NEBRASKA

DEPT. OF ENVIRONMENT AND ENERGY

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Potential to Emit and No Permit Required

"Potential To Emit" or PTE is the basis for determining if you need a permit. PTE is defined at 40 CFR § 51.165(a)(1)(iii)., in part, and incorporated into Nebraska Administrative Code Title 129 – Nebraska Air Quality Regulations, Chapter 1, as "…the maximum capacity of a stationary source to emit a pollutant under its physical and operational design." To determine whether or not a source needs an air quality permit, you must calculate PTE and then compare the PTE to the air quality permit thresholds. The Construction Permit and Operating Permit guidance documents explain these permitting programs and permit thresholds.

A confirmation from the Nebraska Department of Environment and Energy (NDEE) is not required if the source does not need a permit. However, if a confirmation is requested, it is commonly referred to as a "No Permit Required" determination or NPR. The following explains how to calculate PTE and the records a source needs in order to demonstrate that a permit is not required.

Calculating Potential to Emit (PTE)

PTE is calculated with the assumption that the source is operated continuously for one year (24 hours a day, 365 days a year or 8,760 hours a year). The PTE must be calculated separately for each pollutant.

The PTE calculation also assumes the emission unit(s) is uncontrolled. However, the PTE can include reductions for control equipment or other process limitations if those are included in a federally enforceable permit or required by an applicable federal standard. For instance, if your facility has an existing air quality construction permit that limits the amount of material it can process per hour, that can be taken into consideration in your PTE calculation.

Additionally, you can take into consideration certain process limitations or bottlenecks when calculating your PTE. A bottleneck is an activity or process that restricts the capacity of other operations. For example, consider a grain elevator with a dryer that has a capacity of 45,000 bushels per hour (bu/hr). The facility has one conveyor that feeds grain to the dryer. The conveyor has a capacity of 30,000 bu/hr. Because the conveyor physically limits the amount of grain that can be dried, it is a bottleneck and 30,000 bu/hr can be used to calculate the PTE for the dryer.

Potential To Emit Example:

The emission unit is a 50 million Btu/hour natural gas fired boiler. The following is the PTE calculation for nitrogen oxides (NO_x).

Heating value of natural gas = 1,020 Btu/cubic foot

Annual operating hours = (365 days/year) **x** (24 hours/day) = 8,760 hours/year

Hourly maximum fuel use = $\frac{\text{50 million Btu/hr}}{\text{1,020 Btu/ft}^3}$ = 49,020 cubic feet/hour

NO_x emission factor from AP-42 = 100 pounds of NO_x emitted per million ft^3 of natural gas burned

8760 hr/yr **x** 49,020 ft^3 natural gas/hr = 429.41 million ft^3 natural gas/year

429.41 million ft^3 natural gas/yr **x** 100 pounds NO_x/ million ft^3 natural gas = 42,941 pounds of NO_x per year

42,941 pounds/yr ÷ 2,000 pounds/ton = 21.47 tons/year

Records

Some might assume that confirmation (commonly referred to as a "No Permit Required Determination" or NPR) from NDEE is needed to establish that a permit is not required. However, sources do not need an NPR determination from the Department if they are able to document and provide appropriate information to a Department representative, if requested, to support a claim that an air quality permit is not required. To demonstrate you don't need a permit, you should be able to provide the PTE calculation and any supporting documentation used in the calculation.

Document the emission factors used in your PTE calculation and the source of the emission factors. Emission factors may originate from continuous emissions monitor data, stack test data, material balance equations, industry/trade organizations, and Environmental Protection Agency (EPA) documents. Use the emission factor that best represents your facility. For example, if you have source-specific stack-testing data for your facility, you should use that information to calculate your PTE because it is the most accurate information you have. Emission factors can also be found in EPA's "AP-42, Compilation of Air Pollutant Emission Factors" if you don't have facility-specific information. AP-42 and other emission factor resources can be found on EPA's Clearinghouse for Inventories and Emissions Factors (CHIEF) website at https://www.epa.gov/chief/.

You must also document the emission unit(s) design capacity. Manufacturer's data can be used when the nameplate capacity is used in the PTE calculation. Provide documentation if you utilized any bottlenecks, permit limitations, or control equipment in your calculation and be able to explain how and why those were used in the PTE calculation. For instance, if a permit limitation was used, have a copy of the permit available.

Be sure your calculation documentation includes the appropriate units (i.e. pounds/hour, Btu/hour, etc.). It is also recommended that you document the date that the PTE was calculated.

In addition to keeping this documentation available at the facility, we encourage you to submit a letter to the NDEE Air Quality Program explaining your project and providing your emission calculations that support your determination. This will provide our staff with the most current information about your facility. The information will be entered in NDEE's public record filing system. If your facility is inspected, this information will help the inspector better prepare and likely result in a more expedited and efficient visit.

If you have questions, submit your question via e-mail to NDEE.AirQuality@nebraska.gov or by mail at P.O. Box 98922, Lincoln, NE 68509-8922.

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