



**FORM EU1: INTERNAL COMBUSTION ENGINE INFORMATION** (Please see instructions on reverse side.)  
 For Engine Test Cells or Test Stands, use Form EU. For engines equipped with a DOC, NSCR, or SCR, also submit a control equipment form. 

Company Name: \_\_\_\_\_

**ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS**

1. Date of on-site installation: \_\_\_\_\_
2. Emission Unit (EU) ID: \_\_\_\_\_ 3. Emission Unit Name: \_\_\_\_\_
4. Type:  New Engine  Unpermitted Existing Engine  Modification to the Engine with Construction Permit No.: \_\_\_\_\_
5. Use of Engine: (Check all that apply)  Non-emergency  Emergency  Black Start  
 Emergency with Local Reliability  Fire Pump
6. Engine's Rated Power:  brake horsepower: \_\_\_\_\_  kilowatts: \_\_\_\_\_  
 MMBTU/hr: \_\_\_\_\_
7. Engine Ignition Type:  Compression Ignition (CI)  Spark Ignition (SI)
8. Model Year: \_\_\_\_\_ 9. Manufacturer: \_\_\_\_\_
10. Model Number: \_\_\_\_\_ 11. Date engine was manufactured: \_\_\_\_\_
12. Date of Modification (if applicable): \_\_\_\_\_
13. For CI engines only: Displacement per cylinder (liters): \_\_\_\_\_
14. For SI engines only:  2-stroke  4-stroke
15. For SI engines only:  Rich burn  Lean burn
16. Engine's Crankcase Ventilation:  Open Crankcase Ventilation  Closed Crankcase Ventilation
17. Engine certified to EPA Tier Standard?  Yes  No  
 If yes, provide Tier No.:  Tier 1  Tier 2  Tier 3  Tier 4 Interim  Tier 4 Final
18. If engine is certified, include a copy of the Certificate of Conformity and manufacturer's technical information. If engine is not certified, include a copy of manufacturer's technical information (if available).  
 Attachments:  Certificate of Conformity  Manufacturer's technical information

**OPERATING LIMITS**

19. Are you requesting operating limits for the engine?  Yes  No If yes, provide the requested limit:  
 \_\_\_\_\_ hours/year \_\_\_\_\_ gallons/year  
 \_\_\_\_\_ MM Cubic feet/year Other: \_\_\_\_\_

**FUEL DESCRIPTION AND SPECIFICATIONS**

20. Fuel Type	<input type="checkbox"/> Diesel Fuel	<input type="checkbox"/> Gasoline Fuel	<input type="checkbox"/> Natural Gas	<input type="checkbox"/> Other Fuels (identify: _____)
21. Full Load Consumption Rate	gal/hr	gal/hr	cf/hr	cf/hr
22. Sulfur Content		Not Applicable	Not Applicable	

**CONTROL EQUIPMENT**

23. Control Equipment:  Yes  No If yes, fill out appropriate CE Form and provide CE ID: \_\_\_\_\_

**EMISSION POINT**

24. Emission Point (EP) ID: \_\_\_\_\_

## Instructions for Form EU1: Internal Combustion Engine Information

- An EU1 form needs to be completed for EACH engine.
- Use Form EU for test stands or test cells used to test engines.

**Exemption:** According to IAC 567 22.1(2)"r", an internal combustion engine with a brake horsepower rating of less than 400 is exempted from needing a construction permit. However, if the engine was installed or built after March 18, 2009, the exemption requires the owner or operator to submit an engine registration form. Use Form 542-0590 (Registration for Stationary Compression Ignition Internal Combustion Engines) for a diesel engine. Use Form 542-0591 (Registration for a Stationary Spark Ignition Internal Combustion Engines) for a spark ignition (SI) engine.

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### Understanding EU1 Form Information: Each number provides an explanation for the corresponding field on the form.

**Company Name:** This is useful if application pages become separated.

#### Engine Description and Specifications

1. **Date of On-Site Installation:** The date when on-site installation of the engine began or will begin. Provide the month and year for new engines. Provide as much information as available for already installed engines.
2. **Emission Unit (EU) ID:** called the emissions unit (EU) identification (ID). Each engine in the application must have its own identifier. It can be any combination of letters or numbers up to 16 characters in length. The ID should match the ID for this equipment used on other construction permit applications and within this application. If also submitting an operating permit application, the ID used in this application should be consistent with those used in the operating permit application.
3. **Emission Unit Name:** Provide the name of the emission unit, such as "Emergency Engine #1".
4. **Type: New Engine** for an engine intended to be installed at the site, or **Unpermitted Existing Engine** for an engine already installed at the site. If the engine is being modified, provide the most recent construction permit number.
5. **Use of engine** -- check all that apply:
  - a. **Non-emergency:** engine used as a primary power source for equipment. Also, an engine used to provide peaking power, back-up power, or standby power. Engines used in curtailment programs or load management are considered non-emergency engines.
  - b. **Emergency:** engines only operated in emergency situations or for required testing and maintenance. An emergency is an unforeseeable condition beyond the control of the owner or operator. See definitions in 40 CFR §60.4219 and in 40 CFR §60.4248 for examples.
  - c. **Black start:** an engine with the sole purpose of starting a combustion turbine.
  - d. **Emergency with local reliability:** emergency engines also used to support the electrical grid if required by local power transmission and distribution system operator. Local reliability is not the same as curtailment or load management.
  - e. **Fire pump:** an emergency engine certified to NFPA requirements to provide power to pump water for fire suppression or protection.
6. **Engine's Rated Power:** Provide either the rated power in brake horsepower or kilowatts. The rated power of the engine should be read from the engine's nameplate or manufacturer literature. If the engine is connected to an electrical generator, use the rating for the engine and not the generator.
7. **Engine Ignition Type:** Engines that burn diesel fuel oil are compression ignition (CI) engines. Engines that burn other fuels are spark ignition (SI) engines. Dual fuel engines are considered CI engines.
8. **Model Year:** The calendar year that the engine was built or the annual new model production period of the engine manufacturer.
9. **Manufacturer:** Provide the name of the manufacturer of the engine.
10. **Model Number:** The model number should be on the nameplate of the engine.
11. **Date Engine was Manufactured:** This is the date the engine was built by the manufacturer.

12. **Date of Modification:** Provide the month and year of the last modification. In the case of a proposed modification, provide the best estimate of the modification date. For the purpose of this form, "Modification" means any physical change or change in the method of operation of any existing equipment or control equipment.
13. **For CI Engines:** For a CI engine, the displacement per cylinder in liters. This is the displacement of one cylinder, not the engine's total displacement.
14. **For SI Engines:** Indicate whether the engine's combustion cycle is **2-stroke or 4-stroke**.
15. **For SI engines:** Indicate whether the engine is **rich burn or lean burn**. For rich burn engines, the recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load is less than or equal to 1:1. See definition from 40 CFR §60.4248.
16. **Engine's Crankcase Ventilation:** Indicate if the engine has an open crankcase ventilation system or a closed crankcase. An open crankcase vents blowby gases to the atmosphere; a closed crankcase vents the blowby gasses back to engine's intake manifold.
17. **Certified to an EPA Tier Standard:** Since 1996, EPA requires manufacturers of new engines to meet certain emission standards, called Tiers. The engine's Tier number can be obtained from the engine's manufacturer or dealer.
18. **Certified Engines:** Starting in 2007, all new CI engines must be certified. If the engine is certified, please include the following information with the application:
  - a. **The Certificate of Conformity:** this is a certification from EPA to the engine manufacturer that the engine complies with the Tier Standard; and
  - b. **Manufacturer's technical information.**
 If the engine is not certified, include the manufacturer's technical information on the engine.

### Operating Limits

19. If you wish to have permit limits placed on the emission unit, mark "Yes." Then, provide the requested limit in the units of operating hours per year or gallons of fuel burned per year. If you are not sure about a requested operating limit, contact the Air Quality Bureau at 1-877-AIR-IOWA.

### **Fuel Description and Specifications:**

20. **Fuel Type:** Identify the fuel type used by the engine. If the engine is a dual-fuel engine, check all appropriate fuel type boxes (e.g. natural gas and diesel). Other fuels would include: propane, digester biogas or landfill gas.
21. **Full-Load Consumption Rate:** The fuel consumption rate at the engine's rated capacity.
22. **Sulfur Content:** Provide the sulfur content in the fuel burned in either ppm or % by weight. It is not necessary to provide the sulfur content of gasoline or natural gas. For diesel fuel and natural gas, the fuel supplier can provide the sulfur content of the fuel.

### Control Equipment and Emission Point

23. **Control Equipment:** Indicate if the engine is equipped with air pollution control equipment. Examples of control equipment include diesel oxidation catalyst, selective catalytic reduction, and diesel particulate filters.
24. **Emission Point (EP) ID:** Called the emission point (EP) identification (ID). It can be any combination of letters or numbers up to 16 characters in length. The ID should match the ID for this equipment used on other construction permit applications and within this application. If also submitting an operating permit application, the ID used in this application should be consistent with those used in the operating permit application.