Air Permitting in Pennsylvania

Prepared For

CATALYST CONNECTION WEBINAR SERIES

Presented By

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Introduction

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► 25th Year in business in 2014

► Consistently ranked highly among the *Engineering News-Record’s* Top 200 Environmental Firms List and Top 500 Design Firms List

► Named a Top Workplace in Pittsburgh and Nashville
Introduction

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Introduction

Our Service Areas

- Civil Engineering & Survey
- Environmental Engineering & Sciences
- Ecological Sciences
- Waste Management
- Water Resources

The Clients We Serve

- Manufacturing
- Mining
- Natural Gas
- Power
- Public Sector
- Real Estate
- Solid Waste
Webinar Introduction

► This webinar presents an overview of air quality permitting in Pennsylvania to help facilities evaluate the types of regulatory requirements that may apply.
Agenda

1. Who is my permitting agency?

2. What are the regulated air pollutants?

3. What is the status of Pennsylvania ambient air quality and what does it mean to my business?

4. What sources require a permit and which do not?

5. What are the differences between insignificant, minor, and major sources?

6. What if you’re not sure what type of source you are?
Agenda

7. How does the Plan Approval application process for the construction and modification of air emission sources work?

8. How does the Operating Permit process work?

9. What Federal Regs might affect my facility?

10. Summary
1. Who is my Permitting Agency?

- Facilities in Allegheny County are permitted through the Allegheny County Health Department, all others are under authority of the PADEP.
1. Who is my Permitting Agency?

PADEP Regional Offices
2. What are the Regulated Air Pollutants?

- Criteria Pollutant
- NSPS Pollutants
- Ozone Depleting Substances
- Section 112 Chemicals
Criteria Pollutant - Any pollutant for which a national ambient air quality standard has been promulgated, including:

- PM-10: particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns,
- PM-2.5 (≤ 2.5 microns),
- sulfur dioxide,
- ozone (from NOx+VOC+sun),
- nitrogen dioxide,
- carbon monoxide, and
- lead.
2. Regulated Air Pollutants (cont.)

► **NSPS Pollutants** - Any pollutant that is subject to a **New Source Performance Standard**, which require new and modified sources to satisfy emissions standards, including

- dioxin/furan,
- hydrogen chloride,
- hydrogen sulfide,
- sulfuric acid mist, and
- total suspended particulate.
2. Regulated Air Pollutants (cont.)

- **Ozone Depleting Substances**
  - Class I (primarily chlorofluorocarbons),
  - Class II (hydrochlorofluorocarbons)

- **Section 112 Pollutants** - Any pollutant subject to a standard promulgated under section 112 of the CAA, including:
  - 112(b) – 188 Hazardous Air Pollutants (e.g., benzene and methanol),
  - 112(r) – Risk Management Plans (e.g., ammonia and chlorine)
3. Pennsylvania Ambient Air Quality

- The attainment status of the source's airshed can impact whether a source is classified as minor or major.

- All of PA is in the Northeast Ozone Transport Region (entire state is classified as moderate non-attainment for ozone, and ozone precursors - NOx and VOC).

- Areas of W. PA that are currently classified by USEPA as non-attainment:
  - Clairton (PM2.5),
  - Pittsburgh–Beaver Valley (PM2.5),
  - Beaver, PA (SO₂).
PA 8-hr Ozone Nonattainment Areas

8-hour Ozone Nonattainment Areas

8-hour Ozone Nonattainment Classification
- Extreme
- Severe 15
- Serious
- Moderate
- Marginal

Philadelphia-Wilmington-Atlantic City
PA-NJ-MD-DE

Reading, PA
Allentown-Bethlehem-Easton, PA
Pittsburgh-Beaver Valley, PA
Lancaster, PA
The New Jersey portion of the Philadelphia-Wilmington, PA-NJ-DE PM-2.5 (2006 Standard) nonattainment area was redesignated on September 4, 2013, while the Pennsylvania and Delaware portions have not. The entire area is not considered in maintenance until all states in a multi-state area are redesignated.
4. What Sources Need a Permit?

- Source = a new or modified piece of equipment producing emissions

- Source covered by a NSPS – (discussed later)

- Major Sources

- Non-de minimis emission increases. For a permitted source, increased emissions greater than these thresholds require a permit:
  - 4 ton/yr CO,
  - 1 ton/yr of NO\textsubscript{x},
  - 1.6 ton/yr of SO\textsubscript{x},
  - 0.6 ton/yr of PM\textsubscript{10},
  - 1 ton/yr VOC.
4. What Sources Do NOT Need a Permit?

- Any minor source that is exempted by the rule (25 PA Code 127.14), exempted sources include:
  - Air conditioning or ventilation systems,
  - Combustion units with a rated capacity of <10 MMBTU/hr,
  - Space heaters which heat by direct heat transfer,
  - Mobile sources, and
  - Other sources and classes of sources determined to be of minor significance by the Department

(Tip! See PADEP guidance document on exemptions: 275-2101-003 8/10/13)
5. Minor vs. Major Source

- A facility with combined sources above a stipulated major stationary source (MSS) threshold is “major”

- MSS thresholds are dependent on an airshed’s attainment status

  - For a facility in PA where all pollutants are in attainment except ozone, the major MSS thresholds are:
    - 100 TPY for CO, NOx, SOx, Pb and PM10 and PM2.5,
    - 50 TPY for VOC,
    - 25 TPY for aggregate Hazardous Air Pollutant (HAP), and
    - 10 TPY for individual HAP.

  - For a facility in severe ozone non-attainment, the MSS thresholds are:
    - Same as above for CO, SOx, Pb, PM10, and HAPs, and
    - 25 TPY for NOx and VOC.
5. Minor vs. Major Source (cont.)

- A facility’s potential-to-emit (PTE) is compared to the applicable MSS. If the PTE > MSS, then the facility is a major. If not, then it is a minor.

- Some differences between major and minor sources in PA:

<table>
<thead>
<tr>
<th></th>
<th>Minor</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Permit</td>
<td>State-Only</td>
<td>Title V</td>
</tr>
<tr>
<td>Annual Emission Fees</td>
<td>None</td>
<td>$85/ton</td>
</tr>
<tr>
<td>Control Device Review</td>
<td>BAT</td>
<td>BACT, RACT, MACT Possible</td>
</tr>
<tr>
<td>New Source Review</td>
<td>No</td>
<td>Possible</td>
</tr>
</tbody>
</table>
5. Synthetic Minor

- A facility may take a federally-enforceable restriction to limit the PTE below all applicable MSS levels.
- Such a facility is referred to as a “synthetic minor”.
- It is permitted the same as a “natural minor”, but it must keep records to demonstrate that permitted restrictions are being complied with.

- Typical restrictions include:
  - the quantity of fuel consumed,
  - the quality of fuel burned (e.g., fuel oil sulfur content),
  - the tons of a product manufactured, or
  - the hours that a piece of equipment operates.
6. What if you’re not sure what type of source you are?

► Submit a Request For Determination (RFD) to PADEP

► The RFD requires the following information:
  - Identification of the facility,
  - Description of emission sources proposed,
  - Quantification of regulated pollutant emission potentials, and
  - Accounting of the facility’s exemption history.

► If the DEP rejects the exemption, the facility must submit a Plan Approval application and receive the permit, before beginning construction.

► The change may be made within 15 days of RFD submission unless the Department requests additional information or objects to the change.
Let’s take a breather!

► So far we’ve discussed:
  ▪ Who Issues Permits?
  ▪ When is a Permit Required?
    o New and Modified Emission Units
    o Significant Emission Rates of regulated pollutants
  ▪ Implications of where facilities are located
  ▪ Insignificant, Minor, and Major Sources

► We’ll turn attention now to the permitting process in detail.
7. **How Does the Plan Approval Process Work?**

- **Plan Approval.** PA “Permit to Construct” (How the PADEP reviews and approves your plan to install a new source of atmospheric emissions.)

- **Plan Approval Application (see 25 PA Code §127.11)**
  - Describes what is proposed for installation or modification
    - process description,
    - block flow diagram,
    - vendor literature
  - Presents emission calculations for regulated pollutants
  - Prescribes Best Available Technology for control of atmospheric emissions.
7. How Does the Plan Approval Process Work?

- Plan Approval Application (continued)
  - Demonstrates that applicable requirements (local, state and federal) will be met.
  - Demonstrates that existing facility operations are in compliance with applicable requirements (compliance review).
  - Includes specialized studies as needed to demonstrate compliance (e.g., dispersion modeling)
7. How Does the Plan Approval Process Work?

► Plan Approval Application (continued)
  ▪ Application Fee: $1,000 (minimum)
  ▪ Municipal Notification (30-day comment period)

► Agency Actions:
  ▪ Completeness Review
  ▪ Technical Review
  ▪ Draft Issuance for review
  ▪ PA Bulletin – Intent to Issue
  ▪ Final Issuance

► Elapsed Time: 3 to 6 months for minor Plan Approvals
  (See also PADEP Permit Decision Guarantee process)
7. How Does the Plan Approval Process Work?

► PADEP General Plan Approval – expedited review and approval
  ▪ Examples:
    o GP-1: Small Gas and No. 2 Oil-Fired Combustion Units
    o GP-2: Storage Tanks for Volatile Organic Liquids
    o GP-4: Burn-Off Ovens
    o GP-8: Powder Metal Sintering Furnaces

► Tip! For pointers on completing a Plan Approval Application see PADEP Guidance at:
  http://www.dep.state.pa.us/dep/deputate/airwaste/aq/permits/plan/inst_pln.pdf
7. How Does the Plan Approval Process Work

► ACHD – Installation Permit Application (Article XXI)

- Similar to PADEP application content but different forms
- **Tip!** Requires a BACT analysis with each application
- **Tip!** *May* require an Air Toxics modeling evaluation

- Application Fee: $1,000 (minimum)
- Agency Actions:
  - Completeness Review
  - Technical Review
  - Draft Issuance for Review
  - Final Issuance

- Elapsed Time: 3 to 6 months for minor applications
8. How Does the Operating Permit Process Work?

► Issued after the equipment has been installed
  ▪ (Note: a facility may operate under the conditions of its issued Plan Approval/Construction Permit until the Operating Permit is issued.)

► Minor Facilities (State-Only Operating Permit)

► Major Facilities (Title V – Federally Enforceable)

► General Conditions (Boiler Plate)
  ▪ Duration (normally 5 years)
  ▪ Renewal deadlines
  ▪ Annual Fee ($/ton/year)
  ▪ Universal requirements, such as:
    o Nuisance odor
    o Visible emissions
8. How Does the Operating Permit Process Work?

► Site-Specific Conditions depend on
  ▪ The emission units installed,
  ▪ The applicable requirements,
  ▪ The pollutants emitted.

► Requirements may be specified for:
  ▪ Emission limits (maximum allowable emission rates),
  ▪ Testing (e.g., stack testing),
  ▪ Monitoring (e.g., opacity observations),
  ▪ Recordkeeping (e.g., production throughputs),
  ▪ Reporting (e.g., annual compliance demonstrations and emission inventories)

- NSPS
- NESHAPS/MACT
- PSD/NNSR
- GHG
- RMP

NSPS - New Source Performance Standards

- 40 CFR 60, Subparts A through OOOO (about 93 total)
- Technology-based standards for specific stationary sources
- Establish the minimum control requirements, known as “best demonstrated technology”

► Common NSPS:
- Subpart IIII – Diesel IC Engines
- Subpart JJJJJ – Spark IC Engines

► Tip! Look here for helpful regulatory summaries of applicability flowcharts:
- http://www.tceq.state.tx.us/permitting/air/rules/federal/60/60h mpg.html

NESHAP - National Emission Standards for Hazardous Air Pollutants (Part I – pollutant specific)

- NESHAPs found in 40 CFR 61 regulate only 7 hazardous air pollutants:
  - Asbestos
  - Beryllium
  - Mercury
  - Vinyl chloride
  - Benzene
  - Arsenic
  - Radon/radionuclides

NESHAP – Part II (MACT - Maximum Achievable Control Technologies)

► 40 CFR 63, Subparts A through HHHHHHHH
► Apply to Major and Area Sources of Air Toxics (HAPs)
  ▪ No less stringent than the top 12% of controlled sources
► Examples common to Manufacturing
  ▪ Boiler MACT (Subparts DDDDD and JJJJJJ)
  ▪ IC Engines (Subpart ZZZZ)

► Tip! Look here for helpful regulatory summaries of applicability flowcharts:

PSD/NNSR – Prevention of Significant Deterioration and Nonattainment New Source Review (40 CFR 52.21)

► PSD: Attainment Areas
  ▪ Additional pollutants to consider
  ▪ BACT
  ▪ Dispersion Modeling

► NNSR: Nonattainment Areas
  ▪ LAER (Lowest Achievable Emission Rate)
  ▪ Emission Offsets (can be very expensive, if available)

**GHG – Greenhouse Gases**

- Mandatory Reporting Rule (40 CFR 98)
- 46 Subparts with specific reporting requirements
- General reporting threshold of 25,000 MT CO2e/yr

**Major Sources and BACT**

- Title V permits and BACT are not required based on GHG alone (Supreme Court decision 6/23/14)
- BACT analysis *is* required for GHG if PSD review is required for other criteria pollutants if emissions exceed a de minimis level (75,000 tpy?)

RMP – Risk Management Plans

► 40 CFR 68 – Chemical Accident Prevention

► Applies to facilities that store regulated substance in excess of threshold quantities (500 to 20,000 lbs)

► Hazard assessment: potential effects of an accidental release;

► Prevention program: includes safety precautions and maintenance, monitoring, and employee training measures; and

► Emergency response program: emergency health care, public information, and response

► Updated every 5 years
10. Summary

► Permitting authorities
10. Summary

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- Regulated air pollutants
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- Ambient air quality: attainment/nonattainment
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- Permitting process:
  - Plan Approvals/Installation Permits and
  - Operating Permits – minor and major
10. Summary

- Permitting authorities
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- How to determine if permitting is required
- Permitting process:
  - Plan Approvals/Installation Permits and
  - Operating Permits – minor and major
- Federal rules that may apply to a facility
Questions?

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THANK YOU!