DNR Use Only	Con 10-1 Initials
	Facility No:
	CP/CI Doc Date

IOWA DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY BUREAU
REGISTRATION FOR

Stationary Spark Ignition Internal Combustion Engines less than 400 brake horsepower

Instructions: Completion of this form is intended to allow facilities to qualify for an exemption from the requirement to obtain an air construction permit, and is also intended to assist facilities in complying with federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). Only facilities meeting all of the following conditions may use this form:

- The facility owner or operator is planning to install, modify, or reconstruct a stationary spark ignition internal combustion engine (SI engine[1]) that is rated less than 400 brake horsepower (bhp) **after** March 18, 2009.
- The facility owner or operator is choosing to use the 400 bhp exemption for the SI engine [567 Iowa Administrative Code (IAC) 22.1(2)"r"]. Alternatively, the owner or operator must apply for an air construction permit for the SI engine as specified in 567 IAC 22.1(1), or must qualify for another exemption. An owner or operator planning to install, modify, or reconstruct an SI engine greater than or equal to 400 bhp must obtain a construction permit unless otherwise exempt, and may also be subject to NSPS and NESHAP requirements.
- The facility is not located in Linn or Polk Counties.

[1]*SI* engine is either a gasoline fueled engine or an engine with a spark plug (or other sparking device) and with operating characteristics similar to the theoretical Otto combustion cycle. SI engines typically use a throttle to regulate intake air flow to control power during operation. SI engines using alcohol-based fuels are considered gasoline engines. A diesel engine is not an SI engine.

If your facility meets the conditions above, prior to installing the SI engine, submit a completed registration form for each SI engine to: NSPS/NESHAP Coordinator, DNR Air Quality Bureau, 502 E 9th St, Des Moines IA 50319. ***Retain a copy of the completed form for your records. The registration becomes effective upon the DNR's receipt of this signed registration.***

Section 1 – Facility Information

Name of Firm/Company: _____ Facility Number (if known): _____

Facility Name (if different): _____

Equipment Location - Street: _____

City: _____ State: _____ Zip: _____

Mailing Address (if different): _____

City: _____ State: _____ Zip: _____

Contact Name: _____ Phone number: _____

Email (if available): _____

Section 2 – Applicability Determination

New Source Performance Standards (NSPS) - 40 Code of Federal Regulations (CFR) Part 60, Subpart JJJJ: Facility Applicability Questions (The provisions of this subpart are not applicable to SI engines being tested at a stationary test cell/stand or to temporary replacement engines that are at a facility for less than one year and are certified to comply with the emission standards.)

Emission Unit Number: _____ Description of Emission Unit: _____

1. Is this engine a portable engine that meets the definition of a nonroad engine in 40 CFR 1068.30?
   (A portable engine that will remain at a location more than 12 months or a portable engine that operates more than 3 months per year as part of a seasonal source that returns to the same location is considered a stationary engine. Please contact the Air Quality Bureau if you are unsure if the portable engine should be considered a stationary engine or a nonroad engine.)
   - ☐ No. Go to question 2.
   - ☐ Yes. Stop, this engine is not subject to Subpart JJJJ. You do not need to submit this registration.

2. Has this engine been modified or reconstructed after June 12, 2006?
   (A modification is a physical or operational change that can increase the emissions of a regulated air pollutant. Reconstruction is replacing the components on an existing engine and the cost of the replacement components exceeds 50% of the cost of a new engine. See 40 CFR 60.14 and 60.15 for complete definitions.)
   - ☐ No. Go to question 3.
   - ☐ Yes. This engine is subject to Subpart JJJJ. If the modification or reconstruction occurred after March 18, 2009, fill out the Engine Data section, read Sections 3 & 4 of this form, sign and date Section 5 and submit to the DNR.

3. Is this engine an emergency engine?
   (*Emergency stationary internal combustion engine* is a stationary ICE whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. Stationary SI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.)
   - ☐ No. Go to question 4.
   - ☐ Yes. Go to question 5.

4. Was the engine manufactured after July 1, 2008?
   - ☐ No. This engine is not subject to Subpart JJJJ. Go to question 6.
   - ☐ Yes. This engine is subject to Subpart JJJJ. Fill out the Engine Data section, read Sections 3 & 4 of this form, sign and date Section 5 and submit to the DNR.

5. Was the engine manufactured after January 1, 2009, and does it have a rating greater than 25 HP?
   - ☐ No. This engine is not subject to Subpart JJJJ. Go to question 6.
   - ☐ Yes. This engine is subject to Subpart JJJJ. Fill out the Engine Data section, read Sections 3 & 4 of this form, sign and date Section 5 and submit to the DNR.

6. Does the engine meet all of the following criteria: 1) manufactured after January 1, 2008; 2) a 4 stroke lean burn (4SLB) engine with a rating of 250 HP or greater; and 3) located at a major source of HAPs?
   - ☐ No. Stop, you do not need to submit this registration.
   - ☐ Yes. Fill out the Engine Data section, read Section 4 of this form, sign and date Section 5 and submit to the DNR.

Engine Data

Date of construction: _____ (The date of construction is the date the engine was ordered by the owner or operator.)

Has this engine been modified or reconstructed? ☐ Yes ☐ No If yes, please state the date: _____

Fuel(s) burned in the engine (check all that apply): ☐ Gasoline ☐ Natural Gas ☐ LPG

Is this engine certified by its manufacturer to meet the emissions standards of 40 CFR Part 60, Subpart JJJJ?

☐ Yes ☐ No

☐ Digester or Landfill Gas Engine Manufacturer: _____

☐ Other (specify fuel): _____ Model year[2]: _____ Brake horsepower (bhp): _____

If the engine is rated at 250 HP or greater, is the engine a 4 stroke lean burn engine? ☐ Yes ☐ No

[2]*Model year* is either: (1) the calendar year in which the engine was originally produced, or (2) the annual new model production period of the engine manufacturer if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For an engine that is converted to a stationary engine after being placed into service as a non-road or other non-stationary engine, model year means the calendar year or new model production period in which the engine was originally produced.

Section 3 – NSPS Requirements

Summary of Compliance Requirements for Owners and Operators

- Engines subject to Subpart JJJJ are required to meet emission standards. These standards are summarized in the appendix to this form. The engine must be operated and maintained to meet the applicable emission standards over the life of the engine.
- Engines that burn gasoline must meet gasoline sulfur standards of 30 ppm per gallon as a refinery or importer average and 80 ppm per gallon as a per-gallon cap. See 40 CFR 80.195.
- Engines that are modified or reconstructed must meet the emission limits specified in Table E of the appendix to this form. Owners and operators of these engines must also comply with what is required for a non-certified engine.

Engine Certification Requirements

- The following groups of SI engines <u>must</u> be certified by the manufacturer to comply with emission standards in the subpart: SI engines with a maximum engine power of less than 25 HP, SI engines that use gasoline and have a maximum engine power greater than 25 HP, and SI engines that use LPG, are rich burn engines and have a maximum engine power greater than 25 HP.
- Other groups of engines <u>may</u> be certified by the manufacturer to comply with the emission standards.

Requirements for Certified SI Engines

- Owners and operators of SI engines that are required to be certified and who operate and maintain the engine according to the manufacturer's written instructions must keep records of required maintenance.
- Owners and operators must keep a record from the manufacturer that the engine meets the emission standards.
- Owners and operators of SI engines that are not required to be certified may purchase an engine that is certified by the manufacturer to comply with the emission standards. The engine must be maintained according to the manufacturer's written instructions and records of required maintenance must be kept.
- Engines that are required to be certified that are not operated and maintained according to manufacturer's written instructions are considered to be non-certified engines. Owners and operators of such a non-certified SI engine must keep a maintenance plan and records of conducted maintenance and must maintain and operate the engine in a manner consistent with good air pollution control practice to minimize emissions. <u>An initial performance test is required if the engine is rated at 100 HP or greater.</u>

Requirements for Non-certified SI Engines

- Owners and operators of non-certified SI engines must keep a maintenance plan and records of conducted maintenance and must maintain and operate the engine in a manner consistent with good air pollution control practice to minimize emissions.
- Owners and operators must keep a record of the documentation that the engine meets the emission standards.
- Owners and operators of a non-certified SI engine that is rated at 100 HP or greater must conduct an initial performance test within 1 year of engine start-up. Testing must be done in accordance with 40 CFR 60.4244. Owners and operators are required to notify the DNR 30 days prior to the test date and are required to submit a stack test report to the DNR within 60 days after the test has been conducted.

Emergency Engine Requirements for Owners and Operators

- Owners and operators of an emergency SI engine that is 130 HP or greater and that was built on or after January 1, 2011 and that does not meet the applicable standards for a non-emergency engine must install a non-resettable hour meter.
- Owners and operators of an emergency SI engine that is less than 130 HP and that does not meet the applicable standards for a non-emergency engine must install a non-resettable hour meter upon start-up.
- The engine may be operated for the purpose of maintenance checks and readiness testing a maximum of 100 hours/year. There is no time limit on use for emergency situations.
- The engine may be operated for up to 50 hours per year for non-emergency purposes. This operating time cannot be used to generate income for the facility (e.g. supplying power to the grid) and should be included in the total of 100 hours allowed for maintenance checks and readiness testing.
- Owners and operators of an emergency engine must keep records of all operation of the engine. The owner must record the date and time of operation of the engine and the reason the engine was in operation.
- Owner and operators of natural gas SI engines may use propane as an alternative fuel for up to 100 hours per year during emergency operations.

Section 4 – NESHAP Requirements

A stationary spark ignition internal combustion engine that is installed, modified, or reconstructed after June 12, 2006, shall comply with the requirements of 40 CFR Part 63, Subpart ZZZZ by complying with the NSPS requirements of 40 CFR Part 60, Subpart JJJJ. There are no further requirements for such engines, with the following exception.

Owners and operators of 4 stroke lean burn (4SLB) engines with a rating of 250 HP or greater, manufactured on or after January 1, 2008, and located at a major source of HAP, must meet the following additional requirements:

- The emission standards and operating limits listed in Tables F and G of the appendix to this form. Compliance with the emissions standards must be shown through an initial performance test to be conducted 240 days after startup and subsequent semi-annual testing. Notification of the test must be submitted to the DNR at least 60 days prior to the test date and the test report must be submitted to the DNR within 60 days after the test date. Alternatively, a continuous emissions monitoring system (CEMS) to measure the CO concentration at the inlet and the outlet of the control equipment may be installed. The CEMS will comply with the requirements of Table 5 of 40 CFR Part 63, Subpart ZZZZ and 40 CFR 63.6625.
- Install a non-resettable hour meter on the engine prior to startup.
- Submit an initial notification to the DNR indicating the actual startup date of the SI engine within 15 days of startup. (Submittal of this registration form will fulfill the initial notification requirement.)
- Submit a notification of the compliance status of the SI engine in accordance with 40 CFR 63.9(h).

Section 5 – Disclaimer and Facility Certification

Summaries and other statements in this registration form are intended solely as guidance, cannot be used to bind the agency, and are not a substitute for reading applicable statutes, rules and regulations (including, but not limited to, 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 63, Subpart ZZZZ.) The federal regulations referenced in this form are available on-line at ***http://ecfr.gpoaccess.gov*** .

CERTIFICATION	
"I certify that the stationary spark ignition internal combustion engine identified in this completed registration form meets the permit exemption requirements of paragraph 567 Iowa Administrative Code (IAC) 22.1(2)"r," and that this engine is in compliance with the requirements of 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 63, Subpart ZZZZ. This certification is based on information and belief formed after reasonable inquiry, and the statements and information in the document are true, accurate, and complete."	
Signature	Date Signed
Print Name	Title

Appendix to DNR SI Engine Registration Form

Spark Ignition Engines Emission Standards
40 CFR Part 60, Subpart JJJJ

Table A. Emission Standards for Engines ≤ 19 kW (25 HP) **(based on 40 CFR 90.103)**

Limits in grams/kW-hr (grams/HP-hr)

Engine Class[1]	Manufacture Date	HC + NOx	NMHC + NOx[2]	CO
I – A	July 1, 2008+	50 (37)	-------	610 (455)
I – B	July 1, 2008+	40 (30)	37 (27.6)	610 (455)
I	July 1, 2008+	16.1 (12.0)	14.8 (11.0)	610 (455)
II	July 1, 2008+	12.1 (9.0)	11.3 (8.4)	610 (455)

[1]Class I-A: Engines with displacement < 66 cubic centimeters (cc); Class I-B: Engines with a displacement ≥ 66 cc and < 100 cc; Class I: Engines with displacement ≥ 100 cc and < 225 cc; Class II: Engines with a displacement ≥ 225 cc.
[2]NMHC + NOx standards are applicable only to natural gas fuel engines at the option of manufacturer in lieu of HC + NOx standards.

Table B. Emission Standards for Non-Emergency Gasoline and Rich Burn[3] LPG (liquefied petroleum gas) Engines > 19 kW (25 HP) and for Emergency Gasoline and Rich Burn LPG Engines ≥ 100 kW (130 HP) **(based on 40 CFR 1048.101 – see rule for alternative standards)**

Limits in grams/kW-hr (grams/HP-hr)

Maximum Engine Power	Manufacture Date[4]	HC + NOx	CO
19 < kW < 300 (25 < HP < 400) {100 ≤ kW < 300 for emergency engines}	July 1, 2008+	2.7 (2.0)	4.4 (3.3)
	July 1, 2008+ (severe duty[5])	2.7 (2.0)	130 (97.0)

[3]A rich burn engine is a four stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load is less than or equal to 1.1.
[4]Date of manufacture for emergency engines is January 1, 2009.
[5]Severe-duty engines are used in, for example, concrete saws, concrete pumps and similar severe applications where air-cooled engines must be used.

Table C. Emission Standards for Non-Emergency SI Internal Combustion Engines > 19 kW (25 HP) and < 75 kW (100 HP), Except for Gasoline and Rich Burn LPG Engines **(based on 40 CFR 1048.101 – see 40 CFR 60.4233(d) for alternative standard)**

Limits in grams/kW-hr (grams/HP-hr)

Maximum Engine Power	Manufacture Date	HC + NOx	CO
19 < kW < 75 (25 < HP < 100)	July 1, 2008+	3.8 (2.9)	6.5 (4.9)
	July 1, 2008+ (severe duty)	3.8 (2.9)	200 (149)

Table D. Emission Standards for Non-Emergency and Emergency SI Internal Combustion Engines ≥75 kW (100 HP) and <300 kW (400 HP), Except for Gasoline and LPG Rich Burn Engines (based on Table 1 to subpart JJJJ)

Limits are in grams per horsepower-hour and parts per million by volume dry at 15% O_2

Engine Type and Fuel	Maximum Engine Power	Manufacture Date	Emission Standards					
			g/HP-hr			ppmvd at 15% O_2		
			NOx	CO	VOC[6]	NOx	CO	VOC
Non-emergency natural gas and non-emergency lean burn LPG	100 ≤ HP < 400	July 1, 2008+	2.0	4.0	1.0	160	540	86
		January 1, 2011+	1.0	2.0	0.7	82	270	60
Landfill/digester gas	HP < 400	July 1, 2008+	3.0	5.0	1.0	220	610	80
		January 1, 2011+	2.0	5.0	1.0	150	610	80
Emergency	25 < HP < 130	January 1, 2009+	10[7]	387	N/A	N/A	N/A	N/A
	HP ≥ 130	January 1, 2009+	2.0	4.0	1.0	160	540	86

[6]Formaldehyde emissions are not included
[7]Limit for HC + NOx

Table E. Emission Standards for Modified or Reconstructed SI Engines (based on Part 60, subpart JJJJ - §60.4233(f)(1) through (f)(5))

Maximum Engine Power	Engine Type/Fuel	Emission Standards		
kW ≤ 19 (HP ≤ 25)	All	Same as Table A		
kW > 19 (HP > 25)	Gasoline	Same as Table B and Table D		
kW > 19 (HP > 25)	Rich burn LPG	Same as Table B and Table D		
19 < kW < 75 (25 < HP < 100)	Emergency natural gas or lean burn LPG	Same as Table C		
75 ≤ kW < 97.5 (100 ≤HP < 130)	Emergency natural gas or lean burn LPG	Same as Table D		
		g/HP-hr (ppmvd @ 15%O_2)		
		NOx	CO	VOC
97.5 ≤ kW < 300 (130 ≤ HP < 400)	Emergency natural gas or lean burn LPG	3.0 (250)	4.0 (540)	1.0 (86)
kW > 19 (HP > 25)	Non-emergency natural gas or lean burn LPG	3.0 (250)	4.0 (540)[8]	1.0 (86)
kW > 19 (HP > 25)	Landfill/digester gas	Same as Table D		

[8]Limit is 5.0 g/HP-hr (675 ppmvd) for non-emergency engines rated at less than 100 HP (75 kW).

Table F. Emission Standards for 4SLB SI Engines, With a Rating Greater Than 250 HP, Located at Major Sources of HAPs (based on Table 2a to Part 63, subpart ZZZZ)

Engine Type	Emission Standards
4-Stroke lean burn	Reduce CO emissions by 93% or more [9]; or formaldehyde emissions not to exceed 14 ppmvd at 15% O_2

[9]Engines meeting this limit do not need to also comply with the CO limit from Subpart JJJJ.

Table G. Operating Limits for 4SLB SI Engines, With a Rating Greater Than 250 HP, Located at Major Sources of HAPs
(based on Table 2b to Part 63, subpart ZZZZ)

Control Type	Operating limit
Oxidation catalyst for CO or formaldehyde control	Maintain catalyst so that pressure drop does not change by more than 2 inches H_20 at 100 % load plus or minus 10% from the pressure drop measured during initial stack test; and maintain exhaust temperature so that the catalyst inlet temperature is between 450° F and 1350°F.
Not using an oxidation catalyst for CO or formaldehyde control	Comply with operating limits approved by Administrator

Description of Terms and Acronyms

CO	Carbon Monoxide
HAP	Hazardous Air Pollutant(s)
HC	Hydrocarbon
NMHC	Non-methane hydrocarbon
NO_X	Nitrogen Oxides
VOC	Volatile Organic Compound