

Form B1 - Permitted Emissions From Fuel Combustion in Boilers, Ovens, Furnaces and Heaters

Note: DO NOT report RECLAIM NOx and SOx emissions on this form. Instead use Form CR. Please refer to the General Instruction Book under Frequently Asked Questions for guidance on reporting either RECLAIM or non-RECLAIM emissions. Report all permitted cogeneration or resource recovery fuel usage on Form E1. **Fuel combustion results in toxics emissions. These toxics emissions must be reported on Form TAC. Incinerator process PM emissions have to be reported on Forms B4/B4U.**

Facility Name and ID No.: Please fill in your facility name and facility ID number in the designated spaces, exactly as indicated on Form X (Signature Sheet) in your package.

Equipment, Fuel Codes and Fuel Usage: Fill in the appropriate equipment code in column (a), fuel code in column (b), and the fuel usage (for six-month: 7/1/07-12/31/07) in column (c). **Please use a separate row for each fuel/equipment combination and emission factor.** Select equipment code based on the size of your equipment. If you do not know the size of your equipment, use <10 MMBTU as a default. If fuel usage is not measured separately (i.e., one common fuel meter for several equipments), then use the equipment sizes or ratings (i.e., BTU per hour) to distribute fuel usage for each equipment type (see example for Form B1 in Appendix O of the General Instruction Book). **Please use proper units (i.e., mmscf for gaseous fuels and 1000 gallons for liquid fuels)**

Equipment Code	Equipment Type	Equipment Code	Equipment Type	Equipment Code	Equipment Type	Equipment Code	Equipment Type
1a	Boiler <10 MMBTU/HR	3a	Dryer <10 MMBTU/HR	5a	Heater <10 MMBTU/HR	7a	Afterburner <10 MMBTU/HR
1b	Boiler 10-100 MMBTU/HR	3b	Dryer 10-100 MMBTU/HR	5b	Heater 10-100 MMBTU/HR	7b	Afterburner 10-100 MMBTU/HR
1c	Boiler >100 MMBTU/HR	3c	Dryer >100 MMBTU/HR	5c	Heater >100 MMBTU/HR	7c	Afterburner >100 MMBTU/HR
2a	Oven <10 MMBTU/HR	4a	Furnace <10 MMBTU/HR	6	Flare (Non-Refinery)	9	Incinerator
2b	Oven 10-100 MMBTU/HR	4b	Furnace 10-100 MMBTU/HR				
2c	Oven >100 MMBTU/HR	4c	Furnace >100 MMBTU/HR				

Fuel Code	Fuel Type
1	Natural Gas (mmscf)
2	LPG, Propane, Butane (1000 gals)
3	Diesel / Distillate Oil (1000 gals)
4	Gasoline (10 RVP) (1000 gals)
5	Landfill Gas (mmscf)
6	Digester Gas (mmscf)

Fuel Code	Fuel Type
7	Residual Fuel Oil (1000 gals)
8	Fuel Oil [0.05% S] (1000 gals)
9	Refinery Gas/Refinery Mixed Gas/Petroleum Process Gas (mmscf)
10	Jet Fuel (Jet-A and Jet-B) (1000 gals)
11	Compressed Natural Gas [CNG] (1000 gals)
12	Coal (tons)

Fuel Code	Fuel Type
13	Coke (tons)
14	Tire (tons)
15	Wood (tons)
16	Bio-Diesel (1000 gals)
17	Biomass Derived Gas (mmscf)
18	Methanol (1000 gals)

Fuel Code	Fuel Type
19	Kerosene (1000 gals)
20	Process Associated Gas (mmscf)
21	Municipal Solid Waste (tons)
22	Lignite (tons)
23	Bark (tons)
24	Spent Solvent (1000 gals)

Emission Factors: Write the appropriate emission factors for each fuel/equipment combination in the small box in the upper right-hand corner of every cell. Please use correct units for each of the factors (e.g., the emission factor for gaseous fuels should be in lbs/mmscf and for liquid fuels in lbs/1000 gallons). Use emission factors which most accurately reflect emissions from your equipment. You must use the available equipment-specific emission factors even if these factors are higher than the default emission factors, listed in Table 1 below. All emission factors (except default emission factors listed in Table 1) must be supported with documentation which should be attached to the completed report. Preference for use of emission factors should be in the following order:

- Continuous emissions monitoring (CEMS) data (if applicable). You must submit CEMS summary data.
- Source tests pre-approved by AQMD (if applicable). You must submit a copy of the source test results and supporting data.
- Rule or permit emission factors or Best Available Control Technologies (BACT) emission levels (if applicable). You must submit a list of equipment by rule and by permit number that comply with the rule or permit limit, or comply with the BACT levels. NOx emission factors for boilers subject to Rules 1146 and 1146.1 are listed in Table 2, below. These factors apply to boilers complying with emission limits in Rule 1146 or Rule 1146.1, not to boilers which only comply with the low-fuel use provisions of paragraph (c)(2) of both Rules.
- Other available data (e.g., manufacturer's data) with supporting documentation. Default emission factors that represent uncontrolled emissions are listed in Table 1, below. For refinery gas, you may use EPA Document AP-42. Default emission factors should only be used if no other emission factors are available.

Example 1 : If your natural gas boilers comply with Rule 1146, you must use the appropriate NOx emission factor. Emission factor based on Rule 1146 for NOx is listed in Table 2, below. That emission factor will be lower than the default factor resulting in overall lower emissions. If you have source tests pre-approved by AQMD for the same boiler, you must use resulting emission factors and enclose supporting documentation.
 Example 2 : If the equipment has preheated combustion air and the NOx emission factor is higher than the default factor, you must use the actual factor even if it results in higher emissions.

Emissions: Calculate the emissions for each pollutant by multiplying the fuel usage by the emission factor for each pollutant using the appropriate units. Enter the calculated emissions in the corresponding cell for each pollutant.

Subtotal Emissions: If you use more than one Form B1, indicate in the space provided the page number and the total number of B1 Forms. For example, if you use 4 forms, indicate in the boxes - page 1 of 4, page 2 of 4, etc. Total the emissions for each column (on each page) and place the total on Line 1, Subtotal Emissions (lbs).

Sum of Subtotals: Complete Lines 2 and 3 only on the last page of Form B1. On Line 2 enter the sum of the subtotals from Line 1 of all B1 forms. To convert the totals to tons, divide pounds by 2000, round to two (2) decimal places and enter the total emissions (tons) on Line 2. Transfer the totals (tons) to Form C, Line 1 in the respective columns.

Table 1: Default emission factors For EXTERNAL Combustion Equipment

Fuel	Organic Gases	Methane	Nitrogen Oxides	Sulfur Oxides	Carbon Monoxide	Particulate Matter
Natural Gas (mmscf) - Boilers Only	5.50	2.30	100.00	0.60	84.00	7.60
Natural Gas (mmscf) - Other Equipment	7.00	2.30	130.00	0.60	35.00	7.50
LPG, Propane, Butane (1000 gal.)	0.26	0.28	12.80	4.60	3.20	0.28
Diesel / Distillate Oil (1000 gal.)	1.32	0.05	20.00	7.10	5.00	2.00

Table 2: Rules 1146/1146.1 Compliant Emission Factors

Fuel	Nitrogen Oxides
A) E.F. based on Rule 1146 Compliance	
Natural Gas (mmscf)	49.80
LPG, Propane, Butane (1000 gal.)	4.50
B) E.F. based on Rule 1146.1 Compliance	
Natural Gas (mmscf)	37.40
LPG, Propane, Butane (1000 gal.)	3.40