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US EPA Risk and Technology Review: A Look At SSM Revisions

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US EPA's Risk & Technology Review (RTR) Process

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US EPA Risk & Technology Review (RTR) Process

Overview

Data Review

EPA reviews industry air toxics emissions levels and maximum control

MACT Standard Development

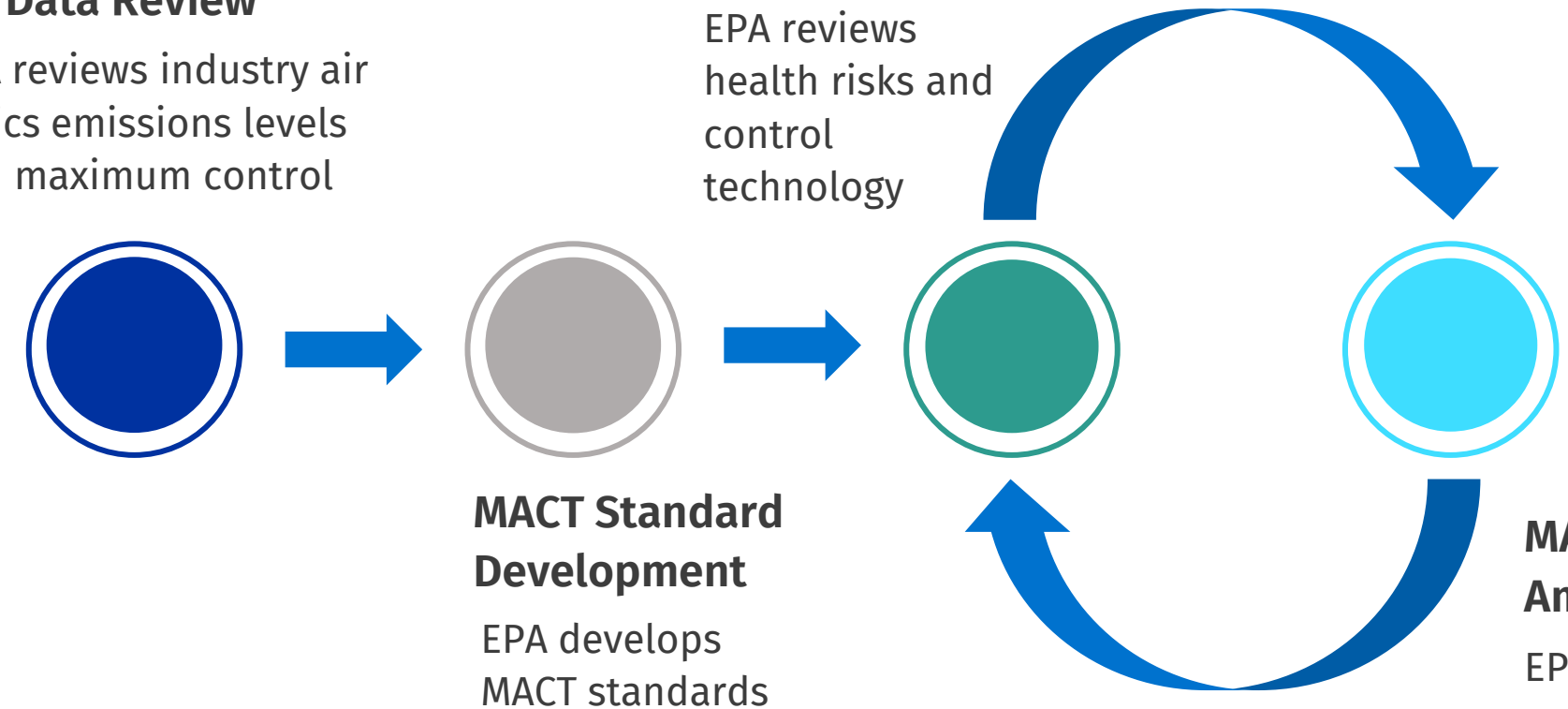
EPA develops MACT standards for controlling emissions

Residual Risk and Technology Review

EPA reviews health risks and control technology

MACT Amendments

EPA amends current rules, if needed



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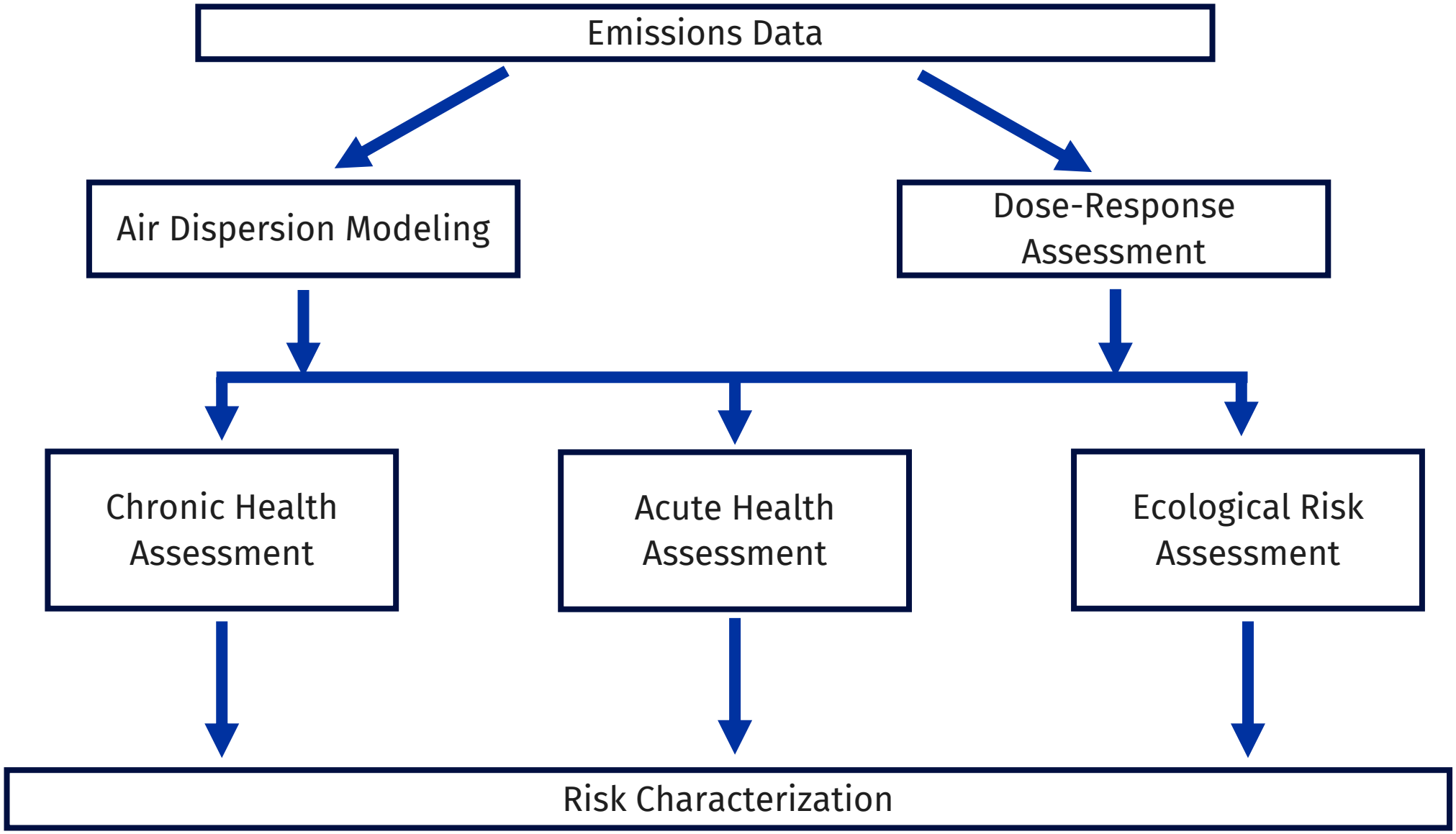
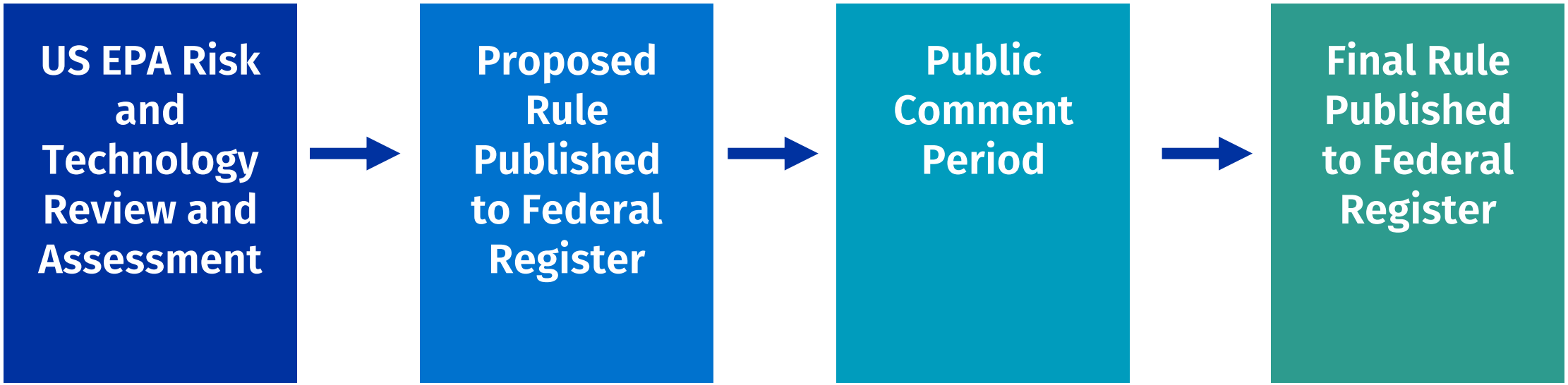
US EPA Risk & Technology Review (RTR) Process

EPA's Review



US EPA Risk & Technology Review (RTR) Process

Public Involvement



MACT SubPart(s)	Source Category (Link to Regulatory and Supporting Info)	Proposed Rule Publication Date (or Signature Date)	Final Rule Publication Date (or Consent Decree or Court Ordered Date for Signature of Final Rule)
R, BBBBBB	Gasoline Distribution Major Source and Gas Distribution Bulk Terminals Areas Source Technology Review	06/10/2022	05/08/2024
AAAAA	Lime Manufacturing Plants Technology Review	01/05/2023 and 02/09/2024	(07/16/2024)
FFFFF	Integrated Iron and Steel Technology Review	07/31/2023	04/03/2024
RRRRR	Taconite Iron Ore Processing Technology Review	05/15/2023	03/06/2024
F, G, H, I	Synthetic Organic Chemical Manufacturing Industry: Organic National Emission Standards for Hazardous Air Pollutants (NESHAP)	04/25/2023	05/16/2024
O	Ethylene Oxide Emissions Standards for Sterilization Facilities: National Emission Standards for Hazardous Air Pollutants (NESHAP)	04/11/2023	04/05/2024
UUUUU	Mercury and Air Toxics Standards	04/24/2023	05/07/2024

The SSM Vacatur – *Sierra Club v. EPA*

October 16, 2009 , DC United States Court of Appeals mandate in *Sierra Club v. EPA* vacated provisions exempting sources from hazardous air pollutant (HAP) emissions during periods of startup, shutdown and malfunction (SSM);

The Court held that the Clean Air Act (CAA) section 112 limitations must be continuous and that the SSM exemptions violated that standard;

Vacatur of 40 CFR 63.6(f)(1) and 63.7(h)(1) of the 40 CFR 63, Subpart A for opacity and non-opacity standards are incorporated by reference in the NESHAP standards throughout 40 CFR 63 and were the regulatory basis for the SSM exemptions.

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The SSM Vacatur Implementation

Through the RTR Process, US EPA has been amending SSM specific language, providing a “sunset” date within each Subpart for existing SSM Provisions and new standards for periods when existing treatment and control standards cannot reasonably be met.

March 2021 US EPA amended 40 CFR 63, Subpart A to simplify and streamline the language needed within each Subpart to properly phase the existing provisions out.

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MON RTR Amendments Overview

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US EPA Risk & Technology Review (RTR) Process: MON Amendments

Proposed Rule: 12/17/19
Final Rule: 08/12/20

Reconsideration of 2020 Rule:

Proposed Rule: 01/25/22
Final Rule: 12/21/22

Reconsideration Amendments:

Proposed Rule: 04/27/23
Final Rule: 04/04/24

MON RTR Overview

- SSMP Removal
- Flare monitoring for certain EO, olefins, poly-olefins and multi-point flare standard
- Performance testing and monitoring changes
- Electronic reporting (CEDRI)
- Maintenance venting and Group 1 storage tank degassing
- PRD requirements and prohibitions
- MON - Ethylene Oxide
- Standards for non-regenerative carbon systems, regenerative carbon systems sent offsite for regeneration, and ground flares
- Modified El Paso
- Updated bypass monitoring requirements

SSM Revisions

"General Duty" clause - comply with emission limits at all times

Removal of startup, shutdown and malfunction (SSM) blanket exemptions from emission control standards

Remove SSM Plans along with associated recordkeeping and reporting (BUT …don't throw it away just yet)

Detailed records for events associated with each failure to meet an applicable standard (affirmative defense)

No provisions or allowances for Malfunctions, simply subject to enforcement discretion

New MON – General Duty Clause

(u) General duty. … at all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Other than for those specific emission points discussed in section III.C of this preamble, the EPA determined that no additional standards are needed to address emissions during periods of SSM. We determined that facilities in this source category can meet the applicable MACT standards at all times, including periods of startup and shutdown.

(Pg. 25 of 309, MON RTR Pre-Publication Version)

The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

(84 FR 69227, MON Proposed Rule)

MON Compliance Reports

Deviations where not using a CMS

For each deviation, report

- Start date, time, and duration in hours of each deviation
- List of the affected sources or equipment
- Estimate of the quantity (pounds) of each regulated pollutant emitted over any emission limit
- Description of the method used to estimate the emissions
- Cause of the deviation and the corrective action taken

Operating logs of processes with batch process vents for days of deviation

Case Study: Calculating Emissions During SSM

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Case Study: Calculating Emissions During SSM

Background

- Chemical manufacturing facility has many different batch processes controlled by a MON control device to comply with the rule
- In some SSM events, MON control device is bypassed
- Need a method of determining emissions during bypass
  - Bypass won't necessarily be for an entire batch, but for only some batch steps

Case Study: Calculating Emissions During SSM

Challenges

Batch Data	Emission Calculation Method	Compliance Demonstration
• Need a deep understanding of what occurs in the batch • A lot of data is needed to calculate emissions	• Determine best method to calculate emissions • Determine number of processes that need emission estimates	• Recordkeeping and reporting requirements under the MON

Case Study: Calculating Emissions During SSM

Solution

- Developed a conservative set of emission factors for the processes modeled based on each batch step
  - Modeling software outputs total emissions for the batch as well as emissions per step
  - Outputs necessary information required to maintain compliance of the rule

Case Study: Calculating Emissions During SSM

Solution

Controlled Emissions

Process: Product X Generation Emissions reported in Pounds.

Activity	Recipe Step	Vessel	Carbon Disulfide	Hydrazine	Hydrogen sulfide
1	2	A			
2	3	A	0.6222		
3	4	A	0.5221		
4	4	A	0.6705		
5	5	A	0.2023	2.80E-06	
6	5	A	0.2544	1.61E-06	
7	5	A	75.9667	5.00E-04	844.55
8	5	A	0	0	
9	5	A	60.9859		844.55
10	5	A	0.0987		
11	6	A	2.6537		
12	7	A	1.6391		
13	7	B	13.6989		

Conclusion

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What Do We Do Now?

- Make sure you have a good understanding of your emissions
  - US EPA begins the RTR process with reported emissions data!
  - AERR proposed rule – HAPs reporting
- Regulations are constantly changing
  - SSM provisions are being removed for all industries
- Always consider general duty clause when it comes to preventing uncontrolled releases

MACT SubPart(s)	Source Category (Link to Regulatory and Supporting Info)	Proposed Rule Publication Date (or Signature Date)	Final Rule Publication Date (or Consent Decree or Court Ordered Date for Signature of Final Rule)
M	Perchloroethylene Dry Cleaning Technology Review -Major Sources -Area Sources	12/27/2021	(01/31/2025)
VVVVV	Chemical Manufacturing Area Sources Technology Review	(01/15/2025)	(01/15/2026)
HH	Oil and Gas Technology Review	(12/10/2024)	(12/10/2025)
X	Secondary Lead Technology Review	(09/30/2025)	(09/30/2026)
Y	Marine Tank Vessel Loading Technology Review	(12/19/2025)	(12/18/2026)
DDDD	Plywood and Composite Wood Products Technology Review	05/18/2023	(06/30/2026)
XXXX	Rubber Tire Manufacturing Technology Review	11/16/2023	(11/13/2024)

Thank you

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