EMERGENCY ENGINES
at Area Sources:
An Overview

Donna Summers
October 9, 2013
ACE Academy
LOGISTICS

- Ask questions anytime
- this is not exhaustive coverage ... just an overview
- Start with federal regs .... followed by state regs

Apple Pie Hill Fire Tower,
Pine Barrens
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR</td>
<td>Demand Response</td>
</tr>
<tr>
<td>RICE</td>
<td>Reciprocating Internal Combustion Engine</td>
</tr>
<tr>
<td>ICE</td>
<td>Internal Combustion Engine</td>
</tr>
<tr>
<td>CI</td>
<td>Compression Ignition</td>
</tr>
<tr>
<td>SI</td>
<td>Spark Ignition</td>
</tr>
<tr>
<td>HAPS</td>
<td>Hazardous Air Pollutants</td>
</tr>
<tr>
<td>PCP</td>
<td>PreConstruction Permit</td>
</tr>
<tr>
<td>GP</td>
<td>General Permit</td>
</tr>
<tr>
<td>Gen</td>
<td>Generator</td>
</tr>
<tr>
<td>ER</td>
<td>Emergency</td>
</tr>
<tr>
<td>Req’s</td>
<td>Requirements</td>
</tr>
<tr>
<td>ULSD</td>
<td>Ultra Low Sulfur Diesel</td>
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</tbody>
</table>
What is an AREA SOURCE?

- a non-major...a non-Title V facility

- emit some HAPS, but not a lot

- emit <10 tpy any single HAP, and emit <25 tpy of all HAPS combined
• Formaldehyde
• Acrolein
• Acetaldehyde
• Methanol

• Plus traditional criteria pollutants
Federal Regulations will apply to most engines

BEFORE

MACT ZZZZ

40 CFR 63.6580

6 / 12 / 06

date of onsite installation

ON-AFTER

NSPS IIII (CI)
40 CFR 60.4200

NSPS JJJJ (SI)
40 CFR 60.4230

Don’t automatically have to DO the fed regs...first you still must meet the applicability standards...which vary....see next slides...
### NSPS IIII/JJJJJ applicability

Installed AFTER 6/12/06.....................very complex

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel type</td>
<td>diesel CI, nat gas SI</td>
</tr>
<tr>
<td>Emergency</td>
<td>non-emerg.</td>
</tr>
<tr>
<td>Dates:</td>
<td>ordered?, Manufactured?, Installed?</td>
</tr>
<tr>
<td>Engine Model Year</td>
<td></td>
</tr>
<tr>
<td>Engine Displacement (l/cyl)</td>
<td></td>
</tr>
<tr>
<td>Fire Pump vs Electric Generator</td>
<td></td>
</tr>
<tr>
<td>Max Engine Power (kw, hp)</td>
<td></td>
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<tr>
<td>With / without Diesel Particulate Filter</td>
<td></td>
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</tbody>
</table>
MACT applicability
Installed BEFORE 6/12/06..............................very simple

ALL SIZES
emergency engines
located at an area source
EPA online “quiz”

• NSPS quiz installed after 6/12/06
  http://www.epa.gov/ttn/atw/ice/quiz.html

• MACT quiz installed before 6/12/06
  http://www.epa.gov/ttn/atw/rice/output/quiz.html

• To restart quiz: Refresh …
  ’back button’ doesn’t work well
Federal Regs DO NOT apply to...

- NOT for motor vehicles
- NOT for mobile engines, non-road engines
- NOT for combustion turbines
- NOT for engines at test cell / test stand
- NOT for most temporary engines
COMMERCIAL
office bldg…hotel…store…telecomm…restaurant…bank…dr’s office…sports…performing arts

INSTITUTIONAL

RESIDENTIAL
MACT ZZZZ MAY NOT apply to...

Residential
Commercial
Institutional

http://www.epa.gov/ttn/atw/icengines/docs/guidance_emergency_engine_def.pdf

EPA memo dated Aug 9, 2010

Based on your NAICS code

Exempt as long as ER DR <15hr/yr and not used in Local Rel Plan at all
Find your NAICS code here:

http://www.naics.com/search.htm
RECAP

- Installed >6/12/06, worry about NSPS (applicability complex)
- Installed <6/12/06, worry about MACT (applicability simple)

- Fed Regs exempt many categories

- What does MACT actually require ???? →
MACT Emergency Engines

- RELAXED rules for existing EMERGENCY engines (< 6/12/06)
- NO numerical emission limits to meet
- NO stacktesting
- NO operating limits (temperature requirements, etc)
- NO fuel requirements (unless using for DR)
- NO notification requirements
- NO initial compliance demonstrations (testing, continuous monitors, etc)
MACT Emergency Engines Summary

ARE:

• Best Mgmt Practices

• Maintenance Req’s

• Continuous Compliance Req’s

• Recordkeeping Req’s

MAY BE:

• Reporting Req’s

• Fuel Req’s
MACT - Best Management Practices

6603(a), follow Table 2D

- CHANGE oil & filter \(500 \text{ hrs/op}
  \) (or 1x per year, whichever comes first)

- INSPECT hoses/belts \(500 \text{ hrs/op}
  \) (or 1x per year, whichever first, replace as needed)

- INSPECT air filter (CI) \(1000 \text{ hrs/op}
  \)
- INSPECT spark plugs (SI) \(1000 \text{ hrs/op}
  \) (or 1x per year, whichever first, replace as needed)
MACT Emergency Engines Summary

ARE:

• Best Mgmt Practices
• Maintenance Req’s
• Continuous Compliance Req’s
• Recordkeeping Req’s

MAY BE:

• Reporting Req’s
• Fuel Req’s
MACT - Maintenance

6625 e f h plus i/j

e= follow mfg specs

f= non-resettable hr meter

h= minimize idle time / startup time, <30 mins

i/j= alternative Oil Change Program
MACT Emergency Engines Summary

ARE:

• Best Mgmt Practices
• Maintenance Req’s
• Continuous Compliance Req’s
• Recordkeeping Req’s

MAY BE:

• Reporting Req’s
• Fuel Req’s
MACT - Continuous Compliance

6605 and 6640

- 6605 = follow mact at all times...and...use equip in good practice

- 6640 = Table 6 (follow mfg specs)

★ = only run according to the emergency stds of para (f)1-4 ★

1. True Emergency Use
   Unlimited

2. combo of Testing&Maint/ Emergency DR
   Bank: max 100 hrs/yr

3. n/a, for Major Title V’s only
   n/a

4. Non-Emergency Use (“special conditions”)
   Up to half your bank

   * non-emergency w/ NO financial plan, storm/preventative....repairing power lines
   * non-emergency WITH financial plan, local reliability...”cliff”
   * peak shaving, but only until May 3, 2014
What is Emergency DR?

Emergency Demand Response

Blackout is imminent

Declared Energy Emergency Alert Level 2
-or-
Deviation of voltage/frequency of at least 5%
MACT Emergency Engines Summary

ARE:
- Best Mgmt Practices
- Maintenance Req’s
- Continuous Compliance Req’s
- Recordkeeping Req’s

MAY BE:
- Reporting Req’s
- Fuel Req’s
MACT - Recordkeeping

6655 and 6660

ALWAYS keep records of:

# hours of operation (per non-resettable hr meter) for both ER and non-ER use
reason for use
all maintenance conducted

IF used for ER DR (or Local Reliability Plan), also keep records of:

official Notification of the situation
date
actual start/end times

IF required to use ULSD, keep those records too (fuel bill of lading)

Records ok in any format (hardcopy or electronic)

Retain 5 yrs worth
MACT Emergency Engines Summary

ARE:

• Best Mgmt Practices
• Maintenance Req’s
• Continuous Compliance Req’s
• Recordkeeping Req’s

MAY BE:

• Reporting Req’s
• Fuel Req’s
MACT - Reporting (maybe)

6650- Table 7

**Reporting Req’s only for SOME emergency gens**

IF sized 100 hp+ AND emergency DR > 15 hr/yr (Level 2, 5%)

or

IF sized 100 hp+ AND operated at all under a Local Reliability financial arrangement (cliff)

Report Annually per 63.6650(h)(1) – (3)

First report due March 31, 2016….covers calendar year 2015
Subsequent reports again due March 31…..covers prior cal year

ELECTRONIC REPORT ONLY….no paper

www.epa.gov/cdx Compliance and Emissions Data Reporting Interface (CEDRI)

Includes (for example)

• Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.
• Emergency DR: # hours actually used, hours in your contract, dates /times/reason used, etc.
• Local Reliability: # hours actually used, who dispatched the engine , dates/times/reason used, etc.
• Any deviations from the ULSD req's

**Reporting Req’s for ALL emergency gens**

IF you can’t do a Best Mgmt Practice on time because of an ongoing emergency/unacceptable risk, you can delay it until later, (but do it asap). Report that you did it , and explain why the delay. Per Footnote 2 of Table 2D.
MACT - Fuel (maybe)

6604(b) ULSD

Only applies IF:

>100 HP
and
displacement <30 liters per cylinder
and
used for (or under contract for) >15 hrs/yr ER DR (or used at all in Local Reliability Plan)

Beginning January 1\textsuperscript{st} 2015, must use ULSD (our sub9 doesn’t require it until July 2016)

Can use up existing fuel supplies
MACT - OPEN FOR COMMENT

EPA recently agreed to RECONSIDER some provisions of MACT, and are receiving public comment:

Remains open until November 5, 2013  (60 days after publication in the Federal Register, Vol. 78, No. 172 / Thursday, September 5, 2013)

For details and instructions on HOW TO COMMENT, see this Fact Sheet: http://www.epa.gov/ttn/atw/icengines/docs/20130829fs.pdf

The ENTIRE MACT rule is NOT being considered for revision.  Only certain provisions are, incl:

* Use of ULSD by some emergency engines
* Reporting Req’s for some emergency engines
* Using non-emergency engines up to 50 hrs/yr during non-emergency times per a financial agreement with third party

And these are NOT yet being revised, the EPA is only CONSIDERING revising them, based on what public input it receives.
MACT - compliance dates

CI - Compression Ignition
Your **compliance date** is May 3, 2013

SI - Spark Ignition
Your **compliance date** is October 19, 2013.
end of MACT
Demand Response
Table 6 (follow mfg specs)

<p>| | |</p>
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<td>★ = only run according to the emergency stds of para 6640(f)1-4</td>
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1. True Emergency Use | Unlimited

2. combo of Testing & Maint/ **Emergency DR** | Bank: max 100 hrs/yr

3. n/a, for Major Title V’s only | n/a

4. Non-Emergency Use  (“special conditions”) | Up to half your bank

   * non-emergency w/ NO financial plan, storm/preventative….repairing power lines
   * non-emergency WITH financial plan, local reliability…”cliff”
   * peak shaving, but only until May 3, 2014
What is Emergency DR?

Emergency Demand Response

Blackout is imminent

Declared Energy Emergency Alert Level 2
-or-
Deviation of voltage/frequency of at least 5%
What are those 3 “Special Conditions”?

NOT part of a financial agreement

ex) storm is coming, you want to run your gens now, to PREVENT a possible blip from occurring, as a proactive measure. There is no emergency (yet), grid is fine for now, but you want to ensure continuity of your operations, and prevent a possible interruption in power, so you run your gens early.

ex) while maint/repair work is occurring on your electrical equip. Work could be done by you, or by PSEG, etc. There is no emergency, and overall the grid is fine, but your electrical equip needs some maint/repair/upgrade. You can run your gens during while that work is being conducted under the terms of these 3 Special Conditions.
What are those 3 “Special Conditions”? 

2 of 3 Local Reliability Plan

IS part of a financial agreement

ex) grid is compromised, starting to act glitchy, but not yet bad enough to meet “Emergency Demand Response” standards. Not yet declared Energy Alert Level 2. Voltage Reduction has not yet reached at least 5%. But grid is starting to act glitchy, so your provider may have you run your gens to help restore local reliability and help prevent an Alert Level 2 from being reached.
What are those 3 “Special Conditions”?

3 of 3 Peak Shaving

done primarily for economic reasons

doesn’t involve any problems with the grid

your gens make electricity during “peak” or “popular” times, like a hot summer day.

only allowed until 5/3/2014
NJ & Demand Response

• EPA / Federal Regs
  Emergency Engines **CAN** be used for and Local Reliability Plan (cliff) and Peak Shaving (until May 2014)

• NJ Regs
  Emergency Engines **CANNOT** be used for or Local Reliability Plan (cliff) or Peak Shaving

• Here’s why we don’t allow it → → →
OZONE NON-ATTAINMENT AREAS (8-HR STD)
In NJ, generators enrolled in these plans:

- Utility Energy Assistance Program
- Local Reliability Plan
- Demand Response Program
- Peak Shaving Plan
- etc

CAN NOT be classified as emergency generator.

CAN NOT follow relaxed rules.

CAN NOT get GP-005.
In NJ,
You CAN participate in those programs IF:

• IF the engine is treated as an (everyday) NON-emergency engine

• AND IF it gets an approved preconstruction permit (PCP)…not a General Permit

• AND IF the engine is clean & efficient enough to meet NJ’s numerical sub19 NOx emission limits (g/bhp-hr) Probably need to add controls.
  
  0.9 NEW
  1.5 (gas) or 2.3 (oil) EXISTING
Emergency Generators Participating in Demand Response and Peak Shaving Programs Require Air Permit Revision and Air Pollution Control

Who is affected by this advisory?
Any facility in New Jersey that owns or operates a stationary internal combustion engine that generates electricity permitted as an emergency generator under Air General Permit (GP) 005, Air Preconstruction Permit, or Title V Operating Permit.

Why is DEP issuing this advisory?
The Department has discovered that some facility owners and operators of emergency generators are entering into electric supply agreements for peak (load) shaving, demand response and like programs, operating emergency generators for peak shaving or demand response is permissible only if the approved air permit contains conditions specifying allowable non-emergency use and includes air pollution control.

Stationary internal combustion engines used as emergency generators may be operated without air pollution control in three limited cases: (1) during the performance of normal testing and maintenance procedures, as recommended in writing by the manufacturer and/or as required in writing by a Federal or State law or regulation; (2) when there is power outage or the primary source of mechanical or thermal energy fails because of an emergency; or, (3) when there is a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the “emergency procedures” menu. Operation of the engine that does not meet one of these three cases disqualifies the equipment in question from meeting the definition of an emergency generator and therefore subjects the engine to air pollution control requirements and a regular air pollution control permit.

“Demand response,” as recognized by the Department, is a preemptive action in which the participating facility voluntarily agrees to commence operation of its electrical generating equipment prior to the reduction in voltage or failure of electrical power in return for economic benefit. This is outside the allowable operation of emergency generators without air pollution control.

The emergency generator general permit does not allow the use of a generator for demand response or peak shaving programs. To participate in demand response or peak shaving programs a facility would have to obtain a regular air Preconstruction or Operating permit approval. This review would require the engine to comply with all applicable requirements including NOx RACT, State of The Art and health risk screening analysis.
end of Demand Response
What does NSPS require for emergency engines?

Remember, NSPS may affect installs AFTER 6/12/06, with a complex applicability…
NSPS - Emergency Engines

At its most basic level, NSPS engines must meet numerical emission limits, as demonstrated in one of two ways:

1. Purchase a certified engine
   or
2. Test your own engine
NSPS - Emergency Engines

in addition, there will be varied requirements for:

  Monitoring
  Recordkeeping
  Submit one-time Notifications
  Submit recurring Reports
  Etc

*Best to use EPA’s online “quiz” and determine exactly what NSPS req’s you have.*
end of NSPS
Main EPA engine website

http://www.epa.gov/ttn/atw/icengines/
07/26/2013 RICE Summary Table of Requirements
EPA Contact Persons

Melanie King (919) 541-2469
EPA’s Office of Air Quality Planning and Standards
Sector Policies and Programs Division
Energy Strategies Group
king.melanie@epa.gov

Mr. Umesh Dholakia (212) 637-4023
Region II Contact
dholakia.umesh@epa.gov
Actual Regulations

always take final precedence

www.ecfr.gov
end of federal regs
NJ engine regulations
NJ

1. Demand Response

2. sub8 – permitting

3. sub19 – NOx RACT
NJ

1. Demand Response

2. sub8 – permitting

3. sub19 – NOx RACT
**NJ Engine Permits**

Your engine may require an Air Permit

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>• EMERGENCY engine</td>
<td></td>
</tr>
<tr>
<td>• ( \geq 1 ) MMBTU/hr needs permit</td>
<td></td>
</tr>
<tr>
<td>• Grandfathered date: March 5, 1973</td>
<td></td>
</tr>
<tr>
<td>• NJAC 7:27-8.2 c 1</td>
<td></td>
</tr>
<tr>
<td>• General Permit GP-005 is available for Emergency Generators, $410 covers five year period.</td>
<td></td>
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</tbody>
</table>
Get a Driver’s License  .....AND....  follow all the rules of the road

Get an Air Permit  .....AND....  follow all rules & requirements
NJ

1. Demand Response

2. sub8 – permitting

3. sub19 – NOx RACT
ER engines: 3 NOx RACT Triggers per rule

37 Kw +
1 engine
“New”
started operation AFTER 3/7/07

148 Kw +
1 engine
“Existing”
started operation BEFORE 3/7/07

148 Kw +
Group of engines (37-147 kw)
Date is irrelevant
WHAT MUST AN EMERGENCY GENERATOR DO TO COMPLY WITH NOx RACT?

1. Recordkeeping Rule:
   Keep records listed in 19.11  { 19.2 (d) }

2. Triangle Rule:
   Only run during 3 scenarios allowed in 19.1  { 19.2 (d) (1) }

3. Stop-Soon Rule:
   Stop running asap  { 19.2 (d) (3) }

4. Orange Air Rule:
   Forbidden to test/maintain equipment on Unhealthy air quality days  { 19.2 (d) (2) }
NEW exception to the Orange Air Rule

compliance alert forthcoming

affects emergency gens at:
  Drinking Water
  Sewerage Treatment
  and Sludge Management

these plants DON’T have to follow the orange air rule for the 48 hours prior to a named storm coming to their area. Including winter storms. CAN test emergency gens regardless of air quality during that time.
OLD exception to the Orange Air Rule

- Still in effect

- some other regulation may take precedence

- ex) hospitals with Joint Commission accreditation
My Contact Info

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856 - 614 - 3601