio of 1.3 to 1. External offsets cannot be used to change the LAER requirement. [40W] (this is of interest for Serious ozone NA areas)

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## LAER Guidance

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- EPA challenged NJ DEP LAER determination for gas turbines in 2001 [10Z]
- LAER is an emission rate and not a specific control technology, and LAER does not take into account the specific make and model of a gas turbine
- SCR is technically feasible for the peaker units because they would operate for 15 hours at a time, and temperature concerns can be overcome through installation of air cooling fans

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## LAER Guidance

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- 2005 WI ALJ determination for *Wisconsin Electric Power Co. for the Elm Road Generation Station* [17A-22]
- An applicant is not required to redefine the design of a proposed source in selecting control technologies or production processes in a BACT or LAER analysis
- Selection of IGCC process technology in a BACT/LAER analysis for a supercritical pulverized coal (SCPC) unit would result in redefining the proposed source, so the WI DNR was not required to include IGCC process technology in the top down BACT/LAER analysis

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## LAER Guidance

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- In 2007, in *Dennis Groce, et.al. v. Depart. of Envir. Protection and Wellington Development-WVDT-LLC* [20W-11], the Commonwealth Court of Pennsylvania determined that the PADEP appropriately established a LAER class or category of source called a GOB-fired CFB combustor
- GOB = Garbage of Bituminous; CFB = Circulating Fluidized Bed

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## Offsets

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- Emissions offsets from existing sources are required such that there will be reasonable progress toward attainment of the applicable NAAQS
  - Offsets must be sufficient to ensure that “by the time the source is to commence operation, total allowable emissions from existing sources in the region, from new or modified sources which are not major emitting facilities, and from the proposed source will be sufficiently less than total emissions from existing sources prior to the application for such permit to construct or modify so as to represent (when considered together with the plan provisions required under CAA section 172) reasonable further progress.”
- Emission offsets ratio should be at least 1:1

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offset Ratios for Ozone: Subpart 2 Nonattainment Areas

Classification	Offset Ratio (minimum)
Marginal	1.1:1
Moderate	1.15:1
Serious	1.2:1
Severe	1.3:1 (1.2:1 if BACT for all major sources - § 182(d)(2))
Extreme	1.5:1 (1.2:1 if BACT for all major sources - § 182(e)(1))
Transport Region	1.15:1

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets

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- Basic CAA provision is augmented by conditions in Appendix S(IV) and the rules [51.165(a)(3)(ii)]
- Emissions reductions may be used as offsets if four criteria are met:
  - Surplus (at the time of use)
  - Permanent
  - Quantifiable
  - Federally enforceable {EPA still requires that offsets be Federally enforceable, not just enforceable as a practical matter}

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## Offsets

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- Offsets conditions specify
  - What reductions are creditable
  - Whether they can come from a shutdown source
  - The baseline to use
  - VOC substitution and banking
  - Credit for meeting NSPS or NESHAP
  - Location of offsetting emissions
  - Reasonable Further Progress (RFP)
  - Offset ratios

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## Offsets

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- An emissions reduction may qualify as either a netting or offset credit or both, but if used as one, cannot then be used for as the other

Netting Credit	Offset Credit
Contemporaneous (within 5 years)	Must occur after 1977 (or a later date specified in the rule), but no time limit otherwise ( <i>check jurisdiction</i> )
Enforceable as a practical matter	Federally Enforceable
Can be used multiple times for netting	Can be used only once
From same source	From same NA area (or one meeting criteria)
Ratio always 1:1	Ratio at least 1:1, greater in some NA areas
Location doesn't change TPY	TPY credit can vary with distance, other factors

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets

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- The offsets must provide a net air quality benefit in the affected area [App. S(IV)(A) Condition 4]
  - Modeling for VOC and NOx is not necessary: offsets and consideration of their location [per App. S(IV)(D)] is considered adequate to meet this condition
  - Location means from the same NA area as the proposed source or from a NA area where the agency determines: [App. S(IV)(D)]
    - That area has an equal or greater classification, and
    - Emissions from that area contribute to a violation of the NAAQS in the NA area in which the source is located

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## Offsets: Quantity

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- Sources may have to offset more than just their own emissions increase
- The increase for offset purposes is:
  - For a new source, PTE (as expected)
  - For a modification, (allowable emissions after) minus (actual emissions before) [51.165(a)(3)(ii)]
- Offsets must be provided for any secondary emissions that will occur
- Under RFP requirement [App. S(IV)(E)], if the attainment plan doesn't address increases from new minor sources and minor modifications in the area, offsets are required for those increases as well

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## Creditable: Surplus

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- Surplus means that the reduction hasn't already been required or used by some other program, rule or standard
- For example, use by the following disqualifies the reduction for offsets:
  - An approved attainment plan
  - An NSPS, RACT, or other standard
  - Netting
  - NESHAP

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## Offsets: Otherwise Creditable

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- Permanent: the reduction will occur at least for the lifetime of the project (although the rules appear to allow substitution of one reduction for another, especially if there is a net air quality benefit over and above the initial reduction)
- Quantifiable: if the tpy reduction can't be determined, the reduction is not creditable. Could be an issue for mobile source and fugitive emissions reductions

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## Offsets from Area and Mobile Sources

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- Can be generated, but have to be able to quantify
- Best resource is reductions from fleets of vehicles owned by a company.
  - Can make switch to a hybrid, electric, or LGV vehicle mandatory and calculate reduction
  - Could also take credit for reducing fleet emissions using more efficient delivery routes, etc., but not for just outsourcing to another company
- These measures would be initiated by the applicant
- The permitting agency would only have to make the reductions enforceable

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## Federal Enforceability

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- Since offsets generally do not come from the source, must issue permit or other enforceable requirement to the source or company providing the offsets
  - Use a NSR or Title V permit or other Federally enforceable mechanism
  - Offset generation must begin no later than the date the proposed source or modification commences operation
  - Reductions made enforceable before the proposed source commences construction the new source or modification can't operate until offsets are in place

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### Offsets: Creditable Reductions

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- The reductions also have to be “real”, meaning an actual (not potential or allowable) emissions reduction
- For example, a source with a PTE of 800 tpy and actual emissions of 600 tpy wants to generate offsets for sale by accepting a new PTE of 500 tpy. The offset credit is 100 tpy (600 actual – 500 PTE), not 300 tpy (800 PTE – 500 PTE)
- Also, a offset reduction isn’t creditable until it is Federally enforceable

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### Growth Allowances: “Imaginary” Offsets

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- In the late 1970s and 1980s, agencies could and did create “growth allowances”, a bank of emissions reductions that could be allocated as offsets for new or expanding sources to allow them to get a permit
- Many of these allowances were poorly documented and the reductions exaggerated
- For example, an area might claim that it would use radio ads to encourage carpooling, which would reduce NOx emissions by 500 tpy. There was no way to enforce or measure actual reductions, but the allocations allowed new emissions in the area, worsening conditions
- Growth allowances were so discredited that it became and still is difficult to get credits for even well-documented efforts

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### Offsets: VOC Substitution

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- 51.165(a)(3)(ii)(D) No emissions credit may be allowed for replacing one hydrocarbon compound with another of lesser reactivity, except for those compounds listed in Table 1 of EPA’s “Recommended Policy on Control of Volatile Organic Compounds” (42 FR 35314, July 8, 1977). This rule provided a listing of negligibly reactive compounds that were not counted as VOC for ozone precursor purposes.
- Although the rule has not been updated, a current list of negligibly reactive VOC can be found in the definition of VOC at 40 CFR 51.100(s). In 2019, EPA proposed to add an updated reference to this VOC definition [84 FR 70092] and did so in a final rule on 7/19/21 [86 FR 37918 at 37921]

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Banking

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- Offsets that exceed the requirements of reasonable progress toward attainment can be banked by either the agency or a source
- The agency must identify and account for the banked emissions in the SIP control strategy
- To preserve banked offsets, an agency should identify them in either a SIP revision or a permit, and establish rules as to how and when they may be used [App. S(IV)(C)]

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Interprecursor Trading (IPT)

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- Until 1/29/21, interprecursor offsets were considered acceptable on a case-by-case basis, because the rule clearly allowed NO<sub>x</sub>/VOC trades:
  - 51.165(a)(11)(i) The plan may allow the offset requirement in paragraph (a)(3) of this section for emissions of the ozone precursors NO<sub>x</sub> and VOC to be satisfied by offsetting reductions in emissions of either of those precursors, if all other requirements for such offsets are also satisfied.
- BUT the 1/29/21 DC Circuit decision overturned the 2018 Ozone Implementation Rule allowing trades on the basis that the CAA clearly specified that offsets had to be of the same pollutant (VOC reductions for VOC increases, etc.). [68B]
- Invoking the “good cause” finding, EPA in a 7/19/21 final rule correcting NSR rule errors, removed the language allowing IPT from the NSR rules without opportunity for public comment [86 FR 918 at 37924]

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Spatial Requirements

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- Offsets generally must come from a source in the same nonattainment area as the increase.
- Offsets may come from another nonattainment area if two conditions are met:
  - The other area has an equal or higher nonattainment classification than the area in which the source is located, and
  - Emissions from such other area contribute to a NAAQS violation in the nonattainment area in which the source is located

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets from Shutdowns and Curtailments (Option 1)

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- Reductions from shutting down an existing source or curtailing its production or operating hours can be credited if the event occurred:
  - After the last day of the base year for the SIP planning process, i.e., the projected emissions inventory used to develop the attainment demonstration explicitly includes the emissions from the shutdown or curtailed units
    - No credit may be given for shutdowns that occurred before August 7, 1977
  - The reductions also have to be surplus, permanent, quantifiable, and federally enforceable

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets from Shutdowns and Curtailments (Option 2)

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- Reductions achieved by shutting down an existing source or curtailing production or operating hours and that do not meet the requirements above may be generally credited only if:
  - Shutdown or curtailment occurred on or after the date the new source permit application is filed; or
  - Applicant can establish that the proposed new source is a replacement for the shutdown or curtailed source, and the emissions reductions achieved by the shutdown or curtailment met the requirements above

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Baseline [App. S(IV)(C)]

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- Baseline is the SIP emission limitations in effect at the time the application is filed
- Credit may be allowed for existing control that goes beyond that required in the SIP
- Offsets generally should be made on a lb/hr basis when all facilities involved in the offset calculations are operating at their maximum expected or allowed production rate
  - Other averaging periods (TPY, etc.) should be specified “if necessary to carry out the intent of this Ruling.” [App. S(IV)(C)]
  - When using TPY, calculate baseline emissions using the actual annual operating hours for the previous one or two year period (or other appropriate period if warranted by cyclical business conditions)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Offsets: Baseline [App. S(IV)(C)]

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- Where the SIP requires hardware controls in lieu of an emissions limit, baseline allowable emissions should be based on actual operating conditions for the previous 1 or 2 year period
- If there is no *emission limit* for a source or source category in a SIP, the baseline shall be the actual emissions determined in accordance with the discussion above regarding operating conditions
- Where the SIP allows greater emissions than the uncontrolled emission rate of the sources, offset credit will be allowed only for control below the uncontrolled emission rate

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Offsets: Baseline [App. S(IV)(C)]

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- Combustion of fuels
  - Emissions for determining offset credit involving an existing fuel combustion source will be the allowable emissions under the SIP for the type of fuel being burned at the time the application is filed
  - If the source commits to switch to a cleaner fuel at some future date, credit based on the allowable emissions for the fuels involved is not acceptable unless the permit is conditioned to require the use of a specified alternative control measure which would achieve the same degree of reduction should the source switch back to a dirtier fuel at some later date
  - Agency should ensure that adequate long-term supplies of the new fuel are available before granting credit for fuel switches

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Offsets: Credits for Meeting NSPS/NESHAP [App. S(IV)(C)(6)]

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- If a source is subject to both a NSPS or NESHAP and a SIP limit, the more stringent limit shall be used as the baseline
  - The difference in emissions between the SIP and the NSPS or NESHAP may not be used as offset credit
  - However, if the source is not subject to the NSPS or NESHAP (e.g., constructed prior to effective date), credit can be taken for tightening the SIP to the NSPS or NESHAP level for such source
- Note: the NESHAP are for specific HAP, even if VOC is used as a measure or limit. Therefore, unless the agency has used the reduction due to the NESHAP in the SIP attainment plan, the reduction in VOC is creditable for netting
- Reductions from sources subject to a NESHAP prior to the compliance date are creditable as offsets [18M]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Administrative Procedures [App. S(V)]

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- Offsets may be proposed by the owner, the local community or the State
- The reductions must be enforceable and accomplished by the new source's start-up date
- If obtained from a neighboring State, the reductions must be enforceable by that State
- If the new facility is a replacement for a facility being shut down, up to 180 days may be allowed for shakedown of the new facility before the existing facility is required to cease operation

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Administrative Procedures [App. S(V)]

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- Source-initiated offsets can be internal (from that source) or external (from other sources)
- Source does not have to investigate all possible offsets, as long as the offsets obtained represent Reasonable Further Progress (RFP) toward attainment
- Agencies are responsible for assuring that the offsets will be as effective as proposed by the source
- Internal offsets will be considered enforceable if made a SIP requirement by inclusion as a condition of the new source permit and the permit is forwarded to the appropriate EPA Regional Office

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Offsets: Administrative Procedures [App. S(V)]

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- External offsets will not be enforceable unless the affected source providing the reductions is subject to a new SIP requirement to ensure that its emissions will be reduced by a specified amount in the specified time
- If the source does not obtain the necessary reduction, it will be in violation of a SIP requirement and subject to enforcement action by EPA, State and/or private parties
- Form of the SIP revision may be a regulation, operating permit condition, consent or enforcement order, or any other mechanism available to the state that is enforceable under the CAA

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets: Administrative Procedures [App. S(V)]

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- State or community initiated emission offsets, including from mobile sources, must be something more than one-for-one. They must be submitted as a SIP revision by the State.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- In the Preamble to the 8 hour ozone implementation – Phase II, EPA summarized the CAA Section 173 offsets requirements. These same criteria apply to all offsets: [70 FR 71612; 11/29/2005]
  - Offsets are generated through installation of controls, shutdown of a source or curtailment of production or operating hours below baseline levels
  - Offsets must be obtained by the time the source is to commence operation [CAA section 173(a)(1)(A)]
  - Offsets must be consistent with RFP [CAA section 173(a)(1)(A)]. Emission reductions (including shutdowns) used to meet Rate of Progress (ROP) or RFP are not available for netting or offsets, since these are required by the Act
  - Offsets must be federally enforceable before permit issuance [CAA section 173(a)]
  - Offsets must be in effect and enforceable by the time a new or modified source commences operation [CAA section 173(c)(1)(B)]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- 2005 Preamble provisions (cont.)
  - Emissions reductions that are otherwise required under the CAA are not creditable as offsets [CAA section 173(c)(2)]
  - Offsets must come from a source in the same nonattainment area, or from an area that has an equal or higher nonattainment classification when the emissions from such other area contribute to a violation of the NAAQS in the area in which the source is located. [CAA section 173(c)(1)]
  - “Growth” must be accounted for in the attainment plan to ensure that emissions increases do not interfere with the 15 percent Rate of Progress (ROP) requirement (which is “net” of growth). [57 FR 13508, (4/16/1992)]
- For 8 hour ozone standard nonattainment areas (this was in 2005):
  - Emission reductions predating 2002 base year that have not been used in meeting ROP or RFP obligation by the State, or other Federal requirements can be used for offset purpose
  - Credits should be certified and approved for use as offsets
  - EPA also encouraged States to allow use of pre-2002 banked emission reductions as offsets if the reductions met the credibility criteria and are included by States as “growth” in developing the attainment demonstration

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- 1978 EPA guidance noted that Offsets may be generated from unbuilt facilities, if the original permit authorizing construction met the NNSR provisions
  - In this case, Marathon acquired a partial built facility from Ecol, and now proposed to revise the construction plan for the facility. EPA explained that if Ecol previously went through a rigorous NNSR review, then it was not concerned with Marathon operating at these previously approved levels. [42N, 28L-41]
- EPA' 1978 guidance for, "Impact of Secondary Emissions in New Source Reviews." The IR requires offsets for secondary emissions of a new source if those emissions are quantifiable and specific. Motor vehicle and aircraft emissions however, need not be considered. [42G, 28L-20, 28L-44]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- EPA in 1979 document explained that the credit available for emissions for offset purposes is based on the past two years
  - If a source has been shutdown for more than two years, it cannot generate an offset credit, even if it is still physically capable of operating. [8B]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- EPA would not allow Reynolds Metal to use emissions reductions that occur from the shutdown of the National Can Co. plant to offset emissions of its proposed new source (1979) [41V, 28L-48]
  - Shutdown occurred less than two years ago but was located several blocks from the proposed new Reynold Plant
  - Previous reduction could only qualify as offsets if Reynolds Metal built a replacement facility
  - EPA determined this was not a replacement facility because it would be constructed at a different location by a different company nearly two years after the shutdown

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance-Rural Areas

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- In 1979, EPA issued a memo to clarify its Rural Offset Policy [39U]
  - Offsets are not required in rural areas, if a State demonstrates attainment in all urbanized areas (>200,000 population) and applies RACT to all 100 TPY sources
- CAA §182(h) recognizes Rural Transport Areas (RTAs) where O3 violations are almost entirely from emissions outside the NA area
  - Such areas are treated as Marginal, so do not need to provide an attainment demonstration or the more stringent measures mandated for higher classifications [78 FR at 34203, 6/6/13]
  - They do need to:
    - Apply NNSR at Marginal thresholds and offset ratio
    - Meet conformity requirements
    - Develop an emissions inventory
    - Require source emission statements

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- EPA's 1986 document explained that a banked Emission Reduction Credit (ERC) cannot be used as an offset if the State relied on the ERC in its SIP to show Reasonable Further Progress (RFP) [42P]
  - Citing the regulations, EPA stated, "Credit for an emission reduction can be claimed to the extent that the reviewing authority has not relied on it demonstrating attainment or RFP."
  - Moreover, the SIP for the area does not demonstrate attainment and current concentrations "greatly exceed the health-based ozone" NAAQS

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- EPA in 1989 explained that it could no longer rely on the SIP-approved growth allowance to substitute for the source specific offset requirements of Section 173 of the CAA [4T]
  - EPA had approved a growth allowance in to the TN SIP, but Nashville failed to meet its 1987 attainment date, and is the subject of a current SIP call
  - Given this, the emissions reductions set aside in the growth allowance have been "depleted"
  - Growth must be offset to assure that new source growth does not interfere with reasonable further progress
  - Also, shutdown credits are only valid if they occur between the date of a complete application and operations, unless the shutdown is for a replacement facility

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- EPA’s 2004 guidance addressed the use of emissions reductions from truck and switchyard locomotive idling as offsets [14K]
  - EPA requires a 10% discount to be applied to the reduction to address uncertainties in the projected emissions reductions
  - Also, reductions are required for the life of the new or modified source, but they need not come from the same source for the duration of the requirement, but must meet certain requirements (e.g. contemporaneous with the period of actual reduction.)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Offsets Guidance

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- EPA determination in 2006 for Sunoco Flexible Packaging that VOC emissions reduction were creditable from the shutdown a NESHAP affected source [18M]
  - Since the shutdown occurred before the compliance date for the NESHAP, the reductions that occurred were not otherwise required by the Act at that time, and are fully preserved for use as offset credit
  - Despite the emissions being removed from the State emissions inventory

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- Every NNSR permit must have:
  - “...an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification.”
  - CAA Section 173(a)(5)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- Almost no guidance available
- In the absence of national guidance, Region 6 advised that the State could act within its discretion to provide a reasonable technical analysis, but must provide and respond to public comments on each application. [40W]
- Texas uses Form 6N to do the analyses (see next slide)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

Table 6N  
Alternative Site Analysis for Texas Nonattainment New Source Review

**Alternative Analyses**

Completion of this table demonstrates that the requirements of Section 172(a)(5) of the Federal Clean Air Act have been satisfied. If the "No" box is checked for any question other than Question 1, the requirements of that section of the Federal Clean Air Act have not been fulfilled.

1. Is the facility located within a Texas Enterprise Zone? Provide a map showing site location with respect to enterprise zone.  Yes  No  
If "Yes," a signed table 6N must accompany this form to certify the statement.  
If "No," further alternate site analysis is required. (continue)
2. Have the potential and real adverse environmental effects of the proposed project been avoided to the maximum extent possible? That is, has lowest achievable emission rate (LAER) been applied and offsets provided?  Yes  No
3. Do the social and economic benefits of the proposed project outweigh the environmental impact of the project?  Yes  No  
If "Yes," this project as proposed will create what number of new jobs? \_\_\_\_\_  
An emission offset will be provided in the ratio of \_\_\_\_\_ to 1 that will actually decrease the environmental impacts in the area due to the emission of the pollutant of concern.
4. Have alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing nonenvironmental benefits been considered?  Yes  No  
If "Yes," an emission offset will be provided in the ratio of \_\_\_\_\_ to 1 that will actually decrease the environmental impacts in the area due to the emission of the pollutant of concern.  
 The market demands construction of this project, or  
 Other (please explain): \_\_\_\_\_
5. Have alternate sites been considered which would offer more protection to the environment than the project without unduly curtailing nonenvironmental benefits?  Yes  No  
If "Yes," an emission offset will be provided in the ratio of \_\_\_\_\_ to 1 that will actually decrease the environmental impacts in the area due to the emission of the pollutant of concern, and:  
 The existing infrastructure encourages location of this project at the proposed site.  
 Other (please explain): \_\_\_\_\_

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- Indiana asked how it should interpret the phrase "significantly outweigh the environmental and social costs imposed as a result of a source's location, construction or modification." Region 5 indicated that the analysis is case-by-case and that it could not provide a general answer to the question. [14X] (2004)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- EAB in 1996 confirmed in re Campo Landfill Project, Campo Band Indian Reservation that Region 9 did not err by NOT considering areas outside the Indian reservation in the alternatives analysis [9C]
  - The primary purpose of the project was development of tribal land and this purpose could not be satisfied by relocating the project off the reservation
- In 2000, EPA found that LA DEQ satisfied the requirements for the analysis in implementing its "IT Requirements" (named for a state court decisions). The IT Requirements considers whether:
  - 1) the potential and real adverse environmental effects of the proposed project have been avoided to the maximum extent possible;
  - 2) a cost benefit analysis of the environment impact costs balanced against the social and economic benefits of the project demonstrate that the latter outweighs the former;
  - 3) there are alternative projects or alternative sites or mitigating measures which would offer more protection to the environment than the proposed project without unduly curtailing non-environmental benefits to the extent applicable. [60]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- The LA IT findings: [60]
  - Existing suppliers of formaldehyde were located in the area (a raw material need);
  - The facility would locate in an enterprise zone designed to encourage growth and development in the industrial sector and would not require new land development or rezoning;
  - The new plant would create jobs and increase the tax base and promote spending in the state;
  - Modeling predicted a \$1.738 M collected in added sales tax.
  - Feedstocks will transfer via pipeline which reduces potential for exposure during transport.
  - No schools or hospitals are located nearby.
  - No wildlife or habitat will be endangered.
  - Other sites considered had insufficient space, and would require raw material import; rezoning; and were not economically viable.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- Example 1999 permit application in Indiana, the site, size, processes, and environmental controls for the WCE Project were chosen based on the following considerations:
  - Site Location-The WCE Project is located at the BP Amoco Whiting Refinery, where most of the steam produced by the project will be consumed. Because steam is economically transportable only over short distances (<1 mile), location of the Project elsewhere is considered unfeasible.
  - Project Size-The project is sized to meet the BP Amoco steam requirements when both CTs are operating at base load.
  - Production Process-The Project uses natural gas-fired combined cycle technology, which represents the state-of-the-art with respect to power generation efficiency and emissions levels.
  - Emissions Controls-The combined cycle technology is the lowest emitting fossil fuel fired technology currently available on a per unit of generating capacity basis (i.e., steam/electric). The project includes state-of-the-art NOx controls and will operate at lowest achievable emissions rate levels for NOx, VOC, and PM10. In addition, combined cycle technology has the least amount of waste generation (i.e., solid, liquid, and gaseous) per unit of steam and electricity generated.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Analyses

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- The Indiana Whiting permit stated:
  - The Whiting project is located in this county to meet the increased demand for power. To maximize the resources realized from a cogeneration production unit, it makes sense to locate on or near an industrial plant that would be able to utilize the steam. The Whiting project is located at the BP Amoco Whiting Refinery, where most of the steam produced by the project will be consumed. Because steam is economically transportable only over short distances, other locations are infeasible for this project. The project is sized to meet the BP Amoco steam requirements when both combustion turbines are operating at base load. The project uses natural gas combustion using a combined cycle state-of-the-art technology. This technology is the lowest emitting fossil fuel-fired technology currently available on a per unit of generating capacity basis and generates the least amount of waste per unit of steam and electricity produced. Permit CP-089-11194

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## NA AREAS: ATTAINMENT PLANS

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## NA SIP Requirements

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- Attainment plan is centerpiece of general agency requirements (applies in all NA except ozone marginal)
  - Affects existing sources by requiring Reasonably Available Control Technology (RACT)/Reasonable Available Control Measures (RACM)
    - RACT determination
      - EPA develops a Control Technology Guideline (CTG), the State promulgates SIP limits based on the CTG, and EPA approves the SIP limits, or
      - State promulgates a SIP that includes an alternative to CTG guidelines (which EPA terms "alternate" or "alternative" RACT), or, in the case of non-CTG major sources, includes source- or category-specific RACT requirements, and EPA approves those SIP requirements. [43G]
  - Requires reasonable further progress (RFP) plan, emission inventories, vehicle inspections, etc. CAA Section 172(c)
  - Need to be careful not to use EPA default values too often in attainment plan—can result in unnecessary additional controls on sources
- Strategy may depend on whether area is NOx- or VOC-limited

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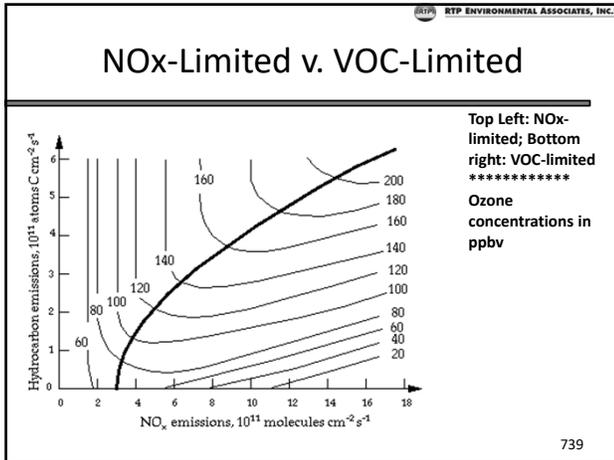
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### Reasonable Further Progress

First, with respect to RFP, section 171(1) states that, for purposes of part D of title I, RFP "means such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable NAAQS by the applicable date." Thus, whether dealing with the general RFP requirement of section 172(c)(2), or the more specific RFP requirements of subpart 2 for classified ozone nonattainment areas (the 15 percent plan requirement of section 182(b)(1) and the 3 percent per year requirement of section 182(c)(2)), the stated purpose of RFP is to ensure attainment by the applicable attainment date. If an area has in fact attained the standard, the stated purpose of the RFP requirement will have

May 10, 1995 EPA guidance

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### Moderate O3 NA Areas--Reasonable Further Progress

(1) PLAN PROVISIONS FOR REASONABLE FURTHER PROGRESS.—

(A) GENERAL RULE.—(i) By no later than 3 years after the date of the enactment of the Clean Air Act Amendments of 1990, the State shall submit a revision to the applicable implementation plan to provide for volatile organic compound emission reductions, within 6 years after the date of the enactment of the Clean Air Act Amendments of 1990, of at least 15 percent from baseline emissions, accounting for any growth in emissions after the year in which the Clean Air Act Amendments of 1990 are enacted. Such plan shall provide for such specific annual reductions in emissions of volatile organic compounds and oxides of nitrogen as necessary to attain the national primary ambient air quality standard for ozone by the attainment date applicable under this Act. This subparagraph shall not apply in the case of oxides of nitrogen for those areas for which the Administrator determines (when the Administrator approves the plan or plan revision) that additional reductions of oxides of nitrogen would not contribute to attainment.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### NA Requirements-Required SIP Elements

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- Marginal (3 years to attain):
  - Baseline emission inventory (EI), followed by periodic EI updates
  - New source review (NSR) program
    - NSR offset ratio 1.1:1
  - Major source emission statements
    - Major source threshold 100 tons per year (TPY)
  - Transportation conformity demonstration

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### NA Requirements-Required SIP Elements

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- Moderate (6 years to attain):
  - All requirements for Marginal classification, with
    - Major source threshold 100 TPY
    - NSR offset ratio 1.15:1
  - Major source volatile organic compounds/nitrogen oxides (VOC/NOx) reasonably available control technology (RACT)
    - See Control Techniques Guidelines (CTGs) and Alternative Control Techniques (ACTs)
  - Attainment demonstration
  - 15% reasonable further progress (RFP) over 6 years
  - Basic emissions inspection and maintenance (I/M) program
  - Contingency measures for failure to attain
  - Stage II gasoline vapor recovery

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### NA Requirements-Required SIP Elements

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- Serious (9 years to attain):
  - All requirements above, with
    - Major source threshold 50 TPY
    - NSR offset ratio 1.2:1
  - 18% RFP over 6 years
  - Enhanced monitoring plan
  - Modeled demo of attainment
  - Milestone contingency measures for RFP
  - Enhanced I/M
  - Clean fuels program (if applicable)
  - NSR requirements for existing source MODS
  - Vehicle miles traveled (VMT) demonstration, and transportation control measures if needed

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### NA Requirements-Required SIP Elements

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- Severe (15 or 17 years to attain)
  - All requirements above, with
    - Major source threshold 25 TPY
    - De-minimis applicability
    - NSR offset ratio 1.3:1
  - VMT growth offset
  - Low VOC reformulated gas
  - Penalty fee program for major sources

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### NA Requirements-Required SIP Elements

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- Extreme (20 years to attain)
  - All requirements above, with
    - Major source threshold 10 TPY
    - Modification trigger for any increase
    - NSR offset ratio 1.5:1
  - Clean fuels requirement for boilers
  - Transportation congestion controls

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## AIR PERMITTING PROCEDURAL REQUIREMENTS

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Procedural Requirements: Overview

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- Types of procedural requirements relating to the permitting programs:
  - Those the permitting agency must follow (*e.g.*, public notice requirements)
  - Those that must be followed by others in dealing with the permitting agency (*e.g.*, permit appeal procedures)
  - Requirements external to the permitting agency (*e.g.*, provisions for citizens to petition EPA to object to a Part 70 permit)

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## Procedural Requirements: Federal Minimum

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- Federal rules impose procedural requirements on each of the permitting rules:
  - All NSR programs are required to provide for public participation
    - 40 CFR § 51.161 for minor NSR and NNSR
    - 40 CFR §§ 51.166(q) for PSD
  - PSD program also requires notification to EPA and Federal Land Manager (40 CFR § 51.166(p))

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## Procedural Requirements: Federal Minimum

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- Part 70 requires:
  - Public participation
  - Notice to EPA and affected states, with opportunity for EPA objection and takeover
  - Opportunity for judicial review

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### Procedural Requirements: Federal Minimum

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- Most States are SIP-approved
- However, where the PSD program is delegated
  - Federal procedural requirements must be met in addition to any State rules
    - “Decision-making procedures” at 40 CFR part 124
    - EPA’s non-delegable consultation requirements under Endangered Species Act (“ESA”), National Historic Preservation Act, Coastal Zone Management Act, and Magnuson-Stevens Fishery Conservation and Management Act [2W, 13B, 14Z, 17Y, 19M, 24F, 27X, 27W, 50U]

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### Procedural Requirements: Federal Minimum

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- Under part 124, most notable is the automatic stay:
  - Under 40 CFR § 124.15:
    - Permitting agency issues, pursuant to delegation from EPA Administrator, a “final permit decision.”
    - If no party requested changes to the draft permit, then this is a permit and is effective immediately.
    - If any party requested changes, permit effectiveness is delayed by 30 days, during which time the Environmental Appeals Board (EAB) can be petitioned to review the permit.
  - Under § 124.19:
    - If petition is filed, permit effectiveness is stayed indefinitely pending final action by the EAB.

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### Procedural Requirements: Federal Minimum

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- CAA § 165(c) imposes an unambiguous requirement on the permitting authority:  
“Any completed permit application under section 110 for a major emitting facility in any area to which this part [part C of title I of Clean Air Act] applies shall be granted or denied not later than one year after the date of filing of such completed application.”

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### Procedural Requirements: Federal Minimum

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- *Avenal Power Center v. EPA* case highlights:
  - Application was filed Feb. 2008 and deemed complete Mar. 2008
  - EPA in June 2009 issued draft permit for public comment
  - EPA in Feb. 2010 promulgated, and in June 2010 demanded a demonstration of compliance with, 1-hr NO<sub>2</sub> NAAQS
  - EPA in June 2010 promulgated GHG tailoring rule, establishing that GHG BACT would be required if PSD permit issued Jan. 2011 or later

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### Procedural Requirements: Federal Minimum

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- *Avenal Power Center v. EPA* case highlights:
  - Gina McCarthy of EPA in Jan. 2011 filed a declaration with the court [29X] stating:
    - EPA had changed its mind and would exempt Avenal from requirements relating to 1-hr NO<sub>2</sub> NAAQS and GHG emissions
    - EPA will be able to “issue a final permit decision in accordance with 40 CFR 124.15” by 5/27/2011

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### Procedural Requirements: Federal Minimum

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- May 2011 decision in *Avenal Power Center v. EPA*:
  - “EPA’s promise of a ‘final permit decision’ under 40 CFR § 124.15 was inherently disingenuous. It actually was only a promise to render, in effect, an ‘interim decision’ subject to appeal before the EAB.”
  - “It is axiomatic that an act of Congress that is patently clear and unambiguous – such as this requirement in the CAA – cannot be overridden by a regulatory process created for the convenience of the Administrator, no matter how much notice and comment preceded its creation.” (footnote, citing to *Chevron*, omitted)
  - Court ordered EPA Administrator to issue a final, non-appealable decision no later than Aug. 2011, which EPA did. [44J]

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### Procedural Requirements: Application Completeness

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- EPA in Oct. 2012 issued guidance on “timely processing” of PSD permit applications [50U]
  - Contends that “determination of application completeness by the EPA ... starts the statutory 1-year decision clock.”
  - Establishes “goal” of final permit decision “within 10 months after the Regional Office has determined that the application is complete.”
  - Rationale for this goal: If achieved, “then the administrative appeal process through EAB will likely be underway before an applicant (or an opponent of the permit) could file an action seeking an order directing EPA to take final action on the permit, which may reduce the incentive for such legal action.”
  - Suggests that undefined information necessary for the ESA consultation and similar obligations must be submitted by the applicant in order for the application to be deemed complete

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### Procedural Requirements: Ad Hoc Grandfathering

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9<sup>th</sup> Cir. in *Sierra Club v. EPA* (8/12/2014) vacated Avenal’s PSD permit:

- “To be clear, we do not doubt, or express any opinion on, EPA’s traditional authority to employ formal rulemaking to implement grandfathering.”
- “But the parties’ protracted negotiation of the Clean Air Act’s requirements – frustrating and burdensome though it may have been in this case – does not endow the EPA with authority simply to waive the newly effective regulations on an ad hoc basis by rewriting unambiguous statutory terms in order to serve its own bureaucratic policy goals.” (Internal quotation marks omitted.)
- The statute “does not permit EPA to waive current NAAQS and BACT requirements whenever it finds it convenient to do so” [54H]

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### Procedural Requirements: EPA Oversight

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- CAA assigns EPA an oversight role :
  - “Whenever, on the basis of any available information, the Administrator finds that a State is not acting in compliance with any requirement or prohibition of [the CAA] relating to the construction of new sources or the modification of existing sources, the Administrator may ... issue an order prohibiting the construction or modification of any major stationary source in any area to which such requirement applies...” (CAA § 113(a)(5))
  - “The Administrator shall ... take such measures, including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction or modification of a major emitting facility which does not conform to the requirements of this part...” (CAA § 167)

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### Procedural Requirements: EPA Oversight

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- EPA’s authority to issue pre-construction administrative orders was upheld, and orders were found to constitute reviewable final agency action, in *Teck Cominco Alaska v. EPA* case. [12D, 14J]

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### Procedural Requirements: EPA Oversight

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- EPA’s authority to issue post-construction administrative orders was found to violate constitutional due process requirements in *TVA v. EPA* case. [15Z]

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### Procedural Requirements: EPA Objection and Takeover

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- CAA § 505(b) requires that EPA object to a part 70 permit:
  - If it “contains provisions that are determined by the Administrator as not in compliance with the applicable requirements of this Act,” or
  - If a “petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of this Act.”

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### NSR-Related Title V U.S. EPA Review & Veto

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- EPA’s long-standing policies were not to object
  - Based on concerns over BACT determinations made during prior preconstruction permitting processes [12O, 21B, 22Y]
  - Based on concerns regarding major NSR applicability in the absence of a formal finding, because the required investigation is more appropriately an enforcement function [22C]
- EPA from 2009-2016 objected to several Title V permits:
  - Citizen comments that shift burden to permitting authority to conduct retroactive applicability analysis [26C, 55M]
  - Disagreement with historical PSD applicability analysis [16G, 25O, 26C, 26E, 47C, 50B, 55M]
  - Disagreement with determinations regarding BACT and other substantive analyses [16G, 25M, 26Y, 50B]

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### NSR-Related Title V U.S. EPA Review & Veto

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- EPA in 2017 has reversed this position
  - “... title V permitting is not intended to second-guess the results of state preconstruction permit programs.” [62D]
  - “EPA concluded in [] that the title V permitting process is not the appropriate forum to review preconstruction permitting decisions when a preconstruction permit has been duly issued.... EPA has concluded that a title V petition to object is likewise not the appropriate forum for reviewing the merits of the preconstruction permitting requirements derived under title I of the Act.” [62H]
  - Litigation regarding [62D] in U.S. appeals courts for 10th and D.C. Circuits addressed in the DC Circuit, which in June 2019 denied petition—not of national significance [66I]
- But EPA appears to be shifting back to the 2009-1016 policy under the Biden administration

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## PERMIT REVISIONS AND RESCISSION

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## Revisions to Major NSR Permits

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- Neither statute nor rules specifically provide for revisions of PSD permits
- Draft policy document, followed by EPA, provides guidance for revision classification and procedures [1V, 12E, 17G]
  - For operating sources, evaluation includes determination of whether proposed change is source modification or solely permit revision
- Final document for permit extensions issued by EPA in 2014 [53L]

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## Revisions to Major NSR Permits

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- Draft guidance for permit revisions (continued)
  - Permit revision classifications include:
    - Administrative (no detailed review required);
    - Minor and significant changes (appropriate analyses required); and
    - Fundamental (new permit required).

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## Revisions to Major NSR Permits

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- Draft guidance for permit revisions (continued)
  - Factors include
    - Whether the source has begun operation
    - Increases in emissions
    - Changes in ambient impacts
    - Changes to BACT determinations
    - Nature of equipment design changes
    - Extension of deadline for commencing construction

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## Revisions to Major NSR Permits

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- Revisions to BACT limitations [39M, 53O, 55R]
  - Investigate alternative to reduce emissions
  - A current BACT reassessment using current technology and requirements
  - May consider retrofit costs
  - An emissions changes must be considered in updated PSD permitting (modeling etc.)
    - Analysis can get complicated when PM2.5 surrogate policy was ended [45Y]

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## Permit Rescission

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- 40 CFR 51.166 blueprint rule does not contain rescission
- For SIP approved rules, falls under State's preview
- The NSR rules have allowed rescission of permits only under limited circumstances, even if the major NSR permit is no longer necessary
- For a period up to 12/7/2016 40 CFR 52.21(w) contained dates in the rescission provision limiting what permits could be rescinded
- EPA revised the rescission requirements for PSD permits and added a corresponding permit rescission provision for major sources in nonattainment areas of Indian Country [81 FR 78048]
  - Permittee to show that PSD will no longer apply to that project
- Permit rescissions under EPA rules would be subject to EAB appeal [81 FR 38640]

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## PSD REVIEW—EPA OVERSIGHT

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### PSD Review: Procedural Requirements

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- Where federal PSD rule applies, certain consultation requirements apply:
  - Endangered Species Act review
    - EPA must complete non-delegable consultation with National Marine Fisheries Service and/or Fish and Wildlife Service
    - Usually involves a biological assessment
  - National Historic Preservation Act
  - Coastal Zone Management Act
  - Magnuson-Stevens Fishery Conservation and Management Act

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### PSD Review: Procedural Requirements

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- Effective date of permit may be delayed pursuant to 40 CFR § 124.15 and § 124.19
  - If any party requested changes to the draft permit, then permit effectiveness is delayed by 30 days, during which time the Environmental Appeals Board (EAB) can be petitioned to review the permit.
  - If petition is filed, permit effectiveness is stayed indefinitely pending final action by the EAB.

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### PSD/NNSR: Procedural Requirements

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- Under all other major NSR permitting programs:
  - Permit effectiveness, appeal processes, and consultation requirements vary with state law
- However, a second opportunity to appeal the operating permit does exist
  - PSD/NNSR permits for new sources require a new Title V
  - For existing sources these are Title 1 modifications that require significant permit modification
  - Presents opportunity for either EPA to object within 45 days of submittal of the proposed permit
    - 90 days for permitting agency to respond to the objection
    - Otherwise the EPA will issue the permit
  - If EPA does not object, a petitioner for objection can be submitted within 60 days of end of 45 day review period
    - 90 days for permitting agency to respond or forward the permit to EPA for reopening

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**PSD/NNSR:**  
**EPA Oversight of State Programs**

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- EPA has a full toolbox for “corrective actions” relating to actions of state permitting authorities:
  - Commenting during state public notice & comment process
  - Enforcement authority
  - Objection authority under title V operating permits program

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**PSD/NNSR:**  
**EPA Oversight of State Programs**

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- Enforcement mechanisms [4L, 5P, 10H, 17F, 38X, 39B, 39I]
  - § 114 letters
  - § 113 orders and complaints (with procedural limitations)
  - § 167 orders (injunctive relief only)
  - At least in the 11th Circuit, administrative orders have been determined not to be final agency action, do not provide due process, and may not serve as the basis for penalties [15Z]

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**PSD/NNSR:**  
**EPA Oversight of State Programs**

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- In States with combined program, CAA § 505(b)(1) and 40 CFR § 70.8 EPA has a 45-day review period and veto authority
  - Region 9 objection to 2.5 ppm SCR BACT for turbines at Bowie Power Station [17F]
- For separate construction and operating permits, EPA can issue an Administrative Order directing State to not issue the permit
  - EPA issued order regarding AK DEQ permit for Cominco Red Dog Mine [5J]
  - Upheld by 9<sup>th</sup> Circuit and Supreme Court [12D, 14J]

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## SOURCE OBLIGATION

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Relaxing Limits  
Monitoring, Reporting, Recordkeeping

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### Steps 1 and 2 – Relaxation of Existing Permit Limits

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- Two separate considerations:
  - First, under the definition of modification, increases in operating hours or rate and uses of alternative fuels or raw materials that would be prohibited by a currently effective NSR permit term are changes in the method of operation
  - Second, under the “source obligation” provisions at 40 CFR § 52.21(r)(4), certain relaxations of “synthetic minor” limits require re-evaluation of prior applicability determinations that relied on those limits

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### Steps 1 and 2 – Relaxation of Existing Permit Limits

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- Specifically:
  - “At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980 on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.” 40 CFR 52.21(r)(4)

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**Steps 1 and 2 –  
Relaxation of Existing Permit Limits**

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- Requests for relaxation of synthetic minor limits can fall within three categories:
  1. The request is not solely a relaxation, but involves new construction that necessitates a relaxed limit.
  2. The request is solely a relaxation and stems from a legitimate change in business plans that necessitates relaxation of limits that were taken in good faith.
  3. The request is solely a relaxation of limits that were not taken in good faith. Rather, the limits were accepted in order to allow the source to begin construction without a major NSR permit, with the intent to operate as a major source or major modification.

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**Steps 1 and 2 –  
Relaxation of Existing Permit Limits**

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- Under the third scenario, enforcement action may be appropriate for circumventing the preconstruction permitting requirements:
  - “EPA deems the new source or modification to have been major *ab initio*, and EPA considers seeking injunctive relief, civil penalties, and criminal sanctions, as appropriate, against the source under sections 113 and 167 from the beginning of actual construction.” [54 FR 27274]

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**Steps 1 and 2 –  
Relaxation of Existing Permit Limits**

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- There is considerable controversy regarding the proper determination of whether a request for relaxation falls within the first scenario (not solely relaxation) or the second (solely relaxation of limits taken in good faith)
- Two questions:
  - Does it matter whether the requested relaxation is necessitated by new construction?
  - If yes, then what factors are considered in deciding whether the proposed construction is the root cause of the requested relaxation?

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### Steps 1 and 2 – Relaxation of Existing Permit Limits

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- The intent of the rule provision, as evidenced by the use of the word “solely,” dictates that the answer to the first question is “yes.” Written policy of Texas CEQ adopts this interpretation and outlines the factors to be considered in answering the second question: [11Q]
  - Is the only thing that is holding the facility below major a permit condition? In other words, is the already permitted equipment capable of emitting at a “major rate” with no physical modifications?
  - Is the proposed change resulting in increased emissions at the previously permitted facility the result of the use of alternate fuel or raw materials, increased operating hours, or increased throughput?
  - Does the proposed change not require any significant construction? Changing out a little pipe and a few pumps would not be considered significant construction.
  - After the proposed change, will the emissions be increased to above the relevant major source or major modification threshold?

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### Steps 1 and 2 – Relaxation of Existing Permit Limits

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- Some EPA policy statements adopt an interpretation similar to that of the Texas policy. [19X, 19Y]
  - Important factor is that the equipment in existence at the time of acceptance of the synthetic minor limit will continue to comply with that limit.
- Other EPA policy statements appear to indicate that any relaxation falls within the second scenario, regardless of whether it is necessitated by new construction. [11C, 12I, 17R, 19A]

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### Permitting Implications

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- Pre-2002 NSR Reform Rules:
  - May need to establish enforceable emission limitations / throughput restrictions / control requirements
  - Add conditions for monitoring, recordkeeping and reporting
  - Requirements to remain in place unless modified by subsequent permit actions or unit(s) removed from service
- Changes that become ‘major,’ solely by relaxation of enforceable limitations are subject to review as if construction has not yet commenced [40 CFR § 52.21 (r)(4)]

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## Permitting Implications...

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- Post-2002 NSR reform rules:
  - For new emission units
    - Continue to follow pre-2002 reform rule approach with enforceable emission limitations (where needed)
  - For project-affected existing emission units, Permittee’s obligations vary by jurisdiction
  - However, generally, use of PAE will not require enforceable permit conditions

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## Source Obligation – Applicability

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- “Enhanced” recordkeeping is required when, for a project affecting existing emissions units: [67 FR 80197, 40 CFR 52.21(r)(6)]
  - Source elects to use PAE instead of PTE
  - There is a “reasonable possibility” that the project will result in a “significant emissions increase”
  - The project will not constitute a “major modification”
  - Project is not at a major stationary source subject to PAL for that pollutant
- As a practical matter, monitoring and recordkeeping are required for all projects
  - Data are needed for compliance tracking and for future netting analyses
  - Applicability determination is an “applicable requirement” and will require compliance certification under Title V

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## Source Obligation – “Reasonable Possibility”

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- This was an EPA rulemaking on remand using “Projected Actual Emissions Increase” (“PEI”)
  - A “reasonable possibility” exists when either of the following is at least 50% of the Significant Emissions Rate for that pollutant:
    - **RP1:** The PEI excluding demand growth emissions, or
    - **RP2:** The PEI without excluding demand growth emissions

[72 FR 72607, December 21, 2007]

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### Source Obligation - Recordkeeping

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- All sources meeting either reasonable possibility criterion (RP1 or RP2) must document & maintain a record of the following:
  - Description of project
  - Identification of emission unit(s) affected
  - Description of applicability test used to determine the project was not major including:
    - BAE
    - PAE
    - Amount of emissions excluded and an explanation for such exclusion
    - Any netting calculations, if applicable
- Note: check jurisdiction-specific requirements

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### Source Obligation – Post-construction Monitoring

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- All sources meeting RP1 criterion must:
  - Monitor emissions of any pollutant that could increase as a result of the project from each unit affected by the project
  - Calculate and maintain a record of the annual emissions, in TPY on a calendar year basis, for a period of 5 to 10 years following the resumption of regular operations after the change
    - 10 years if increase in design capacity or PTE
    - 5 years for all other changes
- Note: check jurisdiction-specific requirements

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### Source Obligation - EUSGU Reporting

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- Applies only to projects meeting RP1 criterion:
  - Submit a copy of the record relating to the project applicability to the agency before beginning actual construction
    - No obligation to obtain a permit / determination from the permitting agency
  - Report annual emissions during the recordkeeping period within 60 days of the end of each calendar year
- Note: check jurisdiction-specific requirements

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### Source Obligation - Non-EUSGUs Reporting

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- Applies only to projects meeting the RP1 criterion:
  - Submit report to the agency within 60 days after the end of such calendar year if:
    - Annual emissions from project exceed the BAE by a significant amount, and
    - Such emissions 'differ' from the preconstruction projection as documented and maintained
  - Report must contain:
    - Name, address and phone number of the major stationary source
    - Annual emissions
    - Any other information that the source wishes to include in the report, e.g., an explanation as to why the emissions differ from the preconstruction projection
- Rule is unclear how/whether emissions from new units are considered in this analysis (see next slide for example)
  - Should be negotiated with permitting agency up front
  - Note: check jurisdiction-specific requirements

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### Source Obligation - Non-EUSGUs Reporting

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- Example based on literal reading of rule:
  - The phrase “projected actual emissions increase” is not defined, but the context of the rule (especially the “projects at existing units” language) suggests that it omits any consideration of PTE at new units.
  - Therefore, reading the rule literally (and not trying to infer the intent of the rule drafters), the following example could occur:

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### Source Obligation - Non-EUSGUs Reporting

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- Example:
  - Project affects two units: Unit A (existing) and Unit B (new).
    - Unit A: VOC BAE = 50 tpy; VOC PAE = 69 tpy; excluded emissions = 18 tpy
    - Unit B: VOC PTE = 38 tpy
  - The “project emissions increase” is 1 tpy ( $PAE - EE - BAE = 69 - 18 - 50$ ), so no reasonable possibility under (vi)(a). Note that the new unit is ignored. Post-project monitoring is not required.
  - The “project emissions increase” plus excluded emissions is 19 tpy ( $PAE - BAE = 69 - 50$ ), so no reasonable possibility under (vi)(b). Again, the new unit is ignored. Records of preconstruction analysis are not required.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## COMPLIANCE AND ENFORCEMENT

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Enforcement Authority

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- § 167 provides the authority to issue NOV
  - "... take such measures, including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction or modification of a major emitting facility which does not conform to the requirements of this part, or which is proposed to be constructed in any area designated pursuant to section 107(d) as attainment or unclassifiable and which is not subject to an implementation plan which meets the requirements of this part."
- 40 CFR § 52.21 (r)(1) allows for enforcement action for construction
  - "Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action."

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## Enforcement Authority (cont..)

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- § 113 – EPA upon finding of violation of SIP or permit issue a notice of violation (NOV)
  - 30 days after the NOV the EPA can:
    - Order requiring compliance
    - Issue administrative penalty
    - Bring civil action
  - For failure to comply with NSR EPA can issue order stopping construction
- § 114 – EPA's authority to collect information from sources
  - Obtain historical information going back decades
  - In NSR context, information for all projects or projects ≥ \$25 K
  - Require stack testing, monitoring, or other studies
  - Entry for inspection, review and copy records

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## Enforcement Authority (cont..)

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- EPA must issue a NOV for alleged violation of CAA
- Issue compliance orders to correct easily remedied violations (per EPA/DOJ not final agency action)
- EPA's options:
  - After 30 days, commence civil enforcement case in the district court including motion of preliminary injunction to stop construction
  - Show cause conference to have a conference

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## EPA Enforcement

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- 1983 EPA guidance addressed authorities under sections 167, 113, and 120 [38X]
  - § 167 where a source is constructing or operating and quick imposition of injunctive relief is desired
  - Where timing is not a concern and agency intends to collect penalties in addition to injunctive relief, §§ 113 & 120 will be appropriate
  - § 120 allows for penalties in addition to § 113 penalties based on the economic benefit of noncompliance
  - Criminal conduct addressed under § 113(c)

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## EPA Enforcement (cont..)

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- 1998 injunctive relief memorandum addressed PSD/NSR enforcement cases [1C]
  - Prescribe BACT/LAER equivalent controls at the time of enforcement action
- Construction without a permit and actual emissions exceed major threshold
  - Comply with all of the major NSR permitting requirements
  - CD to address BACT/LAER equivalent controls
- Construction without a permit and actual emissions below major threshold
  - Require BACT/LAER equivalent controls
  - Discretion to use synthetic minor limit

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### EPA Enforcement (cont..)

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- 1998 injunctive relief memorandum addressed PSD/NSR enforcement cases [1C]
- Violation of synthetic minor limits
  - Repeated violations are to be treated as if the limits do not exist and require major review
  - Where infrequent violations of the limit, minor in nature, and the limit below the applicability threshold, enforcement of synthetic minor limit may be appropriate

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### EPA Enforcement (cont..)

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- 2014 EPA guidance establish NSR High Priority Violations (HPVs) [64X]
  - Failure to obtain an NSR permit to install BACT/LAER
  - Violation of synthetic minor limits
- Guidance establishes steps and criteria for the enforcement actions for HPVs

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### EPA Enforcement (cont..)

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- 1987 Michigan Eastern District court stopped EPA from revoking a PSD permit issued by Michigan under delegation for an incinerator [10H]
  - GDRRA applied for a permit in 1983
  - Rejected lime spray dryer controls
  - EPA did not provide any comments on the record and permit MI issued the permit in 1984
    - GDDRA issued \$483 million in bonds to fund the project
  - EPA conducted MI permit program audit in 1985
  - EPA sent a letter to MI revoking delegation with respect to GDRRA permit as it disagreed with BACT conclusions
  - EPA’s decision was challenged in the district court that granted attorney fees and court costs to GDRRA

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### EPA Enforcement (cont..)

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- 2003 11<sup>th</sup> Circuit agreed with TVA in TVA vs Whitman [15Z]
  - Could not review administrative compliance orders (ACO) as it did not qualify as final agency actions
  - ACO scheme is unconstitutional “.. since a deprivation of liberty or property cannot stem from mere noncompliance with an ACO”
  - EPA must prove CAA violations in district court
  - Otherwise, TVA can ignore EPA’s ACO

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Statute of Limitations (SOL)

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- CAA does not specify SOL and relies on federal statute at 28 USC § 2462
  - Establish five (5) years from the date when the claim first accrued
- Courts are split on whether the SOL is tolled
- Since the federal agencies act as watchdogs, SOL is not tolled

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Statute of Limitations (SOL)

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- 1996 5<sup>th</sup> Circuit case for Marine Shale concluded that SOL does not apply to continuing violations [13F]
- 6<sup>th</sup> Circuit in TVA case relied on TN SIP to affirm ongoing violations [19Z]
- AEP and Ohio Edison litigation, where court allowed SOL toll as operating a facility is part of the construction project [61P]
- Similar outcome in Duke Energy case [13J]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Statute of Limitations (SOL)(cont..)

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- In a 2010 court decision for Midwest Generation confirmed applicability of SOL [27L]
  - 5 year SOL applied to civil penalty claims (time-barred)
  - Injunctive relief claims on the project conducted by prior owners were dismissed as Midwest did not assume liabilities
- 2013 7<sup>th</sup> Circuit affirmed that the SOL applies [51Q]
  - “..today’s emissions cannot be called unlawful just because of acts that occurred more than five years before the suit began.”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Statute of Limitations (SOL)(cont..)

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- Now we have a Circuit split
- Continuing violations – 5<sup>th</sup> and 6<sup>th</sup> Circuits\*
- Time-barred – 3<sup>rd</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> Circuits
  - 5<sup>th</sup> Circuit in Luminant confirmed SOL [55N]

*\*Case specific facts and not general federal SOL statutes at play here*

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### NOV and Title V Compliance Schedule

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- 2<sup>nd</sup> Circuit in 2005 NYPIRG v Johnson [21M]
  - State NOV sufficient to require a compliance schedule in a Title V permit
  - Once NOV is issued, EPA is obligated to include compliance schedule
- 11<sup>th</sup> Circuit in 2008 Sierra Club v Johnson [21R]
  - NOV and civil complaint only a preliminary step
  - Do not trigger obligation for EPA to include compliance schedule
  - Discounted the [21M] decision as NOV can be based on ‘any available information’

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## Credible Evidence

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- Added in 1990 CAA amendments that any information may be used in an enforcement action
- 1997 rulemaking added ‘any credible evidence or information’ for compliance demonstration to five different parts of the regulations
- In addition to the agencies, citizens can use credible evidence against sources [63E]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Self Disclosure of Violations

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- EPA and State agencies generally have policies for self disclosure of violations
- Reduced penalties for disclosure of violations found through voluntary audits or due diligence
- Prompt disclosure, within 10 days after discovery
- Revised audit policy from 2000 changed the period to 21 days [11Y]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## TITLE V PROGRAM OVERVIEW

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Introduction to Title V

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- Purpose of Permitting
  - Single document to contain all CAA requirements
  - Improved ability to ensure compliance
  - Unlawful to operate a source without permit or application shield - civil penalties
- History and Status of 40 CFR Part 70
  - 40 CFR 70 regulates permit programs, not sources

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Introduction to Title V - 2

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- Minimum requirements for State and local permit programs
- Proposed May 1991/Promulgated July 1992
- Points of controversy
  - Modification procedures and notice
  - Permit shield
  - Extent and number of conditions
  - Whether new conditions can be added
  - EPA use to “veto” NSR permits

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Title V Program Overview

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- Title V of CAA (added in 1990 amendments) requires each State to implement an operating permits program
- Applicable to major sources and to certain minor/area sources based on applicability of NSPS and NESHAP rules
- Single document (permit) must include all applicable requirements under CAA
- Legal authority to operate a source, unlawful to operate a source without operating permit – civil penalties
- Facilitates enforcement and compliance assurance, public participation

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### Title V Program Overview (Cont..)

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- State operating permit program requirements are in 40 CFR Part 70
  - State develops and submits a Title V program to the regional office for approval
  - Title V program approval is not included in the SIP for the State
- Federal operating permit in 40 CFR Part 71
  - EPA administers the program in tribal areas, OCS sources, other specific jurisdictions
  - Take over of permitting after issuance of objection where State fails to respond

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### Title V Program Overview (Cont..)

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- Does not impose substantive new requirements [40 CFR § 70.1(b), 46U, 56K-10768, 81 FR 57822, 57 FR 32250]
- Two approaches for Title V program implementation by the States
  - Separate construction permit and operating permit approvals (AR, ID, IL, NC, OH, PA, TX...)
    - Generally, operating permit upon completion of construction
  - Combined approval both for construction and operation (AL, AZ, IN, KY, LA...)
    - May issue two separate approval documents
    - EPA objection process can come into play for construction

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Title V Program Overview

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- Key statutory requirements (CAA §§ 501-507):
  - Single permit for a facility
  - Permit shield and permit application shield
  - Permits ensure compliance with all applicable requirements
  - Monitoring (enhanced and periodic) and reporting
  - Certification of truth/accuracy/completeness
  - Certification of compliance
  - Permit revision procedures
  - Public notice & comment
  - EPA review and veto authority
  - Permit fees and program funding

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Legal Authority

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- Agency General Counsel or Attorney General certifies that the State has the authority to:
  - Issue permits and ensure compliance
  - Have fixed-term permits
  - Incorporate SIP requirements
  - Address operating permits
  - Enforce operating permit program and permits

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Streamlined Procedures

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- Completeness Determinations
- Public Notice and Comment
- Processing of Permits
- Judicial Review

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Fees—Core Title V Requirements

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- State fee program must cover all direct and indirect “Permit Program Costs”
- Required fees collected from all permitted sources
- Air agency to retain fees
- Required fees to be used solely for permitting program support

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## The Fee Demonstration

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- Relates program costs to expected fee revenues using a schedule of fees based on emissions
- Will be covered in more detail later on

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Program – Applicable Requirements

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- Requirements in an approved SIP
- Terms in preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under CAA title I
- Requirements under CAA § 111
  - NSPS and Emissions Guidelines in 40 CFR part 60
- Requirements under CAA § 112
  - NESHAP in 40 CFR part 61 and MACT in 40 CFR part 63
  - Chemical accident prevention requirements in 40 CFR part 68
- Requirements established pursuant to CAA § 504(b) or § 114(a)(3)
  - Compliance assurance monitoring in 40 CFR part 64

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Program – Applicable Requirements (Cont..)

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- Standards for solid waste incineration under CAA § 129
- Standards for tank vessels under section 183(f) of the Act
- Requirements for outer continental shelf sources under CAA § 328
- Requirements relating to stratospheric ozone under CAA Title VI
- Requirements of the acid rain program under CAA Title IV
- Requirements for consumer and commercial products under CAA § 183(e)
- NAAQS, PSD increments, and visibility requirements, but only for temporary sources permitted under CAA § 504(e)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V “Major Source”

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- Defined as the any building, structure,... and grouping thereof, that are:
  - Contiguous or adjacent,
  - Under common control, and
  - In the same industrial category
    - Per the 1995 proposed rule preamble - *If two sources have different 2-digit SIC codes, one may be considered support facility if more than 50% of the output is devoted to the primary source* [60 FR 45530]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V “Major Source” (Cont..)

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- Considered ‘major’ under CAA 112
  - PTE of single HAP  $\geq 10$  TPY
  - PTE of combination HAPs  $\geq 25$  TPY
- PTE of any air pollutant  $\geq 100$  TPY (next slide for lower thresholds in nonattainment areas)
  - PM is not a regulated air pollutant [59X, 44E, 31K]
  - GHGs not regulated under Title V [80 FR 50199]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V “Major Source” (Cont..)

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- Fugitive emissions counted for 28+ source categories
  - All fugitive emissions and not just the one regulated under the category are counted towards applicability [3P, 26Q]
  - For HAPS fugitive emissions are counted for all sources
- Lower threshold for sources in nonattainment areas

Non-attainment Area Designation	VOC or NOx	CO	PM-10
Marginal	100		
Moderate	100	100	100
Serious	50	50	70
Ozone transport region (other than severe or extreme)	50 (VOC only)		
Severe	25		
Extreme	10		

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Applicability

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- Any Major Source as defined in the rule
- Any source subject to NSPS (Major Sources only [40 CFR 71.3(b)(1), Higgins.pdf])
- Any source including an area source subject to NESHAP except 112(r) regulations
  - Certain NESHAP area source categories exempted per the applicable standards
  - Otherwise, area sources subject to Title V
- MSW landfills with design capacity  $\geq 2.5$  million mega-grams and 2.5 million m<sup>3</sup>

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Applicability (Cont..)

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- Any affected source under Acid Rain Program
- Solid waste incineration units under CAA 129
- Any source category designated by administrator – *none so far*
- Exemptions:
  - wood heaters
  - asbestos demolition & renovation

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Fugitive Emissions

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- Whether fugitive emissions are counted in determining applicability depends on the portion of the major source definition:
  - Section 112 portion
    - All HAP fugitive emissions are counted, even if the source is not one of the Section 112(c) source categories
  - Section 302(j) definition portion (100 tpy threshold):
    - Count only if source is “listed”
      - 28 specific source categories plus
      - Any source category for which a NSPS or NESHAP standard was in effect as of 8/7/80 (rule does not include date, but 3/8/94 memorandum states this)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Fugitive Emissions - 2

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- Title I nonattainment portion
  - For 1990 CAA Amendment definitions, fugitive emissions do not have to be counted (3/8/94 policy memorandum), although the agency can do so
  - New definitions:
    - Ozone serious, severe and extreme: 50, 25, and 10 tpy [§182(c-e)]
    - CO serious: 50 tpy [§187(c)]
    - PM-10 serious: 70 tpy [§189(b)(3)]
    - When a reduction of less than 15% is used in the attainment plan, the NSR provisions must add a 5 tpy threshold to the definition of major [§182(b)(1)(A)(ii)(I)]
    - In ozone transport regions (OTR): 50 tpy VOC [§184(b)(2)]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Fugitive Emissions—3

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- NOTE: this is a change from prior policy, including responses to comments on the Part 70 proposed rule and an earlier 10/8/93 policy memorandum
- Unlike NSR, fugitive emissions from listed sources are counted only for the pollutants regulated for that category (3/8/94 memo)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Modification Applicability

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- Title V sources: Any change requires revision of the Title V permit
  - Change can be new or revised information, physical changes, operational changes
  - Includes minor NSR modifications
  - 3 types of Title V modifications
    - Administrative amendments
    - Minor permit modifications
    - Significant permit modifications
- Minor (non-Title V) sources
  - Source itself is deferred from Title V
  - Minor modifications to source also deferred

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Operating Permits for New Sources

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- Same applicability rules as existing sources
  - Application due 12 months after startup, unless state mandates shorter period
  - Application may cross-reference NSR application (state discretion)
- Process follows standard procedures once submitted

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Program Elements

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<ul style="list-style-type: none"><li>• <b>Mandatory</b><ul style="list-style-type: none"><li>– Application forms</li><li>– Monitoring and recordkeeping requirements</li><li>– Legal authority for program</li><li>– Permit fee provisions</li><li>– Requirements for resources</li><li>– Streamlining procedures</li><li>– Protection against inaction</li><li>– Public access to information</li><li>– Incorporation of new standards</li><li>– Minor permit revision procedures</li></ul></li></ul>	<ul style="list-style-type: none"><li>• <b>Other</b><ul style="list-style-type: none"><li>– Fee demonstration</li><li>– Statement of adequate resources</li><li>– Commitment to report enforcement information</li><li>– Provisions for permit terms continuation</li><li>– Transition plan</li></ul></li></ul>
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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Application Timing

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- Submit an application within 12 months after the date source becomes subject to Title V
- Under combined programs Title V application typically required as part of preconstruction approval
- For renewals, applications are typically due 6 months prior to the expiration but no earlier than 18 months
- Completeness determination (varies)
  - Permitting agency gets 60 days to deem application incomplete for all approvals except minor permit mod
  - Important from application shield standpoint
  - Advisable to submit the application 8 months prior to expiration

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Application

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- Standardized application forms
  - Identification and description of all points of emissions to establish applicable requirements and fees
  - Emission rates in TPY or other terms as necessary to ensure compliance with the applicable requirements
    - However source wide PTE not required if source can state it is already major (white paper 2)[57J]
  - Fuels, usage, raw materials, production rates etc. to determine applicability or emissions
  - Air pollution control equipment description and associated compliance monitoring
  - Work practices or other limitations for all regulated pollutants
- Both stack and fugitive emissions are included irrespective of the source category

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Application (Cont..)

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- Applicable requirements along with reference test methods
- Other information to enforce applicable requirements or determine applicability thereof
- Document any exemptions from otherwise applicable requirements
- Information regarding any alternative operating scenarios or trading
- Compliance plan and compliance schedule
- Compliance certification
- Certification of truth, accuracy, and completeness
- Insignificant activities information
  - To determine applicability or fee amount

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Application (Cont..)

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- Initial guidance required review of major and minor NSR actions for determining applicability [44F]
- 1999 guidance confirmed that the retroactive NSR applicability evaluation is not required under Title V [12O]
  - Left avenue for more recent NSR/PSD actions
  - Clarified compliance certification obligation from White Paper I to the extent no permit shield is available for known violations
- Later slides describe changes to prior NSR applicability evaluations under Title V objection process [62H, 16G...]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Compliance Plan

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- Plan describes compliance status for all applicable requirements
- Statement of compliance for units that are subject to:
  - Currently applicable requirements
  - Future applicable requirements
- Compliance schedule for which the source is not in compliance
  - Description of how compliance will be achieved
  - Schedule of compliance with interim steps and measures
  - Schedule for submission of progress reports

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Compliance Certification

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- CAA § 503(b)(2) and 40 CFR § 70.6(c)(5) require certification of compliance with all permit terms
- Identify method(s) used to determine compliance status and whether determination is based on intermittent or continuous data
- Indicate deviations and possible exceptions to compliance
- Schedule for submission of compliance certifications (at least annually)
- Certification by “responsible official” of compliance status for all applicable requirements
- Statement of compliance status for any enhanced monitoring and compliance certification
- Submitted to U.S. EPA and permitting authority

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Certification of Truth, Accuracy, and Completeness

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- Per 40 CFR § 70.5(d), certification required for each:
  - Application form(s)
  - Compliance certification
  - Monitoring report
  - Progress report
- Certification by the “Responsible Official”
  - For corporation: president, secretary, treasurer, or vice-president
  - For partnership/proprietorship: general partner/proprietor
  - For govt. agencies: principal executive officer, ranking elected official

*Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.*

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Title V Compliance Assurance Monitoring (CAM) Obligation

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- CAM implements enhanced monitoring requirements in CAA § 114(a)(3).
- Applicability criteria at 40 CFR § 64.2
- Applicable to pollutant-specific emissions unit (PSEU) if:
  - Pre-control device PTE ≥ major source threshold
  - Use control device to achieve compliance with an emission limitation for the regulated pollutant (or a surrogate thereof)
- Exempt emission limits:
  - Limits in post-1990 NSPS and NESHAP
  - Limits under CAA titles IV and VI
  - Limits under emissions trading programs
  - Limits for which a Title V Operating Permit specifies a “continuous compliance determination method”

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### Title V CAM Requirements

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- CAM plan must establish indicator range(s) or condition(s) “such that operation within the ranges provides a reasonable assurance of ongoing compliance with emission limitations or standards for the anticipated range of operating conditions.”
- Must specify:
  - Indicator(s) (e.g., pollutant concentration or baghouse pressure drop)
  - Range(s), with correlation to compliance
  - Performance criteria (e.g., instrument location, monitoring frequency, QA/QC procedures)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Title V Periodic Monitoring

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- 40 CFR § 70.6(a)(3)(i)(A) requires that the permit include applicable monitoring and testing requirements
- 40 CFR § 70.6(a)(3)(i)(B) requires that the permit include “gap-filling” periodic monitoring, sufficient to represent compliance status, where applicable requirements include no periodic monitoring
- 40 CFR § 70.6(c)(1) requires that the permit include monitoring that is sufficient to assure compliance

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Title V Supplemental or Corrected Information

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- Submit supplemental or corrected information for the Title V application upon request from the agency or when necessary
- Provide additional information for any new applicable requirements after application submittal and prior to permit issuance

847

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Application— Completeness Determination

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- “Complete” means application contains all information needed to begin processing
- Completeness criteria must be:
  - Established by permitting authority
  - Included in program submittal
- Completeness determination required for all applications, except for minor permit modifications

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Application— Completeness Determination - 2

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- Default complete designation if no notice 60 days after receipt of application
- Timely updates do not affect completeness

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Application Shield

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- Applies only to applications that are both “timely” and “complete”
- Begins at time a complete application is submitted
- Protects source from “operating without a permit” if permit issuance is delayed
  - Delay does not affect source obligation to meet all applicable requirements
- Shield is lost for failure to make timely updates

850

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Public Participation

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- Required for major source applications, but not for minor
- Agency must provide notice to:
  - The public
  - Affected states
  - EPA

851

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Public - 2

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- Most effective commenters will be affected states and EPA Region
  - Both are experienced
  - Know how to comment
- Public will be more vocal
  - Usually more emotional than technical
  - Harder to handle without bad press

852

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Public notice

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- Printed in local newspaper
- Sent to persons on mailing list
  - Agency must keep list
  - Names added on written request
- Given by other means if needed to ensure adequate notice
- Must allow at least 30 days for comment and for advance notice of public hearing

853

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Public notice content

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- Notice must contain:
  - Identification of facility
  - Names and address of permittee and agency
  - Activities covered & any emission change
  - Where to obtain further information
  - Description of comment procedures
  - Procedures to request public hearing
- 5 Year issues/commenters file required

854

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Notice to affected states

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- An affected state is:
  - Contiguous and subject to possible air quality effects, or
  - Within 50 miles of the source

855

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Affected states - 2

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- Agency must notify affected states of:
  - Permit application
  - Refusal to accept any recommendation
    - Must explain why (and notify EPA)
    - Only recommendations based on requirements must be accepted

856

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Notice to EPA

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- Agency must provide EPA copies of:
  - Application
  - Proposed permit
  - Final permit
  - Any other information necessary for adequate review
- Agency can require applicant to provide copy of application and compliance plan

857

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## EPA review and veto

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Permit cannot be issued if EPA:

- Objects within 45 days of receipt of proposed permit and all supporting info.
- Includes reasons for objection
- Includes permit terms and conditions needed to respond to objections
- Provides copy of objections to applicant

858

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## EPA - 2

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- Procedural grounds for objection include failure of agency to:
  - Provide copies to EPA or affected state
  - Respond to recommendations
  - Submit information necessary for adequate review
  - Process the permit under approved procedures
- Agency must respond to objections within 90 days or EPA takes over

859

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Public Petitions

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- Any person can petition EPA within 60 days of end of 45 day EPA objection period
- Petition must be based on objections raised during public comment with reasonable specificity unless:
  - Impracticable to raise objection within that period or
  - Grounds for objection arose after that period

860

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Public - 2

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- EPA decides whether to object based on petition
- If EPA objects
  - Proposed permit cannot be issued until issue resolved
  - If final permit issued prior to EPA objection,
    - Permit remains in effect, but
    - EPA can take action to modify, terminate, or revoke

861

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## GENERAL PERMITS

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Definition of General Permit

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- Operating permit initiated by permitting authority covering numerous similar sources.
- General permit must:
  - Comply with all Part 70 requirements
  - Specify criteria for sources to qualify for general permit
  - Provide for public participation

863

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Purpose of General Permit

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- Reduce the permit application review and approval process.
- Provide an alternative means for permitting sources for which the normal permitting process would be overly burdensome.
- Source applies for coverage. Must:
  - Qualify (meet criteria)
  - Meet general permit terms and conditions

864

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Features of a General Permit

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- Standard review process for the general permit, but minimal review for sources permitted under it
- Simplified application process - sources show they meet the criteria for coverage under the general permit
- Drastic reduction in time and effort - EPA estimates that the effort of getting a general permit is only 4% compared to a specific permit.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Who Might be Covered by a General Permit?

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- Any source, large or small, that meets criteria set by the permit program may be covered by a general permit
- Any source that is “numerous and similar”, or subject to similar requirements. No acid rain sources.
- Examples: dry cleaners, degreasers, service stations, small boilers and storage tanks

866

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Standard Operating Permits Vs. General Permits

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- Standard Operating Permit
  - Source specific
  - Responsive to source application
- General Permit
  - Applicable to a category of sources
  - Proactively issued by Permitting Authority
  - Numerous and similar sources apply to operate under the provision of the General Permit

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Temporary (Portable) Sources

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- States can issue a single permit for similar operations at multiple temporary locations
- Permits must require:
  - Compliance with all applicable requirements at all authorized locations and with all other provisions of Part 70
  - Notification of agency at least 10 days before each location change

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Permit Coverage

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- Major source permits must address emissions units emitting regulated and “major” air pollutants
- Permits for non-major sources must address emissions units causing source to be subject
- Permits must address fugitive emissions in the same manner as stack emissions
- Permitting authority may issue a single permit or multiple permits

869

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Permit— Emission Limitations/Standards

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- Permit must
  - Specify and reference origin and authority for each term or condition
  - Identify differences between conditions and authority
  - Ensure that any “equivalent” emission limit under the SIP is quantifiable, accountable, enforceable, and based on replicable procedures

870

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit— Enforceability

---

- In Federal and many State title V programs, federally enforceable terms are treated much differently
  - See Federal definition of “applicable requirement”
- Generally, for state-only terms,
  - Periodic “gap-filling” monitoring not required
  - Compliance certification not required
  - Violation carries only civil (no criminal) liability

871

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit— Applicable Requirements

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- These will be numerous
- Separate Federally enforceable from state-only
  - May want to request separate state-only permit where agency allows
  - If state-only requirements included in Title V permit, make sure they are labeled as such

872

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit— Applicable Requirements - 2

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- Include in draft permit only:
  - The requirements that are authorized
    - Discuss deletions of unauthorized conditions in table, with explanation
    - Discuss deletions of redundant conditions in table
  - Revised permit conditions
    - Discuss recommended revisions in table
    - Be sure to provide full explanation

873

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—Applicable Requirements:  
Cite, Incorporate or Repeat?**

---

- White paper encourages cross-referencing (i.e., incorporation of applicable requirements by reference)
  - Reduces clutter in permit
  - Eliminates need to revise permit for some regulatory changes
  - Ensure that permit clearly indicates which elements of a regulation are applicable, get permit shield for those that are not

874

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Citing a Rule**

---

- Cite when rule is extensive but clear (no interpretation needed)
- Examples:
  - Test methods
  - Certain NSPS and NESHAP
  - Title VI rules
- If rule is not readily available, need to attach copy (important if rule being revised or if source grandfathered)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Interpreting a Rule**

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- Many rules are unclear. May be difficult to determine:
  - Which units at source are subject
  - What emission limit applies
  - How compliance is determined
  - Monitoring requirements
  - Reporting requirements
  - Recordkeeping requirements
  - Testing

876

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Interpreting a Rule- 2**

---

- Summarize your interpretation of rule whenever it is unclear
  - Better to have clear agreement on what is required
  - Can result in extensive resource drain if important enough for appeal/challenge

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Outdated SIP Requirements**

---

- Consistent with White Paper 2, should incorporate only new version if more stringent
  - Incorporate either both versions or only old version otherwise

878

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

**Minimizing Permit Conditions**

---

- Need to include the following conditions, at a minimum, in Title V permits:
  - All existing permit conditions
  - All applicable requirements
  - “Gap filling” requirements
- There is also a natural tendency to add new conditions agency considers important

879

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minimum conditions - 2

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- Ideally, the number and burden of conditions can be reduced to a minimum by
  - Rescinding unauthorized conditions
  - Combining redundant conditions
  - Clarifying what is really needed
  - Minimizing monitoring, reporting and recordkeeping to what is necessary

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minimum conditions - 3

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- Issue:
  - Title V permits must include all requirements, yet
  - Title V cannot be used to revise NSR (New Source Review) permits to delete these unnecessary conditions
- This is not a problem
  - Can just agree to go through NSR permit revision process for the existing NSR permits
    - Already have NSR permit, so no time pressure
    - Source must abide by current permit until revised

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Coverage

---

- Major source permits must address emissions units emitting regulated and “major” air pollutants
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RTP ENVIRONMENTAL ASSOCIATES, INC.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Enforceability**

---

- In Federal and many State title V programs, federally enforceable terms are treated much differently
  - See Federal definition of “applicable requirement”
- Generally, for state-only terms,
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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Applicable Requirements**

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- These will be numerous
- Separate Federally enforceable from state-only
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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit— Applicable Requirements - 2

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit—Applicable Requirements: Cite, Incorporate or Repeat?

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- White paper encourages cross-referencing (i.e., incorporation of applicable requirements by reference)
  - Reduces clutter in permit
  - Eliminates need to revise permit for some regulatory changes
  - Ensure that permit clearly indicates which elements of a regulation are applicable, get permit shield for those that are not

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit— Citing a Rule

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- Cite when rule is extensive but clear (no interpretation needed)
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  - Certain NSPS and NESHAP
  - Title VI rules
- If rule is not readily available, need to attach copy (important if rule being revised or if source grandfathered)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Interpreting a Rule**

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- Many rules are unclear. May be difficult to determine:
  - Which units at source are subject
  - What emission limit applies
  - How compliance is determined
  - Monitoring requirements
  - Reporting requirements
  - Recordkeeping requirements
  - Testing

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Interpreting a Rule- 2**

---

- Summarize your interpretation of rule whenever it is unclear
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  - Can result in extensive resource drain if important enough for appeal/challenge

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RTP ENVIRONMENTAL ASSOCIATES, INC.

**Permit—  
Outdated SIP Requirements**

---

- Consistent with White Paper 2, should incorporate only new version if more stringent
  - Incorporate either both versions or only old version otherwise

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minimizing Permit Conditions

---

- Need to include the following conditions, at a minimum, in Title V permits:
  - All existing permit conditions
  - All applicable requirements
  - “Gap filling” requirements
- There is also a natural tendency to add new conditions agency considers important

892

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minimum conditions - 2

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- Ideally, the number and burden of conditions can be reduced to a minimum by
  - Rescinding unauthorized conditions
  - Combining redundant conditions
  - Clarifying what is really needed
  - Minimizing monitoring, reporting and recordkeeping to what is necessary

893

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minimum conditions - 3

---

- Issue:
  - Title V permits must include all requirements, yet
  - Title V cannot be used to revise NSR (New Source Review) permits to delete these unnecessary conditions
- This is not a problem
  - Can just agree to go through NSR permit revision process for the existing NSR permits
    - Already have NSR permit, so no time pressure
    - Source must abide by current permit until revised

894

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield

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- Section 504(f) provides that compliance with the permit may be deemed to be compliance with other applicable requirements of that Act
  - Application of the permit shield is discretionary with the permitting authority
  - EPA may limit the shield by rule
- Shield must be specifically stated in permit
- If not stated, there is no shield protection

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield - 2

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- Section 70.6(f) allows application of the permit shield to requirements where either:
  - Requirements are included and specifically identified in the permit or;
  - Permitting authority finds the requirements not to be applicable and lists these requirements in the permit
- Shield may not apply to:
  - Requirements promulgated after permit issuance
  - Revisions processed as minor permit modifications

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield - 3

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- “Off-permit” actions and other operational flexibility changes not provided for in the permit
- Emergency orders issued under Section 303
- Violations existing at time of permit issuance
- Acid rain requirements
- Information request requirements under Section 114

897

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield - 4

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- Misinterpreted and omitted requirements
  - Shield applies to misinterpreted requirements, including erroneously finding a requirement is not applicable
  - Shield may not apply to a requirement not addressed in the permit

898

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield - 5

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- Recommended approach
  - Document applicable requirements and permit shield at same time
  - Use “tiered” approach
  - Usually up to four levels

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield- Tiered approach

LEVEL	CATEGORY	EXAMPLE
1	Water Quality	40 CFR 60 (NSPS)
2	Specific rule	Discharge
3	Specific requirement	100% BOD
4	Specific requirements for equipment	Specific velocity, 50%, 20%, 10%

898

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Compliance Schedule

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- Required for sources not currently in compliance
- Establishes milestones for achieving compliance
- Creates a federally enforceable commitment on the part of source

901

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Title V Enforceability

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- Permit enforceable by permitting agency, U.S. EPA under CAA § 114, and citizens under CAA § 304
- State and local enforceable provisions need to be identified as not required under the Act or any of its applicable requirements
- SIP requirements remain in effect and must be included in the Title V Permit
- Supersession – Construction conditions will remain effective even if superseded by Title V [120, 64Z]
  - Important in unitary program jurisdictions as the underlying permits are administratively voided

902

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopening and Renewing the Permit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopening Permits [§70.7(f) and (g)]

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- Allowed at any time during the life of the permit
  - If circumstances warrant
  - Permit should contain specific conditions warranting reopening

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopening - 2

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- Circumstances requiring reopening:
  - Additional applicable requirements becoming applicable 3 or more years prior to the renewal date
    - Reopening must be completed within 18 months after promulgation of the requirement
    - Reopening not required if effective date of the new requirement is later than the permit expiration date, unless the permit has been extended (due to the agency not issuing a renewal permit before the existing permit expires)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopening - 3

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- Additional requirements becoming applicable to an affected source under the acid rain program
  - Includes excess emissions requirements
  - Note that excess emissions offset plans are deemed to be incorporated into the permit when approved by EPA
- When the permit is determined by the permitting agency or EPA to contain
  - A material mistake or
  - Inaccurate statements made in establishing the emissions standards or other terms or conditions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Reopening - 4

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- When the permitting agency or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements
- Reopening procedures (general)
  - Same procedures as apply to initial permit issuance, except
  - Affect only those parts of the permit for which cause to reopen exists

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Reopening - 5

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- Timing
  - Reopening should be made as expeditiously as practicable
  - However, reopening should not be initiated until source has been notified
    - Generally, 30 days advance notice to source
    - Can shorten notice period if emergency

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Reopenings for Cause [70.7(f)]

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- Permit must be reopened when:
  - New requirements apply to major sources and 3 or more years remain before permit is due to expire. Complete the reopening 18 months after new requirement promulgated. Reopening not required if effective date of requirement is beyond expiration date of permit.
- Permit must be reopened when:
  - New requirements apply to acid rain sources

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopenings for Cause - 2

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- State or EPA finds material mistake or inaccurate statement made in establishing permit terms
- State or EPA finds reopening is necessary to assure compliance with applicable requirements (example - reopen to include compliance plan)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopenings for Cause - 3

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- Reopenings follow permit issuance process
  - Same review process used for permit issuance and renewal - public, EPA, and affected State review
  - Review those parts of permit being reopened
  - At least 30-day notice to source prior to reopening
  - State may allow permit shield

911

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Reopenings by EPA [70.7(g)]

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- EPA may find “cause exists” to reopen
  - Reasons for reopening are those in Section 70.7(f)
- Process takes at least 9 months
  - EPA notifies permitting authority and permittee that cause exists
  - In 90 days, State sends EPA a proposed finding to terminate, modify, revoke or reissue permit. EPA may extend deadline 90 days. If State fails to send finding, EPA reopens.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Reopenings by EPA - 2

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- 90-day EPA review of finding
- Permitting authority has 90 days to resolve EPA objection and terminate, modify, or revoke and reissue permit. If State fails to resolve objection, EPA reopens.
- If EPA reopens permit:
  - 30-day notice to permittee
  - Opportunity to comment and a hearing

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Renewals

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Timing

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- Maximum life of permit is 5 years
- Renewal application required 6-18 months prior to expiration
  - Rules similar to initial application
  - Timely, complete renewal application provides application shield if permit expires prior to renewal
    - Very important to do this
    - Puts time back on your side again

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Renewal Application

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- Review comments, issues that were raised during initial application processing
  - Are responses still valid, accurate?
  - Have you fulfilled any commitments made during process?
  - How does your record look?
    - Compliance usually biggest issue
    - May need to compare to other sources

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Renewal - 2

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- Record any new issues that come up during permit period
  - Newspaper articles
  - Violations and penalties
    - Not just your plant
    - Could be for your industry or for any industry
    - Unfair, but public reaction to, say, power plant problem, could affect you
  - Address in application

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Renewal Process

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- Handle comments as before
- Remember to keep in contact with reviewing agency
  - No surprises
  - Anticipate issues
- Agency was required to file all issues and commenters, but may not have reviewed

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Renewal Draft Permit

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- Start with current permit
- Retain what you feel is
  - Workable
  - Best resolution you could expect
- Suggest changes to conditions you feel could be removed or revised
  - Provide “ideal” permit
  - Prepare table showing changes, rationale

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PERMIT REVISIONS AND MODIFICATIONS

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Revising Permits [§70.7]

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- This area of rule is very controversial
- Revisions still being proposed
- Creates uncertainty
  - No one anxious to issue permits until they know how to revise
  - Will still take years after EPA revisions to change all the State rules

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Types of Changes

Mechanism	Requirements	Comments
Alternate scenarios	Application must describe, permit must include. Source must meet requirements for each scenario and record in operating log when switch.	Retains flexibility for making different products and for other actions considered "alternate" by agency.
Emissions trades ■ SIP ■ Permit	Terms for trade must already be in either SIP or permit	Most agencies uncomfortable with this; will require preparation to obtain. Not viable for units with specific standards.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Types of Changes - 2

Mechanism	Requirements	Comments
Emissions Caps	Must be in permit and Federally enforceable to be useful	Useful even if some units also restricted by specific limits, because can still move units between buildings, etc. Can make this a predictive standard. Particularly useful for avoiding applicability on a TPY basis. Will require extensive information system.
Section 502(b)(10) changes	Can contravene a permit term, but cannot violate any applicable condition.	Useful "safety valve" if didn't obtain complete permit "remediation". Agency must approve.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type of Change - 3

Mechanism	Requirements	Comments
Off-permit changes	For changes neither addressed nor prohibited by the permit	Potentially useful for wide variety of changes, but doubtful if agencies will allow too many of these changes using this mechanism instead of permit revisions.
General permit	Agency must have prepared a general permit for that type of unit; unit must be certified by agency as meeting criteria for general permit.	Excellent approach for commonplace similar emissions units. Would be separate permit. Need to get agency to develop general permit for that type of unit in advance of need for permit.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Types of Changes - 4

Mechanism	Requirements	Comments
Insignificant activities	Agency must develop list and EPA must approve.	Once a unit/activity is on list, procedure will probably be simply to notify agency.
Exempt activities	Agency must develop list and EPA must approve.	Exempted units/activities may not even have to be reported.
Permit revision- Administrative amendments	For name and other trivial changes, except enhanced NSR	Not useful for source changes unless used to incorporate enhanced NSR permit. Can make change immediately.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Types of Changes - 5

Mechanism	Requirements	Comments
Permit revision- Minor permit modification	For emissions increases that are not significant and that pass "gatekeepers."	EPA has revised policy on gatekeepers to allow minor NSR to be handled using this. Change can be made when application is filed.
Permit revision- Significant permit modification	For changes not qualifying as administrative or minor	Approach required for most changes of importance to source. Cannot make change until receive revised permit. Lead time needed: at least 9 months. Acceptable if need major NSR permit also.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PERMIT CHANGES

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Revisions

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- Administrative permit amendment [70.7(d)]
- Minor permit modification [70.7(e)(2)]
- Significant modifications [70.7(e)(4)]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Administrative Permit Amendment

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- Types of changes: [70.7(d)]
  - Typographical errors
  - Change name, address, phone number, or similar
  - More frequent monitoring or reporting
  - Change in ownership with transfer agreement, if no other permit change needed

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Admin. Permit Amendment - 2

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- Types of changes: [70.7(d)]
  - New source review (NSR) permit enhanced to provide process equivalent to one of modification tracks and compliance requirements equivalent to Section 70.6
  - Other types approved by EPA
- Shield may apply to NSR permit enhanced to significant modification track
- Permit revised within 60 days
  - Source makes change immediately
  - No public process, affected state review required
  - EPA gets notice, but no review

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Procedural NSR Enhancements (Typical)

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- Public comment
- Opportunity for public hearing
- Petition process
- Renewal date
- EPA veto (?)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Substantive NSR Enhancements (Typical)

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- All applicable requirements
- Operating flexibility provisions
- Fees
- Compliance plan & certification
- Monitoring
- Reporting and recordkeeping

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Minor Permit Modification - Principles

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- Maintains current law
  - Current law allows small emissions increases under PSD/NSR program. MPM allows same increases - even adds review.
  - “Stacking of MPM’s” not allowed - maintains current policy
- Provides adequate review
  - 90-day State review, 45-day EPA review, after change

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Principles - 2

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- No shield - if change denied, source returns to original permit. Must comply with applicable requirements.
- Allows small changes without unreasonable delay
  - Ability to make small changes quickly was common industry theme
- Protects compliance terms of permit
  - Only insignificant monitoring changes allowed through MPM - no relaxations

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Principles - 3

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- Flexible approach to expeditious processing
  - States must adopt “expeditious procedures” - may use EPA’s model or one that provides equivalent streamlining
  - States may require more process

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minor Permit Modification - Gatekeepers [70.7(e)(2)(i)]

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- Can not use MPM for:
  - Significant changes to monitoring, reporting, recordkeeping
  - Title I modifications
  - Case-by-case emission limits, such as 112(g) modifications or RACT equivalency, or source-specific determinations of ambient impacts, visibility or increment analysis

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Gatekeepers - 2

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- Can not use MPM for:
  - permit terms with no applicable requirement that source takes to avoid an applicable requirement, such as:
    - federally enforceable emissions cap to avoid Title I modifications, or
    - early reductions limit
- Can not use MPM for: [70.7(e)(2)(i)]
  - Violations of applicable requirements

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Gatekeepers - 3

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- Changes required by State to be processed as significant
- May be used for:
  - Insignificant monitoring changes
  - Changes using market-based programs that explicitly allow MPM process

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Minor Permit Modification - Process [70.7(e)(2)(ii)-(v)]

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- How source makes changes
  - Files a complete application describing change, requesting MPM procedure, and certifying that change qualifies
  - Application includes suggested draft permit
  - Receives “qualified exemption” from original permit. Exemption lost if source fails to comply with proposed permit.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Process - 2

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- Make change while application is pending
- Review Process
  - Public review not required
  - Review by State, EPA, and affected States - after change occurs
  - Up to 90-day State review, 45-day EPA review

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Timing [70.7(e)(2)(iii)-(v)]

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- Within 5 days of application, State notifies EPA and affected States
- May issue permit after EPA’s 45-day review expires, or after EPA notice that it will not object

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## MPM - Timing - 2

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- 90 days after receipt, or 15 days after EPA’s review ends, whichever is later, Permitting Authority:
  - Issues modification as proposed
  - Denies the application
  - Finds that request fails to meet criteria for MPM, or
  - Revises draft permit and sends EPA new proposed permit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Group Processing of Minor Permit Modifications [70.7(e)(3)]

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- “De Minimis” emissions threshold
  - State may set its own threshold levels
  - If State does not set levels, EPA’s levels apply
- Gatekeepers
  - Same as MPM - no significant monitoring changes, no Title I modifications, etc.
  - Changes are collectively below threshold level

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Group Processing of MPM - 2

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- Quarterly review by EPA and affected States
  - Except: if changes collectively exceed threshold, submit in 5 days
- Same enforcement protection as MPM
  - No shield, and if permit denied, source returns to terms of original permit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Significant Modifications [70.7(e)(4)]

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- Any permit change not an MPM or administrative amendment
  - Significant monitoring changes
  - Relaxations of reporting and recordkeeping
- Full review process
  - Same review process as applies to permit issuance and renewal
  - Except: permitting authority completes most reviews in 9 months
- State may allow permit shield

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<small>RTP ENVIRONMENTAL ASSOCIATES, INC.</small> Permit Modifications and the Permit Shield	
Category of Modification	Can Permit Shield Apply
<ul style="list-style-type: none"> <li>Operational Flexibility</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Off Permit</li> </ul>	No
<ul style="list-style-type: none"> <li>Administrative</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Minor</li> </ul>	No
<ul style="list-style-type: none"> <li>Significant</li> </ul>	No

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<small>RTP ENVIRONMENTAL ASSOCIATES, INC.</small> Operational Flexibility
<ul style="list-style-type: none"> <li>Allows sources to make certain changes without a permit revision</li> </ul>

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<small>RTP ENVIRONMENTAL ASSOCIATES, INC.</small> Operational Flexibility
<ul style="list-style-type: none"> <li> <b>Mandatory</b> <ul style="list-style-type: none"> <li>Authority to contravene permit terms not supported by the underlying rule, as long as emission limits are not exceeded</li> <li>permit terms which allow for trading of emissions increases and decreases to comply with the Federally enforceable emissions cap</li> </ul> </li> <li> <b>Optional</b> <ul style="list-style-type: none"> <li>Authority to trade emissions increases and decreases if such trading is allowed by the applicable SIP</li> </ul> </li> </ul>

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Alternative Operating Scenarios

(The Basis of Operational Flexibility)

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- Increases and decreases in number of shifts
- Changes in type and size of equipment
- Increases or decreases in material throughput rates
- Changes in the types of material used in production process

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### What Scenarios Must the Permit Contain?

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- Reasonably anticipated operating scenarios
- Identified by the source in its application
- As approved by the permitting authority

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### What is in the Permit

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- Terms to ensure each alternative meets applicable requirements and Part 70
- Shield may apply to scenarios

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## What is an Off Permit Change

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- Changes not addressed or prohibited by the permit
- Changes not subject to:
  - Title I Modifications
  - Title IV Acid Rain Requirements

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## How to Make Off Permit Change

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- Contemporaneous notice to authority and EPA
- Record kept at facility of changes subject to an applicable requirement and emissions resulting from change

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Federal & State Enforcement Against Off Permit Changes

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- Any prohibition of off permit changes enforceable as a matter of State law only

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## June 10, 1995 Memo

### Policy Changes On Modifications

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Permit Revisions - Title I NSR Modifications (Memo)

- Definition of modification (broad versus narrow)
- Current part 70 unclear on definition of modification
- Does the definition include minor NSR changes?
- Most states interpret modification as not including minor NSR changes
- Washington State program includes narrow definition (approved by EPA)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Permit Revisions - 2

- States using the narrow definition are fully approvable
- Minor NSR changes will be considered as off-permit change rather than significant modification

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Revisions - EPA Veto

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- EPA will waive veto authority
  - For less environmentally significant changes
  - For a 5 year period
  - Unless agrees with citizen petition
- May continue waiver beyond 5 years if audit indicates good state program

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Supplemental Proposal

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Original Schedule

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• August 31, 1995	• FR Date of Publication
• October 30, 1995	• End of 60 Day Public Comment Period
• March, 1996	• Projected Promulgation of Revised Part 70 Rule
• 1998	• Submittal of State Program Revisions
• 1999	• EPA Approvals of State Program Revisions

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Observations

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- Current part 70 remains in effect (no stay by court)
- Public comment period is closed but aspects not related to permit revisions also will be addressed in 1996 promulgation
- States can combine into one rulemaking corrections from interim approval and part 70 revisions

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Remember,

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- These are proposed changes
  - May be revised
  - Will not take effect until promulgated
  - EPA way behind schedule
- In contrast, white paper is final policy

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Revision Required for Changes That...

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- Could not be operated without violating an existing permit term

Or

- Make source subject to a new applicable requirement

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Acid Rain Exemption

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- Revisions to acid rain portion of permit are governed by Title IV regulations

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Public Notice Required

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- Prior to change or
- After change
  - At least quarterly
  - Agency must allow public access to records

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Types of Changes

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A. Changes subject to a state review program

1. More Environmentally Significant (MES) changes
2. Less Environmentally Significant (LES) changes

B. Changes NOT subject to a state review program

1. MES Changes
2. LES Changes

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type A.1. Changes

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- Defined in state program
- Must include
  - Major NSR changes
  - Projects that would have a significant emissions increase (even if source elects to net out of major NSR review)
- 112(G) changes
- Other changes identified by agency

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type A.1. Procedures

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- Public, EPA, affected states notified, comment on change and draft permit terms
- Agency issues document describing requirements and change
- Document attached to or incorporated into (unitary permits) part 70 permit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type A.2. Changes

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- Minor NSR changes (except projects with pre-netting significant increase)
- Source-specific SIP revisions
- Other (as approved in program)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type A.2. Procedures

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- Public review procedures can vary based on environmental significance of change
- Agency can designate certain changes as de minimis
  - Require EPA approval
  - Can postpone review until permit renewal

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type A. Changes-Timing

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- Source must receive revised permit before making change UNLESS pre-revision change allowed in state rule
- Source, for pre-revision changes, must notify agency upon operating change

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type A. Timing-2

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- Notice content
  - Description of change
  - Applicable requirements
  - Part 70 terms and conditions
  - Compliance statement
- Notice attached to permit
- If change conflicts with current permit, pre-revision change not allowed

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type B Changes

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All changes not otherwise reviewed by the state agency

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type B.1. Changes-Applicability

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- Defined by agency
- Must include (unless Type A):
  - 112(J) MACT and 112(I) limits
  - Alternative 112(i)(5) or part 70.6(A)(1)(iii) limits
  - Limits establishing PTE, including minor source status
  - New/alternative non-authorized monitoring methods

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type B.1. Procedures

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- Same process as initial permit issuance
- Agency to complete majority of changes within 6 months of receipt of complete application

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type B.2. Applicability

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- Defined by agency
- Includes (unless Type A):
  - Alternative operating scenarios
  - Monitoring terms
  - Revisions to PTE
  - 112(D) emissions averaging restrictions

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type B.2. Procedures

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- Can vary by environmental significance
- Three types of changes
  - Administrative (B.2.A.)
  - De Minimis (B.2.B.)
  - Other (B.2.C.)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type B.2.A. Administrative Changes

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- Correcting typos
- Minor administrative changes
- More frequent monitoring, reporting, recordkeeping
- Change in ownership or control
- Incorporating a compliance schedule
- De minimis changes

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Type B.2.A. Changes-Timing

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- Source or agency generates notice
- Permit revised when
  - Source mails notice or
  - Agency attaches notice to permit
- Agency can allow pre-notice implementation of change

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Type B.2.B. Changes-Timing

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- These are de minimis changes
- Agency can postpone review until permit renewal

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Type B.2.C. Changes

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- For changes that
  - Trigger new or different applicable requirement(s), but which
  - Source can make without agency approval
- Source submits notice upon commencing “operation” of change

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Type - 2

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- Notice
  - Describes change
  - Lists requirements
  - Lists permit terms and conditions
  - States that source will comply with all requirements
- Mailing of notice revises permit

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Combination Changes

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If mix of Type A and Type B changes

- Process all changes per Type A review
- If Type A review includes all elements of Type B review

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permit Shield

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Agency can provide shield for...

- Type A.1. And B.1. (MES) changes
- Terms added as a result of EPA objection
- Any Type A.2. Or B.2. (LES) change undergoing public and EPA review

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RTP ENVIRONMENTAL ASSOCIATES, INC.

# The 2/17/98 Draft Rule

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Background

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- EPA has still not promulgated revisions to Part 70 rule
- Latest draft covers only the relatively noncontroversial areas
  - Does not even include Sections 70.7 and 70.8 that deal with revisions
  - Does cover definitions and other sections of rule

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Background - 2

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- Presentation covers only significant issues addressed in draft
- Builds on proposed revisions published in the FR on
  - August 29, 1994
  - August 31, 1995

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Advance Approval

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Concept

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- Decide applicable NSR requirements before an anticipated project or class of projects is constructed or modified
- Include that project's requirements in the part 70 permit for the facility
- Avoids need for a separate NSR permit and part 70 permit revision prior to construction and operation
- Use alternate operating scenarios to implement

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Concept - 2

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- For minor NSR only
  - New units
  - Modifications to existing units
- Need to be able to predict construction and operational details of the future project or class of projects with enough certainty to allow agency to insert appropriate NSR requirements into part 70 permit

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## History

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- 1995 approach was to treat as a §502(b)(10) action
- Draft changes to alternate operating scenario action
  - Allows the use of advance NSR for title I modifications (not allowed under §502)
  - No 7-day advance notification required

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Scope

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- Can be used for advance approval of other requirements, such as NSPS and NESHAP, not just NSR
  - Term changed from “advance NSR” to “advance approval”
- Voluntary--agencies not required to provide advance approvals

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Advance Approval v. PALs

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- Advance NSR approval
  - Is a minor NSR permitting action
    - Forecast NSR and other requirements that apply to a particular project or class of projects
    - Develop part 70 permit terms to comply
  - Is not allowed for major NSR actions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Advanced - 2

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- PAL
  - Is a limit taken to avoid triggering major NSR
  - It does not avoid need for minor NSR or part 70 permit revisions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Alternative Operating Scenarios

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Definition

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- Not defined in 1992 rule
- Definition proposed in 1995
  - Terms that assure compliance with different modes of source operation for which
    - Different applicable requirements apply and
    - The source is designed to accommodate

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Definition - 2

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- Two concerns
  - Designed to accommodate
    - Restricts availability of scenarios
    - Fails to accommodate new units and modifications not considered in original design
  - For which a different applicable requirement (AR) applies

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Definition - 3

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- Excludes desirable changes such as
  - » Change from Scenario A with an AR to Scenario B without that AR
  - » Change to Scenario B where all the Scenario A AR still apply, plus a new AR

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Definition - 4

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- Definition revised to read:
  - “...terms or conditions in a part 70 permit which assure that different modes of operation comply with the applicable requirements relevant to each mode of operation.”

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emissions Cap Permit

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Definition

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- Proposed in 1995
  - Created confusion with PAL definition
  - EPA dropping definition
- Will clarify types of uses of emissions caps instead of having a definition

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Major Source Definition

- Support Facilities
- HAP Source Applicability
- Fugitive Emissions
- R&D Facilities

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support Facility

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- The 1994 proposal was that
  - Any stationary source that supports another source must be considered a support facility and part of the same source regardless of the 2-digit SIC code for that support facility
  - A facility would be considered a support facility if greater than 50% of its output is dedicated to the activity it supports

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support - 2

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- EPA still feels that it should not “artificially divide into separate ‘sources’ facilities that comprise a single entity relative to economic, functional, and air-quality perspectives”
- Therefore, the following 3 changes are proposed in the draft
  - Delete the rigid 50% test
  - Delete the adjacent/common control reference
  - Add definition from 8/7/80 NSR preamble

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support - 3

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- 50% rule
  - Will retain as a presumption
  - Criteria to use are degree to which a possible support activity
    - Supplies material inputs to the primary activity and
    - Provides services to the primary activity
      - If either is 50% or greater, generally should be considered a support activity
      - Otherwise, can be considered a separate source

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support - 4

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- If an activity supports 2 or more primary activities, group with activity it supports the most
- Can consider additional financial, functional, and contractual or other legal factors:
  - Degree to which the support activity receives materials/services from the primary activity (which may indicate a mutually beneficial arrangement between the primary and secondary activities)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support - 5

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- Degree to which the primary activity exerts control over the support activity's operations
- Nature of any contractual arrangements between the facilities
- Reasons for the presence of the support activity on the same site (would it be there w/o primary activity)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support Facility-Contiguous/Common Control

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- The two other criteria for grouping emissions units are
  - Contiguous or adjacent property and
  - Common control
- These were included in support facility definition, but are also in major source definition, so redundant
- EPA will delete, so only in major source definition

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Support Facility Definition

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- EPA described a support facility in the 8/7/80 NSR rule as a facility which  
    “conveys, stores, or otherwise assists in the production of the principal product”
- Will include this in part 70 definition

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## HAP Source Applicability Issues

- Aggregating by SIC codes
- Counting Fugitive Emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## HAP Sources - SIC Codes

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- HAP sources will not be allowed to separate by SIC code
- Makes part 70 source definition consistent with part 63 definition

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Fugitive HAP Emissions

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- Are to be included in determining whether a source is major for HAP emissions, as proposed in 1994
- Section 302(j) does not apply to section 112 applicability
- Court upheld (NMA v. EPA)
- Consistent with part 63 definition

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Fugitive Emissions

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- Counted for listed source categories
  - 1992 rule included as listed any source category regulated under NSPS or NESHAP
    - No date given, but implicit date was 7/21/92 (promulgation date)
      - Challenged on procedural grounds (§302(j))
      - 1994 proposal used 8/7/80 (same as NSR)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## Fugitive - 2

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- 1995 proposal avoided specific date by including on list any source category for which an “affirmative determination” had been made under §302(j)
- Agencies protested due to effect on fees

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Fugitive - 3

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- EPA staying with 1995 approach
  - Source categories regulated by NSPS or NESHAP after 8/7/80 considered unlisted until an affirmative determination is made
  - States free to adjust fees to compensate or retain their rules based on 1992 rule

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Fugitive - 4

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- Applied only to “pollutants regulated for that source category” in 1992 rule
  - Proposed to delete this phrase in 1995
  - 1998 Draft also proposes to delete phrase
  - Would require counting of all fugitive emissions at listed sources, not just the pollutants regulated by the NSPS or NESHAP
  - Conforms the NSR and part 70 definitions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Fugitive - 5

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- Collocated sources
  - Unlisted sources collocated with a listed source must count fugitive emissions if the listed source in 1992 rule
    - Is the primary activity and
    - The unlisted source is considered part of that primary activity
  - Follows NSR policy for support facilities
  - NMA and American Forest and Paper Association petitioned for review
  - 1998 Draft retains 1992 collocated source policy

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## R&D Facilities

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- 1995 proposal allowed R&D facilities to be separated from other sources at the same site
  - Applied to R&D activities located with other sources, such as manufacturing, not to stand alone R&D facilities
  - To qualify as R&D activities, could not manufacture products for sale or exchange except in de minimis manner

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## R&D - 2

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- 1998 Draft retains concept, addresses several issues
  - Major source definition revised to allow R&D activities to be classified under a separate SIC code
    - Not support facilities and therefore separate unless
    - Contribute to product produced or services rendered by collocated source
    - Used “administrative convenience” test for §112 purposes instead of support facility test

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## R&D - 3

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- Different definition from §112 definition
- However, different definitions ok per NMA v. EPA [59 F.3d 1351 (D.C. Cir. 1995)]
- R&D activity definition revised
  - Theoretical (basic) research or
  - Research and development into new or improved processes and products
  - Cannot engage in commercial production more than a de minimis amount
    - EPA leaves to States to define
    - States must establish objective criteria (% time or dollar, volume, weight or other limits)
  - R&D activities at educational facilities eligible

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## R&D - 4

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- Pilot plants
  - States allowed to decide if R&D
  - Case by case determination
- Non-R&D laboratories
  - EPA will not classify as R&D
  - Flexibility allowed in 7/10/95 White Paper for permitting

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## R&D - 5

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- Calculating potential to emit (PTE)
  - Difficult, but possible
  - Therefore, needs to be done (no de minimis exemption from PTE calculation)
- Stand-alone R&D activities cannot be separated from support facilities

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Changes to Permits

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- “Permit modification” removed
- Permit revision defined as any permit change, whether notice-only, de minimis, minor, or significant
  - Required for changes that
    - Could not be operated without violating a permit term
    - Render the source subject to an applicable requirement to which the source has not been previously subject

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Changes - 2

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- However, should not be interpreted too broadly. Should not include
  - Changes that trigger only generally applicable requirements, such as opacity limits
  - Advance approvals

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Plantwide Applicability Limit (PAL)

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- Proposed definition in 1995
- 1998 Draft withdraws definition
  - Want to be consistent with upcoming NSR definition
  - Not mandating emissions cap permits that include PALs in part 70 programs, so definition not required
- PALs still available to sources as a part 70 permit term

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Potential to Emit (PTE)

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- 1992 rule stated that only federally enforceable terms affected PTE
- Court decision vacated EPA rule
  - Clean Air Implementation Project (CAIP) v. EPA (D.C. Cir. June 28, 1996)
  - August 27, 1996 policy memo stated that “federally enforceable” should be read “federally enforceable or legally and practicably enforceable by a State or local air pollution control agency” [see Extension of January 25, 1995 Potential to Emit Transition Policy]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PTE - 2

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- 1998 Draft revises definition to
  - Conform to court decision
  - Specify that limits enforceable by the Administrator are also enforceable by citizens

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Regulated Air Pollutant

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- Proposed to delete §112(r)-regulated compounds from the definition of a regulated pollutant in 1995 proposal
- 1998 Draft clarifies this intent by providing a specific exemption for §112(r) compounds

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## §502(b)(10) Changes

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- Changes which contravene express permit terms, but which do not violate applicable requirements and would not contravene federally enforceable monitoring, recordkeeping, reporting, or compliance requirements
- Allowed under the 1992 rule
  - Deletion of this proposed in 1994
  - 1998 Draft also proposes deletion of this type of allowable change

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title I Modifications

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- Not eligible for minor modification or administrative amendment procedures in 1992 rule
- 1994 proposal included minor NSR as a Title I modification
- 1995 proposal reversed decision, concluding that minor NSR was not a Title I modification
- 1998 Draft confirms 1995 proposal

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Applicability (§70.3)

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- Part C and D Sources
  - These are PSD and major nonattainment area NSR sources
  - Required by §502(a) to obtain part 70 permit
  - 1994 proposal added specifically to list
  - 1998 Draft retains listing because some C and D sources may not be “major” under part 70 definition
    - Sources with major NSR permits that subsequently become minor
    - Sources nonmajor under part 70, but major under NSR, such as PM sources

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Applicability - 2

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- §112(r) applicability
  - 1994 proposal excluded §112(r) sources from part 70 permit requirement
  - 1998 Draft clarifies that exclusion is only for pollutants listed solely under §112(r)

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Off-Permit Changes

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- These are changes neither addressed nor prohibited by a permit
- Deletion of this provision proposed in 1995
- 1998 Draft would still delete
  - Less need for provision with new permit revision system
  - Contrary to intent of part 70 permit program to have all requirements in permit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Judicial Review

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- 1992 allowed 90 days maximum for filing petitions for judicial review after a permit action
- 1994 proposal would increase to 125 days
  - Some State laws had more than 90 days
  - States can always specify shorter period
- 1998 Draft uses 125 day maximum

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Insignificant Activities

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- 1992 rule unclear about counting emissions from these activities in determining applicability
- 1994 proposal clarified by requiring the emissions be counted
- 1998 Draft retains 1994 provision
- Does not affect how/whether fugitive emissions are counted

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Certification Language

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- 1992 rule did not have much guidance on certification text
- 1995 proposal offered specific language
  - Comments mostly negative
  - Considered more stringent than NPDES
- 1998 Draft intended to be equivalent to NPDES certification

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Changing Alternate Scenarios

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- 1992 rule required changes to be recorded contemporaneously in log
- 1994 proposal required sources to send agency a weekly notice of any changes in operating scenarios
  - Proposal dropped as too burdensome
  - Sources must still keep log of changes

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emergency Defense

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- 1992 rule allowed for violations of technology-based emissions limits that are unavoidably caused by sudden and reasonably unforeseeable events beyond the control of the source
  - Did not cover startups, shutdowns, or malfunctions
  - Seen by commenters as either too limited or too loose
- Comments requested in 1995

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emergency - 2

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- 1998 rule would
  - Not extend emergency defense to federally-promulgated standards (NSPS, etc.)
  - Retain the defense for certain SIP limits
    - Few SIPs address emergencies directly
    - EPA will leave decision to the State agency
  - Not extend the defense to health-based standards (e.g., limits to ensure NAAQS attainment)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emergency - 3

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- Not extend the defense to 112(g) or 112(j) limits, although a startup, shutdown and malfunction defense exists for such limits
- Not provide advance authorization for emergencies

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Variations in State/Local Programs

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- Minimum requirements are fixed by Part 70 rule
  - Definitions [70.2]
  - Applicability [70.3]
  - Program requirements [70.4]
  - Permit application content [70.5]
  - Permit content [70.6]
  - Process for permit issuance, renewals, reopenings, and revisions [70.7]
  - Role of EPA and affected states [70.8]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Variations - 2

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- However, some variation still possible
- Main variations
  - Combined versus separate permit programs
    - Combined NSR and Title V permit
    - Separate permits
  - Permit shield
    - Allowed for certain actions
    - Optional for States
    - Some States will not grant

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Variations - 3

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- White Papers
  - Not regulations
  - Some States do not accept
- Delayed applicability to minor sources
  - Some States include minor sources in initial permitting
  - Most States defer
- Lead time for renewals
  - EPA allows 6 to 18 months
  - Should depend on time needed to issue new permit before old permit expires
  - Time varies among States

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Variations - 4

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- Permit fees
  - \$/ton level varies widely
  - Many different types of fees used
- List of insignificant activities
  - Some states have expanded
  - Other States don't accept EPA list
- Deadlines for application submittals and permit issuance
  - Varied widely
  - Issuance deadlines generally being missed

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Variations - 5

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- Alternate scenarios
  - Some agencies do not want to include “future” scenarios
  - Different definitions of what constitutes a scenario
- Application forms--vary from horrendous to good
- Emissions caps and trades
  - Allowed by rule
  - Most agencies don’t understand and don’t use

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Variations - 6

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- Affected states
  - No definition of what constitutes an effect on a state
  - Agency concepts vary
- Periodic monitoring
  - Sharp disagreements between EPA and States on what is adequate
  - Wide variation among States
- General permits
  - Allowed but not required
  - Good tool for reducing burden, but State response varied

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Topics

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- Introduction
- Differences between Title V and other permits
- Applicability
- Applications
- Processing applications
- Permit content
- Permit review process
- Permit reopening and renewals

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Topics - 2

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- Fees
- Permit revisions and modifications
  - Types of changes
  - 6/10/95 memorandum
  - Supplemental proposal
  - 2/17/98 draft rule
- White papers

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## PERMIT FEES

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Purpose of the Fee System

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- Cost recovery mechanism built into 1990 CAAA
- Relationship to Section 105 grants

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Fees Recover all Direct and Indirect Costs

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- Broad versus narrow interpretation of indirect
- Mandated cost recovery for:
  - Reviewing and acting on permit applications
  - Implementing and enforcing permit terms
  - Emissions and ambient monitoring
  - Preparing regulations and guidance
  - Modeling, analyses, and demonstrations
  - Preparing inventories and tracking emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Other Costs to Recover

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- Program development
- Program administration/ maintenance/ overhead
- Fee invoicing and collection
- Certain SIP development activities
- Information management (pro rata share)
- Small business assistance programs under Title V
- Training (all Title V related training and a prorated share of other types of training)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Cost excluded from Fees

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- Mobile source/natural source costs
- Court costs and other enforcement action costs

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Fee Basics

Actual Emissions  
or  
Permitted Emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Actual Emissions

- Advantage
  - Possible economic incentive for reducing emissions if control costs < \$/ton fee
- Disadvantages
  - Potential to over/under charge due to inaccuracy of emissions inventories
  - Possibility of fraud
  - Varying fees -- hard to budget
  - No incentive to reduce legal potential to emit

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Permitted Emissions

- Advantage
  - Early calculation of fees to allow budgeting
  - Incentive to reduce unneeded potential to emit
- Disadvantage
  - Permitted emission limit is not always clear (consider operational flexibility)
  - No economic incentive to reduce actual emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Emissions Excluded from Fee Calculations

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- Carbon monoxide
- Emissions of any regulated pollutant over 4000 tpy
- Substances regulated solely under Section 112(r) of CAA (accidental releases)
- Substances regulated solely under Section 602 of CAA (stratospheric ozone)
- Insignificant quantities
- Acid rain sources

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Presumptive Minimum Fee

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- Standard by which aggregate fee rate is initially judged
- Starts at \$25/tpy (1990 dollars)
- Adjusted annually for inflation (CPI)
  - Adjusted August 31 each year
  - \$29.05 as of August 1996

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Types of Fees

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- Application -- fee to apply
- Emissions ---- fee on emissions
- Service ----- fee to complete a permitting action

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emission Fees

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- “Fair share” cost based on proportion of emissions
- Offers economic incentive for emission reductions
- May vary by pollutant

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## Service Fees

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- Actual cost of doing business
- Pay as you go/pay on use
- Increased fairness/higher complexity

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## FEE DEMONSTRATION

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## The Fee Demonstration

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- Presumptive minimum fee
  - \$25/ton
  - 1990 dollars
  - Annual adjustment by CPI
- If less than presumptive minimum, or if challenged
  - Accurate estimation of costs
  - Accurate inventory
  - Fee revenue adequately supports program costs

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## Conditions Requiring Fee Demo

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- Charging less than presumptive minimum
- Adequacy of fee structure is challenged

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## Elements of Fee Demo

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- Adequate identification of permitting activities
- Proper Accounting of cost of activities
- Accurate emissions inventory
- Allocation of costs among sources/ emissions

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## Restriction on Fee Revenue

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- Retained by Air Agency
- Permitting related activity only

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Using the White Papers Effectively

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## Using the White Papers

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- White Papers are EPA policy
- Agencies not required to follow
- However,
  - Valuable, so worth effort
  - Short-term: can use under current rule
  - Long-term: rule change needed to use

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## White Paper I

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### I. Application Preparation

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- A. Complete Application Definition
- B. Emissions Inventories
- C. Compliance Certifications
- D. Content Streamlining

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### Complete Application Requirements (II.A)

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- 70.5(c)(3)(i) requires application to describe all emissions of regulated pollutants for which a source is major.
- Only want information needed to determine applicable requirements, compliance certification, fees

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## Quality of Required Data (II.C.)

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- Quality needed depends on
  - Availability of information
  - Extent to which data are relied upon to resolve
    - Major source status
    - Applicability of requirements
    - Compliance
- In general, reasonably available information may be used

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## Quality...-2

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- Generally, can use AP-42, EPA documents for emission factors
  - If range of values, agency can select
  - Terms should be same as applicable requirement: units, avg., Time
- Other estimation methods acceptable
  - Material balance
  - Test or CEM data

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## Quality...-3

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- In disputed cases, source can propose least costly alternative
- Hazardous air pollutants (HAP)
  - Estimates less precise below certain thresholds
  - This is acceptable to EPA
  - Example: if MSDS says “trace”, report “trace”
  - If your agency has air toxics program, may object

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Required Emissions Info. and Descriptions (II.B.2)

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- Need at least qualitative description of all significant emissions units
- Ton per year (TPY) estimates NOT required if
  - Serve no useful purpose
  - Quantifiable emissions rate not applicable (e.g., 112(r))
  - Generic requirement

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Required...-2

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- However, more info. Needed when
  - Establishing PAL or other plantwide limit
  - Granting a permit shield based on emissions cutoff
  - Used for presumptive fee calculation
  - Resolve disputes (e.g., whether major)
- Use of available information should be acceptable

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Required...3

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- TPY estimates are not considered federally enforceable unless
  - Part of a specific requirement
  - Requested by source
- Multiple forms of estimates not needed (actual, potential, allowable)

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Required...4

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- For pollutant/emission unit not subject to any applicable requirement
  - Must still describe emissions unit
    - Can be general
    - Do not need UTM coordinates, model or serial numbers
  - Need only identify pollutant or family of pollutants believed to be emitted (e.g., VOC, HAP)
- Negative declarations not required

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Insignificant Activities (II.B.3)

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- Application “listing” of certain insignificant activities can be checklist
- “Trivial” activities can be omitted from application
  - Even if not on state insign.. activities list
  - State can add to Attachment A list

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

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### Generic Grouping (II.B.4)

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- For certain broadly applicable requirements
  - Applicable to all emissions units (e.g., opacity limits)
  - General housekeeping requirements
  - Identical limits to small units (e.g., Process weight curves)

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### Generic...-2

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- Individual units may be excluded from application if
  - Document applicability of requirement
  - Describe compliance status
  - No other nongeneric requirement applies

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### Short-term Activities (II.B.5)

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- If subject to an applicable requirement, treat as generic
- If not subject to applicable requirement, class as insignificant or trivial

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### Short-term Activities-2

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- Exceptions
  - Activities that re-occur with considerable frequency
  - Construction activities subject to state NSR
  - Activities that conflict with part 70 permit

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### Section 112(r) Pollutants (II.B.8)

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- Acknowledge whether 112(r) chemicals would require a risk management plan.
- Quantification of emissions are not required unless the pollutants are listed under 112(b).

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### R&D Facilities (II.B.9)

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- If can not be exempted from part 70 permit as separate minor source
  - Consider insignificant if no applicable requirements
  - If applicable requirement, likely to be work practice
    - Just acknowledge applicability and certify compliance
    - No need for extensive inventory or detailed description of emissions
- No need to monitor emissions

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### Supporting Information (II.B.11)

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- Detailed background info used to prepare application is not needed in order for application to be deemed complete.
- Example calculations for similar methodologies acceptable.
- BACT/LAER/RACT calcs require more support info.

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### Applicable SIP Requirements (II.B.6)

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- EPA contractor will document approved SIP for each state.
- A source’s inability to identify whether a requirement is a part of a SIP is not grounds for finding an application incomplete.
- Can rely on state or EPA checklist, if available

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### Incorporation of Prior NSR Permits (II.B.7)

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- Existing major and minor NSR permit conditions are applicable requirements
  - But only “environmentally significant” terms need be in title v permit
  - Includes BACT, LAER, other limits required by EPA or state NSR , voluntary limits taken to avoid otherwise applicable requirements

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### Incorporation...2

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- States are encouraged to remove terms that are extraneous, outdated, or not appropriate for inclusion in a Title V permit.
  - Use Title V process
  - can extend time to revise (not later than renewal)

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## No Look Back for NSR (II.H)

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- EPA states that historic reviews are not required for Title V compliance certification.
- Previous applicability determinations may be relied upon and do not require reexamination.

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## No Look Back...2

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- Sources encouraged to report and correct known violations
  - No permit shield
  - Penalties may be imposed

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## Streamlining - Cross Referencing (II.F.1)

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- Encouraged for
  - All rules, regulations, and laws
  - Previously issued preconstruction and operating permits.
- Grouping of emission units subject to same applicable requirements encouraged

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### Streamlining - Incorporation of Applications (II.F.2)

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- Incorporation of applications by reference strongly discouraged
- If state does incorporate, EPA will consider fed. enforceable only to extent needed to make other necessary terms and conditions enforceable

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### Streamlining-Incorporation...2

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- EPA feels application revision (non-federally enforceable portion) does not require permit revision

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### Streamlining - Changing Application Forms (II.F.3)

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- States urged to revise to remove unnecessary information
- States may change application forms without obtaining a program revision.

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## Updates to Initially Complete Applications (I.E.)

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- If change does not affect applicability or compliance with requirements, then information need not be submitted until permit renewal.
- Otherwise, change could be submitted to state agency as addendum (prior to draft permit), permit revision or off-permit change (final permit).

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## White Paper II

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RTP ENVIRONMENTAL ASSOCIATES, INC.

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## White Paper II

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- Issued 3/5/96
- Addresses
  - Streamlining applicable requirements
  - Handling outdated SIP requirements
  - Treatment of insignificant units
  - Stipulating to applicability of applicable requirements
  - Referencing existing information in applications and permits

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### Streamlining Multiple Applicable Requirements

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- For multiple requirements on same emissions unit, including
  - Emissions limits
  - Work practices
  - Monitoring, reporting, and recordkeeping
- Example: Boiler with 3 PM limits:
  - SIP
  - NSPS
  - State permit limit

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### Streamlining Multiple Applicable Requirements - 2

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- Source or agency may propose streamlining multiple requirements into one, if assures compliance with all
  - Eliminates redundant/conflicting requirements
  - Limit must be as stringent as most stringent existing requirement
  - May need to “synthesize”
  - Applicant must consent

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### Streamlining: Compliance

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- Compliance with consolidated requirement is considered compliance with all requirements
- Violation of consolidated requirement is a violation of multiple underlying requirements
- Permit shield should provide that compliance with consolidated requirement is considered compliance with all applicable requirements

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### Streamlining: Processing

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1. Compare requirements side by side
2. Determine most stringent requirement
3. Propose one set of permit term
  - Emission limit
  - Monitoring, reporting and recordkeeping
4. Certify compliance
5. Develop compliance schedule for new approach

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### Streamlining: Processing - 2

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6. Propose permit shield
7. Permit authority evaluates
8. EPA advised of approach

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### How to Demonstrate Adequacy

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- Use most stringent applicable requirement
- Convert different limits to same format
- Take different averaging periods into account
- Use most stringent monitoring, reporting and recordkeeping requirements

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## How to Demonstrate Adequacy - 2

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- Select test method
- If possible, combine individual pollutants into pollutant “family”
  - VOC
  - PM
- May be able to use a correlation analysis to show relative stringency

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## Streamlining Strategy

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- Can streamline at any time
- Will be difficult for certain limits
  - lb/MM Btu and lb/hour
  - lb/hour and ton/year
- Likely to prove most useful in combining monitoring, reporting and recordkeeping requirements

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## Outdated SIP Requirements

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- Many SIP revisions pending
  - Some approved SIPs over 10 years older than current State rules
  - States usually enforce current rules
  - Leaves source having to comply with last approved SIP rule *and* with current rule
- Two scenarios for SIP revision
  - More stringent than current rule
  - Less stringent than current rule
  - May vary depending on portion of rule

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Outdated SIPs: Application Completeness Determination

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Base determination on current rule, provided

- Current rule has been submitted to EPA as a SIP revision
- Agency believes that current rule will be the basis for the Part 70 permit

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### Outdated SIPs: Title V Permit Conditions

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- More stringent SIP revisions can be included in Title V permit
- Less stringent SIP revisions
  - Cannot be included in a permit prior to EPA approval of the revision
  - If agency wants to put in permit
    - Include as a State-only requirement
    - When EPA approves revision , the condition in permit becomes federally enforceable

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### Insignificant Emissions Units

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- Agencies given broad discretion to exempt IEUs from “periodic monitoring”
  - Would be subject only to generically applicable requirements
  - Could be no monitoring
  - Can certify in compliance as long as not aware of any noncompliance

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### Insignificant Emissions Units - 2

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- For both application and permit
  - IEU information can be generically grouped and listed
  - No emissions estimates required unless otherwise necessary
  - No additional information required for initial certification

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### Major Source Applicability

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- Major sources do not need to supply extensive data to “prove” they are major
  - Need only stipulate that they are major for that applicable requirement
  - No new data needed if do so

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### Referencing Existing Information

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- Concept is to reduce burden of
  - Re-preparing readily available information or info that agency has
  - Repeating requirements

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Referencing Existing Information

- 2

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- Can reference if
  - Information readily available to agency and public
  - Referenced documents specifically identified
    - Including date and title
    - Must indicate if referencing only portion of document

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Referencing...Information - 3

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- Typical information referenced
  - Rule, regulations and published protocols
  - Emissions inventories and supporting calculations
  - emission monitoring and compliance reports
  - Source tests
  - Annual emission statements
  - Process and abatement equipment lists and descriptions
  - Current permit terms
  - Previously submitted application materials

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Incorporating Info into Permits

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- Good candidates
  - Test method procedures
  - Inspection and maintenance plans
  - Calculation methods for determining compliance
- NOTE: Avoid incorporation of application by reference

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## White Paper III

Still in Draft

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V EPA Oversight

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- Provide copies to Administrator
  - Permit applications (including modifications)
  - Proposal and final approval
- Agency required to retain records for 5 years
- Notify affected states (states whose air quality may be affected by the source or within 50 miles of the source)
- EPA requires 45 day review for the proposal
  - Parallel review with public notice in several jurisdictions
  - May be waived for non-major projects
  - Starts clock for EPA to object to the permit

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V U.S. EPA Review & Veto

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- CAA § 505(b)(1) and 40 CFR § 70.8 provide that
  - Permitting authority must provide to EPA a copy of each permit application (including applications for permit revisions), proposed permit, and final part 70 permit
- EPA has a 45-day review period and veto authority
  - EPA must object to the issuance of any proposed permit that it determines not to be in compliance with applicable requirements or requirements of 40 CFR part 70
  - If EPA objects to permit issuance in writing “within 45 days of receipt of the proposed permit and all necessary supporting information,” permitting authority may not issue final permit or permit revision

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### PSD/NNSR: EPA Oversight of State Programs

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- Objection authority under Title V operating permits program
  - EPA has objected to Title V permits based on:
    - Citizen comments that shift burden to permitting authority to conduct retroactive applicability analysis [26C, 55M]
    - Concerns with BACT [22V, 24L, 25M]
    - Applicability determinations made consistent with EPA policies under prior administration [23U, 25M]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Title V U.S. EPA Review & Veto

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- EPA's long-standing policies are not to object
  - Based on concerns over BACT determinations made during prior preconstruction permitting processes [12O, 21B, 22Y]
  - Based on concerns regarding major NSR applicability in the absence of a formal finding, because the required investigation is more appropriately an enforcement function [22C]
- EPA from 2009-2016 objected to several Title V permits:
  - Disagreement with historical PSD applicability analysis [16G, 25O, 26C, 26E, 47C, 50B, 55M]
  - Disagreement with determinations regarding BACT and other substantive analyses [16G, 25M, 26Y, 50B]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Title V U.S. EPA Review & Veto

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- EPA in 2017 has reversed this position
  - "... title V permitting is not intended to second-guess the results of state preconstruction permit programs." [62D]
  - "EPA concluded in [] that the title V permitting process is not the appropriate forum to review preconstruction permitting decisions when a preconstruction permit has been duly issued.... EPA has concluded that a title V petition to object is likewise not the appropriate forum for reviewing the merits of the preconstruction permitting requirements derived under title I of the Act." [62H]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Title V Final Action

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- Title V permit to be issued with 18 months of complete application submittal date

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## ADMINISTRATIVE PROCEDURES: PERMIT DRAFTING, ANALYSIS, REVISIONS

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## PERMIT PROCESSING TIME

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### 1-Year Processing Statutory Mandate/Avenal

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- Historically, EPA has not taken very seriously the Clean Air Act (CAA) statutory mandate at Section 165(c) (42 USC 7475(c)) to take final action on complete PSD applications within one year
- However, on 5/26/11, DC District Court Judge Leon issued an unforgettable Memorandum Opinion on the Avenal Power Center case which definitely got EPA's attention [44J]

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Avenal

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- Forcefully rejecting EPA's arguments with colorful language ("Horsefeathers!" and "...that dog won't hunt"), court ordered EPA to comply with the 1-year mandate, including appeals to the Environmental Appeals Board (EAB), so that there is a non-appealable final agency action within one year.

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Avenal...

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- The processing had already been going on for 3 years and showed no signs of ending, since EPA was insisting that Avenal revise its application to address new requirements that became effective more than a year after the complete application was filed (although EPA had retreated from imposing the new requirements in a remarkable 1/31/11 declaration from Gina McCarthy [29X])

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## Avenal...

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- The court gave EPA an additional 3 months (until 8/27/11) to take final action
- The next day (5/27/11), EPA issued an appealable permit
- EPA took final action when EAB denied the appeal 8/18/11, thus complying with the court order
- Challenge to permit issuance filed by Sierra Club before 9<sup>th</sup> Cir. (Case No. 11-73342). Sierra Club won, so permit invalid. [54H]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Avenal...

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- EPA meanwhile issued a permit processing guidance memorandum that, ignoring the CAA requirement that an application be processed within a year of its submittal, gave itself a year from the date EPA determines the application to be complete [50U]

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Role of Permit Programs

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Role of permit programs

- Air quality management (AQM)
  - Consists of one or more programs intended to protect public health and welfare
  - Public welfare includes the economic viability of an area, in addition to property values and other more traditional measures
  - Requires agencies to balance economic and health concerns
    - Example: require Best Available Control Technology (BACT) on major new sources but consider the economic impact of the control because this
      - Prevents the control costs from causing cancellation of the project, yet
      - Minimizes the cumulative impact of numerous sources and
      - Allows more economic growth per ton of emissions

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Role of permit programs

- Permits are one of many tools available to air quality managers. Also available:
  - Emission limits in State implementation plans (SIP), New Source Performance Standards (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAP), etc.
  - National ambient air quality standards (NAAQS)
  - Attainment plans
  - Transportation planning

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Role of permit programs

- New Source Review (NSR) permits: regulate and track new sources and modifications prior to construction to ensure
  - Appropriate control technology is applied
  - Impacts of new emissions are acceptable
- Operating permits: provide information about existing and new sources that enables the agency to:
  - Ensure compliance
  - Determine and track emissions for planning and evaluation purposes

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Program Goals

- Support air quality management
- No arbitrary requirements

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goal: No Arbitrary Requirements

- Permits should not impose arbitrary requirements. Each permit term and condition should further the core purpose of Air Quality Management: to protect public health and welfare.
- Corollary goals:
  - Require permits for all sources that are important for air quality management (AQM) purposes
    - Allows permit exclusion for trivial sources
    - Permit requirements can be tailored to importance of sources
      - Smaller (minor) sources may have to do little more than “register” their presence
      - Larger (major) sources generally must meet stringent requirements

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goals of permitting programs

- Corollary goals:
  - Allocate limited air resources effectively
    - Want to maximize economic growth within available air resources
    - Avoid “license to pollute” more than source needs, but establish a limit that reflects the uncertainty and variation in emission test data

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goals of permitting programs

- **Example: A source with a physical design limit of 30 tons per year (tpy) potential to emit (PTE) and a 100 tpy major source threshold is issued a permit with a 99 tpy limit**
  - This occurs when an agency believes in providing a limit that just barely keeps the source minor, even if the highest actual emissions are considerably lower
  - For AQM purposes, however, this is not the best approach
    - Allocates a much larger air resource to the source than it needs
    - Next source may not have sufficient air resources to get a permit
    - Complicates planning when PTE must be used for modeling and other planning

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goals of permitting programs

- **Issue permits**
  - In a timely manner
    - In effect, an agency has two clients;
      - The public, and
      - The applicant
    - Permitting agencies should provide good service to both clients.
      - For the public, this means protecting their health and welfare
      - For applicants, this means issuing a timely permit as long as
        - » Public health and welfare are protected and
        - » All legal requirements are met

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goals of permitting programs

- **Timing is extremely important to applicants, particularly for preconstruction permits**
  - Can't legally begin actual construction without permit
  - Project itself may be cancelled if schedule slips

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts

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- In a report (~2007), EPA reported on the results of an effort to improve permit processing using Lean and Six Sigma for Government techniques
- Five States applied the techniques: Delaware, Iowa, Michigan, Minnesota, and Nebraska

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- Results include:
  - Michigan DEQ
    - Decreased the time needed to process major air construction permits from 422 days to 98 days
    - Improved quality, with initial application administrative completeness rising from 82 to 95%
  - Delaware (DNREC)
    - Lowered a backlog of air construction permits from 199 to 25
    - Reduced average permit processing time to less than 76 days

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APTI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- Results (continued)
  - Iowa DNR
    - Reduced average time to issue standard air quality construction permits from 62 days to 6 days (a 90% reduction)
      - Eliminated 70% of the process steps (from 23 to 7)
      - Cut a backlog of 600 permits in half in the first 3 months after the process improvements were implemented
    - Streamlined the corrective action process activities in the Leaking Underground Storage Tank program, reducing
      - The number of decisions by 80%
      - The total processing steps from 43 to 26
      - Average decision-making timeframe in the program from 38 to 3 months

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- **Approach**
  - The agency initiatives generally
    - Took a “customer service” perspective to optimize value delivered to the environment, the public, and the regulated community
    - Involved employees and external stakeholders
    - Deployed a “rapid continuous improvement framework”
    - Sought to reduce the complexity of processes and the variation in process outputs
    - Used metrics and visual controls to provide rapid feedback
    - Approached improvement from a systems perspective

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- **Common Permitting Process Wastes**
  - Errors in applications
  - Incomplete applications
  - Backlogs
  - Approval bottlenecks
  - Redundant review or data entry
  - Unnecessary rework on permits
  - Unbalanced allocation of work
  - Poor visibility to permit status
  - Lack of templates

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RTPI RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- **7 “Deadly” Process Wastes**
  - Production of defects
  - Overproduction ahead of demand
  - Unnecessary transport of materials
  - Waiting for the next process step
  - Inventories (excess material and information)
  - Unnecessary movement by employees
  - Over-processing

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- **Improvement Methods**
  - Lean – identify and eliminate non-value added activity involved in producing a product or delivering a service to customers through
    - Value Stream Mapping (VSM), developing a visual representation of the flow of processes, or
    - Kaizen Events, applying small, incremental changes routinely and sustaining them over a long period of time
  - Six Sigma – use information and statistical analysis to measure and improve an organization’s performance, practices, and systems

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- **Common Metrics Used for State Projects**
  - Number of process steps
  - Total lead time
  - Cycle time
  - Number of applications submitted that are complete
  - Number of handoffs
  - Amount of backlog
  - Rework percentage (% of permits needing rework)
  - Number of staff committed to process improvement

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RTP ENVIRONMENTAL ASSOCIATES, INC.

### Permit Processing Improvement Efforts...

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- **Example changes from 5 States:**
  - Eliminating unnecessary process steps
  - Involving customers in the solutions to problems, through check-in calls, permit hotlines, and clearer instructions to improve information flow
  - Developing processes for screening and prioritizing incoming permit applications
  - Creating alternatives such as “fast track” or “just in time” permitting under certain conditions
  - Developing and using templates and boilerplate language
  - Changing the office layout and organization to improve process flow
  - Instituting improved permit or process tracking systems, including on-line and visual tracking systems

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goals of permitting programs

- This is not meant to imply that an agency has to try to meet impossible schedules.
- However, if an applicant has a pre-application meeting and requests that the agency attempt to issue the permit by a reasonable date,
  - Agency should be willing to set that date as a goal , provided applicant:
    - » Submits substantially complete application by projected date;
    - » Responds to requests for additional information promptly; and
    - » Provided reasonably complete information on the project and issues at the meeting.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Goals of permitting programs

- So a key goal is to issue permits that are:
  - Effective
    - Fulfill role in AQM
    - Result in compliance with all terms and conditions
    - Clear and concise
  - Workable
    - Limits can be met with reasonable diligence
    - No unnecessary limits on production or operation
    - No unnecessary requirements, since each requirement, even gathering data, costs
  - Prepared efficiently
    - Minimum resources required
    - Draft similar to final
    - Issues resolved effectively
    - Standard terms used (“reinventing the wheel” avoided)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

# Recognizing Problem Permit Terms

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Problem Conditions

- **General problems: conditions that are**
  - Unclear
  - Too broad
  - Unworkable
  - Unnecessary/unauthorized

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Enforcement Implications of Problem Permit Conditions

- **Why Permittees Are Concerned**
  - More requirements, so more possible violations
    - Emissions limits/work practices
    - Monitoring
    - Reporting
    - Recordkeeping
  - Coupled with credible evidence policy, additional data even more troublesome
  - Numerous non-emission limit conditions can result in numerous serious violations with high penalties despite no real environmental impact

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Enforcement Implications of Problem Permit Conditions

- **Agencies should be concerned because problem permit conditions**
  - Make it more difficult for inspectors to determine compliance
  - Increase likelihood that sources will misunderstand requirements
  - Create weaknesses in hearings, enforcement actions, and litigation

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## General Problems

- Many of these problems are simply due to writing errors
- The most common characteristics of such conditions are that they are:
  - Unclear
  - Too broad
  - Unworkable
  - Unnecessary
  - Unauthorized, or
  - A combination of the above

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Conditions That Are:

- Example: Unclear

*Unless specified elsewhere in this permit, the permittee shall maintain records of all fugitive dust complaints received. The permittee shall take appropriate corrective action as expeditiously as practicable after receipt of a valid complaint. The records shall, at a minimum, include the date each complaint was received and a description of the following: the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.*

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Conditions That Are:

- Example: Unclear

*All filters operated within this facility shall follow the requirements specified in the PTC.*

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Unworkable Limits

- Example: Unworkable Limits**

*Except as otherwise specified, Emission Points AA-101 through AA-107, AA-201, AA-202, AA-203, AA-204, AA-205, AB-101, AB-102, AB-103 through AB-105, AB-106, AB-109, AB-202, AB-201, AB-203, AB-204, AB-205, AK-105, AK-106, AL-105, AL-106, AL-110, AB-206, AC-101, AC-301, AC-201, AC-102, AC-202, AD-103, AF-102, AG-101, AH-103 through AH-105, AH-107, AH-203, AH-204, AH-205, AH-107, AI-177, AJ-101, AJ-201, AK-101 through AK-104, AK-107, AK-109, AL-103, AL-104, AL-107, AL-111, shall not cause, permit, or allow the emission from any manufacturing process, in any hour from any point source, particulate matter in total quantities in excess of the amount determined by the relationship*

$$E = 4.1(p)^{0.67}$$

where E is the emission rate in pound per hour and p is the process weight input rate in tons per hour.

*Conveyor discharge of coarse solid matter may be allowed if no nuisance is created beyond the property boundary where the discharge occurs.*

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Unnecessary Condition

- Example: Unnecessary, Unauthorized, and Unworkable Condition**

***The facility shall process (the material) at the maximum rate of 365,000 gal/yr.***

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Short Averaging Times

- Averaging time often unclear**
  - If there is an averaging time, will nearly always be
    - In same permit condition as the limit,
    - In general section of permit on monitoring or testing, or
    - In test method
  - If not there, then danger is that the averaging time could be considered instantaneous (say, by a petitioner) even if agency does not
  - Examples:
    - lb/MM Btu implies instantaneous, but may, due to test method, be over period of hours or days
    - lb/hr is not necessarily an hourly limit, but could be
      - An instantaneous rate, like a speed limit
      - An hourly total, or
      - An average over some period of time (3 hours, 24 hours, week, month, or year)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Overview

- **An effective permit minimizes the number of conditions**
  - Past practice has been to include more and more conditions (additional conditions added to all the conditions already in a “template” permit)
    - In effect, this is not the best use of resources
      - More work for permit writer
      - More work and higher cost for source
      - Dilutes attention from most important conditions
    - Diluted focus of permit: can’t tell which conditions were really key to protecting public
    - Some conditions are “bootstrap”
      - Not authorized under agency rule
      - However, permit itself, when issued and unchallenged, makes such conditions legal and enforceable

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Overview

- **A good approach for minimizing conditions is to examine the need for each condition in permit**
  - Emissions limits are always the core requirements
    - Responsible for environmental impacts
    - Regulation of emissions is strongest part of agency authority
  - **Focus on**
    - Protecting public health and welfare
    - Calling attention to requirements (e.g., reporting frequency) in rules and standards that source may not be aware of
  - **Leave out conditions that are**
    - Redundant
    - Unauthorized
    - Unnecessary

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emission Limits

- **Averaging time is as important as the value itself.**
  - Shorter averaging times for a given value are more stringent.
  - **Should be based on**
    - Type of limit (see below) and
    - Data (must justify a limit’s averaging time)
  - **Note: a lb/hr limit is an emissions rate (e.g., 8.5 lb/hr). It does NOT have an averaging time (either hourly or instantaneous) unless one is assigned.**

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emission Limits

- Purpose of averaging time
  - Match limit to impact (e.g., NOx emissions to health effects), or
  - Ensure compliance
    - » EPA wants potential violations to be frequent enough to deter noncompliance.
    - » EPA feels that one violation a year (such as a ton per calendar year limit) isn't enough; once a month is the minimum considered effective.
    - » Therefore, form of limit, including averaging time, must result in at least potential monthly violations.

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Emission Limits

- Effect of averaging time on continuous compliance with a limit (sometimes termed “stringency”)
  - Effect on an averaged result
    - For a given level of emissions, e.g., 0.1 lb PM-10 per ton
      - » A longer averaging time (e.g., 24 hours) is less difficult and a shorter averaging time (e.g., 1 hour) is more difficult to continuously comply with
      - » This is because both actual emissions rates and test results (even if emission rate is constant) vary
      - » A source could average 0.1 lb/ton over 24 hours, but have a high 1 hour emission rate of 0.15 lb/ton and a low 1 hour emission rate of 0.06 lb/ton
    - Too long an averaging time, however, would not protect against adverse effects caused by a shorter-term exposure (if there are short-term adverse effects)

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Determining averaging time based on types of limits

- Types of limits
  - Effects-based
  - Technology-based
  - Applicability and other

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Effects-based Limits

- **Designed to prevent or mitigate environmental effects**
- **Generally, clearly authorized by statute or rule**

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Effects-based Limits

- **Examples:**
  - **National Ambient Air Quality Standards (NAAQS)**
  - **The impact analyses required in the Prevention of Significant Deterioration (PSD) program, which ensures that a major new source or modification does not cause**
    - A NAAQS exceedance
    - A PSD increment violation
    - An adverse effect on soils, vegetation, or visibility
    - An adverse impact on an Air Quality Related Value (AQRV) in a Class I area
  - **The caps on SO<sub>2</sub> and NO<sub>x</sub> from utilities under the Title IV acid rain program**
  - **The bans and other requirements on ozone-depleting substances (ODS) under the Title VI stratospheric ozone protection program**

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Technology-based Limits

- **Based on the principle of reducing emissions by requiring certain minimum levels of control**
  - Does not ensure that there will be no adverse impacts
  - Does help *reduce* impacts by reducing emissions
- **Required even if absence of the limit would not result in an adverse impact**
- **Intended to ensure that sources properly install, operate, and maintain pollution control equipment (or use the prescribed fuel or material, or prevent pollution) over the life of the associated process**

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RTP ENVIRONMENTAL ASSOCIATES, INC.

## Applicability-based Limits

- **Applicability (and other) limits**
  - All the permit limits that are not effects- or technology-based
  - Applicability limits are by far the most common
    - A source with a major source threshold of 100 tons per year (TPY) could accept a *voluntary* limit on its potential to emit (PTE) to remain below that threshold and be considered a minor source
    - Other sources may have design capacities that limit uncontrolled emissions to levels below the major source threshold

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