



# Connecticut Department of Energy and Environmental Protection



# National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE Rule)



**40 CFR 63 Subpart ZZZZ**  
**Area Source New Emergency Engine  $\leq 500$  Horsepower**



Connecticut Department of Energy and Environmental Protection

# Compliance Requirements

You must comply with either the Compression Ignition (CI) or Spark Ignition (SI) New Source Performance Standards (NSPS), as applicable, upon startup.



Photo credit: EPA



Connecticut Department of Energy and Environmental Protection

## You are subject to the CI NSPS (40 CFR 60 subpart IIII) if your emergency CI engine was:

–Constructed (**ordered\***) after July 11, 2005 **AND** manufactured after April 1, 2006 (July 1, 2006 for fire pump engines)

OR

–Modified/reconstructed after July 11, 2005

\*NOTE: For the purposes of this rule, the date that construction commences is the date the engine is ordered by the owner or operator.



# Compression Ignition New Source Performance Standards (CI NSPS)

**If you are subject to the CI NSPS, you must meet these requirements:**

**Emission and Operating Limits, Testing Requirements, Monitoring Requirements:**

- See Table (later in the module)
- Must meet these standards for the life of the engine

**Fuel Requirements:**

- As of October 1, 2007 – 500 ppm sulfur diesel (LSD)
- As of October 1, 2010 – 15 ppm sulfur diesel (ULSD) for engines <30 l/cyl displacement
  - You may use up any diesel fuel acquired prior to October 1, 2010 that does not meet the requirements for nonroad diesel fuel.
- As of June 1, 2012 – 1,000 ppm sulfur diesel for engines  $\geq$ 30 l/cyl displacement



# Compression Ignition New Source Performance Standards (CI NSPS)

## If you are subject to the CI NSPS, you must meet these requirements:

### Compliance Requirements:

- If you have 2007 model year or later engine with displacement <30 l/cyl or a fire pump engine, 2008-2011 model year or later, depending on engine size:
  - Purchase certified engine
  - Install, configure, operate and maintain engine per manufacturer's instructions/procedures
    - Performance testing not required
    - Can operate differently than manufacturer's recommendations, but must then do performance test to show compliance
- Engines not required to be certified (Choose 1 of the following to demonstrate compliance):
  - Purchase certified engine
  - Keep records of performance test conducted on similar engine
  - Keep records of engine manufacturer data indicating compliance
  - Keep records of control device vendor data indicating compliance
  - Conduct initial performance test
- Engines  $\geq 30$  l/cyl displacement:
  - Initial performance test
  - Continuously monitor operating parameters



# Compression Ignition New Source Performance Standards (CI NSPS)

## Recordkeeping/Reporting:

- Install non-resettable hour meter and record hours of operation
- If engine is equipped with diesel particulate filter (DPF):
  - Install backpressure monitor and keep records of corrective actions



Emergency CI Engine Category	Date Constructed/ Reconstructed/ Manufactured	Emission Standards <sup>a,b,c,d</sup>	Importing/ Installing Requirements	Compliance Requirements	Testing Requirements	General Provisions (40 CFR part 60)
Pre-2007 model year <10 l/cyl (except fire pump engines)	Commenced construction after 7/11/2005 and manufactured after 4/1/2006	60.4205(a) Table 1	60.4208(a), (b), (h), (i)	60.4211(a), (b), (f), (g)	60.4212	Table 8
Pre-2007 model year 10 l/cyl ≤ displacement < 30 l/cyl (except fire pump engines)		60.4205(a) 40 CFR 94.8(a)(1)				
2007 model year and later <30 l/cyl (except fire pump engines)		60.4205(b) 60.4202				
Fire pump engines <30 l/cyl manufactured prior to the model years in Table 3 of 40 CFR part 60, subpart III	Commenced construction after 7/11/2005 and manufactured as a certified NFPA fire pump engine after 7/1/2006	60.4205(c) Table 4	60.4208(h), (i)	60.4211(a), (b), (f), (g)		
Fire pump engines <30 l/cyl manufactured during or after the model year that applies to your fire pump engine power rating in Table 3 of 40 CFR part 60, subpart III				60.4211(a), (c), (f), (g)		
≥30 l/cyl (except fire pump engines)	Commenced construction after 7/11/2005 and manufactured after 4/1/2006	60.4205(d)(1) and (2)	60.4208(a), (b), (h), (i)	60.4211(a), (d), (f), (g)		
Modified/Reconstructed <30 l/cyl	Modified or reconstructed after 7/11/2005	<u>Pre-2007 Model Year:</u> 60.4205(a)	60.4208(i)	60.4211(a), (e), (f), (g)	60.4212 60.4204(e)	
Modified/Reconstructed ≥30 l/cyl		<u>2007 Model Year and Later:</u> 60.4205(b)				
		60.4205(d)(1)-(3)			60.4213	

<sup>a</sup>Per 60.4200(e), facilities with ICE that are acting as temporary replacement units and that are located at a stationary source for <1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this rule with regard to such engines' requirements in 40 CFR 60.4207.

<sup>b</sup>Per 60.4215(a), ICE with a displacement of <30 l/cyl that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §60.4202 and §60.4205.

<sup>c</sup>ICE with a displacement of ≥30 l/cyl that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the emission standards in 60.4215(c).

<sup>d</sup>Special requirements apply to engines used in Alaska. Please refer to 60.4216 for the specific requirements that apply.



# Spark Ignition New Source Performance Standards (SI NSPS)

You are subject to the SI NSPS (40 CFR 60 subpart JJJJ) if your emergency SI engine was:

–Constructed (**ordered\***) after June 12, 2006 **AND** either: >25 HP manufactured on/after January 1, 2009 or ≤25 HP and manufactured on/after July 1, 2008

OR

–Modified/reconstructed after June 12, 2006

\*NOTE: For the purposes of this rule, the date that construction commences is the date the engine is ordered by the owner or operator.



Connecticut Department of Energy and Environmental Protection

# Spark Ignition New Source Performance Standards (SI NSPS)

If you are subject to the SI NSPS, you must meet these requirements:

•**Emission and Operating Limits, Testing Requirements, Monitoring Requirements:**

- See Table (later in this module)
- Must meet these standards for the life of the engine

•**Fuel Requirements:**

- Gasoline engines must use gasoline that meets the sulfur limit in 40 CFR 80.195 – cap of 80 ppm

•**Compliance Requirements:**

•If you have a *certified* engine:

- Install, operate, and maintain engine according to manufacturer's instructions
- If you do not operate/maintain according to manufacturer's instructions for engines  $\geq 100$  HP:
  - Keep maintenance plan and maintenance records, operate consistent with good air pollution control practices
  - Initial performance test and retest if engine is rebuilt or undergoes major repair or maintenance

•If you have a *non-certified* engine  $>25$  HP:

- Maintenance plan
- Initial performance test and retest if engine is rebuilt or undergoes major repair or maintenance



# Spark Ignition New Source Performance Standards (SI NSPS)

If you are subject to the SI NSPS, you must meet these requirements:

## •Monitoring Requirements:

### •Install non-resettable hour meter if:

- 500 HP built on/after July 1, 2010
- 130≤HP<500 built on/after January 1, 2011
- <130 HP built on/after July 1, 2008

## •Recordkeeping/Reporting:

- Documentation of certification (EPA Certificate of Conformity)
- Records of engine maintenance
- Records of hours of operation
- Initial notification for non-certified engines with HP=500
- Notification of Intent to Conduct Performance Testing 30 days prior to test
- Results of performance testing within 60 days of test



Photo credit: EPA





Emergency SI Engine Category	Date Constructed/Reconstructed/Manufactured	Size/Engine Type/Fuel	Emission Standards	Importing/Installing Requirements <sup>6</sup>	Monitoring Requirements	Compliance Requirements				Notification, Reports, and Records Requirements	General Provisions (40 CFR part 60)
						Engines being operated and maintained in a certified manner <sup>2</sup>		Engines being operated and maintained in a non-certified manner <sup>3</sup>			
						General Compliance	Performance Testing	General Compliance	Performance Testing		
>25 HP	Commenced construction after 6/12/2006 and manufactured on or after 1/1/2009	>25 HP Gasoline	60.4231(b) 60.4233(b)	60.4236(c),(d)	If <130 HP built on or after 7/1/2008, or 130≤HP<500 built on or after 1/1/2011, or ≥500 HP built on or after 7/1/2010: 60.4237	60.4243(a)(1) If using AFRC: 60.4243(g) 40 CFR part 1068, subparts A-D.	None	If using AFRC: 60.4243(g) <b>&lt;100 HP:</b> 60.4243(a)(2)(i) <b>100&lt;HP&lt;500:</b> 60.4243(a)(2)(ii)	<100 HP: None required <b>100&lt;HP&lt;500:</b> 60.4243(a)(2)(ii) <sup>6</sup> 60.4244	60.4245(a), (b), (e)	60.4246 Table 3
		>25 HP Rich Burn LPG	60.4231(c) 60.4233(c)						<100 HP: None <b>100&lt;HP&lt;500:</b> 60.4243(a)(2)(ii) <sup>5</sup> 60.4244		
		25<HP<100 (except gasoline and rich burn LPG)	60.4233(d) <sup>4</sup>	60.4236(c)		If using AFRC: 60.4243(g) <b>Certified:</b> 60.4243(b)(1) <b>Non-certified:</b> 60.4243(b)(2)	<b>All Engines:</b> If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e) <b>Non-Certified:</b> 60.4243(b)(2)(i) <sup>5</sup> , 60.4244	<b>All Engines:</b> 60.4243(a)(2)(i) If using AFRC: 60.4243(g)	<b>Certified:</b> None <b>Non-Certified:</b> All Non-Certified Engines >25 HP: 60.4244 25>HP≤500: 60.4243(b)(2)(i) <sup>5</sup> <b>All Engines:</b> If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e)	60.4245(a), (b), (e) If natural gas engine and using propane as alternative fuel solely during emergency operations: 60.4243(c)	
		≥100 HP (except gasoline and rich burn LPG)	60.4233(e) <sup>5</sup> Table 1			If using AFRC: 60.4243(g) <b>Certified:</b> 60.4243(b)(1) <b>Non-certified:</b> 60.4243(b)(2)	<b>All Engines:</b> If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e) <b>Non-Certified:</b> 25>HP≤500: 60.4243(b)(2)(i) <sup>5</sup> , 60.4244	If using AFRC: 60.4243(g) <b>100&lt;HP&lt;500:</b> 60.4243(a)(2)(ii)	<b>All Engines:</b> If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e) <b>Certified:</b> ≥100 HP: 60.4244 100≤HP≤500: 60.4243(a)(2)(ii) <b>Non-Certified:</b> >25 HP: 60.4244 25>HP≤500: 60.4243(b)(2)(i) <sup>5</sup>		
Modified/Reconstructed	Modified or reconstructed after 6/12/2006	≤25 HP	60.4233(f)(1)	None	If using AFRC: 60.4243(g) 60.4243(i)				60.4245(a) 60.4245(b), (c)	60.4245(a), (b), (d), (e)	
		>25 HP Gasoline	60.4233(f)(2)								
		>25 HP Rich Burn LPG	60.4233(f)(3)								
		>25 HP natural gas and lean burn LPG	60.4233(f)(4)								
		>25 HP Landfill/Digester Gas	60.4233(f)(5)								

<sup>1</sup>Facilities with engines that are acting as temporary replacement units and that are located at a stationary source for <1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this rule with regard to such engines.

<sup>2</sup>If you operate and maintain the certified engine and control device according to the manufacturer's emission-related instructions, you are operating in a certified manner.

<sup>3</sup>If you do not operate and maintain the certified engine and control device according to manufacturer's emission-related instructions, your engine will be considered a non-certified engine.

<sup>4</sup>ICE with a maximum engine power >19 KW (25 HP) and <75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this rule applicable to engines with a maximum engine power ≥100 HP and <500 HP, may optionally choose to meet those standards.

<sup>5</sup>If you own/operate an engine that is ≤500 HP and you purchase a non-certified engine or you do not operate and maintain your certified engine and control device according to the manufacturer's emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the engine is rebuilt or undergoes major repair or maintenance. A rebuilt ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

<sup>6</sup>This section does not apply to ICE that have been modified or reconstructed, and does not apply to engines that were removed from one existing location and reinstalled at a new location.

# NSPS Emergency Engine Requirements

- No limit on hours of operation for emergency service (i.e. hurricane or ice storm)
  - Do not operate the engine for more than 30 minutes before the emergency condition is expected to occur; terminate engine operation immediately upon notification that the emergency condition is no longer imminent.
- 100 hours/year allowed for maintenance and testing
- 50 hours/year allowed for non-emergencies (counts as part of the 100 hour/year maintenance and testing limit)
  - Cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement unless all of the following conditions are met:
    - Engine is dispatched by the local balancing authority or local transmission and distribution system operator
    - Dispatch is intended to mitigate local transmissions and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region
    - Dispatch follows reliability, emergency operation or similar protocols that follow specified North American Electric Reliability Corporation (NERC), regional, state, public utility commission or local standards or guidelines
    - Power is provided only to the facility itself or to support the local transmission and distribution system
    - Owner/operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner/operator.

Note: If operation in response to a deviation of voltage from the electricity supplier to the premises does not qualify as emergency operation under the rule, the unit may operate for up to 50 hours/year as part of the non-emergency operation allowance as long as the engine is not used for peak shaving or as part of a financial arrangement with another entity. Contact EPA if you have any questions. The following are examples of when a voltage deviation might be considered an emergency:

- Voltage deviation at a hospital which disrupts normal operations
- Deviation in power to a 911 call center
- Power disruption at a shopping mall which affects lighting and prevents shoppers from exiting the building safely



# Emergency Engine Requirements

- If an emergency engine operates for more than allowable hours for non-emergency purposes, it will need to meet all non-emergency engine requirements.
- If engine is located in CT, also comply with CT emergency engine requirements
- If located elsewhere, comply with State emergency engine requirements



Photo credit: EPA



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# Emergency Engine Requirements

- If your engine has a maximum power of >100 HP and operates for local reliability:
  - Submit an annual report including location, dates and times of operation.
    - First report must cover calendar year 2015 and is due March 31, 2016.
    - Submit electronically using the form in the Compliance and Emissions Data Reporting Interface that is accessed through EPA's Central Data Exchange at [www.epa.gov/cdx](http://www.epa.gov/cdx).



**Central Data Exchange**

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The Central Data Exchange (CDX) enables fast, efficient and more accurate environmental data submissions from state and local governments, industry and tribes to the Environmental Protection Agency (EPA) and participating program offices.

EPA's CDX is the point of entry on the Environmental Information Exchange Network (Exchange Network) for environmental data submissions to the Agency. CDX works with both EPA program offices looking for a way to better manage incoming data, and stakeholders looking for a way to reduce time and money spent to meet EPA reporting requirements. CDX provides stakeholders with the ability to:

- Submit data through one centralized point of access
- Fill out a single electronic form which can be submitted instantaneously instead of mailing multiple paper forms
- Receive Agency confirmation when submissions are received
- Submit data in a variety of formats including Web Forms, XML, binary, or flat-file
- Exchange data with target systems using web services
- Reduce costs associated with submitting and processing data submissions
- Utilize publishing services to share information collected by EPA with other stakeholders, including states and tribes

Have a question about CDX?  
The [CDX Help Desk](#) is available for data submission technical support between the hours of 8:00 am and 6:00 pm (EST) at 1-888-890-1995 or [helpdesk@sparcdx.net](mailto:helpdesk@sparcdx.net). The CDX Help Desk can also be reached at 970-494-5500.

**Current Snapshot**

- 296,090 CDX User Registrations
- 63 systems in production
- 10 systems in test or development
- Visit CDX Projects

**Related Programs**

- Cross-Media Electronic Reporting Rule
- Exchange Network (EXIT Disclaimer)
- Network Grants Program

Environmental Information **exchange Network**

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<http://www.epa.gov/cdx/>  
[cdx@epa.gov](mailto:cdx@epa.gov)

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# CT Emergency Engine Definition

According to Sec. 22a-174-22(a)(3) of the RCSA, “emergency engine” means a stationary reciprocating engine or a turbine engine which:

- Provides mechanical/electrical power only during periods of
  - testing and scheduled maintenance or
  - during an emergency or
  - in accordance with a contract ensuring electricity for use within the state of CT during an OP-4, Step 6 event
- Does not include an engine for which the owner/operator is party to any other agreement to sell electrical power from such engine to an electricity supplier, or otherwise receives any reduction in the cost of electrical power for agreeing to produce power during periods of reduced voltage or reduced power availability.

**Note:** Engines operating under RCSA Sections 22a-174-3b and 3c must comply with additional requirements



# CT Emergency Engine Requirements

- Only operate during emergencies, maintenance/scheduled testing, or during an OP-4, Step 6 event
- Emergency hrs of operation: no limit (unless subject to 22a-174-3b or 3c)
- Engine cannot be used as part of any other agreement or financial arrangement with another entity

## **If operating under RCSA Sec. 22a-174-3b:**

- Emergency hrs of operation: 300 hr/yr limit
- Any nongaseous fuel consumed by engine shall not exceed sulfur content of 0.0015%, dry basis

## **If operating under RCSA Sec. 22a-174-3c:**

No restriction on hrs of use or fuel sulfur content; however, total facility purchases of fuel are extremely limited



# CT and Federal Emergency Engine Requirements

Federal Only	Common to Both	State Only
<ul style="list-style-type: none"> <li>•100 hr/yr limit:                             <ul style="list-style-type: none"> <li>-Testing and maintenance checks</li> <li>-Readiness testing</li> </ul> </li>   <li>•50 hr/yr of the 100 hr/yr limit:                             <ul style="list-style-type: none"> <li>-Non-emergencies if no financial arrangement</li> <li>-50 hr/yr allowed for peak shaving, non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement if <b>all</b> specified conditions are met</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•Emergency hrs of operation: no limit (unless subject to 22a-174-3b or 3c)</li> </ul>	<ul style="list-style-type: none"> <li>•Only operate during emergencies, maintenance/scheduled testing, or during an OP-4, Step 6 event</li> <li>•Engine cannot be used as part of any other agreement or financial arrangement with another entity</li>   <li><b>If operating under RCSA Sec. 22a-174-3b:</b> <ul style="list-style-type: none"> <li>•Emergency hrs of operation: 300 hr/yr limit</li> <li>•Any nongaseous fuel consumed by engine shall not exceed sulfur content of 0.0015%, dry basis</li> </ul> </li>   <li><b>If operating under RCSA Sec. 22a-174-3c:</b> <ul style="list-style-type: none"> <li>No restriction on hrs of use or fuel sulfur content, however total facility purchases of fuel are extremely limited</li> </ul> </li> </ul>



# Where do I send notifications and reports?

Unless otherwise indicated, send reports to:



EPA REGION 1:

US Environmental Protection Agency

5 Post Office Square, Suite 100, Mail code: OES04-2

Boston, MA 02109-3912

Attention: Air Clerk

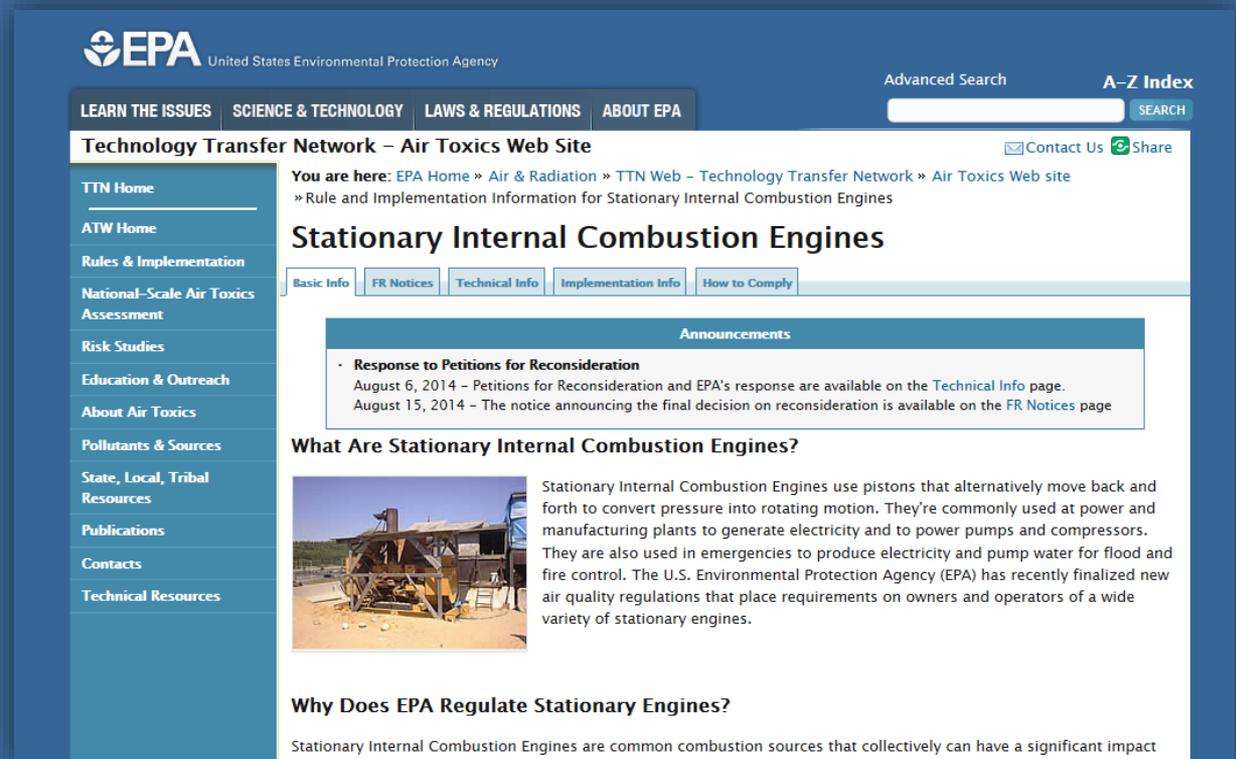


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# Visit the EPA RICE Compliance Page

[www.epa.gov/ttn/atw/icengines](http://www.epa.gov/ttn/atw/icengines)

- ▶ Fact sheets
- ▶ Regulations
- ▶ Example notifications
- ▶ Announcements
- ▶ Q & A documents
- ▶ Testing advice
- ▶ Recorded webinars
- ▶ ...and more!



The screenshot shows the EPA website's Technology Transfer Network (TTN) Air Toxics Web Site. The page is titled "Stationary Internal Combustion Engines" and is part of the "Rule and Implementation Information for Stationary Internal Combustion Engines" section. The page features a navigation menu on the left with links to TTN Home, ATW Home, Rules & Implementation, National-Scale Air Toxics Assessment, Risk Studies, Education & Outreach, About Air Toxics, Pollutants & Sources, State, Local, Tribal Resources, Publications, Contacts, and Technical Resources. The main content area includes an "Announcements" section with a link to "Response to Petitions for Reconsideration" and a section titled "What Are Stationary Internal Combustion Engines?" which includes a photograph of a stationary engine and a brief description of its function. Below this is a section titled "Why Does EPA Regulate Stationary Engines?" with a brief explanation of their impact.



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# Take Aways

## Engine Type:

- A new or reconstructed emergency engine at an area source with a site rating of less than or equal to 500 horsepower

## Compliance Date:

- Upon startup

## Compliance Requirements:

- Comply with all CI or SI NSPS requirements, if applicable
- Comply with all NSPS and State emergency engine requirements

