NEBRASKA
DEPT. OF ENVIRONMENT AND ENERGY

Potential to Emit (PTE) – *What it means for me?*

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Summary

This guidance discusses potential to emit (PTE) and the review process the Nebraska Department of Environment and Energy (the Department) uses to determine the practical enforceability of restrictions on potential to emit (PTE).

What is PTE?

Under Nebraska's federally approved State Implementation Plan (SIP), the definition of "potential to emit" is:

"[T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Chapter 26."[1]

In other words, in the absence of federally enforceable limits which are discussed later in this document, PTE is the most air pollution a stationary source is capable of emitting if:

In the absence of federally enforceable limits, PTE is the most air pollution a stationary source is capable of emitting if:

- Source is operated at 100% of design capacity;
- Materials that emit the most air pollution are processed 100% of the time;
- Source is operated 24 hours per day and 365 days per year (i.e. 8,760 hrs/yr);
- Air pollution control equipment is not used (or is shut off)

PTE only applies to stationary sources; mobile sources are regulated under other parts of the Clean Air Act (CAA). Title 129, Chapter 1, Section 154, defines "stationary source" as follows:

"any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under this Title.

How is PTE Used?

PTE is used for a variety of purposes. PTE is used to determine:

- Classification of a stationary source in federal programs such as Prevention of Significant Deterioration (PSD), Title V and National Emission Standards for Hazardous Air Pollution (NESHAP);
- Construction permit application fee category, and
- If dispersion modeling is required with a construction permit application.

[1] 129 Neb. Admin. Code §§ 1-116. Also refer to 40 CFR § 51.165(a)(1)(iii) and § 51.166(b)(4) (PTE definitions within EPA regulations that identify minimum requirements for SIP approved programs). These definitions are identical to the definition above, except for the final sentence that only appears in the Title 129 definition.

Which air pollutants are included in PTE?

The CAA contains regulations for air pollutants that are detrimental to human health or the environment. Except for pollutants the source is incapable of emitting, pollutants that must be included when calculating a source's PTE include the following:

Criteria Air Pollutants

- Ground-level ozone [includes Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x)]
- Particulate Matter (PM) [includes PM-10 microns or less (PM_{10}) and PM-2.5 microns or less ($PM_{2.5}$)]
- Carbon Monoxide (CO)
- Lead (Pb)
- Nitrogen Dioxide (NO_2)
- Sulfur Dioxide (SO_2)

Hazardous Air Pollutants

- The full list of HAPs regulated in Nebraska (NE) is found in Appendices II and III of Title 129
- Some HAPs are also considered VOCs and should be included in PTE calculations for both
- Some HAPs are also considered PM, PM10 or PM2.5 and should be included in PM, PM10 or PM2.5 PTE as well as HAPs PTE

Other

- Total Reduced Sulfur (TRS) (regulated in NE)
- Greenhouse Gases (GHG); GHG are currently only regulated under PSD and Title V[1]
- Regulated NSR pollutants under PSD (if your facility is subject to PSD)

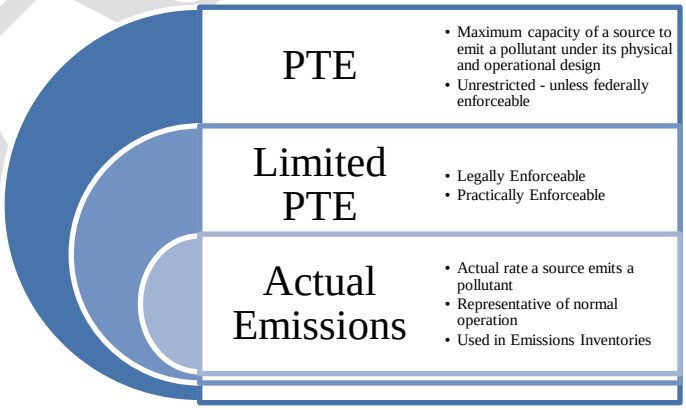
[1] Currently (as of March 2018), GHG emissions must be addressed in PSD permit applications (both new PSD sources and applications from sources that are already classified as PSD major). All sources of GHG emissions must be included in the analysis, including biogenic sources. Under the amended Tailoring Rule, only 'anyways' sources are required to have carbon pollution limits in their PSD permits. Sources are not required to obtain a PSD construction permit on the basis of GHG emissions alone. Similarly, under Title V, applications must address GHGs if they must address GHGs in their PSD permit or if the source exceeds thresholds established in the Tailoring Rule. Like PSD, sources are not required to obtain a Title V Class I permit on the basis of GHGs alone. A full PSD discussion is outside the scope of this document; please contact NDEQ if you have questions about PSD.

Criteria air pollutants are pollutants for which National Ambient Air Quality Standards (NAAQS) have been set based on the latest scientific information regarding their effects on health or welfare. Hazardous air pollutants (HAPs) are pollutants known to cause cancer and other serious health impacts.

Fugitive Emissions are emissions that cannot reasonably pass through a stack, chimney, vent, or other functionally equivalent opening, and include dust from haul roads, storage pile emissions, and leaks from flanges and pumps. Fugitive emissions must be included in the PTE only if:

- The fugitive emissions are HAPs;
- Your facility falls into one of the source categories listed in Title 129, Chapter 17, Section 001.02, in which case all fugitive emissions of all regulated air pollutants must be included;
- Your facility is subject to a New Source Performance Standard (NSPS) or NESHAP promulgated on or before August 7, 1980.

What is Required for a Limit to Be Considered an Enforceable Limitation on PTE?



Actual Versus Potential Emissions

In discussing limitations on PTE, distinction must be made between the terms "actual emissions" and "potential emissions". For purposes of this discussion, the term "actual emissions"[2] is used to refer to the measured, or estimated, emissions of an air pollutant that a facility emits over a specified time period based upon actual hours of operation, production rates, control equipment utilized, and materials used.

[2] Note that "actual emissions" possesses a statutory definition at 129 Neb. Admin. Code §§ 1-002 (for purposes other than the PSD program) and 1-003 (for purposes of the PSD program). The statutory term "actual emissions" is similar to the definition above, but generally provides for averaging emissions over a 24-month period.

"Potential emissions" is used in this discussion consistent with the definition of "potential to emit" to refer to the annual emissions rate of a facility calculated using the maximum capacity under its physical and operational design, subject to any federally enforceable (e.g. legally and practically enforceable) physical and operational limitations.[3] When reviewing permit conditions that limit emissions, it is necessary to determine if the conditions restrict "actual emissions" or "potential emissions".

Restrictions on Actual Emissions do not Restrict PTE

An important court case to review regarding limitations on PTE is the United States District Court case *United States v. Louisiana-Pacific Corporation (Louisiana-Pacific)*.[4] This landmark case discusses the relationship between "actual emissions" and "potential to emit":

> [Supplement 1122] *Thus, the legal issue to be addressed in defendant's motion is whether restrictions on actual emissions are properly considered in determining a source's potential to emit.*
> *[…]*
> *The definition* [referring to the definition of "potential to emit" at 40 CFR § 52.21(b)(4)] *at no point suggests that the term "physical or operational limitation" extends to restrictions on actual emissions.*
> *[…]*
> *After much consideration and a thorough review of the materials on the subject, I conclude that a variety of factors (in addition to maximum design capacity) are properly included in the calculation of a source's potential to emit. These factors clearly include the effect of pollution control equipment. Additionally, they include federally enforceable permit conditions which restrict hours of operation or amounts of material combusted or produced. For the several reasons that follow, however, I find that these factors do not include permit restrictions which limit specific types and amounts of actual emissions.*
> *[…]*
>
> *Restrictions on hours of operation or on the amount of material which may be combusted or produced are conditions which are, relatively speaking, much easier to "federally enforce." Compliance with such conditions could be easily verified through the testimony of officers, all manner of internal correspondence, and accounting, purchasing, and production records. In contrast, compliance with blanket restrictions on actual emissions would be virtually impossible to verify or enforce.*
>
> *Finally, the real problem with LPC's construction is that it fails to perceive a distinction between the potential to emit and actual emissions*
>
> [Supplement 1141] *Restrictions contained in state permits which limit specific types and amounts of actual emissions ("blanket" restrictions on emissions) are not properly considered in the determination of a source's potential to emit. Memorandum Opinion at 1132. However, federally enforceable permit conditions which restrict hours of operation or amounts of material combusted or produced are properly included in the calculation.*

Usage of Actual Hours of Operation to Determine Compliance

Louisiana-Pacific explores this distinction:

> *Additionally, the agency noted that the new definition provides that "specific permit conditions" which result in "infrequent operation" are now properly considered in determining potential to emit. Id., at 52688-89. The EPA had originally proposed a definition which would have presumed continuous (24 hours a day, 365 days a year) operation, but this version was withdrawn. Instead, the definition we now have allows all federally enforceable limitations which may reduce the hours of operation to be included in the calculation. Id., at 52688.*
>
> *After much consideration and a thorough review of the materials on the subject, I conclude that a variety of factors (in addition to maximum design*

[3] This usage is similar to the statutory term "allowable emissions', defined at 129 Neb. Admin. Code §§ 1-015. "Allowable emissions" is not used in this discussion to avoid confusion, as the term is generally associated with specific provisions of New Source Review permitting that are outside the scope of this discussion.

[4] United States v. Louisiana-Pacific Corp., Civil Action No. 86-A-1880 (D. Colo., Mar. 22, 1988)

capacity) are properly included in the calculation of a source's potential to emit. These factors clearly include the effect of pollution control equipment. Additionally, they include federally enforceable permit conditions which restrict hours of operation or amounts of material combusted or produced.

Prohibition on Blanket Emission Limits

The EPA's foundational guidance on limiting PTE in permits is found in a memorandum issued by Terrell Hunt and John Seitz on June 13, 1989, (Seitz, 1989)[5]. This guidance came as a result of the judicial decision in *United States v. Louisiana-Pacific Corporation*[6] and serves as a starting point in understanding what types of limits are enforceable.

As a general term, "blanket emission limits" are those limits that limit emissions of a pollutant on a TPY basis (typically to avoid major source status), but lack associated operational and production limits. In interpreting the decision from *Louisiana-Pacific*, Seitz (1989) states:

> *The Court held that Louisiana-Pacific's permit conditions which limited carbon monoxide emissions to 78 tons per year and volatile organic compounds to 101.5 tons per year should not be considered in determining "potential to emit" because these blanket emission limits did not reflect the type of permit conditions which restricted operations or production such as limits on hours of operation, fuel consumption, or final product.*
>
> […]
>
> *... Judge Arraj found that blanket emission limits were not enforceable as a practical matter.*

These blanket emission limits are also sometimes referred to as "emissions caps". Seitz (1989) provides a discussion of the terms "production limits" and "operational limits", and how they relate to PTE limitations consistent with *Louisiana-Pacific* [emphasis added]:

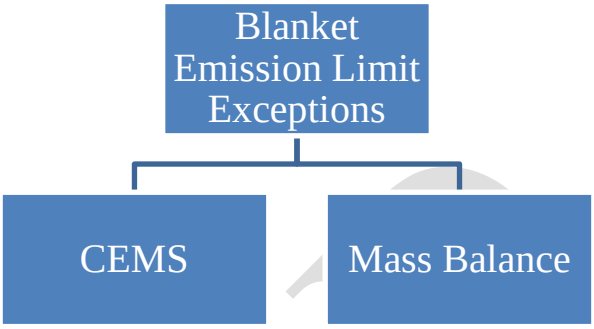
> *Emission limits are restrictions over a given period of time on the amount of a pollutant which may be emitted from a source into the outside air. Production limits are restrictions on the amount of final product which can be manufactured or otherwise produced at a source. Operational limits are all other restrictions on the manner in which a source is run, including hours of operation, amount of raw material consumed, fuel combusted, or conditions which specify that the source must install and maintain add-on controls that operate at a specified emission rate or efficiency. All production and operational limits except for hours of operation are limits on a source's capacity utilization. Potential emissions are defined as the product of a source's emission rate at maximum operating capacity, capacity utilization, and hours of operation.*
>
> *To appropriately limit potential to emit consistent with the opinion in Louisiana-Pacific, all permits issued pursuant to 40 C.F.R. Sections 51.160, 51.166, 52.21 and 51.165 must contain a production or operational limitation in addition to the emission limitation in cases where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment. Restrictions on production or operation that will limit potential to emit include limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level.*
>
> […]
>
> ***An emission limitation alone would limit potential to emit only when it reflects the absolute maximum that the source could emit without controls or other operational restrictions. When a permit contains no limits on capacity utilization or hours of operation, the potential to emit calculation should assume operation at maximum design or achievable***

[5] Terrell Hunt, Associate Enforcement Council, Office of Enforcement and Compliance Monitoring, and John Seitz, Director, Office of Air Quality Planning and Standards, "Guidance on Limiting Potential to Emit in New Source Permitting" (June 13, 1989)

[6] United States v. Louisiana-Pacific Corp., Civil Action No. 86-A-1880 (D. Colo., Mar. 22, 1988)

capacity (whichever is higher) and continuous operation (8760 hours per year).

The above statements are sometimes recognized as the EPA's "prohibition on using blanket emission limits to restrict potential to emit." Guidance from the EPA has clearly stated that, except for two specific circumstances (CEMS or mass balance approaches)[7] emission limitations must be accompanied by limits on capacity utilization or hours of operation in order to be considered restrictions on PTE.



See **Blanket Emission Limits – *When are they allowed?*** for additional discussion and exceptions to the prohibition on blanket emission limits.

Practical Enforceability

Discussion of how the definition of PTE relates to the concept of "practical enforceability" can be found in the following excerpt from the *2016 Yuhuang Order*[8] issued by the EPA. For purposes of readability, the excerpt has been adapted by moving in-line citations and notes within the order to footnotes:

> *[I]f a permit applicant agrees to enforceable limits that are sufficient to restrict PTE, the facility's "maximum capacity to emit" for PTE purposes is calculated based on those limits.*[9, 10] *Importantly, only limits that meet certain enforceability criteria may be used to restrict a facility's PTE, and the permit must include sufficient terms and conditions such that the source cannot lawfully exceed the limit.*[11] *One of the key concepts in evaluating the enforceability of PTE limits is whether the limit is enforceable as a practical matter.*[12] *Moreover, the concept of "federal enforceability" has also been interpreted to encompass a requirement for practical enforceability.*[13]

[7] Discussed in more detail within the guidance "Blanket Emission Limits" which is accessible on the Department website (http://dee.ne.gov/)

[8] *In the Matter of Yuhuang Chemical Inc. Methanol Plant*, Order on Petition Nos. VI-2017-5 and VI-2015-03 (August 31, 2016)

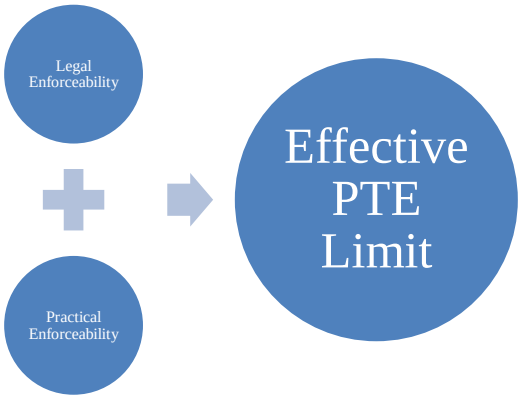
[9] *Jn the Matter of Hu Honua Bioenergy Facility*, Order on Petition No. IX-2011-1 (Feb. 7, 2014) at 9 *(Hu Honua Order); In the Matter of Cash Creek Generation LLC,* Order on Petition No. IV-2010-04 (June 22,2012) at 15 (*Cash Creek Order)*; *Jn the Matter of Kentucky Syngas, LLC,* Order on Petition No. IY-20 I 0-9 (June 22, 2012) at 28 *(Kentucky Syngas Order).*

[10] There is substantial body of EPA guidance and administrative decisions relating to PTE and PTE limits. *E.g., see generally,* Terrell E. Hunt and John S. Seitz, "Limiting Potential to Emit in New Source Permitting" (June 13, 1989); John S. Seitz, "Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act" (January 25, 1995); Kathie Stein, "Guidance on Enforceability Requirements for Limiting Potential to Emit through SIP and § 112 Rules and General Permits" (January 25, 1995); John Seitz and Robert Van Heuvelen, "Release of Interim Policy on Federal Enforceability of Limitations on Potential to Emit" (Jan. 22, 1996); *Jn re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit,* 13 E.A.0. 357 (EAB 2007); *Jn the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC,* Order on Petition No. 11-2001-05 (April 8, 2002) at 4-7.

[11] *See, e.g., Cash Creek Order* at 15 (explaining that an "emission limit can be relied upon to restrict a source's PTE only if it is legally and practicably enforceable"); *Jn the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC,* Order on Petition No. 11-2001-05 (April 8, 2002) at 4-7 (2002 *Pencor-Masada Order).*

[12] *See, e.g.,* 2002 *Pencor-Masada Order* at 47 (emphasizing the importance of practical enforceability in the permit terms and conditions that limit PTE).

[13] *See, e.g., In re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit,* 13 E.A.D. 357, 394 n.54 (EAB 2007).



Elements of Practical Enforceability

In addition to the prohibition on blanket emissions limits, there are several elements required for a permit limit to be considered practically enforceable. A summary of some of these requirements is provided in the EPA memorandum Stein (1995)[14] which states:

> *In general, practical enforceability for a source-specific permit term means that the provision must specify (1) a technically accurate limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, annually); and (3) the method to determine compliance including appropriate monitoring, record keeping and reporting.*

Time Period for the Limitation

Seitz (1989) provides more detailed discussion of the time period requirement for practical enforceability [emphasis added]:

> *[A] limitation specifically recognized by the regulations as reducing potential to emit is a limitation on production or operation. However, for these limitations to be enforceable as a practical matter,* ***the time over which they extend should be as short term as possible and should generally not exceed one month****.*
>
> […]
>
> *EPA recognizes that in some rare situations, it is not reasonable to hold a source to a one month limit.* ***In these cases, a limit spanning a longer time is appropriate if it is a rolling limit. However, the limit should not exceed an annual limit rolled on a monthly basis****. EPA cannot now set out all inclusive categories of sources where a production limit longer than a month will be acceptable because every situation that may arise in the future cannot now be anticipated. However, permits where longer rolling limits are used to restrict production should be issued only to sources with substantial and unpredictable annual variation in production, such as emergency boilers. Rolling limits could be used as well for sources which shut down or curtail operation during part of a year on a regular seasonal cycle, but the permitting authority should first explore the possibility of imposing a month-by-month limit. For example, if a pulp drier is periodically shut down from December to April, the permit could contain a zero hours of operation limit for each of those months, and then the appropriate hourly operation limit for each of the remaining months.* ***Under no circumstances would a production or operation limit expressed on a calendar year annual basis be considered capable of legally restricting potential to emit.***

The time period over which compliance with a permit limit is accessed is also referred to as the limit's averaging period. Based upon the above guidance, the Department has determined that the longest averaging period approvable for any facility is 12 consecutive calendar months, rolled monthly. The term "rolled" is used to refer to the frequency upon which recordkeeping, reporting, and any compliance demonstration for the limit are required to be performed. Note that this is the longest approvable period, and specific facility operations may warrant shorter-term averaging periods, particularly where processes are variable in nature.

In addition to setting the averaging period over which a limit is evaluated, a permit must establish the frequency of associated monitoring, recordkeeping, and reporting requirements. Monitoring and recordkeeping requirements must have an averaging period that is at least as stringent as the emissions limitation that they support.

[14] Kathie Stein, Director, Air Enforcement Division, "Guidance and Enforceability Requirements for Limiting Potential to Emit through SIP and §112 Rules and General Permits" (Jan. 25, 1995)

Independent Enforceability

A further requirement to ensure that permit limits are practically enforceable is that of independent enforceability. Seitz (1989) explains this principle as follows:

> *Production and operational limits must be stated as conditions that can be enforced independently of one another. For example, restrictions on fuel which relates to both type and amount of fuel combusted should state each as an independent condition in the permit. This is necessary for purposes of practical enforcement so that, if one of the conditions is found to be difficult to monitor for any reason, the other may still be enforced.*

Examples

As further context, Seitz (1989) provides illustrative examples of application of the guidance on PTE limitations:

> *2. A waferboard plant which has the physical capacity to emit over 300 tpy of carbon monoxide in the absence of using specific combustion techniques has the following permit restriction as the sole emission limitation: 249 tpy.*
>
> *This does not limit potential to emit since an operational or production restriction is necessary for the source to be restricted to 249 tpy. The permit must contain a restriction on hours of operation or capacity utilization which, when multiplied by the maximum emission rate for the CO sources at the plant, results in emissions of 249 tpy. Additionally, while the emission limit alone cannot restrict potential to emit, the emission limit is unenforceable as a practical matter since it is limited on an annual basis. The permit should contain a short term emission limit (in addition to the annual emission limit), consistent with the compliance period or parameter in the applicable test method for determining compliance.*
>
> […]
>
> *5. A surface coating operation has the capability of utilizing 15,000 gal coating/month, with the following permit restrictions: 3.0 lb VOC/gal coating minus water; 20.5 tons VOC/month; monthly VOC emissions to be determined from records of the daily volumes of coatings used times the manufacturers specified VOC content.*
>
> *This does not limit potential to emit since the source has the physical capacity to exceed 250 tpy of VOC, and the permit does not contain a production or an operational limitation. A monthly limit on gallons of coating used which when multiplied by 3.0 lb/gal equates to less than the 250 tpy threshold 13,500 gallons/month), with appropriate recordkeeping, would generally be necessary to limit potential to emit. If, however, the permitting agency determines, due to the wide variety of coatings employed and products produced, that restrictions on operation or production are not practically enforceable, then the above emission limits could restrict potential to emit if there are requirements that the source calculate emissions daily, and keep the appropriate records.*
>
> *If the source was alternatively to meet the 20.5 ton/month limit by employing add-on controls, the permit would need to contain an operational limit, such as the requirement to install and operate an incinerator at 99% efficiency. A requirement to monitor incinerator efficiency (either directly or indirectly via temperature monitoring for example), and appropriate recordkeeping retirements to verify compliance with each of the permit conditions would also be necessary to make the permit conditions enforceable as a practical matter. Note, however, that in the case where add-on controls are employed, the source may be able to meet a shorter-term emission limit than the ton per month figure.*