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# Permitting Update

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March 5, 2015

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# Permit Updates

Areas that we are concentrating on:

1. Completeness Checks
   - Consistency
   - Documenting deficiencies
2. Recordkeeping
   - New expectations

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# Complete Permit Application

- What does “complete” mean?
  - All content elements are included within the application
    - We maintain a completeness checklist for each permit project
      - Description of the project
      - Site map is included
      - Process flow diagram
      - Form 2.0s completely filled out
      - Application has been signed
      - Application fee has been paid

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# Complete Permit Application

- Completeness checklist
  - A complete set of calculations are included
  - Confidential items have been identified
  - If required, compliant modeling has been submitted

- Does the permit writer have a sufficient amount of information needed to verify potential emissions calculations and write a permit?

# Completeness Checklist

- It's a guideline we use
- The checklist does not necessarily address everything that we need to determine completeness

**NEW SOURCE REVIEW - COMPLETENESS CHECKLIST**
**REQUIRED INFORMATION & FORMS**

For Section (5) *De Minimis* Permits, Section (6), General Permits, Section (7) Nonattainment Area Permits, Section, (8) Attainment and Unclassified Area Permits, or Section (9) Hazardous Air Pollutants Permits

**Installation Name:** ACME **Project No.:** 2020-01-001 **Date:** 3/4/2015
**FIPS-Plant ID No.:** 999-0001

Place a check mark to the left of each question to indicate if that item was included in the permit application or indicate (NA) for the appropriate non-applicable items.

| Yes | No | **Information to be Completed on Authority to Construct Form** |
|---|---|---|
| | | Filing Fee – ($100.00 per application) & the Authority to Construct Form (2 Copies) |
| | | Installation Name, Street & Mailing Address, City & Zip Code |
| | | Location of Installation including County Name & CSTR Coordinates |
| | | Installation's Final Product/Principle Activity & SIC Code |
| | | Parent Company Name, Mailing Address, City, State & Zip Code |
| | | Contact Person's Name, Title, Mailing Address, City, State, Zip Code, Phone and Fax Number |
| | | FIPS County ID & Plant ID Number (if available for existing installation) |
| | | Projected Date to Commence Construction & Projected Date of Operation Startup |
| | | Signature, Title & Telephone Number of Responsible Official & Date Application Signed |
| | | Project Description and Narrative |
| **Yes** | **No** | **Emission Unit Information Forms for Project (2 copies)** |
| | | Form 1.1, *Process Flow Diagram* & Form 1.2, *Summary of Emission Points*, |
| | | Form 1.3, *Plant Layout Diagram* (including the proposed location/orientation of the equipment, the property boundaries and drawn to scale) |
| **Yes** | **No** | **Supplementary Information to be Submitted (if required – 2 copies)** |
| | | Incinerator Information Request Forms for Any Project Involving an Incinerator (must include stack test data for the incinerator) |
| | | Stack Testing Report (if necessary) |
| | | Ambient Air Quality Impact Analysis (if necessary) |
| | | Ambient Monitoring Report (if necessary) |
| | | Information on Chemical Reactor Vessels |
| **Yes** | **No** | **Form 2.0 Emission Point Information Required for Each Point (2 copies)** |
| | | Point No. and Point Description & Source Classification Code |
| | | Make, Model, and Year of Manufacture of Equipment |
| | | Stack No., Height, Diameter, Temperature & Stack Velocity or Flowrate |
| | | Maximum Hourly Design Rate in SCC Units/Hr |
| | | Expected Operating Schedule (i.e. Hours/Day, Days/Week & Weeks/Year) |
| | | Control Device No., Description, & Destruction/Removal Efficiency (if applicable) |
| **Yes** | **No** | **Additional Emission Point Information (if necessary – 2 copies)** |
| | | Form 2.1, *Fuel Combustion Information* |
| | | Form 2.3, *Uncontrolled VOC Emissions Information* & Material Safety Data Sheet(s) |
| | | Form 2.4, *Petroleum Liquid Loading Information* |
| | | Form 2.5, *Organic Liquid Storage* |
| | | Form 2.7, *Haul Road Fugitive Emissions Information* |
| | | Form 2.8, *Storage Pile Information* |
| | | Form 2.T, *Hazardous Air Pollutant Information (HAP)*-Material Safety Data Sheet(s) |
| **Yes** | **No** | **Additional Information Required for Major Source Reviews** |
| | | Refined Modeling Protocol for Project |
| | | BACT Analysis |
| | | Pre-Construction Monitoring Protocol Approved (if required) |
| | | Ambient Air Quality Impact Analysis Report |
| | | Ambient Monitoring Report (if completed and required) |
| **Yes** | **No** | **Additional Information Required for Major Source Reviews (if applicable)** |
| | | Visibility Statement/Analysis for Class I Areas |
| | | Soil & Vegetation Impact Report/Statement |

Comments:

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# Complete Permit Application

- What “complete” does <u>not</u> mean?
  - ALL questions have been answered.
  - ALL calculations have been verified and agreed upon.
- How do you (the applicant) know when an application is complete?
  - You should receive a completeness email from the permit writer with the completeness date.

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# Why is having a complete application important?

- The permitting “clock” doesn’t start until
  1. All the information has been submitted.
     - That is when your application will be deemed administratively complete

  OR

  2. If the permitting authority does not notify the installation that its application is not complete within 30 day of receipt of the application, then it is considered complete the day of receipt.

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# Why is having a complete application important?

- For major applications, the complete application date sets the baseline date and establishes who gets to claim increment in an area first.

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# Remember…

- One of the permit writer's main duties is to <u>verify</u> the information given.

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# Common Issues with Applications

1. Common missing information

- Site map – not showing distance to the property line
- Process flow diagrams
- Missing capture device information with capture efficiency
- Source of the emission factor
- Emission unit, emission point and control device numbering
  - Should be consistent with EIQs and Operating Permits.

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# Common Issues with Applications

2. Insufficient or lack of descriptions or explanations

Project descriptions should :

- Specify the equipment/processes being added or modified
- Describe the overall process and how the emissions are occurring or being affected by the project
- Address why the project is being pursued.

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# Common Issues with Applications

Project descriptions should:

- Describe what is bottlenecking the process
- Address whether the project is debottlenecking any part of the process

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# Common Issues with Applications

## 3. Incomplete or Inaccurate PTE Calcs

Common problems we see:

- Using the wrong maximum capacity to determine PTE
- Maximum design or usage rates are not sufficiently explained, cannot be verified.

Note: MHDR = maximum hourly design rate

PTE = potential to emit

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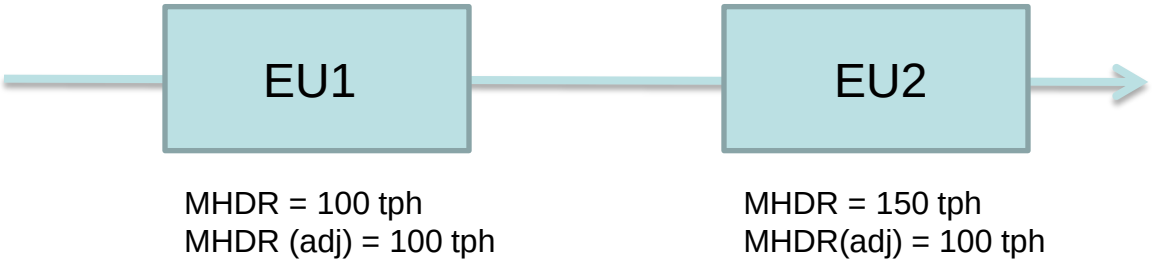
PTE is defined as "the *maximum* capacity of a stationary source to emit a pollutant under its *physical and operational design*. Any physical or operational limitation on the capacity of the source to emit a pollutant…shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. [40 CFR 52.21(b)(4)]

# Using the wrong MHDR

- Equipment MHDR vs. Bottlenecked MHDR




- Inaccurate PTE calc: PTE of EU1 @100 tph + PTE of EU2 @150 tph
- PTE is based on the bottlenecked throughput of 100 tph for each emission unit. (i.e. PTE of EU1 @**100** tph + PTE of EU2 @**100** tph

# Example: Maximum hourly design rate not sufficiently explained

| POINT NO (D) | POINT DESCRIPTION (E.) | | |
|---|---|---|---|
| EP-01 | SPRAY BOOTH #1 | | |
| SOURCE CLASSIFICATION CODE (SCC) (F.) | MAKE (G.) | MODEL (H.) | YEAR (I) |
| 40202537 | DAYTON | 7F831 | 2004 |

**STACK / VENT PARAMETERS**

| STACK NO (J.) | HEIGHT (FT) (K.) | DIAMETER (FT) (L.) |
|---|---|---|
| 0001 | 14'-0" | 2'-0" |
| TEMPERATURE (F) (M.) | VELOCITY (FT/MIN) (N.) | FLOW RATE (STANDARD CUBIC FT/MIN) (O.) |
| 77° | 2791 | 8768.2 |

**OPERATING RATE / SCHEDULE**

| EXPECTED ANNUAL THROUGHPUT (P.) | UNITS (Q.) | MAXIMUM HOURLY DESIGN RATE (R.) | UNITS/HR (S.) |
|---|---|---|---|
| 200 GALLONS. | GALLONS | 2 | GALLONS |

| HOURS/DAY (T.) | DAYS/WEEK | WEEKS/YEAR |
|---|---|---|
| 8 HRS MAX | 5 DAYS | 52 |

**AIR POLLUTION CONTROLS**

| DEVICE NO. (U.) | CONTROL DEVICE DESCRIPTION (V.) | Control Device Destruction/Removal Efficiency % (w.) PM | $SO_x$ | $NO_x$ | VOC | CO | HAPs |
|---|---|---|---|---|---|---|---|
| 0001F | POLYESTER EXHAUST FILTER MEDIA | | | | | | |
| | | | | | | | |
| | | | | | | | |

| DEVICE NO | DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.) |
|---|---|
| 0001F | EXHAUST FAN 24" HAS POLYESTER FILTER MEDIA RACK 6'x8' - REAR TOP OF BOOTH |
| | |

**CALCULATION SECTION (Y.)**

| POLLUTANT | EMISSION FACTOR | EMISSION FACTOR UNITS | OVERALL CONTROL EFFICIENCY | EMISSION RATE (LB/HR) | POTENTIAL EMISSIONS (TONS/YR) |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |

Maximum design or usage rates are not sufficiently explained.

- Explain how the 2 gallons/hour was derived.
  - Based on the paint gun spray rate?
  - Based on process bottlenecks that include prep time, drying time, etc? What are the times associated with each step?
  - Based on specific amounts of coating used per widget * max widget made per hour?

# What we are looking for..

Example maximum design rate explanations:

- The maximum rate of the spray gun is (0.25 gallons per minute) and the maximum usage time of the spray gun is 2 hours per 12 hour shift.
- The remainder of the 12-hour period is required for material preparation, drying times, and movement of the product.

- Short-term MHDR = 0.25 gal/min
- Long-term maximum design rate = 0.25 gal/min x 60 min/hr * 2 hours of spray time/12 hour period * 24 hour per day = 60 gal/day

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# Another Calculation Issue: Not including modified emission units in PTE calcs

- Permit is needed when
  - "**any construction or modification** at an installation subject to this rule which results in a **net emissions increase** …." [10 CSR 10-6.060(5)]
- Net emissions increase is defined in 40 CFR 52.21 (b)(3)
  - Actual to Projected Actual calculations
  - Actual to Potential calculations

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# Issue: Not including modified emission units in PTE calcs

- Modification as defined in 10 CSR 10-6.020(2)(M)49.C. as “any physical change to, or change in method of operation ….”

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# Common Calculation Issues Concerning Modifications

- Not all of the potential increases are accounted for – emissions associated with modified units are sometime left out
  - Any emission unit that can experience an increase in potential emissions need to be included in the potential emission calculation.
- Calculating and an emissions increase by comparing potential emissions before and after change.  PTE(new) – PTE (existing)
  - Use federal definition of net emission increase to calculate PTE

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# Example 1: Modified EU Debottlenecks the Line

- Project: A fume collection system will be installed as a result of using a new styrenated resin on one of the lines.
- Originally, only the VOC and HAPs associated with use of the new resin was included in the project PTE
- However, with the change to the styrenated resin, the potential feet per day of rod manufactured in this line could experience a 5% increase due to the ability of the styrenated product to be pulled through the line at a faster rate than the non-styrenated resin.

# Example 1: Modified EU Debottlenecks the Line (cont'd)

- A 5% increase in the line production (105% of the original PTE) was added to the original maximum hourly design rate (MHDR) of all EUs in the line.
- In this case the new PTE for the line was less than de minimis levels. However, they could have net emission increase such as PTE – BAE to determine project emissions.

# Example 2: Modified EU Debottlenecks the Line

- Project: Installation of two electromagnetic stirrers to mix an aluminum melt solution more *efficiently*.
- The stirrers are powered by electricity and generate no emissions.
- The facility, however, anticipates an overall increase of 10% aluminum throughput due to decreases in batch time.
- Facility calculated emissions based on PTE with 10% higher potential throughput minus PTE at current levels.

# Example 2: Modified EU Debottlenecks the Line

- Facility altered calculations to a PTE based on 10% increase (110% of original PTE) for emission unit affected by the change minus 2-year baseline actual calculation.

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# 3. Incomplete or Inaccurate PTE Calcs

- HAPs are not calculated, only VOCs
  - A copy of the HAP table with SMALs and RALs can be found on our website at http://www.dnr.mo.gov/env/apcp/docs/cp-hapraltbl6.pdf
- Haul road emissions for raw materials or products are not included

# Common Issues with Applications

## 4. Lack of documentation

The permit writer says
“Documentation makes it all
better.”

# What documents should be included

- The source of an emission factor
  - If you rely on a document where the emission factor is not readily available or obvious (like AP-42 or webFIRE), then provide the paper copy or web link to the document
    - Examples include technical papers, stack test reports, guidance documents, etc.
  - Every emission factor used should have a statement of where that emission factor came from.

- What documents should be included
  - Documented performance of control devices
    - Exception: Don’t need documentation for baghouses that are claiming 99% or less control or thermal oxidizers that are claiming 95% or less control.
  - Safety Data Sheets (SDSs)
    - Include all of them
    - In the case of large #s of SDSs, submittal of a spreadsheet with all relevant data along with10-20 SDSs that give worst case PTEs.

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# Common Issues with Applications

5. Modeling not included for criteria pollutants exceeding de minimis levels or HAPs exceeding SMALs
   - No modeling required for PM or VOC, yet.

# Making a good application even better

- Address the applicability of state and federal rules
  - List the MACTs or NSPSs that apply
  - List the state rules that apply

Note: These non-permit rules can be used to legally limit PTE.

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# Good application made better….

- Address whether the new project is affecting any existing permit limits
- State if you are wanting to take any new enforceable limits
- Address how you plan to demonstrate compliance of a limit or show continued performance control device

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# More Detailed Recordkeeping

- EPA has put an emphasis in their permit reviews on recordkeeping.
- Any special condition that we put in a permit must be:
  1. Federally enforceable, and
  2. Enforceable as a practical manner.
- The recordkeeping is a large component of making a limitation federally enforceable.

PTE is defined as “the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant…shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. [40 CFR 52.21(b)(4)]

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# What does “enforceable as a practical manner” mean?

- According to EPA guidance, a permit limit needs to:
  - Establish a clear legal obligation for the source
    - (defined limitations)
  - Allow compliance to be verified
    - (use of recordkeeping)

- EPA guidance on limitations state that permit conditions should restrict operations or productions with use of limits on hours of operation, fuel consumption or final products amount

- MDNR accomplishes this by
  - Directly limiting these parameters
    - Eg. Limit on fuel usage amounts
  - Indirectly through limiting the emissions and be specific on recordkeeping by including emissions factors and calculation methods to be used in the recordkeeping
    - Eg. Limiting a 40 ton NOx per year, 12 month rolling average with recordkeeping limiting fuel usage by specifying the emission factor to be used in the recordkeeping (EF=20 lb NOx /Mgal fuel)

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# Example of Recordkeeping that is no longer acceptable

**Attachment B**
**Plant-Wide Emissions Tracking Record**

This is an example of a form that may be used to record data required by Permit Conditions PW002. In order to demonstrate compliance with the Permit Condition PW002, Campbell must demonstrate the installation emits less than 100 tons of VOC in any consecutive 12-month period.

| Emission Unit | Month | | | | | | | | | | | | 12 Month Rolling Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
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| Total | | | | | | | | | | | | | |

# Example where EFs and calculation method are defined

**Copy as needed.**

| Fuel Used | Column A<br>(a) Monthly Amount of Fuel Combusted (include units) | Column B<br>(b) $NO_x$ Emission Factor (lbs/unit) | Column C<br>(c) Monthly $NO_x$ Emissions (Tons) |
|---|---|---|---|
| | | | |
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| | | | |
| | | | |
| | | | |
| (d) Total $NO_x$ Emissions Calculated for this Month in Tons: | | | |
| (e) 12-Month $NO_x$ Emissions Total from Previous Month's Attachment A, in Tons: | | | |
| (f) Monthly $NO_x$ Emissions Total (d) from Previous Year's Attachment A, in Tons: | | | |
| (g) Current 12-Month Total of $NO_x$ Emissions in Tons: [(d) + (e) - (f)] | | | |

(a) Total amount of fuel combusted in boilers or emergency generators. When combusting No. 2 fuel oil or diesel fuel, report in Mgal; when combusting natural gas, report in MMCF.

(b) Use the appropriate emission factor from the following:

1) When combusting diesel fuel in EP-05 and EP-13, use 489.00 lbs/Mgal;
2) When combusting No. 2 fuel oil in EP-09, EP-10, or EP-11, use 20.00 lbs/Mgal;
3) When combusting No. 2 fuel oil in EP-14, use 7.0 lbs/Mgal; this emission factor includes a 65% $NO_x$ control efficiency;
4) When combusting natural gas in EP-09 or EP-11, use 140.0 lbs/MMCF;
5) When combusting natural gas in EP-14, use 35.0 lbs/MMCF; this emission factor includes a 65% $NO_x$ control efficiency;

(c) Column A x Column B x 0.0005.

(d) Summation of [Column C] in Tons;

(e) 12-Month $NO_x$ emissions total (g) from last month's Attachment A, in Tons;

(f) Monthly $NO_x$ emissions total (d) from previous year's Attachment A, in Tons;

Calculate the new 12-month $NO_x$ emissions total. **A 12-Month $NO_x$ emissions total (g) of less than 250.0 tons indicates compliance.**

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# Helpful Websites

- Permit  and permit modeling guidance on DNR's website at
  - http://www.dnr.mo.gov/env/apcp/permits.htm
- EPA Region VII's Policy and Guidance database
  - http://www.epa.gov/region07/air/search.htm

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# Questions????

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