

**WISCONSIN AIR POLLUTION CONTROL
OPERATION PERMIT APPLICATION
INSTRUCTIONS**

FOR INITIAL OR RENEWAL APPLICATIONS

PUB AM-300

July 2018

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
P. O. BOX 7921
MADISON, WI 53707

Table of Contents

Introduction.....	1
What is an Air Pollution Control Operation Permit?	1
DNR’s Operation Permit program	1
Requirements common to all Operation Permit holders	1
Operation Permit application timing.....	2
Considerations for a different permit type	2
How to determine the appropriate Operation Permit type	3
Determine the facility type.....	3
Select the appropriate permit type based on the facility type	6
Application requirements by permit type.....	7
Part 70 major source permit.....	7
Synthetic minor, non-Part 70 source permit	7
Non-Part 70 source permit	8
General Operation Permit	9
Registration Operation Permit	9
Applying for Confidentiality.....	10
Operation Permit renewal submittal instructions	10
Synthetic minor or non-Part 70 sources becoming part-70 major sources	11
Part 70 major sources becoming synthetic minor, non-Part 70 sources	11
Part 70 major sources or synthetic minor sources becoming non-Part 70 sources	11
Sources becoming exempt from Operation Permit requirements	11
Alternative operating scenarios.....	11
Air permit application forms.....	12
Application submittal.....	14
Application completeness	14
Where to send applications	14
Maximum Theoretical Emissions	15
Potential to Emit	22
Federal enforceability for synthetic minor non-Part 70 source permits.....	24

Introduction

This document provides detailed instructions on applying for an Air Pollution Control Operation Permit, and includes information on when applications are due and what needs to be included in an application.

- Plain English, non-technical definitions of terms frequently used in the DNR's Air Management Program related to air permits can be found here: <https://dnr.wi.gov/topic/airpermits/glossary.html>.
- Department contact information can be found here: <https://dnr.wi.gov/topic/AirQuality/contacts.html>.

What is an Air Pollution Control Operation Permit?

An Air Pollution Control Operation Permit, or Operation Permit, is a single document that contains the air pollution requirements that apply to an individual facility. It contains emission limitations and operating conditions that must be followed to show compliance with federal and state air pollution rules.

DNR's Operation Permit program

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Control Operation Permits, which are commonly referred to as **Part 70 source** permits, Title V permits, or **major source** permits.

Wisconsin regulations require some other facilities to receive a state (**non-Part 70/minor source**) operation permit.

Facilities are still required to obtain a Construction Permit before beginning any new construction or modifications at the facility, unless the facility can show it is exempt from this requirement. For more information on exemptions, visit the "Air permit exemptions" webpage: <https://dnr.wi.gov/topic/SmallBusiness/Exemptions.html>.

For additional information on Construction Permits, visit the "Air permit options" webpage, and view the Construction tab: <http://dnr.wi.gov/topic/AirPermits/Options.html>.

Requirements common to all Operation Permit holders

All Operation Permit holders are required to:

- Pay an annual fee as required by [s. 285.69\(2e\), Wis. Stats.](#), for **Part 70 sources**, or in [s. 285.69\(2m\), Wis. Stats.](#), for **non-Part 70 sources**,
- Report the facility's compliance status at least annually to the department, or at the frequency indicated in the facility's permit(s),
- Implement a compliance monitoring program and report monitoring results at least annually to the department, or at the frequency indicated in the facility's permit(s), and
- Operate according to the conditions and limitations of the facility's permit(s) to maintain compliance with the applicable air pollution rules.

Operation Permit application timing

All facilities are required to obtain an Air Pollution Control Operation Permit, unless they are exempt from this requirement under [ch. NR 407, Wis. Adm. Code](#). For new sources, an initial Operation Permit application is due on the date the application for the Construction Permit is filed.

For new sources that are exempt from construction permitting (see [ch. NR 406, Wis. Adm. Code](#)), an Operation Permit application is due prior to commencing construction.

For existing sources with a project that is not exempt from construction permitting (see [ch. NR 406, Wis. Adm. Code](#)), an Operation Permit revision application is due on the same date that the application for construction or modification is filed.

Operation Permit renewal applications are due at least six months, but no more than 18 months, prior to the expiration date of the existing Operation Permit. Specific instructions on applying for an Operation Permit renewal may be found here: <https://dnr.wi.gov/topic/AirPermits/Renew.html>.

- All facilities that submit an Operation Permit application at least six months before the existing permit's expiration date will be notified that their application is timely and that they may continue to operate according to the conditions and limitations of the existing Operation Permit after it has expired, until the renewed or revised Operation Permit is issued. This is referred to as an application shield.
- If a facility fails to submit a timely application for renewal, and the Operation Permit renewal is not issued before the existing Operation Permit expires, the facility will not have the benefit of the application shield and will be out of compliance with air pollution regulations.

Considerations for a different permit type

If the facility's operations have changed during the term of the existing Operation Permit, the facility may either need to or could choose to apply for a different type of Operation Permit. Please see the Operation Permit types section of this document for additional information.

If the facility's operations have not changed during the term of the existing Operation Permit, then applying to renew the permit without changing the Operation Permit type may make sense: <https://dnr.wi.gov/topic/AirPermits/Renew.html>

Permit options may have changed since the facility's last application, and the facility may be eligible for a different permit option that is better suited to the facility: <https://dnr.wi.gov/topic/airpermits/options.html>.

A facility that made operational changes to lower emissions may now qualify for an exemption. Additional information regarding exemptions may be found here: <http://dnr.wi.gov/topic/SmallBusiness/Exemptions.html>.

How to determine the appropriate Operation Permit type

The department has five different types of permits as part of the Air Pollution Control Operation Permit program. These permit types include:

1. Part 70 source permit
2. Synthetic minor, non-Part 70 source permit
3. Non-Part 70 source permit
4. General Operation Permit (GOP)
5. Registration Operation Permit (ROP)

The type of permit a facility applies for depends on the facility type. The content of the permit application, the review procedure, and the filing date differ depending on the permit type. The next sections describe how to determine the facility type and permit type options available. The different types of permits are described in more detail in the following sections.

Determine the facility type

There are several steps to determine the facility type, including: calculating the *potential to emit*, determining if the facility is a *major source*, and determining if the facility is a *Part 70 source*.

Step 1. Calculate the potential to emit for each significant air contaminant emitted from each significant *emissions unit*, operation, and activity at the facility. *Potential to emit* is defined and explained, and example calculations are given near the end of this document.

When calculating the facility's *potential to emit*, emissions from both point sources and *fugitive emissions* must be included in the permit application. However, fugitive emissions are not counted when determining whether or not a facility needs a Part 70 permit, unless the facility belongs to one of the following categories.

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 ore reduction plants
7. Primary copper smelters
8. Municipal incinerators capable of charging more than 250 tons of refuse per day
9. Hydrofluoric, sulfuric, or nitric acid plants
10. Petroleum refineries
11. Lime plants
12. Phosphate rock processing plants
13. Coke oven batteries
14. Sulfur recovery plants

15. Carbon black plants (furnace processes)
16. Primary lead smelters
17. Fuel conversion plants
18. Sintering plants
19. Secondary metal production plants
20. Chemical process plants. The chemical processing plants category does not include ethanol production facilities that produce ethanol by natural fermentation, as described by the 6-digit code of 312140 or 325193 in the North American Industry Classification System United States, 2007, incorporated by reference in s. NR 484.04(17), Wis. Adm. Code.
21. Fossil-fuel boilers (or combination thereof) totaling more than 250 million British Thermal Units per hour heat input
22. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels
23. Taconite ore processing plants
24. Glass fiber processing plants
25. Charcoal production plants
26. Fossil-fuel-fired steam electric plants of more than 250 million British Thermal Units (BTU) per hour heat input
27. Any other stationary source category not included in the list above which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act (42 USC 7411 or 7412)

NSPS and NESHAPs promulgated on or before August 7, 1980

- 40 CFR 60, Subpart A
- 40 CFR 60, Subpart E
- 40 CFR 60, Subparts F through J
- 40 CFR 60, Subpart K
- 40 CFR 60, Subpart Ka
- 40 CFR 60, Subparts L through Z
- 40 CFR 60, Subpart AA
- 40 CFR 60, Subpart BB
- 40 CFR 60, Subpart DD
- 40 CFR 60, Subpart GG
- 40 CFR 61, Subparts A and C through F

The following US EPA letter provides additional guidance with respect to fugitive emissions:

<https://www.epa.gov/sites/production/files/2015-07/documents/20030306.pdf>

Link to 40 CFR 60: https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr60_main_02.tpl

Link to 40 CFR 61: https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr61_main_02.tpl

Step 2. Total the potential to emit for each significant air contaminant emitted from all significant *emissions units*, operations, and activities at the facility.

Step 3. Determine if the facility is a major source. Compare the facility's total *potential to emit* to the criteria for a *major source* (see the Potential to Emit section at the end of this document). For a facility that is not located in a nonattainment area, it is a *Part 70 major source* if the facility's *potential to emit* is:

1. 100 tons per year or more of any air contaminant;
2. 10 tons per year or more of any single *hazardous air pollutant* listed in 112(b) of the Clean Air Act (see <https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications>);
OR
3. 25 tons per year or more of any combination of the *hazardous air pollutants* listed in 112(b), of the Clean Air Act (see <https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications>).

If the facility is located in an ozone nonattainment area, the *Part 70 major source* status is as follows.

1. If the facility is located in a "marginal" or "moderate" ozone nonattainment area and the *potential to emit* is 100 tons per year or more of *volatile organic compounds* or nitrogen oxides, the facility is a major source.
2. If the facility is located in a "serious" ozone nonattainment area and the *potential to emit* is 50 tons per year or more of *volatile organic compounds* or nitrogen oxides, the facility is a major source.
3. If the facility is located in a "severe" ozone nonattainment area and the *potential to emit* is 25 tons per year or more of *volatile organic compounds* or nitrogen oxides, the facility is a major source.
4. If the facility's potential to emit from just significant sources (see [s. NR 407.05\(4\)\(c\)10., Wis. Adm. Code](#) and [Table 3 to ch. NR 407, Wis. Adm. Code](#)) is less than, but close to, any major source threshold, determine whether including insignificant sources would cause the *potential to emit* to be above a major source threshold. If including insignificant emissions units, activities, or operations in calculating potential to emit makes the source a major source then they must be included in the potential to emit calculations.

To determine if the facility is in a nonattainment area, refer to this interactive map: <https://dnr.wi.gov/topic/AirPermits/Nonattainment.html>.

Step 4. Determine if the facility is a Part 70 major source. The facility is a *Part 70 major source* if it falls into any of the following categories.

1. The facility meets one of the *Part 70 major source* criteria in **Step 3**;
2. The facility is an electric utility affected by the acid rain provisions of the Clean Air Act; OR
3. The facility includes a solid waste incineration unit with a maximum capacity greater than or equal to 250 tons per day.

Select the appropriate permit type based on the facility type

Apply for one of the following permit types if the facility is a **Part 70 major source**:

1. A [Part 70 major source permit](#), OR
 - Part 70 major source permits are also referred to as Federal Operation Permits (FOPs).
2. A [synthetic minor, non-Part 70 source permit](#), if the facility qualifies.
 - A synthetic minor source has the potential to emit (PTE) above a **Part 70 major source** threshold and accepts one or more permit limitations to restrict the facility's PTE below Part 70 thresholds in order to be issued a **synthetic minor, non-Part 70 source** permit. These types of permits are also referred to as Federally Enforceable State Operation Permits (FESOPs).

Synthetic minor sources can be categorized as either SM or SM80. An SM80 source has emissions restricted at a rate of at least 80 percent of the major source threshold, whereas a SM source is restricted below 80 percent of the major source threshold.

If the facility does not meet the criteria for a **Part 70 major source**, it is considered to be a **non-Part 70 source** and the facility can apply for one of the following permits.

1. A [non-Part 70 source permit](#),
 - A natural minor source does not require permit limitations in order to synthetically keep the facility's PTE below the Part 70 thresholds. Natural minor sources "naturally" have a PTE below the Part 70 thresholds. If an exemption, **General Operation Permit** or **Registration Operation Permit** is not viable, this type of source would receive a State Operation Permit (SOP), which is also referred to as a natural minor permit or non-Part 70 permit.
2. A [General Operation Permit](#), if your facility is in a source category covered by a General Operation Permit issued in Wisconsin, OR
3. A [Registration Operation Permit](#), which is a special type of general permit designed for the category of sources with low emissions.

Each of these permit options is described in detail below. In addition, information about the different permit types can be found on the "Air permit options" webpage:

<https://dnr.wi.gov/topic/airpermits/options.html>.

Application requirements by permit type

Part 70 major source permit

A **Part 70 major source** permit is required under Title V of the Clean Air Act for major sources and includes the pollution control requirements that apply to the source. While DNR has the primary authority for reviewing and issuing Part 70 permits, U.S. EPA must be provided with an opportunity to review each Part 70 permit and may object to permit issuance. Interested citizens can also petition EPA to object to a Part 70 permit. If EPA objects or grants a citizen petition to object, DNR must revise the permit to address the objections.

A **Part 70 major source** permit application must contain:

1. Identifying information, such as company name and address, and facility contacts,
2. Details on each significant **emissions unit**, operation, and activity, including alternative operating scenarios,
3. Emissions calculations sufficient to verify which requirements are applicable to the source,
4. Applicable federal and state limitations,
5. An indication of the facility's compliance status with each limitation,
6. A plan for coming into compliance or a commitment to remain in compliance with applicable limitations,
7. Methods of demonstrating compliance with applicable limitations,
8. A schedule for submitting compliance certification reports at least annually, AND
9. A signed certification of application completeness and accuracy, and of facility compliance status.

All renewal applications must be submitted at least six months, but no more than 18 months, prior to the expiration of a facility's existing Operation Permit. All **Part 70 major sources** must apply for a **Part 70 major source** permit unless they are qualified to apply for a **synthetic minor, non-Part 70 source** permit.

Synthetic minor, non-Part 70 source permit

Some **Part 70 major sources** may avoid certain **Part 70 major source** permit application requirements by becoming a **synthetic minor, non-Part 70 source** by limiting the facility's **potential to emit** to levels that are less than the thresholds that make a facility a **major source**.

A federally enforceable state operation permit (FESOP), or **non-Part 70 source** permit, is available to those that qualify to be **synthetic minor sources**.

It is important to ensure that all special limitations that are proposed to make the facility a **synthetic minor, non-Part 70 source** can be met at all times. If facility emissions are approaching a FESOP synthetic minor limit then a construction permit to increase allowable emissions must be issued and a new Part 70 Permit must be applied for before the facility's emissions exceed any of the synthetic minor limits.

To qualify to become a *synthetic minor, non-Part 70 source*, a facility must meet both of the following criteria.

1. The facility must not be an electric utility affected by the acid rain provisions of the Clean Air Act, AND
2. The facility must not be a solid waste incineration unit that has a maximum capacity greater than or equal to 250 tons per day.

If the facility does not meet the above criteria, it must submit a *Part 70 major source* application by the *Part 70 major source* submittal date that applies to the facility.

To apply for a *synthetic minor, non-Part 70 source* permit, the facility must do the following:

1. Submit a complete application using the forms required for a *Part 70 major source* operation permit.
2. Propose federally enforceable limitations on the facility's *potential to emit* that will limit the source's emissions to below the *major source* threshold. Please see the Potential to Emit section at the end of this document for additional information.

After receiving a proposal from a facility to be a *synthetic minor, non-Part 70 source*, the department will review the application and determine if the facility has demonstrated that the above conditions have been met. If the department determines that the facility can be permitted as a *synthetic minor, non-Part 70 source*, the application will be processed accordingly. If the department determines that the facility cannot be permitted as a *synthetic minor, non-Part 70 source*, the facility will be notified and will be required to submit a complete *Part 70 major source* permit application.

All renewal applications must be submitted at least six months, but no more than 18 months, prior to the expiration of a facility's existing Operation Permit.

Since December 2015, non-Part 70 operation permits issued do not contain an expiration date. Non-Title V permits issued prior to December 2015 must still submit a timely application for renewal. Upon renewal, they will convert to non-expiring permits, and will not need to be renewed again. Any facility changes throughout time would then be addressed through a Construction Permit, exemptions, and/or Operation Permit revisions.

Non-Part 70 source permit

A *non-Part 70 source* permit is for facilities that either accept permit limitations to restrict emissions below the *Part 70 major source* thresholds or that cannot exceed the *Part 70 major source* thresholds. This type of permit is reviewed by DNR and is enforceable by the State of Wisconsin. A *non-Part 70 source* permit application must contain:

1. Identifying information, such as company name and address, and facility contacts,
2. Details on each significant *emissions unit*, operation, and activity, including alternative operating scenarios,
3. Emissions calculations,
4. Applicable federal and state limitations,
5. An indication of the facility's compliance status with each limitation,

6. A plan for coming into compliance or a commitment to remain in compliance with applicable limitations,
7. Methods of demonstrating compliance with applicable limitations,
8. A schedule for submitting compliance certification reports at least annually, and
9. A signed certification of application completeness and accuracy, and of facility compliance status.

All renewal applications must be submitted at least six months, but no more than 18 months, prior to the expiration date of a facility's existing Operation Permit.

Since December 2015, non-Title V operation permits issued do not contain an expiration date. Non-Title V permits issued prior to December 2015 must still submit a timely application for renewal. Upon renewal, they will convert to non-expiring permits, and will not need to be renewed again. Any facility changes throughout time would then be addressed through a Construction Permit, exemptions and/or Operation Permit revisions.

General Operation Permit

A **General Operation Permit** is intended for facilities that perform the same or similar operations, emit similar air contaminants, use the same or similar emission control technologies, and are subject to the same limitations, standards, and requirements. General Permits are available for asphalt plants, non-metallic mineral processing plants, rock crushing facilities, and various types of printers. **General Operation Permits** contain the same types of limitations and conditions as other permits, but the application and review process is substantially simplified.

If the facility meets the eligibility criteria and would like to apply for a **General Operation Permit**, please contact the listed General Permits contact to talk to the General Operation Permit Coordinator: <https://dnr.wi.gov/topic/AirPermits/>. Any applications for **General Operation Permits** must be submitted at least six months, but no more than 18 months, prior to the expiration of a facility's existing Operation Permit.

Registration Operation Permit

A **Registration Operation Permit** is available to any facility that has actual emissions below the thresholds specified in the permit. A **Registration Operation Permit** is a streamlined permit option that establishes caps at either 25 percent (Type A) or 50 percent (Type B) of the **major source** threshold (depending on which **Registration Operation Permit** is chosen), thereby making it a synthetic minor permit.

A **Registration Operation Permit** allows small emitters to quickly register for a permit in return for keeping emissions low. A **Registration Operation Permit** contains facility-wide emission caps and a requirement to comply with all applicable state and federal air pollution requirements. The facility is responsible for understanding what limitations apply and for setting up monitoring, recordkeeping, and reporting that demonstrate compliance. **Registration Operation Permits** have a review time of no more than 15 days on all complete applications received by DNR.

There are three types of registration permits:

1. Type A Registration Permit – <http://dnr.wi.gov/files/PDF/pubs/am/AM364.pdf>
2. Type B Registration Permit – <http://dnr.wi.gov/files/PDF/pubs/am/AM531.pdf>
3. Type C Registration Permit for Printers – <http://dnr.wi.gov/files/PDF/pubs/am/AM379.pdf>

Only facilities that can meet all of the eligibility requirements can apply for coverage under a **Registration Operation Permit**. Review the permit requirements of the three types of **Registration Operation Permits** found on the “Air permit options” webpage, Registration tab, under the Final permits section: <http://dnr.wi.gov/topic/AirPermits/Options.html>. This section of the webpage also includes application guides that explain eligibility requirements and instructions for completing the application forms. Apply for a **Registration Operation Permit** electronically by following the online application instructions here: <http://dnr.wi.gov/topic/AirPermits/Apply.html>.

If a facility does not qualify for a **Registration Operation Permit**, it is still possible to apply for a source-specific **synthetic minor, non-Part 70** permit. The Small Business Environmental Assistance program is available to provide additional guidance: <https://dnr.wi.gov/topic/smallbusiness/>.

Applying for Confidentiality

All information submitted to the department is considered a public record. The department can keep parts of the permit application confidential (except emissions data), if the facility can demonstrate that the information is entitled to protection as a **trade secret**.

Refer to the fact sheet *How to Request Confidentiality for Business Information*: <http://dnr.wi.gov/files/PDF/pubs/am/AM530.pdf>.

Operation Permit renewal submittal instructions

Air Pollution Control Operation Permits are valid for a maximum of five years. All renewal applications must be submitted at least six months, but no more than 18 months, prior to the expiration date of a facility’s existing Operation Permit. Some permits, including **General Operation Permits**, **Registration Operation Permits**, and **non-Part 70** permits without an expiration date on the cover of the permit do not expire (and therefore, do not get renewed).

There are two ways to submit a renewal application:

1. Through the DNR’s online system following these instructions: <https://dnr.wi.gov/topic/AirPermits/documents/RenewalElectronicSubmittalInstructions.pdf>; OR
2. Following this checklist: <https://dnr.wi.gov/topic/AirPermits/documents/RenewalAppChecklist.pdf>. Please refer to the form-by-form instructions: <https://dnr.wi.gov/files/PDF/pubs/am/AM565.pdf> and the Forms webpage for more information: <https://dnr.wi.gov/topic/airpermits/forms.html>.

When submitting an Operation Permit application with just those forms that have been modified for the renewal application, the department will rely on the existing application in its files to perform the renewal application review for the facility’s current operations covered under the original Operation Permit.

As a result of changes that may have occurred at the facility during the five-year Operation Permit term, the permitting status of the facility may have changed. The facility is responsible for calculating the potential emissions from the facility to determine if the source status has changed. The method for calculating potential emissions is outlined near the end of this document. Refer to the [How to determine the appropriate Operation Permit type](#) section of this document to determine the best permitting option.

Synthetic minor or non-Part 70 sources becoming part-70 major sources

A facility that is operating under either a *synthetic minor, non-Part 70 source* or a *non-Part 70 source* Operation Permit and plans to make a change that will increase emissions to the *part-70 major source* level will need to apply for an operation permit revision or renewal prior to commencing construction (or making the change) in order to update its permit to meet all the requirements for *part-70 major sources*. At a minimum, the facility will need to complete Forms 4530-100, 4530-101, 4530-102. All other applicable forms need to be completed to communicate any additional changes to the department: <https://dnr.wi.gov/topic/airpermits/forms.html>. The requirement to apply for an operation permit revision or renewal is in addition to addressing the construction permitting requirements under ch. NR 406, Wis. Adm. Code through either a notification of exemption, request for a determination of exemption, or request for a construction permit. If the proposed change is not exempt from construction permitting then the change may not be made (construction may not be commenced) until either a construction permit waiver is granted or a construction permit is issued.

Part 70 major sources becoming synthetic minor, non-Part 70 sources

A facility that was a *part-70 major source* under its current Operation Permit, and wishes to take restrictions to limit its emissions to levels below the major source levels in order to become a *synthetic minor, non-Part 70 source*, should provide details to the department on the restrictions proposed in a cover letter submitted with the application. Do not complete forms exclusively for *Part 70 major sources* with the application. A source in this situation could also consider applying for a *Registration Operation Permit* or an exemption, if the facility is eligible. Refer to the “Streamlined permit options for small sources of air pollution” webpage for more information on the options available: <http://dnr.wi.gov/topic/SmallBusiness/SmallAirSources.html>.

Part 70 major sources or synthetic minor sources becoming non-Part 70 sources

If a facility that was a *Part 70 major source* or a *synthetic minor source* made changes during the permit term to permanently reduce its potential emissions to below the major source levels, the facility may be able to be considered a *non-Part 70 source*. In this scenario, the facility should outline those changes in its renewal application. Do not complete forms exclusively for *Part 70 major sources*. A source in this situation could also consider applying for a *Registration Operation Permit* or an exemption, if the facility is eligible. Refer to the “Streamlined permit options for small sources of air pollution” webpage for more information on the options available: <http://dnr.wi.gov/topic/SmallBusiness/SmallAirSources.html>.

Sources becoming exempt from Operation Permit requirements

Changes made at the facility that reduce the number and/or change the type of *emissions units* at the facility, or decrease the emissions to a level where the facility is now exempt from Operation Permit requirements should be detailed in the renewal application and note that the facility is now exempt from Operation Permit requirements in a cover letter, along with a request for exemption on Form 4530-100: <https://dnr.wi.gov/topic/airpermits/forms.html>. Review the exemption options at: <http://dnr.wi.gov/topic/SmallBusiness/Exemptions.html>.

Alternative operating scenarios

Facilities can include information in a permit application regarding alternate operating scenarios. Some of the forms have a space for a facility to address alternatives. For example, a form for printers, Form 4530-107, asks the facility to provide information for all inks currently in use in the press and all inks that might possibly be used in the press for the next five years. The facility can write "alternative" next to the inks that may be used in the future. For forms that do not have a place to describe alternative operating scenarios, complete Form 4530-135 for additional information to describe the alternative operating scenario.

Air permit application forms

Refer to the Air permit and compliance forms webpage for a complete list of permit application forms: <http://dnr.wi.gov/topic/AirPermits/Forms.html>. The forms on the webpage can be downloaded and printed. The following section includes instructions for which forms to include as part of an Operation Permit revision or renewal.

All air permit and determination of exemption applications require a completed form 4530-100 that is signed by the facility's Responsible Official.

If submitting new information to the department as part of an Operation Permit revision or renewal...

1. Start by filling out the overall facility forms, 4530-100 through 4530-102:

4530-100	Facility Identification
4530-101	Facility Plot Plan
4530-102	Source Site Description (-102, -102A, -102B)

2. Fill out the Stack Identification Form 4530-103 for a single stack.
3. Fill out the relevant *emissions unit*, *control equipment*, *compliance demonstration*, and *pollutant summary* forms for this stack, following the instructions associated with each form. The forms available for completing this step are listed below and on the next page.
4. Repeat steps 2 and 3 for each stack at the facility.

Note: A fugitive emissions source may be defined as having a stack as well, although the stack would be identified as F## and a box would be checked to show that this source “serves to identify fugitive emissions” under number 6 on the Stack Identification Form (4530-103).

5. Fill out the following facility-wide forms:

4530-127	Facility Hazardous Air Pollutant Summary
4530-129	Facility Emissions Summary
4530-132	Current Emissions Requirements and Status of Facility
4530-133	Facility Requirement Compliance Plan

Note: In lieu of forms 4530-103 and 4530-126 through 4530-129, the department will accept the required information in table format. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

Emissions Unit Forms

Fill out the most appropriate form for each significant *emissions unit* associated with this stack:

4530-104	Boiler or Furnace Operations
4530-105	Storage Tanks
4530-106	Incineration
4530-107	Printing Operations
4530-108	Painting and Coating Operations
4530-109	Miscellaneous Processes

Control Equipment Forms

Fill out the most appropriate form for each piece of air pollution control equipment associated with this stack (if the emissions unit has or will have control equipment):

4530-110	Miscellaneous Control Equipment
4530-111	Condensers
4530-112	Adsorbers
4530-113	Catalytic or Thermal Oxidation
4530-114	Cyclones or Settling Chambers
4530-115	Electrostatic Precipitators
4530-116	Wet Collection Systems
4530-117	Baghouses and Fabric Filters

Compliance Demonstration Forms

See the form-by-form instructions: <https://dnr.wi.gov/files/PDF/pubs/am/AM565.pdf> and the Forms webpage for more information: <https://dnr.wi.gov/topic/airpermits/forms.html>.

4530-118	Compliance Certification - Monitoring and Reporting
4530-119	Continuous Emission Monitoring
4530-120	Periodic Emission Monitoring using Portable Monitors
4530-121	Monitoring Control System Parameters or Operating Parameters
4530-122	Monitoring Maintenance Procedures
4530-123	Stack Testing
4530-124	Fuel Sampling and Analysis
4530-125	Recordkeeping
4530-130	Current Emissions Requirements and Status of Unit
4530-131	Emission Unit Compliance Plan - Commitments and Schedule

Pollutant Summary Forms

See the form-by-form instructions: <https://dnr.wi.gov/files/PDF/pubs/am/AM565.pdf> and the Forms webpage for more information: <https://dnr.wi.gov/topic/airpermits/forms.html>.

4530-126	Emission Unit Hazardous Air Pollutant Summary
4530-128	Emission Unit Summary

Note: In lieu of Forms 4530-103 and 4530-126 through 4530-129, the department will accept the required information in table format. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

If needed, the Additional Information Form 4530-135 can be used to supply the department with extra information, or additional information can be supplied in a cover letter that is included with the permit application.

Application submittal

Application completeness

Make sure that all appropriate blanks and forms are filled in before submitting an application. Please be sure to include Form 4530-100 with an original signature from the facility's Responsible Official in the submittal to the department.

The department has 20 days from the date a permit application is submitted to determine if the submittal is complete. The department will notify a facility if the application is determined to be incomplete. The facility will then have 30 days to submit the missing information. The department reserves the right to ask for additional information, even after the application is initially deemed complete.

Where to send applications

If the application is not being submitted through the DNR's online system, then submit the completed operation permit renewal application to the department using either Option 1 or Option 2:

OPTION 1:

E-Mail ONE ELECTRONIC COPY to DNRAMAIRPERMIT@wisconsin.gov

AND

Mail ONE HARD COPY to the following address:

Wisconsin Department of Natural Resources
Air Program
PO Box 7921
Madison WI 53707-7921
Attention: Operation Permits

OPTION 2:

Mail TWO HARD COPIES to the following address:

Wisconsin Department of Natural Resources
Air Program
PO Box 7921
Madison WI 53707-7921
Attention: Operation Permits

The electronic copy counts as one of the two copies that are required by rule.

All facilities that submit an Operation Permit application at least six months before the existing permit's expiration date will be notified that their application is timely and that they may continue to operate according to the conditions and limitations of the existing Operation Permit after it has expired, until the renewed or revised Operation Permit is issued. This is referred to as an application shield.

If a facility fails to submit a timely application for renewal, and the Operation Permit renewal is not issued before the existing Operation Permit expires, the facility will not have the benefit of the application shield and will be out of compliance with air pollution regulations.

Maximum Theoretical Emissions

Maximum Theoretical Emissions (MTE) are used to determine whether a facility is required to get a permit, and to determine which emissions units, operations, activities, and air contaminants are significant for inclusion in the permit application. Maximum Theoretical Emissions means the quantity of air contaminants that theoretically could be emitted by a stationary source without control devices based on the design capacity or maximum production capacity of the source.

When determining annual maximum theoretical emissions, an emissions unit, operation or activity shall be presumed to operate 8,760 hours per year (24 hours per day, 365 days per year) unless its physical design precludes 8,760 hours of operation per year. If a facility's physical design restricts emissions, then take into account this restriction when calculating annual MTE. Realistic operating scenarios can be considered in determining maximum theoretical emissions. In determining the MTE of volatile organic compounds (VOCs) for an emissions unit, operation, or activity, include in the design capacity or maximum production capacity the use of raw materials, coatings, and inks with the highest VOC content used in practice at the facility.

Hourly Maximum Theoretical Emissions - Boilers, Asphalt Plants

For emissions units that have emissions factors available, such as boilers, asphalt plants, fuel-burning equipment, etc., can use the following basic equation to calculate MTE:

$$(\text{emissions factor}) \times (\text{maximum hourly production rate}) = \text{lb/hr MTE}$$

Emissions factors can be found in EPA's [AP-42, Compilation of Air Emissions Factors](#), [EPA's WebFIRE](#), or from stack test results.

Hourly Maximum Theoretical Emissions - VOC Emissions from Evaporative Losses

In determining the hourly MTE of volatile organic compounds (VOCs) for an emissions unit, operation or activity, look at both the VOC content and the maximum hourly usage rate of raw materials, coatings, and inks used. The material with the highest VOC content will not necessarily correspond to the MTE of VOCs for a particular emissions unit, operation, or activity. A lower VOC content material with a higher maximum hourly usage rate could actually determine the MTE. For VOC emissions units, such as coating or printing operations, the hourly MTE is the product of the VOC content of a material times the maximum hourly usage rate of that material:

$$(\text{VOC content of worst case material}) \times (\text{maximum hourly usage rate of that material}) = \text{lb/hr MTE}$$

Here are two ways to determine VOC content:

1. (Material density) x (weight % VOC) = VOC content
OR
2. (Solvent density not including water) x (volume % VOC) = VOC content

Example 1: Acme Coaters, Inc. operates a metal parts spray painting booth. They use the following paints:

<u>Paint</u>	<u>VOC content</u>	<u>Maximum hourly usage rate</u>
A	5 lbs VOC/gallon	2 gallons/hour
B	4 lbs VOC/gallon	3 gallons/hour

For this process, paint B is the worst-case material and the hourly MTE is calculated as follows:

$$(4 \text{ lbs VOC/gallon}) \times (3 \text{ gallons/hour}) = \mathbf{12 \text{ lbs VOC/hour MTE}}$$

Note that if paint A was considered to be the worst-case material, the resulting MTE would not truly represent the worst-case, as follows:

$$(5 \text{ lbs VOC/gallon}) \times (2 \text{ gallons/hour}) = 10 \text{ lbs VOC/hour (this is not the MTE)}$$

Hourly Maximum Theoretical Emissions - Hazardous Air Contaminants

The determination of hourly MTE for hazardous air contaminants is much the same as the determination for VOCs. It is generally the product of the hazardous air contaminant content of a raw material times the maximum hourly usage rate of that material.

$$(\text{hazardous air contaminant content of worst case material}) \times (\text{maximum hourly usage rate of that material}) = \text{lb/hr MTE}$$

However, if a hazardous air contaminant is created during the operation of the process, the facility must add the amount of the hazardous air contaminant created to the MTE. Similarly, if a hazardous air contaminant is destroyed during the operation of the process, the facility must subtract the amount of the hazardous air contaminant destroyed from the MTE.

Just as in determining the hourly MTE for VOCs, the material with the highest hazardous air contaminant content will not necessarily correspond to the MTE of the hazardous air contaminant for a particular emissions unit, operation, or activity. A lower hazardous air contaminant content material with a higher maximum hourly usage rate could actually determine the MTE.

Example 2: Circle Corp. operates a process that uses a raw material that contains the following hazardous air contaminants:

<u>Contaminant</u>	<u>Hazardous air contaminant content of raw material</u>
benzene	2 percent by weight
formaldehyde	1 percent by weight

The maximum usage rate of the raw material is 1,000 pounds per hour. During the operation of the process, 25 percent by weight of the benzene is converted to formaldehyde, carbon monoxide, and water. For every pound of benzene converted, 0.8 pounds of formaldehyde are formed. No other hazardous air contaminants are created or destroyed in this process. The MTEs for benzene and formaldehyde are calculated as follows:

Benzene:

$$(\text{benzene introduced to process}) - (\text{benzene destroyed during process}) = \text{lb/hr MTE}$$

$$\begin{aligned} (\text{benzene introduced to process}) &= (0.02 \text{ lbs benzene/lb raw material}) \times (1000 \text{ lbs raw material/hr}) \\ &= 20 \text{ lbs benzene introduced} \end{aligned}$$

$$\begin{aligned} (\text{benzene destroyed during process}) &= (0.25) \times (\text{benzene introduced to process}) \\ &= (0.25) \times (20 \text{ lbs benzene introduced}) \\ &= 5 \text{ lbs benzene destroyed} \end{aligned}$$

$$(20 \text{ lbs benzene introduced}) - (5 \text{ lbs benzene destroyed}) = \mathbf{15 \text{ lbs benzene/hr MTE}}$$

Formaldehyde (HCHO):

(HCHO introduced to process) + (HCHO created during process) = lb HCHO/hr MTE

(HCHO introduced to process) = (0.01 lbs HCHO/lb raw material) x (1000 lbs raw material/hr)
= 10 lbs HCHO introduced

(HCHO created) = (0.8 lb HCHO created/1 lb benzene destroyed) x (benzene destroyed)
= (0.8 lb HCHO created/1 lb benzene destroyed) x (5 lbs benzene destroyed)
= 4 lbs HCHO created

(10 lbs HCHO introduced) + (4 lbs HCHO created) = **14 lbs HCHO/hr MTE**

Annual Maximum Theoretical Emissions

Some air permit forms require that the facility report annual MTE. When determining annual MTE, an emissions unit, operation, or activity shall be presumed to operate 8,760 hours per year (24 hours per day, 365 days per year) unless its physical design precludes 8,760 hours of operation per year. If a facility's physical design restricts the number of hours the facility may operate, take into account this restriction when calculating annual MTE. Take into account realistic operating conditions in determining emissions.

If the facility does not have any physical restrictions on operating hours, use the following equation:

(lb/hr MTE) x (24 hrs/day) x (365 days/year) x (1 ton/2000 lbs) = tons/year MTE

If the facility does have physical restrictions on operating hours, use the following equation:

(lb/hr MTE) x (maximum operating hours possible/year) x (1 ton/2000 lbs) = tons/year MTE

Example 3: XYZ Company has a boiler to provide process steam at their plant.

Emissions Unit:	A 20 million BTU per hour industrial boiler
Maximum Rated Capacity:	20 million BTU per hour
Fuel:	Distillate fuel oil
Heating Value:	140,000 BTU per gallon
Maximum Sulfur Content:	0.0015% (by weight or 15 ppm)
Control Device:	Baghouse with a particulate matter control efficiency of 99.5%

XYZ Co. identifies emissions factors for an industrial boiler burning distillate fuel oil in section 1.3 of **AP-42** (SCC 1-02-005-02/03):

Particulate Matter:	2 pounds per 1000 gallons oil burned (lbs/1000 gal)
Sulfur Dioxide:	(142 lbs/1000 gal) x (percent sulfur by weight)
Nitrogen Oxides:	20 lbs/1000 gal
Carbon Monoxide:	5 lbs/1000 gal
Volatile Organic Compounds:	0.2 lbs/1000 gal

Using this information, here is how XYZ Co. calculates their hourly MTE of particulate matter for this boiler (similar calculations are also necessary for the other pollutants):

$$(2 \text{ lbs}/1000 \text{ gal}) \times (1 \text{ gal}/140,000 \text{ BTU}) \times (20 \text{ MMBTU}/\text{hr}) \times (1,000,000 \text{ BTU}/\text{MMBTU}/\text{hr}) = \mathbf{0.29} \text{ lbs particulate matter}/\text{hour}$$

To calculate the annual MTE of particulate matter for this boiler, XYZ Co. must assume the boiler is fired at maximum capacity at all times, and the physical design of the boiler does not preclude the number of hours the boiler can operate. Here is the calculation:

$$(\mathbf{0.29} \text{ lbs}/\text{hr}) \times (8,760 \text{ hrs}/\text{year}) \times (1 \text{ ton}/2000 \text{ lbs}) = 1.3 \text{ tons particulate matter}/\text{year}$$

Note: The particulate matter control efficiency of 99.5% for the baghouse was not taken into account when calculating the MTE because the definition of MTE is the "...quantity of air contaminants that theoretically could be emitted by a stationary source without control devices ..."

Example 4: Fact Inc. has a thin film evaporator that can process 500 gallons of solvent per hour. The processed solvent is fed to a 5,000 gallon tank for storage. This 5,000 gallon tank can only be unloaded at a rate of 250 gallons per hour due to the pump capacity. The processed solvent is collected in a primary condenser which has a collection efficiency of 99.5%. This primary condenser is considered to be part of the process because it is product collection equipment. The emissions that are exhausted from the primary condenser are controlled by a sparge tank with a control efficiency of 85%. The following solvents are processed by the thin film evaporator:

<u>Solvent</u>	<u>Density (pounds per gallon)</u>
Acetone	6.59
Heptane	5.81
Hexane	5.61
Toluene	7.26

Fact Inc. uses toluene as the worst-case solvent processed in the thin film evaporator to calculate the hourly MTE:

$$(500 \text{ gals}/\text{hour}) \times (7.26 \text{ lbs}/\text{gal}) \times (1 - 0.995 \text{ product collection}) = \mathbf{18.15} \text{ lbs of VOC}/\text{hour}$$

When calculating the annual MTE, Fact Inc. must take into account several restrictions on operating hours. First, they calculate the time it takes to fill up the 5,000 gallon storage tank when the thin film evaporator is running at a maximum processing rate of 500 gallons per hour:

$$(5,000 \text{ gallon tank}) \times (1 \text{ hour}/500 \text{ gals}) = 10 \text{ hours to load the storage tank}$$

Fact Inc. then calculates the time it takes to unload the 5,000 gallon storage tank once it is full while unloading at the maximum rate of 250 gallons per hour:

$$(5,000 \text{ gallon tank}) \times (1 \text{ hour}/250 \text{ gals}) = 20 \text{ hours to unload the storage tank}$$

Therefore, tank unloading limits the number of hours the evaporator can operate. So, in a 20 hour period the thin film evaporator can only run a maximum of 10 hours. This limits the maximum number of hours the thin film evaporator can operate during a year as follows:

(10 hours of operation/20 hour period) x (24 hours/day) x (365 days/year) =
4,380 hours maximum per year that the thin film evaporator can operate

(18.15 lbs/hour) x (4,380 hours/year) x (1 ton/2000 lbs) = 39.7 tons of VOC/year

Note: The volatile organic compound (VOC) control efficiency of 85% for the sparge tank was not taken into account when calculating the MTE because the definition of MTE is the "...quantity of air contaminants that theoretically could be emitted by a stationary source without control devices..."

Annual Maximum Theoretical Emissions - VOCs and Hazardous Air Contaminants

In determining the MTE of VOCs or hazardous air contaminants for an emissions unit, operation, or activity, include in the design capacity or maximum production capacity the use of raw materials, coatings, and inks used in practice with the highest VOC content. However, in considering the use of these materials, take into account realistic operating conditions. The maximum production capacity should reflect the absolute maximum amount of materials that an emissions unit, operation, or activity could realistically use in any one year. The following example shows two methods that could be used to determine maximum production capacity:

Example 5: Printers, Inc. operates a printing press which normally uses ink N with the following specifications:

VOC content: 2.0 lbs VOC/gallon
Methyl isobutyl ketone (MIBK) content: 0.5 lbs MIBK/gallon
Maximum hourly ink use: 2.0 gallons/hour
No other hazardous air contaminants are contained in the ink.

The absolute maximum amount of ink N used in any year is 8,000 gallons.

Printers, Inc. uses a limited amount of another ink, ink S, for a "Fourth of July Specialty Product." That ink has the following specifications:

VOC content: 2.8 lbs VOC/gallon
MIBK content: 2.8 lbs MIBK/gallon
Maximum hourly ink use: 2.0 gallons/hour
No other hazardous air contaminants are contained in the ink.

The company never uses more than 25.0 gallons of ink S in any year.

Due to clean-up and set-up time, the press could only operate a maximum of 60 percent of the time during any year.

Method 1 for determining annual MTE

Determine a weighted average ink VOC and MIBK content:

Avg. VOC content = [(VOC from ink N/yr) + (VOC from ink S/yr)]/(total annual ink use)

(VOC from ink N/yr) = (8000 gal ink N/yr) x (2.0 lbs VOC/gal) = 16,000 lb VOC ink N/yr

(VOC from ink S/yr) = (25 gal ink S/yr) x (2.8 lbs VOC/gal) = 70 lb VOC ink S/yr

(Total annual ink use) = (8000 gal ink N/yr) + (25 gal ink S/yr) = 8025 gal ink/yr

$$\text{Avg. VOC content} = [(16,000 \text{ lb VOC ink N/yr}) + (70 \text{ lb VOC ink S/yr})]/(8025 \text{ gal ink/yr}) \\ = 2.0025 \text{ lbs VOC/gal}$$

$$\text{Avg. MIBK content} = [(MIBK \text{ from ink N/yr}) + (MIBK \text{ from ink S/yr})]/(\text{total annual ink use})$$

$$(MIBK \text{ from ink N/yr}) = (8000 \text{ gal ink N/yr}) \times (0.5 \text{ lbs MIBK/gal}) = 4000 \text{ lb MIBK ink N/yr}$$

$$(MIBK \text{ from ink S/yr}) = (25 \text{ gal ink S/yr}) \times (2.8 \text{ lbs MIBK/gal}) = 70 \text{ lb MIBK ink S/yr}$$

$$(\text{Total annual ink use}) = (8000 \text{ gal ink N/yr}) + (25 \text{ gal ink S/yr}) = 8025 \text{ gal ink/yr}$$

$$\text{Avg. MIBK content} = [(4000 \text{ lb MIBK ink N/yr}) + (70 \text{ lb MIBK ink S/yr})]/(8025 \text{ gal ink/yr}) \\ = 0.507 \text{ lbs MIBK/gal}$$

Calculating the MTE for VOC:

$$(\text{Maximum hourly ink use}) \times (\text{Ave. VOC content}) \times (\text{Maximum hours of operation}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{ton VOC/yr MTE}$$

$$(\text{Maximum hourly ink use}) = 2.0 \text{ gallons/hour (same for both inks)}$$

$$(\text{Maximum hours of operation}) = (0.60) \times (24 \text{ hr/day}) \times (365 \text{ days/yr}) = 5256 \text{ hrs/yr}$$

$$(2.0 \text{ gals/hr}) \times (2.0025 \text{ lbs/gal}) \times (5256 \text{ hrs/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{10.5 \text{ tons VOC/yr MTE}}$$

Calculating the MTE for MIBK:

$$(\text{Max. hourly ink use}) \times (\text{Avg. MIBK content}) \times (\text{Max. hours of operation}) \times (1 \text{ ton}/2000 \text{ lbs}) \\ = \text{ton MIBK/yr MTE}$$

$$(\text{Maximum hourly ink use}) = 2.0 \text{ gallons/hour (same for both inks)}$$

$$(\text{Maximum hours of operation}) = (0.60) \times (24 \text{ hr/day}) \times (365 \text{ days/yr}) = 5256 \text{ hrs/yr}$$

$$(2.0 \text{ gals/hr}) \times (0.507 \text{ lbs/gal}) \times (5256 \text{ hrs/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{2.66 \text{ tons MIBK/yr MTE}}$$

Method 2 for determining annual MTE

Assume the absolute maximum use of ink S would never exceed 50 gallons per year, using twice the normal use as a conservative estimate. Assume that the 50 gallons of ink S would be applied at the maximum ink use rate of 2.0 gallons per hour. Calculate the time it would take to apply ink S as follows:

$$(50 \text{ gal ink S/yr}) \times (1 \text{ hr}/2.0 \text{ gal ink S applied}) = 25 \text{ hr/yr used to apply ink S}$$

Calculate the remaining time available to apply ink N as follows:

$$(0.60) \times (8760 \text{ hr/yr}) - (25 \text{ hr/yr}) = 5231 \text{ hrs/hr}$$

Calculating the MTE for VOCs:

$$(\text{lbs VOC from ink S/yr}) + (\text{lbs VOC from ink N/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{ton VOC/yr MTE}$$

$$\begin{aligned}
 (\text{lbs VOC from ink S/yr}) &= (\text{max. hourly ink S use}) \times (\text{VOC content ink S}) \times (\text{hr/yr apply ink S}) \\
 &= (2.0 \text{ gal/hr}) \times (2.8 \text{ lbs VOC/gal}) \times (25 \text{ hr/yr}) \\
 &= 140 \text{ lbs VOC from ink S/yr}
 \end{aligned}$$

$$\begin{aligned}
 (\text{lbs VOC from ink N/yr}) &= (\text{max. hourly ink N use}) \times (\text{VOC content ink N}) \times (\text{hr/yr apply ink N}) \\
 &= (20 \text{ gal/hr}) \times (2.0 \text{ lbs VOC/gal}) \times (5231 \text{ hr/yr}) \\
 &= 20924 \text{ lbs VOC from ink N/yr}
 \end{aligned}$$

$$(140 \text{ lbs VOC ink S/yr}) + (20924 \text{ lbs VOC ink N/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{10.53 \text{ tons VOC/yr MTE}}$$

Calculating the MTE for MIBK:

$$(\text{lbs MIBK from ink S/yr}) + (\text{lbs MIBK from ink N/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \text{ton MIBK/yr MTE}$$

$$\begin{aligned}
 (\text{lbs MIBK from ink S/yr}) &= (\text{Max. hourly ink S use}) \times (\text{MIBK content ink S}) \times (\text{hr/yr apply ink S}) \\
 &= (2.0 \text{ gal/hr}) \times (2.8 \text{ lbs MIBK/gal}) \times (25 \text{ hr/yr}) \\
 &= 140 \text{ lbs MIBK from ink S/yr}
 \end{aligned}$$

$$\begin{aligned}
 (\text{lbs MIBK from ink N/yr}) &= (\text{Max. hourly ink N use}) \times (\text{MIBK content ink N}) \times (\text{hr/yr app. ink N}) \\
 &= (2.0 \text{ gal/hr}) \times (0.5 \text{ lbs MIBK/gal}) \times (5231 \text{ hr/yr}) \\
 &= 5231 \text{ lbs MIBK from ink N/yr}
 \end{aligned}$$

$$(140 \text{ lbs MIBK ink S/yr}) + (5231 \text{ lbs MIBK ink N/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{2.69 \text{ tons MIBK/yr MTE}}$$

Maximum Theoretical Emissions vs. Potential to Emit

<i>Maximum Theoretical Emissions</i>	<i>Potential to Emit</i>
Control equipment is <u>not</u> taken into account.	Control equipment is taken into account if it is federally enforceable.
Physical design restrictions that limit emissions.	Any physical or operational limitations on the capacity of the source to emit air contaminants are taken into account if that limitation is federally enforceable.
Enforceable limitations on hours of operation and type or amount of material used or combusted, stored or processed are <u>not</u> taken into account.	Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are taken into account.

Potential to Emit

Potential to Emit (PTE) is used to determine if a facility is a major source. Potential to Emit means the maximum capacity of an emissions unit, operation, or activity to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of an emissions unit, operation, or activity to emit an air contaminant, 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 is enforceable as a practical matter.

Example 1: XYZ Company operates a boiler to provide process steam at their plant.

Emissions Unit:	A 90 million BTU per hour spreader stoker boiler
Maximum Rated Capacity:	90 million BTU per hour
Fuel:	Bituminous Coal
Heating Value:	21 million BTU per ton
Maximum Sulfur Content:	1.0% (by weight)
Control Device:	Baghouse with a particulate matter control efficiency of 99.5%
Installation Date:	1988

XYZ Company was issued an NSR permit in 1988 that limited the facility's particulate matter emissions to 0.15 pounds per million BTU heat input (per [s. NR 415.06\(2\)\(a\), Wis. Adm. Code](#)). Because this limitation is included in a federally enforceable NSR permit issued to the facility, XYZ Company calculated their PTE for particulate matter as follows:

$$(0.15 \text{ lbs/MMBTU}) \times (90.0 \text{ MMBTU/hr}) = \mathbf{13.5 \text{ lbs particulate matter per hour}}$$

To calculate the annual PTE of particulate matter for this boiler, XYZ Company assumes the boiler is fired at maximum capacity at all times because the physical design of the boiler does not preclude the number of hours the boiler can operate and that there are no restrictions on hours of operation or on the type or amount of material combusted in the permit. Here are their calculations:

$$(\mathbf{13.5 \text{ lbs/hr}}) \times (24 \text{ hrs/day}) \times (365 \text{ days/year}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{59.1 \text{ tons particulate matter/yr}}$$

Example 2: JD Paving Company operates a portable 220 ton per hour hot mix asphalt plant that was constructed in 1987. Because this plant is subject to the New Source Performance Standard (NSPS) for asphalt concrete plants contained in the Clean Air Act, the company can take the particulate matter limitation from the NSPS into account when calculating PTE. The NSPS limitation of not more than 0.039 grains per dry standard cubic feet of exhaust gas is also included in [s. NR 440.25, Wis. Adm. Code](#). The maximum exhaust gas rate of the plant is 20,000 dry standard cubic feet per minute. JD Paving calculates their hourly PTE as follows:

$$(0.039 \text{ gr/dscf}) \times (1 \text{ lb}/7000 \text{ gr}) \times (20,000 \text{ dscf/min}) \times (60 \text{ min/hr}) = \mathbf{6.7 \text{ lbs particulate matter/hr}}$$

JD Paving has a new source permit for this asphalt plant which limits the facility to operating not more than 6,600 hours per year. The permit requires that the facility keep operating hour records to demonstrate compliance with this limitation. Their calculations for annual PTE of particulate matter are as follows:

$$(\mathbf{6.7 \text{ lbs/hr}}) \times (6600 \text{ hr/year}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{22.1 \text{ tons of particulate matter per year.}}$$

Example 3: Widgettes, Inc. paints miscellaneous metal parts. The company installed a new facility in Dodge County in 1990 and received an NSR permit at that time. The company uses solvent based air-dried paints that do not contain any water. Widgettes, Inc. is subject to the RACT requirements of 3.5 pounds per gallon coating, excluding water, delivered to a coating applicator. The company operates four paint guns in its painting operations, which each spray a maximum of 4.25 gallons per hour. Widgettes, Inc. calculates their hourly VOC PTE as follows:

$$(4 \text{ guns}) \times (4.25 \text{ gal/hr}) \times (3.5 \text{ lbs/gal}) = \mathbf{59.5 \text{ lbs VOC/hour}}$$

To avoid Prevention of Significant Deterioration (PSD) requirements, Widgettes, Inc. took a voluntary restriction in their permit to keep VOC emission less than 250 tons per year. The restriction limited the facility to using not more than 11,800 gallons of paint per month. The permit required that the facility keep monthly paint usage records to demonstrate compliance with this limit. Additionally, Widgettes, Inc. was required to keep daily records of the VOC content, density, and the weight percent solvent, solids, and water of each paint used. Widgettes, Inc. calculates the annual VOC PTE as follows:

$$(11,800 \text{ gal/month}) \times (3.5 \text{ lbs/gal}) \times (12 \text{ month/yr}) \times (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{247.8 \text{ tons VOC/year}}$$

Maximum Theoretical Emissions vs. Potential to Emit

<i>Maximum Theoretical Emissions</i>	<i>Potential to Emit</i>
Control equipment is <u>not</u> taken into account.	Control equipment is taken into account if it is federally enforceable.
Physical design restrictions that limit emissions.	Any physical or operational limitations on the capacity of the source to emit air contaminants are taken into account if that limitation is federally enforceable.
Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are <u>not</u> taken into account.	Enforceable limitations on hours of operation and type or amount of material combusted, stored or processed are taken into account.

Federal enforceability for synthetic minor non-Part 70 source permits

A *synthetic minor, non-Part 70 source* permit is a federally enforceable state operating permit. To get this type of permit, a facility must propose permit conditions which will limit the *potential to emit* of criteria pollutants and/or *hazardous air pollutants* to below major source levels (see the [Determine the facility type](#) section of this document). Use Form 4530-135, the supplemental information form, to propose federally enforceable limitations in a permit application.

Example 1: Seesaws, Inc., manufactures playground equipment from fiber reinforced polyester resins. Styrene, a regulated hazardous air pollutant, is the only pollutant emitted during the process. The facility is a major source because potential emissions of styrene exceed 10 tons per year, yet actual emissions of this pollutant have never been over 6 tons per year. Seesaws, Inc. wants to apply for a synthetic minor non-Part 70 source permit. The company fills out the application for a non-Part 70 source permit. On Form 4530-135, the company must propose federally enforceable limitations to restrict potential emissions of styrene to less than 10 tons per year. Seesaws, Inc. proposes:

- 1) Vapor suppressing resins shall be used that contain not more than 43% by weight styrene.
- 2) The vapor suppressing resins shall not emit more than 9% by weight of the styrene content in the resin.

The facility-wide usage of resins shall not exceed 42,635 pounds of resin per month.

Safety Data Sheets (SDS) of all resins being used and records of daily usage of resins shall be kept for five years to show compliance with these limitations.

The facility also provides sample calculations that show potential emissions are indeed limited to less than 10 tons per year:

$$\frac{42635 \text{ lb resin}}{\text{month}} \times \frac{12 \text{ months}}{\text{year}} \times \frac{(0.43)(0.09) \text{ lb styrene}}{\text{lb resin}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = \frac{9.9 \text{ tons styrene}}{\text{year}}$$

Example 2: Parts Manufacturing Company makes small metal parts for farm implements. The facility, which is located in a severe ozone nonattainment area, consists of a small grey iron foundry, a hot water parts washer, and two spray paint booths. According to the facility's annual air emissions inventory reports for the past two years, the facility's actual emissions of volatile organic compounds and particulate matter are 21 tons per year and 18 tons per year, respectively. However, potential emissions of volatile organic compounds are 85 tons per year and potential emissions of particulate matter are 120 tons per year. This means that Parts Manufacturing Company is a major source for both volatile organic compounds and for particulate matter.

The company wants to apply for a synthetic minor non-Part 70 source permit. To do so, the company must propose federally enforceable conditions to limit both volatile organic compound emissions from their paint booths and particulate matter emissions from their foundry operations. The company attaches Form 4530-135 with their proposal.

- 1) Limitation on the potential emissions of particulate matter to 100 tons per year.

No process in the grey iron foundry including the induction furnace P01, S11, the pouring and cooling process P02, S12, and the casting shakeout process P03, S13, may operate for more than 610 hours per month averaged over any 12 consecutive months.

Records will be kept on a daily basis of hours of operation of P01, P02, and P03. These records will be available at all times and will be retained for the life of this permit.

A sample calculation is provided based on total maximum theoretical emissions of particulate matter of 27.3 lbs/hr for processes P01, P02, and P03 combined:

$$\frac{27.3 \text{ lbs PM}}{\text{Hour}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times \frac{610 \text{ hours}}{\text{month}} \times \frac{12 \text{ months}}{\text{year}} = \frac{99.9 \text{ tons PM}}{\text{year}}$$

- 2) Limitation on the potential emissions of volatile organic compounds. (Note that potential emissions of VOC's must be limited to less than 25 tons per year because the facility is located in a severe ozone nonattainment area.)

The facility may use only water based coatings that contain a maximum volatile organic compound content of 2.0 pounds VOC per gallon of coating less water as applied. (This limitation also more than satisfies the RACT limitations in s. NR 422, Wis. Adm. Code for miscellaneous metal parts.)

The gallons of coating (less water) used by this facility may not exceed 479 gallons per week averaged over any 52 consecutive weeks.

Daily records will be kept of coating usage which identify coating type, VOC content, and gallons used. Records will be kept for the five year life of the permit.

Sample calculations:

$$\frac{2.0 \text{ lbs VOC}}{\text{gal coating less water}} \times \frac{479 \text{ gal coating less water}}{\text{week}} \times \frac{52 \text{ weeks}}{\text{year}} \times \frac{1 \text{ ton}}{2,000 \text{ lb}} = \frac{24.9 \text{ ton VOC}}{\text{year}}$$