

WISCONSIN DEPARTMENT OF NATURAL  
RESOURCES

# Registration Permit Application Guidebook

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For facilities applying for Type A  
registration permits

Air Management Program

**Publication Number: AM-539-2023**



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# **PART I - Introduction**

This document contains basic registration permit information to assist facilities in determining if a registration permit is the correct choice for the facility. The document will familiarize facilities with all steps in the registration permit application process, the differences between a registration permit and traditional permits, and expectations once a facility is covered under a registration permit. The specific statutes and rules interpreted by this guide are s. 285.60(2g), Wis. Stats., and ss. NR 406.17 and NR 407.105, Wis. Adm. Code.

There are four types of registration permits: Type A, Type B, Type C and Type G (G01 and G02). This application guide will address only the Type A Registration Permit (ROPA).

- Type A allows emissions up to 25% of the major source threshold for federally regulated hazardous air pollutants (HAPs) and criteria air pollutants: volatile organic compounds (VOCs), particulate matter (PM), carbon monoxide (CO), lead (Pb), [nitrogen oxides \(NO<sub>x</sub>\)](#), and [sulfur dioxide \(SO<sub>2</sub>\)](#).
- Type B allows emissions up to 50% of the major source threshold for federally regulated HAPs and criteria air pollutants.
- Type C is specific for printing facilities and allows emissions up to 25% of criteria pollutants and up to 50% of the major source threshold for federally regulated HAPs.
- Type G includes permits G01 and G02 which are specific for facilities intending to achieve or having achieved Tier 2 status in the Green Tier Program and allow emissions up to 80% of the major source threshold for HAPs and criteria air pollutants.

The major source threshold is dependent upon the attainment and nonattainment status of each area in the state. For most areas in the state, the current (as of August 2022) threshold is 100 tons per year for each criteria pollutant, 10 tons per year for each HAP and 25 tons per year for all HAPs combined. For nonattainment areas, see Page 21 for more details on the areas and the thresholds, or go to the Wisconsin Department of Natural Resources' (DNR) [Nonattainment webpage](#) (<https://dnr.wisconsin.gov/topic/AirPermits/Nonattainment.html>).

More information regarding all registration permit types can be found on [DNR's Registration permit webpage](#) (<https://dnr.wi.gov/topic/AirPermits/Registration.html>).

## **1. What are registration permits?**

The registration operation permit (ROP) is a standardized air pollution control operation permit which authorizes facilities with low emissions to operate. The ROP places a limit on the amount of air pollution a facility can emit and includes the methods that must be used to demonstrate compliance with the permit limits. Coverage under the ROP can also exempt a facility from construction permitting. In most cases, a covered facility can make changes and add equipment without obtaining a construction permit so long as the facility continues to emit below the ROP limit and meet the eligibility requirements of the ROP. The exemption to this case is the Type G registration permit which allow the permittee to have source-specific conditions under the permit coverage, but those conditions shall be originated from a source-specific construction permit.

Issued along with the Types A, B, C and G02 ROP is a companion registration construction permit (RCP). All facilities that apply for coverage under the Types A, B, C and G02 will also apply for coverage under the companion RCP, using a single application form. The same eligibility requirements, compliance requirements, and procedures for obtaining coverage apply to both RCPs and ROPs. The remainder of this document refers to the RCP and ROP collectively as "registration permits."

## 2. Pros and Cons of a Registration Permit

A registration permit has several advantages over a “traditional” operation permit and include:

- Time-savings:
  - Simplified permit application process
  - Quick permit decision – 15 days
  - Permit does not expire, never has to be renewed
- Money-savings:
  - No construction permit fees; exempts facilities from construction permitting so long as the construction does not result in emissions that exceed the limits or trigger a rule that makes the facility ineligible for the registration permit.
  - No revision or renewal or construction permit applications to fill out
- Flexibility:
  - More flexibility in choosing methods for demonstrating compliance
  - Annual records are allowed for annual emission limits
  - Changes can be made immediately without obtaining a construction permit
  - Safe Harbor - Protects facilities that make reasonable efforts to identify and comply with applicable state air pollution regulations from enforcement. (See section 6 for additional details.)

A drawback of a registration permit is that it does not list all state and federal air pollution regulations that apply to a facility. The DNR has developed and will continue to refine and develop tools to assist facilities in identifying and complying with applicable air pollution regulations, but it may still require significant effort and staff time to identify applicable requirements and figure out how the facility will demonstrate compliance with them. If the facility has a permit that was issued by the DNR in the past, that document would contain pertinent information.

## 3. How Can a Facility Obtain a Registration Permit?

Compared to traditional permitting, the process of obtaining a registration permit is simple. The process includes:

- A. First, review the registration permit application questions and determine if the facility is likely to qualify for a registration permit. [Part II](#) of this application guide contains additional help on answering those questions. The [registration permits](#) webpage (<https://dnr.wi.gov/topic/AirPermits/Registration.html>) of the DNR's website, also provides Registration Permit Compliance Guidance to explain how to take advantage of the benefits and fulfill the obligations of coverage under a registration permit.
- B. Most of the questions on the application are straight forward, but some questions may require additional work before a facility is ready to apply for the registration permit:
  - i. Estimating annual actual emissions – A facility must be able to submit an estimate of the annual emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases. Additional help on calculating emissions is available under the air section on [Wisconsin's Small Business Environmental Assistance website](#).
  - ii. Particulate Matter Emissions and Air Quality Modeling – Facilities that emit particulate matter may have to submit information to the DNR so that air quality modeling can be performed to

ensure that the emissions will meet the 24-hour particulate matter standard. Go to [Question 10](#) in Part II of this guide for information on how to calculate the facility's maximum controlled particulate matter emissions. If the emissions are over five tons per year, the facility is required to fill out and submit the Modeling Assessment Appendix to the application included at the end of this guide.

- iii. Stack Requirements and Air Quality Modeling – The Registration Permit requires that stacks at the facility be vertical, without obstructions such as rainhats, and taller than nearby buildings. If stacks at the facility do not meet Registration Permit stack requirements, the facility can still qualify for the Registration Permit, by using air quality modeling results to show that emissions from the stacks meet all the air quality standards. Use the Modeling Assessment Appendix available at the end of this guide to provide air quality modeling results demonstrating that the facility emissions meet National Ambient Air Quality Standards (NAAQS). (See [Question 9](#) of Part II.)

**C.** Go to the General and Registration Permit Forms tab on the [Air Permit and Compliance Forms Webpage](#) and download Form 4530-156 for the Type A Registration Construction and Operation Permit Application and Form 4530-156A for the Type A Registration Construction and Operation Permit Modeling Assessment Attachment (if applicable). Answer the questions, complete the facility information and, if necessary, the Modeling Assessment. Submit the completed application and any attachments using either Option 1 or Option 2 below:

**Option 1:**

Email an ELECTRONIC COPY\* to [DNRAMAirPermit@wisconsin.gov](mailto:DNRAMAirPermit@wisconsin.gov).

\*Applications must be signed by the responsible official for the source. If submitting an electronic application, the DNR will send an email with instructions for e-Signing or submitting an ink signature upon receipt of the electronic application. A photocopied or scanned signature does not meet the DNR's signature requirements. The DNR will not process an application until the signature is received.

OR

**Option 2:**

Mail the original copy of all materials with ink signature to:

WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
AIR MANAGEMENT PROGRAM  
Attn: Permits  
P.O. Box 7921  
MADISON, WI 53707-7921

Within 15 business days of receiving the complete signed application, the DNR will notify the facility of its decision on whether to grant coverage to the facility under the Registration Permit. When applying for Registration Permit coverage, the facility is also requesting revocation of any existing permits issued to the facility. The revocation step will add time to the review. If the facility has existing permits, the application will be declared incomplete until a notification is mailed to interested parties and posted on the DNR's public notice website and a 14 or 21-day waiting period has passed. For revocation of only construction permits the waiting period is 14 days, while revocation of an operation permit requires a 21-day waiting period. Existing permits will remain active until the Registration Permit coverage is approved.

#### 4. Pros and Cons of Coverage Under the Registration Permit

Facilities should be aware of other considerations that may result after being covered under the registration permit:

- Permits and/or orders that were previously issued to the facility will be revoked when the facility applies for coverage under the registration permit. Specific conditions in these permits will also be revoked, and the facility will be required to instead follow the requirements in the registration permit and applicable regulations as listed in the Wisconsin Administrative Code. An example is the latest available control technology (LACT) requirement. If the facility emits organic compounds and is subject to s. NR 424.03, Wis. Adm. Code, the facility may have a LACT determination and requirements in an old permit that are specifically tailored to the facility. When the old permit is revoked, the facility will be required to either control emissions by 85% or follow the LACT contained in the registration permit.
- Once covered under the registration permit, the facility must continue to meet all applicable air pollution emission limitations and requirements in chapters NR 400 – NR 499, Wis. Adm. Code and all applicable federal requirements, even though they are not listed in the registration permit.
- Facilities are required to monitor and record operation and emissions related data as specified in the registration permit and as required to demonstrate compliance with all applicable state and federal air pollution regulations.
- Facilities are required to submit an annual compliance certification and annual monitoring report to address all permit requirements by March 1 of every year after their first full calendar year of coverage under the registration permit that:
  - Certifies compliance with the terms and conditions of the registration permit as well as all other applicable state and federal air pollution regulations; and
  - Provides a summary of monitoring conducted at the facility.

There is a template (Form 4530-178) available under the [Air Permit and Compliance website's compliance tab](https://dnr.wi.gov/topic/Airpermits/forms.html) (<https://dnr.wi.gov/topic/Airpermits/forms.html>) that when submitted will fulfill both the annual compliance certification and monitoring report requirements.

- Facilities covered under a registration permit are required to report emissions to the Wisconsin Air Emissions Inventory if emissions exceed the reporting thresholds in ch. NR 438, Wis. Adm. Code. If emissions are less than reporting thresholds, the facility must send written notification of this fact to the air compliance inspector responsible for the facility. Either the Air Emissions Inventory report, or the notification if below reporting levels, is due by March 1 each calendar year. An extension of this deadline until March 15 may be requested; contact the air compliance engineer responsible for the facility.
- If reporting emissions is required under ch. NR 438, Wis. Adm. Code, **there is also a certification** that is due at the end of June every year; this certification is different than the permit specific annual compliance certification and monitoring report due at the beginning of March.
- If facilities utilize pollution control devices such as baghouses, scrubbers, and cyclones, they must meet the control efficiencies listed in the registration permit, and they must use those efficiencies to calculate their actual emissions for demonstrating compliance with the registration permit emissions limit. If an emission unit is subject to an applicable limitation that specifically requires higher control efficiency, then the facility may use that control efficiency to calculate actual emissions but only for the emission unit covered by the requirement.

- Once covered under the registration permit, changes can be made to the facility without having to obtain a construction permit, as long as the facility continues to meet the terms and conditions and the eligibility requirements for the registration permit. If the facility will not meet a term or condition of the registration permit or will become ineligible, the facility must apply for and receive a traditional permit from the DNR *before* any changes are made that may result in the facility becoming ineligible for the registration permit.
- Also, if the facility's maximum controlled emissions of particulate matter are over five tons per year and modeled emissions exceed certain impact levels, or if the facility's stacks do not meet the registration permit stack requirements, then before making changes that would increase emissions or changes to stacks that would decrease the dispersion of air pollution, the facility must show through air quality modeling that emissions will continue to meet air quality standards.

## 5. What is "Safe Harbor?"

The following Safe Harbor provisions only limit the ability of the DNR to take enforcement actions. Under the currently-approved State Implementation Plan (SIP) the U.S. Environmental Protection Agency (EPA) retains the ability to pursue enforcement in cases where the DNR could not do so.

Safe harbor is a "grace period" of 90 days for facilities to achieve compliance with an applicable regulation in chs. NR 400-499 that they did not know they were subject to and subsequently violated or are currently violating. Safe Harbor is available as long as the facility previously made a good faith effort to identify the regulations in chs. NR 400 – 499 that apply to its operations. Safe harbor means that there is no penalty for non-compliance discovered at a facility (i.e., the DNR will not take enforcement action), as long as all of the following are met:

- The facility performed and documented a reasonable search and evaluation to identify applicable air pollution regulations and to determine if the facility was meeting those requirements;
- The facility retains documentation demonstrating that the search and evaluation that was conducted was reasonable. This documentation must be kept on site and be available for inspection by DNR personnel upon request;
- If the facility subsequently discovers a regulation that applies to it, the facility notifies the DNR of the overlooked regulation within 21 days of identifying it; and
- The facility achieves and certifies compliance with the applicable regulation within 90 days after notifying the DNR.<sup>1</sup> A facility can ask the DNR to extend the grace period if more time is needed to achieve compliance.

Safe harbor recognizes that air pollution regulations are complex and numerous. With safe harbor, a facility has an incentive to rigorously investigate and follow up on its compliance status and work with the DNR to find the best way to meet the obligations and standards in the law.

*How does a facility qualify for safe harbor?*

- Operate in compliance with the Registration Permit that the facility is covered under;
- Conduct a *reasonable search and evaluation* initially, and again when emission units are added or modified, when new regulations are published, or when an industry association develops new data:
  - Identify regulations found in chs. NR 400-499, Wis. Adm. Code, which apply to the facility.

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<sup>1</sup> The department has the authority to order the facility to achieve compliance in a shorter time period if the shorter time period is feasible and necessary to protect public health and the environment.

- Determine whether the facility is meeting those regulations.
- Maintain documentation on-site to demonstrate that the search and evaluation that was conducted prior to identifying the applicable regulation was reasonable;
- After this search and evaluation, continue to operate in compliance with the regulations that were identified;
- If non-compliance with a previously unidentified applicable regulation is discovered at some point after the search and evaluation:
  - Submit a written notification to the DNR **within 21 days after** identifying non-compliance with an applicable requirement;
  - Certify that the facility is in compliance with the applicable requirement by the appropriate deadline:
    - By default, no later than 90 days after notifying the DNR; OR
    - If an extended deadline is requested by the permittee AND granted by the DNR, then by the deadline specified by the DNR; OR
    - If the DNR orders a deadline less than 90 days after notifying the DNR, then by that deadline.

*How does a facility know and demonstrate that their search and evaluation was "reasonable?"*

Section NR 407.105(7), Wisconsin Administrative Code (WAC), indicates that "[a] reasonable search and evaluation" includes a search and evaluation of chs. NR 400 to 499, and shall include a reasonable effort to review other readily accessible information relevant to the facility's operations, such as databases, workshops and materials available through trade associations, vendors, the DNR's Small Business Environmental Assistance Program (SBEAP), the U.S. EPA and other recognized sources of information on air regulations.

Keep a written copy of the results of the search and evaluation at the facility for inspection upon request for as long as the facility is covered under the registration permit.

## **6. Are There Fees Associated With a Registration Permit?**

Yes. Once covered under a registration permit, all facilities are charged a \$400 annual fee due at the end of every June. There is not a fee associated with applying for a registration permit.

## **7. What are the Other Options if the Facility is Not Eligible for the Registration Permit?**

The purpose of this guide is to prepare facilities to accurately answer the registration permit application questions, and to advise, before using the application, whether the facility is eligible for the registration permit.

The registration permit eligibility determination is not a permanent situation. Facilities not eligible at this time, may make operational changes and apply again. For example, if the control equipment does not meet the control requirements in the registration permit, the facility can make improvements and reapply. If the emissions are over the emission limit, the facility can reformulate a raw material, install control equipment, or make other process changes to reduce emissions and reapply. There is also a Type B registration permit that allows for emissions up to 50% of the major source threshold instead of the 25% that is allowable under the Type A registration permit. More information can be found on the DNR's [Registration Permit Options webpage](https://dnr.wi.gov/topic/AirPermits/Registration.html) (<https://dnr.wi.gov/topic/AirPermits/Registration.html>).

## **PART II - REGISTRATION PERMIT APPLICATION INSTRUCTIONS**

(Below are each question (1-10) and the additional information exactly how they are written in the June 2018 version of the ROPA application, followed by further supporting information provided by this guide. Note which version of the application is being completed.)

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### **1. Case-by-Case Determinations in Existing Permits**

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#### **Question 1:**

**1a.** Does the facility have any existing air permits (construction or operation)?

**1b.** If “Yes” to 1a, are the permits all revocable? (To understand whether permits may not be revocable, please review the Additional Information below.) If you answer No to this question, you are NOT eligible for the Registration permit.

- If you answer Yes to 1b., go on to question 2.
- If you answer No to 1b, then you are indicating that you have a permit condition that may NOT be revocable. A facility that needs case-by-case determinations in a permit, such as BACT or LAER, is not eligible for a registration permit. A permit with RACT or LACT avoidance limits or case-by-case determinations may be revocable if the facility elects to comply with alternative requirements. The department will need to review the existing permits to determine if they are revocable.

*ADDITIONAL INFORMATION: Permits that have conditions set either as avoidance limits or as case-by-case determinations to comply with certain requirements (i.e. emissions caps, control requirements) may not be revocable. The requirements that may trigger avoidance limits or case-by-case determinations in existing permits may include: chs. NR 405 or 408 New Source Review (NSR) Major Source construction permits (caps or Prevention of Significant Deterioration (PSD) BACT/Nonattainment NSR LAER controls); ch. NR 445 (caps or BACT/LAER); ch. NR 420 or 422 RACT (avoidance caps); or ch. NR 424 LACT (case-by-case determination).*

*If you have been issued permits in the past, they can help you determine if you have emission units covered by avoidance limits or BACT/LAER/LACT/RACT requirements. When answering this question, please note that the emission caps in the Registration Permit are considered enforceable caps on potential to emit. These limits may eliminate your need to retain any avoidance limits in existing permits. You can use the comment section below to provide additional information on such situations. Keep in mind that some NSR Major Source construction permit (PSD or Nonattainment) avoidance limits may not be maintained using ROPA emission limits of 25 tons per year. And specifically, a limit set under s. NR 405.08, Wis. Adm. Code, cannot be modified or revoked.*

*Facilities that have case-by-case BACT or LAER determinations in their permits, whether for a NSR Major Source construction permit or for NR 445 requirements, do NOT qualify for registration permit coverage.*

*There is further explanation of this in the Registration permit application guide for Type A permits, publication number AM-539 (<https://widnr.widen.net/s/dnh2bktbzw/am539>). If questions remain about existing permits and whether they are revocable, contact the Registration Permit Coordinator at [DNRRamROPSairpermit@wisconsin.gov](mailto:DNRRamROPSairpermit@wisconsin.gov).*

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### ***What does this question mean?***

BACT = Best Available Control Technologies

LAER = Lowest Achievable Emission Rate

RACT = Reasonably Available Control Technology

LACT = Latest Available Control Techniques and operating practices

BACT and LAER refer to control requirements established to reduce emissions for either Major New Source Review (PSD or Nonattainment) in chs. NR 405 or 408, or hazardous air contaminants in ch. NR 445. These requirements are considered case-by-case determinations because they require the DNR to take into consideration the specific circumstances of each facility and process and set an emission limit or work practice standard that may be unique for that facility.

- The Major New Source Review requirements are case-by-case determinations completed during the construction permit application and review process for sources that meet the size criteria included in ch. NR 405 or NR 408, Wis. Adm. Code. An avoidance limit may be included in a construction permit to allow a project to be reviewed under the NR 406 construction permit process. If that avoidance limit were revoked, the facility would need to go back and complete the major source construction permit application process, even if the equipment constructed under the original permit had been removed.
- Chapter NR 445 is a regulation affecting facilities that emit known or suspected carcinogens over thresholds listed in the code. If a facility's operation permit must contain BACT or LAER requirements, that facility is not eligible to be covered by a registration permit. This is because the registration permit is a generalized permit and cannot contain special requirements for individual facilities.

LACT applies to facilities that emit volatile organic compounds and, under s. NR 424.03(2)(c), Wis. Adm. Code, cannot meet the general requirement of 85% control of organic compounds. Chapter NR 424 applies if the facility's processes are not subject to other specific organic compound emission limits found in chs. NR 419, NR 420, or NR 422. LACT is usually a case-by-case determination. However, the DNR has put a generalized LACT into the registration permit so that more facilities can qualify for coverage. If the facility is subject to LACT but not subject to any other case-by-case determinations, then it is still eligible for coverage under the registration permit.

RACT rules in chs. NR 420 and 422 established control requirements for certain industries with emissions of volatile organic compounds in an effort to reduce ozone emissions in counties that did not meet national ambient air quality standards. Most RACT rules have applicability thresholds ranging from 3 tons per year to 100 tons per year. Facilities may have elected to restrict their emissions below an applicability threshold in a construction and/or operation permit to avoid having to meet the RACT requirements. After revoking an existing permit with a RACT avoidance limit, the facility will be required to meet the RACT limit that applies. In this case, a facility is still eligible for coverage under the registration permit.

**A facility's existing construction or operation permits will be reviewed to ensure that they can be revoked. The DNR will not revoke previous permits unless it believes that the facility will not be subject to BACT or LAER upon coverage of the facility under the registration permit.**

### ***What are BACT and LAER?***

If a facility meets the size criteria for the major source construction permit program, whether in PSD or nonattainment programs, then BACT or LAER control requirements must be included in the construction permit. In that case, a facility's construction permit application must include a top-down analysis of the control devices best suited to the process being installed, based on technical and economic assessments of viability. Facilities in attainment counties, under the PSD program, must evaluate controls to BACT level. Facilities in nonattainment counties must apply control that is LAER. The DNR must concur with the facility's evaluation of BACT or LAER and then will include the appropriate control device and related compliance demonstration requirements in the construction permit. The U.S. EPA maintains a RACT/BACT/LAER clearinghouse to assist facilities with this analysis.

If a facility emits a hazardous air contaminant that has a control requirement listed in the tables of ch. NR 445, Wis. Adm. Code, and the annual emission rate from all stacks in a stack height category is greater than the thresholds specified in Tables A-C of ch. NR 445, the facility may be subject to BACT or LAER. The DNR will make a case-by-case determination of BACT or LAER for their processes to control emissions of these harmful substances. However, a facility may consider the restrictions on the emissions imposed by the registration permit when determining if the emission rates will be over the NR 445 thresholds after coverage. More information and a link to ch. NR 445, Wis. Adm. Code tables are available at the DNR's [air toxic and mercury](https://dnr.wi.gov/topic/airquality/toxics.html) webpage (<https://dnr.wi.gov/topic/airquality/toxics.html>).

***How can a facility determine if it is subject to a case-by-case determination?***

If the facility already has air permits for processes at the facility, the permits should be reviewed for the words LACT, BACT or LAER. If there are no permits or it cannot be discerned from the permit whether or not the facility is subject to LACT, BACT or LAER, contact the environmental assistance coordinators at the Small Business Environmental Assistance Program for more help in determining whether or not the facility is subject to a case-by-case determination.

***What if the facility was previously subject to a BACT or LAER requirement under NR 445, but now has emissions below the threshold?***

If actual emissions of a hazardous substance at the facility are below the new thresholds in ch. NR 445, the facility can obtain relief from the BACT or LAER requirements with a registration permit because the revisions to ch. NR 445 discontinued the once-in-always-in policy. As long as the emissions of the pollutants at the facility which have BACT or LAER as control requirements in ch. NR 445 are below the appropriate thresholds listed, the facility may be eligible for a registration permit. When calculating emissions, the facility should look at the conditions in the registration permit (i.e., if the emissions are controlled, use the control efficiency in the Registration Permit). In addition, the facility may choose to perform risk modeling to demonstrate that the predicted risk for the pollutant in question is below the allowable risk contained in NR 445.

***How will the status for obtaining a registration permit be affected if the facility already has a permit with a LACT determination?***

If the facility already has a permit with a LACT determination under s. NR 424.03(2)(c), Wis. Adm. Code, the facility may still be eligible for coverage under a registration permit. Existing permits will need to be revoked. A previous LACT determination will be revoked along with these permits. If the facility chooses to move forward with registration permit coverage, it will need to meet the requirements of s. NR 424.03 by either controlling organic compound emissions by 85%, or by limiting the emissions from the affected process line to 10 tons organic compounds per year and meeting the LACT contained in the registration permit (refer to Section A of the registration permit). Some types of processes may also elect to meet a specific VOC limits in chs. NR 419-423. If the facility can comply with the s. NR 424.03 requirements in the registration permit, it may continue to apply for coverage under the registration permit. If instead the facility prefers to retain the original LACT or the facility does not believe it can comply with the LACT in the registration permit, the facility should retain the traditional permit.

***What if a facility still needs more help determining if the facility is currently covered by any existing construction permit(s)?***

- If a facility is unsure it is subject to a case-by-case determination, visit the DNR's [air permit search tool](https://dnr.wi.gov/topic/AirPermits/Search.html) (<https://dnr.wi.gov/topic/AirPermits/Search.html>). (If the facility has any permits that were issued prior to 1990, they may not be located on this website. Contact the registration permit coordinator at the email below.)
- Contact the facility's assigned compliance engineer for additional help in the determination. A compliance staff list is available on DNR's [Air Quality Contacts](https://dnr.wi.gov/topic/AirQuality/Contacts.html) webpage (<https://dnr.wi.gov/topic/AirQuality/Contacts.html>), or if the facility has existing air permits, contact regional air program as specified in the air permit (most likely found under the "Total Facility" or "Other Conditions Applicable to the Entire Facility" section(s) of the air permit).
- Contact the Registration Permit Coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in the facility's determination.

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## 2. Acid Rain Program Requirements

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### **Question 2:**

Is the facility an affected source under the Acid Rain Program?

- If NO, go on to question 3.
- If YES, the facility is an affected source under the Acid Rain Program and is not eligible for a Registration Permit.

**ADDITIONAL INFORMATION:** *Unless the facility generates electricity by combusting fossil fuels and the capacity to generate electricity is greater than 25 megawatts, facilities can answer NO to this question. If unsure whether or not the facility is an affected source for the Acid Rain Program, go to [https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/409.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/409.pdf) for more information.*

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### **What does this question mean?**

Facilities subject to the Acid Rain Program are typically electrical utilities or facilities emitting large amounts of sulfur dioxide. If the facility does not generate electricity or emit large amounts of sulfur dioxide, then answer no to this question. More information is included below for those still unsure how to answer this question.

- An "affected source" is a facility that has process(es) that are subject to the standards under ch. NR 409, Wis. Adm. Code, otherwise known as the Acid Rain Program regulations. These regulations apply to certain power generation emission units. The specific units that are subject to these requirements are listed in [s. NR 409.01\(1\), Wis. Adm. Code](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/409.pdf) ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/409.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/409.pdf)). Note that U.S. Department of Energy form EIA-860 only applies to electric generating plants with a nameplate rating of 1 megawatt (1000 kW) or more, and therefore, units under 1000 kW are not a 'generator' under s. NR 409.02(42), Wis. Adm. Code. These units would not be considered an affected source for the purpose of the application.

### **How will the status for obtaining a registration permit be affected if the facility is defined by this source type?**

The facility will not be eligible to apply for a registration permit.

### **Is there a place to go for more help to determine the facility's status as this source type?**

- Contact the facility's assigned compliance staff for additional help in the determination. A compliance staff list is available on the DNR's [Air Contacts webpage](https://dnr.wi.gov/topic/AirQuality/Contacts.html) (<https://dnr.wi.gov/topic/AirQuality/Contacts.html>), or if the facility has an air permit, contact the regional Air Management Program contact as specified in the air permit (most likely found under the "Total Facility" or "Other Conditions Applicable to the Entire Facility" section(s) of the air permit).
- Contact the registration permit coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in the facility's determination.

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### 3. Municipal or Infectious Waste Combustors

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#### **Question 3:**

Is the facility a municipal solid waste combustor or a combustor of infectious waste?

- If the answer is NO, go on to question 4.
- If the answer is YES, the facility is either a municipal solid waste combustor or an infectious waste combustor and will not qualify for coverage under the Registration Permit.

**ADDITIONAL INFORMATION:** *Municipal solid waste is household waste or solid waste from commercial or industrial sources that does not contain hazardous waste and does not contain any process waste which is the direct or indirect result of the manufacturing of a product or the performance of a service such as dry cleaning or painting. "Municipal solid waste" does not include waste wood, paper mill sludge, sewage sludge, tires or industrial process wastes.*

*The facility is a municipal solid waste combustor if it is a solid waste treatment facility that is used to burn municipal solid waste or products derived from municipal solid waste, alone or in conjunction with other materials. For more information, go to the Solid Waste website: <https://dnr.wi.gov/topic/Waste/Solid.html>*

*Infectious waste is solid waste that contains pathogens with sufficient virulence and in sufficient quantity that exposure of a susceptible human or animal to the solid waste could cause the human or animal to contract an infectious disease. Your facility is a combustor of infectious waste if you burn any such infectious wastes. For more information, go to our website on Managing Healthcare Waste: <https://dnr.wi.gov/topic/HealthWaste>*

*Municipal solid waste combustors and infectious waste combustors are subject to special rules and do NOT qualify for coverage under the registration permit.*

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#### **What does this question mean?**

Municipal solid waste combustors and infectious waste combustors refer to facilities with incinerators that burn certain types of waste. If the facility does not operate an incinerator, then answer NO to this question. More information is included below.

- A municipal solid waste (MSW) combustion source is a facility that has process(es) as defined under s. NR 440.215(2)(k) or s. NR 500.03(151), Wis. Adm. Code.
  - The definition under s. NR 440.215(2)(k), Wis. Adm. Code, is: "*Municipal waste combustor or MWC or MWC unit means any setting or equipment that combusts solid, liquid or gasified MSW including, but not limited to, field erected incinerators with or without heat recovery; modular incinerators; starved air or excess air; boilers or steam generating units; furnaces whether suspension fired, grate fired, mass fired or fluidized bed fired; and pyrolysis or combustion units. MWC does not include pyrolysis or combustion units located at plastics or rubber recycling plants. MCW does not include internal combustion engines, gas turbines or other combustion devices that combust landfill gases collected by landfill gas collection systems.*"
  - The definition under s. NR 500.03(151), Wis. Adm. Code, is: "*Municipal solid waste combustor means any solid waste treatment facility that is used to burn municipal solid waste or products derived from municipal solid waste, alone or in conjunction with other materials.*"

- Furthermore, the definition of “municipal solid waste” is found under ss. NR 440.215(2)(jm), and NR 500.03(150), Wis. Adm. Code.
  - The definition under s. NR 440.215(2)(jm), Wis. Adm. Code, is: “*Municipal solid waste or municipal type solid waste or MSW* means household, commercial, retail or institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels and other similar permanent or temporary housing establishments or facilities. Commercial or retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities and other similar establishments or facilities...” The definition under s. NR 500.03(150), Wis. Adm. Code, is: “*Municipal solid waste* means: (a) household waste, or (b) Solid waste from commercial or industrial sources that does not contain hazardous waste and does not contain any process waste which is the direct or indirect result of the manufacturing of a product or the performance of a service such as dry cleaners or paint shops. *Municipal solid waste* does not include waste wood, papermill sludge, sewage sludge, tires or industrial process wastes.”
  - Hazardous waste is defined under [s. NR 661, Wis. Adm. Code](https://docs.legis.wisconsin.gov/code/admin_code/nr/600/661.pdf) ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/600/661.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/600/661.pdf)).
- A hospital/medical/infectious waste combustion source is a facility that has process(es) that combust hospital, medical, and/or infectious waste, as defined under s. NR 500.03(110), Wis. Adm. Code and s. 287.07(7), Wis. Stats, and also under EPA’s [Federal Rule – 40 CFR Part 62 Subpart HHH](https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol9/pdf/CFR-2015-title40-vol9-part62-subpartHHH.pdf) (<https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol9/pdf/CFR-2015-title40-vol9-part62-subpartHHH.pdf>).
  - The definition of a Hospital/Medical/Infectious waste incinerator is given by 40 CFR Part 62 Subpart HHH § 62.14490, as: “Hospital/medical/infectious waste incinerator or HMIWI or HMIWI unit means any device that combusts any amount of hospital waste and/or medical/infectious waste.”
  - The definition of hospital waste is given by 40 CFR Part 62 Subpart HHH § 62.14490, as: “Hospital waste means discards generated at a hospital, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, and anatomical parts that are intended for interment or cremation.”
  - The definition of medical/infectious waste is given by [40 CFR Part 62 Subpart HHH § 62.14490](https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol9/pdf/CFR-2015-title40-vol9-part62-subpartHHH.pdf) (use <https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol9/pdf/CFR-2015-title40-vol9-part62-subpartHHH.pdf> for the full definition), under “*Medical/infectious waste*.”
  - The definition of infectious waste is also given under [s. 287.07(7)(c)1.c., Wis. Stats.], as: “*Infectious waste* means solid waste that contains pathogens with sufficient virulence and in sufficient quantity that exposure of a susceptible human or animal to the solid waste could cause the human or animal to contract an infectious disease.”
  - The definition of medical waste is also given under [s. 287.07(7)(c)1.cg., Wis. Stats.], as: “*Medical waste* means containers, packages and materials identified under sub. (4) (of 287.07, Wis. Stats.) that contain infectious waste or that are from a treatment area and are mixed with infectious waste.”
  - The definition of a medical waste incinerator is also given under [s. 287.07(7)(c)1.cr., Wis. Stats.], as: “*Medical waste incinerator* means a solid waste treatment facility that primarily burns infectious waste and other waste that contains or may be mixed with infectious waste.”
  - Furthermore, the definition of pathological waste is given under 40 CFR Part 60 §60.51c and Part 62 §62.14490, as: “*Pathological waste* means waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).”

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#### 4. New Source Performance Standards (NSPS)

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##### **Question 4:**

Are any emission units at the facility subject to a New Source Performance Standard (NSPS)?

- If the answer is NO, go on to question 5.
- If the answer is YES, please list the standard you are subject to in the space below:

**ADDITIONAL INFORMATION:** *New Source Performance Standards (NSPS) are federal regulations that apply to certain types of equipment or industries. If equipment at the facility is subject to a standard under an NSPS, and that standard is not allowed by the Registration Permit, the facility is NOT eligible for coverage under a Registration Permit.*

*All NSPS have an applicability date. Equipment constructed or modified after the applicability date is affected. Sources subject to only the recordkeeping and notification requirements of an NSPS are still eligible to apply for coverage under a Registration Permit.*

*For a list of most common NSPS under Subparts of 40 CFR Part 60 and s. 111 of CAA allowed by the permit, see Table 4 of the Type A Registration Permit Fact Sheet at <https://widnr.widen.net/s/s6pvlwdtdf/am364> or proceed to the end of this application for a listing.*

*Use the comment section below to indicate if you are subject to only record keeping or notification requirements of an NSPS and any other special circumstances.*

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##### **What are New Source Performance Standards (NSPS)?**

The NSPS are federal air pollution standards that apply to certain types of industrial processes or equipment if the equipment was constructed, modified or reconstructed after a date specified in the rule. For example there are New Source Performance Standards covering electric arc furnaces at steel plants, but the standards only apply if the furnaces were installed, modified or reconstructed after August 17, 1983. An NSPS typically sets emission standards for criteria pollutants and, less often, for other types of pollutants.

##### **What does it mean to have a new, modified or reconstructed source?**

See the following definitions:

1. New Sources: a facility, process line or portable source that was constructed after the date specified in the particular standard that applies to the "affected facility."
2. Modification: a physical change or change in the method of operation that produces either more air emissions of the same type or "new" air emissions.
3. Reconstruction: to remove old -- and substitute new -- components that exceed 50% of the capital cost of building a new source.

Since February 1, 1984, NSPS have applied to the owner or operator of any stationary source [i.e., facility] that contains an "affected facility." An "affected facility" is the term used by EPA to define any apparatus, process line or piece of equipment specifically regulated by an applicable NSPS standard in ch. NR 440, Wis. Adm. Code.

##### **Which NSPS are facilities allowed to have with the Registration Permit?**

Table 1 below lists all the NSPS with the allowed NSPS in **bold** type. If the facility is subject to one of the NSPS in bold type, the facility may still apply for coverage under the registration permit. Also, if the facility is subject to

only a recordkeeping or a notification requirement of an NSPS, the facility may still apply for coverage under the registration permit.

**How does a facility determine which NSPS apply and whether that facility is still eligible for a registration permit?**

- General procedure for search and evaluation to determine which NSPS apply:
  - Identify any equipment (processes) at the facility that are new, modified, or reconstructed (see the definitions above).
  - Examine the names of NSPS Titles listed in Table 1 and note any that might possibly apply to those processes.
  - Read the applicability paragraphs and definitions of terms for those NSPS standards that were noted. Pay particular attention to the date that each section identifies as the time after which changes to the equipment or process must meet the rule. If the changes occurred prior to that date, then the equipment is NOT considered new, modified or reconstructed under the NSPS. Visit the [Wisconsin Administrative Code webpage](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/440.pdf) ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/440.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/440.pdf)).
- Decide which standards apply to the facility's processes. Call the DNR for help on this determination if necessary. A [compliance staff list](https://dnr.wi.gov/topic/AirQuality/Contacts.html) is available on DNR's website (<https://dnr.wi.gov/topic/AirQuality/Contacts.html>) or if the facility has an air permit, contact the regional air program as specified in the permit (most likely found under the "Total Facility" or "Other Conditions Applicable to the Entire Facility" section(s) of the air permit). Or, contact the Registration Permit Coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in the facility's determination.
  - Examine the Federal NSPS standards that have not been incorporated into the Wis. Adm. Code including:
    - Municipal solid waste landfills (40 CFR Part 60 subparts CC and WWW).

<b>Table 1 *NSPS categories in bold type are allowed by the Registration Permit</b>	
<b>Titles of NSPS Standards As Incorporated into the Wisconsin Administrative Code</b>	<b>Section</b>
Fossil-fuel-fired steam generators for which construction is commenced after August 17, 1971.	NR 440.19
Electric steam generating units for which construction is commenced after September 18, 1978.	NR 440.20
Industrial – commercial – institutional steam generating units.	NR 440.205
<b>Small industrial–commercial–institutional steam generating units.</b>	NR 440.207
Incinerators.	NR 440.21
Municipal waste combustors for which construction is commenced after December 20, 1989 and on or before September 20, 1994.	NR 440.215
Large municipal waste combustors for which construction is commenced after September 20, 1994 or for which modification or reconstruction is commenced after June 19, 1996.	NR 440.216
Hospital/medical/infectious waste incinerators for which construction is commenced after June 20, 1996.	NR 440.218
Portland cement plants.	NR 440.22
Nitric acid plants.	NR 440.23
Sulfuric acid plants.	NR 440.24
<b>Asphalt concrete plants. (Hot Mix Asphalt Facilities)</b>	NR 440.25
Petroleum refineries.	NR 440.26
<b>Storage vessels for petroleum liquids for which construction, reconstruction or modification commenced after June 11, 1973, and prior to May 19, 1978.</b>	NR 440.27
<b>Storage vessels for petroleum liquids for which construction, reconstruction or modification commenced after May 18, 1978, and prior to July 23, 1984.</b>	NR 440.28
<b>Volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction or modification commenced after July 23, 1984.</b>	NR 440.285
Secondary lead smelters.	NR 440.29
Secondary brass and bronze production plants.	NR 440.30

<b>Table 1 *NSPS categories in bold type are allowed by the Registration Permit</b>	
<b>Titles of NSPS Standards As Incorporated into the Wisconsin Administrative Code</b>	<b>Section</b>
Primary emissions from basic oxygen process furnaces for which construction is commenced after June 11, 1973.	NR 440.31
Basic oxygen process steelmaking facilities for which construction is commenced after January 20, 1983.	NR 440.315
Sewage treatment plants.	NR 440.32
Primary copper smelters.	NR 440.33
Primary zinc smelters.	NR 440.34
Primary lead smelters.	NR 440.35
Primary aluminum reduction plants.	NR 440.36
Phosphate fertilizer industry: wet-process phosphoric acid plants.	NR 440.37
Phosphate fertilizer industry: superphosphoric acid plants.	NR 440.38
Phosphate fertilizer industry: diammonium phosphate plants.	NR 440.39
Phosphate fertilizer industry: triple superphosphate plants.	NR 440.40
Phosphate fertilizer industry: granular triple superphosphate storage facilities.	NR 440.41
Coal preparation plants.	NR 440.42
Ferroalloy production facilities.	NR 440.43
Steel plants: electric arc furnaces constructed after October 21, 1974, and on or before August 17, 1983.	NR 440.44
Steel plants: electric arc furnaces and argon-oxygen decarburization vessels constructed after August 17, 1983.	NR 440.445
Kraft pulp mills.	NR 440.45
Glass manufacturing plants.	NR 440.46
<b>Grain elevators.</b>	NR 440.47
<b>Surface coating of metal furniture.</b>	NR 440.48
Stationary gas turbines.	NR 440.50
Lime manufacturing plants.	NR 440.51
Lead-acid battery manufacturing plants.	NR 440.52
Metallic mineral processing plants.	NR 440.525
Automobile and light-duty truck surface coating operations.	NR 440.53
Phosphate rock plants.	NR 440.54
Ammonium sulfate manufacture.	NR 440.55
Graphic arts industry: publication rotogravure printing.	NR 440.56
Pressure sensitive tape and label surface coating operations.	NR 440.565
<b>Industrial surface coating: large appliances.</b>	NR 440.57
Metal coil surface coating.	NR 440.58
Asphalt processing and asphalt roofing manufacture.	NR 440.59
Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry.	NR 440.62
Beverage can surface coating industry.	NR 440.63
Bulk gasoline terminals.	NR 440.64
New residential wood heaters.	NR 440.642
Rubber tire manufacturing industry.	NR 440.644
Volatile organic compound (VOC) emissions from the polymer manufacturing industry.	NR 440.647
Flexible vinyl and urethane coating and printing.	NR 440.65
Equipment leaks of VOC in petroleum refineries.	NR 440.66
Synthetic fiber production facilities.	NR 440.67
Volatile organic compound (VOC) emissions from the synthetic organic chemical manufacturing industry (SOCMI) air oxidation unit processes.	NR 440.675
<b>Petroleum dry cleaners.</b>	NR 440.68
Equipment leaks of VOC from onshore natural gas processing plants.	NR 440.682
Onshore natural gas processing: SO <sub>2</sub> emissions.	NR 440.684
Volatile organic compound (VOC) emissions from synthetic organic chemical manufacturing industry (SOCMI) distillation operations.	NR 440.686

<b>Table 1 *NSPS categories in bold type are allowed by the Registration Permit</b>	
<b>Titles of NSPS Standards As Incorporated into the Wisconsin Administrative Code</b>	<b>Section</b>
Nonmetallic mineral processing plants.	NR 440.688
Wool fiberglass insulation manufacturing plants.	NR 440.69
VOC emissions from petroleum refinery wastewater systems.	NR 440.70
Volatile organic compound emissions from synthetic organic chemical manufacturing industry (SOCMI) reactor processes.	NR 440.705
Magnetic tape coating facilities.	NR 440.71
<b>Industrial surface coating: surface coating of plastic parts for business machines.</b>	NR 440.72
Calciners and dryers in mineral industries.	NR 440.73
Polymeric coating of supporting substrates facilities.	NR 440.74

### **Engine NSPS**

In addition to the NSPS listed above, there are two other NSPS that were promulgated more recently and not included in Wisconsin Administrative Code. These regulations cover reciprocating internal combustion engines (RICE) and are contained in the code of Federal Regulations under 40 CFR Part 60 Subpart IIII for stationary compression ignition internal combustion engines (diesel) and under 40 CFR Part 60 Subpart JJJJ for stationary spark ignition internal combustion engines. The two new standards are allowed under the registration permit as well.

### ***How do I answer the question about whether the facility is subject to an NSPS?***

- After determining which NSPS apply to the facility, if any, then determine whether the standard falls into at least one of the following categories:
  - The facility or process is only subject to the recordkeeping or notification requirements of that standard and not to any limitation or other compliance demonstration requirement.
  - The facility or process is subject to an allowed standard marked in **BOLD** in the list above or is a diesel or gas fired engine subject to subparts IIII or JJJJ of 40 CFR Part 60, except engines burning digester gas. (Manufacturers are unable to certify that engines combusting digester gas will continuously meet emission limits in JJJJ.)
- If each NSPS standard is either identified as an exception (in **bold** above) or consists only of recordkeeping and notification requirements, then the facility meets the NSPS eligibility criteria for the registration permit and may answer "**YES**" to this question on the application.
- Contact the Registration Permit Coordinator at [DNRAMROPSairpermit@wisconsin.gov](mailto:DNRAMROPSairpermit@wisconsin.gov) for additional help in the facility's determination.

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## 5. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

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### **Question 5:**

Are any emission units at the facility subject to a National Emissions Standard for Hazardous Air Pollutants (NESHAP)?

- If the answer is NO, then go on to question 6.
- If the answer is YES, please list the standard(s) the facility is subject to in the space below:

**ADDITIONAL INFORMATION:** *National Emission Standards for Hazardous Air Pollutants (NESHAPs) are federal regulations that apply to certain types of equipment or industries that emit hazardous air pollutants. If equipment at the facility is subject to a standard under a NESHAP and that standard is not allowed by the Registration Permit, the facility is NOT eligible for coverage.*

*Sources subject to only the recordkeeping and notification requirements of a NESHAP are still eligible to apply. Any NESHAP for an area source under Section 112(d)(5) or (r) of the Clean Air Act that does not require the source to obtain a Part 70 permit is an allowed standard in the registration permit.*

*For a list of most common NESHAPS under Subparts of 40 CFR Part 63 and s. 112 of CAA allowed by the permit, see Table 4 of the Type A Registration Permit Fact Sheet at <https://widnr.widen.net/s/s6pvlwtdtf/am364> or proceed to the end of this application for a listing.*

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### **What does this question mean?**

A NESHAP is a federal regulation, sometimes incorporated into state rules, to control emissions of 187 federally regulated hazardous air pollutants. It is often referred to as a MACT standard (Maximum Achievable Control Technology) but in reality, NESHAPs can require MACT level control or, for smaller sources, less stringent GACT level controls (Generally Available Control Technology).

If the facility is subject to a NESHAP that requires MACT level controls, other than just the recordkeeping or notification requirements of the standard, the facility is not eligible for a registration permit. A recordkeeping requirement is a requirement to keep a record such as an amount of a substance used, or the blueprints of a piece of equipment. A notification requirement is a requirement to submit or otherwise notify EPA or the DNR of the status with the requirement under the NESHAP such as the requirement to submit a written statement of the date a piece of equipment was installed.

All facilities in a NESHAP category that had potential emissions of hazardous air pollutants over the major source thresholds of 10 tons per year for any single NESHAP-regulated pollutant or 25 tons per year of total NESHAP-regulated pollutants at the time of the NESHAP compliance deadline are subject to a MACT standard and remain subject even if emissions later decreased. This is called once-in-always-in.

In contrast to MACT, most (but not all) small sources of hazardous air pollution, referred to as area sources, are covered by NESHAPs that are regulated to a level referred to as GACT. GACT standards cover many area sources. All NESHAPs that required only GACT level controls are allowed standards under the registration permit.

### ***How can a facility determine if it is subject to a NESHAP?***

For a complete list of [NESHAP affected source categories](#) and specific descriptions of each category, visit the US Environmental Protection Agency (EPA) website (<https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9>).

If the facility has an existing permit with a MACT standard in it, that facility is subject to a MACT. Look at the facility's requirements. If they consist only of recordkeeping and/or notification requirements, the facility is still eligible to apply. If the permit contains an emission limit or control requirement, or work practices, the facility is not eligible for coverage under the registration permit. In limited circumstances, if the operations that were subject to the MACT are removed from the facility or the facility no longer engages in the activities covered by the MACT, then it may be possible to determine that the standard no longer applies and the facility may qualify for the registration permit.

Facilities subject to an area source NESHAP regulated to a GACT level are allowed coverage under the registration permit. For a list of [area source NESHAPs](#) and other information (<https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9>).

### ***How can a facility find more help determining if it is subject to a NESHAP not allowed by the registration permit?***

- The [Small Business Environmental Assistance Program](#) (SBEAP) employs environmental assistance coordinators who can assist small businesses with understanding their environmental requirements. The site contains additional information on the program as well as contact information.
- Contact the Registration Permit Coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in the facility's determination.

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## 6. Control Efficiencies

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**Question 6:**

a. Does the facility have any air pollution control devices?

- If the answer is NO, then go on to question 7.
- If the answer is YES, then fill out the table below for each device.

b. Does the control device meet the minimum control efficiency required by the registration permit listed below?

Control Device	Minimum Control Efficiency (Total Enclosure Capture)			Minimum Control Efficiency (Hood Capture)			Your Control Device Efficiencies	
	PM	PM <sub>10</sub> and PHAP	VOC and VHAP	PM	PM <sub>10</sub> and PHAP	VOC and VHAP	Hood	Total Enclosure
Low efficiency cyclone	40%	20%		32%	16%			
Medium efficiency cyclone	60%	40%		48%	32%			
High efficiency cyclone	80%	64%		60%	48%			
Multiple cyclone w/out fly ash reinjection	80%	60%		64%	48%			
Multiple cyclone with fly ash reinjection	50%	38%		40%	30%			
Wet cyclone separator	50%	40%		38%	30%			
HEPA and other wall filters (including paint overspray filters)	95%	95%		76%	76%			
Fabric filters (e.g., baghouse, cartridge collectors)	98%	92%		78%	73%			
Spray towers	80%	80%	70%	64%	64%	56%		
Venturi scrubber	90%	85%		72%	68%			
Condensation scrubber (packed bed)	90%	90%		72%	72%			
Impingement plate scrubber	75%	75%		60%	60%			
Electrostatic precipitators	95%	95%		76%	76%			
Thermal oxidizers			95%			76%		
Catalytic oxidizers			95%			76%		
Condenser			70%			56%		
Flaring or direct combustor			98%			78%		
Biofiltration			80%			64%		
Adsorber (activated Carbon Systems carbon adsorption, solvent recovery)			85%			68%		

**ADDITIONAL INFORMATION:** The registration permit requires control devices to be able to meet specified minimum levels of control. If 100% of emissions produced are delivered to the control device then list the control efficiency in the total enclosure column. If emissions are only partially captured under a hood before being delivered to the control device use the hood column.

For more information on calculating control efficiencies see the *Type A Registration Permit Application Guide* under the *Registration Permit* tab available at DNR's *Registration Permit Options* webpage: <https://dnr.wi.gov/topic/AirPermits/Registration.html> or visit DNR's *Small Business Environmental Assistance Program* website: <https://dnr.wi.gov/topic/smallbusiness/>.

Indicate the number of each control device at the facility that will be used to meet the registration permit emission limit or an applicable requirement. Use the comment section below to indicate any special circumstances like if there are multiple control devices of the same variety or if there are varying control efficiencies.

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#### **What does this question mean?**

The registration permit contains the control devices and the minimum control efficiency levels that control devices at a facility must meet or exceed. These control devices and their required minimum control efficiencies are listed in Table 2 below.

In order to qualify and remain eligible for the registration permit, the facility must first identify all control devices at the facility. Next, identify which devices are required by an applicable emission limitation (a regulation) or are needed to keep facility emissions below the emissions limits in [Question 7](#).

Finally, the facility must determine the actual control efficiency for each control device and compare this efficiency to the appropriate minimum control efficiency level that is listed in the table above in Question 6.

#### **What does control efficiency mean?**

Control efficiency is a measure of air pollution reduction. It is a percentage value representing the amount of air pollution emission reduction caused by a control device.

#### **How is control efficiency calculated?**

A control device's efficiency is defined using the following equation:

$$CE = \frac{[(E_{in}) - (E_{out})]}{(E_{in})} \times 100\%$$

where:

CE = Control device efficiency

E<sub>in</sub> = Pollutant emission rate entering the control device

E<sub>out</sub> = Pollutant emission rate exiting the control device

For example, if a pollution control device's efficiency is stated as 90% removal or destruction efficiency, it means that for every 10 pounds of an air pollutant entering the device, only 1 pound of the pollutant is emitted to the atmosphere.

#### **How is control efficiency determined?**

A facility can determine the control efficiency by several means. The preferred, and most accurate, method is through actual performance testing of the control device at the facility, where the amount of pollution entering the control device is measured and the amount of pollution being emitted is measured. If performance testing at the facility has never been done, an alternative method of estimating the control efficiency is manufacturer's testing results or guarantees. This information should have been supplied in the documentation that came with the control device, if not, contact the manufacturer of the control device. Documentation is required to meet the compliance demonstration requirements of the registration permits.

A facility may identify equipment that is typically considered air pollution control equipment (e.g. baghouse, scrubber, cyclone) as being an inherent part of the process equipment. When evaluating whether this type of equipment is inherent to the process, the DNR considers the questions outlined in a [November 27, 1995 letter](#)

from David Solomon, Integrated Implementation Group, U.S. EPA, to Mr. Timothy Mohin, Government Affairs, Intel Corporation. The letter addresses situations for which case-by-case judgments may be needed regarding whether control equipment should be considered as air pollution control equipment, or whether that equipment is an inherent part of the process. Provide detailed information to answer the following questions:

- Is the primary purpose of the equipment to control air pollution?
- Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?
- Would the equipment be installed if no air quality regulations are in place?

Provide specific details to elaborate answers and include a quantitative cost savings analysis. The DNR will review the responses to these questions and make a case-by-case determination whether the equipment is inherent to the process.

If the DNR approves a control device as inherent process equipment, the maximum theoretical emissions from the process take into account the removal efficiency of the inherent process equipment. If the facility uses a collection efficiency for the inherent process equipment that is greater than the control efficiency for that type of equipment allowed in the table above when calculating emissions, the application should include documentation supporting the collection efficiency used to determine emissions or documentation supporting the emission rate after the collection equipment. Examples of supporting documentation include equipment manufacturer control or emission guarantees, or stack test results that comply with the requirements in NR 439. For more details on stack test requirements, refer to [SB119](#) or contact the [ROP Coordinator](#).

Note:

- Equipment typically considered to be air pollution control equipment that is determined to be inherent process equipment is subject to the same monitoring and recordkeeping requirements identified for that type of equipment in Section E of the ROP or s. NR 439.055, Wis. Adm. Code.
- If a collection efficiency for inherent process equipment is greater than the control efficiency for the type of equipment identified in Section G of the ROP, that section is used to determine emissions. Stack testing may be required as a condition of the approval for coverage under the ROP to demonstrate that the inherent process equipment provides the claimed collection efficiency or meets the claimed emission rate.

***If multiple control devices are used for the same process, how is overall control efficiency determined?***

If more than one control device applies to the same pollutant from a process, there are different ways, depending on the configuration of the control devices, to determine the overall control efficiency.

- If the control devices are in parallel (as shown in figure 1, below), simply compare the individual control efficiencies of each device with the required control efficiency in the registration permit.
- If the control devices are in series (as shown in figure 2, below), use the following equation to determine the overall efficiency, and compare this efficiency with the required control efficiency in the registration permit:

$$\text{Overall Control Efficiency} = \left[ 1 - \left( \left( \frac{100 - CE1}{100} \right) \times \left( \frac{100 - CE2}{100} \right) \times \left( \frac{100 - CE3}{100} \right) \dots \right) \right] \times 100\%$$

where:

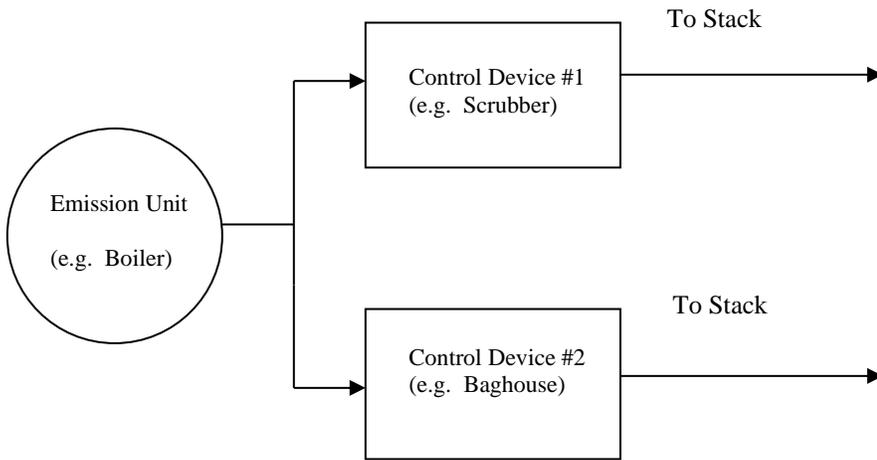
CE1 = Control efficiency of first control device

CE2 = Control efficiency of second control device (if applicable)

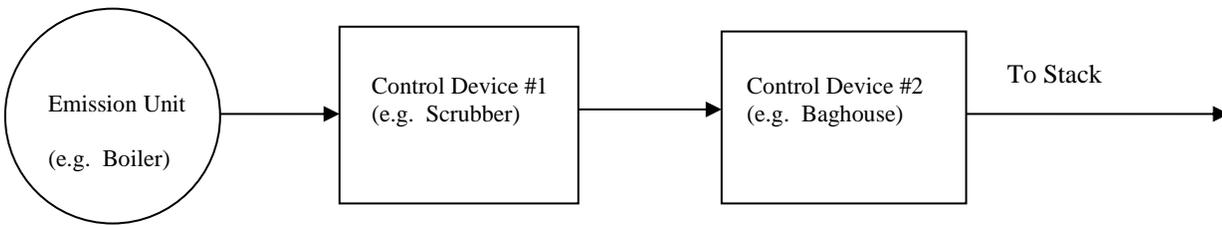
CE3 = Control efficiency of third control device (if applicable)

... = Add more control devices into the equation if applicable

**Figure 6.1 Control Devices in Parallel**



**Figure 6.2 Control Devices in Series**



***What if help is still needed in determining how to answer this question?***

- Contact the Registration Permit Coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in the facility's determination.

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## 7. Emission Limit

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### **Question 7:**

List the facility's expected facility-wide actual annual calendar year emissions for each of the following pollutants in tons per year.

PM<sub>10</sub> (particulate matter less than 10 microns) \_\_\_\_\_ ton/yr  
Sulfur dioxide (SO<sub>2</sub>) \_\_\_\_\_ ton/yr  
Nitrogen oxides (NO<sub>x</sub>) \_\_\_\_\_ ton/yr  
Carbon monoxide (CO) \_\_\_\_\_ ton/yr  
Volatile Organic Compounds (VOC) \_\_\_\_\_ ton/yr  
Lead \_\_\_\_\_ ton/yr

**ADDITIONAL INFORMATION:** *The Type A registration permit limits emissions of each of these pollutants to less than 25% of the major source threshold. Enter the facility's expected actual annual emissions in the ton/yr column. In order to qualify for registration permit coverage, the actual calendar year emissions may not exceed 25% of the major source threshold which is equal to 25 tons per year of each of the listed pollutants except lead. Lead emissions may not exceed 0.5 tons per year. Be sure to send copies of all calculations with the application.*

*If the facility uses a control device to meet an emission limit, the minimum control efficiencies (listed in Question 6 of this application or in Table 3 of the Type A registration permits Factsheet at <https://widnr.widen.net/s/s6pvlwtdf/am364>).*

*For additional information on calculating the facility-wide annual actual emissions, see the Type A Registration Permit Application Guide under the Registration Permit Tab available at on DNR's Registration Permit Options webpage: <https://dnr.wi.gov/topic/AirPermits/Registration.html> or visit DNR's Small Business Environmental Assistance Program website: <https://dnr.wi.gov/topic/smallbusiness/>.*

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### **What does this question mean?**

A registration permit effectively limits a facility's actual air pollution emissions. Once the facility is covered under the registration permit, the facility must limit the annual (calendar year) emissions from to below the limits so that the facility can remain eligible for coverage under the registration permit. Table 3 below shows the pollutants covered by the registration permit emission limits and the highest emissions allowed under each pollutant's limit, according to current major source threshold levels in Wisconsin.

<b>Pollutant</b>	<b>Emission Limits<sup>2</sup></b>
Particulate Matter or PM <sub>10</sub>	25 ton/year for attainment areas
Volatile Organic Compounds	25 ton/year for attainment, and marginal or moderate ozone nonattainment areas
Nitrogen Oxides	25 ton/year
Sulfur Dioxide	25 ton/year
Carbon Monoxide	25 ton/year
Lead	0.5 tons/year
Section 112(b) Hazardous Air Pollutants (Federal HAP) <sup>3</sup>	2.5 ton/year for any <i>single</i> Federal hazardous air pollutant 6.25 ton/year for a <i>combination</i> of all Federal hazardous air pollutants

**What are these pollutants, and where might they be generated at a facility?**

- **Particulate matter, or PM**, is the term for particles found in the air, including dust, dirt, soot, smoke, and liquid droplets. Some common sources of particulate matter include operations such as crushing rocks, grinding, sanding or handling of materials, spray painting, and combustion sources. PM<sub>10</sub> is the portion of particulate matter emitted which has a diameter less than or equal to 10 micrometers. PM<sub>10</sub> is known to cause more health problems than larger sized particulate matter.
- **Volatile organic compounds, or VOC**, are organic compounds which, in the presence of nitrogen oxides and sunlight, form ground level ozone. Volatile organic compounds are emitted from many processes, often from those that use paints, inks, lacquers, adhesives, other coatings, and cleanup or other types of solvents.
- **Nitrogen oxides, or NOx**, are the generic terms for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Many of the nitrogen oxides are colorless and odorless. Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process (e.g., boilers, space heaters, diesel generators).
- **Sulfur dioxide, or SO<sub>2</sub>**, belongs to the family of sulfur oxide gases (SOx). Sulfur is prevalent in most raw materials, including crude oil, coal, and ore that contains common metals like aluminum, copper, zinc, lead, and iron. SOx gases are formed when fuel containing sulfur, such as coal, diesel and fuel oil, is burned, and when gasoline is extracted from oil or metals are extracted from ore.
- **Carbon monoxide, or CO**, is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. In combustion processes, the carbon in the fuel is never completely combusted, and a portion becomes CO. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing).
- **Lead** is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are utilities and lead-acid battery manufacturers.
- **Section 112(b) Hazardous Air Pollutants, or Federal HAPs**, are pollutants that the U.S. Environmental Protection Agency (EPA) has designated as being known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Section 112(b) hazardous air pollutants means the federally regulated air pollutants included in the list in section 112(b)(1) of the Clean Air Act as revised by 40 CFR part 63 Subpart C. Examples include benzene, found in gasoline;

<sup>2</sup> Depending on whether an area of the state meets the air quality standards set by the Environmental Protection Agency, it will be designated as attainment (meets the standards) or non-attainment (does not meet the standards) for a specific pollutant. Most areas in Wisconsin are considered attainment areas.

<sup>3</sup> A list of these air pollutants is available at <https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications>.

perchloroethylene, emitted from some dry cleaning facilities; and methylene chloride, used as a solvent and paint stripper by a number of industries.

### ***When do emissions need to be calculated?***

The DNR recommends that before a facility applies for a registration permit, the emissions for the previous calendar year and an estimate of emissions for the coming calendar year are calculated. Compare these emissions with the ROP A emission limits in the table above. Based on the calculations, if the facility will not be able to stay under the registration permit emission limits, this type of permit is not the right permit for the facility. The Registration Type B permit is very similar to that of the Type A, but it allows emissions up to 50% of the major source threshold. This may be more appropriate for a source with emissions close to the Type A limits. See the [Type B fact sheet](https://widnr.widen.net/s/qwrmrkhpax/am531) (https://widnr.widen.net/s/qwrmrkhpax/am531) for more information on the ROP B.

### ***When does a facility need to begin meeting the emission limits in the registration permit?***

Facilities must meet the emission limits beginning in the year that coverage under the registration permit begins. For example, if the facility was granted coverage under the registration permit in December 2017, the emissions for December and the preceding 11 months in 2017 must be below the emission limits, even though the facility was only covered by the registration permit for one month of the year. Therefore, if the facility cannot meet the emission limits this year, wait to apply for the registration permit until the next year (e.g. January 2018 or later) when the emissions will be below the limits.

### ***Can a facility consider control devices when calculating annual actual emissions?***

Yes, as long as the control device is listed in the registration permit (see Table 2 under the [Control Efficiency section](#) of this guide). If an emission unit at the facility is covered by an applicable requirement that specifically requires a type of control device not listed, the facility may also use that control device to calculate emissions but only for the emission unit covered by the applicable requirement.

### ***What are the control efficiencies that a facility must use to calculate emissions?***

Any control devices that a facility must use to meet the emission limit of the registration permit must meet the minimum control efficiency listed in [Table 2](#) of the previous section. The exception is if an applicable requirement specifically requires higher control efficiency. Then, the facility may use that control efficiency in the emission calculations but only for the emission unit subject to the higher control efficiency.

### ***What happens to the emission limits if the attainment area status of the county where the facility operates changes?***

If the attainment status for any pollutant for the area in which the facility is located changes, the emission limit for that pollutant may change. For example, the major source threshold for a moderate nonattainment area for ozone is 100 tons per year of volatile organic compounds (VOC). The threshold for a severe non-attainment area for ozone is 25 tons per year of VOC. So, if the area in which a facility is located is re-designated from moderate ozone nonattainment to severe ozone nonattainment, the VOC emission limit for the facility would drop from 25 tons per year to 6.25 tons per year. Note that the DNR would likely have plenty of time to inform affected sources of impending changes in attainment status for the location of any affected facilities and would help step facilities through such a change.

### ***How does a facility calculate actual annual emissions?***

If a facility submits an annual Air Emissions Inventory Report to the DNR, this report can be used to help estimate whether or not the emissions have been and will be below the registration permit emission limits. One caution is that the control device efficiencies used in the Air Emissions Inventory Report might be higher than is allowed under the registration permit. For example, there is a large difference between the 92% control allowed for PM<sub>10</sub> from baghouses in the Registration Permit and the 99.9% control efficiency given to many baghouses in the air emissions inventory calculations. If the facility has control devices, recalculate the emissions in the inventory, substituting the registration permit control efficiencies for the actual control efficiencies used in the inventory.

If the facility has never submitted an Air Emissions Inventory Report to the DNR before, or if the facility has control devices and wants to more accurately estimate emissions for registration permit purposes, follow the steps below.

- Calculate actual emissions for each pollutant from each emission unit<sup>4</sup> at the facility, except those units listed in [Appendix A](#).
- Similar emission units may be grouped together for emission calculation purposes if they are uncontrolled or use the same type of control device.
- If emissions are controlled by a control device, the facility must use the control efficiency from the table that corresponds to that type of control device used to control emissions of that pollutant. Actual annual emissions of all uncontrolled pollutants can be used. Or, if the facility's actual emissions are not known, use the emission limit of an applicable requirement as an estimate of the emissions.
- Actual hours operated during a calendar year, actual production rates for a year or other calendar year data can be used for these calculations. Make sure the facility does not anticipate exceeding these calendar year numbers in the future, however. For example, if the facility currently operates one shift per day but would like to increase to two shifts, double the actual production numbers to ensure the facility will qualify for this permit in years to come.
- Choose one of the calculation methods in a. through d., below, for each emission unit (or group of emission units) at the facility. If emissions factors or other emissions data was developed specifically for the facility operations using the facility's own stack testing information or material analysis, use these emission factors or other data rather than emission factors or other data published by U.S. EPA, safety data sheet (SDS), or trade associations.
- Fugitive dust emissions<sup>5</sup> must be included in the emission calculations only if the facility is in a category listed in ss. NR 407.02(4)(b)1., to 27., Wis. Adm. Code. These categories are shown in [Appendix B](#) of this document. Most facilities that are eligible for this registration permit will not fall into one of these categories, but each facility should check that if it is true for their operations.
- If an emission unit exhausts particulate matter inside a building, the particulate matter, PM<sub>10</sub> and other pollutants emitted as particles from that unit, do not need to be included in the emission calculations. It can be assumed that these emissions settle out inside the building.
- Once the emissions from each emissions unit and each group of similar emissions units at the facility have been calculated, add up the emissions of each pollutant from all emissions units at the facility and make sure that the estimated future annual emissions of each pollutant will not exceed its limit.
- Once the facility is covered under the registration permit, that facility will be required to report the actual annual emissions to the Wisconsin Air Emissions Inventory (AEI) and submit an annual certification of compliance with these emission limits.

**What are the calculation methods?**

- a. Emission calculation based on the source's actual operating parameters, as shown in the following equation:

$$E = OP \times U_{EF} \times [1-CE]$$

where:

**E** = Actual emissions in tons per year

**OP** = Operating Parameter as required by the emission factor (e.g., actual hours of operation or number of units produced or gallons of fuel used)

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<sup>4</sup> An emissions unit is "any part [process equipment, etc.] of a facility which emits or is capable of emitting any air pollutant."

<sup>5</sup> "Fugitive dust emissions" means, for the purposes of calculating emissions for the ROP emission limit, particulate matter emissions that do not exit from a flue or stack. Outdoor storage piles or dust from roadways on the facility's property are common sources of fugitive dust.

**U<sub>EF</sub>** = Emission Factor (e.g., pounds of pollutant per hour of operation or number of units produced, or gallons of fuel used)

*NOTE: An "emission factor" is a representative value that relates the amount of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (e.g., pounds of particulate emitted per ton of coal burned). The best emission factors to use are ones developed at the facility using approved test methods and the facility's own material throughput. If emission testing has not been done at the facility, the facility can find emission factors for many types of emission sources using the [U.S. EPA document AP-42](https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-Compilation-Air-Emission-Factors#5thed) (https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-Compilation-Air-Emission-Factors#5thed). Trade associations and equipment manufacturers also publish emission factors suitable for estimating emissions.*

**CE** = Control Device Efficiency (percent expressed as a decimal fraction) as listed in the registration permit. No other control device efficiency may be used for CE unless higher control efficiency is specifically required by an applicable requirement that the emission unit is subject to. If no control device is installed for an emission unit or if the control device is not designed to control a given pollutant, then CE = 0.

- b. Another way to calculate the actual annual emissions is to use the applicable emission limitation for the emission unit and multiply by the hours it is expected to operate in any given year. This method may overestimate the emissions, but will not require the development of emission factors or use control efficiencies that are much lower than the actual control efficiency.

For example, using the published uncontrolled emission factor for asphalt concrete plants and the allowed control efficiency for baghouses would result in emissions of PM<sub>10</sub> from asphalt concrete plants of over 100 lb/hr. Most asphalt plants will choose to use emission factors developed from actual emission testing at their facilities. However, another method might be to use the applicable emission limitation. For Asphalt Concrete Plants last modified after June 11, 1973, the applicable emission limitation is 0.039 gr/dscf. This emission limitation can be converted into a pound per hour number using the facility specific information on air flow and moisture content. For a typical plant, this emission rate might be around 7.6 lb/hr. If the plant always operates less than 3000 hours per year, a good estimate of the emissions from the plant would be:

$$7.6 \text{ lb/hr} \times 3000 \text{ hr/yr} \times 1 \text{ ton}/2000 \text{ lb} = 11.4 \text{ tons per year}$$

- c. A material balance may be used to calculate actual VOC emissions:

$$E = [(ax - y - cz) \times (1 - d)]/2000 \text{ lb/ton, where}$$

E = the emissions of VOC in tons per year

a = the amount of material entering the process in a calendar year. This is typically gallons of paint or pounds of adhesive.

x = the amount of VOC contained in the material. This is sometimes given as a percent by weight or may be given in lb/gallon. Be sure documentation of the VOC content in each material is available, using a signed statement from the supplier, results from an approved test method, or the SDS.

y = the amount of VOC incorporated permanently into the product. This includes VOCs chemically transformed in production. It does not include latent VOC remaining in the product that will at some time be released to the atmosphere.

c = the amount of material, if any, leaving the process as waste in a calendar year. This might be unused paint left in the bottom of the paint pot, or spent cleaning solvent to be shipped off as hazardous waste.

z = the amount of VOC contained in the material, if any, leaving the process as waste, or otherwise not incorporated into the product and not emitted to the air.

d = the control device efficiency (percent expressed as a decimal fraction of 1.0), as listed in the registration permit (see discussion above for [Question #5](#)). If there is no control device, d=0.

- d. Sulfur dioxide emissions may be determined by measuring the sulfur content of the fuel used and assuming that all of the sulfur in the fuel is oxidized to sulfur dioxide. The sulfur content of each batch of fuel received must be measured by an independent laboratory using ASTM methods or verified by vendor certification. The sulfur dioxide actual emissions must be determined for each batch of fuel received by using the following equation:

$$SO_2 = \%S/100 \times F/2,000 \times 2$$

where,

$SO_2$  = Tons of sulfur dioxide emissions from a given batch of fuel

$\%S$  = Weight percent sulfur in the fuel being burned

F = Amount of fuel in a given batch, in pounds

2,000 = Pounds per ton

2 =  $2/1 = 64/32$  = Pounds of sulfur dioxide per pound of sulfur in one pound-mole

The total sulfur dioxide emissions for the year equals the sum of the sulfur dioxide emissions from all individual fuel batches burned during the calendar year.

#### ***What if the facility still needs more help calculating my emissions?***

- The [Small Business Environmental Assistance Program](#) (SBEAP) employs environmental assistance coordinators who can assist small businesses in calculating their emissions. The website contains additional information on the program as well as contact information.
- The SBEAP developed an [Air Pollution Emission Calculation Spreadsheet](#) (<https://widnr.widen.net/s/pb2smbxmxg/sb301>) to help facilities calculate their emissions.
- Unsure what emission factor to use for an emission unit at a facility? The U.S. EPA maintains a document titled [AP-42, Compilation of Air Pollution Emission Factors](#) (<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors#5thed>) which contains representative emission factors for a variety of industrial categories and processes.
- Contact the Registration Permit Coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in the facility's determination.

#### ***Example Calculation***

Shown below is an example emission calculation for a combustion process. Note that no control device is present, so CE = d = 0:

– **Combustion source**

Emissions Unit: 90 million BTU per hour boiler (90 MMBTU/hr)

Fuel: Natural gas

Heat content: 1,000 MMBTU/million cubic feet of natural gas (1,000 MMBTU/cf6)

Back up Fuel: #2 Fuel oil

Heat content: 140 MMBTU/1,000 gallons of #2 fuel oil (140 MMBTU/Mgal)

Particulate matter (PM) is calculated as follows:

Natural gas:

The emission factor is from AP-42, Chapter 1, Section 1.4, for boilers. Total particulate matter is the sum of the filterable and condensable particulate matter.

$$\text{PM: } (5.7 + 1.9) \text{ lb/cf6} \times 90 \text{ MMBTU/hr} \times \text{cf6/1,000 MMBTU} = 0.684 \text{ lb/hr}$$

$$\text{PM: } 0.684 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times \text{ton/2,000 lb} = 3.00 \text{ ton per year (3.00 TPY)}$$

#2 Fuel oil:

The emission factor is from AP-42, Chapter 1, Section 1.3, for Industrial boilers of <100 MMBTU/hr, distillate oil fired. No emission factor is included for condensable particulate matter; the listed emission factor will be assumed to be a reasonable estimate for total particulate matter emissions.

$$\text{PM: } 2 \text{ lb/1,000 gal} \times 90 \text{ MMBTU/hr} \times 1,000 \text{ gal/140 MMBTU} = 1.29 \text{ lb/hr}$$

$$\text{PM: } 1.29 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times \text{ton/2,000 lb} = 5.63 \text{ TPY}$$

During a given calendar year, a facility might use both fuels in the same unit at different times, so the total actual PM emissions for the year would be determined by taking into account the amount of each fuel actually burned in the unit during the year.

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## 8. Hazardous Air Pollutants

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### **Question 8:**

Does the facility emit any federally regulated hazardous air pollutants included in the list in section 112(b)(1) of the Clean Air Act as revised by 40 CFR part 63 Subpart C?

- If the answer is NO, go on to question 9.
- If the answer is YES, please list the pollutant and its annual emissions in the table below:

Federally Regulated Hazardous Air Pollutant <sup>6</sup>	Annual emissions (lb/yr)

**ADDITIONAL INFORMATION:** *The registration permit limits emissions of each federally regulated Hazardous Air Pollutant (HAP) to 5,000 pounds per year and limits the total of all HAPs combined to 12,500 pounds per year. If a facility uses a control device to meet an emission limit, it must use the control efficiencies listed in Table 3 of the Type A registration permits Factsheet at <https://widnr.widen.net/s/s6pvlwdtdf/am364>. Be sure to send copies of all calculations with the application.*

*For additional information on calculating facility-wide annual actual emissions, see the Type A Registration Permit Application Guide under the Registration Permit tab available at DNR's Registration Permit Options webpage: <https://dnr.wi.gov/topic/AirPermits/Registration.html>*

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### **What does this question mean?**

Refer back to [Question 7](#) for information on calculating emissions.

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<sup>6</sup> A list of these air pollutants is available at <https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications>.

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## 9. Stacks

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### **Question 9:**

Answer the following 3 questions about stacks at your facility. Exclude stacks that vent insignificant emissions units or insignificant pollutants.

- 9a.** Are any stacks shorter than nearby buildings?  
**9b.** Do any stacks discharge horizontally or in a downward direction?  
**9c.** Do any stacks have rain hats or other devices that obstruct air flow?

*If you answer YES to any of these questions, you will need to attach the results of an air quality modeling analysis to the application for coverage to demonstrate that the facility emissions do not cause or exacerbate a violation of the ambient air quality standards. If the facility had a modeling analysis done for a previous permit review and no changes to emission rates or stacks have been made since the analysis was performed, attach those results.*

*If the facility does not have old modeling results or if changes have been made since the analysis, the facility will need to have modeling performed. The facility may submit results in any format they choose or use Part 1 of the Modeling Assessment Form available at DNR's Registration Permit Options webpage:*

*<https://dnr.wi.gov/topic/AirPermits/Registration.html> or directly at <https://dnr.wi.gov/files/PDF/forms/4500/4530-156A.pdf>*

### **ADDITIONAL INFORMATION:**

*For purposes of answering this question, an insignificant emissions unit is one that has maximum controlled emissions of each criteria pollutant less than 1 ton per year. An insignificant pollutant is a criteria pollutant with a facility-wide maximum controlled emission rate less than 5 tons per year.*

*Stack vented emissions must be exhausted from unobstructed discharge points that are within 10 degrees of vertical.*

*Stacks that are closed when the process is not operating, but that are open when the process is operating, are considered to be unobstructed. Stacks must be taller than any building that influences the dispersion of emissions from the stack. A building is considered to influence the dispersion of emissions if the stack is located within a circle around the building, the radius of which is 5 times the height of the building.*

*For additional help answering these questions, go to DNR's Registration Permit Options webpage <https://dnr.wi.gov/topic/AirPermits/Registration.html> for a link to the Type A Registration Permit Application Guide or visit DNR's Small Business Environmental Assistance Program website: <https://dnr.wi.gov/topic/smallbusiness/>.*

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### **What does this question mean?**

A facility will meet the registration permit stack requirements if all stacks at the facility other than stacks that are general building ventilation or stacks venting the emission units listed in [Appendix A](#) can meet the following:

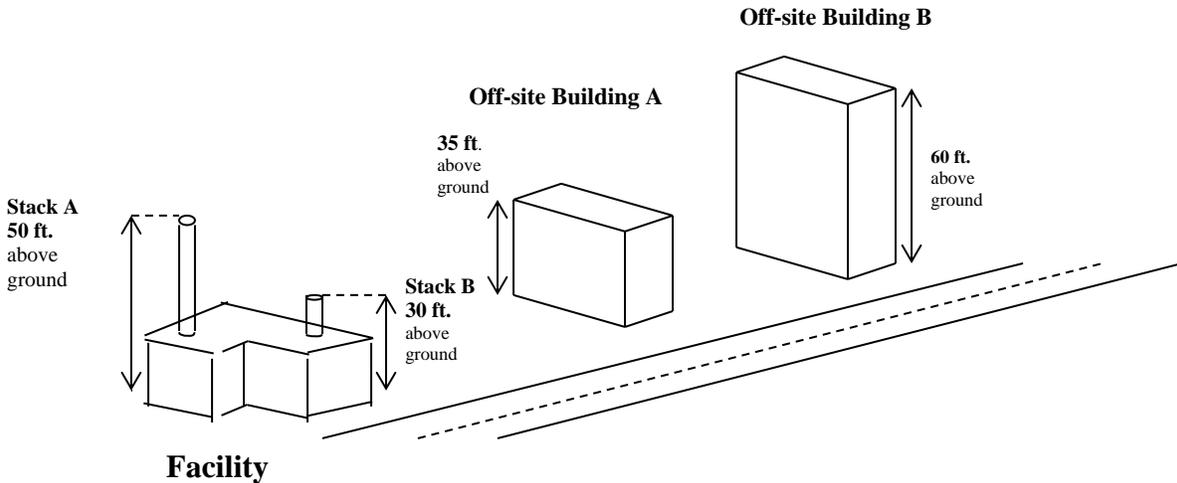
- The stacks at the facility must be taller than all buildings on which they are located and all buildings that could significantly influence the stacks' emissions as they spread out from their exhaust points into the

surrounding area (see example below for how this is determined). A building is considered to influence a stack's emissions if the stack is located within five building heights of that building.

- All stacks at the facility must discharge upwards (within 10 degrees of vertical).
- All stacks at the facility must discharge to the atmosphere without alteration of flow due to an obstruction (e.g., rain hat) while the process they serve is operating.

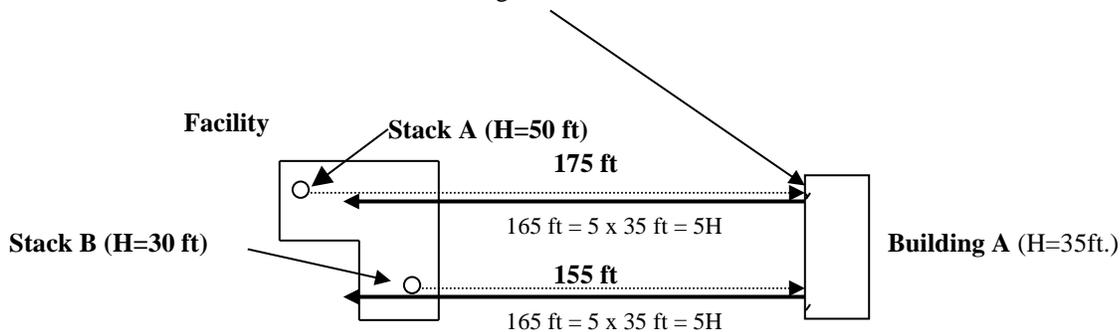
See the diagram for illustration.

**Figure 9.1 Stack heights Relative to Nearby Buildings (Side Perspective-- not to scale)**



**Figure 9.2 Stack heights Relative to Nearby Buildings (Top View-- not to scale)**

This edge (side) of Building A is the shortest distance between Stack A and Building A.



In the example depicted in Figures 9.1 and 9.2, all facility stacks and nearby buildings should be individually evaluated in all combinations by determining the nearest point on a given building's perimeter (e.g. Building A) to the stack being evaluated (e.g. Stack A) and then checking whether the distance between that point and the stack is less than five times the building's (e.g. Building A) height (**the "5H-range"**). In this example, only the 30-foot stack at the facility is within the 5H-range of Building A. Since Building A has a height of 35 feet, the height of Stack B would have to be raised to higher than 35 feet, in order to answer YES to Question 9.

To further illustrate other possible cases, here are several variations of this example:

- Consider the possibility that Building B (H=60 ft) was located close enough to the facility that the 50-foot stack was within the 5H-range for Building B (300 ft). In that case, both stacks would have to be raised above 60 feet in order to answer YES to Question 9.
- Consider the case where Building A had a height of 25 feet. In that case, the 30-foot Stack B would be greater than that building's height and, if all other facility stacks meet the 5H-range test for all nearby buildings, then answer YES to Question 9.
- Consider the case where Building A was located on the facility's property and was owned by the facility. Ownership of buildings and whether the locations of buildings are on or off the facility's property are not taken into consideration. In other words, all buildings, whether owned by the facility or not and whether located on the facility's property or not, must be evaluated if they are possibly within the 5H-range for one or more facility stacks.
- There may be buildings all around a facility which require evaluation, rather than just a few along a single street, and in that case their 5H-ranges would also require comparison to the facility's stack locations.
- If there are no buildings in the usual sense, but there are large structures on or off the facility, their heights and proximity to facility stacks must be evaluated if they can be expected to influence the dispersion of emissions from a stack.
- Finally, consider the case where the facility has a stack attached to the side of its own building but that stack is not taller than that building. In this case, the stack height must be raised above the building height, in order to answer YES to Question 9, assuming that no other nearby buildings would require the stack to be raised even higher.

Again, some stacks do not need to be considered when determining if the facility meets the stack requirements. These include stacks whose only purpose is for general building ventilation and stacks that serve emission units listed in [Appendix A](#) of this guide.

***What if any one of the facility's stacks does not meet the stack requirements?***

If any of the stacks at the facility do not meet the requirements listed above, the facility may still be able to qualify for coverage under the registration permit. Use air quality modeling performed previously as part of issuance of an operation permit, or perform a computer modeling analysis to determine whether the predicted impact from the facility meets national ambient air quality standards (NAAQS).

***Can an existing Operation Permit be used to determine if the stacks meet the registration permit stack requirements?***

If the facility was modeled by the DNR for issuance of a facility wide operation permit, the modeling results can be used to show that the facility meets NAAQS. As part of the evaluation of whether or not existing permits can be revoked, the DNR will perform a review of the NAAQS. If the facility's emission rates, as allowed under the registration permit at current stack configurations, are not protective of the NAAQS, the existing facility-wide permit will not be revoked and will not be eligible for coverage under this permit. If facility-wide modeling data is available for the entire facility, the DNR will indicate that current stack configurations and allowable emissions rates are protective of the NAAQS. Complete Part 1 of the Modeling Assessment in Attachment 1 and submit it with the signed copy of the registration permit application.

***Can a facility do its own computer modeling to determine if the stacks meet the NAAQS?***

A facility may choose to perform a more refined modeling analysis using the current U.S. EPA-accepted refined model. The refined model is a complex model that will typically require the help of a trained consultant. The [Wisconsin DNR's modeling website](https://dnr.wi.gov/topic/airpermits/modeling.html) (<https://dnr.wi.gov/topic/airpermits/modeling.html>) has more information. Whether a facility runs the model themselves or hires a consultant to run the dispersion model, the facility will need to make sure to use the correct emission rates in the modeling analysis.

### ***Which pollutants does a facility need to include in the modeling analysis?***

First a facility needs to figure out which emission units and pollutants to include in the modeling analysis. The emission units listed in [Appendix A](#) do not need to be included. Also, facilities do not need to include emissions from general building ventilation. The modeling required in this section is only for particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide, and lead. Providing results for hazardous air pollutants with the application for coverage under this registration permit is not required, although each facility will need to be able to demonstrate compliance with ch. NR 445 when completing the annual certification of compliance for the registration permit.

If the maximum controlled facility-wide emissions of particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide or lead is less than five tons per year, the facility does not need to provide modeling results for that pollutant. If the maximum controlled emissions of all pollutants from any single emission unit are all less than one ton per year, that emission unit does not need to be included in the model.

To calculate the maximum controlled annual emissions, first calculate the maximum controlled hourly emissions as described below. Then multiply the maximum controlled hourly emissions by 8,760 hours per year to obtain the annual emission rate. If it is not physically possible to operate 8,760 hours per year, facilities are allowed to take into consideration realistic operating scenarios. For example, if the facility cannot operate when the ground is frozen, it may omit months where the ground is frozen from the calculations. If the operation is a batch process that requires a certain amount of down time to change out batches or equipment, the facility may use fewer operating hours per year. A written copy of how the annual maximum controlled emissions were calculated and a justification of the hours per year used, if less than 8,760 hours, must be retained by the facility.

### ***How does a facility calculate the emission rates to use in the model?***

The emission rates that must be used in the model are the maximum controlled hourly emission rates. To calculate the maximum controlled hourly emissions of air pollutants, use the maximum rated capacity of each unit and either emission factors published by U.S. EPA, the equipment manufacturer, trade associations, or emission factors developed from stack testing data at the facility. Refer to [Question 6](#) on Emission Limits for more information on ways to calculate the facility's maximum hourly emissions.

If the facility uses a control device on the emission unit to control emissions of particulate matter, use the control efficiency to reduce the maximum hourly emissions. These are the maximum controlled hourly emissions. Only control devices listed in the registration permit or listed in an applicable requirement that the emission unit is subject to may be used in this calculation. Also, only the control efficiency listed in the registration permit for that control device may be used unless higher control efficiency is required in an applicable requirement to which the emission unit is subject.

### ***How does a facility prove that it passes modeling?***

Facilities will need to print and fill out Part 1 of the Modeling Assessment Form 4530-156A and provide it with the signed copy of the registration permit application. Form 4530-156A is also available on [DNR's forms webpage](#). Facilities will also need to retain either an electronic or paper copy of the modeling analysis input and output on site and available for inspection for the duration of the facility's coverage under the registration permit.

### ***What if a facility needs more assistance in answering this question?***

Contact the registration permit coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help in determining if the facility's stacks meet the stack requirements of the registration permit or for direction on determining how to get an air quality modeling assessment done for the facility.

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## 10. Particulate Matter

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### **Question 10:**

What is the maximum controlled annual emission rate of particulate matter? \_\_\_\_\_

- If the answer is less than or equal to 5 tons per year, the application is finished.
- If the answer is greater than 5 tons per year, an air quality dispersion modeling analysis must be performed for the facility.
- If the facility meets all the stack requirements in Question 9, use the modeling request form to provide information to the DNR and we will model for the facility, or submit air quality dispersion modeling results with the signed Registration Permit Application. Note, units in which maximum controlled emissions of each criteria pollutant are less than one ton per year are considered insignificant and do not need to be included in the modeling. The application will not be complete until a modeling request form or modeling results are received.

**ADDITIONAL INFORMATION:** For help in answering this question, see the Registration Permit Application Guide available at DNR's Registration Permit Options webpage: <https://dnr.wi.gov/topic/AirPermits/Registration.html> or visit DNR's Small Business Environmental Assistance Program website: <https://dnr.wi.gov/topic/smallbusiness/>.

*If maximum controlled emissions of particulate matter are greater than five tons per year, the facility will need an air quality dispersion modeling analysis to ensure that the ambient air quality standards can be met. If the facility meets all the stack requirements in Question 9, request DNR to perform the analysis for the facility by filling out and attaching the Modeling Assessment Request Form available at DNR's Registration Permit Options webpage <https://dnr.wi.gov/topic/AirPermits/Registration.html>*

*Complete, print and attach the Modeling Assessment Request Form to the application for coverage. If the facility does not meet the stack requirements, an air quality dispersion modeling analysis will need to be provided and the results attached to this application. Facilities may use the Modeling Assessment Form available at DNR's Registration Permit Options webpage <https://dnr.wi.gov/topic/AirPermits/Registration.html>. If the facility had a modeling analysis done previously and have not made changes to emission rates or stacks since the analysis was performed, attach those results in lieu of submitting or requesting or performing a new analysis.*

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### **What does this question mean?**

In order to protect NAAQS, the registration permit contains the annual limit on emissions and special stack requirements. Particulate matter is the one pollutant whose standards may not always be protected by these requirements, and it is also a commonly emitted pollutant at the small facilities likely to be eligible for the registration permits. Therefore, it is necessary to include special conditions in the registration permit to protect the 24-hour standard for particulate matter. Facilities with *maximum controlled emissions* below five tons per year are small sources of particulate matter and the DNR can safely assume that their emissions will not violate an air quality standard. However, if the facility has maximum controlled emissions of particulate matter equal to or greater than five tons per year, an air quality dispersion model will need to be run as part of the review of the registration permit application.

If the facility's stacks meet the registration permit requirements, the DNR will perform this modeling. If one or more of the stacks do not meet the registration permit stack requirements, then the facility will be required to produce their own modeling results and submit them with the application for coverage.

***How can a facility calculate the maximum controlled emissions of particulate matter?***

First, a facility needs to determine which emission units to include in their calculation. The emission units listed in [Appendix A](#) do not need to be included. Also, facilities do not need include emissions from general building ventilation. If a facility has particulate matter coming off a process line that is vented to the inside of the building, the facility does not need to determine how much is emitted from general building vents.

Second, facilities need to calculate the maximum **hourly** emissions of particulate matter from all the other emission units at the facility. This is determined by using the maximum rated capacity and either emission factors published by U.S. EPA, the equipment manufacturer, trade associations, or from stack testing data.

Third, if the facility used a control device on the emission unit to control emissions of particulate matter, the facility may use the control efficiency to reduce the maximum *hourly* emissions. These are the maximum controlled hourly emissions. Only control devices listed in the registration permit or listed in an applicable requirement that the emission unit is subject to may be used in this calculation. Also, only the control efficiency listed in the registration permit for that control device may be used unless higher control efficiency is required in an applicable requirement that the emission unit is subject to.

Finally, the facility needs to calculate the **annual** maximum controlled emissions. Multiply the maximum controlled hourly emissions by 8,760 hours per year to obtain the annual emission rate. If it is not physically possible to operate 8,760 hours per year, the facility is allowed to take into consideration realistic operating scenarios. For example, if the facility cannot operate when the ground is frozen, the facility may take that into consideration. If the facility operation is a batch process that requires a certain amount of down time to change out batches or equipment, the facility may also consider this when determining the maximum hours of operation. A written copy of how the **annual** maximum controlled emissions were calculated and a justification of the hours per year used, if less than 8,760 hours, must be retained by the facility.

***What must a facility do if the particulate matter emissions are at or over five tons per year?***

If the annual maximum controlled particulate matter emissions from the facility are greater than or equal to five tons per year, then air quality modeling must be performed for the facility. If the facility meets the registration permit stack requirements, the DNR will perform modeling for the facility. Complete Part 2 of the [Modeling Assessment Form 4530-156A](#) available by link in the Registration Permit Application. Complete and submit Form 4530-156A with the signed registration permit application. The DNR will perform air quality modeling and inform the facility whether or not the facility is eligible to be covered under the registration permit within 15 business days of receipt of the complete signed application.

Even if the stacks meet the registration permit stack requirements, the facility may have modeling results from previous modeling performed at the facility. If this is the case, complete Part 1 of the Modeling Assessment Form 4530-156A with the results of the particulate matter modeling and submit the form with the signed hard copy of the registration permit application.

Finally, if the stacks do not meet the registration permit stack requirements, the facility will be required to provide air quality modeling results for all pollutants at the facility. See [Question 9](#) for more information on air quality modeling and which emissions sources and pollutants will need to be modeled to provide modeling results for particulate matter, as well as any other air pollutants, using Part 1 of the Modeling Assessment Form 4530-156A.

***What if a facility still needs help calculating maximum controlled emissions of particulate matter?***

If a facility still needs assistance answering this question, contact the registration permit coordinator at [DNRamROPSairpermit@wisconsin.gov](mailto:DNRamROPSairpermit@wisconsin.gov) for additional help.

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## **APPENDIX A – Emission Units Not Subject To Certain Registration Permit Requirements**

1. Convenience space heating units with heat input capacity of less than 5 million BTU per hour that burn gaseous fuels, liquid fuels or wood
2. Convenience water heating
3. Maintenance of grounds, equipment and buildings, including lawn care, pest control, grinding, cutting, welding, painting, woodworking, general repairs and cleaning, but not including use of organic compounds as clean-up solvents
4. Boiler, turbine, generator, heating and air conditioning maintenance
5. Pollution control equipment maintenance
6. Internal combustion engines used for warehousing and material transport, forklifts and courier vehicles, front end loaders, graders and trucks, carts and maintenance trucks
7. Fire control equipment
8. Janitorial activities
9. Office activities
10. Fuel oil storage tanks with a capacity of 10,000 gallons or less
11. Stockpiled contaminated soils
12. Demineralization and oxygen scavenging of water for boilers
13. Purging of natural gas lines
14. Any emission unit, operation, or activity that has, for each air contaminant, maximum controlled emissions that are less than the level specified in Table 3 of ch. NR 407, Wis. Adm. Code. Multiple emissions units, operations, or activities that perform identical or similar functions shall be combined for the purposes of this determination.
15. If the maximum controlled emissions of any air contaminants listed in Table 3 of ch. NR 407, Wis. Adm. Code, from all emission units, operations or activities at a facility are less than 5 times the level specified in Table 3, for those air contaminants, any emission unit operation or activity that emits only those air contaminants.

**NOTE:** Additional information is located in Table 3 of [ch. NR 407, Wis. Adm. Code](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf) ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)).

## **APPENDIX B - Categories of Sources Required to Include Fugitive Particulate Matter Emissions in Their Emission Calculations**

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 process
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)
21. Fossil-fuel boilers, or combination thereof, totaling more than 250 million BTU 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 BTU per hour heat input
27. Any other stationary source category not included in this paragraph which as of August 7, 1980 is being regulated under section 111 or 112 of the Act (42 USC 7411 or 7412).

# **APPENDIX C – National Emissions Standards for Hazardous Air Pollutants (NESHAP) Source Categories**

Promulgation dates and other information is available on [EPA's NESHAP website](https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9) (<https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9>).

Aerospace	General Provisions
Asbestos	Generic MACT +
Asphalt Processing and	<ul style="list-style-type: none"><li>• Acetal Resins</li></ul>
Asphalt Roofing Manufacturing	<ul style="list-style-type: none"><li>• Hydrogen Fluoride</li></ul>
Auto & Light Duty Truck (surface coating)	<ul style="list-style-type: none"><li>• Polycarbonates Production</li></ul>
Benzene Waste Operations*	<ul style="list-style-type: none"><li>• Acrylic/Modacrylic Fibers</li></ul>
Boat Manufacturing	Generic MACT +
Brick and Structural Clay Products Manufacturing	<ul style="list-style-type: none"><li>• Carbon black production</li></ul>
Clay Ceramics Manufacturing	<ul style="list-style-type: none"><li>• Cyanide chemicals mfg.</li></ul>
Cellulose Products Manufacturing/Miscellaneous	<ul style="list-style-type: none"><li>• Ethylene processes</li></ul>
Viscose Processes	<ul style="list-style-type: none"><li>• Spandex production</li></ul>
<ul style="list-style-type: none"><li>• Cellulose Food Casing</li></ul>	Hazardous Waste Combustion
<ul style="list-style-type: none"><li>• Rayon</li></ul>	<ul style="list-style-type: none"><li>• Hazardous Waste Incinerators (A)</li></ul>
<ul style="list-style-type: none"><li>• Cellulosic Sponge</li></ul>	<ul style="list-style-type: none"><li>• Hazardous Waste Incinerators (M)</li></ul>
<ul style="list-style-type: none"><li>• Cellophane</li></ul>	Hazardous Organic NESHAP
<ul style="list-style-type: none"><li>• Cellulose Ethers Production</li></ul>	(Synthetic Organic Chemical Manufacturing Industry)
<ul style="list-style-type: none"><li>• Caroxymethyl Cellulose</li></ul>	Hydrochloric Acid Production
<ul style="list-style-type: none"><li>• Methyl Cellulose</li></ul>	<ul style="list-style-type: none"><li>• Fumed Silica Production</li></ul>
<ul style="list-style-type: none"><li>• Cellulose Ethers</li></ul>	Industrial, Commercial and Institutional Boilers and Process Heaters
Chromium Electroplating	Industrial Cooling Towers
<ul style="list-style-type: none"><li>• Chromic Acid Anodizing</li></ul>	Integrated Iron and Steel
<ul style="list-style-type: none"><li>• Decorative Chromium Electroplating</li></ul>	Iron and Steel Foundries*
<ul style="list-style-type: none"><li>• Hard Chromium Electroplating</li></ul>	Large Appliances (surface coating)
Clean Air Mercury Rule	Leather Finishing Operations
Coke Ovens: Pushing, Quenching, & Battery Stacks*	Lime Manufacturing
Coke Ovens	Magnetic Tape (surface coating)
<ul style="list-style-type: none"><li>• Charging, Top Side, and Door Leaks</li></ul>	Manufacturing Nutritional Yeast (formerly Bakers Yeast)
Combustion Sources at Kraft, Soda, and Sulfite Pulp & Paper Mills (Pulp and Paper MACT II)	Marine Vessel Loading Operations
Commercial Sterilizers	Mercury Cell Chlor-Alkali Plants (formerly Chlorine Production)
<ul style="list-style-type: none"><li>• Commercial Sterilization Facilities</li></ul>	Metal Can (surface coating)
Degreasing Organic Cleaners	Metal Coil (surface coating)
<ul style="list-style-type: none"><li>• Halogenated Solvent Cleaners</li></ul>	Metal Furniture (surface coating)
Dry Cleaning	Mineral Wool Production
<ul style="list-style-type: none"><li>• Commercial drycleaning dry-to-dry</li></ul>	Misc. Coating Manufacturing
<ul style="list-style-type: none"><li>• Commercial drycleaning transfer machines</li></ul>	Misc. Metal Parts and Products (surface coating)
<ul style="list-style-type: none"><li>• Industrial drycleaning dry-to-dry</li></ul>	<ul style="list-style-type: none"><li>• Asphalt/Coal Tar Application to Metal Pipes</li></ul>
<ul style="list-style-type: none"><li>• Industrial drycleaning transfer machines</li></ul>	Misc. Organic Chemical Production and Processes (MON)
Engine Test Cells/Stands (Combined with Rocket Testing Facilities)	<ul style="list-style-type: none"><li>• Alkyd Resins Production</li></ul>
Fabric Printing, Coating & Dyeing	<ul style="list-style-type: none"><li>• Ammonium Sulfate Production</li></ul>
Ferroalloys Production	<ul style="list-style-type: none"><li>• Benzyltrimethylammonium Chloride Prod.</li></ul>
Flexible Polyurethane Foam Fabrication Operation	<ul style="list-style-type: none"><li>• Carbonyl Sulfide Production</li></ul>
Flexible Polyurethane Foam Production	
Friction Products Manufacturing	
Gasoline Distribution (Stage 1)	

- Chelating Agents Production
  - Chlorinated Paraffins Production
  - Ethylidene Norbornene Production
  - Explosives Production
  - Hydrazine Production
  - Maleic Anhydride Copolymers Production
  - Manufacture of Paints, Coatings, & Adhesives
  - OBPA/1, 3-diisocyanate Production
  - Photographic Chemicals Production
  - Phthalate Plasticizers Production
  - Polyester Resins Production
  - Polymerized Vinylidene Chloride Prod.
  - Polymethyl Methacrylate Resins Prod.
  - Polyvinyl Acetate Emulsions Prod.
  - Polyvinyl Alcohol Production
  - Polyvinyl Butyral Production
  - Quaternary Ammonium Comp. Prod.
  - Rubber Chemicals Production
  - Symmetrical Tetrachloropyridine Production
- Municipal Solid Waste Landfills
- Natural Gas Transmission and Storage
- Off-Site Waste Recovery Operations
- Oil & Natural Gas Production
- Organic Liquids Distribution (non-gasoline)
- Paper and Other Web (surface coating)
- Pesticide Active Ingredient Production
- 4-Chloro-2-Methyl Acid Production
  - 2,4 Salts & Esters Production
  - 4,6-dinitro-o-cresol Production
  - Butadiene Furfural Cotrimer
  - Captafol Production
  - Captan Production
  - Chloroneb Production
  - Chlorothalonil Production
  - Dacthal (tm) production
  - Sodium Pentachlorophenate Production
  - Tordon (tm) Acid Production
- Petroleum Refineries
- Petroleum Refineries
- Catalytic Cracking
  - Catalytic Reforming
  - Sulfur Plant Units
  - Associated Bypass Lines
- Pharmaceuticals Production
- Phosphoric Acid/Phosphate Fertilizers
- Plastic Parts (surface coating)
- Plywood and Composite Wood Products (formerly Plywood and Particle Board Manufacturing)
- Polyether Polyols Production
- Polymers & Resins I
- Butyl Rubber
  - Epichlorohydrin Elastomers
  - Ethylene Propylene Rubber
- Hypalon (TM) Production
  - Neoprene Production
  - Nitrile Butadiene Rubber
  - Polybutadiene Rubber
  - Polysulfide Rubber
  - Styrene-Butadiene Rubber & Latex
- Polymers & Resins II
- Epoxy Resins Production
  - Non-Nylon Polyamides Production
- Polymers & Resins III
- Amino Resins
  - Phenolic Resins
- Polymers & Resins IV
- Acrylonitrile-Butadiene-Styrene
  - Methyl Methacrylate-Acrylonitrile+
  - Methyl Methacrylate-Butadiene++
  - Polystyrene
  - Styrene Acrylonitrile
  - Polyethylene Terephthalate
  - Nitrile Resins
- Polyvinyl Chloride and Copolymers Production
- Portland Cement Manufacturing
- Primary Aluminum
- Primary Lead Smelting
- Primary Copper
- Primary Magnesium Refining
- Printing and Publishing (surface coating)
- Publicly Owned Treatment Works (POTW)
- Pulp & Paper (non-combust) MACT I
- Pulp & Paper (non-chem) MACT III
- Reciprocating Internal Combustion Engines (RICE) (NESHAP/NSPS)
- Refractory Products Manufacturing
- Reinforced Plastic Composites Production
- Rubber Tire Manufacturing
- Secondary Aluminum
- Secondary Lead Smelters
- Semiconductor Manufacturing
- Shipbuilding & Ship Repair (surface coating)
- Site Remediation
- Solvent Extraction for Vegetable Oil Production
- Stationary Combustion Turbines\*
- Steel Pickling-HCL Process
- Taconite Iron Ore Processing
- Tetrahydrobenzaldehyde Manufacture (Formerly Butadiene Dimers Production)
- Wet Formed Fiberglass Mat Production
- Wood Building Products (surface coating) (formerly Flat Wood Paneling Products)
- Wood Furniture (surface coating)
- Wool Fiberglass Manufacturing

## **APPENDIX D – Federally Regulated Hazardous Air Pollutants listed in s. 112(b), Clean Air Act**

<b>CAS Chemical Number</b>	<b>Name</b>	<b>CAS Chemical Number</b>	<b>Name</b>
75070	Acetaldehyde	94757	2,4-D, salts and esters
60355	Acetamide	3547044	DDE
75058	Acetonitrile	334883	Diazomethane
98862	Acetophenone	132649	Dibenzofurans
53963	2-Acetylaminofluorene	96128	1,2-Dibromo-3-chloropropane
107028	Acrolein	84742	Dibutylphthalate
79061	Acrylamide	106467	1,4-Dichlorobenzene(p)
79107	Acrylic acid	91941	3,3'-Dichlorobenzidene
107131	Acrylonitrile	111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
107051	Allyl chloride	542756	1,3-Dichloropropene
92671	4-Aminobiphenyl	62737	Dichlorvos
62533	Aniline	111422	Diethanolamine
90040	o-Anisidine	121697	N,N-Diethyl aniline (N,N-Dimethylaniline)
1332214	Asbestos	64675	Diethyl sulfate
71432	Benzene	119904	3,3'-Dimethoxybenzidine
92875	Benzidine	60117	Dimethyl aminoazobenzene
98077	Benzotrichloride	119937	3,3'-Dimethyl benzidine
100447	Benzyl chloride	79447	Dimethyl carbamoyl chloride
92524	Biphenyl	68122	Dimethyl formamide
117817	Bis(2-ethylhexyl)phthalate (DEHP)	57147	1,1-Dimethyl hydrazine
542881	Bis(chloromethyl)ether	131113	Dimethyl phthalate
75252	Bromoform	77781	Dimethyl sulfate
106-94-5	1-bromopropane (1-BP)	534521	4,6-Dinitro-o-cresol, and salts
106990	1,3-Butadiene	51285	2,4-Dinitrophenol
156627	Calcium cyanamide	121142	2,4-Dinitrotoluene
105602	Caprolactam	123911	1,4-Dioxane (1,4-Diethyleneoxide)
133062	Captan	122667	1,2-Diphenylhydrazine
63252	Carbaryl	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)
75150	Carbon disulfide	106887	1,2-Epoxybutane
56235	Carbon tetrachloride	140885	Ethyl acrylate
463581	Carbonyl sulfide	100414	Ethyl benzene
120809	Catechol	51796	Ethyl carbamate (Urethane)
133904	Chloramben	75003	Ethyl chloride (Chloroethane)
57749	Chlordane	106934	Ethylene dibromide (Dibromoethane)
7782505	Chlorine	107062	Ethylene dichloride (1,2-Dichloroethane)
79118	Chloroacetic acid	107211	Ethylene glycol
532274	2-Chloroacetophenone	151564	Ethylene imine (Aziridine)
108907	Chlorobenzene	75218	Ethylene oxide
510156	Chlorobenzilate	96457	Ethylene thiourea
67663	Chloroform	75343	Ethylidene dichloride(1,1-Dichloroethane)
107302	Chloromethyl methyl ether	50000	Formaldehyde
126998	Chloroprene	76448	Heptachlor
1319773	Cresols/Cresylic acid (isomers and mixture)		
95487	o-Cresol		
108394	m-Cresol		
106445	p-Cresol		
98828	Cumene		

<b>CAS Number</b>	<b>Chemical Name</b>	<b>CAS Number</b>	<b>Chemical Name</b>
118741	Hexachlorobenzene	7723140	Phosphorus
87683	Hexachlorobutadiene	85449	Phthalic anhydride
77474	Hexachlorocyclopentadiene	1336363	Polychlorinated biphenyls (Aroclors)
67721	Hexachloroethane	1120714	1,3-Propane sultone
822060	Hexamethylene-1,6-diisocyanate	57578	beta-Propiolactone
680319	Hexamethylphosphoramide	123386	Propionaldehyde
110543	Hexane	114261	Propoxur (Baygon)
302012	Hydrazine	78875	Propylene dichloride (1,2-Dichloropropane)
7647010	Hydrochloric acid	75569	Propylene oxide
7664393	Hydrogen fluoride (Hydrofluoric acid)	75558	1,2-Propylenimine (2-Methyl aziridine)
7783064	Hydrogen sulfide	91225	Quinoline
123319	Hydroquinone	106514	Quinone
78591	Isophorone	100425	Styrene
58899	Lindane (all isomers)	96093	Styrene oxide
108316	Maleic anhydride	1746016	2,3,7,8-Tetrachlorodibenzo-p- dioxin
67561	Methanol	79345	1,1,2,2-Tetrachloroethane
72435	Methoxychlor	127184	Tetrachloroethylene (Perchloroethylene)
74839	Methyl bromide (Bromomethane)	7550450	Titanium tetrachloride
74873	Methyl chloride (Chloromethane)	108883	Toluene
71556	Methyl chloroform (1,1,1-Trichloroethane)	95807	2,4-Toluene diamine
60344	Methyl hydrazine	584849	2,4-Toluene diisocyanate
74884	Methyl iodide (Iodomethane)	95534	o-Toluidine
108101	Methyl isobutyl ketone (Hexone)	8001352	Toxaphene (chlorinated camphene) 1208211,2,4-Trichlorobenze ne
624839	Methyl isocyanate	79005	1,1,2-Trichloroethane
80626	Methyl methacrylate	79016	Trichloroethylene
1634044	Methyl tert butyl ether	95954	2,4,5-Trichlorophenol
101144	4,4'-Methylene bis(2-chloroaniline)	88062	2,4,6-Trichlorophenol
75092	Methylene chloride (Dichloromethane)	121448	Triethylamine
101688	Methylene diphenyl diisocyanate (MDI)	1582098	Trifluralin
101779	4,4'-Methylenedianiline	540841	2,2,4-Trimethylpentane
91203	Naphthalene	108054	Vinyl acetate
98953	Nitrobenzene	593602	Vinyl bromide
92933	4-Nitrobiphenyl	75014	Vinyl chloride
100027	4-Nitrophenol	75354	Vinylidene chloride (1,1-Dichloroethylene)
79469	2-Nitropropane	1330207	Xylenes (isomers and mixture)
684935	N-Nitroso-N-methylurea	95476	o-Xylenes
62759	N-Nitrosodimethylamine	108383	m-Xylenes
59892	N-Nitrosomorpholine	106423	p-Xylenes
56382	Parathion	--	Antimony Compounds
82688	Pentachloronitrobenzene (Quintobenzene)	--	Arsenic Compounds (inorganic including arsine)
87865	Pentachlorophenol	--	Beryllium Compounds
108952	Phenol	--	Cadmium Compounds
106503	p-Phenylenediamine	--	Chromium Compounds
75445	Phosgene	--	Cobalt Compounds
7803512	Phosphine	--	

--	Coke Oven Emissions	--	Fine mineral fibers <sup>3</sup>
--	Cyanide Compounds <sup>1</sup>	--	Nickel Compounds
--	Glycol ethers <sup>2</sup>	--	Polycyclic Organic Matter <sup>4</sup>
--	Lead Compounds	--	Radionuclides (including radon) <sup>5</sup>
--	Manganese Compounds	--	Selenium Compounds
--	Mercury Compounds		

**NOTE:** For all listings above that contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

<sup>1</sup> X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or Ca(CN)<sub>2</sub>

<sup>2</sup> Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>-OR' where

n = 1, 2, or 3

R = alkyl or aryl groups

R' = R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>-OH.

Polymers are excluded from the glycol category.

<sup>3</sup> Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

<sup>4</sup> Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ½ C.

<sup>5</sup> A type of atom which spontaneously undergoes radioactive decay.