

NSPS and NESHAP Regulations Periodic Review and Update Process-How it Works and Recent Examples

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Introduction

- ▶ Residual Risk and Technology Review (RTR) and Technology Review periodic updates, not the miscellaneous/administrative updates
- ▶ EPA is required to conduct periodic review per the Clean Air Act (CAA) for
 - 40 CFR Part 60: New Source Performance Standards (NSPS)
 - 40 CFR Part 63: National Emission Standards for Hazardous Air Pollutants (NESHAP)

Introduction (cont'd)

- ▶ NSPS: Only Technology Review at least once every 8 years after promulgation per CAA Section 111(b)(1)(B)

“The Administrator shall, at least every 8 years, review and, if appropriate, revise such standards following the procedure required by this subsection for promulgation of such standards.”

Introduction (cont'd)

► NESHAP:

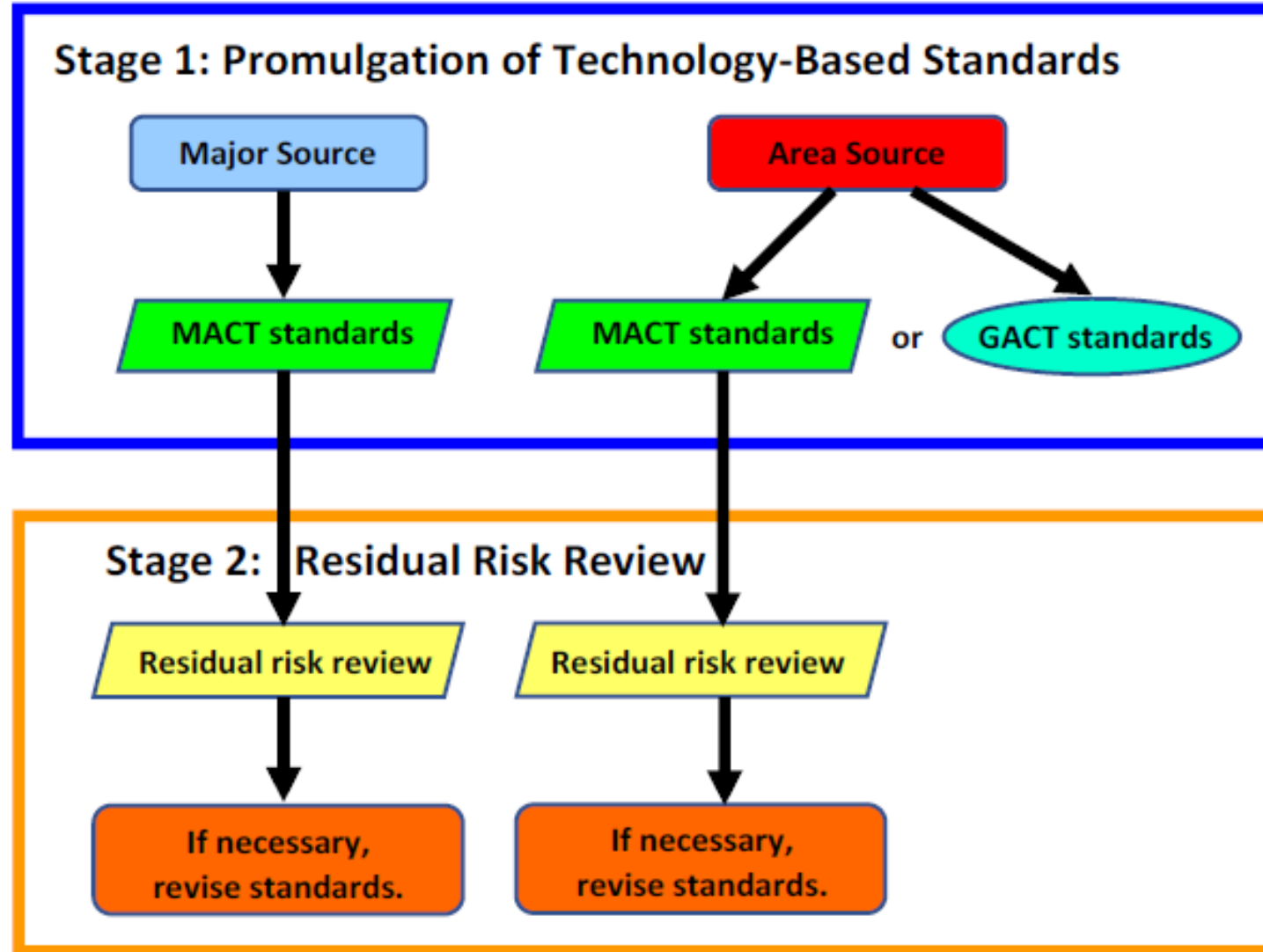
1. Technology Review: At least once every 8 years after promulgation per CAA Section 112(d)(6) for all sources [*Major and Area Sources*]

“The Administrator shall review, and revise as necessary (taking into account developments in practices, processes, and control technologies), emission standards promulgated under this section no less often than every 8 years.”

2. Residual Risk Review: Within 8 years of the promulgation of the standard per CAA Section 112(f)(2) [*Major Sources; and Area Sources subject to Maximum Achievable Control Technology (MACT) Standards*]

“The Administrator shall, within 8 years after promulgation of standards for each category or subcategory of sources pursuant to subsection (d) of this section, promulgate standards for such category or subcategory if promulgation of such standards is required in order to provide an ample margin of safety to protect public health in accordance with this section (as in effect before November 15, 1990) or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.”

Introduction (cont'd)



Source: OIG summary of the EPA's two-stage regulatory process for addressing air toxics emissions from stationary sources. (EPA OIG image)

Technology Review

- ▶ EPA identifies and evaluates advances in practices, processes, and control technologies
 - If EPA finds cost-effective approaches to further reduce emissions, they revise the standards to take those into account

The EPA has recently solicited public comments on making the standards more stringent in response to Environmental Justice considerations

- ▶ EPA also uses the Technology Review process as an opportunity to assess the current standard to:
 - Address significant unregulated emission points
 - Require consistent monitoring and add electronic compliance reporting
 - Fix administrative requirements that are duplicative or inconsistent

Residual Risk Review

- ▶ EPA assesses the remaining risks from air toxics emissions after implementation of the MACT standard
- ▶ The residual risks are typically determined using air dispersion modeling in conjunction with the exposure models
 - If current standards do not provide an ample margin of safety to protect public health → EPA revises the standards
 - EPA adjusts MACT standards based on risk when:
 - ◆ Cancer risk is > 100 in 1 million – risks are not “acceptable” and must be reduced irrespective of costs
 - ◆ If cancer risk is between 1 and 100 in 1 million, then EPA adjusts the standards if it is cost-effective

Technology Review for Selected Source Categories Due to Court Order

- ▶ EPA often misses the deadlines for Technology Review, but through lawsuits and court orders, EPA conducts the Technology Review and revises the standards
 - NSPS Subparts XX/XXa - *Standards of Performance for Bulk Gasoline Terminals* (consent decree in “Our Children’s Earth Foundation v. Wheeler” the EPA proposed revisions on June 10, 2022)
 - MACT R: *National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)* (consent decree in “Our Children’s Earth Foundation v. Wheeler” the EPA proposed revisions on June 10, 2022)
 - NESHAP Subpart HHHHHH - *Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources* (consent decree in “Our Children’s Earth Foundation v. Wheeler” the EPA proposed revisions on November 19, 2021)

Overdue Technology Review for Selected Source Categories

- ▶ Technology Review deadline has passed for several rules
 - NSPS Subpart Kb - *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*
 - MACT Subpart DDDDD - *Industrial, Commercial, and Institutional Boilers and Process Heaters*
 - NESHAP Subpart CCCCC - *Gasoline Dispensing Facilities*

Completed Technology Review for Selected Source Categories

- ▶ Finalized NSPS Subparts BB/BBa Technology Review amendments in April 2014
NSPS Subparts BB/BBa - *Standards of Performance for Kraft Pulp Mill Affected Sources*
 - Technology Review: Based on the Technology Review, EPA revised standards include particulate matter emission limits for recovery furnaces, smelt dissolving tanks and lime kilns, and opacity limits for recovery furnaces and lime kilns equipped with electrostatic precipitators. EPA also made the following updates that are not related to Technology Review:
 - ◆ Startup, shutdown and malfunction (SSM) provisions
 - ◆ Additional testing requirements and updated monitoring, recordkeeping and reporting requirements

Completed Technology Review for Selected Source Categories (cont'd)

- ▶ Proposed MACT Subpart M Technology Review amendments in December 2021

National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities

- Technology Review: Based on the findings of the Technology Review, the EPA proposes to add provisions to the rule which will require all dry-to-dry machines at existing major and area sources to have both refrigerated condensers and carbon adsorbers as secondary controls

RTR for Selected Source Categories Due to Court Order

- ▶ Similarly, EPA often misses the deadlines for RTRs, but through lawsuits and court orders, EPA conducts the RTRs and revises the standards
 - MACT FFFF - *Miscellaneous Organic Chemical Manufacturing* (court order - “California Communities Against Toxics, et al. v. Scott Pruitt” the EPA finalized revisions on August 12, 2020)
 - MACT Subpart AAAA - *Municipal Solid Waste Landfills* (court order - “California Communities Against Toxics, et al. v. Scott Pruitt” the EPA finalized revisions on March 26, 2020)

Overdue RTRs for Selected Source Categories

- ▶ RTR deadline has passed for several MACT rules
 - As of November 1, 2021, RTRs were overdue for 14 source categories with MACT standards. Some of the MACTs that are currently overdue for RTRs are presented below:
 - ◆ MACT J - *Polyvinyl Chloride and Copolymers Production*
 - ◆ MACT QQQ - *Primary Copper Smelting*
 - ◆ MACT CCCCC - *Coke Ovens: Pushing, Quenching, and Battery Stacks*
 - ◆ MACT TTTTT - *Primary Magnesium Refining*
 - ◆ MACT EEEEEEE - *Gold Mine Ore and Ore Processing and Production*

Completed RTR for Selected Source Categories

- ▶ Finalized MACT MM RTR amendments in October 2017
 - National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills*
- Technology Review: EPA determined that there are developments in practices, processes, and control technologies and made following amendments:
 - ◆ revisions to the opacity monitoring provisions; and
 - ◆ addition of requirements to maintain proper operation of the electrostatic precipitator (ESP) automatic voltage control (AVC)
- Residual Risk Review: EPA determined that risks from this source category are acceptable and that the standards provide an ample margin of safety to protect public health

Completed RTR for Selected Source Categories (cont'd)

▶ Finalized MACT Subpart FFFF amendments in August 2020

National Emission Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing (MON)

• Technology Review:

- ◆ Process vents, storage tanks, transfer racks, and wastewater streams: EPA determined no developments in practices, processes, and control technologies that warrant revisions to the MACT standards
- ◆ Equipment leaks and heat exchange systems: EPA determined that there are developments in practices, processes, and control technologies that warrant revisions to the MACT standards
 - **Equipment Leaks:** Lower the leak definition for pumps in light liquid service at existing batch processes from 10,000 ppmv to 1,000 ppmv
 - **Heat Exchange System:** Require owners or operators to use the Modified El Paso Method and repair leaks of total strippable hydrocarbon concentration (as methane) in the stripping gas of 6.2 ppmv or greater

Completed RTR for Selected Source Categories (cont'd)

- ▶ Finalized MACT Subpart FFFF amendments in August 2020
 - National Emission Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing (MON)*
 - Residual Risk Review: EPA determined that the risks from this source category are unacceptable. EPA addressed the risk by the following:
 - ◆ To require control of ethylene oxide emissions from process vents, storage tanks, and equipment leaks “in ethylene oxide service.”
- ▶ In addition, EPA also finalized amendments that are not related to RTR including:
 - SSM provisions
 - Monitoring and operational requirements for flares
 - Provisions for electronic reporting of performance test results and other reports

EPA to Revise Standards Applicable to the Gasoline Distribution Industry

Affected Rules

- ▶ Pursuant to the consent decree in “Our Children’s Earth Foundation v. Wheeler” the EPA proposed revisions to gasoline distribution rules on June 10, 2022
- ▶ New Source Performance Standards of 40 CFR Part 60, Subparts XX/XXa (NSPS XX/XXa)
- ▶ National Emission Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR Part 63, Subparts R and BBBBBB (6B)
- ▶ These regulations are applicable to gasoline distribution industry

Type of Review

- ▶ The proposed revisions to the rules are based on review of the latest control technologies and industry practices (i.e., technology review)
- ▶ The proposed revisions to the rules are NOT based on review of the residual risks to public health and the environment (i.e., residual risk review)
- ▶ The EPA has solicited public comments on making the standards more stringent in response to Environmental Justice considerations
- ▶ Public comment period for these regulations ended on September 12, 2022 and the EPA is expected to finalize the rulemaking by early June 2023

Current Rules – Recall that...

- ▶ **40 CFR Part 60, Subpart XX (1983):** Affects loading racks that were constructed, reconstructed, or modified after December 17, 1980 at bulk gasoline terminals
- ▶ **40 CFR Part 63, Subpart R (1994):** Affects bulk gasoline terminals and pipeline breakout stations at major sources of Hazardous Air Pollutants (HAPs)
- ▶ **40 CFR Part 63, Subpart 6B (2008):** Affects bulk gasoline terminals, bulk plants, and pipeline facilities at area sources of HAPs
- ▶ The June 2022 proposed revisions are the first substantial updates to the above rules

Summary of Current Rules and Proposed Revisions

► Vapor Combustion Unit (VCU)

Equipment	Subpart	Current Requirements	Proposed Requirements
VCU	XX/XXa	XX: 35 mg/L NMHC for truck racks new/modified after Dec. 17, 1980 equipped with new vapor processor 6-hour roll. avg	1 mg/L Total Organic Compounds (TOC) for new racks 3-hour roll. avg
		80 mg/L NMHC for truck racks new/modified after Dec. 17, 1980 equipped with existing vapor processor 6-hour roll. avg	10 mg/L TOC for modified/reconstructed racks 3-hour roll. avg
	R	10 mg/L NMHC 6-hour roll. avg	10 mg/L TOC 3-hour roll. avg
	6B	80 mg/L NMHC for racks > 250,000 gpd 6-hour roll. avg	35 mg/L TOC for racks > 250,000 gpd 3-hour roll. avg

Summary of Current Rules and Proposed Revisions (cont'd)

► Vapor Recovery Unit (VRU)

Equipment	Subpart	Current Requirements	Proposed Requirements
VRU	XX/XXa	Same as VCUs	<ul style="list-style-type: none"> 550 ppmv TOC as propane for new racks 3-hour roll. avg 5,500 ppmv TOC as propane for modified/reconstructed racks 3-hour roll. avg
	R	Same as VCUs	5,500 ppmv TOC as propane 3-hour roll. avg
	6B	Same as VCUs	19,200 ppmv TOC as propane 3-hour roll. avg

Summary of Current Rules and Proposed Revisions (cont'd)

► Open-Flame Flares for Controlling Loading Racks

Equipment	Subpart	Current Requirements	Proposed Requirements
Open-Flame Flares for Controlling Loading Rack	XX/XXa, R, 6B	General flare standards: §60.18 (XX) or §63.11(b) (R, 6B)	XXa: No open-flame flares allowed for new racks Racks modified or reconstructed under XXa, or subject to R or 6B, must comply with refinery flare rules at §63.670(b), 98% destruction efficiency

Summary of Current Rules and Proposed Revisions (cont'd)

► Gasoline Storage Tanks

Equipment	Subpart	Current Requirements	Proposed Requirements
Gasoline Storage Tank	R, 6B	Internal Floating Roof (IFR) or External Floating Roof (EFR) tanks: Refer to subparts for rim seal and deck fitting requirements	<ul style="list-style-type: none"> • R: EFR tanks' deck fittings must fully meet Part 60, Subpart Kb • 6B: EFR tanks' deck fittings must fully meet Part 60, Subpart Kb or Part 63, Subpart WW • IFR tanks must conduct Lower Explosive Limit (LEL) monitoring during annual inspections LEL threshold is 25% as Methane, 5-minute avg LEL data to be collected every 15 seconds for at least 20 minutes

Summary of Current Rules and Proposed Revisions (cont'd)

► Fugitive Equipment in Gasoline Service

Equipment	Subpart	Current Requirements	Proposed Requirements
Fugitive Equipment in Gasoline Service (Also applies to bulk plants under 6B)	XX/XXa, R, 6B	Monthly audio, visual, olfactory leak inspection, with leaks repaired	<p>Method 21 leak monitoring or Optical Gas Imaging (OGI, per pending Part 60 Appendix K)</p> <p>10,000 ppmv as Methane leak definition for Method 21</p> <p>Emissions plume imaged by the camera leak definition for OGI</p> <ul style="list-style-type: none"> XXa Monitoring Frequency: Quarterly for non-connectors and Annual for connectors R Monitoring Frequency: Semiannual for non-connectors and Annual for connectors 6B Monitoring Frequency: Annual

NSPS XX vs. Proposed NSPS XXa “Affected Facility”

- ▶ *NSPS XX (Construction or modification commenced after 12/17/1980):*
 - The affected facility to which the provisions of this subpart apply is the total of all the loading racks at a bulk gasoline terminal which deliver liquid product into **gasoline tank trucks**

- ▶ *Proposed NSPS XXa (Construction, modification, or reconstruction commenced after 06/10/2022):*
 - The affected facility to which the provisions of this subpart apply is the total of all the loading racks at a bulk gasoline terminal which deliver liquid product into **gasoline cargo tanks and all equipment associated with the loading of gasoline including the lines and pumps transferring gasoline from storage vessels, the gasoline loading racks, the vapor collection systems, and the vapor processing system**

Removal of Alternative Monitoring Provisions under Proposed 6B

- ▶ Presently, monitoring of the presence of a thermal oxidation system pilot flame is allowed as an alternative to measuring the firebox temperature to demonstrate compliance with the monitoring requirements of 6B
- ▶ The proposed 6B does not allow such alternative monitoring provisions after ~June 1, 2026
- ▶ The 6B facilities have historically relied on this alternative provision for monitoring purposes; removal of such alternative could result in the need of combusting additional auxiliary fuel during the low loading periods to maintain the firebox temperature at the level determined during the performance test

Averaging Period Changes and Challenges

- ▶ The proposed rules reduce the duration of averaging periods for loading rack emission control devices
- ▶ For thermal oxidation systems other than a flare, the EPA is proposing that combustion zone temperature be maintained at or above the level determined during the performance test on a 3-hour rolling average basis
- ▶ Similarly, the EPA is proposing a 3-hour rolling average monitoring period for the ppmv emission standards for vapor recovery systems
- ▶ The current averaging period for performance testing for either type of control device is 6 hours. The change from a 6-hour to a 3-hour rolling average would impact design and operation of control

Averaging Period Changes and Challenges (cont'd)

- ▶ On a shorter, 3-hour average, facilities would record greater variability in the VCU temperature. Operators would have a compliance need to stay above the required minimum temperature, by methods such as adding assist gas, shortening periods of higher loading rates, or smoothing periods of peak and low demand. This compliance need could result in capital costs, truck waiting time, and/or delivery delays
- ▶ In vapor recovery systems, a limit expressed as ppmv on a 3-hour basis is more stringent than the same limit expressed on a 6-hour basis. Facilities' existing vapor recovery systems may need to be redesigned to be able to accommodate the proposed emission limits on a 3-hour rolling average basis

In Closing

- ▶ CAA requires EPA to conduct a periodic review on NSPS and NESHAP regulations to upgrade based on technological advancements and/or residual risk on public health
- ▶ EPA often misses the review deadlines; lawsuits and court orders will require EPA to conduct the reviews
- ▶ EPA recently proposed substantial changes to air emission standards for the gasoline distribution industry
- ▶ The proposed gasoline standards may require affected facilities to undertake capital projects, to implement new compliance demonstration programs, or to conduct internal feasibility studies for compliance planning

Questions?

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