Air Quality Permits

Understanding what they are and how to get one

Derek Bozzell
Permit Purpose

• Required under Title V of CAA
  – Issued under 40 CFR Part 70 or 71
  – Administered in Kentucky under 401 KAR Chapter 52

• A primary benefit of the Title V permit program is that it will in general
  – clarify in a single document which requirements apply to a source and, thus,
  – enhance compliance with the requirements of the Act.
Permit Purpose (cont.)

- Improvement to emission inventories and air quality planning and control
- Fees are based on a source’s actual emissions
  - Applied to developing and implementing the permit program
Plain Language

• An air quality permit
  – Summarizes your regulatory requirements
    • Emission limits
    • Operating limits
    • Pollution Control
  – Establishes how you will demonstrate compliance
    • Monitoring
    • Testing
    • Recordkeeping
    • Reporting

• A permit to pollute a given amount of pollution over a given time period

• Not designed as a pollution prevention (P2) tool
  – However, NESHAP and NSPS can have P2 options
Who needs permitted?

• Stationary Sources that emit or have the potential-to-emit (PTE) air contaminants at permitting thresholds
  — Portable sources

• Any stationary source that falls under any NSPS or NESHAP
Who needs permitted?

- "Source" means one (1) or more affected facilities contained within a given contiguous property line, which means the property is separated only by a public thoroughfare, stream, or other right of way.
  - “Affected facility" means an apparatus, building, operation, road, or other entity or series of entities that emits or may emit an air contaminant into the outdoor atmosphere.
    
    http://www.lrc.ky.gov/kar/401/052/001.htm
  - "Air contaminant" includes smoke, dust, soot, grime, carbon, or any other particulate matter, radioactive matter, noxious acids, fumes, gases, odor, vapor, or any combination thereof
    
    http://www.lrc.ky.gov/KRS/224-01/010.PDF
Who needs permitted?

• Three criteria to consider when determining one or multiple sources:
  – are the sources under common ownership?
  – are they within the same industrial classification?
  – are they contiguous?
Determining Your Permit Type

• STEP 1
  – Are you a Major or Minor (Area) Source?
    • Based on potential-to-emit (PTE) calculations
      – How much pollution are your emitting potentially
What is Potential to Emit?

- “Potential to emit" or "PTE" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design.
  - A physical or operational limitation on the capacity of a source to emit an air pollutant shall be treated as part of its design if the limitation is enforceable as a practical matter
    - integral air pollution control equipment
    - restrictions on hours of operation
    - restrictions on the type or amount of material combusted, stored, or processed
So, basically:

• PTE is a facility wide summary of emissions based on maximum potential operating hours
  – 8760 hours per year
  – Includes:
    • Criteria Pollutants or Regulated Air Pollutant (RAP)
    • Hazardous Air Pollutants (HAPs)
Why is PTE Important?

- Core component of an air permit application
- PTE serves as a communication tool
- Helps assess applicable requirements
- Helps assess compliance issues
- Allows for flexibility in production
Actual vs. Potential operating hours

**Potential Operating hours:** The number of hours a business could operate if given all the business they could possibly process in a given year. This is always 8760 hours because that’s the number of hours in a calendar year.

**Actual operating hours:** The actual number of hours that a business operates during a calendar year

**Bottleneck:** a phenomenon where the performance or capacity of an entire system is limited by a single or limited number of components or resources.
Determining PTE - The Walkthrough

• Walk through your facility from the beginning to the end.
  • Multiple times per year
    • keep up to date on emission sources
    • know if any permit modifications are needed
  • Don’t forget to walk around outside!
  • Make note of anything stationary that burns fuel.
  • Make notes of anything that generates dust or is a coating or welding operation.
Common Emission Points

- Welding
- Generators
- Engines
- Boilers
- Water heaters
- N.G. and diesel air compressors

*A boiler permit is not the same thing as an air quality permit*
Common Emission Points

- Aerosol paint cans
- Parts washers
- Adhesives
- Spray coating
- Clean-up solvents

*If it has an odor, it may contain VOCs. Check the MSDS!*
Common Emission Points

- Abrasive blasting
- Storage silos and stockpiles
- Conveyors
- Truck loadouts
- Paved and unpaved roadways
- Crushers and screens

*Hint - Fugitive Dust and Particulate Matter*
Determining PTE – Gathering Info

• Number each emission point from beginning to end.
• Gather information about equipment specs (make and model).
• Write down actual usage rates and hours of operation.
• Look over your Safety Data Sheets (SDSs) and make note of anything that contains HAPS or VOCs.
• Determine emission factors.
How to read an (M)SDS

• A (Material) **Safety Data Sheet** or (M)SDS contains information on:
  – All components of the material
  – Potential health effects and hazards
  – How to safely use, store, and handle that material
  – What to do if accidents occur
# How to read an (M)SDS

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>% by Weight</th>
<th>CAS Number</th>
<th>Ingredient</th>
<th>Units</th>
<th>Vapor Pressure</th>
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<tbody>
<tr>
<td>7</td>
<td>590-01-2</td>
<td>n-Butyl Propionate</td>
<td>ACGIH TLV  Not Available</td>
<td>3.44 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>123-86-4</td>
<td>n-Butyl Acetate</td>
<td>ACGIH TLV 150 PPM</td>
<td>10 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACGIH TLV 200 PPM STEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL 150 PPM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL 200 PPM STEL</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>13463-67-7</td>
<td>Titanium Dioxide</td>
<td>ACGIH TLV 10 mg/m3 as Dust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL 10 mg/m3 Total Dust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSHA PEL 5 mg/m3 Respirable Fraction</td>
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</tr>
</tbody>
</table>
## How to read an (M)SDS

### SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT WEIGHT</td>
<td>16.11 lb/gal</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>1.94</td>
</tr>
<tr>
<td>BOILING POINT</td>
<td>255 - 293 °F</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>Not Available</td>
</tr>
<tr>
<td>VOLATILE VOLUME</td>
<td>36%</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>Slower than ether</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>Heavier than air</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER</td>
<td>Not Available</td>
</tr>
<tr>
<td>VOLATILE ORGANIC COMPOUNDS (VOC)</td>
<td></td>
</tr>
<tr>
<td>Theoretical - As Packaged</td>
<td></td>
</tr>
<tr>
<td>Less Water and Federally Exempt Solvents</td>
<td>2.70 lb/gal 324 g/l</td>
</tr>
<tr>
<td>Emitted VOC</td>
<td></td>
</tr>
</tbody>
</table>
Emission Factors

• Emission factors are a numerical representation of how much pollution is emitted per unit processed/manufactured/or utilized.

• Emission factors can also be expressed as a hourly rate of emissions

Example:
An emission factor for wood sawing may be expressed as 6 pounds of particulate matter emitted per every ton of wood processed
Sources of Emission Factors

- (M)SDS
- Stack Testing
- Mass Balance
- Modeling
- AP-42
- Factor Information Retrieval System (FIRE)
Determining PTE - Basic Formula

Emissions Emitted =

Maximum Hourly Rate * Potential Operating Hours * Emission Factor (EF)
Controlled vs Uncontrolled Emissions

Control Device is an add-on unit that limits the release of a pollutant into the ambient air.

- **Particulate Matter**
  - Cyclones
  - Fabric Filters
  - Wet Collectors
  - **NOT VOC or HAPS**

- **Gaseous Pollutants**
  - Condensers
  - Absorbers
  - Combustion
Applying PTE to Air Permitting

Nothing is required (no registration or permit) if a source’s PTE is:

- <2 tpy of a HAP,
- <5 tpy of combined HAPs,
- <10 tpy of a RAP and
- The source is not subject to an NSPS or NESHAP.

*tpy = tons per year

*It is recommended to still file for a registration*
Applying PTE to Air Permitting

Registration is required if a source’s PTE is:

≥ 2 but < 10 tpy of a HAP,
≥ 5 but < 25 of combined HAPs, and
≥ 10 but < 25 tpy of a RAP.

*Required if the source is subject to an NSPS or NESHAP*

*tpy = tons per year
Applying PTE to Air Permitting

A state origin permit is required if a source’s PTE is:

≤ 10 tpy of a HAP,

≤ 25 tpy of combined HAPs and

≥ 25 but <100 tpy of a RAP.

*tpy = tons per year
Applying PTE to Air Permitting

A **Title V** permit is required if a source’s PTE is:

- $10 \text{ tpy}$ of a HAP,
- $25 \text{ tpy}$ of combined HAPs or
- $100 \text{ tpy}$ of a RAP

**Prevention of Significant Deterioration (PSD) permits** are major sources above Title V thresholds or certain industry categories with specific limits that are located in attainment areas.

Some sources may be eligible to accept limitations on their actual emissions to avoid major source status (**Federally Enforceable State Operating Permits**).

*tpy = tons per year*
Determining Your Permit Type

Revisited

• STEP 1
  – Are you a Major or Minor (Area) Source?
    • Based on potential-to-emit (PTE) calculations
      – How much pollution are your emitting potentially
    • Automatically designated based on NESHAP and NSPS requirements
      – Area source standards
Determining Your Permit Type

Revisited

• **STEP 2**
  – What are your actual emissions?

• **STEP 3**
  – What is the status of your local air quality
    • Attainment status designation for NAAQS
      [http://www.lrc.ky.gov/kar/401/051/010.htm](http://www.lrc.ky.gov/kar/401/051/010.htm)
Permit Types

Minor Source

**Registration**  **State Origin**  **Title V**

Major Source

**PSD**
Prevention of Significant Deterioration

**FESOP**
Federally Enforceable State Operating Permit
Permit Types

Minor Source

Registration ➔ State Origin ➔ Title V

Major Source

PSD ➔ Prevention of Significant Deterioration

FESOP
Federally Enforceable State Operating Permit
Limiting Your Potential

- Federally Enforceable State Operating Permits (FESOP)
  - Conditional Major
  - Synthetic Minor
- These permits have restrictions on your emission to artificially limit your actual emissions to below major source thresholds
Where to find all the DAQ permitting forms:

Go to: www.air.ky.gov

Then go to the forms Library:

http://dep.ky.gov/formslibrary/Pages/default.aspx

You’ll want “Division: Air Quality” then “Program: Permitting.”
Submitting an Application

Once you have all the previous form(s) completed, put together your permitting application packet.

Be sure to include:

• Cover letter
• Permitting Forms (DEP 7007 series) or Registration form (DEP 7039A)
• PTE calculations on DEP 7007N (may also include supplemental spreadsheets)
• MSDS’s, Equipment spec. sheets, references, etc.
• Facility layout map
• Flow diagram
• SOS form
• Topographic map

Be sure to mail your application via registered mail
Cover Letter

It is recommended to submit a cover letters that includes:

1. **Process Description**: This is the part where you’ll describe the business and their product. This can include the origins and location of the company.

2. **Emission Calculations**: This is a description of how PTE was calculated, where the emission factors, hourly rates and any other pertinent information is from. Be sure to include information about control devices.

3. **Potentially applicable (non-applicable) regulations**: This is a listing of the regulations you believe will apply to your particular business and an explanation of why a regulation might not apply to your business.

4. **Recommendation**: This is where you state which type of permit you believe your company needs based on PTE.
# Environmental Compliance Assistance Program

**Forms**

MINOR SOURCE REGISTRATION FORM DEP 7039A

**Commonwealth of Kentucky**
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
200 Fair Oaks Lane, 1st Floor
Frankfort, Kentucky 40601
(502) 564-3999
http://www.air.ky.gov

<table>
<thead>
<tr>
<th>Box</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Check this box if you are a new source submitting a registration pursuant to 401 KAR 52:070, Section 3(1).</td>
</tr>
<tr>
<td>2</td>
<td>Check this box if you are already registered and are making a change pursuant to 401 KAR 52:070, Section 3(2)(a).</td>
</tr>
<tr>
<td>3</td>
<td>Check this box if you do not have a permit or registration and have been instructed to submit a registration form by a representative of the cabinet, pursuant to 401 KAR 52:070, Section 4.</td>
</tr>
<tr>
<td>4</td>
<td>Check this box if you currently have a permit and are requesting the cabinet to rescind your permit pursuant to 401 KAR 52:070, Section 5.</td>
</tr>
</tbody>
</table>

*If you checked box #1, #3, or #4, complete all four Sections.
If you checked box #2, complete Sections 1 and 4, and provide only that information which relates to the change in Section 3.*

## SECTION 1. GENERAL INFORMATION

**Company Contact:**

<table>
<thead>
<tr>
<th>Information</th>
<th>Telephone No.</th>
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</thead>
<tbody>
<tr>
<td>Title:</td>
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</tr>
<tr>
<td>Company Name:</td>
<td>D&amp;B (DUNS) No.:</td>
</tr>
<tr>
<td>Company Street Address:</td>
<td>KeyEIS #:</td>
</tr>
<tr>
<td>A.I. #:</td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td>State:</td>
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</tbody>
</table>

**Plant Contact:**

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<tr>
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<td>Title:</td>
<td></td>
</tr>
<tr>
<td>Plant Name:</td>
<td>Plant Street Address:</td>
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<tr>
<td>City:</td>
<td>State:</td>
</tr>
</tbody>
</table>
# Environmental Compliance Assistance Program

**Simplifying Compliance**

## Forms

### PERMIT APPLICATION

The completion of this form is required under Regulations 305 KAR 2:07-005, and 305.060 pursuant to KRS 171. Applications are submitted online unless accompanied by a copy of all plans, specifications, and drawings required therein. Failure to supply all information required or demanded herein by the division will enable the division to deny the application. Applications submitted by electronic means shall be in PDF format only. Applications submitted by mail shall be in PDF format only. Applications submitted in hard copy shall be submitted in loose-leaf format, and shall be accompanied by a CD containing the PDF version of the application.

### APPLICATION INFORMATION

- **Name:**
- **Title:**
- **Company:**
- **Street or P.O. Box:**
- **City:**
- **State:**
- **Zip Code:**

**Contact Person for Technical Information:**

Name: ____________________________
Title: ____________________________
Phone: ____________________________

### OPERATOR INFORMATION

- **Name:**
- **Title:**
- **Company:**
- **Street or P.O. Box:**
- **City:**
- **State:**
- **Zip Code:**

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### EMISSIONS UNIT AND EMISSION POINT INFORMATION

<table>
<thead>
<tr>
<th>KyES ID #</th>
<th>Emissions Unit and Emission Point Descriptions</th>
<th>Maximum Operating Parameters</th>
<th>Permitted Operating Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Hourly Operating Rate (SCC Unit/hr)</td>
<td>Annual Operating Hours (hr/yr)</td>
</tr>
</tbody>
</table>

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Page 1
Facility Layout and Flow Chart

• Create a facility layout demonstrating where each piece of equipment is located and any control devices and stacks/vents.
  – It is advisable to add any new equipment prior to installation or construction
• Make sure to number each emission point as well as any control devices and stacks.
• Prepare a facility flow diagram.
Facility Layout

- Welding
- Sand Blasting
- Wood Processing
- N.G. Drying Oven
- Delivery of Rough Wood
- Wood Chipper (diesel)
- Natural Gas Boiler
- Mulch Pile
- Office Area
- Solvent Parts Washer

Finishing Area/Paint Booth: furniture (iron and wood) is prepped, sanded, and stained
Facility Flow Chart

Welding
- Sand Blasting
- Wood Processing

Office Area
- Solvent Parts Washer

Cyclone
- Delivery of Rough Wood

N.G. Drying Oven
- Natural Gas Boiler
- Wood Chipper (diesel)

Finishing Area/Paint Booth: furniture (iron and wood) is prepped, sanded, and stained

Mulch Pile
Secretary of State (SOS)

- All permit applications are required to have a Certificate of Authority from the KY Secretary of State (for corporations and LLC’s) or Certificate of Limited Partnership for Limited Partnerships.

- Certificate must show that company is in good standing with the KY SOS.

- To print a copy online, visit KY SOS Online Services
All permit applications must have a topographic map showing the location of the facility. Topo maps can be purchased from the USGS or you can use Google Maps in “terrain” mode.
Common Air Quality Compliance Issues

• Construction without a permit
• Not adding new emission points to an already existing permit
  – Boilers, generators, etc.
• Not renewing permit 6 months prior to expiration
• Not doing proper recordkeeping and reporting
  – Rolling totals
  – Failure to meet Method 9 requirements
Common Air Quality Compliance Issues

• All permitted sources are required to submit Annual Compliance Certifications and Semi-Annual Monitoring Reports.
  – Must be submitted on time
• Notification of startup/shutdown/malfunction
• Noncompliance with asbestos regulations
  – Must provide a 10 day notification prior to any demolition or renovation
Resources

- DEP Forms Library (under Air Quality → Permitting)
- DCA Helpful Resources Library
- DCA PTE Compliance Guide
- Reading & Understanding Your Air Permit - Learning Module
- EPA PTE Guide for Small Businesses
- AP-42
- DCA Typical Permits At a Glance
- DCA Common Permits and Timelines
Common Terms

- Title V
  - Part 70 permit
- CAA: Clean Air Act
- CFR: Code of Federal Regulations
- DAQ: Division for Air Quality
- EPA: Environmental Protection Agency
- KAR: Kentucky Administrative Regulations
- PTE: Potential to Emit
- HAPs: Hazardous Air Pollutants
- Criteria Pollutant or Regulated Air Pollutant:
  - PM/PM10, Ozone (VOC), CO, CO2 (certain sources), NOx, SO2, Lead
More information

If you have specific questions, please contact DCA Division of Compliance Assistance
(502) 782-6189
dca.ky.gov
envhelp@ky.gov