NEBRASKA

DEPT. OF ENVIRONMENT AND ENERGY

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Air Quality Construction Permits

Introduction

The NDEE has had a construction permit program for air contaminant sources since 1972. The program was modified in the early 1990's to reflect changes brought about by the Clean Air Act Amendments of 1990. Facilities are required to obtain a construction permit **before they construct, reconstruct or modify** any air contaminant source or emission unit where there is a net increase in the potential to emit (PTE) pollutants (prior to taking credit for any air emissions control equipment or operational limitations) above the following thresholds found in Title 129, Chapter 3:

- 15 tons per year (tpy) of PM_{10} (Particulate Matter 10 microns in diameter or smaller),
- 10 tons tpy of $PM_{2.5}$ (Particulate Matter 2.5 microns in diameter or smaller),
- 40 tpy of SO_2 (Sulfur dioxide) or SO_3 (Sulfur trioxide) or any combination thereof,
- 40 tpy of oxides of nitrogen (calculated as NO_2),
- 40 tpy VOC (Volatile Organic Compounds),
- 50 tpy CO (Carbon Monoxide),
- 0.6 tpy Lead, or
- 2.5 tpy of any single HAP (Hazardous Air Pollutant) or 10 tpy of all HAPs combined.

In addition, all incinerators, regardless of emissions, must have a construction permit.

Beginning January 1, 2005, a permit application fee must accompany each construction permit application. The fee ranges from $250 to $3,000 depending on the potential emissions of the source (refer to Form 1.1 of the construction permit application found at http://dee.ne.gov/ under under Publications & Forms > Air Construction Permit Program > Applications and Forms; and the "Air Construction Permit Fee" Fact Sheet found at http://dee.ne.gov/ under Publications & Forms > Air Construction Permit Program > Guidance Documents).

Purpose

A construction permit allows the facility to construct the emission unit(s) while protecting the ambient air quality. In addition to allowing construction, the permit will also establish operating, monitoring, and record keeping requirements. These requirements are necessary to assure the emission units are in compliance with the applicable regulations. The requirements are also necessary in the event the source isn't required to obtain an operating permit. A construction permit is issued for the life of the emission unit(s).

Frequently Asked Questions

The Air Quality Program receives many questions regarding construction permits for air contaminant sources. Many of these questions arise from the uncertainty about who exactly is required to obtain a permit. Some of the most frequently asked questions are listed below, along with answers to help you determine whether your source requires a construction permit and how to apply for one.

Q. What is the difference between an operating permit and a construction permit?

A. A construction permit must be obtained prior to constructing or modifying an air contaminant source and it does not expire. An operating permit must be applied for within 12 months after startup of an air contaminant source. Operating permits contain all applicable requirements for all emission points at the source. This includes incorporating conditions from the construction permits issued to that source.

Q. How do I know if I need to obtain a construction permit?

A. Generally, a construction permit is required for the construction of any new emission unit or the modification of an existing unit at a source that produces a net increase in *potential emissions* (referred to as PTE) equal to or exceeding the levels noted above. A construction permit is also required for all incinerators, regardless of size. If you are not sure, you can apply for a permit or e-mail NDEE.AirQuality@Nebraska.gov or contact the Small Business and Public Assistance Coordinator at (402) 471-6974 to discuss your project.

Q. How do I calculate my potential-to-emit (PTE)?

A. PTE is the basis for determining if you need a permit. It is the maximum quantity of air pollutant(s) an emission unit or source can emit in a year given its physical and operational design. 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 they are included in a federally enforceable permit. For instance, if a facility has an existing air quality construction permit that limits the amount of material you can process per hour, you can take that 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 another operation. For example, a grain elevator dryer has a capacity of 45,000 bushels per hour (bu/hr). The facility has one conveyor leg that feeds grain to the dryer. The leg has a capacity of 30,000 bu/hr. Since the leg 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. 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 = (50 Million Btu/hr) ÷ (1,020 Btu/ft^3) = 49,020 cubic feet/hour

Annual fuel use = (8,760 hr/yr) X (49,020 ft^3 natural gas/hr) = 429.41 million ft^3 natural gas/year

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

(429.41 million ft^3 natural gas/yr) X (100 pounds NO_x/yr) = 42,941 pounds of NO_x per year

PTE of NO_x = (42,941 pounds/yr) ÷ (2,000 pounds/ton) = 21.47 tons/year

Q. What is the difference between potential emissions and actual emissions?

A. Generally, potential emissions are the maximum emissions that would result from operating the facility at full capacity 24 hours a day, seven days a week, 52 weeks a year taking into consideration federally enforceable requirements. Actual emissions are emissions produced by a facility, based on actual operating times and actual operating conditions.

Q. What is an "emission unit"?

A. An "emission unit" is any part or activity at a stationary source that emits or would have the potential to emit any regulated air pollutant. A source has one or more emission units that contribute to the PTE.

Q. How do I determine if my emissions meet or exceed those requiring a construction permit?

A. Generally, an estimation of emissions using emission factors will have to be done. However, emissions data, from testing on a similar unit, *may* be acceptable. For estimations, the Department generally uses emission factors from the Compilation of Air Pollutants Emission Factors (AP-42) or from Factor Information Retrieval Data System (FIRE). These and other emission factor resources may be found on the internet at https://www.epa.gov/chief. Most emission factors are based on fuel usage, throughput or other quantifiable process information.

Q. How long before I intend to construct must I send in a construction permit application?

A. Depending on the quality of the application and our workload, a construction permit can take four to 12 months to process, so an application should be submitted to the Department as soon as possible. For more complicated sources and for Prevention of Significant Deterioration (PSD) sources, the permitting process may take longer. We strongly encourage facilities to meet with NDEE Air Quality staff prior to submitting the construction permit application. A pre-application meeting will ensure the facility is aware of NDEE's expectations and will likely result in the facility submitting a complete application. For more information on pre-application meetings, see the "Pre-Application Meetings For Air Quality Construction Permits" guidance, and for more guidelines on submitting a complete construction permit application, see the "Air Quality Permit Application Tips and Other Tidbits" guidance. Both documents can be found on NDEE's website at http://dee.ne.gov/ under Publications & Forms > Air Construction Permit Program > Guidance Documents.

Q. What if I determine I don't need a permit?

A. Many people believe they need confirmation (commonly referred to as a "No Permit Required Determination," or NPR) stating they do not need a permit. In fact, sources do not need an NPR determination from NDEE if they are able to document and provide information to a NDEE representative supporting their claim.

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. Refer to the "Potential to Emit and No Permit Required" guidance on the NDEE's website at http://dee.ne.gov/ under the Air Quality publications and forms.

You must document what emission factors you 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. You must use the emission factor that best represents your facility. For example, if you have stack-testing data for your emission unit, you would use that information to calculate your PTE because it is the most accurate information you have. If you don't have source specific information such as stack test or continuous emission monitor data, you can typically find emission factors for your process in EPA's "AP-42, Compilation of Air Pollutant Emission Factors." You can find this document, as well as other emission factor resources, on EPA's 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. You must also 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 beneficial to provide the date that the PTE was calculated.

In addition to keeping this documentation on-site, 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 and remain as documentation in our filing system. Also, in the event that a routine inspection is conducted at your facility, this information will help our staff be better prepared prior to conducting the inspection, which will most likely result in a more expedited and efficient visit.

Q. How do I obtain a permit application?

A. Application forms can be downloaded from the NDEE website at http://dee.ne.gov/ select the **Publications & Forms** tab then the dropdown menu for the "Air Construction Permit Program". You can also obtain forms by contacting the Air Program by emailing ndee.airquality@nebraska.gov, or by writing to the Air Quality Program of the Nebraska Department of Environment and Energy, P.O. Box 98922, Lincoln, NE 68509-8922.

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*Produced by: Nebraska Department of Environment and Energy, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-2186. To view this, and other information related to our agency, visit our web site at **http://dee.ne.gov***