NACT 334

Permitting Practices and Principles

Housekeeping

Emergency Exits & Restrooms
Length of course
Breaks
Caveats

Introductions - Instructors

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Mohsen Nazemi, P.E.
### Introductions - Students

- Name
- Agency
- Background
- Permitting Experience
- Expectations from NACT 334

### Course Objectives

- Overview of air pollution permitting
- Permitting agencies
- Permitting process
- Applicable regulations
- Related programs

### Lessons

- Lesson 1 – Introduction - Who, What, Why & When
- Lesson 2 – Attainment of NAAQS
- Lesson 3 – Source Types
- Lesson 4 – Permitting Basics
- Lesson 5 – Potential to Emit
- Lesson 6 – Non-attainment NSR Pre-construction Permits
- Lesson 7 – PSD Pre-construction Permits
- Lesson 8 – PSD Netting
- Lesson 9 – Emission Limitations
- Lesson 10 – Averaging Time
Lessons (Cont’d)

- Lesson 11 – Best Available Control Technology (BACT)
- Lesson 12 – Offsets/Banking/Trading
- Lesson 13 – Modeling & Inventories
- Lesson 14 – Title V Operating Permits
- Lesson 15 – Monitoring, Reporting & Recordkeeping
- Lesson 16 – Compliance Assurance Monitoring (CAM)
- Lesson 17 – Permit Conditions
- Lesson 18 – NSPS & Toxics
- Lesson 19 – Compliance & Enforcement

LESSON 1
Introduction
Who, What, Why and When

Lesson Objectives

- Who needs a permit?
- What requires a permit? (covered in Lesson 3)
- Why is a permit necessary?
- When is a permit required?
Who Needs a Permit?  
Pre-construction Review

- Stationary sources of air pollutants
  - Criteria pollutants
    - Pollutants for which there is a National Ambient Air Quality Standard (NAAQS)
  - Regulated pollutants
    - Criteria pollutants
    - Hazardous air pollutants

Who Needs a Permit?  
Pre-construction Review (Cont’d)

- Permitting agencies provide specifics
  - Applicability thresholds
    - Horsepower
    - Heat input
    - Throughput
  - Exempted equipment/activities
    - Storage/Transfer of diesel fuel
    - Residential Equipment

I think it’s over the applicability threshold
Who needs a permit? Operating Permit

- Major Sources – Criteria pollutants
  - Applicability based on quantity of emissions
  - Definition depends upon where the source is located
  - Attainment status

Who needs a permit? Operating Permit (Cont’d)

- Hazardous Air Pollutants (HAPs)
  - 10 tpy of single HAP
  - 25 tpy of combination of HAPs

Legal Basis (Federal)

- Clean Air Act (CAA)
  - NAAQS – Public health concerns
  - Title V Operating Permit
  - State Implementation Plan (SIP)
Legal Basis (State/Local)

- State and/or local environmental protection rules, regulations or legislation
  - Preconstruction Review
  - Operation of non-Title V sources

Why is a Permit Needed?

- To protect air quality
- To legally limit the amount of air pollutants released into the atmosphere
- To exercise control over air emissions by implementing statutory and regulatory requirements
Protection of Air Quality

Pre-construction Review

- Attainment Areas – Prevention of Significant deterioration (PSD)
  - Best Available Control Technology (BACT)
  - Increment protection
  - Modeling
- Non-attainment Areas – New Source Review (NSR)
  - Lowest Achievable Emission Rate (LAER)
  - Offset requirement
  - Trading (offset) ratios
  - Modeling

When is a Permit Required?

- Construct a New Source
- Modify an Existing Source
- Operate a Source
- Renew an Existing Permit
- Change an Existing Permit
- Others?
Lesson Objectives

- Understand Criteria Pollutants
  - Criteria Pollutants have NAAQS
- Define Attainment
- Define Non-attainment
- Discuss why the difference matters
NAAQS/Attainment Issues
- Many definitions, rules, applicability issues, etc. are dependent upon the concept of attainment/non-attainment
- Attainment designation is based upon an area’s air quality as compared to prescribed levels of air quality
- Prescribed levels are referred to as National Ambient Air Quality Standards (NAAQS)

NAAQS
- National Ambient Air Quality Standards
  - Required by CAA § 109
- Primary Standards
  - Protect public health
  - Including at-risk population
- Secondary Standards
  - Protect public welfare

State Implementation Plans
- CAA requires SIP ($110)
  - States prepare and submit to EPA
  - Roadmap to attainment
  - Attainment dates
  - Program issues
    - Permit program
    - Regulatory requirements
    - Enforcement program
### Criteria Pollutants

- Carbon Monoxide (CO)
- Lead
- Nitrogen Dioxide (NO2)
- Ozone (Secondary Pollutant)
  - Volatile Organic Compounds (VOC)
  - Nitrogen Oxides (NOx)
- Particulate Matter (PM, PM10, PM2.5)
- Sulfur Dioxide (SO2)

### NAAQS

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Level</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>8 hr.</td>
<td>0.070 ppm</td>
<td>4th highest daily max (3 yr. ave.)</td>
</tr>
<tr>
<td>PM2.5</td>
<td>Annual</td>
<td>12 μg/m³</td>
<td>Annual mean (3 yr. ave.)</td>
</tr>
<tr>
<td>PM10</td>
<td>24 hr.</td>
<td>35 μg/m³</td>
<td>98th %ile (3 yr. ave.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150 μg/m³</td>
<td>Not to be exceeded</td>
</tr>
</tbody>
</table>

### NAAQS (Cont’d)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Level</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>8 hr. 1 hr.</td>
<td>9 ppm</td>
<td>Not to be exceeded &gt;1x/yr.</td>
</tr>
<tr>
<td>NO2</td>
<td>1 hr. Annual</td>
<td>100 ppb</td>
<td>98th %ile 3 yr. ave. Annual Mean</td>
</tr>
<tr>
<td>SO2</td>
<td>1 hr.</td>
<td>75 ppb</td>
<td>99th %ile of 1 hr. daily max (3 yr. ave.)</td>
</tr>
<tr>
<td>Lead</td>
<td>Rolling 3 mo. ave.</td>
<td>0.15 μg/m³</td>
<td>Not to be exceeded</td>
</tr>
</tbody>
</table>
What is Attainment?
- U.S. is divided into Air Quality Control Regions (AQCRs)
- Ambient air quality is monitored
- If ambient air is “cleaner” than the standards, the AQCR is designated as attainment

What is Non-attainment?
- If ambient air quality is “dirtier” than the standards, the area is designated as non-attainment
- Degrees of non-attainment
- Designation is pollutant-specific

Insufficient Monitoring Data?
- Area is called “unclassified”
- Treated as attainment
Why does it matter?

- Attainment/non-attainment status impacts many issues
  - Definition of Major Source
  - Pre-construction review
  - Offset ratios
Major Source Definition

- Ozone non-attainment: NOx, VOC (CAA § 182)
  - 100 TPY – marginal and moderate
  - 50 TPY – serious
  - 25 TPY – severe
  - 10 TPY – extreme
- \( \text{PM}_{10} \) (§ 189(c))
  - 70 TPY - serious non-attainment
- CO (§ 187(c))
  - 50 TPY – serious non-attainment if stationary source contribution to CO levels is significant

Federal Offset Ratios

<table>
<thead>
<tr>
<th>Area Classification</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone Marginal</td>
<td>1:1:1</td>
</tr>
<tr>
<td>Ozone Moderate</td>
<td>1:15:1</td>
</tr>
<tr>
<td>Ozone Serious</td>
<td>1:2:1</td>
</tr>
<tr>
<td>Ozone Severe</td>
<td>1:3:1*</td>
</tr>
<tr>
<td>Ozone Extreme</td>
<td>1:5:1*</td>
</tr>
</tbody>
</table>

*1:2:1 if SIP requires all existing major sources in Non-attainment Area to use BACT

Federal Offset Ratios (Cont’d)

<table>
<thead>
<tr>
<th>Area Classification</th>
<th>Offset Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO Moderate</td>
<td>1:1</td>
</tr>
<tr>
<td>CO Serious</td>
<td>1:1</td>
</tr>
<tr>
<td>PM10 Moderate</td>
<td>1:1</td>
</tr>
<tr>
<td>PM10 Serious</td>
<td>1:1</td>
</tr>
<tr>
<td>NO2, SO2 All</td>
<td>1:1</td>
</tr>
</tbody>
</table>
Questions?

Lesson 3
Sources, Major Sources, and Modifications

Lesson Objectives
- Understand the different types of sources
- Understand what are the elements of a major source
- Understand what constitutes a modification
- Understand activities which are not modifications
What is a Stationary Source

Stationary source is defined in two ways:
“building, structure, or facility” = “the plant”
  - Includes all of the pollutant-emitting activities which belong to
    the same industrial grouping, are located on one or more
    adjacent properties, and are under the control of the same
    owner or operator.
Source “installation” = “the emissions unit”
  - An identifiable piece of process equipment.

Major Source

- From EPA perspective only concerned
  with major sources*
- States may control sources smaller than
  major (Non-major Sources)

* Some EPA regulations apply to Non-major (Area) Sources

What is a Major Source?

- Depends on location and regulation type
- Non-attainment NSR: Potential to Emit
  (PTE) of 100 tpy or less
- PSD: PTE of 250 tpy unless listed
NSR “Major Source” Thresholds for NSR for Ozone, CO and PM Depend on Non-attainment Classification

<table>
<thead>
<tr>
<th>Area Classification</th>
<th>Major Source PTE (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>Marginal 100 (precursors i.e. NOx and VOC)</td>
</tr>
<tr>
<td>Ozone</td>
<td>Moderate 100</td>
</tr>
<tr>
<td>Ozone</td>
<td>Serious 50</td>
</tr>
<tr>
<td>Ozone</td>
<td>Severe 25</td>
</tr>
<tr>
<td>Ozone</td>
<td>Extreme 10</td>
</tr>
<tr>
<td>CO</td>
<td>Moderate 100</td>
</tr>
<tr>
<td>CO</td>
<td>Serious 50</td>
</tr>
<tr>
<td>PM10</td>
<td>Moderate 100</td>
</tr>
<tr>
<td>PM10</td>
<td>Serious 70</td>
</tr>
</tbody>
</table>

PSD Source Categories with 100 tpy Major Source Thresholds

1. Coal cleaning plants (with thermal dryers)
2. Kraft pulp mills
3. Portland cement plants
4. Primary zinc smelters
5. Iron and steel mills
6. Primary aluminum smelters
7. Primary copper smelters
8. Municipal incinerators capable of charging more than 250 tons of refuse per day
9. Hydrofluoric acid plants
10. Sulfuric acid plants
11. Nitric acid plants
12. Petroleum refineries
13. Lime plants
14. Phosphate rock processing plants
15. Coke oven batteries
16. Sulfur recovery plants
17. Carbon black plants (furnace process)
18. Primary lead smelters
19. Fuel conversion plants
20. Sintering plants
21. Secondary metal production plants
22. Chemical process plants
23. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels
24. Refineries for processing plants
25. Glass fiber processing plants
26. Charcoal production plants
27. Phosphate rock processing plants
28. Fossil fuel boilers (or combination thereof) totaling more than 250 million British Thermal Units (BTU) per hour heat input

Greenhouse Gases

- After July 2014, the Supreme Court decision Greenhouse Gases alone will not cause a source to be major.
Major Source (Cont’d)

- **Major for One, Major for All**: If a source emits even one pollutant (attainment or non-attainment) in major amounts, the source will be considered major. Then all attainment pollutants, even those emitted in non-major amounts, will be reviewed for PSD applicability by using their respective **Significant Emissions Rate (SER)**.

- Emissions equal to or higher than the SER make the pollutant subject to PSD

### Significant Emission Rates PSD (tpy)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>100</td>
</tr>
<tr>
<td>Nitrogen oxides</td>
<td>40</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>40</td>
</tr>
<tr>
<td>Particulate matter (PM10)</td>
<td>40</td>
</tr>
<tr>
<td>Ozone (VOC)</td>
<td>40</td>
</tr>
<tr>
<td>Lead</td>
<td>6</td>
</tr>
<tr>
<td>Arsenic</td>
<td>0.07</td>
</tr>
<tr>
<td>Fluorides</td>
<td>3</td>
</tr>
<tr>
<td>Sulfur acid oxide</td>
<td>7</td>
</tr>
<tr>
<td>Hydrogen sulfide (H2S)</td>
<td>10</td>
</tr>
<tr>
<td>Total Reduced sulfur compounds</td>
<td>10</td>
</tr>
</tbody>
</table>
Same Industrial Classification

- Means part of the same two digit North American Industry Classification System (NAICS) or Standard Industrial Classification (SIC)
- Support facilities are also considered regardless of SIC – EPA policy evolving

Common Control

Case-by-case determinations based on several factors:
- Common ownership
- Located on the same property
- EPA guidance and memos can be used
Determination should be reasonable and adequately explained in the record

Adjacent or Contiguous

- According to Merriam Webster:
  - Contiguous means being in actual contact: touching along a boundary or at a point and
  - Adjacent means close or near: sharing a border, wall, or point
- Changed Sept 4, 2018 - EPA no longer considers the functional interrelationships between activities to determine if they are adjacent
Let's try an **Applicability example**

*Taken from an EPA power point presentation*

First a simple example

**Example:** Which pollutants are subject to PSD, NA NSR, and minor NSR permitting?

**Facts:**

- Kraft pulp mills produce light wood pulp used in the manufacture of a variety of paper products.

**Area in attainment for SO₂:**

- SO₂: 185 tpy
- PM₁₀: 10 tpy
- VOC: 80 tpy

**New Kraft Pulp Mill:**

- Area in attainment for PM₁₀ and VOC
- Area in attainment for SO₂

**Example Solution**

- **Mill’s PTE:**
  - SO₂: 185 tpy
  - PM₁₀: 10 tpy
  - VOC: 80 tpy

- **Area is in:**
  - attainment for SO₂
  - attainment for Ozone and PM₁₀

**Evaluate for PSD**

- Determine what the applicable threshold is.

  - Since Kraft pulp mills are one of the 28 listed source categories, the major source threshold is 100 tpy, not 250 tpy.

- Determine if the source is major based on the threshold.

  - In this case, the SO₂ emissions are 185 tpy, which is greater than 100 tpy. This makes the mill a major source for PSD. Now we have to review all attainment pollutants for PSD applicability.
Example solution (Cont’d)

- Mill’s PTE:
  - SO2 = 185 tpy
  - VOC = 80 tpy
  - PM10 = 10 tpy

- Area is in:
  - Attainment for SO2
  - Attainment for Ozone and PM10

Review the two attainment pollutants based on their SER to see if they fall into PSD:

- The mill’s VOC PTE is 80 tpy, but VOC is not on the SER list. However, it is a precursor for ozone, and ozone is on the list with a SER of 40 tpy. VOC is subject to PSD because its PTE is higher than 40 tpy.

- PM10 is on the SER list with a SER of 15 tpy. The mill’s PM10 PTE is 10 tpy, which is less than the SER. PM10 is not subject to PSD.

“Significant Net Emission Increase” for NSR

<table>
<thead>
<tr>
<th>Area Designation</th>
<th>Modification Trigger (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td></td>
</tr>
<tr>
<td>PM2.5</td>
<td></td>
</tr>
<tr>
<td>PM2.5</td>
<td></td>
</tr>
<tr>
<td>NO2</td>
<td></td>
</tr>
<tr>
<td>Any other pollutant subject to regulation</td>
<td>any amount above the rule</td>
</tr>
</tbody>
</table>

- PM2.5 is defined:
  - Attainment: Moderate or worse
  - Moderate: 50 tpy (count all increases in 5 years)
  - Serious: 25 tpy (count all increases in 5 years)

- NO2 is defined:
  - All: 10 tpy (count all increases in 5 years)

- Other pollutants are defined by their SER limits in the rule.

Modified Sources

- Modification (for both PSD and NSR) as defined, means any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase of a regulated NSR pollutant and a significant net emissions increase of that pollutant from the major stationary source.
Is It a Modification?

- Physical changes or changes in the Method of Operation Include:
  - New Production Lines
  - Increased capacity of existing equipment
  - Process reconfiguration
  - Change in fuels not otherwise exempt
  - Non-routine replacement

Exemptions

- The following are not, by themselves, physical changes or a changes in method of operation:
  - Routine maintenance, repair, or replacement
  - Alternative fuel or raw material that the source was capable of accommodating before 1975
  - Increase in operating rate or hours of operation that does not exceed a permit limit
  - Change in ownership, with no other changes
  - Certain 1970’s energy crisis driven conversions

Routine Maintenance, Repair and Replacement (RMRR)

- You should consider:
  - Nature and Extent of the change
  - Frequency the change is performed
  - Purpose of the change
  - Cost of the change
  - Other relevant factors
RMRR Exemption to Major Modification

Major Modification means:
(1) any physical change or change in the method of operation of a major stationary source that
(2) would result in a significant emissions increase of a regulated pollutant and a significant net emissions increase of that pollutant from the stationary source

See e.g., 40 CFR 52.21(b)(2)(i)

RMRR Exemption to Major Mod. (Cont’d)

A physical change or change in the method of operation shall not include . . . routine maintenance, repair and replacement.

See e.g., 40 C.F.R. §52.21(b)(2)(iii)

RMRR Exemption to Major Mod. (Cont’d)

- RMRR Case Law Principles:
  - Definition of “physical change” is broad; the exemption applies to a narrow range of activities
  - Applies to a narrow range of activities in keeping with EPA’s limited authority to exempt activities from the CAA
  - No activity is categorically exempt
  - Applies WEPCO multi-factor test on a case-by-case basis evaluation

3/2/2014
RMRR Exemption
Wisconsin Electric Power Company (WEPCO)

WEPCO Multi-factor Test
- Nature and Extent
- Frequency
- Purpose
- Cost

Nature and Extent
- Indications of Non-Routine Changes (from Cinergy)
  - Use of “several outside contractors”
  - “Several multi-volume planning studies”
  - Time to complete the project: 13 weeks; 15 weeks
  - “A majority of the parts of the unit, and in some cases every part of the unit, was modified or replaced, redesigned or upgraded”
  - “Permanent improvements”
  - Not like-kind replacements

Frequency
- Indications of Non-Routine Changes
  - Occurs once or twice in the life of a unit
  - Replacement of original components that have never been replaced
  - Projects of this type occur infrequently in the industry

Courts tend to scrutinize this factor more than the others
RMRR Exemption
WEPCO (Cont’d)

Purpose
- Indications of Non-Routine Changes
  - Restoring the unit to an original capacity or efficiency
  - Less outages or downtime
  - Extending the life of a unit beyond its expected retirement date
    - E.g., unit is expected to last 35 years, but project designed to add additional 30 years of service for a total of 65 years - almost 2 times the expected life

Cost
- Indications of Non-Routine Changes
  - Capitalization of costs
  - Expenditures approved by high level management approval - e.g., company president
  - Comparison of project costs to average annual maintenance costs at the facility - not across the company

“Routine Maintenance, Repair and Replacement” Policy
- EPA policy is that the routine activity exception has a narrow scope and should generally be applied only to actions that are regular, customary, repetitious, and undertaken as standard practice to maintain a facility in its present condition
Debottlenecking

- Significant Net Emissions Increase must include emissions increases from all emissions units affected by the change, both upstream and downstream.
- Removal of any limitation (physical or permitted) in a process line that enables the source to increase throughput can potentially increase emissions at other emissions units upstream or downstream in the process line.

Example 1 - Debottlenecking

Example from July 28, 1983 PSD Determination in Region 10
- A digester system in a Kraft pulp mill produces black liquor which is sent through a multiple effect evaporator system where it is concentrated and is then burned in a recovery boiler.
- When the digester is expanded, in a way that additional black liquor will be produced, emissions from the recovery boiler must be counted in determining the net emissions increase.
- Since the recovery boiler itself will not be undergoing a physical change or change in the method of operation, it will not have to apply BACT.

Example 2 - Debottlenecking

Utility Example
- A coal prep plant is expanded to provide more coal to a coal fired utility boiler. The boiler is not modified but operates at a higher rate because of the additional coal provided by the coal prep plant.
- The increase in emissions from the boiler must be counted in determining the net emissions increase caused by the expansion of the coal prep plant.
- Since the boiler itself will not be undergoing a physical change or change in the method of operation, it will not have to apply BACT, but BACT must be applied at the coal prep plant for each pollutant for which NSR is triggered.
Summary

- Concept of Source been Subject of Litigation
- Major source definition same for PSD, NSR, and Title V
- Definition depends on location and source type
- Same Source must be under Common Control, Same SIC Code, and on Adjacent Property – In flux

Summary (Cont’d)

- Modification is physical change or change in the method of operation which results in a significant change in emissions
- Significant net change varies by pollutant and location and program

Summary (Cont’d)

- Modification does not include Routine Maintenance, Repair and Replacement (RMRR); emission increases up to permit levels; and/or change of fuel (if originally designed and permitted for the fuel)
Questions?

LESSON 4
Permitting Basics

LESSON OBJECTIVES
- Understand what a permit is
- Discuss who issues permits
PERMIT DEFINITIONS

➢ Permission given by an authorized government agency to construct, and/or to operate a source of air pollutants
➢ A contract between source of regulated air emissions and public (as represented by authorized agency)
➢ A document to translate broad regulatory requirements into specific requirements for facility

“TYPES” OF PERMITS

➢ Two “types” of permits
   • Construction (or Pre-construction)
   • Operating
➢ These may be combined
   • Depending on agency

TYPE 1:
PRE-CONSTRUCTION PERMITS
PRE-CONSTRUCTION PERMITS

- Program often referred to as “pre-construction” permitting
- Also called “New Source Review” (NSR)

AKA

PRE-CONSTRUCTION PERMITS

- Authorize the applicant to
  - Construct or build, a new source of air pollutants
  - Modify an existing source

PRE-CONSTRUCTION PERMITTING PROGRAMS

- Included in State Implementation Plan (SIP) for significant (major) sources
  - SIPs are subject to EPA approval
- For non-major sources, permitting agency rules apply
  - These may - or may not - be in the SIP
  - Referred to as “state-only” sources
**PRE-CONSTRUCTION PERMITS**

**Major Sources**

- **NSR**
  - New Source Review
  - Agency’s construction permit program

- **NA-NSR**
  - Non-attainment New Source Review
  - Applicable in non-attainment areas

- **PSD**
  - Prevention of Significant Deterioration
  - Applicable in attainment & unclassifiable areas

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**PRE-CONSTRUCTION PERMITTING**

**Major sources**

- **Non-attainment**
  - LAER
  - Offsets & Modeling

- **Attainment/Unclassified**
  - BACT
  - Air Quality Analysis
    - Increment
    - Modeling

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**STATE ONLY PERMITS**

- Most state and local agencies have permitting rules based on state statutes
- These rules have various names such as State Air Code, etc.
- They typically cover small sources
### STATE ONLY (Cont’d)

- Examples – sources below major source thresholds
  - Small boilers
  - Small engines
  - Small incinerators
  - Area sources
    - Gasoline transfer
    - Coating operations

<table>
<thead>
<tr>
<th>Emissions PTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating Operation</td>
</tr>
<tr>
<td>Gasoline transfer</td>
</tr>
<tr>
<td>Small incinerator</td>
</tr>
<tr>
<td>Small engine</td>
</tr>
<tr>
<td>Small boiler</td>
</tr>
</tbody>
</table>

### “TRUE MINOR” PERMITS

- Permits that are required for True Minor sources due to the requirements of the SIP
- Examples:
  - Emission levels above a certain threshold for a criteria pollutant
  - Equipment may be subject to requirements such as NSPS

### “TRUE MINOR” PERMIT DEFINED (Cont’d)

A source of regulated emissions that when operated at maximum capacity continuously for 8760 hrs. per year, emits less than the major source threshold for each regulated pollutant, i.e., its PTE is less than the threshold.
TRUE MINOR exercise:

- A Waukesha lean burn internal combustion, spark ignited engine is to be installed at a natural gas gathering station. Its NOx emissions are 2.3 lbs. per hour at maximum rpm and load.
- Calculate the yearly emissions of this engine and make a determination if it is a "True Minor"

TRUE MINOR exercise calculation

- 8760 hrs. per year
- 2.3 lbs. of NOx per hr.
- 8760 x 2.3 x 1/2000 = 10.1 tpy
- No Title V permit required
- If SIP has a permitting threshold of 10 tpy of a criteria pollutant before permitting is required, a "True Minor" permit would be required
- What if the source reduced it's hours of operation?

SMALL SOURCE PERMITTING

- State/local agencies may have less formal permitting procedures for smaller sources (perhaps called "area sources")
- Some examples:
  - Dry-cleaning
  - Auto refinishing
  - Gasoline dispensing
  - Solvent cleaning/degreasing
  - Rock crushing
SMALL SOURCE PERMIT TYPES

- Permitting authority issues source-specific permits
- Permitting authority issues one permit that as long as procedures are followed, allows many individual sources to construct
  - General permits
  - Permit-by-rule
  - Registration

GENERAL PERMITS

- Application process for sources under these programs is simplified, with quicker turn-around
- In general, fees are still required

ADVANTAGES OF GENERAL PERMITS

- Extensive work done to develop “template” for source category
- Permits for source category are standardized
- Various levels of emissions may be covered by establishing categories by equipment type and emissions thresholds
- Requirements may be more extensive for source categories with greater emissions
ADVANTAGES OF GENERAL PERMITS (Cont’d)

Recordkeeping requirements are often reduced significantly
- Example for Cotton Gins
  - Compliance is determined by number of bales of cotton produced
  - Other conditions are usually included to ensure equipment is operated & maintained properly:
    - No visible emissions from process equipment and control equipment.
    - Fugitive emissions may not leave property boundaries

PRE-CONSTRUCTION PERMITS

REVIEW

OPERATING PERMITS
OPERATING PERMITS
Authorize the permit holder to operate a source of air emissions

OPERATING PERMITS (Cont'd)
- Federal operating permits (Title V/Part 70/71)
- Synthetic Minor permits
- FESOPs (Federally Enforceable State Operating Permits)
- State-only operating permits

State-Only Operating Permit Applicability
- Depends on
  - Program
  - Quantity and type of emissions
  - Current and historical state requirements
TITLE V PERMITS

- Often referred to as “Title V”, “Part 70”, or “Federal” Operating Permits
- Operating Permits detail the requirements that major sources, and other specified sources, must meet in order to operate in compliance with the CAA
- A detailed discussion of Title V operating permits will be presented later in the course

SYNTHETIC MINOR PERMITS

- An operator may avoid some of the requirements of the Title V program through the “synthetic minor” permit process
- An otherwise major source can limit its emissions to below major source thresholds
- These limits must be federally enforceable

SYNTHETIC MINOR PERMITS (Cont’d)

Examples of emission limitations
- Reducing the hours of operation
- Limiting throughput
- Limiting the composition of
  - Fuel
  - Coatings
- Installing control equipment
SYNTHETIC MINOR PERMITS (Cont’d)

- If a source’s emissions are reduced to less than major source thresholds, and
- If those limitations are federally enforceable as reflected in a permit, then
- The source is eligible for a synthetic minor permit

FESOPs

- FESOP Federally Enforceable State Operating Permit
- A FESOP is the vehicle by which a synthetic minor source’s emission limitations are rendered federally enforceable
- Purpose
  - Reduce the PTE of a source below the Title V major source threshold, or otherwise place a limit on a source which would exempt it from Title V requirements

SYNTHETIC MINOR PERMITS (Cont’d)

- How does it work?

PTE = A x EF x (1-ER/100) x (8760 hrs./yr.)/(2000 lbs./T)

- PTE = Potential to Emit
- A = Activity Rate
- EF = Emission factor for worst case operating alternatives
- ER = Overall Emissions Reduction Efficiency
  - Collection efficiency
  - Control efficiency
- Reducing anything on the right side of the equation will reduce the PTE
- In order for a limit restricting PTE to be effective, A, EF and ER must be clearly defined
SYNTHETIC MINOR PERMITS (Cont’d)

- Remember:
  - All the components in the PTE equation must not only be defined, but must be documented.
  - All reductions in those components must be documented and federally enforceable.
  - Must be reflected in permit conditions.

SYNTHETIC MINOR PERMITS (Cont’d)

- To develop effective synthetic minor permits, the permit writer must understand the following concepts:
  - Major source
  - Potential to emit (PTE)
  - Developing enforceable permit conditions.

- These concepts will all be covered in detail in this course.

CAUTION

- Permit application for Synthetic Minor Permit asks for 9.9 tpy of HAP emissions.
- MSDS for solvents and compounds used indicates that accuracy of proposed solvents and compounds is ± 5%.
- Should this application be accepted as adequate for a synthetic minor?
States may or may not have a state only operating permit.

Many states view the state only construction permit as the vehicle, along with state regulations, that determine how a small source must be operated.

Must look to the individual state programs.

As in construction permits, applicability is to smaller sources, with emissions below major source thresholds.

The types of sources eligible for State Only permits varies with the permitting agency, but the typical sources are the same as those discussed in construction permits.

OPERATING PERMITS

REVIEW
COMBINATION PERMITS

- Combine the construction and operating permits into a single document
- Permitting authority processes requirements at the same time
- Doesn’t reduce the requirements for each type of permit
- Can reduce paperwork and duplication
  - Process and review only one permit application, rather than separate construction permit and operating permit applications

WHO ISSUES PERMITS?
Permitting Agencies
PERMITTING AUTHORIZATION

- The EPA Administrator
- Any state or local agency authorized by the Administrator
- The state/local agency must also be authorized by state law

PERMITTING AUTHORIZATION (Cont’d)

- Any State or local entity authorized “under state law” to issue permits and implement various federal, state, and/or local air quality regulations
- The agency must be authorized by EPA administrator to implement federal programs, including federal permitting programs

PERMITTING AGENCIES

- Air quality permits for stationary sources are generally issued by state or local agencies
- These agencies generally have responsibilities other than permitting
PERMITTING AGENCIES (Cont’d)

- In some states, stationary source permitting is done by the state agency
- In some states, stationary source permitting is done by local agencies
  - Counties
  - Cities
  - Special purpose Districts
- In some states, a hybrid situation exists

PERMIT CUSTOMERS

- Applicant
- Public
- Courts
- Enforcement branch of agency
- Other Sources
- EPA and other governmental agencies
- Others?

PERMIT CUSTOMERS (Cont’d)

- Class Discussion
  - For what purpose(s) did each “customer” use the permit?
  - What kinds of permit terms were important to each?
  - Are there other people who might use the permit?
PERMITTING AGENCIES
Other Roles

- In addition to permitting, state statutes authorize state and local agencies to administer certain parts of federal programs
  - State Implementation Plan (SIP) development
    - A Plan developed by the state to attain and maintain compliance with federal air quality standards
  - NSPS
  - Hazardous air pollutants: NESHAP, MACT

PERMITTING BASICS
Review

- Pre-construction permits
  - Non-attainment NSR
  - PSD
- Operating permits
  - Title V
  - State only
- Permit Issuance
  - State/local agencies (may require EPA authorization)

QUESTIONS?