Presentation Regarding EPA's New Source Performance Standards for the Synthetic Organic Chemical Manufacturing Industry and National Emission Standards for Hazardous Air Pollutants for the Synthetic Organic Chemical Manufacturing Industry and Group I & II Polymers and Resins Industry, Docket No. EPA–HQ–OAR–2022–0730

March 21, 2024

American Fuel & Petrochemical Manufacturers

American Chemistry Council

Synthetic Organic Chemicals: Essential Building Blocks

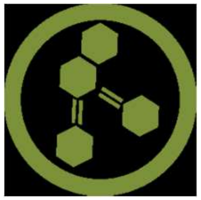
Pharmaceuticals and ointments

EV batteries, brake fluid, antifreeze, safety glass, and seating

Cosmetics and shampoos

Sterilization of medical devices, bandages, and food

Polyester fibers for upholstery, carpet, pillows, and clothing



De-icing solutions

Household and industrial cleaners and disinfectants

Ethylene Oxide - An Essential Raw Material for Many Important Products

Ethylene Oxide:
Alkyl Alkanolamines
Choline Chloride
Ethanolamines
Ethyleneamines
Glycol Ethers
Glycol Ethers Acetates
Ethylene Glycols
Polyurethanes
Solvents
Ethylene Carbonate

Building & Construction
Architectural Coatings
Asphalt & cement additives
Automotive and architectural glass
Commercial & residential roofing
Drainage aids
Epoxy curing agents
Metalworking fluids
Polyurethanes
Solvents
Textiles / textile additives
Wood & water treatments

Manufacturing Applications
Cement and glass grinding lubricants
Heat transfer materials & fluids
Hydrocarbon purification
Lubricants
Metal and industrial cleaning
Mineral processing
Natural Gas & oil industry products
Paper additives
Rubber and polymer manufacturing
Semiconductors

Downstream Products
Adhesives / paints / inks
Agrochemicals & oil seed
Appliance insulation
Bleach activator
Carpet backing & furniture cushioning
Detergents / cleaners / fabric softeners
Dry cleaning products
Freeze point lowering solutions
Packaging film & Bottles
Personal care products
Photographic chemicals
Polyester

Transportation
Automotive seating
Hydraulic & brake fluids
Jet fuel anti-icing additives
Motor vehicle antifreezes
Noise & vibration reduction products
EV batteries

Health & Safety
Fungicides
Medical sterilants
Pharmaceuticals
Safety glass

American Chemistry Council

202304-047

Overview of the Proposed Rulemaking

- Amendments to NSPS for SOCMI
- Amendments to NESHAP for SOCMI (HON) and Group I and II Polymers and Resins (P&R I and P&R II)
- Decisions from the technology review of the HON, Group I and II Polymers and Resins, and 8-year review of the NSPS for SOCMI
- Amendments to NSPS for equipment tanks of volatile organic compounds in SOCMI
- Add work practice standards for periods of startup, shutdown, and malfunction
- New emissions limits for ethylene oxide emissions and chloroprene emissions

General Compliance Activities

Planning

Review requirements

Develop compliance plans

Identify process changes or controls needed

Identify monitoring and equipment needed

Implementation

Design process change

Obtain funding

Procure equipment

Procure services

Obtain government permit (this step can take up to a year)

Install the necessary change

Activation

Test process, controls, and monitoring equipment

Activate

Example Compliance Timeline for Thermal Oxidizer

Major Steps in Process	Estimated Time to Complete
Front end engineering design to scope the project and obtain vendor bids and quotations on a thermal oxidizer and all required process safety and monitoring equipment.	12-14 months
Vendor selection for the thermal oxidizer and obtaining capital authorization funding for the project.	3 months
Vendor constructs and/or prepares equipment and delivers equipment to the manufacturing location.	12 months[1]
Construction of the thermal oxidizer, installation of all required instrumentation, and installation of new piping/piping revisions to connect waste gas flows to the thermal oxidizer.	6-8 months
Development of operating procedures, commissioning the equipment, and placing the equipment into service.	3 months
Total Estimated Time for Project	36-40 months

1: Our members are experiencing vendor delivery times of 40 – 50 weeks even for simpler projects such as adding vent gas calorimeters for flare line monitoring. Thus, we are concerned that the lead/delivery time for an entire thermal oxidizer system could exceed 52 weeks, but 12 months is provided as a best estimate for this time.

Subpart VV and VVa Definitions (40 CFR § 60.481a)

“Process Unit”

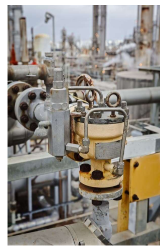
Support: The EPA’s proposed definition of “process unit,” with a correspondingly consistent definition in NSPS Subpart VVb, ensures the regulations do not apply to uncovered facilities.

“Capital Expenditure”

Request correction: EPA proposed a revised value of ‘‘X’, which is used to calculate the percent of replacement cost” (designated as “Y values for X.”)

- The proposed value X is “1982” minus the year of construction new, reconstructed, or modified affected source prior to November 16, 2007.
- This results in a negative value for “Y”, resulting in an indeterminant outcome for calculation of the adjusted annual asset guideline repair allowance.

Overview of Major NSPS Requirements



Pressure relief devices: (PRDs) Eliminate PRD discharge exemption from the definition of "vent stream" so any discharge to the atmosphere is a violation.

Process vents:

Require control of all process vents by eliminating the total resource effectiveness and require performance testing every 5 years.

Connectors:

Require annual connector monitoring

Pressure Relief Devices (PRDs)

PRDs are one of the most important types of safety valves that prevent serious injury to employees and neighbors and prevent damage to equipment. They are designed to control or relieve excess pressure of gas, steam, liquids, or vapors from vessels and other equipment.

Proposal to Prohibit PRD Releases Under NSPS IIIa, NNNa, and RRRa

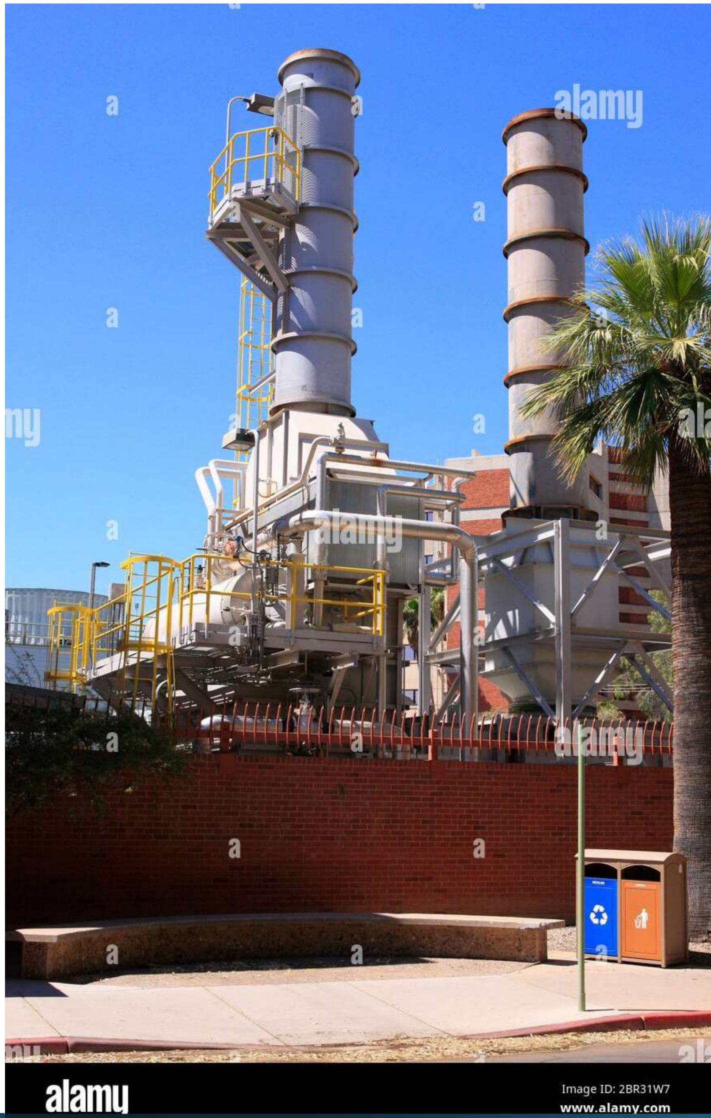
- EPA's CAA 111(b)(1)(B) review of reasonably available control technology (RACT), best available control technology (BACT), and lowest achievable emissions rate (LAER) databases show one facility, as part of a nonattainment New Source Review, implemented LAER that required PRDs to vent to a control device.
  - LAER does not consider economic, energy, or environmental factors
- EPA concedes NSPS standards must reflect "the degree of emission limitation achievable through the application of the best system of emission reduction [BSER]which (**taking into account the cost of achieving such reduction** and any non-air quality health and environmental impact and energy requirements)."
- EPA "considered requiring all PRDs to be vented to a control device as a beyond-the-floor requirement. While this would provide additional emission reductions beyond those we are establishing as the MACT floor, these reductions come at significant costs. For example, the EPA estimated that the capital cost for controlling MON PRDs ranged from $2,540 million to $5,070 million, and the annualized cost ranged from $330 million to $660 million; and the incremental cost effectiveness for requiring control of all MON PRDs that vent to the atmosphere compared to the requirements described above exceeded $80 million per ton of HAP reduced (see 84 FR 69182, December 17, 2019). Consequently, we conclude that this is not a cost-effective option." 88 Fed. Reg. 25,080, 25,158 (April 25, 2023).

PRD Recommendation:

- **Revisit its BSER analysis for PRDs**
- **Consider the inclusion of work practice standards like those proposed under §63.165(e)(3) instead of an outright prohibition of PRDs routed to atmosphere via designation of any release as a violation.**

Controlling Process Vents

- **What are process vents?**
- A system designed to release gases or vapors to the atmosphere or to the point of entry to a control device produced during chemical manufacturing. The vents are designed to maintain safe operating conditions and prevent the buildup of hazardous substances
- **What is the "total resource effectiveness (TRE) concept?**
- The TRE concept has been used in NESHAPs and NSPS for sources emitting high gas volume streams containing low concentrations of volatile organic compounds or hazardous air pollutants. For these sources, emissions control systems are not warranted because they are past the point of return for control efficiency and, therefore, not cost-effective.
- **TRE definition: "**a measure of the supplemental total resource requirement per unit reduction of organic HAP associated with a process vent stream, based on vent stream flow rate, emission rate of total organic carbon HAP, net heating value, and corrosion properties". 40 CFR 60.701.



The TRE Concept in Practice

NSPS Subparts III, NNN, and RRR

The TRE concept is an alternative emissions standards whereby a SOCMI facility must maintain a TRE > 1.0.

TRE is also a limited applicability exemption for process vents with TRE > 8.0.

EPA's proposal

Control *all* process vents by removing the total resource effectiveness index value (TRE Index Value) from the Hazardous Organic NESHAP (HON) and the NSPS III, NNN, and RRR.

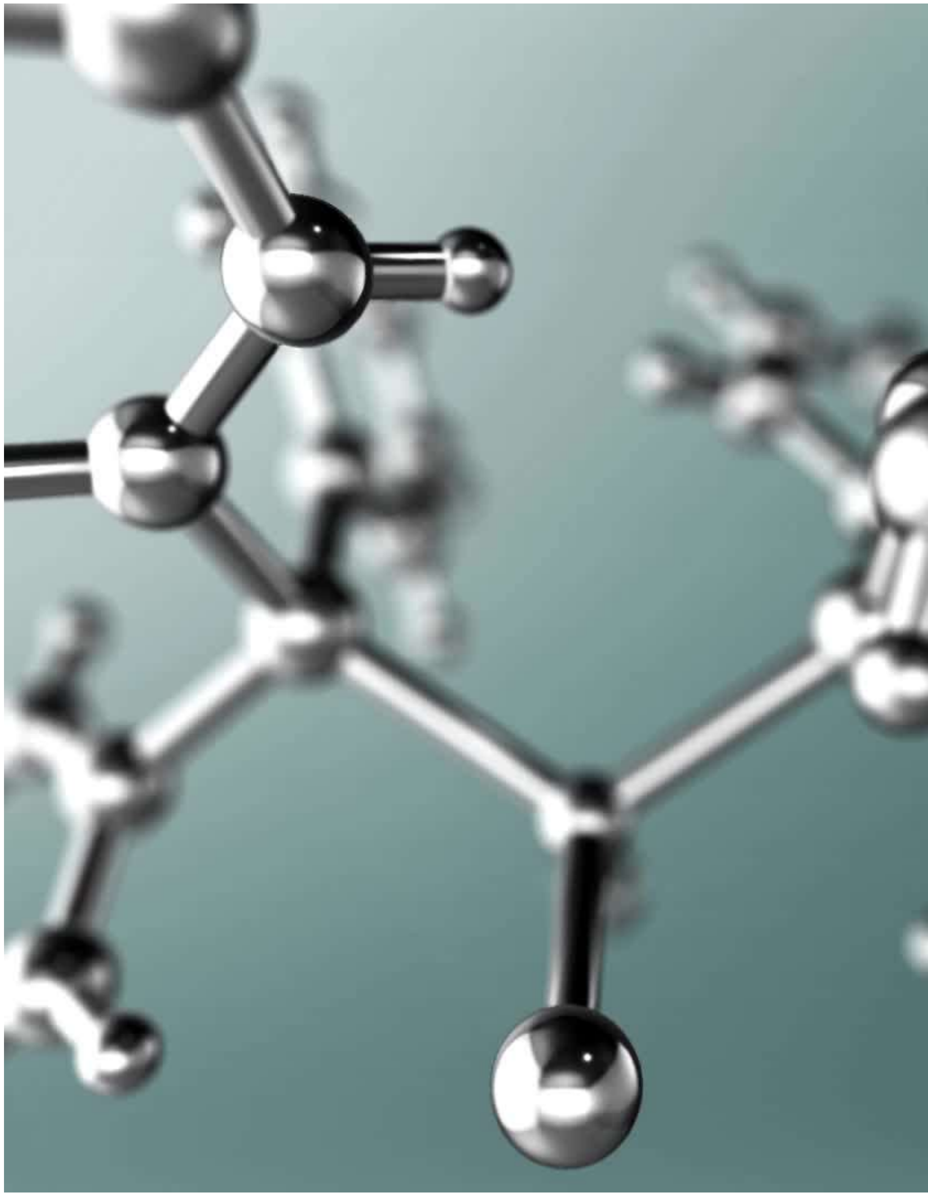
EPA's proposal means facilities would be required to incur significant costs to control extremely low-emitting process vents.

HON rule allows 1 lb/hr of HAP instead of TRE; NSPS rules do not have an alternative.

The TRE Concept Ensures Cost-Effectiveness

EPA's rationale to remove the TRE concept is unjustified

- The TRE concept is used in recently promulgated in the Miscellaneous Organic Chemical Manufacturing NESHAP (MON) rule and the Generic MACT.
- The fact that some facilities are voluntarily controlling sources or that a control device can control multiple process vents does not mean it is cost effective for all sources.
- The TRE concept is understood as it has been used effectively for decades.
- Comments demonstrate controlling vents is not cost-effective as the requirement could cost up to $1 million, with minimal emissions reductions of VOCs and HAPs due to low concentrations in the waste streams.
- Table 14 of the preamble (88 FR 25,130) shows that retaining the TRE, but at a more stringent value is just as cost effective as redefining Group 1 process vent and removing TRE.



TRE Recommendation

Retain the TRE concept, including the limited applicability exemption for affected facilities under the NSPS or provide an alternative to exclude low-emitting process vents from applicability. If any change is made, EPA could raise the TRE index value to a level that represents cost-effective control or add a mass-based threshold alternative.

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NSPS Allowances for Vent Streams Routed to Boiler/Fuel Gas System

EPA is proposing initial and annual performance testing to ensure compliance with various emissions limits to demonstrate no detectable emissions.

- Boilers are addressed in EPA's proposed requirements for initial performance tests, which are waived under 60.614a(c) (IIIa), 60.664a(c) (NNNa), and 60.704a(c) (RRRa) for boilers with a design capacity heat input of 150 MMBtu/hr or more, or where the stream is introduced with the primary fuel
  - The final rule should explicitly waive the requirement for initial and subsequent performance testing.

Connectors

What are connectors?

Joined fittings used to (1) connect two pipelines or a pipeline and a piece of process equipment,
(2) close an opening in a pipe that could be connected to another pipe. 40 CFR 60.481(a).

EPA NSPS VVb proposal

Require annual connector monitoring. EPA's proposed cost effectiveness is $3400/ ton of VOC.

EPA's cost effectiveness is flawed because it excludes administrative costs and inflates uncontrolled leak rates. Adjusting for these factors, the overall cost-effectiveness is $30,700 per ton.

Why Connector Monitoring is Not Cost Effective: Part I

These process units undergo continuous improvement and maintenance, which inevitably result in replacement of pipes with different sizes, changes in the number, size, and location of connectors.

EPA failed to consider the true cost of connector monitoring, such as the administrative costs of changing process diagrams, updating drawings, technical software, updating the database.

Example: A member company estimates an average of 6 hours of LDAR labor associated with each process unit project, with half of that time required if connectors are included. The member company estimates five projects a year for a process unit with approximately 1,000 connectors.

Rules requiring connector monitoring need an additional 15 hours per year per 1,000 connectors. Making this change to the analysis changes the overall cost-effectiveness to $3,580 per ton.

Why Connector Monitoring is Not Cost Effective: Part 2

Underlying EPA's cost analysis is an assumption that the uncontrolled leak frequency for connectors should be inflated by a factor of 1.7.

EPA's calculations are based on a 2011 memo, which assumes an average emission rate for connectors of 0.000307 kilogram per hour per source. That average emissions rate was never promulgated.

EPA offers inadequate justification to inflate the uncontrolled leak rates by the 1.7 factor. Removing this factor changes the baseline emission rate and, along with excluding administrative costs, changes the overall cost-effectiveness to $30,700 per ton.

Chlorinated Dibenzo Dioxins/Furans Limits

EPA's proposed dioxins and furans standard of 0.054 ng/dscm would apply to chlorinated process vents under the HON, P&R I, and P&R II.

In developing the standard, EPA used a dataset that is more than a decade old from polyvinyl chloride and vinyl chloride monomer/ethylene dichloride units. Further, EPA's data represents a subset of HON units and excluded data for P&R I or II units.

Recommendations:

1. Given the potential differences in chlorine loading and configurations for devices used to control emissions, EPA should not finalize the standard and instead collect recent emissions data from affected units.
2. If EPA finalizes dioxins and furans standards, overlap provisions are needed to allow facilities subject to existing standards under other NESHAP to continue to comply with those requirements instead of the requirements under HON, P&R I, or P&R II.

EPA Overlapping Requirements

There is potential overlap of the MON and other NESHAPs with EPA's proposed NSPS IIIa, NNNa, and RRRa. Affected facilities would then be required to comply with two rules, potentially with conflicting requirements.

To address this scenario, we recommend the following language be included in the final NSPS rules:

Each Affected facility that has equipment subject to both this rule and regulations promulgated under 40 CFR Part 63 (i.e., NESHAP) may elect to comply with the overlap provisions of the NESHAP as a means to demonstrate compliance with this NSPS rule provided the NESHAP rule has specified overlap provisions for compliance with NSPS NNN, RRR, and III.

THANK YOU

American Fuel and Petrochemical Manufacturers and
American Chemistry Council