

Air Quality Permit Limits and Enforceability – *Then and Now*

This guidance document is advisory in nature but is binding on an agency until amended by such agency. A guidance document does not include internal procedural documents that only affect the internal operations of the agency and does not impose additional requirements or penalties on regulated parties or include confidential information or rules and regulations made in accordance with the Administrative Procedure Act. If you believe this guidance document imposes additional requirements or penalties on regulated parties, you may request a review of the document.

March 2021

Summary

This guidance discusses 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) and blanket tons per year (TPY) limits. There is a specific focus on limitations issued previously in the Department's Air Quality Permits, challenges associated with these limits, and the Department's approach to resolve these challenges in future permitting.

Background

Protecting Our National Air - The Clean Air Act

The Clean Air Act (CAA), last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment.

The CAA identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of vulnerable populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The EPA has set NAAQS for six principal pollutants, called "criteria" air pollutants. These consist of carbon monoxide (CO), lead (pb), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone, and particulate matter of two different sizes – particulate matter 10 microns or less (PM₁₀) and particulate matter 2.5 microns or less (PM_{2.5}).

Areas can be designated by the EPA as being in attainment (i.e. pollution concentrations are below the standard), unclassifiable (i.e. sufficient information does not exist to make a classification), or nonattainment (i.e. pollution concentrations are above the standard).

Protecting Nebraska's Air – Title 129 Nebraska Air Quality Regulations

The EPA provides oversight, in part, of the state air permitting program through review and approval of the State Implementation Plans (SIP). A SIP is the collection of regulations, rules, and documents used by a state to meet the NAAQS and satisfy the mandatory requirements of the federal Clean Air Act. Nebraska Administrative Code Title 129 – Nebraska Air Quality Regulations (Title 129) and Title 115 – Rules of Practice and Procedure have been approved as elements of Nebraska's SIP.

There are no areas in Nebraska that are designated as being in nonattainment with the NAAQS. An important tool to ensure that Nebraska continues to comply with these standards is the construction permitting program. Before a new facility is built or before an existing facility is expanded or modified, an air quality construction permit may be required. There are two types of construction permits issued by NDEE: state construction permits and federal construction permits, referred to as Prevention of Significant Deterioration (PSD) permits. The type of permit will depend on the quantity of air pollutants the new plant or expansion could potentially release. Title 129, Chapter 17 addresses when a construction permit is required.

Another tool NDEE uses to protect air quality is the operating permits program. Operating permits contain all applicable requirements for all emission points at a facility. Similar to the construction permitting program, there are two types of operating permits: Title V (federal program) permits and minor source (state program) permits. The potential emissions from the plant determine whether a facility will obtain a major or minor operating permit. Unlike construction permits, a facility must reapply to renew its operating permit every five years, prior to permit expiration. Several chapters of Title 129 oversee Nebraska’s operating permit program.

Major or Minor Sources, Potential to Emit, and Practical Enforceability

Major or Minor Sources

A facility may be classified as either a “major source” (or “major stationary source”)¹ or a “minor source”² under following programs:

- PSD program
- Title V Operating Permit program (also referred to as a Class I Operating Permit in Nebraska)
- Hazardous Air Pollutant (HAP) program (when evaluating emissions of HAP, the term “area source”³ may also be used in place of “minor source”).

In general, major sources are subject to more stringent regulatory review and standards than minor sources within these programs.⁴ Table 1 presents the major source thresholds, in TPY, for each of these programs. The table is not exhaustive, and discussion of additional

pollutants evaluated and special cases is beyond the scope of this document.

Table 1: Major Source Thresholds for Permitting Programs

Program	Major Source Threshold
PSD	For a facility belonging to a named source group ⁵ : 100 TPY of any “regulated New Source Review (NSR) pollutant” ⁶
	All other facilities: 250 TPY of any regulated NSR pollutant
Title V (Class I)	For any “regulated air pollutant” ⁷ : 100 TPY HAP: 10 TPY of any single HAP or 25 TPY of combined HAP
HAP	10 TPY of any single HAP or 25 TPY of combined HAP

Classification is made based upon the facility’s PTE in relation to certain thresholds. A facility that has PTE above an applicable threshold, but does not wish to be subject to regulation as a major source, may request operational limitations to restrict their PTE. Such a facility is referred to as a “synthetic minor”.⁸ To be legally recognizable as a restriction on PTE, such limitations must meet requirements for “practical enforceability.”

¹ See 129 Neb. Admin. Code §§ 2-007; 2-008 (defining “major source” and “major stationary source” for the Class I Operating Permit and PSD programs, respectively) and 2-001 (defining “major source” of HAP)

² 129 Neb. Admin. Code §§ 1-019.

³ 129 Neb. Admin. Code §§ 1-019.

⁴ This is not always the case, as a facility desiring to be a minor source may accept permit conditions to demonstrate that potential and actual emissions are below the applicable major source threshold that result in a permit that is more restrictive or costly to comply with than the facility would otherwise be subject to as a major source.

⁵ “Named source group” refers to those listed at 129 Neb. Admin. Code §§ 2-008.01

⁶ 129 Neb. Admin. Code §§ 1-131.

⁷ 129 Neb. Admin. Code §§ 1-130. The principal air pollutants evaluated are particulate matter (PM) less than or equal to 10 microns in diameter (PM₁₀); PM less than or equal to 2.5 microns in diameter (PM_{2.5}); Sulfur Dioxide (SO₂); Oxides of Nitrogen (NO_x); Carbon Monoxide (CO); and Volatile Organic Compounds (VOC)

⁸ 129 Neb. Admin. Code §§ 1-155. Definition of a synthetic minor source.

Potential to Emit (PTE)

The determination of whether a facility constitutes a major or minor source within each program depends on whether the facility emits or has the potential to emit pollutants equal to or greater than the listed thresholds. Under Nebraska's federally approved 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."*⁹

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)¹⁰. This guidance came as a result of the judicial decision in *United States v. Louisiana-Pacific Corporation*¹¹ and

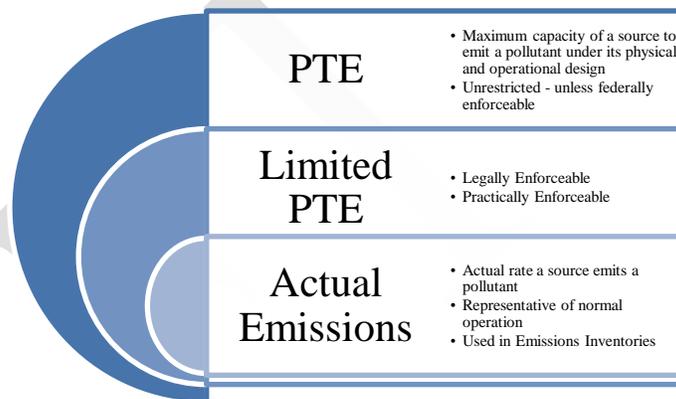
⁹ 129 Neb. Admin. Code §§ 1-116. Also refer to 40 CFR § 51.165(a)(1)(iii) and § 51.166(b)(4) (PTE definitions within EPA regulations that identify minimum requirements for SIP approved programs). These definitions are identical to the definition above, except for the final sentence that only appears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

¹⁰ 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)

¹¹ *United States v. Louisiana-Pacific Corp.*, Civil Action No. 86-A-1880 (D. Colo., Mar. 22, 1988)

¹² *In the Matter of Yuhuang Chemical Inc. Methanol Plant*, Order on Petition Nos. VI-2017-5 and VI-2015-03 (August 31, 2016)

¹³ *In 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*



serves as a starting point in understanding what types of limits are enforceable. This guidance was

Practical Enforceability

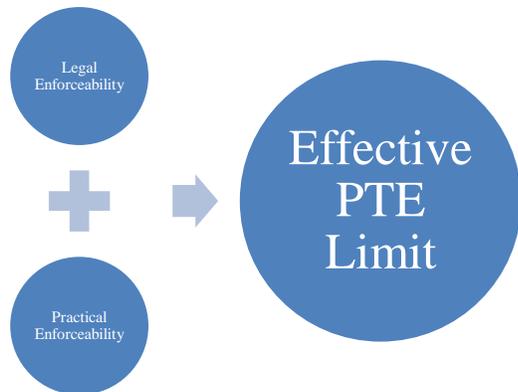
Discussion of how the definition of PTE relates to the concept of "practical enforceability" can be found in the following excerpt from the *2016 Yuhuang Order*¹² issued by the EPA. For purposes of readability, the excerpt has been adapted by moving in-line citations and notes within the order to footnotes:

[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.^{13, 14} Importantly, only limits that meet certain enforceability criteria may be used to restrict a facility's PTE, and the permit must include

Order); *In the Matter of Kentucky Syngas, LLC*, Order on Petition No. IY-20 I 0-9 (June 22, 2012) at 28 (*Kentucky Syngas Order*).

¹⁴ 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); *In re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit*, 13 E.A.O. 357 (EAB 2007); *In 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.

sufficient terms and conditions such that the source cannot lawfully exceed the limit.¹⁵ One of the key concepts in evaluating the enforceability of PTE limits is whether the limit is enforceable as a practical matter.¹⁶ Moreover, the concept of “federal enforceability” has also been interpreted to encompass a requirement for practical enforceability.¹⁷



Case Study: Then and Now

“Then”

Previously, the Department issued permits with blanket emission limits in attempt to restrict PTE. As a general term, “blanket emission limits” are those limits that restrict emissions of a pollutant on a TPY basis (typically to avoid major source status) but lack associated operational and production limits. These limits are also sometimes referred to as “emissions caps.”

The following is an example of the condition set previously used by the Department. Specific permit language varied slightly between sources, but in general, these permits featured a condition intended to serve as a source-wide (i.e. applying to all emission units at a source capable of emitting that pollutant) limitation along

with another permit condition specifying the calculation methodology for determination of actual emissions.

Source-wide HAP Limitation:

At no time during any period of twelve (12) consecutive calendar months, and at no time during the first eleven (11) months after start-up, shall emissions from the source equal or exceed the following emission limits: {Chapters 17, 27, and 28}

(1) 10.0 tons of any individual HAP

(2) 25.0 tons of total combined HAPs

Compliance with the emissions limitations above shall be demonstrated by performing emission calculations every month and every period of twelve (12) consecutive months using the calculation methodology in Attachment IV. If testing is required, the emission factors and pound per hour (lb/hr) emission rates presented in Attachment IV shall be replaced with data obtained from the most current, approved emissions test conducted in accordance with Specific Condition II.(D).

Prior permits would then list out each facility operation or emission unit that had the potential to emit HAP, along with equations to calculate the actual emissions from each.

These limits were not a practically enforceable restriction on PTE for the following reasons:

- These prior permits did not establish an operational or production limitation on the hours of operation or the emission rate from the process.
- The condition violates the requirement of independent enforceability necessary for a practically enforceable restriction on PTE. Rather than place independent operational limitations on each process, these prior permits attempted to restrict total source-wide emissions as a single restriction.
- As written, the limitation was a restriction on the actual emissions from the facility. The calculation methodology referenced in an

¹⁵ 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”); *In the Matter of Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxydol, LLC*, Order on Petition No. 11-2001-05 (April 8, 2002) at 4-7 (2002 *Pencor-Masada Order*).

¹⁶ See, e.g., 2002 *Pencor-Masada Order* at 47 (emphasizing the importance of practical enforceability in the permit terms and conditions that limit PTE).

¹⁷ 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).

attachment was similar to a mass balance formula-based approach, but failed to satisfy requirements of practical enforceability for such approaches.

The following is an example of how prior permits specified methodology to determine actual emissions from a process.

Fermentation Operations:

Emissions from the fermentation scrubber shall each be calculated using Equation (1).

$$(1) E_s = (CEF_s) \times (OH) / (2,000 \text{ lbs/ton})$$

Where

- E_s = Emissions from Scrubber(tons/month)
- CEF_s = Controlled process emission factor (lbs/hr)
- OH = Operation Hours (hr/month)

Hazardous Air Pollutant	Controlled Process Emission Factors (lbs/hr)
Acetaldehyde	x.xx
Acrolein	x.xx
Formaldehyde	x.xx
Methanol	x.xx
Total HAPs	x.xx

The values listed in the “Controlled Process Emission Factors” column were generally derived from a facility’s most recent performance testing. The above equation does not establish a limitation on the PTE for fermentation operations – rather it provides a formula for calculating actual emissions.

“Now”

The Department has determined that the following types of limits do not limit PTE:

- Source-wide (also referred to as facility-wide) limits expressed as TPY on a twelve-month rolling basis that lack an appropriate demonstration of compliance (e.g. one that is practically enforceable); and
- Group limits¹⁸ expressed as TPY on a twelve-month rolling basis that lack an appropriate demonstration of compliance (e.g. one that is practically enforceable); and

¹⁸ Emission rate limitations that apply to multiple, specified emission points

- Conditions that prescribed in error the use of actual hours of operation intended to serve as a compliance demonstration for limitations on PTE.

The Department has identified the following two approaches (each subject to review and formal approval by the Department) that provide for the source-wide and group limits discussed above to be practically enforceable limitations on PTE, and therefore approvable in permits. Both of these approaches are discussed in detail in “When are Blanket Limits Allowable?”¹⁹

- The owner or operator obtains permit conditions for, and subsequently implements, a Continuous Emission Monitoring System (CEMS) for each affected emission point;
- The owner or operator obtains permit conditions for the use of a mass balance approach, where inputs and outputs from each affected emission point are measured and directly equated compliant with the permit.

Should either of these approaches not be present in an existing permit, it should be revised. Appropriate revisions include:

- Placing direct hourly emission rate limitations on each affected emission point. Depending on the variability of emissions from the emission point, initial or recurring stack testing may be required;
- Establishing group limitations with combined hourly emission rate limitations. Depending on the variability of emissions from the affected emission points, initial or recurring stack testing may be required. In general, stack testing for grouped emission points should be concurrent; or
- Incorporation of CEMS or mass balance approaches to limit PTE.

As appropriate, the Department is willing to discuss other approaches as appropriate for which an applicant can provide clear detail on the practical enforceability, as well as the appropriate application of PTE. Applicants

¹⁹ Accessible on the Department website (<http://dee.ne.gov/>) and titled “When are Blanket Limits Allowable?”

should read and understand the Department's PTE guidance document.²⁰

Decision:

Consistent with the above background information, the Department will move to revise permits containing source-wide limits and group limits that present issues of practical enforceability, as well as those permits that inappropriately allow for the use of actual hours of operation to demonstrate compliance with limitations on PTE. In general, when the limit is directly related to a permitting action, the Department will incorporate these revisions to the limit as part of the permitting action. When the limit is not directly related to the permitting action, the Department will seek voluntary cooperation from the owner or operator in revising the limit. If voluntary cooperation is not provided, the Department could pursue a Reopen for Cause action to revise the permit as provided for in Title 129, Chapter 15, Section 006.

²⁰ Accessible on the Department website (<http://dee.ne.gov/>) and titled "What is Potential to Emit (PTE)?"