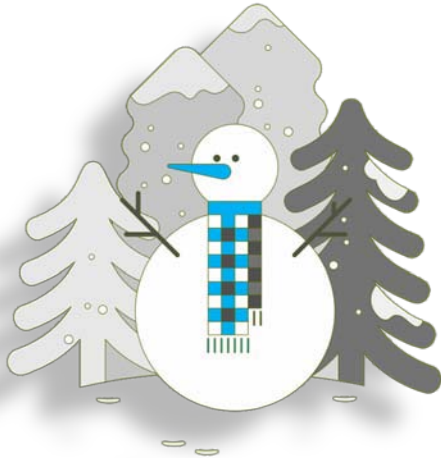


# NEW JERSEY ENVIRONMENTAL RISK MANAGEMENT FUND (EJIF) NEW JERSEY UTILITIES AUTHORITIES

## EMERGENCY GENERATORS AND THE "OZONE TRIANGLE"

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# SPCC Presentation Overview

For New Jersey, It all starts here:

New Jersey Administrative Code  
Title 7, Chapters 27 through 27  
(specifically N.J.A.C. 7:27-1 through 34)  
Air Pollution Control



# PROBLEM -

## Emergency Generators do not burn very cleanly

Nitrogen Oxides (NO<sub>x</sub>): A major pollutant, especially from diesel generators, that contributes to smog and respiratory problems.

Carbon Monoxide (CO): A toxic gas that can be dangerous in enclosed spaces.

Particulate Matter (PM): Fine particles, particularly PM<sub>2.5</sub>, that can cause respiratory and cardiovascular issues. Diesel generators produce more PM than natural gas generators.

Volatile Organic Compounds (VOCs): Contribute to smog formation.

Sulfur Dioxide (SO<sub>2</sub>): Contributes to acid rain.

Hydrocarbons: Including methane and other gases, which are linked to smog and climate change.

# PROBLEM ?

Emergency generators are very common and are used to replace damaged electrical power infrastructure or provide deployable electric power for remote response operations. Permanently installed generators also provide backup power for emergency response infrastructure.

So, how do we manage air emissions?

# Regulations

- USEPA - Tier 1 (1996) through Tier 4 (starting in 2008) emissions standards upgrade the manufacturing standards so that engines emit lower levels of emissions.
- State regulations for emissions
- N.J.A.C. Subchapter 19 - Control and Prohibition of Air Pollution from Oxides of Nitrogen
- Permits -
  - GP-005A - REVISED Emergency Generator(s) Burning Distillate Fuels
  - GP-005B - REVISED Emergency Generator(s) Burning Gaseous Fuels

# COMPLIANCE PLAN

Permits usually include a compliance plan (requirements to be followed). Requirements in this Compliance Plan include (but not limited to):

1. NSPS or MACT standards
2. Compliance Inspections
3. Prohibition of odors and visible emissions
4. Data/Record keeping
5. Fuel sulfur content
6. And more!

# COMPLIANCE PLAN

But also.....

This emergency generator shall not be used:

- 1. For normal testing and maintenance on days when the Department forecasts air quality anywhere in New Jersey to be "unhealthy for sensitive groups," "unhealthy," or "very unhealthy" as defined in the EPA's Air Quality Index at <http://airnow.gov/>, as supplemented or amended and incorporated herein by reference, unless required in writing by a Federal or State law or regulation. Procedures for determining the air quality forecasts for New Jersey are available at the Department's air quality permitting web site at <http://www.state.nj.us/dep/aqpp/aqforecast>; and***



# COMPLIANCE PLAN

But also.....

This emergency generator shall not be used:

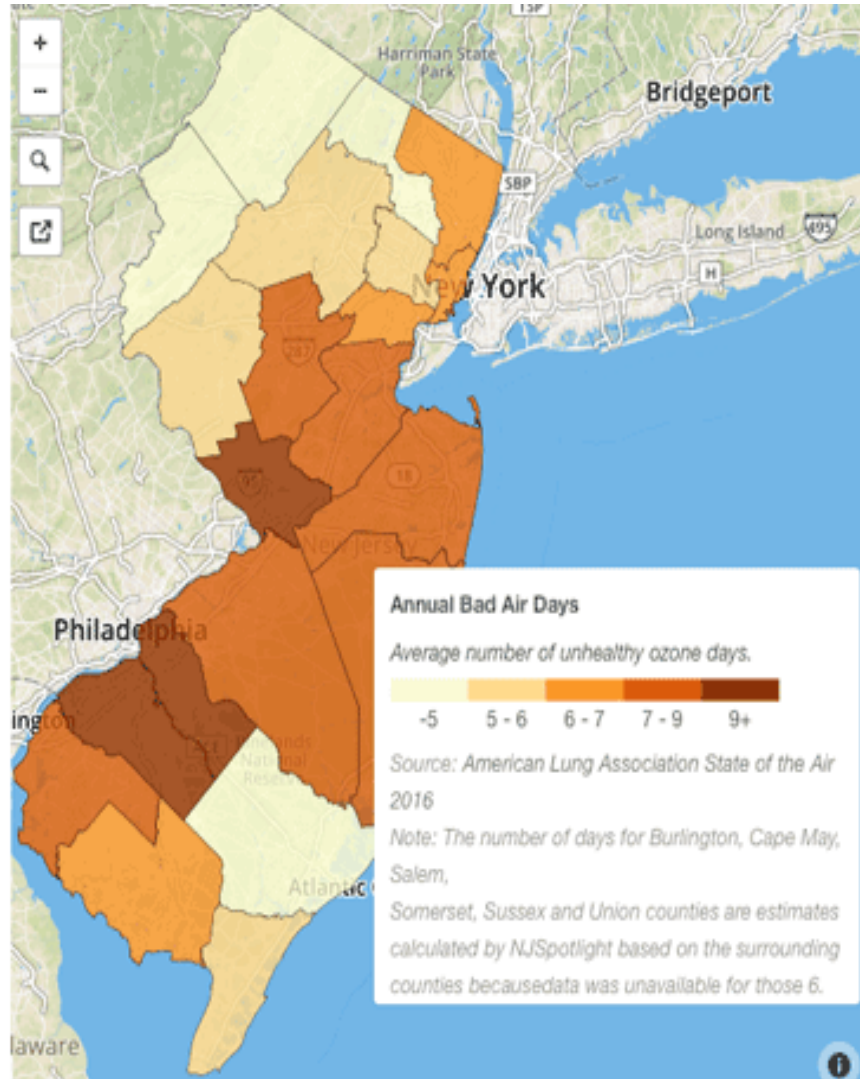
***2. As a source of energy or power after the primary energy or power source has become operable again emergency or after power disruption resulted from construction, repair, maintenance activity. Operation of the emergency generator, repair, or maintenance activity shall be limited to no more than 30 days of operation per calendar year.....***

**Why?**

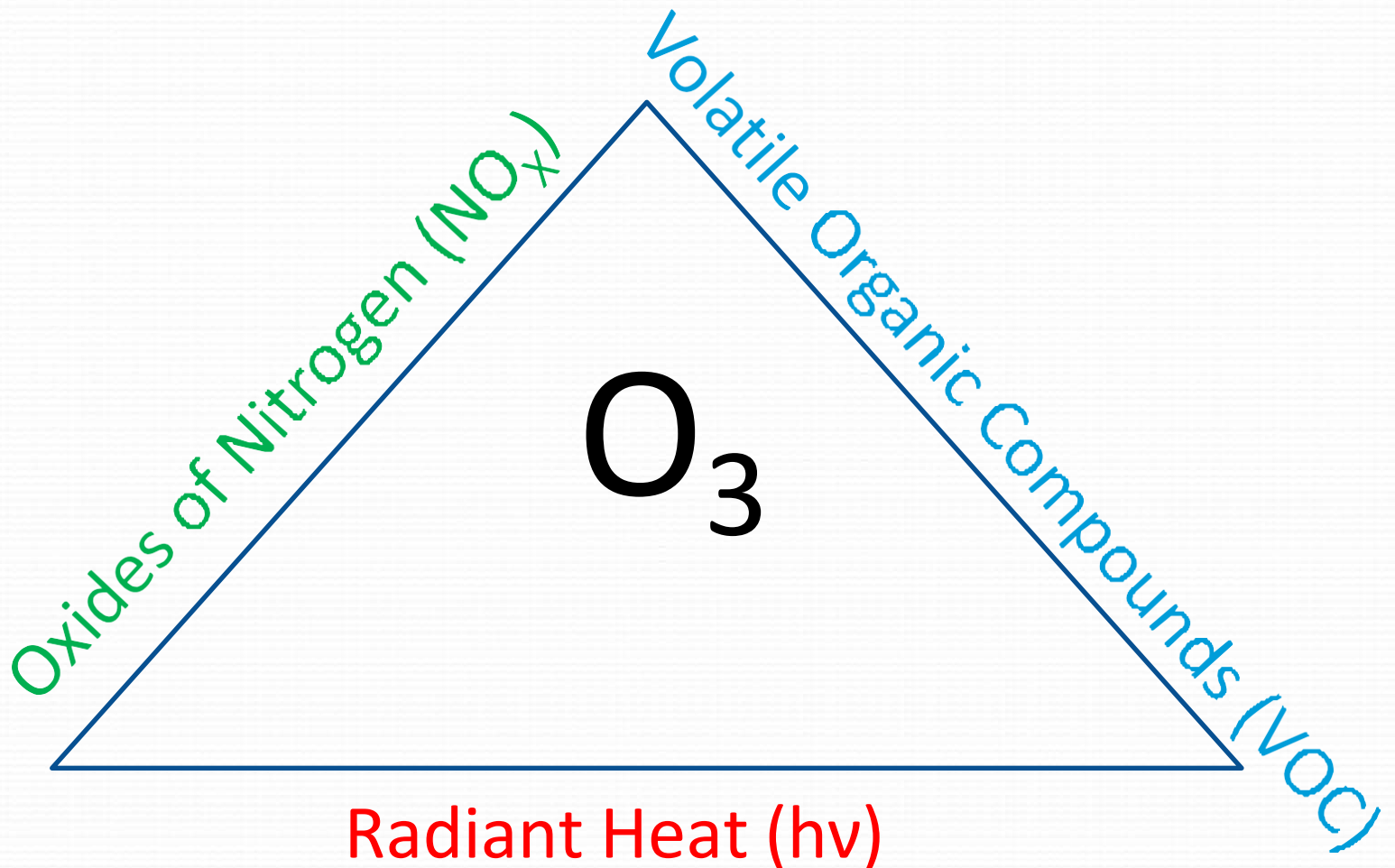




# Air Quality - Non-Attainment (2016)



# The Ozone Triangle



# To Create Ground level ozone...

- Ground level ozone is created by a chemical reaction between nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight and heat.
- Emitted from sources like vehicle exhaust, power plants, and industrial processes
- Hot, sunny, and stagnant weather conditions, particularly during the summer, promote the formation of unhealthy levels of ozone.

# Why Ozone?

- Strong oxidizer
- Lung irritant
- Can trigger asthma attacks
- Other respiratory illnesses, reduced lung function and cardiovascular issues

# Ozone

Because of its health effects Ozone is deemed a Criteria Air Contaminant by USEPA.

Title I of the Clean Air Act Amendments of 1990 establishes Attainment and Non-Attainment areas of pollutants based on the National Ambient Air Quality Standards (NAAQS) which are based on average background concentrations of ozone and other criteria pollutants.

Any area that is designated as Non-Attainment must **provide regulations** to ensure reduction of the generation of the criteria pollutant.

# Back to our permits.....

This emergency generator shall not be used:

1. *For normal testing and maintenance on days when the Department forecasts air quality anywhere in New Jersey to be "unhealthy for sensitive groups," "unhealthy," or "very unhealthy".....*

The idea is to limit the non-emergency use of emergency generators when air quality is bad, and postpone any testing or routine maintenance to times when air quality is acceptable.

**Emergency operations are exempt from this requirement!**



# Record Keeping

How do we show that we are in compliance? (N.J.A.C. 7:27-19.11)

(a) The owner or operator of an emergency generator with a maximum rated power output of 37 kW or greater, shall maintain on site and record in a logbook or computer data system, the following information:

1. Once per month, the total operating time from the generator's hour meter;
2. For each time the emergency generator is specifically operated for testing or maintenance:
  - i. The reason for its operation;
  - ii. The date(s) of operation and the start up and shut down time;
  - iii. The total operating time for testing or maintenance based on the generator's hour meter; and

# Record Keeping

How do we show that we are in compliance?

iv. The name of the operator; and

3. If a voltage reduction is the reason for the use of the emergency generator, a copy of the voltage reduction notification from PJM or other documentation of the voltage reduction.

(b) The owner or operator of an emergency generator shall maintain the records required under (a) above for a period of no less than five years after the record was made and shall make the records readily available to the Department or the EPA upon request.





# Record Keeping

How do we show that we are in compliance?

- Remember that fuel sulfur content certificate!
- The maximum annual operating hours for normal testing and maintenance per emergency generator shall not exceed the hours as selected by the Permittee in the registration form, not to exceed 100 hours per year per emergency generator.

# Record Keeping

## EMERGENCY GENERATOR RECORDKEEPING

Air Pl# \_\_\_\_\_

Permit # \_\_\_\_\_

Generator Descrip: \_\_\_\_\_

**MONTHLY**  
**HOURLY METER READING:**

ENTER YEAR:	ACTUAL DATE	HOUR METER READING	INITIALS
Jan			
Feb			
March			
April			
May			
June			
July			
Aug			
Sept			
Oct			
Nov			
Dec			

**EVERY INSTANCE OF TESTING, MAINTENANCE, REPAIR OR BROWNOUT/VOLTAGE REDUCTION:**

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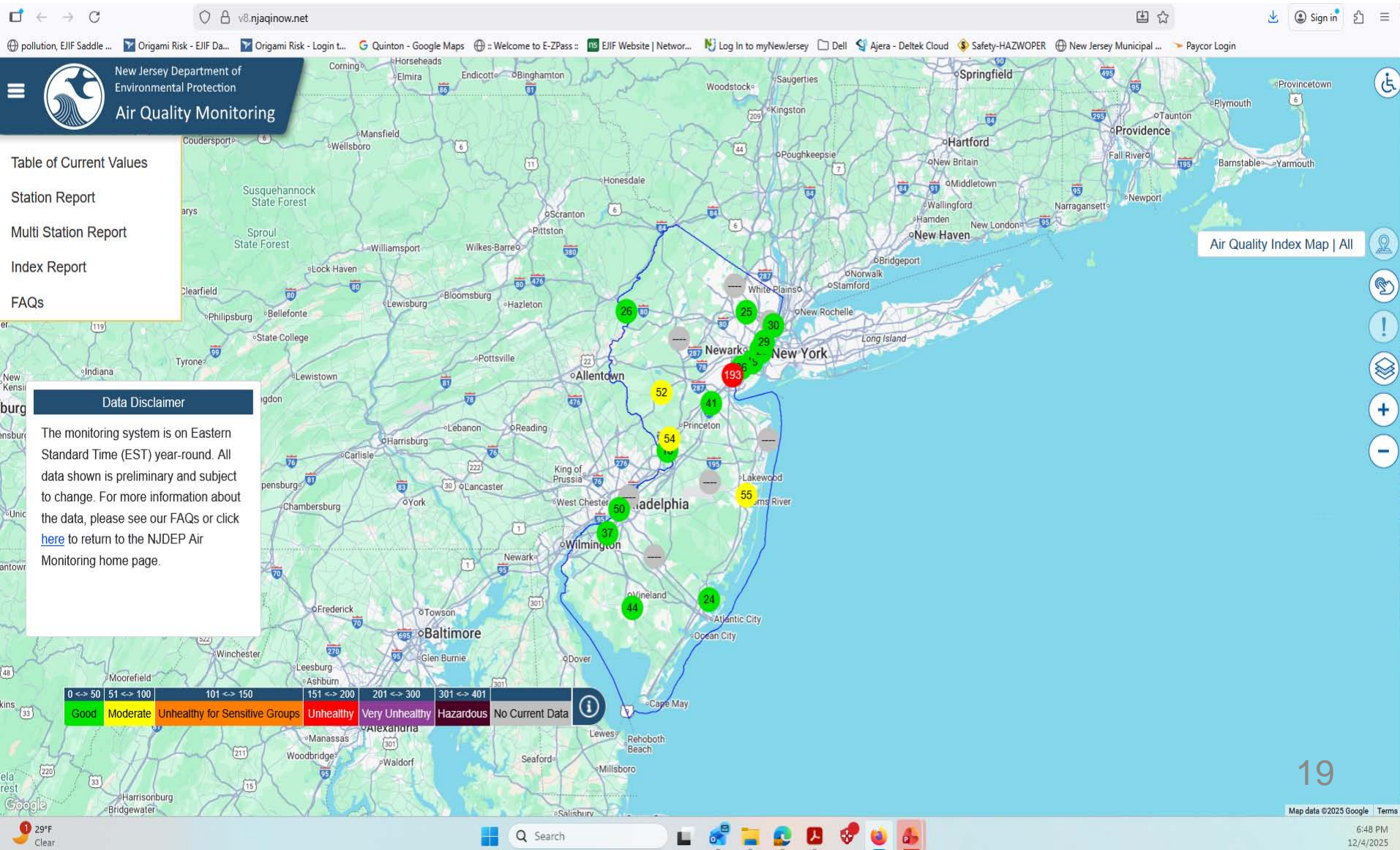
NOTE: keep records onsite for 5 years

**NOTE:** If used during a brownout/voltage reduction, also keep some record (preferably a notification from your power company) that documents the brownout event.

If more entries are needed, continue on separate page.

# Record Keeping

And for our air quality check - <https://dep.nj.gov/airmon/>



# Additional Resources

- **NJDEP - Subchapter 19; Control and Prohibition of Air Pollution from Oxides of Nitrogen:**

<https://dep.nj.gov/wp-content/uploads/aqm/sub19.pdf>

- **NJDEP - General Permits for Minor Source Facilities:**

<https://dep.nj.gov/boss/general-permits/gp-minor/#general-permits-and-applications>

- This presentation will be available on the EJIF Website shortly!

<http://njejif.org/>

# QUESTIONS?

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EJIF – <http://njejif.org/>

