Air Dispersion Modeling

City of Albuquerque
Environmental Health Department
Air Quality Program
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Protect Public Health

- Models overestimate impacts of pollution emitted by industry
- Compare those impacts to air quality standards
- Purpose of overestimation is to assure standards won’t be violated

Connection to Permitting

- Modeling used to set permit conditions
  - Hours of operation
  - Emission rates
  - Distance of equipment from fence

Analogy

- Sprinkler system surrounded by buckets
- Wind is important in distributing water
- Measure depth of water

Inputs to a Dispersion Model

Meteorology
- Wind speed
- Wind direction
- Temperature

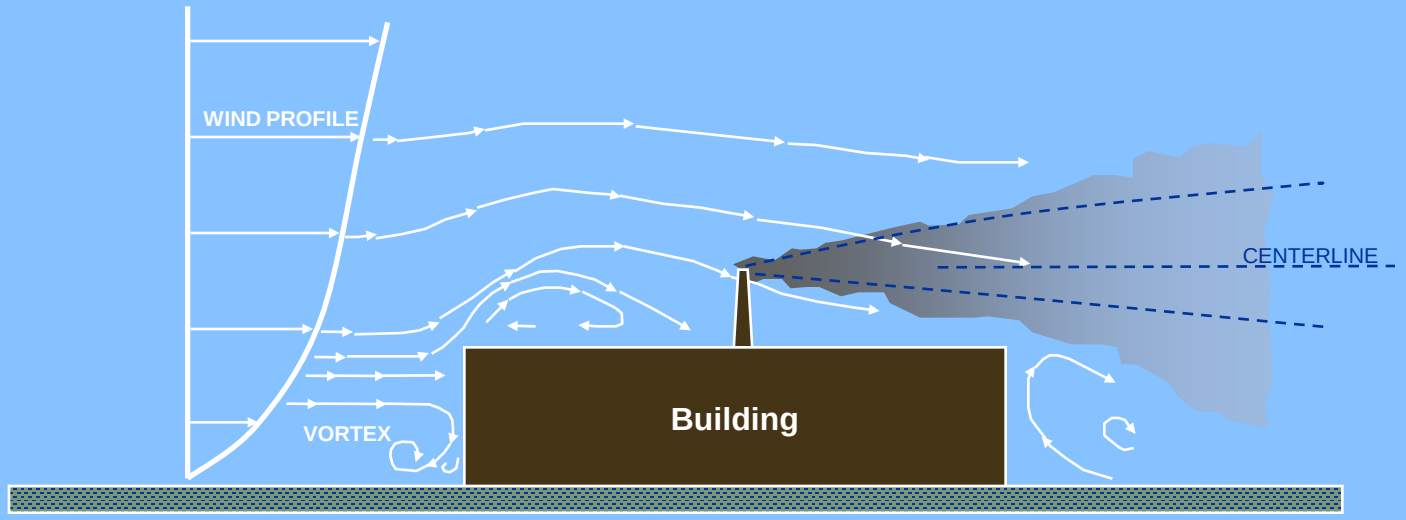
Terrain & Land Use
- Rural or urban
- Elevations

Emissions
- Rates
- Hrs of operation

Sources
- Source type
- Parameters

Downwash
- Buildings

Gravitational Settling
- Particle Size
- Density



Source Types: Point Source

Volume Source

Background Concentration

- Background is everything else
- Added to modeled impact
- Cumulative impact is compared to air quality standards

Example of Standards

Pollutant	Time Average	U.S. EPA
PM_{10}	Annual 24-hour	-- 150 µg/m^3
$PM_{2.5}$	Annual 24-hour	12 µg/m^3 35 µg/m^3

Guidelines

- Federal: 40 CFR 51, a.k.a. Appendix W
- NMED's Air Dispersion Modeling Guidelines
- Air Quality Program air dispersion modeling guidance on our web site.

Success

- Air dispersion modeling is a successful tool for keeping Bernalillo County within standards.
- Bernalillo County is in compliance with all air quality standards.
  - Public health is protected.
  - Enables economic growth.

Parting Thoughts

- Model for worst case scenario
  - Highest production rate
  - Worst weather
- Meeting standards protects public health and allows for economic growth
- Legal obligation to issue permit