

Building Emission Factors With Limited Resources



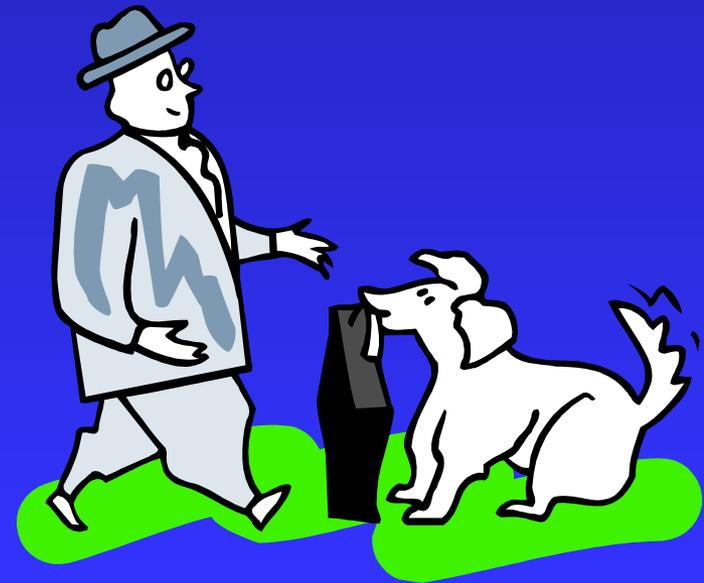
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June 2004



All statements reflect my views only, and in no way reflect the views of the California Air Resources Board

Emission Factors

- Emission factors can help solve problems and also create them
- Data and inputs can be interpreted to tell several stories
- Need to know what you're doing
- Know the inputs, assumptions, and applicability



If It is Broke, Who Will Fix It?



- EPA has been stripped of necessary resources
- Industry may have funding sources
- What are the “costs” of industry funding?
 - ◆ Industry developed study design?
 - ◆ Industry contractor selection?
 - ◆ Industry data interpretation?
 - ◆ Industry approval prior to release?
 - ◆ Criticism by public & enviros?

Stakeholders

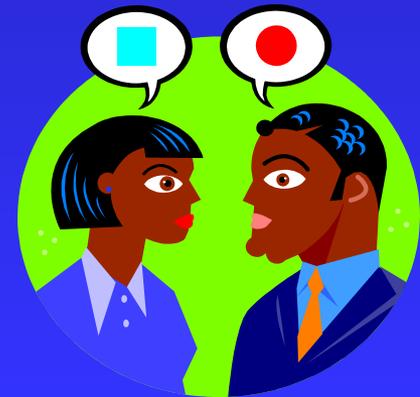
- Stakeholders can help solve problems and also create them
- They can be used to tell several stories
 - ◆ Pro-environment biases
 - ◆ Anti-environment biases
- Know what you're doing. Know the assumptions, limitations, and biases
- I sometimes forget that enviro groups are stakeholders too





Working With Industry Funding and Groups

- There is substantial public and media scrutiny of improper contracting and relationships
- We need to be wary of these pitfalls as we embark on industry funded research
- Enviros & others will be watching



Who Do You Trust With Your Emission Factors?

- EPA?
- STAPPA/ALAPCO?
- Other States?
- Contractors?
- Universities?
- Industry trade organizations?
- Industry supported organizations?
- Specific facilities and industries?
- Environmental groups?

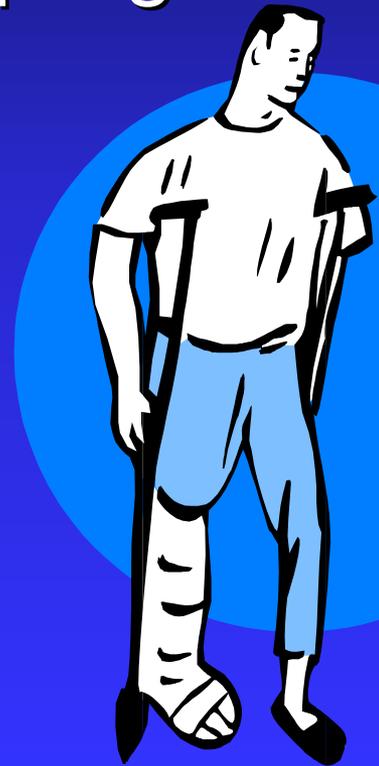


Approval of New Projects and Results

- If EPA cannot fund and manage EF development, who can?
- Who decides what gets studied?
- How are data shared?
- Who decides what gets approved?
- Can the process be made adequately transparent?

Developing New Projects For EF Development

- Open and transparent multi-stakeholder process required
- Inefficiencies could be crippling
 - ◆ Consensus
 - ◆ Reviews
 - ◆ Approvals
 - ◆ Ownership
 - ◆ Applicability
- Can it work?



My Problems

- Substantial EF changes to California agricultural categories for PM10 SIPs
- Very, very close involvement with agricultural stakeholders to develop inputs and assumptions
- Process extremely efficient and no lawsuits by industry
- BUT – The environmental groups fear backroom deals, possibly bringing lawsuits



What Went Wrong?

- The enviros don't have the resources to attend abundant "stakeholder" technical meetings
- We were so busy solving problems and developing data it was difficult to schedule additional enviro meetings
- There was a fairly peaceful status quo established and there was some hesitation about disrupting it
- Can this be avoided?



Dealing with Dairies



- \$4 billion/year industry in CA
- For TOG, the current California EF is based on a 1938 methane study
 - ◆ The VOC fraction is based on someone's undocumented guess
- Permitting & regulation are moving forward anyway for 1000+ dairies
- Industry is bringing a lawsuit
- ARB must define "LARGE" confined animal facility, i.e., those posing "significant" air quality impacts

EFs - How Good is Good Enough?



- Regulators - Support effective control strategy development
- Regulators - Protect ourselves from industry or enviro lawsuits
- Industry - Protect against ineffective, unnecessary, or costly regulation
- Public - Are they being reasonably protected from harm?
How much is it costing?

How Good is Good Enough? (Part II)

- EF Research Dynasties
 - ◆ Evaluation of cost/benefit
- How many rounds of incremental refinements are we going to do?
- When is it okay to stop?
 - ◆ What categories have already had many studies, with limited improvements?



Prioritizing EF Research

- Based on the magnitude of emissions & contributions to AQ standard exceedances
- Quality of existing emission factors and activity data
- Importance based on policy, health effects, other issues
- Potential to make meaningful improvements in current EFs



Prioritizing PM Emission Factor Research for Emission Inventory Development

		a	b	c	d	e	f	g	h
		Primary Score Categories				Secondary Scores			
Source Type	Source Name	Source Importance	Source Magnitude	PM _{2.5} EF Quality	Activity Data	Speciation Data	Spatial Data	Monthly Temporal	Totals
Geologic	Paved road dust	3	2	3	2	3	2	2	12.3
	Unpaved road dust	3	3	3	4	3	4	4	16.7
	Agricultural dust	4	3	3	2	4	2	1	14.3
	Windblown dust	2	3	3	3	4	2	2	13.7
	Construction dust	2	2	3	4	3	4	3	14.3
Vegetative Burn	Residential wood	5	4	3	3	3	3	2	17.7
	Prescribed burn	5	3	3	3	2	3	3	16.7
	Wildfire	5	3	3	3	3	3	3	17.0
	Agricultural burn	5	3	3	3	2	3	3	16.7
Motor Vehicles	Diesel exhaust	5	3	3	2	2	2	3	15.3
	Gasoline exhaust	3	2	2	2	2	2	3	11.3
	Tire wear	2	1	4	3	4	2	3	13.0
	Brake wear	2	1	4	3	4	2	3	13.0
	Off-road exhaust	3	1	4	3	3	4	4	14.7
Stationary	Charbroilers & fryers	3	3	2	4	4	4	3	15.7
	Industrial combustion	2	1	3	3	1	2	2	10.7
	Mining	1	1	3	3	3	2	2	10.3
	Sand & gravel	1	1	3	3	3	2	2	10.3
	Other stationary	1	1	3	3	3	2	2	10.3
	Livestock dust	1	1	4	4	4	3	3	13.3
	Sea salt	1	1	5	5	5	5	5	17.0
	Scoring Criteria	5 = most important	5 = most important	1 = highest quality	1 = highest quality	1 = highest quality			
						x 1/3			

Possible Case Study

- Compliance “Safe Harbor” Agreement with CAFO Industry
- How was it designed?
- How are the concerns of those critical of the approach being addressed?
- If not this approach, then what? Where does the \$\$ come from?



Working With Industry Funding

- Consider developing a multi-stakeholder EF study agency
- Agency directed by an upper level management Policy Committee (PC)
 - ◆ Controls funding and overall direction
- Policy Committee supported by Technical Committees (TCs)
 - ◆ Tech committee review proposals, develops studies, analyzes results, makes recommendations to PC



What Can Be Done Right Now?



- Know your emission factors
 - ◆ Tweak them to reflect local conditions
 - ◆ Get stakeholder input on tweaks
- What about our own local activity data?
Is it any good?
May be worse than EFs? Right?
- If for SIP, keep local EPA Region aware of efforts & assumptions
- Restore EPA funding



Good News

- Nearly all California industries have dropped the “The emission estimates aren’t good enough” defense
- For serious non-attainment areas, there is a recognition that everyone has to do something regardless of:
 - ◆ Absolute accuracy of emission estimates
 - ◆ Availability of clear information on control effectiveness
- Possible due to legislative and public pressure, plus reasonable inventory, monitoring, and modeling data

Guilty Until Proven Innocent

Serious Non-Attainment Areas

- Reduce emissions now
ask questions later
- In serious areas, we know
what the largest sources are,
even if they're not
precisely estimated
- Reasonable and effective control
strategies can be developed without
exact emission estimates
- Not necessary to wait for ideal EFs



Conclusions

- Industry funded emission factor development can work
- There may be additional inefficiencies with full stakeholder involvement
- Regulators need to retain significant control
- Mechanisms must be developed to avoid bias (either actual or perceived)
- Focus efforts where it is needed most, not where there is the most money

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