



**City of Albuquerque  
Environmental Health Department  
Air Quality Division**



***Internal Combustion Engine Permitting Policy  
Effective November 18, 1998***

**Permitting**

All internal combustion engines on equipment utilized as the primary power source, secondary power source or as standby emergency units, which emit greater than 2000 lbs of any regulated pollutant must obtain a source registration or an authority-to-construct permit or both. Applicability for 20 NMAC 11.40 or 20 NMAC 11.41 shall be determined on the potential to emit (PTE). PTE is defined in 20 NMAC 11.01.7.61 as the following:

7.61 **POTENTIAL TO EMIT OR PRE-CONTROLLED EMISSION RATE:** *means the maximum capacity of a stationary source to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air 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 is federally enforceable or is included in a permit issued by the Department. However, the potential to emit for nitrogen dioxide shall be based on total oxides of nitrogen. [11-12-81, 8-1-94]*

Unit emissions for any regulated pollutant can be determined through performance testing data, manufacturer's data, and AP-42 emission factors from sections 3.2, 3.3, and 3.4. Determining which method the unit's emissions are calculated depend on the availability of performance testing and manufacturer's data. The preferred method for calculating emissions from the engine is from actual stack test data of the source or test data from a similar engine. If stack test data are not available, AP-42 emission factors are recommended to calculate the emissions. If manufacturer data is available for the engine, it is recommended that emissions obtained from the manufacture be compared to the emissions estimated using AP-42. Actual stack test data gathered from tests conducted on engines has demonstrated that NO<sub>x</sub> and CO lb/hr emission rates are significantly different than those the manufacture provides. The Division recommends careful evaluation when estimating pollutant emissions and adding a safety factor in certain cases.

Based on AP-42 emission factors section 3.3 "Gasoline and Diesel Industrial Engines" (10/96), which covers gasoline engines up to 250 hp and 600 hp for diesel engines, a 185 hp diesel engine has a PTE of 25 tpy for NO<sub>x</sub>. The PTE for a 13 hp gasoline engine is 25 tpy of CO.

Based on AP-42 emission factors section 3.2 "Natural Gas-fired Reciprocating Engines" (7/00), which covers engines from 55 bhp to 11,000 bhp, a 4 stroke lean burn 200 hp engine has a PTE of 25 tpy for NO<sub>x</sub>.

Internal combustion engines permitted for emergency use do not require an air dispersion modeling analysis.

Internal combustion engines that will be utilized for uses other than emergency use shall be permitted as a primary power source, peak shaving unit, cogeneration unit, or other specified use. These types of engine uses shall be required to submit an air dispersion modeling analysis that demonstrates compliance with the National Ambient Air Quality Standards (NAAQS) and New Mexico Ambient Air Quality Standards (NMAAQs). Recordkeeping, monitoring, reporting, and compliance requirements for these engine uses may be more stringent than those requirements for an internal combustion engine permitted for emergency use only.



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**Annual Hours of Operation**

The Division has developed a policy for the number of hours a facility shall permit an internal combustion engine. The Division recommends that a facility should take into account the following when requesting annual hours of operation:

- 1) Number of hours needed for routine engine exercising (weekly or monthly).
- 2) Number of hours needed for routine maintenance.
- 3) Number of hours needed for actual use.
- 4) Number of hours needed for actual emergency use.

The Division recommends that internal combustion engine utilized for emergency use should permit for a minimum of 100 hours of annual operations, but shall not exceed 500 annual hours of operation. Facilities that request for greater than 500 annual hours of emergency use operations need to discuss and receive approval from the Division. The Division will consider, on a case-by-case situation, other requested permitted annual hours of operations for emergency generators.



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**Performance Testing**

Once an authority-to-construct permit has been issued, performance tests (20 NMAC 11.90.11.2.6) may be required by the Division to demonstrate compliance of the emission rates stated in the permit. These performance tests shall be conducted at 90% of the unit's rated capacity. In cases where a unit is not permitted at the unit's rated capacity, performance tests shall be conducted at 90% of the permitted capacity or rate. Such tests must be performed in accordance to 20 NMAC 11.41.11.10 stated below:

**PERFORMANCE TESTING FOLLOWING STARTUP:** *Within sixty (60) days after achieving the maximum production rate in which the newly constructed or modified stationary source will be operated, but not later than one hundred eighty (180) days after initial startup of the newly constructed or modified source the owner or operator of the source may be required to conduct a performance test in accordance with methods and under operating conditions approved by the Department and to furnish the Department with a written report of the results of the test. The permittee shall allow a representative of the Department to be present at the test. The performance tests may have to be repeated until such time that compliance is demonstrated and testing is performed in a technically satisfactory manner. [3-24-82...7-21-87]*

The Division has developed a policy for performance testing of internal combustion engines. Refer to the table below for source testing requirements. The Division may require performance tests in addition to the testing requirements stated below to determine that the unit is in compliance with the specified emission rates stated in the permit. The Division may waive any required performance test. All performance tests shall be conducted in accordance with the "Test Methods" specified in 40 CFR 60, Appendix A.

Engine Horsepower	Fuel Type	Initial Performance Test	Annual Performance Test
<500	Diesel Natural Gas	No	No
500-999	Diesel Natural Gas	Yes	No
>1000	Diesel Natural Gas	Yes	Yes
<850	Dual-fuel	No	No
850-1299	Dual-fuel	Yes	No
>1300	Dual-fuel	Yes	Yes

To convert kW to mechanical horsepower, multiply kW by 1.341.  
Example: 373 kW \* 1.341 = 500 hp

To convert mechanical horsepower to kW, multiply hp by 0.74558.  
Example: 500 hp \* 0.74558 = 373 kW