

Overview of Requirements: “Control of Stationary Generator Emissions”

Regulation No. 1144 Public Workshops
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Overview

- Purpose
- History
- Applicability
- Definitions
- Various Regulation Requirements
- Emissions Certification
- Credit for Emissions Reductions
- Permitting Requirements
- “Potential to Emit” Guidance

Purpose

- Generators emit harmful pollutants such as volatile organic compounds (VOCs) and nitrogen oxides (NO_x), which contribute to ground-level ozone.
- Health effects from ozone include:
 - irritation of the respiratory system;
 - reduced lung function;
 - aggravation of asthma; and
 - inflammation and damage to the lining of the lung.
- Ground-level ozone also:
 - interferes with the ability of plants to produce and store food;
 - damages the leaves of trees and other plants; and
 - reduces crop and forest yields by increasing plant vulnerability to disease, pests, and harsh weather.

Purpose

- The use of on-site generators is a growing trend.
- Uncontrolled emissions from this category of sources are increasing.
- *Known* existing non-emergency generators emitted 1.6 tons per day (TPD) NO_x in 2002...which is significant given the total 2002 point source NO_x inventory was 74.3 TPD.
- Total emissions from all generators are hard to quantify, but on a rate basis they are dirty.
- Regulating generators will not prohibit new generation, but it will require new generation to be clean.

History

- Regulation Development Workgroup was formed to develop an initial draft of a regulation, which included:

American Lung Association of Delaware	Delaware Electric Cooperative	Delaware Public Service Commission
Conectiv	Delaware Farm Bureau	Delmarva Poultry Industry
Delaware Dept. of Corrections	Delaware Healthcare Association	MBNA America
Delaware Energy Office	Delaware Nature Society	University of Delaware Center for Energy and Environmental Policy

- Met 7 times over 14 month period (11/03-12/04).
- 3 drafts of a regulation were prepared, discussed, and commented on.
- 4th draft was developed from most recent comments, and is being presented at the public workshops.

Applicability

- Applies to all generators, except for:
 - residential generators, for emergency purposes only;
 - generators already subject to specific NO_x limitations due to best available control technology (BACT) or lowest achievable emission rate (LAER); or
 - mobile generators.

Definitions of Concern

- Generator: internal combustion engine (except combustion turbine) and associated equipment that converts fuel to electricity, or electricity and thermal energy.
- Emergency:
 - a power outage (due to various unintentional reasons), or
 - a deviation of voltage or frequency from the electrical provider.

Definitions of Concern

- Emergency Generator: operates only
 - during emergencies,
 - for testing purposes, or
 - for maintenance purposes.
- Distributed Generator: may operate for any reason.

Definitions of Concern

- Mobile:
 - a generator which is self-propelled or intended to be propelled, or
 - is portable or transportable.
- Stationary: a generator which is not “mobile”.
 - If a mobile generator stays at a location for more than 12 consecutive months, it could be considered stationary.
 - This requirement cannot be circumvented by moving a mobile generator which is acting as a stationary generator.

Initial Notification

- Generator owner must submit information to the Department:
 - generator owner's name & address;
 - generator's installed address, make, model, year, rating; and
 - classification (emergency vs. distributed).
- Required to be submitted by:
 - date of installation for new generators, or
 - 3 months after effective date of regulation for existing generators.

Initial Notification

- Owners must comply with the regulation's requirements by:
 - existing emergency generator – 3 months after effective date;
 - existing distributed generator – 12 months after effective date;
 - poultry growers signed up for cost-share program – 3 months after effective date; or
 - new emergency or distributed generator – before the date of installation.

Emissions Standards

Generator Type	Existing	New
Emergency	no emission standards	EPA Nonroad standards
Distributed	RAP suggested emission standards	EMA suggested emission standards

Emissions Standards

- Emergency generators:
 - Existing – no actual emissions limits; just follow manufacturers maintenance & operating requirements/instructions.
 - New – generator must meet the emissions standards set by the US EPA for Nonroad engines.

Emissions Standards

- Existing distributed generators must meet the following standards:

Pollutant	Emission Standards In lbs/MWh
Nitrogen Oxides	4.0
Nonmethane Hydrocarbons	1.9
Particulate Matter (liquid-fueled reciprocating engines only)	0.7
Carbon Monoxide	10.0
Carbon Dioxide	1,900

Emissions Standards

- Alternative available to certain existing distributed generators.
 - Delaware Electric Cooperative (DEC) has approx. 215 participants in its “interruptible service program.”
 - Almost all are poultry growers with uncontrolled diesel generators.
 - Kent & Sussex Conservation Districts have a cost-share program designed to retrofit the poultry generators participating in DEC’s program.
 - 100% cost-share for Rentar Fuel Catalyst (reduces NOx ~20% and increases fuel efficiency).

Emissions Standards

- Section 3.2.1.2 states that existing distributed generators installed on poultry farms may be exempt from emissions standards if:
 - the generator is participating or is signed up to participate in the Rentar cost-share program, offered by one of the two Conservation Districts; or
 - the generator is gaseous fueled.
- Section 3.2.1.2 does NOT exempt existing distributed generators installed on poultry farms from the regulation's other requirements.

Emissions Standards

- New distributed generators must meet the following standards:

Pollutant	Emission Standards in lbs/MWh		
	Installed On or After [Effective Date]	Installed On or After Jan. 1, 2008	Installed On or After Jan. 1, 2012
Nitrogen Oxides	2.2	1.0	0.6
Nonmethane Hydrocarbons	0.5	0.5	0.3
Particulate Matter (liquid-fueled reciprocating engines only)	0.7	0.7	0.07
Carbon Monoxide	10.0	10.0	2.0
Carbon Dioxide	1,900	1,900	1,650

Operating Requirements

- An emergency generator can operate for an unlimited amount of hours...but only during emergencies, testing, or maintenance.
- A distributed generator can operate at any time, for an unlimited amount of hours.

However...

- No generator can be operated for testing or maintenance before 5pm on an Ozone Action Day...except those required to meet NFPA* or JCAHO** standards.

Other Requirements

- Sulfur content limits for all fuels:

	Diesel Fuel	Gaseous Fuels	Alternative Fuels
Sulfur Content Limit	500 ppm (0.05%)	0.1 grains/dscf	0.015 grains H₂S/dscf or 0.03 grains S compounds/dscf

- Monthly and yearly fuel usage must be recorded.
- Monthly and yearly operating hours (via an hour meter) must be recorded.

Other Requirements

- For each shipment of liquid fuel received, a receipt must be obtained from the distributor which identifies:
 - the type of fuel;
 - the sulfur content of the fuel; and
 - the method used to determine the sulfur content.
- As an alternative, a laboratory may analyze the fuel tank after each shipment, in order to certify the above information.

Other Requirements

- Records must be kept for at least 5 years.
- Records can be hard copies (papers) or electronic copies (CDs, floppy disks, etc.).
- No requirement to report records...but an owner must provide the records to the Department upon request.

Emissions Certification

- Suppliers/manufacturers may opt to certify new distributed generators:
 - must certify generator for the lesser of 3,000 hours of operation or five years;
 - allows owner to easily verify generator's compliance with emissions standards.
- New emergency generators must be certified to meet the currently applicable EPA Nonroad standards.

Emissions Certification

- If not certified by these methods, generator must have its emissions VERIFIED by:
 - adequate paper documentation (technical specs) to verify emissions of generator, or
 - third party testing.
- Every 5 years, a distributed generator must reverify its compliance with emissions standards via:
 - manufacturer certified maintenance,
 - third party testing, or
 - any other method proven to the Department.

Credit for Emissions Reductions

- A generator can receive “credit” to use toward achieving its applicable emission rates by:
 - operating on a fuel that would otherwise be flared (landfill gas, process gas);
 - operating as a “combined heat and power” system; or
 - simultaneously generating electricity from a non-emitting resource (wind, solar, etc.).

Permitting Requirements

- Regulation No. 2, “Permits” – details who does, or does not, need a permit and what the permitting process entails.
- Various equipment in Appendix A to Reg. 2 is exempt from permitting.
- Appendix A will be amended to clarify permitting requirements for generators.
- The following generators will be exempted:
 - residential generators;
 - generators at poultry farms; or
 - emergency only generators w/standby rating of 450 kW or less.

Potential to Emit (PTE)

- PTE means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design.
- Used to determine a source's applicability to "New Source Review" requirements or Title V permitting...typically based upon 8,760 hours.
- EPA has issued guidance stating that emergency generators can utilize 500 hrs in determining their PTE, instead of 8,760.
- AQM is issuing similar memo, stating that it agrees with this policy decision, effective July 1, 2005.
- This policy does not change or impact any previous determinations.

Questions or Comments?

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