San Luis Obispo County Air Pollution Control District - Agricultural Operation Actual Emissions Calculator

Senate Bill 700 (Florez) removed the permit exemption for agricultural operations from California Law effective January 1, 2004. Any agricultural operation with actual emissions greater than 50 tons per year (tpy) of a criteria air pollutant should apply for an air district permit. The calculations below focus on the emission of oxides of nitrogen (NOx) and volatile organic compounds (VOC). Completion of this form is intended to allow a member of the farm community to independently estimate their actual emissions. If the calculations performed here result in an estimate of greater than 50 tpy for either NOx or VOC, you should contact the David Dixon at the Air Pollution Control District at 805-781-5912 to discuss the need to submit a permit application.

Part I - Portable and Stationary Engines rated at 50 horsepower or more, excluding mobile equipment such as tractors, harvesters, etc.

		A		B	C	D	AxBxC	AxBxD
Engine (a)	Fuel Type	Annual Fuel Usage	Fuel Usage Units	Conversion Factor	NOx Emission Factor (b)	VOC Emission Factor (b)	NOx (lb/yr)	VOC (lb/yr)

Notes:
(a) Engines may be grouped by usage and/or emission factor to reduce the number of calculations.
(b) Emission Factors in grams per brake horsepower-hour: Pre-1996 diesel based on SLOCo Carl Moyer Program experience. Nat gas based on AP-42, Table 3.2-3, dated 1/95. Gasoline based on AP-42, Table 3.3-1, dated 10/96. Use manufacturer's data instead if known.

Fuel Specific Variables

Fuel	Usage Units	Conversion Factor
diesel	gallons/yr	0.0431
nat gas	therms/yr	0.0230
gasoline	gallons/yr	0.0424

dsl = 137000Btu/gal / 7000Btu/hp-hr / 454g/lb
ng = 2.3lb/mmBtu / 0.022lb/hp-hr / 454g/lb
x 0.1mmBtu/therm
gas = 1.63lb/mmBtu / 0.011lb/hp-hr / 454g/lb
x 0.13mmBtu/gal

Emission Factors (g/bhp-hr)

Engine	Fuel	NOx	VOC
pre-1996	diesel	10.0	1.13
post-1996	diesel	6.9	1.13
all	nat gas	10.0	0.14
all	gasoline	5.0	6.81

Part II - Gasoline Storage Tanks greater than 250 gallons in capacity

	A	B	AxB
Number of Gasoline Tanks	Total Annual Throughput (gallons)	VOC Emission Factor (lb/gallon/yr)	VOC (lb/yr)
		0.0195	

Note: Emission factor based on AP-42, Table 5.2-7, dated 1/95.

Part III - Confined Animal Facilities (CAFs)

	A	B	AxB
Type of Operation	Total Number	VOC Emission Factor (lb/unit/yr)	VOC (lb/yr)
Dairy: milk cow units		12.8	
Poultry: laying + broiler chickens		0.192	

Note: Emission factor based on SJVUAPCD research.

Part IV - Heaters and Boilers

		A		B	C	AxB	AxC
Heater/ Boiler (a)	Fuel Type	Annual Fuel Usage	Fuel Usage Units	NOx Emission Factor	VOC Emission Factor	NOx (lb/yr)	VOC (lb/yr)

Notes:
(a) Combustion devices may be grouped by usage and/or emission factor.
(b) Emission Factors: Diesel factors based on AP-42, Tables 1.3-1&3, dated 9/98. Natural gas factors based on AP-42, Table 1.4-1, dated 2/98. Use manufacturer's data instead if known.

Emission Factors

Fuel	Usage Units	NOx Emission Factor (b)	VOC Emission Factor (b)	Emission Factor Units
diesel	gallons/yr	0.020	0.00034	lb/gallon
nat gas	therms/yr	0.0098	0.00054	lb/therm

Part V - Total Estimated Potential to Emit

	A	B	C	D	E	(A+B+C+D) / E
	Engines	Gasoline Tanks	CAFs	Heaters/Boilers	Conversion Factor	tons/year
NOx					2000 lb/ton	
VOC					2000 lb/ton	

Abbreviations:

lb = pound
yr = year
ft = feet
mmBtuh = million British thermal units per hour
g/bhp-hr = grams per brake horsepower hour
NOx = oxides of nitrogen
VOC = volatile organic compounds

If the calculations performed here result in an estimate of greater than 50 tpy for either NOx or VOC, you should contact the David Dixon at the Air Pollution Control District at 805-781-5912 to discuss the need to submit a permit application.