DNR Guidance Disclaimer

This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

PUBLIC COMMENT SUMMARY

Two public comments were received on this guidance. Both comments indicated the link to the proposed guidance on the website did not work.

AIR PROGRAM RESPONSE

The link to the proposed guidance was fixed on 02/26/2020.

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: February 6, 2020

TO: Permits and Stationary Source Modeling Section

FROM: Kristin Hart, Chief Permits and Stationary Source Modeling Section

SUBJECT: 85% Control and Latest Available Control Techniques (LACT) Analyses Under NR 424.03, Wis. Adm. Code

Introduction
The purpose of this memo is to provide guidance on chapter NR 424.03, Wis. Adm. Code, including rule applicability, emission control feasibility and Latest Available Control Technology (LACT) requirements.

Who is subject to NR 424.03?
NR 424.03 applies to process lines which emit an organic compound and:

- Are not subject to emission limitations listed in NR 419 to 423;
- Are not individual cold cleaning, batch vapor degreasing or conveyorized degreasing operations subject to NR 469; and
- Do not meet any of the following exemptions listed in NR 424.03(1)(a):
  1. Process lines outside the Southeastern Wisconsin Intrastate AQCR on which construction or modification commenced on or before April 1, 1972. The Southeastern Wisconsin Intrastate AQCR consists of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha Counties;
  2. Organic compound−water separation systems that process 757 liters (200 gallons) per day or less;
  3. Enclosed paint spraying operations from which volatile organic compound (VOC) emissions are never greater than 13.6 kilograms (30 pounds) in any day; or
  4. All other process lines from which VOC emissions are never greater than 6.8 kilograms (15 pounds) in any day.

If a facility claims that a process line is exempt under 3. or 4., it should be verified that the maximum theoretical emissions (MTE)[1] of VOC from the process line do not exceed the applicable exemption threshold or the source should provide records sufficient[2] to demonstrate that actual emissions from the process line have never exceeded the threshold. If the MTE of a process line is greater than an exemption threshold in 3. or 4. and the facility is not able to provide records sufficient to demonstrate that actual emissions have never exceeded the threshold then the exemption is considered to not apply. If the MTE is greater than the exemption threshold and the facility demonstrates that actual emissions have never exceeded the threshold, the permit should include a limit equal to the exemption threshold and associated compliance demonstration, monitoring and recordkeeping requirements necessary to demonstrate that emissions do not exceed the limit.

[1] As defined in s. NR 400.02(95), Wis. Adm. Code.
[2] Sec. NR 439.04(2), Wis. Adm. Code, requires records be kept for 5 years. Generally, if a facility can demonstrate that emission from a process line have not exceeded the exemption threshold for the past 5 years this would be considered sufficient, unless the facility has older records that indicate otherwise.

What is a process line?
"Process line" is defined in NR 400.02(128) as one or more actions or unit operations which must function simultaneously or in sequence in order to manufacture or modify a product. The definition notes that a spray booth, conveyor and drying oven are considered a process line. Questions about how to apply the definition of a process line should primarily be evaluated in the context of the specific facility's operations. However, a few general clarifications and examples are offered here.

One key concept to remember when applying the definition of a process line is that the operation must result in the manufacture or modification of a product. As an example, a subcontractor who stains wood picture frames for the frame manufacturer is modifying a product, while there is no product to be offered in the case of a contractor who paints an existing bridge or water tower. Another example is an engine testing facility where engines are only tested and not assembled. In this case, the engines are not being manufactured or modified though the testing process so the engine testing does not constitute a process line.

Another important concept is that one or more actions or unit operations must function together in order to manufacture or modify a product for those operations to be considered a single process line. For example, assume that a company stains and clear coats wood picture frames for a single manufacturer, and that all frames are stained in a dip tank and then clear coated in a spray booth. Since both unit operations must occur in sequence to complete the product, and all product goes through both operations, the process line consists of both the dip tank and the spray booth. Under another scenario, assume a subcontractor uses a dip tank to apply a stain to only some of the picture frames they produce and uses the spray booth to paint others. In this case, the dip tank and the spray booth are used independently and each results in the production of a separate product. Therefore, each constitutes a separate process line.

While a process line can include product degreasing operations, clean-up or housekeeping solvent use has not historically been included when defining those unit operations which comprise the process line. For example, if a clean-up solvent is being used to clean a printing press, those cleaning operations would not be considered part of the process line. However, if a solvent is being used to clean parts prior to coating those parts, it would be considered part of the process line.

While operations at an actual facility may not be as straightforward as the examples provided above, a company's specific method of operation and how its actions or unit operations relate to each other determines whether a single, or multiple, process lines exist. Typically, the more products and the more diverse and flexible or independent a facility's unit operations are, the more likely it is that there are multiple process lines.

What Requirements Apply Under NR 424.03?
NR 424.03(3) allows surface coating and printing processes that are subject to NR 424.03 to elect, with the approval of the department, to meet the emission limitations of NR 422.01 to NR 422.155 (also known as Reasonably Available Control Technology (RACT) rules) as a means to comply with NR 424.03 instead of complying with the emission limitations in NR 424.03(2). In order to make this election, both of the following conditions must be met:

- The process line must meet the specific applicability requirements of NR 422.05 to NR 422.155. This means that the process line would have been subject to NR 422.05 to NR 422.155, except that the emissions from the process line or facility and/or the location of the facility results in the process line not being subject to NR 422.05 to NR 422.15; and
- The owner or operator submits a written request to the department.

In general, the Department approves requests to elect to meet RACT instead of complying with 424.03(2). If a source does elect to meet a RACT limit under NR 424.03(3), then the analysis under NR 424.03 is complete and the limitations and other requirements from the applicable RACT should be included in the permit. Note that the permit should cite NR 424.03(3) and include footnote that specifies which RACT rule the facility is electing comply with.

If a source does not meet the applicability requirements of, or chooses not to elect to meet, NR 422.05 to NR 422.155, then the analysis under NR 424.03(2) described below should be followed. An analysis under NR 424.03(2) is often referred to as a Latest Available Control Techniques, or LACT, analysis. Determining what requirements apply under NR

424.03(2) is a two-step process. The first step is the determination of whether 85 percent control of organic compounds is "technologically feasible" and the second step is the determination of what constitutes LACT.

Note that NR 424.03(2) requires 85 percent control of *photochemically reactive organic compounds* for process lines constructed or last modified before August 1, 1979, and 85 percent control of *volatile organic compounds* for process lines constructed or last modified on or after August 1, 1979. Photochemically reactive organic compound and volatile organic compound are defined in NR 419.02(14) and NR 400.02(162), respectively.

Step #1: 85 Percent Control Feasibility Determination

The first step is to determine whether 85 percent overall control is technologically feasible. Technological infeasibility is defined in NR 400.02(155) as "incapable of being accomplished or carried out as a matter of practicality; i.e., technically impracticable rather than technically impossible." To determine technological feasibility for a given control device, first a determination of whether it is *technically* feasible to use that control device must be completed. That is, is the control device physically capable of controlling VOC emissions from the process line by 85 percent? For each technically feasible control device, economic feasibility is then assessed. Economic feasibility evaluates whether it is economically reasonable to control VOC emissions by 85 percent. Further discussion of technical and economic feasibility is provided below.

Technical Feasibility

The specifics of a process line may result in one or more control devices being considered technically infeasible. An example of technical infeasibility is the use of a biofilter to control emissions from a process line whose operation is intermittent and emissions are expected to be highly variable both in terms of chemical constituents and concentrations. For this type of process line, a biofilter would not be capable of reliably controlling VOC emissions from the process line by 85 percent, so it would not be technically feasible to use a biofilter.

Economic Feasibility

The cost of controlling VOC emissions from a process line by 85 percent for a specific control device may be prohibitively high such that it is considered economically infeasible to use that control device. An economic feasibility analysis should take into consideration both the capital and operation and maintenance (O&M) costs to ascertain an annualized cost effectiveness, in dollars per ton of pollutant removed. The following approaches may be used when making economic feasibility determinations:

1. Evaluate the cost effectiveness of each technically feasible control device using U.S. EPA Air Pollution Control Cost Manual and cost spreadsheets, vendor quotes and/or other available information. A few things to note about control cost estimates:
   a. Control costs should consider the cost of capture systems when appropriate.
   b. It is a good practice to verify the figures and assumptions used in the permit applicant's control cost analysis. U.S. EPA Air Pollution Control Cost Manual provides a wealth of information and U.S. EPA Air Pollution Technology Fact Sheets provide cost estimates and typical ranges of capital, O&M, and annualized cost effectiveness for a variety of pollution control devices. These fact sheets can be used for comparison to ensure costs provided in the permit application are reasonable.
   c. Often cost estimates submitted by permit applicants will only include capital costs because those costs alone may demonstrate infeasibility. This is a conservative approach and is acceptable.
   d. The potential to emit (PTE)[3] of a process line and its maximum exhaust flow rate should be used when determining the cost to control emissions by 85 percent. These maximum rates are used because the control system has to be sized to handle the design flow rate and maximum emissions from a process line. However, in some instances, techniques to minimize exhaust flow rates to reduce the cost of control should be considered prior to determining costs.
   e. A facility may choose to limit the PTE of a process line to below its maximum theoretical emissions and use that PTE in determining cost feasibility. In these cases, the permit must include a limit equivalent to the PTE assumed in the cost analysis. This limit should be expressed as a consecutive 12-month total or average.
   f. When calculating cost effectiveness in dollars per ton of pollutant removed, the analysis should assume the amount of VOC removed is equal to 85 percent of the PTE of the process line.

[3] As defined in s. NR 400.02(127), Wis. Adm. Code.

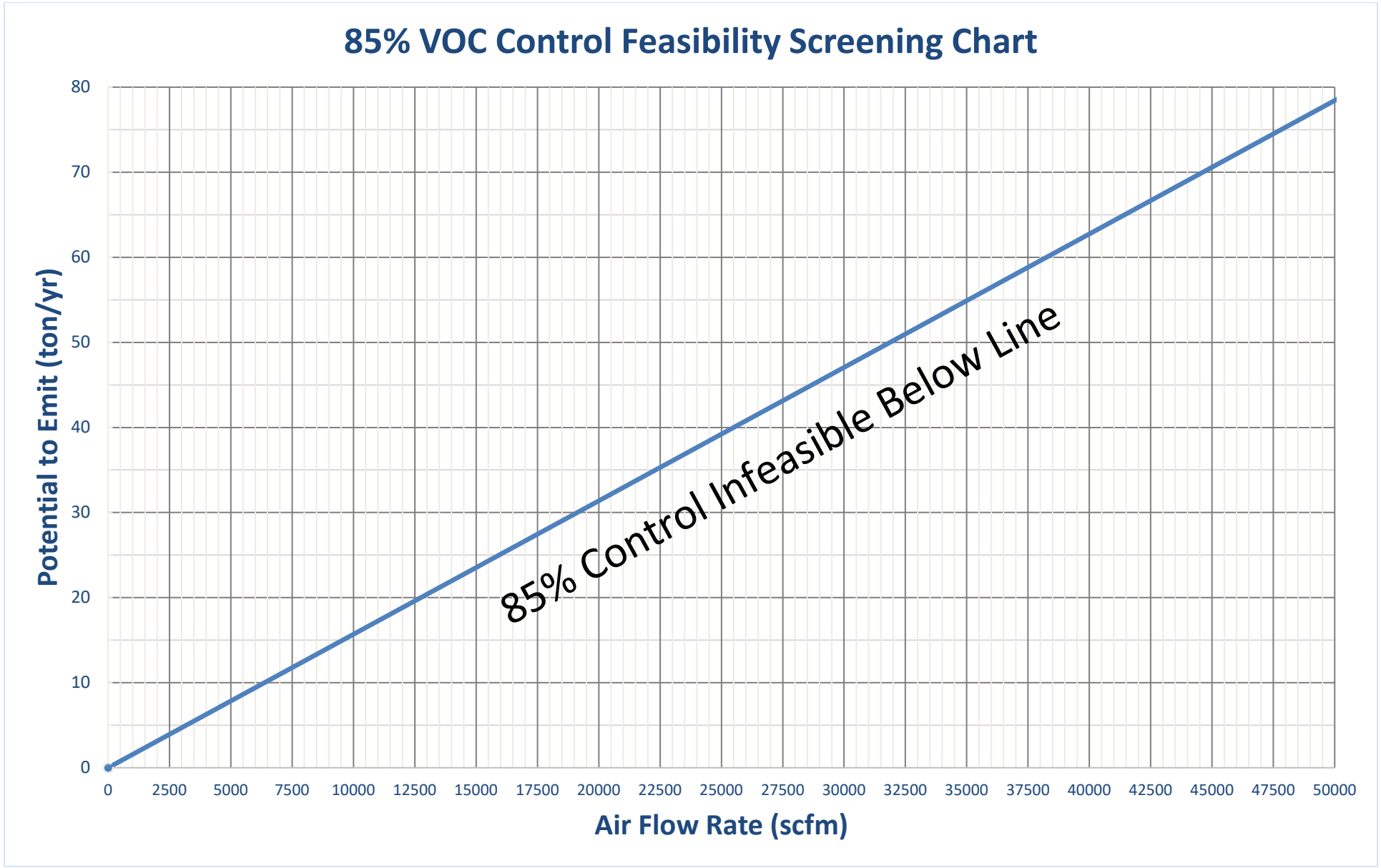
After the cost effectiveness in $ per ton has been calculated, economic feasibility can be evaluated. Economic feasibility is a case-by-case determination that is based on control cost effectiveness as well as other source-specific factors including the presence of hazardous air pollutants (ch. NR 445 listed contaminants or s. 112(b) Federal HAPs), historical odor complaints attributable to the process line, and controls in place or operating practices used at similar facilities.

2. Controls may be presumed to be infeasible if the PTE of the process line is "low" (25 ton/yr or less) and the exhaust flow rate of the process line is "high" (about 12,000 actual cubic feet per minute or more). In these cases, engineering judgement can be used to determine that control is infeasible because the low emission rate and high exhaust flow rate results in a control cost that is prohibitive. Note that other factors may be considered in this evaluation such as the presence of hazardous air pollutants (ch. NR 445 listed contaminants or s. 112(b) Federal HAPs), historical odor complaints attributable to the process line, and controls in place or operating practices used at similar facilities. These other considerations may result in the need for a closer look at economic feasibility of controls.

3. For process lines not presumed infeasible under 2., controls may be presumed to be infeasible if the intersection of the PTE and exhaust flow rate of the process line is below the line shown on the 85 percent Control Feasibility Screening Chart on page 5 of this memo. Based on historical cost analyses provided in permit applications and cost data contained in EPA Air Pollution Technology Fact Sheets, oxidizers are typically the most cost-effective VOC control devices. Cost effectiveness values contained in the EPA fact sheets indicate that the lowest annualized control cost for any type of oxidizer is $8 per standard cubic feet per minute (scfm). Based on this cost and a conservative control cost feasibility screening threshold, the feasibility screening chart on page 5 of this memo was developed. Process lines that have a PTE and exhaust flow rate that intersect below the line on this chart may be presumed to be economic feasibility, with the caveats noted below.

   There are limited instances when an oxidizer or incinerator may not represent the lowest cost control device. For example, condensers can be more cost effective for processes which emit a single organic compound that is concentrated in a low flow rate exhaust. If you suspect that another control device may be more economically feasible than an oxidizer for a specific application, you should request control cost information from the permit applicant for other control devices that could be used for the process line.

   Other factors to be considered in the determination of economic feasibility for this situation include but are not limited to the presence of hazardous air pollutants (both NR 445 and s. 112(b) Federal HAP), historical odor complaints attributable to the process line, and controls in place or operating practices used at similar facilities. These other considerations may result in the need for a closer look at economic feasibility of controls.


85% VOC Control Feasibility Screening Chart
Potential to Emit (ton/yr)
0
10
20
30
40
50
60
70
80
0
2500
5000
7500
10000
12500
15000
17500
20000
22500
25000
27500
30000
32500
35000
37500
40000
42500
45000
47500
50000
Air Flow Rate (scfm)
85% Control Infeasible Below Line

Step #2: LACT Analysis:

If 85 percent control is determined to be technologically infeasible under Step #1 then the source is required to use latest available control techniques and operating practices that demonstrate best current technology, referred to as LACT. If LACT applies, the permit applicant must submit a LACT analysis. The LACT analyses should evaluate pollution prevention techniques such as high transfer efficiency coating application systems, water-based coatings, powder coatings, low solvent coatings, UV coatings, low-VOC solvents, and other approaches to minimize VOC emissions. It is the permit applicant's responsibility to demonstrate the feasibility or infeasibility of these techniques as LACT. When analyzing the approvability of a permit applicant's LACT analysis:

- Consider previous LACT determinations for similar types of process lines in other permits. While previous LACT determinations should be considered, LACT for one process line may not necessarily represent LACT for another similar process line. LACT determinations are case-by-case and source specific factors should be considered.
- Review the RACT rules in chs. NR 419 to 423, Wis. Adm. Code to determine if there are RACT requirements for similar process types. While LACT is generally less restrictive than RACT, RACT requirements may be informative when determining what types of limitations, work practices and other requirements to consider in the LACT analysis.
- Review Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) determinations that have been made in other permits. While LACT is generally less restrictive than BACT and LAER, these requirements may be informative when determining what types of limitations, work practices and other requirements to consider in the LACT analysis. BACT and LAER determinations can be found in the U.S. EPA RACT/BACT/LAER Clearinghouse and the California Air Resources Board BACT Clearinghouse.

In some cases, some or all of the pollution prevention techniques reviewed may not be feasible due to source-specific factors such as quality specifications of the final product. If a permit application claims a technique is infeasible, a review similar to the economic feasibility analysis described above may be utilized to determine the economic feasibility of the pollution prevention technique.

A few additional things to consider when conducting a LACT analysis:

- Limiting the PTE of the process line is not by itself LACT. However, LACT should include a limit on the PTE set at the level that was used in the economic feasibility analysis that demonstrated that 85 percent control is infeasible. This ensures the facility will not emit at a rate at which 85 percent control would be technologically feasible.
- LACT should not be specified as "current operating practices" without defining what those practices are.
- For coating and printing operations, LACT often includes the use of low VOC coatings, inks and/or solvents. The maximum VOC content of these materials should be specified in the permit when practical.
- If LACT is proposed as the use of a high transfer efficiency spray gun technology such as high volume low pressure or electrostatic spray guns, the permit should allow for the use of other types of spray guns with equivalent or greater transfer efficiency as approved by the department.
- If a process line is subject to limits under a National Emission Standard for Hazardous Air Pollutants (NESHAP) or New Source Performance Standard (NSPS), LACT may be determined to be compliance with the NESHAP or NSPS. For example, a metal furniture coating operation subject to 40 CFR 60, Subpart EE, is subject to a VOC limit of 0.90 kilogram of VOC per liter of coating solids applied. Compliance with this NSPS limit may be considered LACT.
- All LACTs must have compliance demonstration methods that are enforceable as a practical matter.
- The Department has developed a presumptive LACT for Asphalt Plants. This LACT is available in an April 1, 1995, Memo from Lynda Wiese and Allen Hubbard.

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
NOTICE OF FINAL GUIDANCE & CERTIFICATION

Pursuant to ch. 227, Wis. Stats., the Wisconsin Department of Natural Resources has finalized and hereby certifies the following guidance document.

DOCUMENT ID

AM-20-0082

DOCUMENT TITLE

85% Control and Latest Available Control Techniques (LACT) Analyses Under NR 424.03, Wis. Adm. Code

PROGRAM/BUREAU

Air Management

STATUTORY AUTHORITY OR LEGAL CITATION

Sec. NR 424.03, Wis. Adm. Code

DATE SENT TO LEGISLATIVE REFERENCE BUREAU (FOR PUBLIC COMMENTS)

02/24/2020

DATE FINALIZED

03/18/2020

The only comment received on this guidance was that the link to the proposed guidance on the website did not work. The link was fixed on 02/26/2020.

DNR CERTIFICATION

I have reviewed this guidance document or proposed guidance document and I certify that it complies with sections 227.10 and 227.11 of the Wisconsin Statutes. I further certify that the guidance document or proposed guidance document contains no standard, requirement, or threshold that is not explicitly required or explicitly permitted by a statute or a rule that has been lawfully promulgated. I further certify that the guidance document or proposed guidance document contains no standard, requirement, or threshold that is more restrictive than a standard, requirement, or threshold contained in the Wisconsin Statutes.

Gail E. Good

March 19, 2020

Signature

Date