

Developing a Compliance Program for VOC/NO_x RACT

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Please Note

Fishbeck does not employ fortune tellers or miracle workers – and this presentation is a broad overview based on reading the draft rules and experience with RACT implementation in Michigan and other states.



Overview



- Why – Clean Air Act Amendments of 1990
- VOC RACT
- NOx RACT
- Now What?

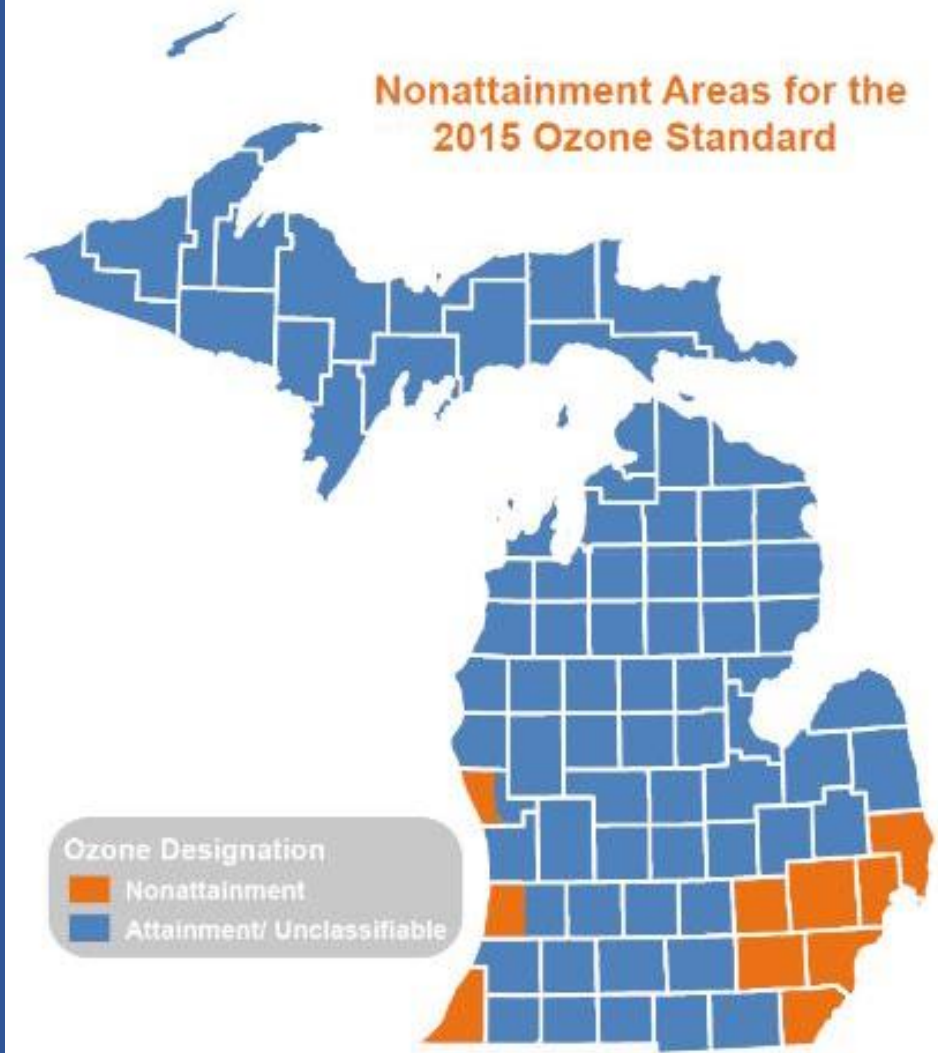
1990 CAAA Requirements – 1990 Recipe for Attainment

- USEPA appeared to move up the SIP submittal date (for western Michigan, anyway) to January 2023
- Failure to implement these requirements could result in sanctions including the withholding of Federal Highway Funds
- Keep in mind - with so few requirements for marginal areas, many marginal areas are bumped up again after not meeting deadlines for moderate nonattainment areas

REQUIREMENT	MARGINAL	MODERATE
NSR Offsets	1.1: 1	1.15:1
Attainment Date	3 Years (2021)	6 Years (2024)
VOC and NOx RACT	No	Yes
15% VOC RFP Reductions	No	Yes
Basic I/M Program	No	Yes
Stage II Gasoline Vapor Recovery	No	Yes

Michigan Nonattainment Areas

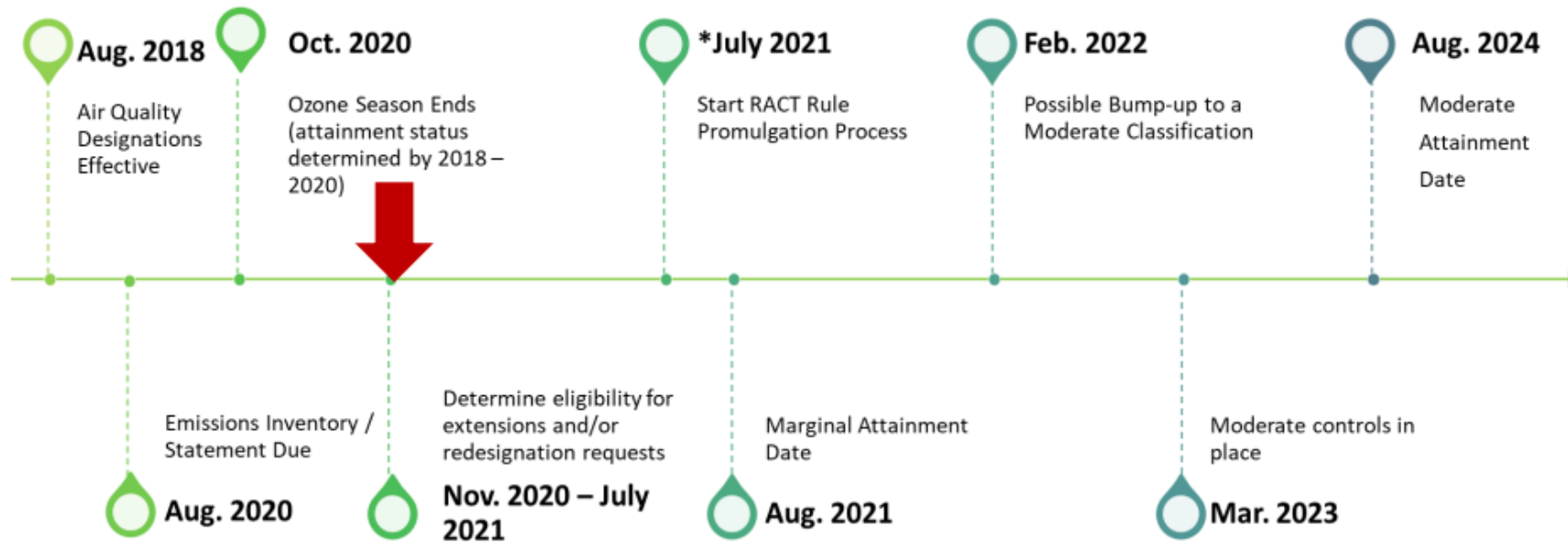
- Seven counties in SE Michigan (Monroe, Washtenaw, Oakland, Macomb, St. Clair, Wayne and Livingston Counties) are in marginal nonattainment for ozone and is scheduled to “bump up”.
- Berrien, portions of Allegan and Muskegon Counties have been bumped up to moderate nonattainment.
- Part of the moderate nonattainment area SIP due in January includes new VOC and NOx RACT Rules.



Original Timeline

2015 Ozone SIP Timeline

**Dates are tentative and subject to change.*



Original Timeline for RACT Rules

- Michigan's rulemaking process is very long.
- VOC RACT Rules are ahead of NOx RACT Rules in the rulemaking process
- EGLE will leave a placeholder for rules in its January 2023 SIP Submittal
- Rules will likely go into affect as soon as they are finalized – March 2023

RACT Timeline

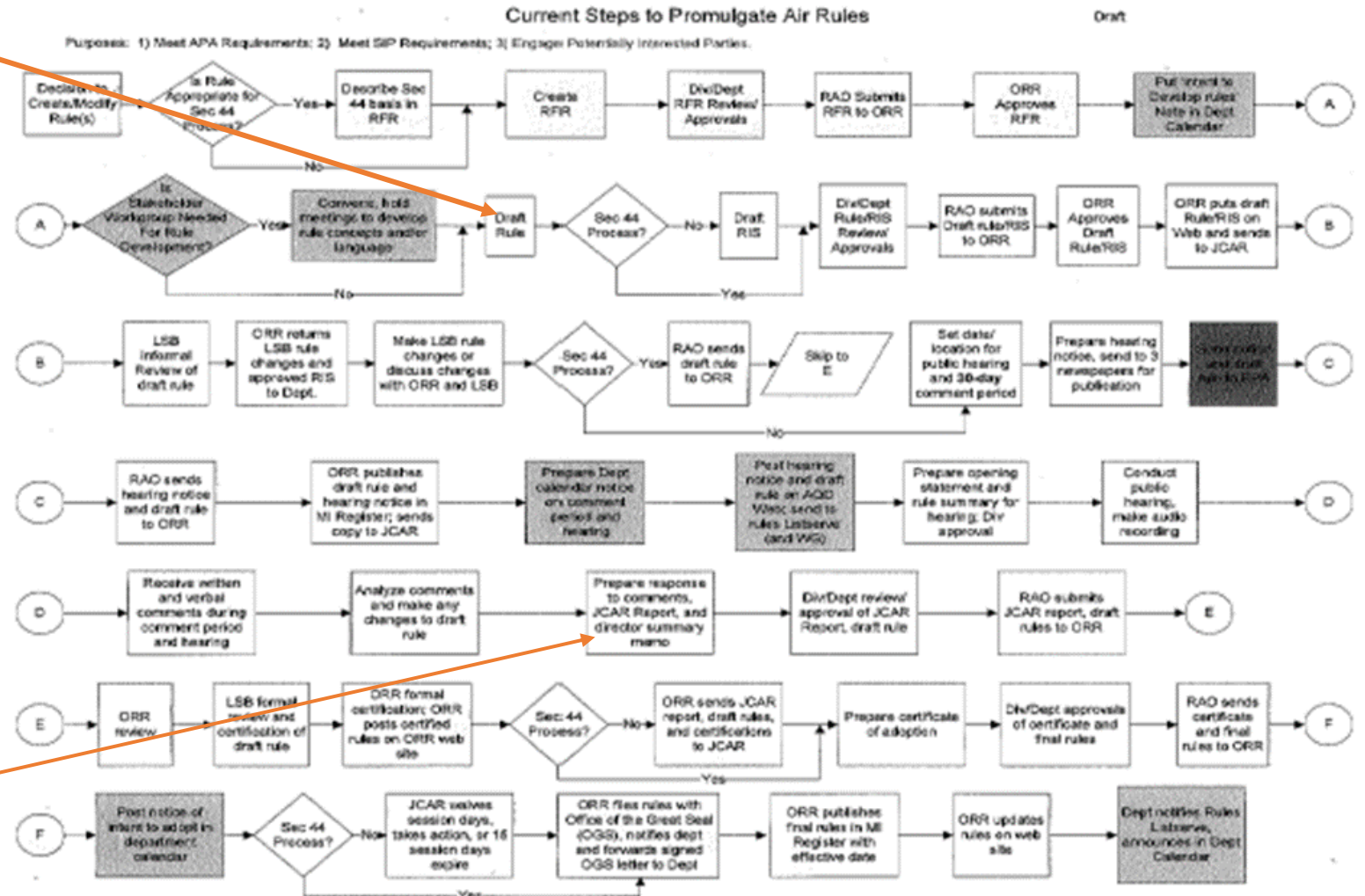
Task	Timeline
Initial/Baseline RACT VOC and NOx Source Analysis and Draft Summary Report	March 2020
Discussions about geographic applicability	Aug 2020 (will revisit)
Evaluation of related Federal Standards and Other Applicable Requirements	October 2020
Address other major sources beyond ACT/CTG categories	December 2020
Determine rule necessity or negative declaration	May 2021
Creation of "discussion" rules to be reviewed by workgroup	June 2021
Formal Rule Promulgation Process (Start July 2021*)	March 2023

* All non-RACT rules will also need to begin the process by this date

NOx Rules

Rulemaking in Michigan

VOC Rules



VOC RACT Rules

- Public hearing on October 26, 2022
- Environmental Rules Committee will review the rules again
- VOC RACT Rules finalized in Spring

Current Rulemaking

✕ Air Quality Division's 2022-18 EQ – Part 6 – Emission Limitations and Prohibitions – Existing Sources of VOC Emissions

On May 9, 2022 the Michigan Office of Administrative Hearings and Rules (MOAHR) approved EGLE's [Request for Rulemaking \(RFR\) for 2022-18 EQ](#) and sent the RFR to the Joint Committee on Administrative Rules (JCAR) and the ERRC.

On August 3, 2022 the 2022-18 EQ [Draft Rule](#) and [Regulatory Impact Statement \(RIS\)](#) were sent to MOAHR and the ERRC.

On August 18, 2022 the ERRC deliberated and agreed this rule set met the criteria per MCL 24.266(4). A motion to move this rule set forward in the rulemaking process with further ERRC oversight was passed by all voting members present.

Modified VOC Rules for the 2015 Nonattainment Areas



Rule 610a - Existing coating lines; emission of volatile organic compounds from existing automobile, light-duty truck; and paper, film, and foil coating lines



Rule 620a - Emission of volatile organic compounds from existing flatwood paneling coating lines.



Rule 621a - Emission of volatile organic compounds from existing metal parts, metal products, and motor vehicle material surface coating lines.



Rule 624a - Emission of volatile organic compounds from existing graphic arts lines.



Rule 632 - Emission of volatile organic compounds from existing automobile, truck, and business machine plastic part coating lines.



This is unusual - but a few of the rules now affect parts of Allegan, Muskegon and all of Berrien Counties as they are now nonattainment areas.

New Rules in 2015 Nonattainment Area



Rule 633 – Emission of volatile organic compounds from existing plastic parts and products surface coating; and pleasure craft coating operations.



Rule 637 – Emission of volatile organic compounds from existing fiberglass boat manufacturing materials



Rule 634 – Emissions of volatile organic compounds from existing industrial solvent cleaning.



Rule 638 – Emissions of volatile organic compounds from existing wood furniture manufacturing operations.



Rule 635 – Emission of volatile organic compounds from existing offset lithographic and letterpress printing lines.



Rule 639 – Emission of volatile organic compounds from existing aerospace manufacturing and rework operations.



Rule 636 – Emission of volatile organic compounds from existing miscellaneous industrial adhesives operations.




Additional oil and gas extraction facility rules because of 2016 CTG

New Oil and Gas Rules in 2015 Nonattainment Area

- Rule 640 – Emission of volatile organic compounds from natural gas and oil extraction operations – Storage
- Rule 641 – Emission of volatile organic compounds from natural gas oil and extraction operations – Pneumatic Controllers
- Rule 642 – Emission of volatile organic compounds from natural gas and oil extraction operations - Pneumatic Pumps.
- Rule 643 – Emission of volatile organic compounds from natural gas and oil extraction operations – Compressors.
- Rule 644 – Emission of volatile organic compounds from natural gas and oil extraction operations - Equipment Leaks and Fugitives.





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What do I do if I am subject (immediately)?

- Coating lines subject to RACT requirements may find that averaging times have changed.
- Permittees can apply for an alternate averaging time and/or a change in record keeping through the PTI process.
- A review of existing PTIs is recommended.
- ROPs will eventually be updated – depends on renewal date.

Complying with VOC RACT Rules

- EGLE “corrected” the emissions cutoff from 2.7 tpy to 15 lb/day in Rules 610a, 620a, 621a, 632 and 633.
- This could affect the record keeping averaging time.
- For Rule 610a, daily averaging is allowed – might suggest alternatives for other rules?
- Changes made to record keeping through the PTI program and must be subject to public comment, etc.





General Permit Holders

- The general permit is used to exempt coating lines from the content limits of Rules 621 and 632 by limiting each coating line to 2,000 lb/mo, 10 tons per year (tpy); and there is a combined coating line limit of 30 tpy.
- Existing RACT Rules exempt General Permit Holders but new rules do not.
- General permit holders in the nonattainment areas need to consider getting a new permit and will likely need to adjust the record keeping.

Changes in Control Requirements

- When capture and control is used to comply with RACT Rules – control requirements for some rules have changed.
- For example - an overall volatile organic compound control efficiency of 90% for each existing coating line at a paper, film, and foil stationary source is required when add-on control equipment is used.
- This appears to exceed current BACT emission limits.



Changes in Record keeping

In our meetings we had suggested that the methodology described the U.S. EPA's *Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations* be allowed to calculate daily emissions not only for Rule 610a but also for other rules that require daily record keeping. It allows daily emissions to be calculated as the following:

- *The volume of each coating used each day can be calculated by prorating the volume of that coating used in a month to each day in the month. The prorating factor is the ratio of the total square footage coated with that coating on the day to the total square footage coated with that coating in the month.*



Non-CTG sources at a Major Source of VOCs

- A facility in the nonattainment area with allowed or potential volatile organic compound emissions equal or greater than 100 tons per year in the 2015 ozone nonattainment area for which no reasonably available control technology (RACT) requirement has been established in R 336.1604 to R336.1644, shall develop a site-specific plan.

	Non-Major Source	Major Source
CTG Source	Must Address *per CAA	Must Address *per CAA
Non-CTG Source	No Requirements	Must Address *per CAA

Site-specific RACT for Large Sources of VOCs

- **Currently have one month after rule promulgation to notify EGLE that facility is subject**
- **Must include:**
 - **Identification of facility and subject emission units**
 - **Identify total PTE and actual VOC emissions**

Site specific RACT must be submitted within 3 months and must :

- A list of each source subject to the RACT requirements
- The size or capacity of each affected source and the types and quantities of materials processed or produced in each source
- A physical description of each source and its operating characteristics.
- Estimates of the potential and actual volatile organic compound emissions from each affected source and associated supporting documentation.
- RACT analysis which meets the requirements of subdivision (c) of this subrule, including technical and economic support documentation for each affected source.
- A schedule for completing implementation of the RACT proposal as expeditiously as practicable but not later than 6 months after department approval of the proposal, including interim dates for the issuance of purchase orders, start and completion of process, technology and control technology changes, and the completion of compliance testing.
- The testing, monitoring, recordkeeping, and reporting procedures proposed to demonstrate compliance with RACT.
- Any additional information requested by the department necessary for the evaluation of the RACT proposal.
- Costing is also needed.

New NOx RACT Rules

- Draft Rules available – public hearing expected early next year?
- New Rules – 840 (general), 841 (engines), 842 (boilers), 843 (turbines), 844 (miscellaneous sources – asphalt plants, lime kilns, process heaters), 845 (alternative RACT) and 846 (site-specific RACT)



Rule 841 – Engines

- Emission Limits
- Tune-up Program
- Testing every five years
- Will allow subsuming of limits or compliance requirements with NSPS if more restrictive (but will still require site-specific RACT)

Table 841

NO_x emission limits for internal combustion engines.

Engine type	Grams of NO _x per brake horsepower-hour
Any engine less than or equal to 500 HP	N/A
Compression Ignition Equal to or greater than 500 HP	3
Spark ignition, natural gas burning engines	
2 stroke equal to or greater than 500 HP	3
4 <u>stroke</u> from 500 HP to 1000 HP	3
4 stroke greater than 1000 HP	1.5
Spark Ignition using landfill, digester, or other gas greater than 500 HP	3

Rule 842 – Boilers

- Emission Limits
- Tune-up Program
- Testing every five years
- Will allow subsuming of limits with NSPS if more restrictive (but will still require site-specific RACT)

Table 842
NO_x emission limits for boilers

Fuel Type	Lbs of NO_x per million Btu of heat input on a 24-hr basis
All boilers =< 50 MMBtu/hr	N/A
Gaseous fuels; > 50 MMBtu/hr	0.08
Distillate Oil; > 50 MMBtu/hr	0.10
Residual <u>Oil</u>; > 50 MMBtu/hr	0.20
Solid fuels for boilers < 100 MMBtu	0.30
Solid fuels for boilers => 100 MMBtu	0.20

Rule 843 – Turbines

- Emission Limits
- Testing every five years
- Will allow subsuming of limits with NSPS if more restrictive (but will still require site-specific RACT)

Table 843

NO_x emission limits by turbine and fuel type

Turbine type and fuel	Pounds per million (volume, dry, corrected to 15% oxygen on a 24-hr basis)
Gas fuel fired	
<10 MMBtu/hr	150
=>10 MMBtu/hr	25
Liquid fuel fired	
<10 MMBtu/hr	200
=>10 MMBtu/hr	65

Rule 844 – Miscellaneous

- Emission Limits
- Tune-up Program
- Testing every five years

NOx emission limits from miscellaneous combustion sources

Process	NOx Emission limit on a 24-hr basis
Hot Mix Asphalt Plants > 50 MMBtu/hr Gaseous Fuels Distillate Oil Residual Oil	0.15 lb/MMBtu 0.20 lb/MMBtu 0.27 lb/MMBtu
Process Heaters Gas fuels ≤ 100 MMBtu/hr Gas fuels > 100 MMBtu/hr Distillate Oil ≤ 100 MMBtu/hr Distillate Oil > 100 MMBtu/hr Residual Oil ≤ 100 MMBtu/hr Residual Oil > 100 MMBtu/hr	0.08 lb/MMBtu 0.10 lb/MMBtu 0.10 lb/MMBtu 0.12 lb/MMBtu 0.15 lb/MMBtu 0.18 lb/MMBtu
Lime Kilns > 50 MMBtu/hr Gaseous Fuels Liquid Fuel Solid Fuel	0.10 lb/MMBtu 0.12 lb/MMBtu 0.06 lb/MMBtu
Glass Manufacturing > 50 MMBtu/hr	3.5 lb/ton of glass produced

Case by Case RACT – Rule 845

A submittal of an application must be made to the department for a new permit or order, or revision to an existing permit or order for the subject emission unit, to request the approval of alternative emission limits by the granting authorities, as expeditiously as possible upon the effective date of this rule. The source must submit a demonstration containing the following, as applicable:

- (i) Reasons why the applicant is requesting an alternative.
- (ii) Information demonstrating why the limitation or requirement as described in the applicable Part 8 rule is not possible to attain.
- (iii) Explanation of why alternative options, such as implementation of add-on controls or modifying equipment would not be sufficient to meet the applicable Part 8 rules.
- (iv) A demonstration showing that the ozone National Ambient Air Quality Standard will not be affected.
- (v) A description of actions that are being taken to reduce emissions, while pursuing the steps described in this rule, to minimize the effect of noncompliance with Rules 841 through 844, as applicable.
- (vi) Additional pertinent information, as needed.



Rule 846 – Miscellaneous Large NO_x Sources

Emission Unit > 25 tpy NO_x PTE



- A list of each source subject to the RACT requirements.
- The size or capacity of each affected source and the types and quantities of materials processed or produced in each source.
- A physical description of each source and its operating characteristics.
- Estimates of the potential and actual NO_x emissions from each affected source and associated supporting documentation.
- A RACT analysis which meets the requirements of subrule (5), including technical and economic support documentation for each affected source.
- A schedule for completing implementation of the RACT proposal as expeditiously as practicable, including interim dates for the issuance of purchase orders, start and completion of process, technology and control technology changes and the completion of compliance testing, if applicable
- The testing, monitoring, recordkeeping, and reporting procedures proposed to demonstrate compliance with RACT.

RACT Analysis for Large Sources of NO_x (similar to large sources of VOCs)

- A ranking of the available control options for the affected source in descending order of control effectiveness. Available control options are air pollution control technologies or techniques with a reasonable potential for application to the source. Air pollution control technologies and techniques include the application of production process, or control methods that reduce NO_x. The control technologies and techniques must include existing controls for the source category and technology transfer controls applied to similar source categories.
- An evaluation of the technical feasibility of the available control options identified in subrule (5)(a) of this rule. The evaluation of technical feasibility must be based on physical, chemical and engineering principles. determination of technical infeasibility must identify technical difficulties which would preclude the successful use of the control option on the affected source.
- A ranking of the technically feasible control options in descending order of overall control effectiveness for NO_x emissions. The list must present the array of control options and include, at a minimum, the following information:
 - An evaluation of cost effectiveness of each control option consistent with the "EPA Air Pollution Control Cost Manual (in dollars per ton of NO_x reduction)



Arrangement of a high-pressure SCR solution on a 6S46MC-C engine (Source: MAN)

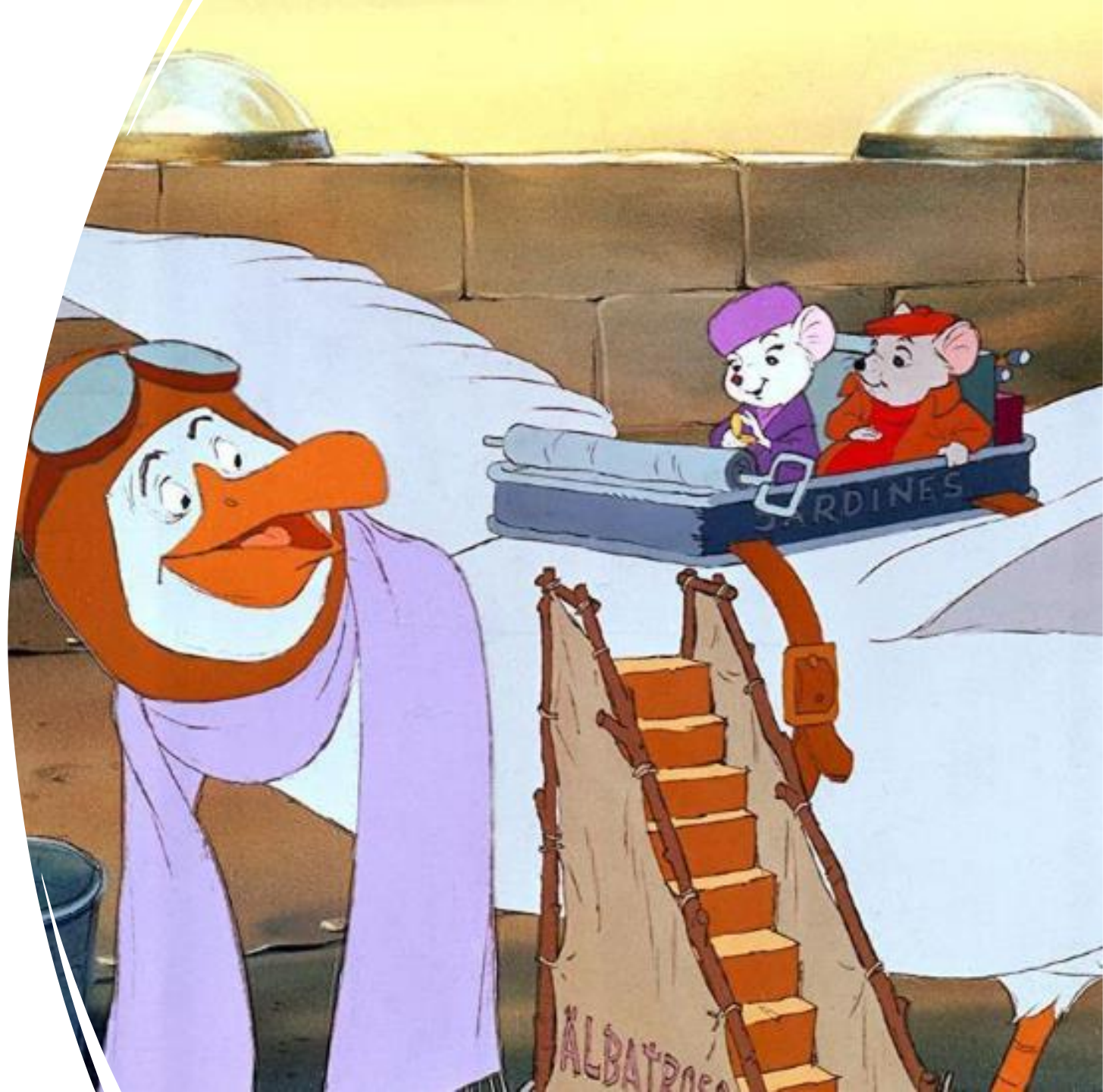
Now What?

- For potentially subject RACT sources, gather information for comparison to the proposed limits
- VOC rules are unlikely to change – NOx rules will only change with detailed comments, etc.
- Testing may be necessary to determine compliance with NOx limits in particular



Permit Requirements for Large Non-CTG (and Large NOx) Sources

- Large non-CTG and large NOx sources must do a notification within one month of rule promulgation
- Site-specific RACT must be proposed within three months
- A PTI application (with 30-day public comment period) is needed
- No notifications by EGLE have been made to potentially subject sources



Problems in complying with the rules

- There are options – request an alternative RACT
- Requirements similar to the Site-Specific RACT
- May need a consent order to allow for extra time
- Will likely need a PTI (with 30-day public comment period)





Questions?

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