



Business Environmental Program

How to Determine Your Facility's Potential to Emit

"The Basis for an Air Quality Operating Permit"

What is potential to emit?

Nevada Administrative Code, NAC 445B.138, defines the potential to emit as the maximum capacity of a stationary source to emit a regulated air pollutant under its physical and operational design. (You will need to determine what air permitting requirements apply to your facility. See BEP's fact sheet "Do You Need an Air Permit", available at www.nsbdcnep.org.) When a facility's operation is not restricted by any permit conditions, the potential to emit is the highest amount of regulated pollutants your business could release into the air when operating at full capacity for 8,760 hours a year (even if you never have or will not actually emit the highest amount). *There are certain situations where this becomes important, such as applying for an exemption from obtaining an air permit; you must calculate and use the maximum capacity, since there will be no permit conditions restricting the hours of operation or the use of emission controls.*

Facilities may apply for, and operate under an air quality permit that places limitations on operating hours, and/or specifies control devices that reduce emissions. In this case, the potential to emit is based upon the reduced operating hours and the emission reductions attributed to the control devices.

What is the significance of the potential to emit?

The potential to emit will determine whether a facility is a "major" or a "minor" source. Minor sources are not subject to the same review process required for major sources, however, each application will be evaluated to demonstrate that emissions will not exceed the ambient air quality standards when operationing at the full potential to emit. The application fee for a major source permit is significantly higher than a minor source.

Table 1: NDEP Air Quality Permit Classes versus Emission Rates

	<u>Regulated Pollutant</u>	<u>Hazardous Air Pollutant (HAP)</u>
Class I: Major	> 100 tons/yr	> 10 tons/yr (25 tons/yr combined HAPs)
Class II: Minor	< 100 tons/yr	< 10 tons/yr (25 tons/yr combined HAPs)
Class III: Minor *	< 5 tons/yr	< 1 ton/yr

* Except when NESHAP, NSPS, or MACT standards apply to the source category

BEP Toll-Free Assistance Line (800) 882-3233 (In Nevada) or (775) 689-6688
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Calculating the Potential to Emit:

Several methods may be used to determine the Potential to emit; they include using:

- Published Emission Factors (EPA Publication AP-42)
- Material Balance
- Actual Emissions Test Data
- Engineering Judgment (Used when no other information is available)

Caution should always be exercised since the permit limits will be based on your emission calculations. An error on the low side, or unintended restrictions in operations, could result in potential permit violations.

Examples:

1. Emissions Factors:

EPA's publication AP-42 is a compilation of emission factors based on real operating facilities, and can be found on the internet at <http://www.epa.gov/ttn/chief/ap42/>. Select the appropriate factor for your process, and multiply the factor by the production rate or fuel input rate to calculate the estimated Potential to Emit.

Example: The factor for Particulate Matter with a size less than 10 microns (PM₁₀) from Stone Crushing can be found on Table 11.19-2 in AP-42. The emissions from "Fines crushing" are specified as 0.015 lb/ton.

A facility designed to crush 100 tons/hr and operate 2,400 hours/yr will have the following emission estimate:

$$0.015 \text{ lb/ton} \times 100 \text{ ton/hr} \times 2,400 \text{ hr/yr} = 3,600 \text{ lb/yr (1.8 TPY) of PM}_{10} \text{ emissions}$$

2. Material Balance:

This method is based on the premise that what goes in, must come out. By identifying the quantity of each raw material entering the process and how much is in the finished product, the byproducts and emissions can be calculated.

Example: a wood furniture manufacturer uses 1,000 gallons a year of lacquer which contains 5.0 lb/gal of volatile organic compounds (VOC's). (The actual VOC content can be obtained from the manufacturer; 5.0 was used for this example)

$$5 \text{ lb/gal} \times 1,000 \text{ gal/yr} = 5,000 \text{ lb/yr (2.5 TPY) VOC emissions}$$

3. Stack Testing:

This method relies on actual sampling and analysis of the emission source. Precautions should be taken when using stack emissions data, since the test results may vary from normal day to day operations. Basing the estimates on only one test is not recommended, but may be the only data available in some instances. This is a situation where engineering judgment may be used in addition to the test data.

Example: routine emissions testing of a gas scrubber has established the emissions are 1 lb/hr of particulate (PM₁₀). The scrubber operates 24 hours a day, 7 days a week (8,760 hrs/yr).

$$1 \text{ lb/hr} \times 8,760 \text{ hrs/yr} = 8,760 \text{ lb/yr (4.38 TPY)}$$

4. Engineering judgment:

In some situations, good air emission data is not available, particularly for new facilities. "Source Specific models" can be used to estimate emissions. This may include comparing your operation to other similar emission sources, or using the physical characteristics of the equipment with recognized engineering formulas. A permit modification may be needed if the initial emissions testing indicates that actual emission rates are higher than originally estimated.

Who Can I Contact For More Information?

The Business Environmental Program can provide assistance with air quality permits, as well as help you determine your potential to emit. Call (800) 882-3233 for more information & assistance.