



ELI Summer School: Basics of the Clean Air Act

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Overview of Key Stationary Source Programs

The Clean Air Act sets forth three major programs for states and stationary sources:

- New Source Performance Standards (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAPs)
- New Source Review



New Source Performance Standards

New Source Performance Standards (NSPS)

- Prevents deterioration of air quality from:
 - Construction of **new** sources of air pollution.
 - Major **modification** of existing sources of air pollution.
- Focus on criteria pollutants.
- Organized by industry or type of operation.
- EPA has established NSPS regulations for approximately 100 source categories.

Standards of Performance	Code of Federal Regulations
Steel Plants: Electric Arc Furnaces (EAFs) and Argon-Oxygen Decarburization Vessels (AQD)	40 CFR 60 Subpart AA - AAa
Residential Wood Heaters	40 CFR 60 Subpart AAA
Kraft Pulp Mills	40 CFR 60 Subpart BB - BBa
Rubber Tire Manufacturing	40 CFR 60 Subpart BBB
Glass Manufacturing Plants	40 CFR 60 Subpart CC
Electric Utility Steam Generating Units (Boilers)	40 CFR 60 Subpart Da
Industrial/Commercial/Institutional Steam Generating Units (Boilers)	40 CFR 60 Subpart Db - Dc
Grain Elevators	40 CFR 60 Subpart DD

Examples from EPA.gov.

Statutory requirements are set forth in CAA § 111.

Regulatory requirements are set forth in 40 CFR Part 60.

NSPS Framework

For regulated sources, the relevant NSPS regulations include the following provisions:

- **Who**: The regulation first defines ***applicability*** by date of construction or modification, as well as ***potential emission*** thresholds.
- **What**: Defines equipment or operations at the source covered by the regulation. These are designated as the “***affected facilities***.”
- **How**:
 - For each affected facility at the source, the regulations set ***control or work practice standards*** for the affected facilities.
 - For each substantive requirement, the regulation also establishes ***reporting, monitoring, and recordkeeping*** requirements.

NSPS: Who is Regulated?

- An NSPS might apply to ***new or modified sources*** within the source category if ***potential emissions*** are above a ***certain threshold***.
- For purposes of making this determination, a ***modification*** is any physical or operational change increasing the emission rate of any pollutant regulated by NSPS.

Fracking Example

- Upstream oil and gas operations covered by 2 NSPS regulations: Subpart OOOO and OOOOa.
- Upstream oil and gas operators first need to determine whether their facility has an affected facility that is ***new or modified*** since the applicability date of the regulation (e.g., September 18, 2015 for OOOOa).
- If yes, then the operator needs to determine if the facility has an affected facility over the emissions threshold – i.e., a storage vessel (an affected facility under the rule) with ***potential VOC emissions equal to or greater than 6 tpy***.
- If yes, NSPS requires operators of storage vessels to have a closed vent system routing all gases, vapors, and fumes from storage vessels to a control device (such as a flare) or to a process.

Application of NSPS

- Applies regardless of where the source is located.
 - Differs from New Source Review (NSR) and Prevention of Significant Deterioration (PSD) which are triggered by attainment status of the area where the source is located.
- Covers smaller sources that may not be covered by nonattainment NSR and PSD programs.
- Applies the same standard to all new, modified, or reconstructed sources in the same category – sets a common technical “floor” for controlling emissions.



National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs)

- Unlike NSR and NSPS programs which focus on criteria pollutants, NESHAPs address emissions of ***Hazardous Air Pollutants or HAPs***.
- HAPs are specifically designated by regulation.
- EPA is required by law to develop a list of sources emitting those HAPs in significant quantities.
- For those sources, EPA then develops ***MACT standards*** – maximum achievable control technologies for new and existing major sources.

NESHAP Standard Source Categories	Code of Federal Regulations
Acrylic/Modacrylic Fiber (area sources)	40 CFR 63 Subpart LLLLLL (6L)
Aerospace	40 CFR 63 Subpart GG
Asbestos	40 CFR 61 Subpart M
Asphalt Processing and Asphalt Roofing Manufacturing	40 CFR 63 Subpart LLLLL
Asphalt Processing and Asphalt Roofing Manufacturing (area sources)	40 CFR 63 Subpart AAAAAAA (7A)
Auto and Light Duty Truck Surface Coating	40 CFR 63 Subpart IIII

Examples from EPA.gov.

Statutory requirements are set forth in CAA § 112.
Regulatory requirements are set forth in 40 CFR Part 63.

NESHAP Framework

For regulated sources, the relevant NESHAP regulations including the following provisions:

- **Who (Major Sources)**: The regulation first defines ***applicability*** by source category and potential emission thresholds (i.e., 10 tpy of individual HAP or 25 tpy of combination of HAPs).
- **What**: The specific NESHAP will define what ***equipment and operations*** are subject to regulatory standards.
- **How**: Facilities must comply with MACT standards for specific sources of HAPs. These standards are ***emission limits*** for specific pieces of equipment or work practice standards.

NESHAP: Who is Regulated?

- A **major source** is any stationary source or group of stationary sources (i.e., buildings, structures or installations) located within a contiguous area and under common control that emits or has the **potential to emit 10 tpy of any single listed HAP or 25 tpy of any combination of HAPs**.
- An area source is everything else emitting a HAP and specifically designated by regulation.

What is “Potential to Emit”?

Potential to Emit is the **maximum capacity** of a source to emit an air pollutant under its physical and operational design.

When calculating, a source must be assumed to operate 24 hours per day, 365 days per year at maximum capacity without control unless the facility is subject to federally enforceable permit conditions limiting operations.

NESHAP Example

Synthetic Organic Chemical Manufacturing Industry (SOCMI) NESHAP 40 C.F.R. Part 63, subparts F, G, H and I

Who is covered?

The rule outlines relevant industrial codes. If your facility's industrial code is listed and your facility has a potential to emit greater than 10 tpy of any individual HAP or 25 tpy of a combination of HAPs, it is subject to the NESHAP.

What sources within the facility are regulated?

Process vents, wastewater treatment operations, storage vessels, transfer operations, and equipment leaks.

What are the requirements for these sources?

The rule sets out MACT standards (usually as numerical limits or as a percentage of reduction) for process vents, storage vessels, transfer operations, and wastewater treatment. The rule also has monitoring, testing, reporting and recordkeeping requirements.

What else?

The rule requires the operator to monitor equipment leaks (e.g., fugitive emissions for certain components).

Area Sources

- Congress found that small, widely dispersed emissions of HAPs can present significant risks to public health.
- Area sources cover buildings, structures, or installations that emit or have the potential to emit HAPs at levels below the major source thresholds.
 - Area Sources are everything not a major source or a vehicle regulated under Title II.

NESHAPs Area Source Standards	
Area Source Standard Categories	Code of Federal Regulations
Acrylic/Modacrylic Fibers Production	LLLLLL
Aluminum, Copper, and Other Nonferrous Foundries	ZZZZZZ
Asphalt Processing & Asphalt Roofing Manufacturing	AAAAAAA
Carbon Black Production	MMMMMM



New Source Review

New Source Review (NSR)

- Requires owners and operators of larger new/modified sources of air pollution to implement emission control technology at the time of construction or modification.
- Implemented through ***state-specific permitting programs***.
- Helps attain and maintain the ***national ambient air quality standards*** by preventing significant degradation of air quality.
- NSR applies in addition to any other NSPS, NESHAP, or state-specific requirements.

NSR = PSD + NNSR

The particular NSR program applicable to a major new stationary source or significant modification to an existing major source depends on whether the area in which the source is located is in attainment or nonattainment.

Sources in attainment areas fall under the Prevention of Significant Deterioration (PSD) program for relevant permitting.

Sources in nonattainment areas are subject to nonattainment NSR (NNSR) for permitting.

NSR: Who is Regulated?

- A stationary source is “**major**” if the source:
 - Is one of the 28 source categories listed at 42 U.S.C. § 7479, and has the potential to emit **100 tpy** of any regulated NSR pollutant; or
 - Is not a listed source, but has the potential to emit **250 tpy** of any regulated NSR pollutant.
- Lower thresholds can apply in certain geographic areas with serious nonattainment.
- For **modifications**, there is a range of potential triggers depending on the attainment status and the particular pollutant at issue.

Pollutant	Major Source (tpy)	Significant Modification (tpy)
Particulate	Moderate: 100 Serious: 70	Moderate: 15 Serious: 15
PM ₁₀ (coarse particles)	Moderate: 100 Serious: 70	Moderate: 15 Serious: 15
PM _{2.5} (fine particles)	100	Direct PM _{2.5} : 10
SO ₂	100	40
CO	Moderate: 100 Serious: 50	Moderate: 100 Serious: 50
Lead	100	0.6
NO _x	Marginal: 100 Moderate: 100 Serious: 50 Severe: 25 Extreme: 100	Marginal: 40 Moderate: 40 Serious: 25 Severe: 25 Extreme: 0
VOCs	Marginal: 100 Moderate: 100 Serious: 50 Severe: 25 Extreme: 10	Marginal: 40 Moderate: 40 Serious: 25 Severe: 25 Extreme: 0
*This table is not complete. For illustrative purposes only.		

NSR: What is Required?

	Attainment Areas	Nonattainment Areas
Which program?	Prevention of Significant Deterioration (PSD)	Nonattainment NSR
What controls are required?	Best Available Control Technology (BACT) to control criteria pollutants	Lowest Achievable Emission Rate (LAER) to control criteria pollutants
Pre-Construction Permitting	<ul style="list-style-type: none">• Install BACT• Air quality analysis• Additional impacts analysis• Public involvement	<ul style="list-style-type: none">• Install LAER• Emissions offsets• Public Involvement

An Alternative to NSR: Synthetic Minors

- “True” minor sources have a potential to emit NSR pollutants **below** the major source threshold.
- “Synthetic” minors are sources that otherwise would have the potential to emit a regulated NSR pollutant in **excess** of the applicable threshold, but that have voluntarily taken a restriction in a state permit so that the potential to emit is **less** than the threshold for major sources.
 - May require installation or operation of pollution control equipment.
 - Source must keep records documenting compliance.
- If a source successfully receives a synthetic minor permit, it can avoid NSR or PSD requirements.