

# The Latest on the Ethylene MACT

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# Proposed New Ethylene MACT (EMACT) Requirements

- ▶ Important For Entire Chemical Sector – Not Just Ethylene Producers.
- ▶ Substantial Effort Will Be Required To Comply.
- ▶ Proposed Changes Follow Refinery Sector Rule (RSR) Template.
- ▶ RSR Lessons Learned Will Be Beneficial.

# Ethylene MACT Proposed Rule

- ▶ Hot Off The Presses!
  - ❑ 9/5/2019 - Proposed rule signed by EPA Administrator.
  - ❑ 10/9/2019 - Published in Federal Register (84 FR 54278).
- ▶ Stemmed from CAA-required Risk and Technology Review.
  - ❑ Required for EPA every 8 years after setting MACT standard.
  - ❑ Account for improvements in air pollution controls and/or prevention.
  - ❑ Assess remaining health risks (“residual risk”) for the source category.

# Fenceline Monitoring?

- ▶ Sigh Of Relief – No Fenceline Monitoring In Proposed Rule
- ▶ Doesn't Mean Fenceline Monitoring Will Be Confined To Refineries, Though:
  - ❑ Consent Decrees,
  - ❑ Negotiated Settlements,
  - ❑ Facilities near refineries affected by refinery monitoring.

# Flares – Substantial New Requirements

- ▶ \$45 Million – Expected Capital Expenditures Due To New Monitoring And Operational Requirements Across. Approximately 100 Affected Flares (Average Of Approx. \$450,000 Per Flare) – EPA’s Estimate.
- ▶ Multiple Types Of New Requirements.
- ▶ Adding Provisions For Multi-point Ground Flares (As Part Of A More General Category “Pressure-assisted Multi-point Flare”).

# Proposed Flare Changes Tied to RSR

- ▶ EPA Relied On The Same Analyses And Proposing The Same Operating Limits As For RSR.
- ▶ Proposed Rule Directly Applies The Petroleum Refinery Flare Rule Requirements In MACT CC To Ethylene Production Source Category Flares With Clarifications.
- ▶ Proposal Eliminates Cross-references To The MACT Subpart A General Provisions And Instead Specifies All Flare Operational And Monitoring Requirements In The EMACT Standards.

# Flares – New Requirements

- ▶ Vent Gas Net Heating Value (NHV) Monitoring.
  - ❑ Gas Chromatograph (GC).
  - ❑ Calorimeter.
  - ❑ Mass Spectrometer (MS).
  - ❑ Grab Samples.
- ▶ Volumetric Flow Rate Monitoring For Assist Air/Steam.
- ▶ Smokeless Design Capacity.
- ▶ Flare Management Plan (FMP).
- ▶ Root Cause Analysis (RCA).

# Startup/Shutdown/Malfunction – Major Changes

- ▶ Eliminating General Exemptions For Startup, Shutdown, And Malfunction (SSM) Emissions.
- ▶ Implementing Work Practices For Some SSM Activities.
  - ❑ Maintenance vents.
  - ❑ Pressure relief device (PRD) releases.
  - ❑ Decoking operations for ethylene cracking furnaces.



# Work Practices - Maintenance Vents

- ▶ All Process Liquids Removed From The Process Equipment.
- ▶ Not Vented To Atmosphere Unless One Of Following;
  - ❑ The vent is measured to be  $\leq 10\%$  LEL, and
  - ❑ If the LEL cannot be measured due to the design of the equipment, depressured to 5 psig or less.
    - In this case, no active purging (i.e., flow through) to the atmosphere would be allowed until the vent meets the  $\leq 10\%$  LEL criterion.
  - ❑ The equipment contains  $< 50$  lb of VOC (engineering calculations)
- ▶ Equipment Must Be Depressured To Less Than 2 Psig During Blind Installation If  $< 10\%$  LEL Cannot Be Achieved.

# Work Practices - PRDs

- ▶ Equip Each PRD In Organic HAP Service With A Device(s) Or Use A Monitoring System That Is Capable Of:
  - ❑ Identifying the pressure release,
  - ❑ Recording the time and duration of each pressure release, and
  - ❑ Notifying operators immediately that a pressure release is occurring.
- ▶ Minimum 3 Redundant Measures To Prevent Atmospheric Releases Or Install A Closed Vent System And Route To A Flare, Drain, Or Other Control System.
- ▶ Root Cause Analysis (RCA) Conducted On All Release Events For Each PRD

# Work Practices - Decoking Ethylene Cracking Furnace

- ▶ Conduct Daily Inspections For Flame Impingement During Normal Operations.
- ▶ Conduct At Least Two Of The Following Other Work Practices. ;
  - ❑ Monitor CO<sub>2</sub> concentration at the radiant tube outlet during decoking,
  - ❑ Monitor temperature at the radiant tube outlet during decoking,
  - ❑ Purge the radiant tubes with steam after decoking,
  - ❑ Apply a coating material to radiant tube interior after decoking.

# Vent Control Bypasses – Clarifying Provisions

- ▶ Closed Vent Systems Containing Bypass Lines.
- ▶ In Situ Sampling Systems.
- ▶ Flares Connected To Fuel Gas Systems.

# Heat Exchangers – Updating Leak Provisions

- ▶ Existing Sources: Quarterly Monitoring (After An Initial 6 Months Of Monthly Monitoring).
- ▶ New Sources: Monthly Monitoring (After An Initial 6 Months Of Weekly Monitoring).
- ▶ Leak Definition: 6.2 Ppmv Of Total Strippable Hydrocarbon Concentration (As Methane).
  - ❑ Repairs required within 45 days for leaks less than 62 ppmv.
  - ❑ Leaks detected with 62 ppmv or greater require immediate repair (within 30 days of detection) with no delay of repair available.

# Other Provisions

- ▶ Tightening Applicable Storage Vessel Thresholds For Control Requirements By Reducing Thresholds.
  - Storage capacity.
  - Maximum true vapor pressure.
- ▶ Adding Provisions For Electronic Reporting Of Performance Test Results And Reports And Notification Of Compliance Status (NOCS) Reports.

# Implementation Deadlines for New Requirements

- ▶ Final Rule Promulgation Deadline – 3/13/2020.
- ▶ “New Sources”.
  - ❑ Affected sources that commenced construction or reconstruction after the publication date of the proposed rule (10/9/2019).
  - ❑ Compliance deadline – upon startup or final rule effective date, whichever later.
- ▶ “Existing Sources”.
  - ❑ Compliance deadline – 3 years after final rule effective date.
  - ❑ Not as long as it seems considering amount of effort required.

# Summary

- ▶ Many new Ethylene MACT requirements proposed
- ▶ Comment deadline for the proposed rule is 11/25/2019
- ▶ Start early to prepare for compliance dates
- ▶ Budget time and money for extensive effort required to comply with new requirements
- ▶ Leverage lessons learned from Refinery Sector Rule implementation



# Question Time!

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