

Pinal County PM10 Stakeholders Discussion

Emission Inventory Background

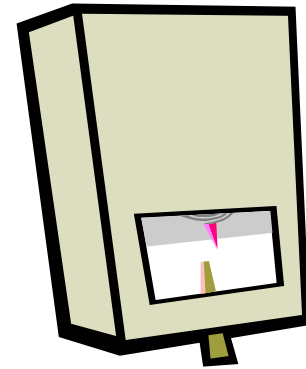
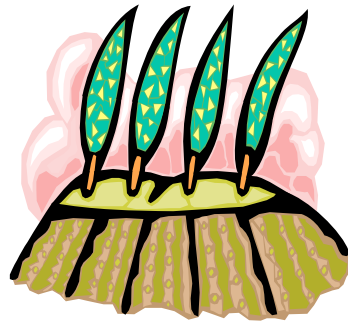
July 6, 2007

Emissions vs. Emission Impacts

Different Units



Tons/day - mass/time
Averaging time?



$\mu\text{g}/\text{m}^3$ – mass/volume
Averaging time?

Inventory Components

- Point sources
- Area Sources
- Mobile Sources
 - On-road
 - Off-road
- Background

Maricopa County 2005 Inventory

- Effort took 2 years
 - A lot of arithmetic
 - And a lot of resource
- Final report - 340 pages
 - See http://www.maricopa.gov/aq/divisions/planning_analysis/
- Countywide
 - Not area-specific
- Annual inventory
 - Not focused on short-term

EPA's 1999 NEI

National Emission Inventory

- Periodic survey of national emissions
- Public Information
- A starting point for rule development
- Multiple documents require aggregation of a local total
- 1999 NEI omits wind-generated PM₁₀
- Burning data includes prescribed fire and wildfire events

Pinal 1999 NEI for PM₁₀

- See 8/3/05 memo entitled “Major PM sources in the 1999 NEI in Pinal County”
- See 7/5/07 spreadsheet `einei.xls` summarizing that data into general categories

Pinal 1999 NEI Summary

Category	TPY PM ₁₀		
Roads	8964	39.7%	40%
Ag	5879	26.1%	25%
Construction	3352	14.9%	15%
Burning	2388	10.6%	10%
Misc.	631	4.1%	5%
Vehicles	187	0.8%	
Mining	770	3.4%	5%
Industry	90	0.4%	
Total	22563	100.0%	100%

NEI Shortcomings

- Wind-generated emissions aren't included
 - Limited utility when planning for wind-emissions
- Annual data doesn't consider effect of inversions
 - Emissions produce greater impacts during inversion conditions
- Proximity isn't reflected. For example:
 - Mining emissions are dominated by emissions from the Ray Mine
 - Burning emissions are dominated by wildfire and prescribed forest burns
 - Unpaved airstrips exceed 4% (?!?)

Stagnation vs. Wind

- Concentrations during stagnation events logically correlate to activity levels
 - Every little bit counts
- Concentrations during wind events are dominated by wind-driven emissions
 - Affected acreage
 - Threshold friction velocity
 - Depth of reservoir
- Wind events can compound process-related emissions

Focus on Time and Distance

- An inventory needs to reflect local conditions and local activity at the time when an exceedance occurs
- Pick a specific location
- Pick specific dates
 - Wind AND
 - Stagnation

Which Site Should We Start With?

- Combs School?
 - Only very recent data
- Cowtown?
 - A special case
- Stanfield?
- Maricopa?
- Pinal County Housing?

Discussion

- We've prepared site-specific packages
 - Broad aerial photo
 - Focused aerial photo
 - 24-hour concentration plots
 - Wind
 - Stagnation
 - Site-specific speciation data
- Which site do we start with?
- Wind or stagnation first?
- How do we put a number on it?

Proposed Pinal Inventory Form

Site _____

Date _____

Stagnation / Wind Event

Category	
Roads	_____%
Ag	_____%
Construction	_____%
Burning	_____%
Misc.	_____%
Mining	_____%
Other _____	_____%
Total	100%