



ST. MARY'S COUNTY  
HEALTH DEPARTMENT

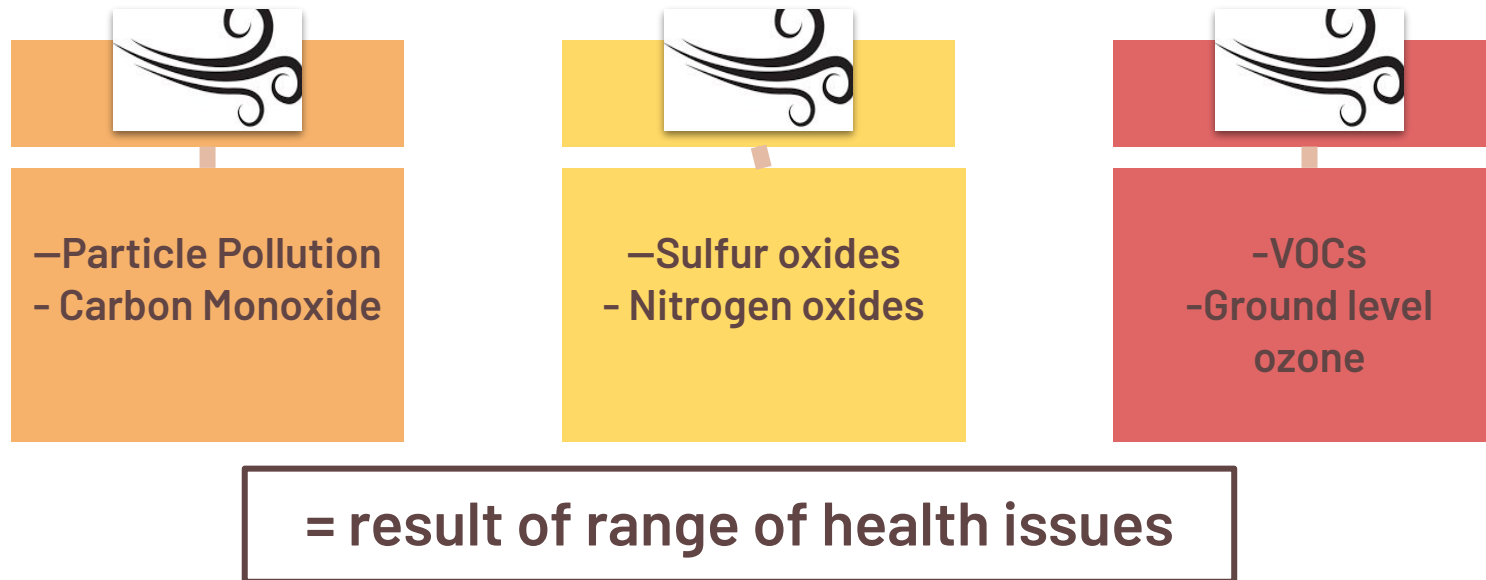
# Pollutants & BreatheWell St. Mary's

**April 16, 2025**

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Data Analyst

# What are air pollutants

Substances in the air that can harm human health, the environment or cause property damage



# Particulate Matter 2.5 (PM2.5)

**PM2.5:** Fine particles  $\leq 2.5$  microns. Penetrates deep into lungs and bloodstream.

**PM10:** Particles  $\leq 10$  microns. Affects upper respiratory tract.

## PENETRATION OF PARTICLES INTO THE BODY

The smaller the particles, the more dangerous they are

### COARSE PARTICLES

#### PM10

- pollen
- desert dust

### FINE PARTICLES

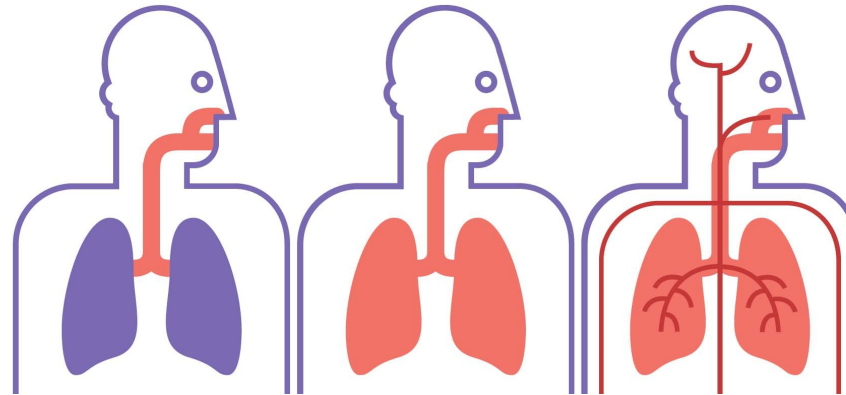
#### PM2.5

- bacteria
- fungal and mold spores
- pollen
- toner dust

### INHALABLE PARTICLES

#### PM1

- viruses
- exhaust gases

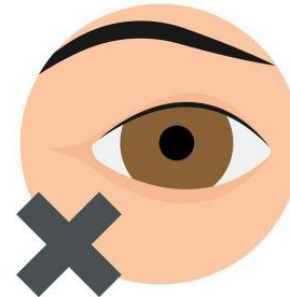


# Carbon Monoxide (CO)

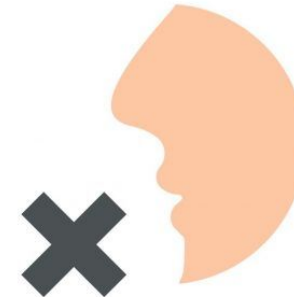
- **What is it:** a colorless, odorless and tasteless gas.
- **Sources:** Incomplete combustion (cars, furnaces, wildfires).
- **Effects:** Reduces oxygen in blood; headaches, dizziness, can be fatal.
- **Note:** Particularly dangerous in enclosed spaces.



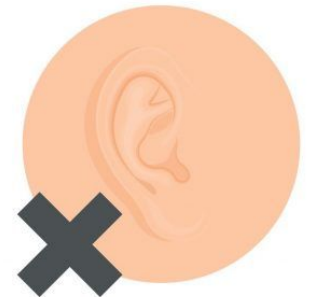
**DANGER**  
**CARBON MONOXIDE**



CAN'T BE SEEN



CAN'T BE SMELLED



CAN'T BE HEARD

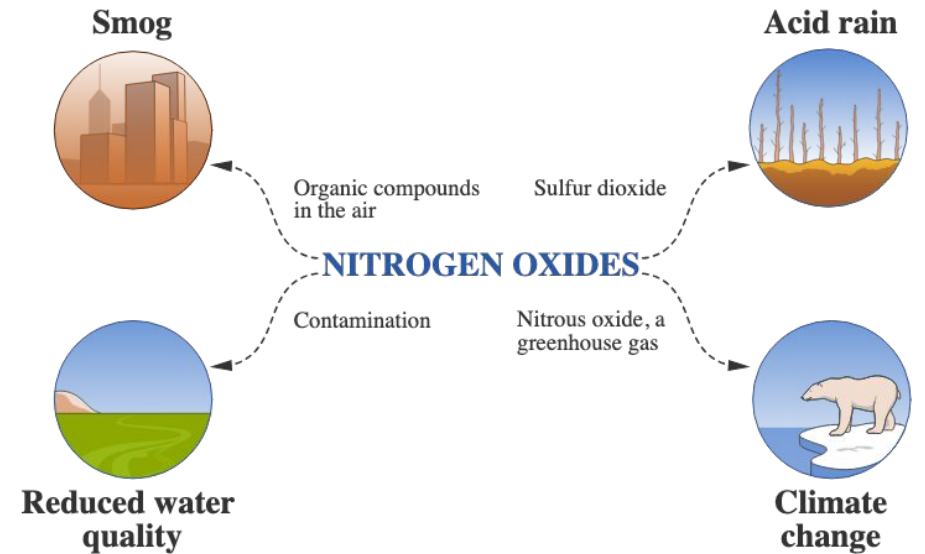
# Sulfur Dioxides (SO<sub>2</sub>)

- **What is it:** A colorless gas.
- **Sources:** Burning coal/oil, industrial processes.
- **Effects:** Respiratory problems, asthma triggers.
- **Environmental Impact:** Acid rain formation, plant and water body damage.



# Nitrogen Oxides (NO<sub>x</sub>)

- **Includes:** NO and NO<sub>2</sub>.
- **Sources:** Vehicle engines, power plants, combustion.
- **Effects:** Lung irritation, asthma, contributes to smog and acid rain.
- **Environmental Impact:** Helps form ground-level ozone and PM<sub>2.5</sub>.



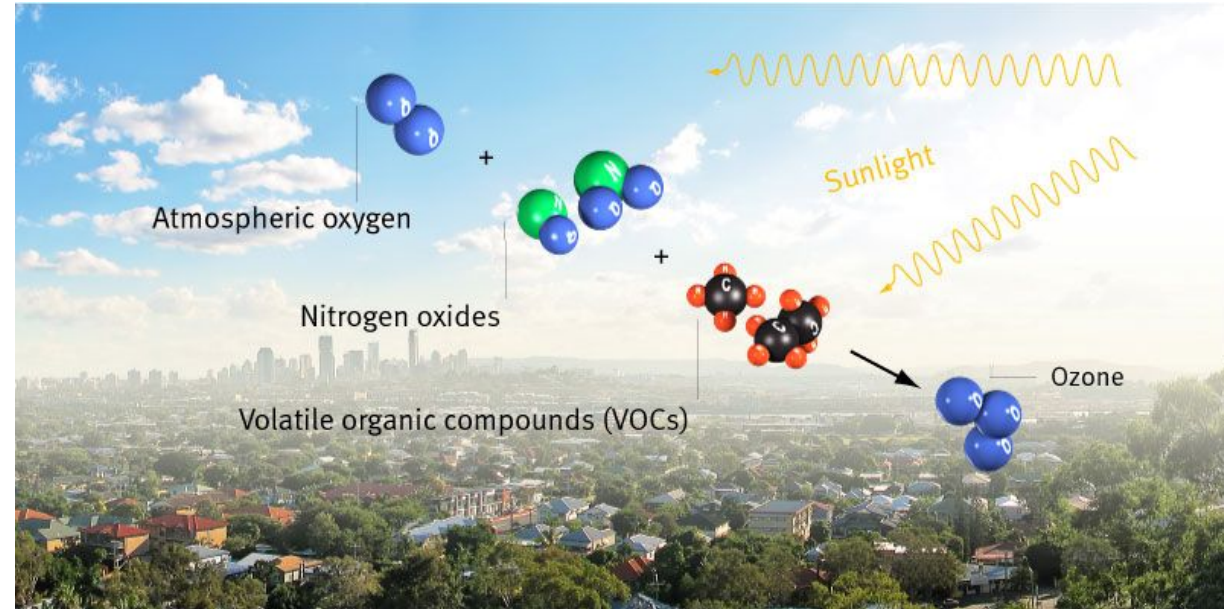
# Volatile Organic Compounds (VOCs)

- **What is it:** Gases emitted from certain solids or liquids.
- **Sources:** Paints, cleaning products, fuel vapors, industrial processes.
- **Effects:** Eye/nose/throat irritation, some are carcinogenic.
- **Role:** Contribute to ozone formation.



# Ground Level Ozone ( $O_3$ )

- **Type:** Secondary pollutant (formed from  $NO_x$  and VOCs in sunlight).
- **Sources:** Cars, industrial emissions, chemical solvents.
- **Effects:** Lung irritation, asthma, reduces lung function.
- **Note:** Different from "good" ozone in the upper atmosphere.



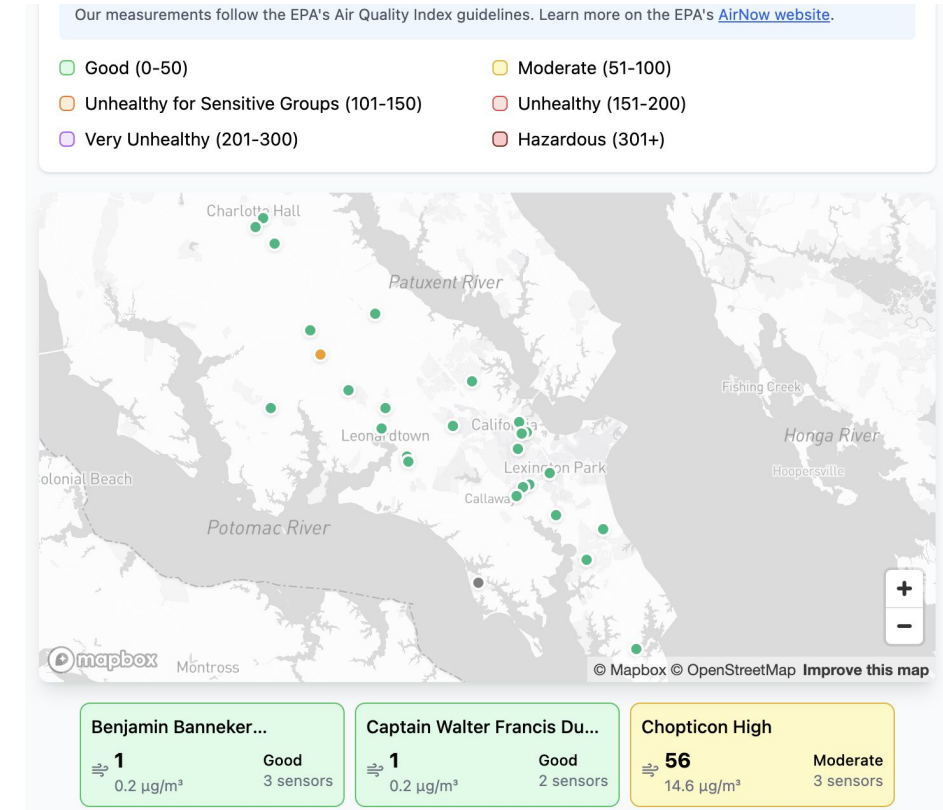
# BreatheWell St. Mary's

- Comprehensive air quality monitoring and health education initiative started in 2020.
- A St. Mary's County Equity Taskforce initiative (Partnerships).
- Outdoor sensors placed across the county that measure particulate matter, ozone, and other pollutants.
- Sharing real time air quality data to the public.
- Goal - lower the health risks associated with poor air quality.



# St. Mary's County Sensors

- 3 Purple Air Sensors have been placed at each public school in the county - these measure PM2.5.
- Air Quality Trailer - measures OZone & PM2.5.



LEARN ABOUT BreatheWell St. Mary's AT  
<https://smchd.org/breathewell/>

