

Internal Combustion Engines – Permitting Thresholds

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WALK MORE USE CFLS MORE CARPOOL MORE BIKE MORE RAKE MORE TELECOMMUTE MORE DRIVE HYBRIDS MORE CONSOLIDATE ERRANDS MORE RIDE PUBLIC TRANSPORTATION MORE USE ENERGY EFFICIENT APPLIANCES MORE CARRY REUSABLE TOTE BAGS MORE CONSIDER SOLAR MORE RUN COLD WATER CYCLES MORE USE REUSABLE CONTAINERS MORE CONSERVE ELECTRICITY MORE REDUCE WOODBURNING MORE RECYCLE MORE USE ELECTRIC LAWN AND GARDEN EQUIPMENT MORE REFUEL AFTER DARK MORE RIDE THE BUS MORE RIDE THE LIGHT RAIL MORE WALK MORE USE CFLS MORE CARPOOL MORE BIKE MORE RAKE MORE TELECOMMUTE MORE DRIVE HYBRIDS MORE CONSOLIDATE ERRANDS MORE RIDE PUBLIC TRANSPORTATION MORE USE ENERGY EFFICIENT APPLIANCES MORE CARRY REUSABLE TOTE BAGS MORE CONSIDER SOLAR MORE RUN COLD WATER CYCLES MORE USE REUSABLE CONTAINERS MORE CONSERVE ELECTRICITY MORE REDUCE WOODBURNING MORE RECYCLE MORE USE ELECTRIC LAWN AND GARDEN EQUIPMENT MORE REFUEL AFTER DARK MORE RIDE THE BUS MORE RIDE THE LIGHT RAIL MORE WALK MORE USE CFLS MORE CARPOOL MORE BIKE MORE RAKE MORE TELECOMMUTE MORE DRIVE HYBRIDS MORE CONSOLIDATE ERRANDS MORE RIDE PUBLIC TRANSPORTATION MORE USE ENERGY EFFICIENT APPLIANCES MORE CARRY REUSABLE TOTE BAGS MORE WALK MORE USE CFLS MORE CARPOOL MORE

**CLEAN AIR
MAKE
MORE**



Permitting Process

- Determine whether a permit is required (Rule 200 303)
 - An air permit is required unless exempted by Rule 200 303.3.c
- Is the activity considered insignificant or trivial
 - Insignificant and Trivial Activities: Appendix D, E

Permit Exemptions Internal Combustion Engines

- IC engines ≤ 50 hp
- IC engines with a max accumulative rating ≤ 250 hp
- Emergency engines w/ combined emissions < 2 tpy NO_x & CO @500 hours operation
- Non-road engines

Note

- Any source that is exempt from obtaining a Non-Title V permit according to this section shall still comply with all other applicable local, state and federal requirements

Non-Road Engines are exempt from permitting requirements

- Non-Road Engines:
 - In or on equipment that is:
 - Portable
 - Intended to be propelled
 - Self propelled
 - At a single location/site for 12 months or less



Insignificant Activities

- IC engines < 50 hp
- Emergency engines w/ combined emissions < 2 tpy NOx & CO @500 hours operation

Trivial Activities

- Internal combustion (IC) engines used for landscaping purposes
- Emergency (backup) electrical generators at residential locations

Is an air permit required?

- Ten 45 hp engines
- Ten 45 hp engines and one 100 hp engine
- 1000 hp trailer mounted air compressor
- Two 100 hp engines
- 500 hp emergency engine that is run for maintenance purposes for less than 10 hours per year

**CLEAN AIR
MAKE
MORE**

WALK MORE USE CFLS MORE
ERRANDS MORE RIDE PURPLE
MORE CONSIDER SOLAR
REDUCE WOODBURNING
MORE RIDE THE BUS MORE

Examples - 2

FOR MORE CONSOLIDATE
REUSABLE TOTE BAGS
ELECTRICITY MORE
REFUEL AFTER DARK
RAKE MORE



Exhaust Emission Data Sheet 350DFEG 60 Hz Diesel Generator Set EPA Emissions: Tier 2

Engine Information:			
Model:	Cummins Inc. QSX15-G9 Nonroad 2	Bore:	5.39 in. (137 mm)
Nameplate BHP @ 1800 RPM:	755	Stroke:	6.65 in. (169 mm)
Type:	4 Cycle, In-Line, 6 Cylinder Diesel	Displacement:	912 cu. in. (14.9 liters)
Aspiration:	Turbo-charged with air-to-air charge air cooling		
Compression Ratio:	17:1		
Emission Control Device:	Turbocharged with Charge Air Cooled		

	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Full</u>	<u>Full</u>
PERFORMANCE DATA	Standby	Standby	Standby	Standby	Prime
Engine HP @ Stated Load (1800 RPM)	150	273	397	520	478
Fuel Consumption (gal/hr)	9.1	14.6	19.4	24.3	22.8
Exhaust Gas Flow (CFM)	1150	1720	2280	2610	2540
Exhaust Temperature (°F)	680	785	820	810	815
EXHAUST EMISSION DATA					
HC (Total Unburned Hydrocarbons)	0.23	0.10	0.07	0.06	0.06
NOx (Oxides of Nitrogen as NO2)	2.90	3.20	3.70	4.35	4.15
CO (Carbon Monoxide)	0.60	0.45	0.30	0.54	0.36
PM (particular Matter)	0.11	0.06	0.05	0.05	0.05
Smoke (Pierburg)	0.50	0.55	0.55	0.50	0.51

All values are Grams per HP-Hour

Examples - 2 continued

- NOx = 4.35 g/hp-hr at full standby
- Engine = 520 hp at full standby

NOx emissions @ 500 hours/yr =
(4.35 g/(hp-hr)) (0.0022 lb/g) (520 hp)
(500 hr/yr) = 2488 lb/yr