31st Annual Conference on Air, RCRA, & Water Permits – Environmental Permitting in Ohio

Workshop G – Best Practices in Air Permitting & Compliance – PTE Focus

July 21, 2022

Introduction and Topics

William Bruscino, PE
Principal Consultant
Trinity - Columbus

Brent Goetz
Principal Env Specialist
Covestro Hebron Plant

Mike Hopkins, PE
Assistant Chief, Permitting
Ohio EPA, DAPC

- Mike Hopkins
  - PTE Definitions and Categories
  - Common PTE Examples
- Brent Goetz
  - Successful Air Permitting at Your Facility
- Bill Bruscino
  - How PTE Impacts on Your Permit Type
  - BMP's for Determining PTE

Trinity Consultants

Potential to Emit

Workshop G

July 21, 2022

Michael Hopkins, P.E.
Assistant Chief, Permitting
Division of Air Pollution Control
614-644-3611
Mike.hopkins@epa.ohio.gov

Topics

- Multiple PTE Definitions
- Unique PTE Calculations
- PTE Guidance Memos

Ohio Environmental Protection Agency

MULTIPLE PTE DEFINITIONS

Ohio Environmental Protection Agency

Multiple PTE Definitions

- Different rules have different PTE definitions
- Must review the PTE definition for the rule
- Unique PTEs
  - De Minimis (OAC rule 3745-15-05(A)(6))
  - NSR rules (3745-31-01(BBBBB))
  - SB 265 for <10 ton BAT (ORC 3704.03(T); OAC 3745-31-05(A)(3)(ii))
  - Title V (3745-77-01)
  - MACT (40 CFR 63.2)

De Minimis

- OAC rule 3745-15-05(A)(6))
- Based on 24-hour and Annual
- Don’t count control unless integral
- Operate equipment at max rated capacity
- Calculate:
  - 24-hour for each criteria (10 lb/day)
  - Combined similar source annual PTE (25 ton/yr)
  - Annual PTE for combined HAPs (1 ton/yr)

Ohio Environmental Protection Agency

NSR Rules

- 3745-31-01(BBBBB)
- Applies to PSD, NNSR, netting, syn minor
- Use physical and operational design
- Include control equipment (assuming will be or is required in permit)
  - Note: some states do not include control equipment

Ohio Environmental Protection Agency

NSR Rules

- Include federally enforceable or legally and practically enforceable by the state rule limits
- Include synthetic minor limits assuming they were established w a comment period
- Don’t count secondary emissions (construction or other emissions from non emissions units.)

Ohio Environmental Protection Agency

<10 ton/yr BAT Exemption PTE

- ORC 3704.03(T); OAC 3745-31-05(A)(3)(ii)
- Calculation to determine if you qualify for the <10 ton/yr BAT exemption
- Installed or modified after August 3, 2006
- Use equipment capacity
- 24 hr/day; 365 day/yr operation
- Include the use of controls

Title V

- 3745-77-01(DD)
- Emissions unit by emissions unit PTE totaled to get facility-wide calculation
- Use physical and operation maximum design capacity
- Utilize federally enforceable rules

Title V

- Calculate uncontrolled emissions unless the controlled emissions were established w a comment period and are federally enforceable or state legally and practically enforceable
  - See EG #80 Title V section for a detailed explanation
- Use federally enforceable or state legally and practically enforceable restrictions

Ohio Environmental Protection Agency

Title V

- Listed uncontrolled fugitives must be included
- Exclude secondary emissions (construction or non emissions unit emissions)
- EG #61 <20% presumed inherent physical limitation

Ohio Environmental Protection Agency

Presumed Inherent Physical Limitation

- Calculate actual emissions – not PTE
- Actual emissions < 20% of each of the TV thresholds?
  - 100 ton/yr each criteria
  - 25 ton/yr individual or combined HAP
- If so, facility can be non-Title V
- Notify Ohio EPA contact
- Keep actual records

Ohio Environmental Protection Agency

MACT

- Annual emissions
- Use physical and operational maximum design capacity
- Calculating annual individual HAP and annual combined HAPs
- After controls
- Use federally and state legally and practically enforceable limits

Ohio Environmental Protection Agency

What about fed PSD/NNSR Rules?

- Federal PSD (40 CFR 52.21) and NNSR (40 CFR 51, Appendix S) do not apply in Ohio
- Ohio's NSR program is fully approved
- Use Ohio's NSR rules instead
  - OAC 3745-31-01
  - OAC 3745-31-10 through 20 PSD
  - OAC 3745-31-21 through 27 NNSR
- Use Ohio PTE definitions (similar to fed)

Ohio Environmental Protection Agency

Guidance on This?

- Ohio EPA Engineering Guide #80, “How should PTE be calculated for determining the applicability of De Minimis Status, BAT, Senate Bill 265 BAT Exemption, Title V, Maximum Achievable Control Technology, Prevention of Significant Deterioration and Non-Attainment New Source Review?”

Ohio Environmental Protection Agency

Fed/State Enforceable BAT?

- What about BAT in permits that don't go draft? Can the limits be used to limit PTE?
- If they have appropriate state legally and practically enforceable limits --- YES
- BAT rule is in the federally approved Ohio SIP

Ohio Environmental Protection Agency

Fed/State Enforceable BAT?

- See Question 28 from the Feb. 7, 2014 BAT guidance
  - https://www.epa.ohio.gov/dapc/sb265
- Synthetic minor restrictions must still go draft

Ohio Environmental Protection Agency

UNIQUE PTE CALCULATIONS

Ohio Environmental Protection Agency

Degreasers and Cold Cleaners

- Rules have control equipment requirements
- No rule emission limits
- PTE based on usage of solvent minus solvent disposed

Ohio Environmental Protection Agency

Degreasers and Cold Cleaners

- Application asks for:
  - Solvent name
  - Maximum gallons used / yr
  - Solvent density lb/gal
  - Solvent disposed of (gallon/yr)
  - Solvent content of the waste (% by volume)

Degreasers and Cold Cleaners

- Known:
  - 300 gallons/yr used
  - 7.0 lb solvent/gallon
  - 20 gallon waste/yr disposed
  - 10% gallon solvent/gallon waste
- $300\,\frac{gal}{yr} - 20\ gal\,\frac{waste}{yr} * 0.1\ \frac{gal\ solvent}{gal\ waste}$
- $298\ \frac{gal\ emitted}{yr} * 7.0\ \frac{lb\ solvent}{gal} = 2086\ lb/yr$

Ohio Environmental Protection Agency

Printing Lines

- Variables: line speed, # colors, % coverage, VOC content, fountain solution, etc.
- EG #68
- Base on inherit press capacity and historic material usage

https://epa.ohio.gov/dapc/engineer/eguides#125933907-table-of-engineering-guides

Ohio Environmental Protection Agency

Printing Lines

- Acceptable assumptions listed in guide
  - 95% ink OC retained in the web
  - 100% fountain solution emitted
  - % clean-up solvent emitted
    - VP <10mm hg, assume 50% emitted
    - VP >=10 mm hg, assume all emitted
- EG has several forms to aid in calculations
- Worked with the Printing Industry of Ohio to develop

Ohio Environmental Protection Agency

Coating Operations

- Lots of variables: line speed, VOC content, part size, paint thickness, thinners
- Can't assume paint gun open 24/7
- EG #45 defines approach
  - https://epa.ohio.gov/Portals/27/engineer/eguides/GUIDE45.pdf

Ohio Environmental Protection Agency

Coating Operations

- Operating scenario that results in the most coating/solvent used
- Maximum practical speed for which acceptable parts can be painted
- Assume 24/365 operation unless restricted
- EG #45 has calculation methods

Hazardous Air Pollutants for Coating Operations

- Mixture of solvents/HAPs in paints
- Each solvent/HAP has its own density
- Often use multiple coatings
- PTE of individual HAPs and combined HAPs needed

Hazardous Air Pollutants for Coating Operations

- Too many variables to establish HAP usage restriction
- How is this done?
- PTE is calculated based on maximum expected usage
- Similar to coatings… use highest HAP emitting operating mode

Ohio Environmental Protection Agency

Hazardous Air Pollutants for Coating Operations

- Calculate highest hourly; them multiply by 24 hr/day, 365 day/yr
- Result is ton/yr for Individual HAPS and Combined HAPs
- Good thing we have spreadsheets!

Ohio Environmental Protection Agency

Paint and Body Shops PBR

- Qualify for PBR – don't need to do PTE calc.
- Meet qualifying criteria
  - <= two booths; <50 jobs/week; <3,000 gal/yr coatings, solvents etc; vent sys.; type spray gun; exhaust fan/stack
- Submit request to be covered by PBR
- https://epa.ohio.gov/portals/41/sb/publications/AutobodyPBRGuide.pdf

Ohio Environmental Protection Agency

PTE GUIDANCE MEMOS

Ohio Environmental Protection Agency

PTE Guidance Memos

- June 13, 1989 Hunt/Seitz memo, “Guidance on Limiting Potential to Emit in New Source Permitting”
- January 22, 1996 Seitz memo, “Release of Interim Policy an [SIC] Federal Enforceability of Limitations on Potential to Emit”

PTE Guidance Memos

- January 25, 1995 Stein memo, “Guidance an Enforceability Requirements for Limiting Potential to Emit through SIP and §112 Rules and General Permits”
- August 29, 1996 Seitz memo, “Clarification of Methodology for Calculating Potential to Emit (PTE) for Batch Chemical Production Operations”

Ohio Environmental Protection Agency

PTE Guidance Memos

- April 14, 1998, Seitz memo, “Potential to Emit (PTE) Guidance for Specific Source Categories”
- January 25, 1996 Seitz memo, “Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act (Act)”

PTE Guidance Memos

- Ohio EPA Engineering Guide #61, “What is Ohio EPA's policy for limiting the potential to emit (PTE) of air contaminant emissions at a facility for purposes of avoiding federal permitting?”
- Ohio EPA Engineering Guide #45, “Calculating Potential to Emit for Coating Lines”

PTE Guidance Memos

- Ohio EPA Engineering Guide #4, “Should organic compounds such as methane, ethane, 1,1,1-trichloroethane, methylene chloride and trichorotrifluoroethane be excluded when calculating “potential to emit” (PTE) in order to determine the applicability of OAC rule 3745-21-07 or OAC rule 3745-21-09?

Ohio Environmental Protection Agency

Need Help?

- Guidance:
  - https://epa.ohio.gov/dapc/engineer/eguides
  - https://www.epa.gov/nsr/new-source-review-policy-and-guidance-document-index
  - http://ohioepa.custhelp.com/app/home
- Permit-Specific
  - Consultant
  - District Office or local air agency permit contact
  - OCAPP

Ohio Environmental Protection Agency

Successful Air Permitting at Your Facility

Brent Goetz
Principal Environmental Specialist,
Covestro, LLC

Legal Disclaimer

This presentation is provided for informational purposes only and the information contained herein is believed to be accurate as of the date of this document. Nonetheless, Covestro LLC (Covestro) makes no representations or warranties regarding the accuracy or completeness of the information in this presentation. Covestro has no duty to update this presentation for any reason. Covestro assumes no legal responsibility and is not liable for any damages, direct or indirect, consequential or otherwise, that may arise, directly or indirectly, from the use or misuse of the information in this presentation. All information and technical assistance is given without warranty or guarantee, expressed or implied, and is subject to change without notice. Covestro shall not be bound by any statement or recommendation herein or not contained herein.

Key Factors in Successful Air Permitting at Your Facility

- Know your permits
- Know your facility
- Develop relationships and educate
- Establish and maintain great partnerships
- Establish a reliable system for organizing and maintaining permitting requirements
- Include environmental in project planning

Know Your Permits

- **Develop an understanding of the evolution of your permits**
- **Thoroughly review your existing permits**
  - What are your permit limits?
  - What are your inspection requirements?
  - What are your reporting requirements?
  - When is your renewal date?
- **Review any past correspondence including applicable reporting**
- **Review your facility's air services profile**

Know Your Facility

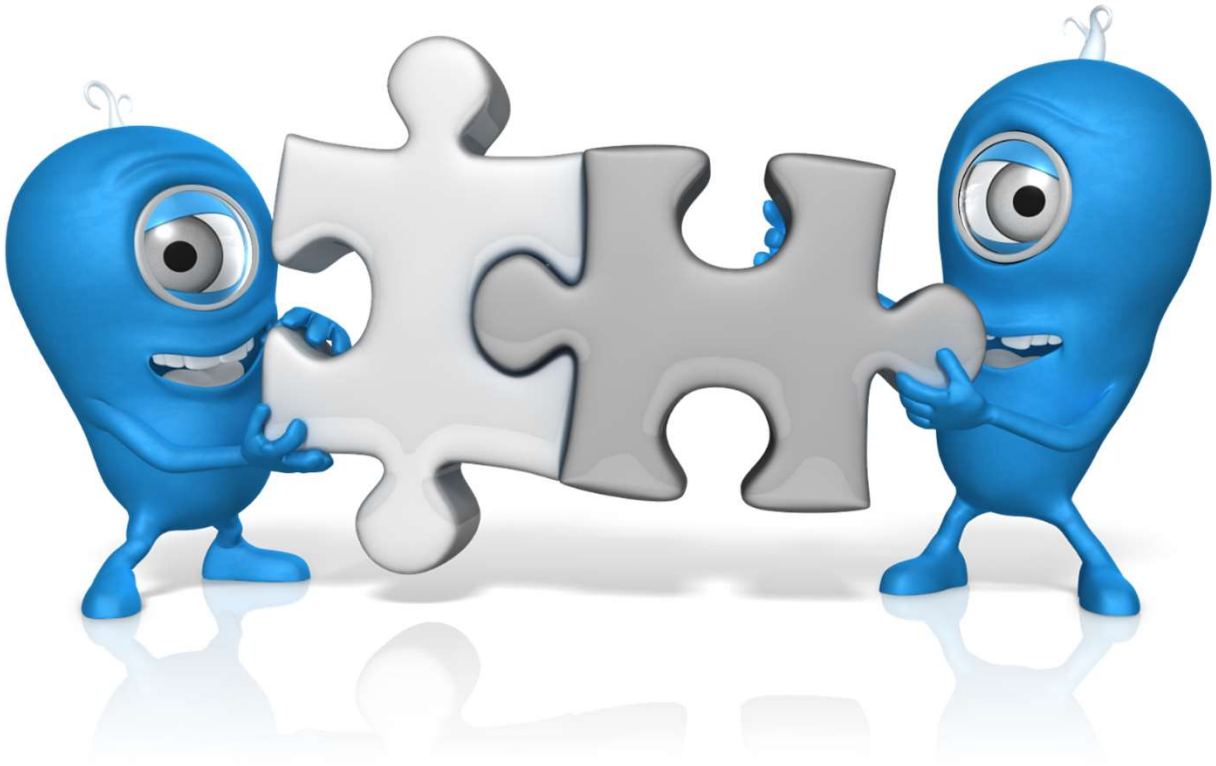
- Find great resources and don't be afraid to ask questions
- Get out into the plant
- Review all applicable Piping and Instrumentation Diagrams (P&IDs)
- Get involved in projects that help you understand the process

Develop Relationships and Educate

- **Talk to people and Listen**
- **Understand that your job is environmental**
- **Make compliance as simple as possible**
- **Educate**
  - Training
  - Lunch & Learns
  - Weekly tips/shift starters
- **Communicate inspection findings and assign corrective actions**

Establish and Maintain Great Partnerships

- Internal corporate experts
- Outside consultants
- Regulatory partners



Establish Reliable Systems For Organizing and Maintaining Permit Requirements

- EMS software
- Organized files
- SOPs
- System for developing and tracking of corrective actions

Including Environmental in Project Planning

- Environmental considerations should be included as early as possible in project planning
- Environmental specifics should be nailed down as close as possible to project details being locked in while still allowing enough time for the permits to meet project timelines
- Inclusion of environmental considerations in Management of Change (MOC)
- Sometimes you have to insert yourself into the project

Bringing it all together

Scenario:

A project team approaches you regarding the installation of a new product line, the timeline for getting the permits is tight as they are needed before the project can move to the next phase. You are unsure about permitting applicability for the project.

- Develop knowledge of your permits
- Educating
- and maintaining permit requirements

QUESTIONS??

Workshop G – Best Practices in Air Permitting & Compliance – PTE Focus

July 21, 2022

Bill Bruscino
Trinity – Columbus Office
(614) 433-0733
bbruscino@trinityconsultants.com

Trinity Consultants

trinityconsultants.com

Know Your Facility

- Know your process
- Know your permit:
  - State and federal rules
  - Emission limits
  - Operational restrictions
  - Synthetic minor limits
- Know your facility's source status (major/minor/synthetic minor with respect to Title V, HAP, and NSR)
- Know your facility's Standard Industrial Classification (SIC) code or NAICS code

Trinity Consultants

PTE Calculations – BMP's

Trinity Consultants

Standard Emission Calculation Methods (1/2)

- Mass balance
  - Typically used for coating and solvent use operations
  - Typically assume 100% of organics emitted or directed to control device
- Emission factors
  - Provide emissions in mass per unit production basis that can be scaled to different throughputs (e.g., lb/MMBtu, lb/ton)
  - AP-42 (https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors) & WebFIRE (http://cfpub.epa.gov/webfire/) are most common EPA references containing emission factors
- Stack tests
  - Best if normalized to produce emission factor
- Grain loading
  - Provide PM emissions in terms of grains per unit of air flow (e.g., gr/dscf)
  - Typically based on vendor guarantee for control device

Trinity Consultants

Standard Emission Calculation Methods (2/2)

- Tank Calculations (AP-42 chapter 7.1 – last updated in 2020)
  - TankESP
  - U.S. EPA TANKS 4.09d (outdated – latest version from 2006)

- Wastewater Treatment Processes
  - Toxchem
  - U.S. EPA Water9

- Batch Emission Calcs
  - Emission Master

- Other
  - ChemCAD
  - ProMax

Trinity Consultants

Emission Calculations

- Goal:
  - Ultimate operational flexibility
- Potential-to-Emit (PTE)
  - For maximum flexibility, permit the source at its PTE
  - You can account for any applicable emission limits in this calculation
  - Using PTE will limit recordkeeping burdens and/or testing requirements in your PTI/PTIO
  - Caution: watch out for multiple operating scenarios

PTE Example

From: #1 Design Engineer
Sent: Friday, August 20, 2021 4:30 PM
To: Environmental Team
Subject: New Coating Line - Need Approval

To whom it may concern in the Environmental Group:

We would like to start-up a new coating manufacturing line.
Running coatings A, B, C, D, E, and F.
Need approval ASAP.

Thanks,
#1 Design Engineer

Example for PTE -> Coating Speciation

- **Coating specifications:**

Coating	PM	VOC	Toluene	Xylene	Styrene	Total HAP
A	1%	20%	15%	0%	0%	15%
B	2%	30%	10%	12.5%	0%	22.5%
C	3%	10%	0%	0%	10%	10%
D	4%	15%	10%	0%	0%	10%
E	5%	5%	0%	5%	0%	5%
F	6%	10%	0%	0%	5%	5%

Example for PTE -> Coating Speciation

- **Coating specifications with throughput:**

Coating	Throughput (Mgal/yr)	PM	VOC	Toluene	Xylene	Styrene	Total HAP
A	100	1%	20%	15%	0%	0%	15%
B	10	2%	30%	10%	12.5%	0%	22.5%
C	100	3%	10%	0%	0%	10%	10%
D	200	4%	15%	10%	0%	0%	10%
E	50	5%	5%	0%	5%	0%	5%
F	20	6%	10%	0%	0%	5%	5%

Trinity Consultants

Regulatory Applicability - BMP

- Stay on top of federal and state regulatory changes
  - Promulgated NSPS Rules
  - MACT RTR
  - OIAI (Once in Always In) MACT Policy
  - NAAQS Review
- Use subscription service or regulatory e-news from industry groups and consultants
- Take advantage of comment periods to influence new or modified regulations
  - Review state RACT rules for current or new applicability

Trinity Consultants

Regulatory Applicability - BMP

- Benefits of rule applicability knowledge:
  - Accept avoidance limits for certain rules
    - May want to avoid emission controls or mass-based limits
  - Forms basis of PTE calculations
    - Use regulatory limit, instead of AP-42
  - Steer agency in the right direction as to which applicable requirements should appear in the permit
    - Can help expedite permit issuance
  - Draft your own terms and conditions!

Trinity Consultants

PTE and Regulatory Applicability Example

From: #1 Design Engineer
Sent: Friday, August 20, 2021 4:30 PM
To: Environmental Team
Subject: New Coating Line - Need Approval

To whom it may concern in the Environmental Group:

We would like to start-up a new coating manufacturing line.
Running coatings A, B, C, D, E, and F.
Need approval ASAP.

Thanks,
#1 Design Engineer

From: #1 Design Engineer
Sent: Friday, August 20, 2021 5:30 PM
To: Environmental Team
Subject: New Coating Line - Need Approval

Forgot to tell you – also planning to install 2 new mixers (300 gallons each) and 3 new raw material storage tanks (5,000 gallons each).
Still need approval ASAP.

Have a great weekend!!!
#1 Design Engineer

Regulatory Applicability Example – MACT HHHHH

Process vessel means any stationary or portable tank or other vessel with a capacity greater than or equal to 250 gal and in which mixing, blending, diluting, dissolving, temporary holding, and other processing steps occur in the manufacturing of a coating.

Group 1a storage tank means a storage tank at an existing source with a capacity greater than or equal to 20,000 gal storing material that has a maximum true vapor pressure of total organic HAP greater than or equal to 1.9 pounds per square inch, absolute (psia). Group 1a storage tank also means a storage tank at a new source with either a capacity greater than or equal to 25,000 gal storing material that has a maximum true vapor pressure of total HAP greater than or equal to 0.1 psia or a capacity greater than or equal to 20,000 gal and less than 25,000 gal storing material that has a maximum true vapor pressure of total HAP greater than or equal to 1.5 psia.

Group 1b storage tank means a storage tank at a new source that has a capacity greater than or equal to 10,000 gal, stores material that has a maximum true vapor pressure of total organic HAP greater than or equal to 0.02 psia, and is not a Group 1a storage tank.

Group 2 storage tank means a storage tank that does not meet the definition of a Group 1a or Group 1b storage tank.

Trinity Consultants

Regulatory Applicability Example – MACT HHHHH

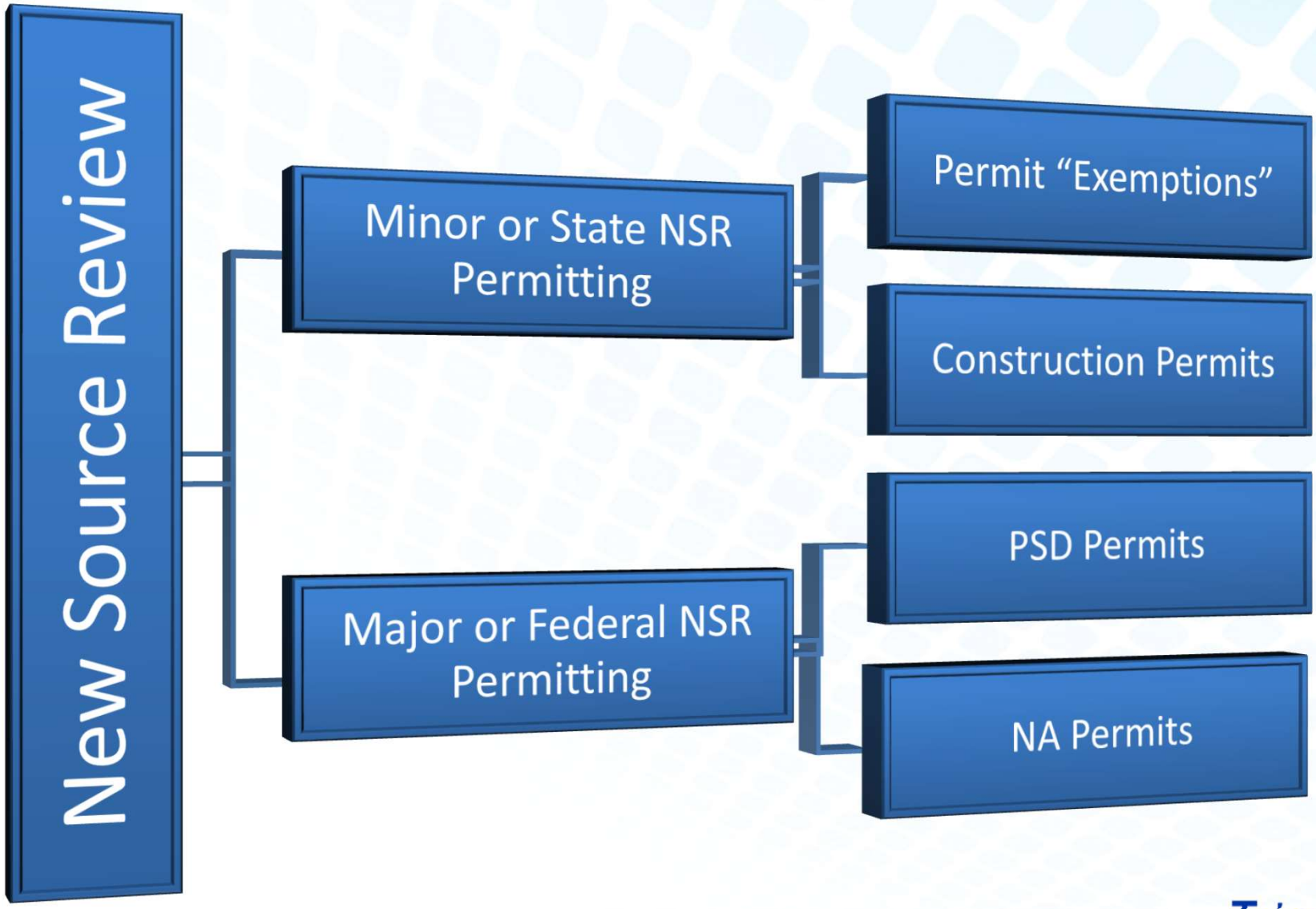
2. Stationary process vessel at an existing source	a. Equip the vessel with a cover or lid that must be in place at all times when the vessel contains a HAP, except for material additions and sampling; or	i. Considering both capture and any combination of control (except a flare), reduce emissions of organic HAP with a vapor existing pressure ≥0.6 kPa by ≥75 percent by weight, and reduce emissions of organic HAP with a vapor pressure <0.6 kPa by ≥60 percent by weight.
	b. Equip the vessel with a tightly fitting vented cover or lid that must be closed at all times when the vessel contains HAP, except for material additions and sampling	i. Reduce emissions of organic HAP with a vapor pressure ≥0.6 kPa by ≥75 percent by weight, and reduce emissions of organic HAP with a vapor pressure <0.6 kPa by ≥60 percent by weight, by venting emissions through a closed-vent system to any combination of control devices (except a flare); or ii. Reduce emissions of total organic HAP by venting emissions from a non-halogenated vent stream through a closed-vent system to a flare; or iii. Reduce emissions of total organic HAP by venting emissions through a closed-vent system to a condenser that reduces the outlet gas temperature to:
		<10 °C if the process vessel contains HAP with a partial pressure <0.6 kPa, or
		<2 °C if the process vessel contains HAP with a partial pressure ≥0.6 kPa and <17.2 kPa, or
		<−5 °C if the process vessel contains HAP with a partial pressure ≥17.2 kPa.

Trinity Consultants

PTE Impact on Types of Air Permits

Trinity Consultants

Different Types of Air Permits

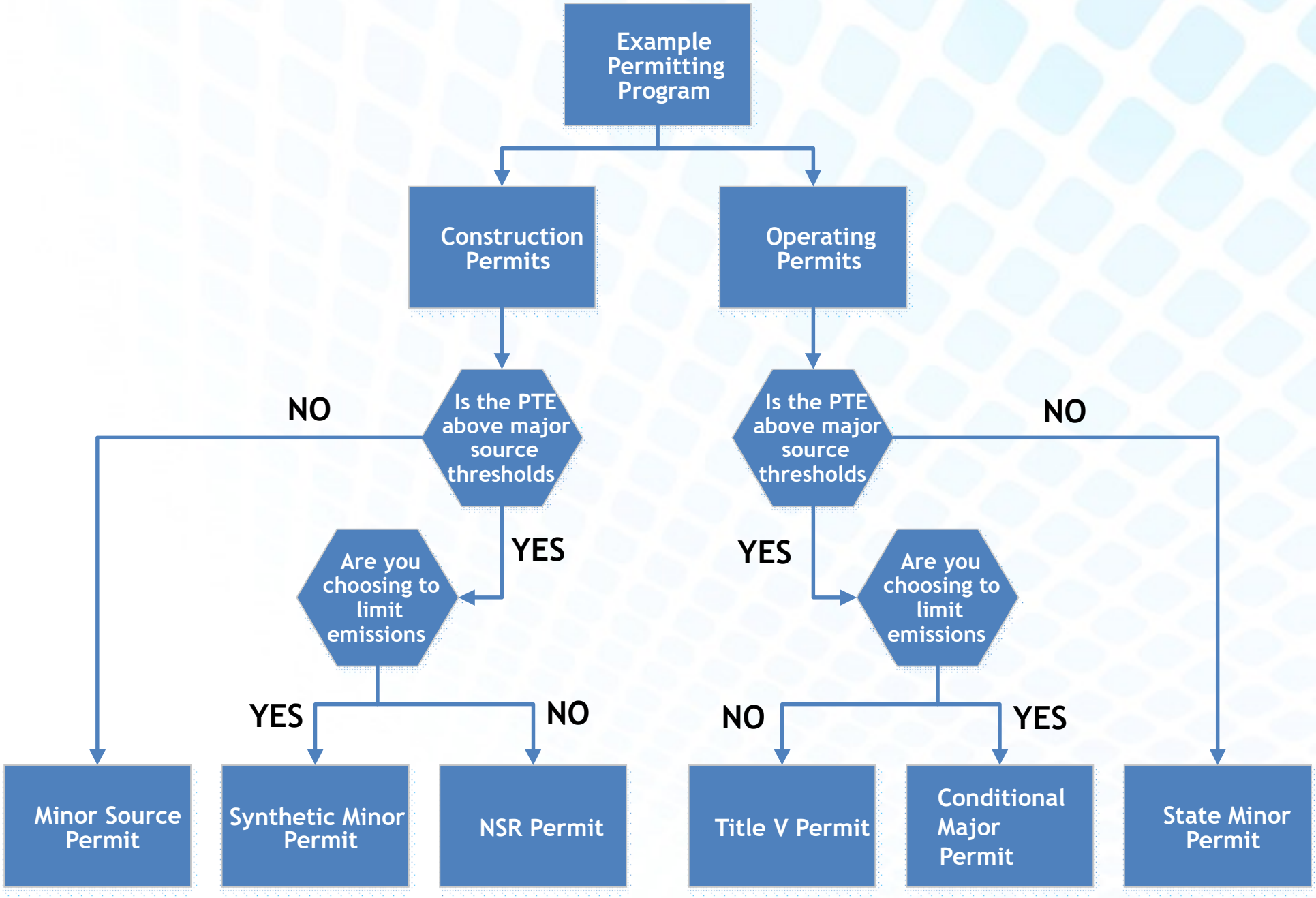


Trinity Consultants

Different Types of Air Permits

Pollutant	Title V	HAP (avoid MACT)	Major NSR (Existing Minor)	Major NSR (Existing Major)
NSR-Regulated (NO_X, SO_2, VOC, $PM_{2.5}$/PM_{10}, CO, etc.)	>100 tpy	-	>250 (Attainment) >100 (NA/list of 28)	SERs: >40 tpy NO_X,/SO_2/VOC >100 tpy CO >10/15 tpy $PM_{2.5}$/PM_{10} etc.
HAP	>10/25 tpy	>10/25 tpy		
GHG	-	-	**Triggered only for PSD anyway sources*	

Trinity Consultants



Trinity Consultants

Potential to Emit (PTE)

- Maximum capacity to emit any given pollutant
- May be limited by:
  - Physical and operational limits
  - Air pollution control equipment
  - Restricted hours of operation
  - Type or amount of material combusted, stored, or processed
- Limitations must be federally and practically enforceable in a permit
- See definition: 40 CFR 52.21(b)(4)

Trinity Consultants

Emission Calculations

- **Potential-to-emit** – means the maximum capacity of an emissions unit or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the emissions unit or stationary source to emit an air pollutant, ... including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is ***federally enforceable or legally and practicably enforceable by the state***. Secondary emissions do not count in determining the potential to emit of a stationary source.

  [3745-31-01(BBBBB) & 3745-77-01(DD)]

Trinity Consultants

Enforceable Limitations - How?

- **Two qualifiers**
  - **Operating and/or emission limits in an air permit undergoing public notice**
  - **Appropriate testing, monitoring & recordkeeping to ensure compliance can be demonstrated**

Trinity Consultants

How to Calculate Facility-Wide PTE

1) Conduct a facility-wide inventory of emission sources
2) Identify any legally enforceable limitations
3) Choose emission calculation methodologies
4) Gather necessary process data
5) Calculate PTE for each emission source
6) Calculate total site-wide PTE for the facility

Trinity Consultants

Questions?

Bill Bruscino
Trinity – Columbus Office
(614) 433-0733
bbruscino@trinityconsultants.com

Brent Goetz
Covestro Hebron Plant
(740) 929-8809
Brent.Goetz@covestro.com

Mike Hopkins
Assistant Chief, Permitting
Ohio EPA DAPC
(614) 644-3611
Mike.Hopkins@epa.ohio.gov

Biographical Information

Brent Goetz, Principal Environmental Specialist, Covestro LLC
BE Engineered Plastics HSEQ, Newark, Ohio
(740) 929-8809 Brent.goetz@covestro.com

Brent Goetz has been with Covestro, LLC since 2019, where he serves as the Principal Environmental Specialist at the Newark Compounding facility, which manufactures engineered plastic resins. Mr. Goetz is responsible for all aspects of environmental compliance including maintaining the synthetic minor air permit. Additionally, Mr. Goetz leads Operation Clean Sweep, a campaign focused on helping industry achieve zero plastic resin loss, for all of Covestro, LLC. Mr. Goetz earned his Bachelor's degree in Environmental Science from the University of Toledo. He is a Registered Environmental Health Specialist in the State of Ohio and an Institute for Sustainable Infrastructure, Envision Sustainability Professional.

Michael E. Hopkins, P.E., Assistant Chief, Permitting
Ohio EPA, P.O. Box 1049, Columbus, OH 43216
Phone: (614) 644-2270 Fax: (614) 644-3681 mike.hopkins@epa.ohio.gov

Michael Hopkins has been with the Ohio EPA since 1980. He is currently the Assistant Chief, Permitting within the Division of Air Pollution Control of the Ohio EPA. His duties include the review and final approval for all air pollution permit-to-install, permit-to-install and operate, and Title V permits in the State, the development of technical support for air pollution control regulations, litigation support, MACT program support, Tax Program support and general air pollution planning activities. He has been in this position since April 2003. Before this assignment, he was in charge of the Air Quality Modeling and Planning Section with similar duties as above from August 1993 through April 2003. Prior to that assignment, he was in charge of the engineering section of the Ohio EPA Central District Office air program. The engineering section is responsible for reviewing air pollution permit-to-install and permit-to-operate applications for compliance with air pollution regulations, facility inspections, complaint investigations, enforcement case development, policy and rule development, the Emissions Inventory Program, and other related duties in the central Ohio area.

Mr. Hopkins earned his bachelor's degree in environmental engineering from the Pennsylvania State University. He is a licensed Professional Engineer in the State of Ohio. He is a member of the Air and Waste Management Association, the National Society of Professional Engineers, and the Ohio Society of Professional Engineers.

William J. Bruscino, P.E., Regional Manager of Consulting Services (OH, WV, KY)
Trinity Consultants, 110 Polaris Parkway, Suite 200, Westerville, Ohio 43082
Phone: 614.433.0733 bbruscino@trinityconsultants.com

Mr. Bruscino is a Principal Consultant, a licensed Professional Engineer in the State of Ohio, and the Manager of Trinity's Columbus, Ohio office. Mr. Bruscino has extensive experience assisting industrial clients with regulatory challenges, such as Title V permitting, Prevention of Significant Deterioration (PSD) permitting, minor source and synthetic minor permitting, National Pollutant Discharge Elimination System (NPDES) permitting, Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure (SPCC) plan development, as well as 3rd party compliance audits covering air, water, and waste regulations. He enjoys his mentoring/managing role with the growing Trinity Columbus team and managing the strategic elements of Trinity's business, helping Ohio facilities navigate environmental requirements while obtaining the operational flexibility needed to meet their production needs.

Mr. Bruscino is also one of Trinity's skilled instructors teaching our semi-annual *Environmental Reporting Requirements in Ohio* course, our national *Intro to Clean Water Act* course, and a variety of custom courses. He is a member of the Air & Waste Management Association and Ohio Chemistry Technology Council. Mr. Bruscino graduated from the University of Cincinnati with a Bachelor's degree in Chemical Engineering in 2005 and has been serving as the Columbus office manager since 2012.