



Clean Air Act and Permits

**EPA Office of Air Quality Planning and Standards
Research Triangle Park NC
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Objectives

- Review purpose of the New Source Review (NSR) permit program and basic requirements of
 - Prevention of Significant Deterioration (PSD)
 - Nonattainment NSR (NA NSR)
 - Minor NSR
- Review purpose of Title V operating permit program and its basic requirements
- Review the criteria of determining which sources are subject to these permit programs



NSR is a Clean Air Act Program that **REQUIRES industrial facilities to install modern pollution control equipment:**

Before they are built



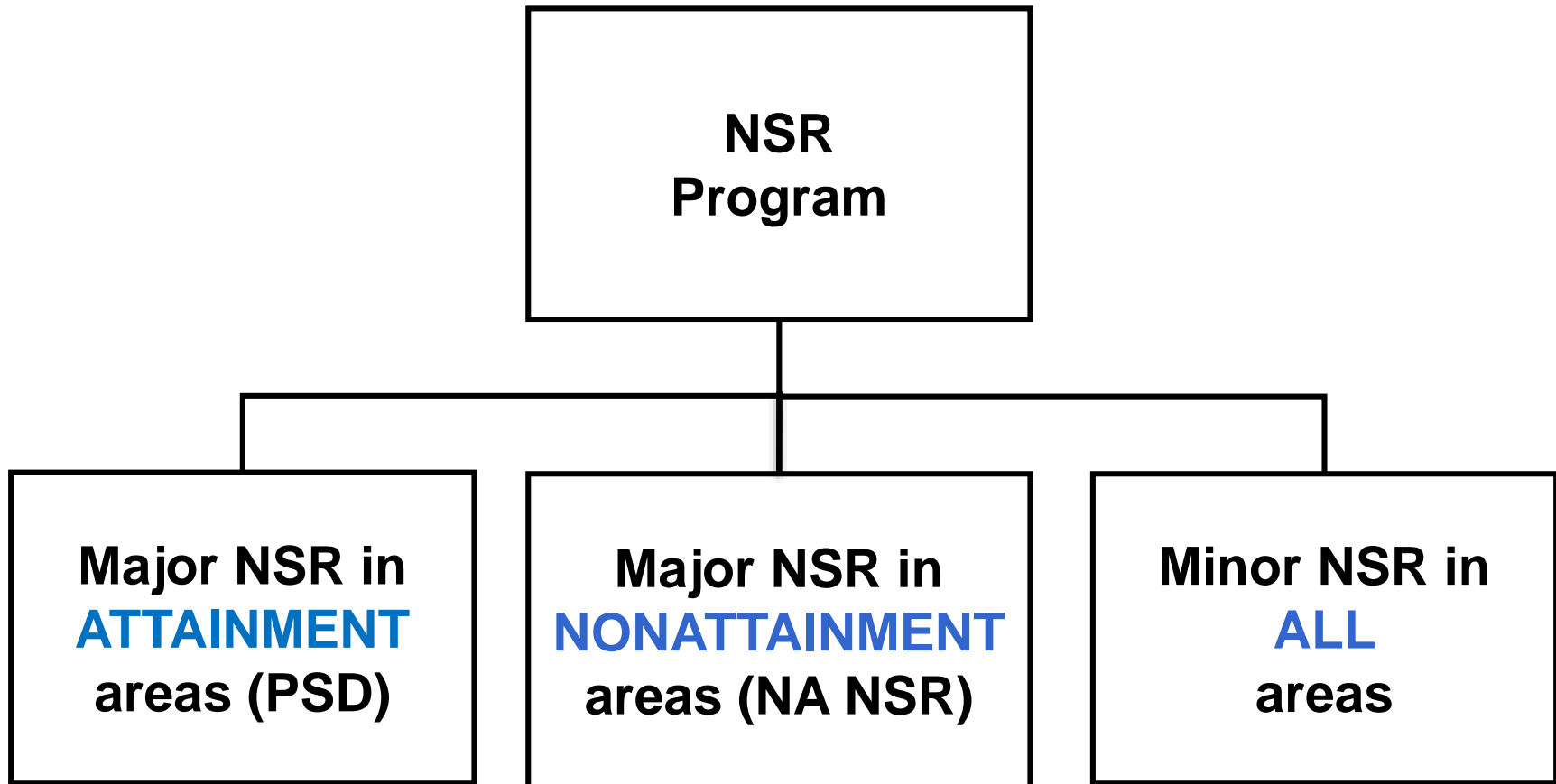
or

When making a change that increases emissions significantly





Components of the NSR program





What Does Major NSR Require?

- New or modified sources get permits **prior** to construction
- Sources install pollution control equipment
- Sources analyze impact on air quality and other effects



How Do You Determine if PSD or NA NSR Permitting is Applicable?

1. Determine if the source is in an attainment or nonattainment area
2. Determine the source's Potential to Emit (PTE)
3. Determine which threshold or emissions rate applies
 - Threshold limits apply to new sources
 - Emissions rate limits apply to modifications
4. Determine if the proposed emissions from the new source or modification will exceed the applicable limit



Step 1: How Do You Determine the Attainment Status of an Area?

- Determine if an area is in attainment or nonattainment for each criteria pollutant emitted
- Check green book: <https://www.epa.gov/green-book>



Step 2: What is the Source's Potential to Emit (PTE)?

- PTE: Maximum capacity of a source to emit a pollutant under its physical and operational design constraints
- Based on operating 24/7 and 365 days per year
- Include controls if enforceable permit conditions, SIP/TIP/FIP, or other conditions apply



Step 3: What are the Applicable Limits for Major Sources and Major Modifications under PSD?

- New sources with PTE equal to or higher than 100 or 250 tpy of regulated pollutants
 - 100 tpy limit applies to 28 source categories
- Modifications use lower emission limits, called Significant Emission Rates (SER)



Step 3: What are the Applicable Limits for Major Sources and Major Modifications under NA NSR?

- New sources with PTE of 100 tpy or lower of criteria pollutants depending on nonattainment severity
 - Lower limits for severe, serious, and extreme nonattainment areas
- Modifications use lower emission limits (SER)



Step 4: Is the Source Major for PSD or NA NSR?

- For new construction, compare PTE of each regulated pollutant for PSD and each criteria pollutant for NSR to the applicable threshold
- Source is major if one pollutant exceeds a threshold
- Source can be major for PSD and major for NA NSR
- For modifications, compare to SER



Kraft Pulp Mill (one of 28 listed source categories)

- PTEs
 - PM-10 – 10 tpy
 - VOC – 80 tpy
 - SO₂ – 185 tpy
- Attainment status
 - In attainment for all pollutants



<http://esask.uregina.ca>

Kraft pulp mill's produce the dark colored wood pulp used in the manufacture of a variety of paper products.

How did this source trigger PSD?

If the source wants to expand, how do you determine if the modification is major and therefore requires a PSD permit?



Main Requirements of PSD

- Install Best Available Control Technology (BACT)
- Perform air quality analysis to assess impacts on air quality
- Perform Class I area analysis to assess impacts on national parks and wilderness areas
- Perform additional impacts analysis



Main Requirements Under NA NSR

- Install Lowest Achievable Emission Rate (LAER) technologies
- Obtain emission offsets
- Perform alternative sites analysis
- Show statewide facility compliance with air regulations



What is the Purpose of Minor NSR Programs?

- Program applies to sources with PTE below major source thresholds for the area
- Typically programs require controls on new and modified minor sources
- Programs vary state to state
- Program can create permit limits for “synthetic minor sources”



Minor Sources in Tribal NSR Rule

- Generally, sources with emissions below major source thresholds and above minor NSR thresholds (per pollutant)
 - Attainment areas
 - Major Source Thresholds: 250 or 100 tpy
 - Minor Source Thresholds: 0.1 to 10 tpy
 - Nonattainment areas
 - Major Source Thresholds: 100 tpy or lower depending on nonattainment severity
 - Minor Source Thresholds: 0.1 to 5 tpy



Applicability: Nonattainment Area Thresholds

Regulated NSR Pollutant	Minor Source Threshold (tpy)	Major Source Threshold (tpy)	
Sulfur dioxide (SO ₂)	5	Marginal: 100	
Lead (Pb)	0.1	Marginal: 100	
Carbon monoxide (CO)	5		
		Moderate	100
		Serious	50
PM	5	N/A	100
PM-10	1	Moderate	100
		Serious	70
PM-2.5	0.6	N/A	100
Ozone - Oxides of Nitrogen (NO _x)	5	Marginal	100
		Moderate	100
		Serious	50
Ozone - Volatile Organic Compounds (VOC)	2	Severe	25
		Extreme	10



Applicability: Types of Permits

1. Site-Specific Permit

- Case-by-case determination of source emissions limits and control technology requirements, if any are required
- Available for new and modified true minor sources and minor modifications at major sources
- Require submittal of detailed application for approval before construction

2. General Permit (GP)

- Requirements are determined in advance for a number of similar equipment types or facilities to simplify permit issuance process
- Developed after the opportunity of public notice and comment
- Available for new and modified true minor sources and synthetic minor sources
- Requires submittal of application for approval before construction
- <https://www.epa.gov/tribal-air/tribal-minor-new-source-review>



Applicability: Types of Permits (cont.)

3. Permit by Rule

- Requirements are determined in advance for a number of similar equipment types or facilities to simplify permit issuance process
- Developed after the opportunity of public notice and comment
- Available for new and modified true minor sources
- Requires submittal of “Notification of Coverage” form before construction to be able to construct
- <https://www.epa.gov/tribal-air/tribal-minor-new-source-review>



Applicability: Types of Permits (cont.)

4. Synthetic Minor Site–Specific Permit

- Limits PTE for sources that have the capacity to emit pollutants at or above the major source thresholds, but voluntarily accept emissions limitations to operate as minor sources
- This permit program terminates the policy of using the Title V program to obtain synthetic minor permits for NSR purposes
- These permits also terminate the 1999 PTE Transition Policy
 - Sources that would otherwise be major were allowed to obtain synthetic minor status for purposes of the Title V program if their actual emissions remained below 50% of major source threshold
- Requires submittal of detailed application for approval before construction



Application: Types of Permits

5. Federal Implementation Plan for Oil and Gas Sources in Indian Country
 - Requirements are determined in advance for a number of similar equipment types or facilities present at oil and natural gas facilities to simplify permit issuance process
 - Developed after the opportunity of public notice and comment
 - Available in lieu of a permit for new and modified true minor sources in the oil and natural gas production and natural gas processing segments of the oil and natural gas sector
 - Requires submittal of two-part registration form before and after construction
 - <https://www.epa.gov/tribal-air/tribal-minor-new-source-review>



General Permits and Permits by Rule for Indian Country

Three rulemakings that EPA has issued to implement the Federal Indian Country Minor NSR rule

- Bundle #1 (proposed 12/13, final 4/15)
 - Gas dispensing facilities (*permit by rule*)
 - Auto body repair and miscellaneous surface coating operations (*permit by rule*)
 - Petroleum dry cleaners (*permit by rule*)
 - Stone quarrying, crushing and screening facilities (*general permit*)
 - Hot mix asphalt plants (*general permit*)

- Bundle #2 (proposed 7/14, final 9/16)
 - Boilers and emergency engines (*general permit*)
 - Spark ignition engines (*general permit*)
 - Compression ignition engines (*general permit*)
 - Graphic arts and printing operations (*general permit*)
 - Concrete batch plants (*general permit*)
 - Sawmill facilities (*general permit*)

- Bundle #3 (proposed 8/15, final 5/16)
 - Oil and natural gas sector (*Federal Implementation Plan or FIP*)



General Permits and Permits by Rule for Indian Country

We provided several implementation documents and tools to assist sources in seeking coverage under each type of permit

- Questionnaires
- Instructions
- Potential to Emit (PTE) calculators
- Background documents
- Request for Coverage forms (applications)
- All implementation tools and documents are available at either:
 - <https://www.epa.gov/tribal-air/tribal-minor-new-source-review>
 - Docket ID No. EPA-HQ-OAR-2011-0151



General Permits and Permits by Rule for Indian Country

Addressing impacts on threatened and endangered species and historic properties

- Endangered Species Act requires federal agencies to ensure that any action they authorize, fund, or carry out will not likely jeopardize the existence of threatened or endangered species, or destroy or adversely modify critical habitat
- National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to provide the Advisory Council on Historic Preservation an opportunity to comment
- Screening processes are in the Request for Coverage forms for the general permits to ensure appropriate consideration of listed species and historic properties
- Sources must successfully address those processes:
 - To gain general permit approval from EPA
 - Prior to submitting a notification for coverage under a permit by rule
 - Under the oil and natural gas FIP



Application: Site Specific Permit Air Quality Impact Analysis (AQIA)

- Analysis conducted if reviewing authority is concerned that minor source will cause or contribute to a NAAQS or increment violation
- In accordance with 40 CFR part 51, Appendix W
- We plan to develop guidance on scope of AQIA



Exercise Boiler General Permit

<https://www.epa.gov/tribal-air/tribal-minor-new-source-review>

- **Case #1**

- **Project:** New casino needs to install boilers and heaters to provide heat/water as needed, as well as an emergency backup generator. The casino will be located in an ozone attainment area

- **Equipment:**

- 12.5 MMBtu/hr natural gas-fired boiler
- 12.5 MMBtu/hr natural gas-fired boiler
- 12.5 MMBtu/hr natural gas-fired boiler
- 6.2 MMBtu/hr natural gas-fired heater
- 6.2 MMBtu/hr natural gas-fired heater
- 1200 hp emergency generator



Exercise Boiler General Permit

- **Case #2**

- **Project:** Existing school wants to add a new boiler and water heater to accommodate additional demand. Located in a serious ozone nonattainment area

- **New equipment:**

- 18 MMBtu/hr natural gas-fired boiler
- 3 MMbtu/hr natural gas-fired heater

- **Existing equipment:**

- 12.5 MMBtu/hr natural gas-fired boiler
- 12.5 MMBtu/hr natural gas-fired boiler
- 5 MMBtu/hr natural gas-fired heater
- 1000 hp emergency generator



The Need for Title V

- Part of 1990 Amendments to Clean Air Act
- Needed for compliance oversight of air programs
- Confusion as to what requirements applied to a facility
- Lack of source-specific monitoring in many rules
- Limited public access
- Weak compliance oversight of air programs



What is the Purpose of the Title V Operating Permits Program?

- To improve compliance and make enforcement easier by:
 - Rolling all applicable requirements, including terms from NSR permits, into one document
 - Requiring reports and certifications
 - Adding source-specific monitoring (sometimes)
 - Increasing public access to permit records
 - Making the terms of Title V permits federally enforceable



Who Issues Title V Permits?

- State and local agencies
- EPA or tribes within Indian country



Which Sources Must Apply for Title V Permits?

- All major sources
 - Major for PSD or NA NSR
 - PTE is greater than 100 tpy
 - Major for toxics air pollutants
 - PTE is equal to or greater than 10 tpy of any toxic air pollutant or 25 tpy of any combination of toxics air pollutants
- Some minor sources (see appendix)



When Must a Source Make a Title V Permit Application?

- Within a year of starting operations
- and
- Prior to the permit's 5 year anniversary (to get permit renewed)
- and
- When a change or modification at the source triggers the permit modification requirements



Differences Between NSR and Title V Permit Programs

- NSR is pre-construction/Title V is after construction (operating permits)
- NSR is primarily concerned with criteria pollutants/Title V permits cover any pollutant that is covered by the applicable requirements
- NSR permits expire if construction does not commence on time/Title V permits do not expire but they must be renewed
- NSR major source thresholds are different than Title V major source thresholds



Summary

- NSR permits are pre-construction permits that focus primarily on the six criteria pollutants
- PSD and NA NSR programs require sources to install pollution controls
- Three kinds of NSR programs
- Title V operating permits promote compliance and enforcement
- All major sources must apply for a Title V permit within a year of starting to operate
- Title V permits contain all the applicable requirements for a source



Appendices



Who Must Obtain a Title V Permit?

Any Major Source:

- A major source has actual or potential emissions that meet or exceed the major source threshold for their location.
- The major source threshold for any “air pollutant” is 100 tons/year (this is the “default value”).
- Lower thresholds apply in non-attainment areas (but only for the pollutant that are in non-attainment). (See Table below).
- Major source thresholds for “hazardous air pollutants” (HAP) are 10 tons/year for a single HAP or 25 tons/year for any combination of HAP.
- EPA generally has not required non-major sources to get permits (except as shown below).

Any Source with a Major Source Permit under PSD or NSR

“Affected Sources” under Acid Rain Rules - Regardless of Size

Solid Waste Incineration Units under Section 129 - Regardless of Size

- Municipal waste combustors (large and small)
- Hospital/medical/infectious waste incinerators
- Commercial and industrial solid waste incinerators
- Other solid waste incinerators
- Sewage sludge incinerators



Who Must Obtain a Title V Permit?

Non-major Sources subject to NESHAP (MACT or GACT) Standards

- Hazardous waste combusters
- Portland cement manufacturers
- Mercury cell chlor-alkali plants
- Secondary lead smelters
- Carbon black production
- Chemical manufacturing: chromium compounds
- Primary copper smelting
- Secondary copper smelting
- Nonferrous metals area sources: zinc, cadmium, & beryllium
- Glass Manufacturing
- Electric Arc Furnace (EAF) Steelmaking Facilities
- Gold Mine Ore Processing and Production

[Note that if any newly promulgated NSPS or MACT standard regulates area sources, it must clarify whether the area sources are required to obtain title V permits.]



Who Must Obtain a Title V Permit?

Certain Synthetic Minor Sources subject to NESHAP Standards

- Chemical Manufacturing

Non-major Sources subject to MACT and NSPS Standards

- Municipal solid waste landfills (design capacity \geq 2.5 million mega-grams and 2.5 million m³)

Any Source in a Source Category Designated by EPA – None so far

Table 1 – Lower Major Source Thresholds for Non-attainment Areas

Non-Attainment Area Designation	VOC or NOX	CO	PM10
marginal	100 tpy		
moderate	100 tpy	100 tpy	100 tpy
serious	50 tpy	50 tpy	70 tpy
Ozone transport region (other than severe or extreme)	50 tpy (VOC only)		
severe	25 tpy		
extreme	10 tpy		



What are the National Ambient Air Quality Standards (NAAQS)?

- EPA establishes national levels for acceptable concentrations of six specific pollutants in outdoor air
 - Ground-level ozone (smog)
 - Particulate matter (PM)
 - PM10 and PM2.5
 - Lead
 - Nitrogen Oxide
 - Sulfur Dioxide
 - Carbon Monoxide
- These are known as “criteria” pollutants



What is a SIP?

- A general plan to reduce or control emissions in order to attain or maintain air quality that meets the NAAQS
- States are required to have SIPs, which they develop and submit to EPA for approval
- Tribes are not required to have Tribal Implementation Plans but may choose to develop them



How is NSR Connected to SIPs and the NAAQS?

- NSR programs are typically one part of a SIP
- NSR Permits are designed to
 - Help areas that have healthy air quality maintain their air quality
 - Help areas that have unhealthy air quality improve their air quality until it meets national standards (NAAQS)