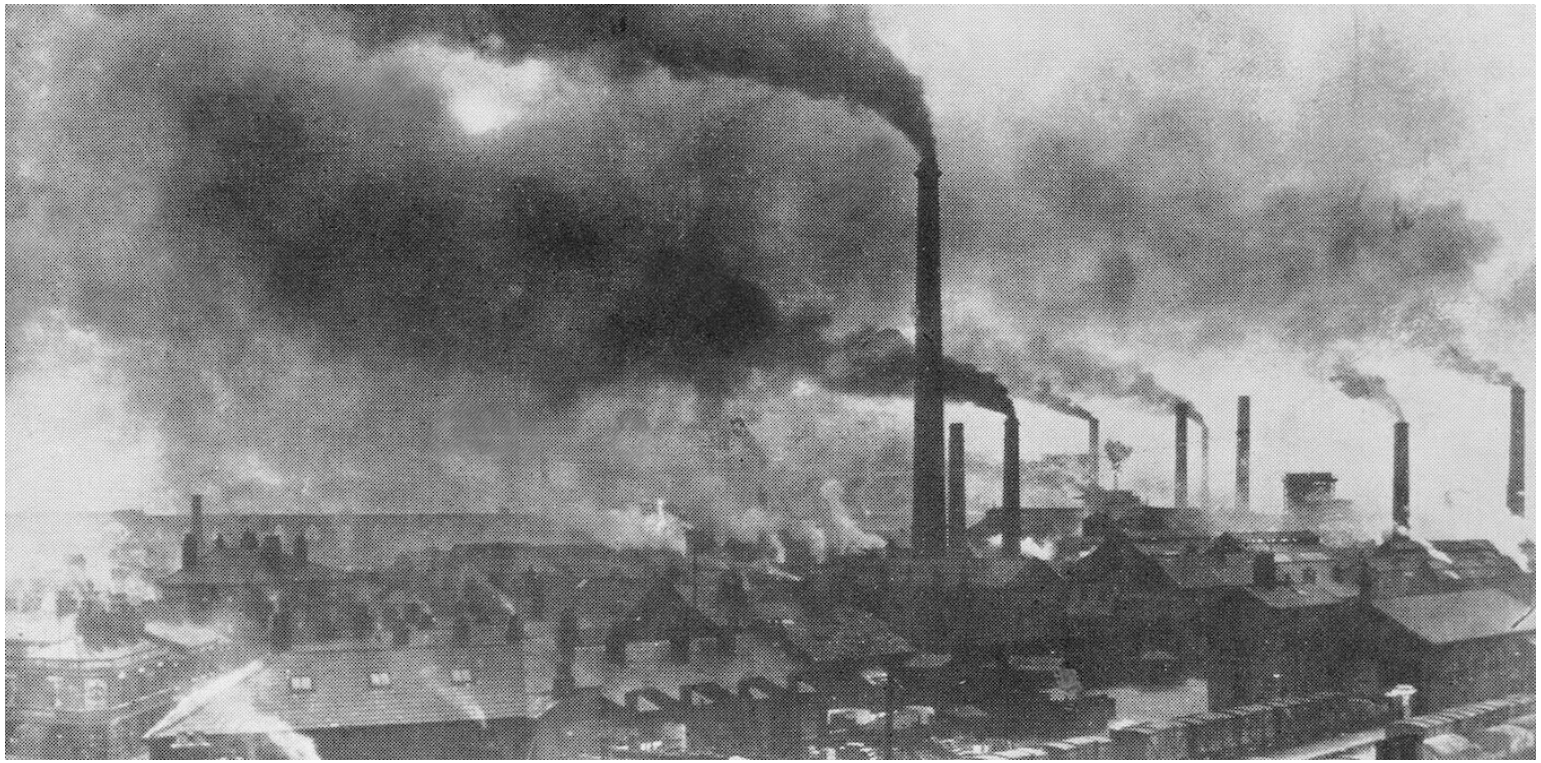
Opacity Overview
(Visible Emission Evaluations)

Stockton Regulatory and Enforcement Subcommittee

October 24, 2024

The History of Visible Emissions

- Case law starting during the Industrial Revolution
  - When does an annoyance do harm? The case of Soot:



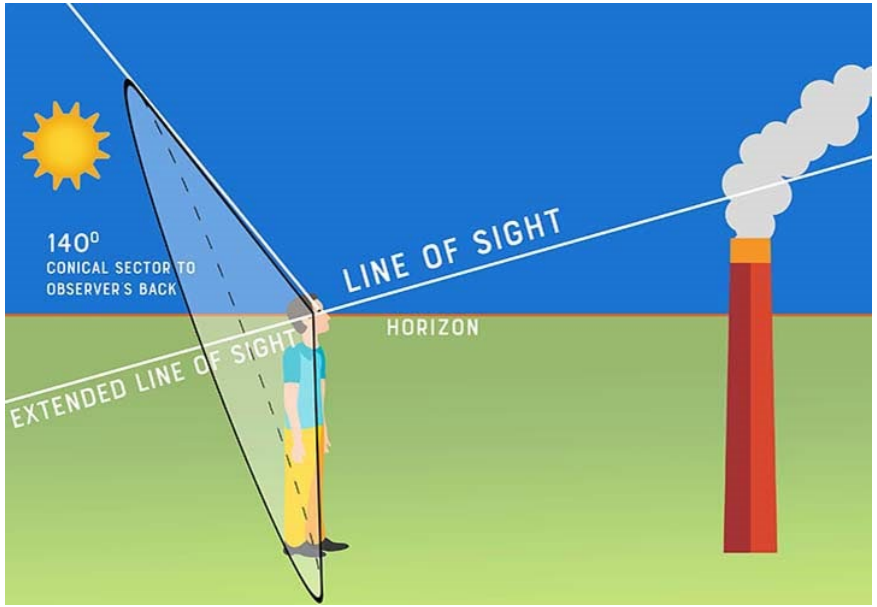
Late 1880's England

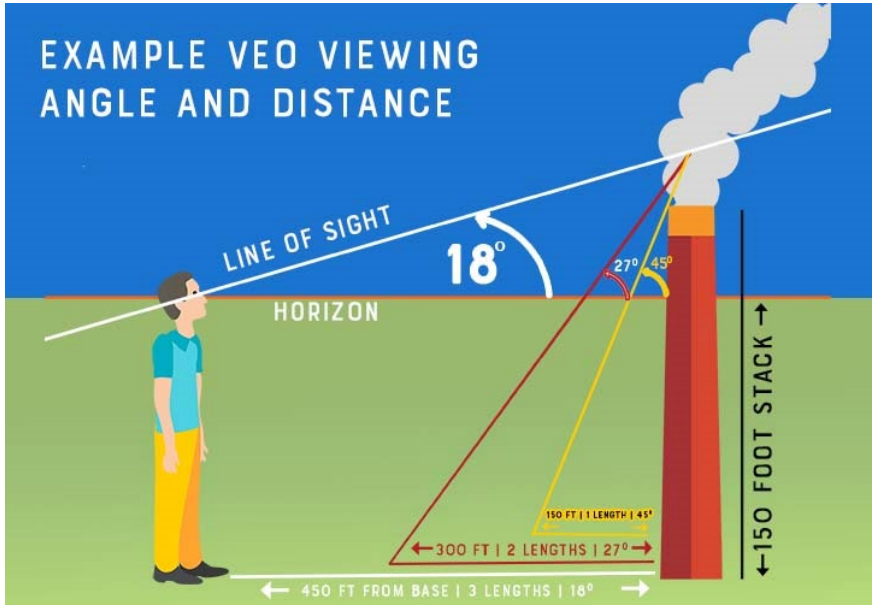
Visible Emission - Classifications

- Point sources
- Fugitive emission sources

Visible Emission - Reading Opacity

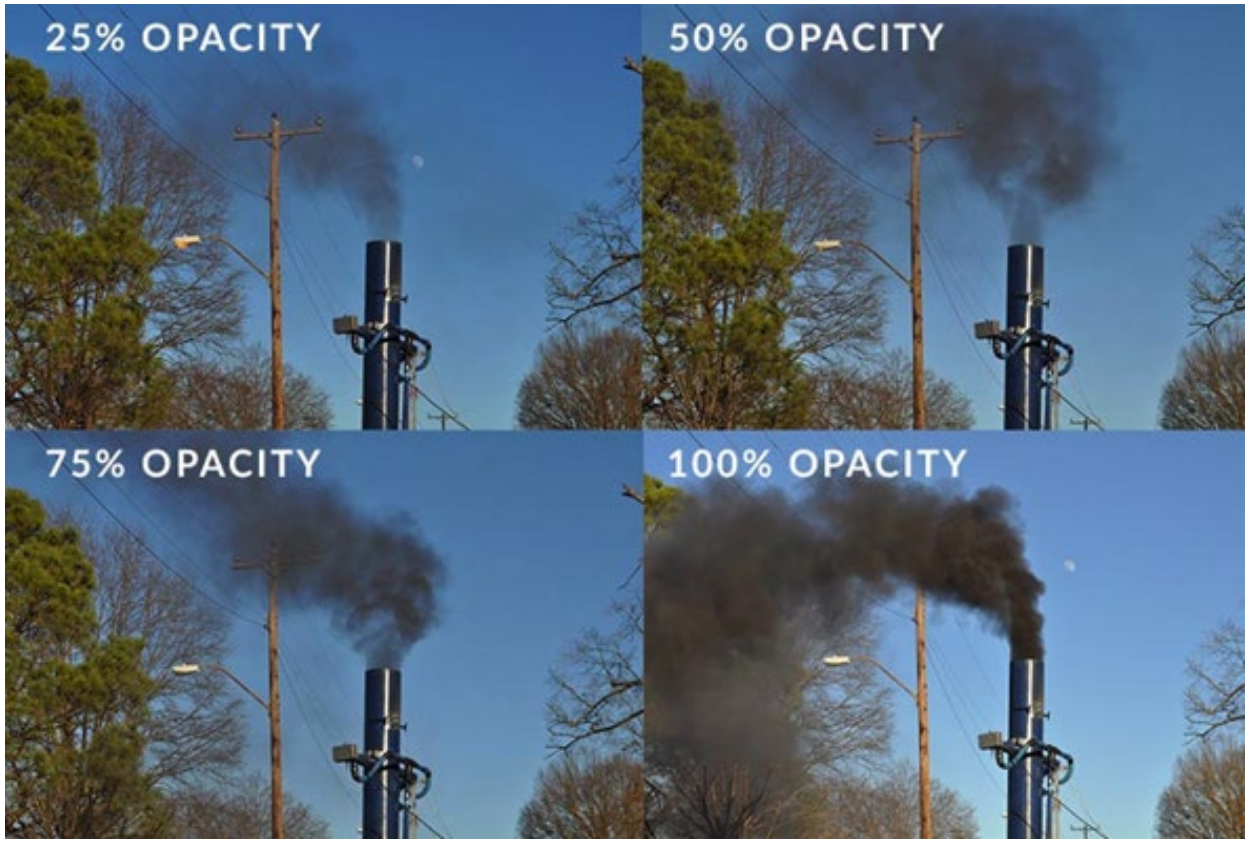
- Environmental Protection Agency (EPA) Methods:
  - EPA Method 9: Evaluation that quantifies visible emissions
  - EPA Method 22: Evaluates the presence of an emission (qualifies)



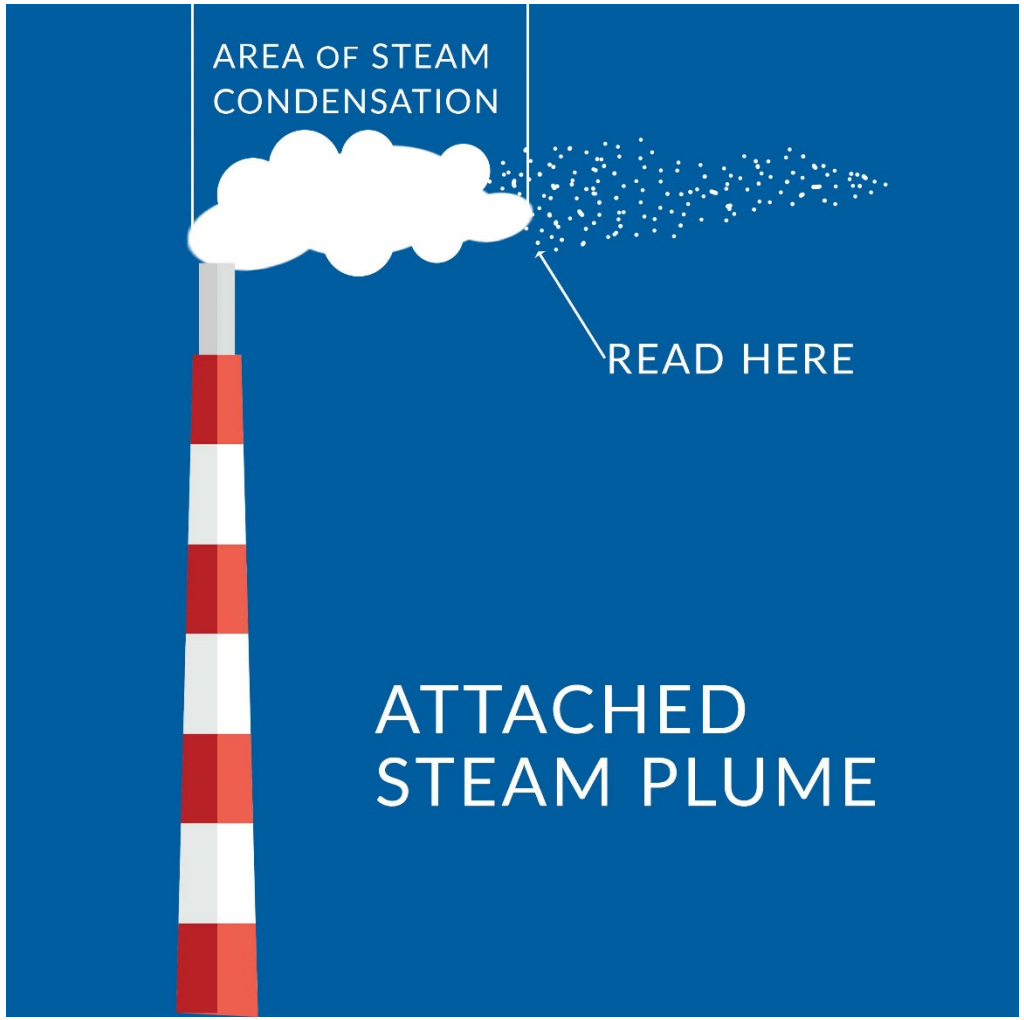


Reading Opacity Cont.

- Opacity is read per the methods by the observer at the point of the plume



Stacks with Steam Plumes



Steam Plume Example:

DTE Stockton is located within the Port of Stockton and is a 54 MW Biomass fueled power plant, and has what is technically referred to as a “wet-stack”.

At the base of the exhaust stack there is a wet-scrubber that removes any acidic compounds in the exhaust stream.

The temperature of the exhaust is in the range of ~350F, which causes a high degree of water condensation to occur once the exhaust exists the stack. And that is why the plume is attached.

Questions?

- Citations:
  - EPA Method 9: https://www.epa.gov/emc/method-9-visual-opacity
  - EPA Method 22: https://www.epa.gov/emc/method-22-visual-determination-fugitive-emissions
  - Web Based Visible Emissions Course: https://compliance-assurance.com/veo-course-summary.php
  - CARB Air Quality Training: https://ww2.arb.ca.gov/our-work/programs/air-quality-training