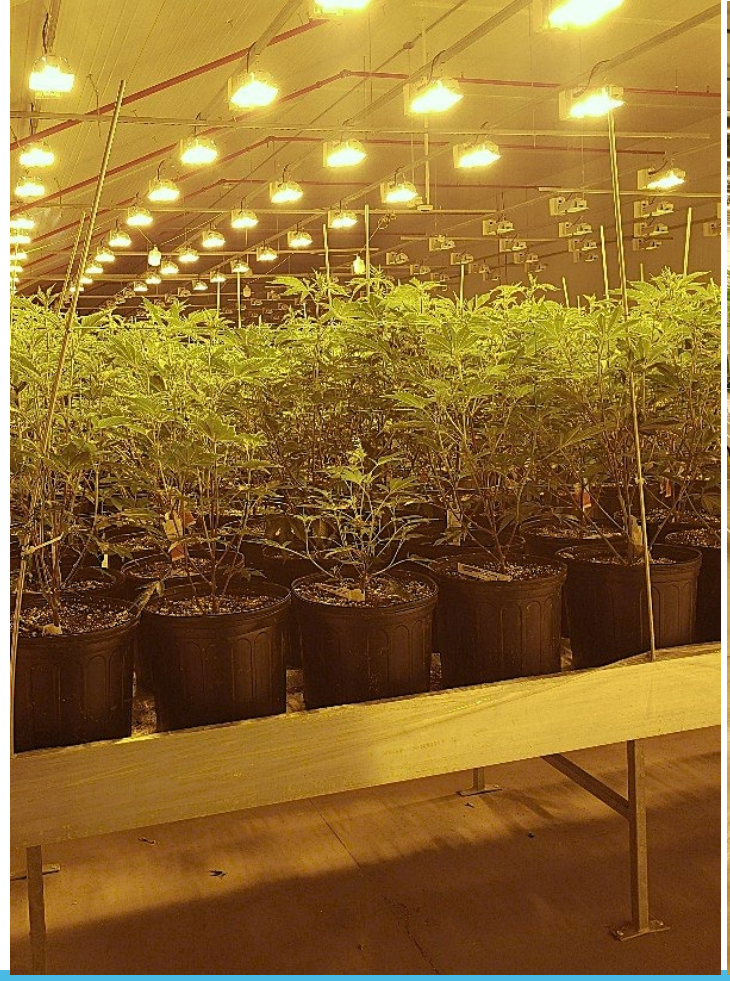


Cannabis Facilities – Air Enforcement

May 7, 2025

Agenda

Odors

- **Sources of odors**
- **Importance of controlling odors**
- **NJAC 7:27-5**

Environmental Impact

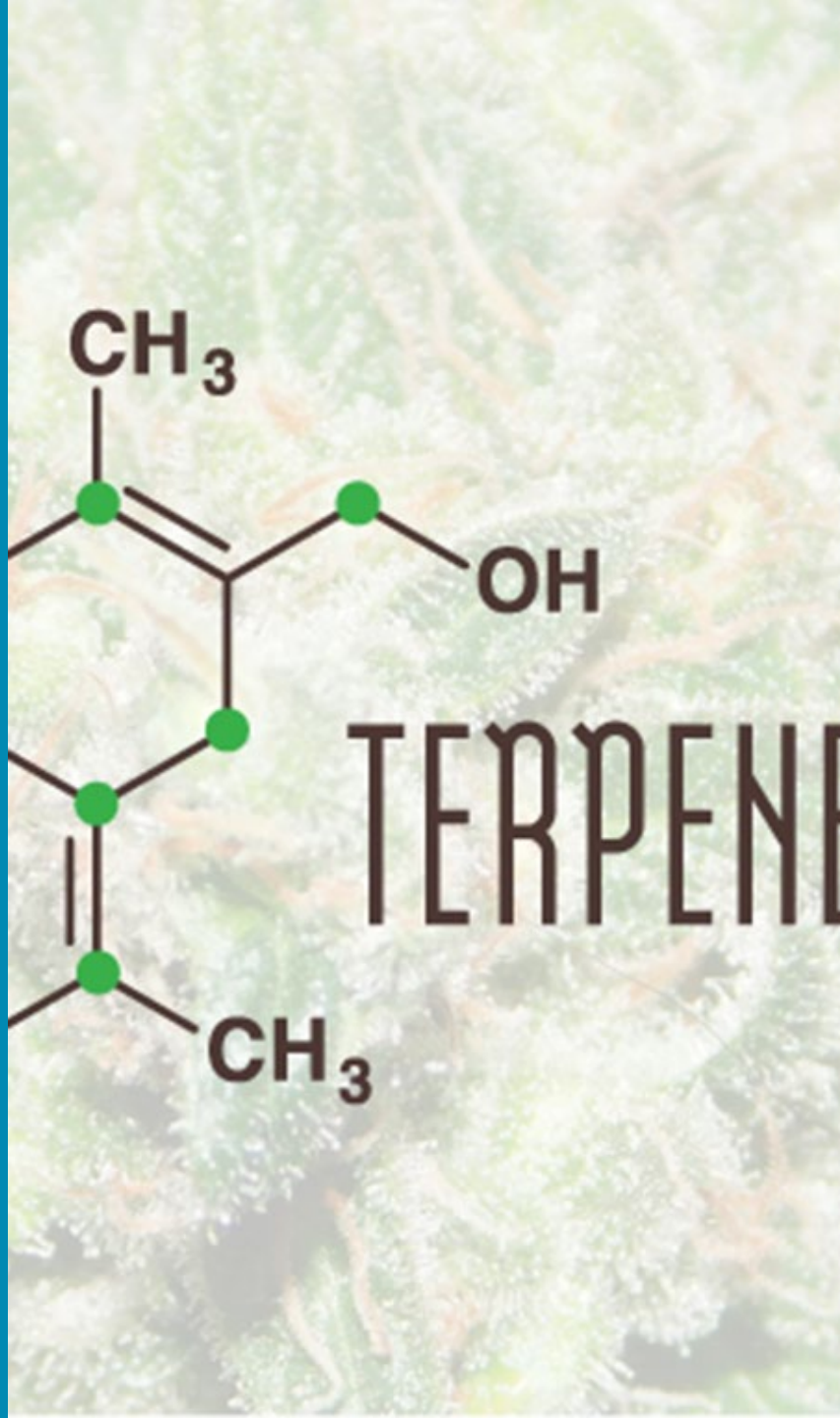
- **VOCs**
- **Controls**
- **Regulations**

ODORS

Odors are among the initial challenges faced when managing cannabis facilities.

Odors from the following:

- Terpenes (i.e., pinene, limonene, myrcene), VOCs, and other organic compounds found in cannabis.
- Solvents from extraction, cleaning, disinfection
- Cooking odors (i.e. gummies)



Why control odors?

Nuisance

Odors can lead to complaints from nearby residents and businesses, potentially harming community relations and creating opposition to the facility's presence.

Regulatory Compliance

Towns may have ordinances for cannabis facilities to manage and minimize odors.

NJDEP NJAC 7:27-5 Prohibition of Air Pollution.

Compliance with these regulations is essential to avoid fines and legal issues.

Environmental Impact

Uncontrolled odors can contribute to air pollution and impact the local environment. Effective odor management helps mitigate these effects.

Nuisance

Odors are a nuisance!

Low Odor Thresholds: Cannabis emits strong and distinctive odors due to compounds like terpenes and volatile organic compounds (VOCs). Even at low concentrations, these odors can be easily detected, leading to a high sensitivity among residents and businesses nearby.

Proximity to Residential Areas: Many cannabis facilities are located near residential or commercial areas. Odors can travel and affect a wide area, resulting in discomfort and complaints from those living or working nearby.

Impact on Quality of Life: Persistent odors can affect the quality of life for residents, impacting outdoor activities, enjoyment of property, and overall well-being. This can lead to frustration, stress, and increased complaints. Creating problems from health impacts to decreased property values.

Regulatory Pressure: New Jersey has regulations in place to manage odors from cannabis facilities. Facilities that fail to comply with these regulations may face complaints from the community, prompting enforcement actions.

Perception and Stigma: Cannabis odors can contribute to negative perceptions or stigma, particularly in areas where there is opposition to cannabis legalization. This can amplify concerns and lead to more frequent complaints.

NJAC 7:27-5

The Air Pollution Control Act prohibits the emission into the outdoor atmosphere substances in quantities that result in air pollution. Air pollution is defined as “the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as are, or tend to be, injurious to human health or welfare, animal or plant life or property, or would unreasonably interfere with the enjoyment of life or property.” Odor is an air contaminant and therefore may be considered air pollution if it unreasonably interferes with the enjoyment of life or property.

Complaint received

Department or local health department will initiate an investigation

Verify the odor on the complainant’s property and determine if the odor is unreasonable interference

Survey area to identify source

Notify facility and issue violation

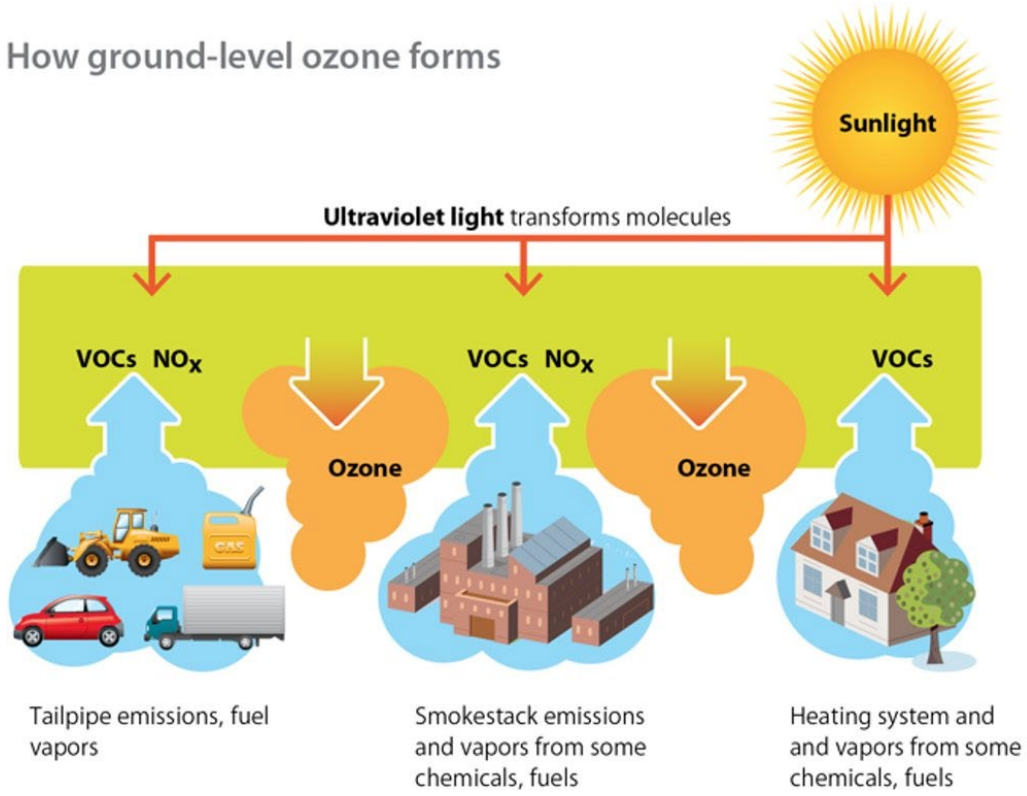
What is the penalty for an odor violation?

- **First offense of a violative odor release may be assessed penalties ranging from $150 up to $10,000.**
- **Subsequent or continuing violations may be subject to penalties of up to $50,000 per violation.**

Penalties

N.J.A.C. 7:27A-3, Subchapter 5

Environmental Impact



VOC and NOx Emissions

Cannabis facilities primarily emit VOCs and NOx emissions, which contributes to ozone.

- VOCs from the plants, the extraction process, cleaning, and disinfection.
- NOx from fuel burning sources, for example, boilers and emergency generators

Ground-level Ozone

- Component of smog
- Serious effects on human health, i.e. respiratory issues
- Affects vegetation and ecosystems

COLORADO
Small Business Assistance Program
Department of Public Health & Environment

Terpenes emissions increase as the plant grows & is processed

LOW VOC → **HIGH VOC**


CLONE


VEG


FLOWER


DRY / CURE


TRIM


EXTRACTION

VOCs at Cannabis Facilities

- Plants emit terpenes, which is a VOC
- As the plant grows and is processed, VOC emissions increase

One study identified over 200 more volatile compounds emitted from marijuana at room temperature.

(Characterizing the Smell of Marijuana by Odor Impact of Volatile Compounds: An Application of Simultaneous Chemical and Sensory Analysis; https://pmc.ncbi.nlm.nih.gov/articles/PMC4684335/)

VOC sources

Cannabis plants

Solvents

- Ethanol
  - Extraction and cleaning
- Butane / Propane
  - Extraction and cleaning
- Isobutyl alcohol
  - Used in cleaning and disinfecting

Odor Control Methods

Carbon Filtration*

Chemical Sprays*

Mechanical Exhaust Systems

- High plume fans for air dispersion

Biofilters and photo oxidation (not commonly observed)

Additional Control Measures

- Sealing buildings
- Regular maintenance

*Commonly seen in NJ

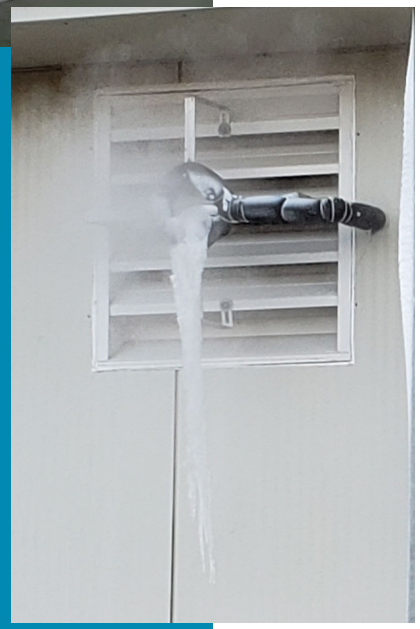
- Pick the right filter!

Carbon Filtration

Which one?

Efficiency factors

- **Type of carbon**
- **Contaminant levels**
- **Humidity**
- **Air flow rate-**volume of air passing through
- **Filter size**
- **Maintenance-**lifespan and replacement frequency



Issues

- **Contact time**
- **Inappropriate for high concentrations**
- **Icing**
- **Other impacts- i.e. water pollution**
- **Make odors worse; odor complaints for ”perfume”**

Chemical Sprays

- **Neutralizing or Masking**
  - Neutralizing: converting molecules
  - Masking: covering odors with other scents
  - Potential other environmental impacts

Equipment and Select Regulations

Extraction equipment: VOC emissions

Boilers: NOX and VOC emissions

Emergency generators: NOX and VOC emissions

Extraction equipment

NJAC 7:27-16 Control and Prohibition of Air Pollution by Volatile Organic Compounds

Section 16.16 Other source operations

Applies to any significant source operation as defined in N.J.A.C. 7:27-8.2 or 22.1

No person is allowed to let volatile organic compounds (VOCs) be released into the air from any operation more than the maximum limit determined in this section.

Records must include details like VOC types, emission rates, and compliance demonstrations

Boilers: NOX and VOC emissions

- **NJAC 7:27-19 Control and Prohibition of Air Pollution from Oxides of Nitrogen**

  Section 19.16 Adjusting combustion processes

  - Applies to industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 5 million BTU per hour
  - Adjust the combustion process annually, keep records of adjustment, and submit the records to the Department

Emergency Generators: NOX and VOC emissions

NJAC 7:27-19 Control and Prohibition of Air Pollution from Oxides of Nitrogen

- Section 19.2 Purpose, scope and applicability
  - When air quality in New Jersey is forecasted to be "unhealthy for sensitive groups," "unhealthy," or "very unhealthy," routine testing and maintenance should generally not be performed, unless required by law. These air quality forecasts can be checked online.
- Section 19.11 Emergency generators – recordkeeping
  - Owner or operator of an emergency generator with a maximum rated power output of 37 kW or greater shall maintain operational records

Federal Regulations

Emergency Generators cont.

- **40 CFR 60 Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**
- **40 CFR Subpart JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**
- **40 CFR 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**

Q&A

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