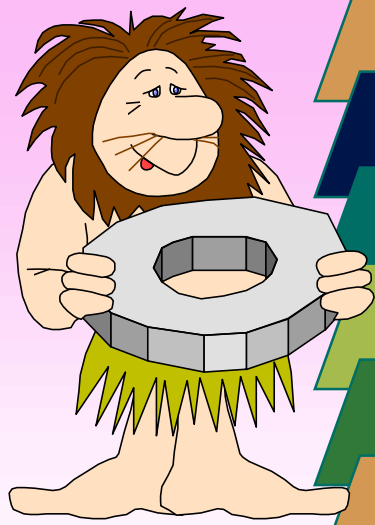
Practical Constraints and Limitations That Discourage States From Attaining Total Compliance With Federal Guidance and Requirements for Emission Inventory Data

Subtitle:We want to clean the air simply & sensibly!

- Latest in a series – some redundancy
- Pointing out Law and regulation incompatibilities with reality
- Intended as constructive, not as a gripe
- Promote common sense thinking
- Look for ways to improve AND simplify
- Provide input to Congress on CAA

The Winds of Change?

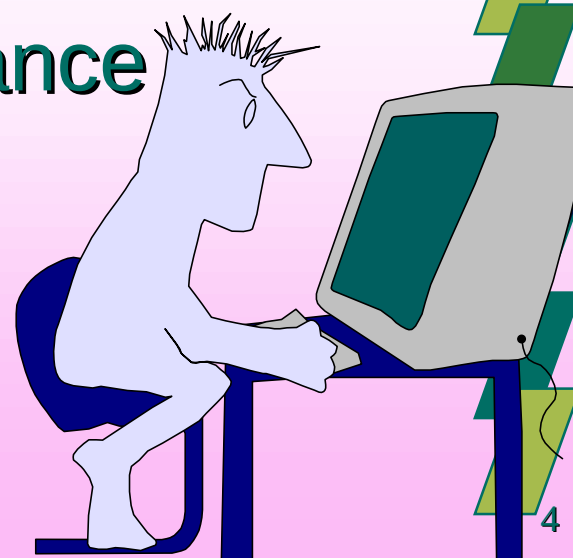


- New Administration
- CAA is 11 years old by year-end – Rumors are that it will reopen
- We have recognized Congress is not very chemically or risk savvy
- The simple is complex
- Engineers, chemists, biologists, technicians, policy makers, **UNITE!!!**

Air Quality Management

"The Under-appreciated Inventory"

- Identify the Sources
- Model causes/impacts
- Define Potential Control Strategies
- Pass Regulations/Rules
- Achieve and Maintain Compliance With Ambient Standards



Where is "UP?"

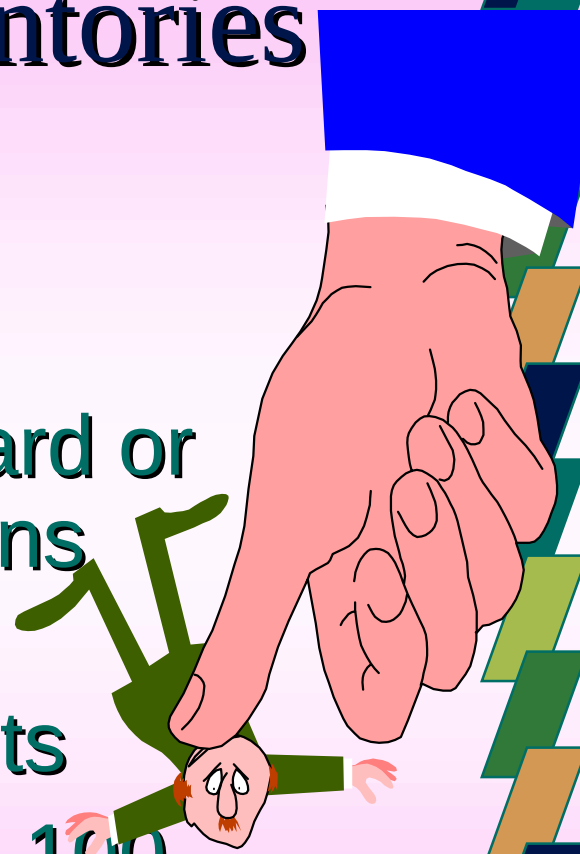
- Be wary of blind complexity
- Assess and Re-assess the needs and realities of the inventory – Get real!
- Technical complexities need be simplified to nurture policy makers
- Never, never expect perfection, but always strive for it –
- The EI remains a "best guess" no matter

Preaching to the Choir

- Inventories are uncertain
  - Overall
  - By individual facility
- Emission Factors MAY be within 10% in some cases and within 1000% in others
- Permit-related uses expect accuracy and precision

Title V and Emission Inventories

- Title V a very important and high visibility part of CAA since 1990
- Title V and permits are very standard or limit oriented with exact expectations
- This tends to solidify “mushy technology” into solid concrete limits
- POTENTIAL emissions over 10,15,100 for class Vs ACTUAL for fees

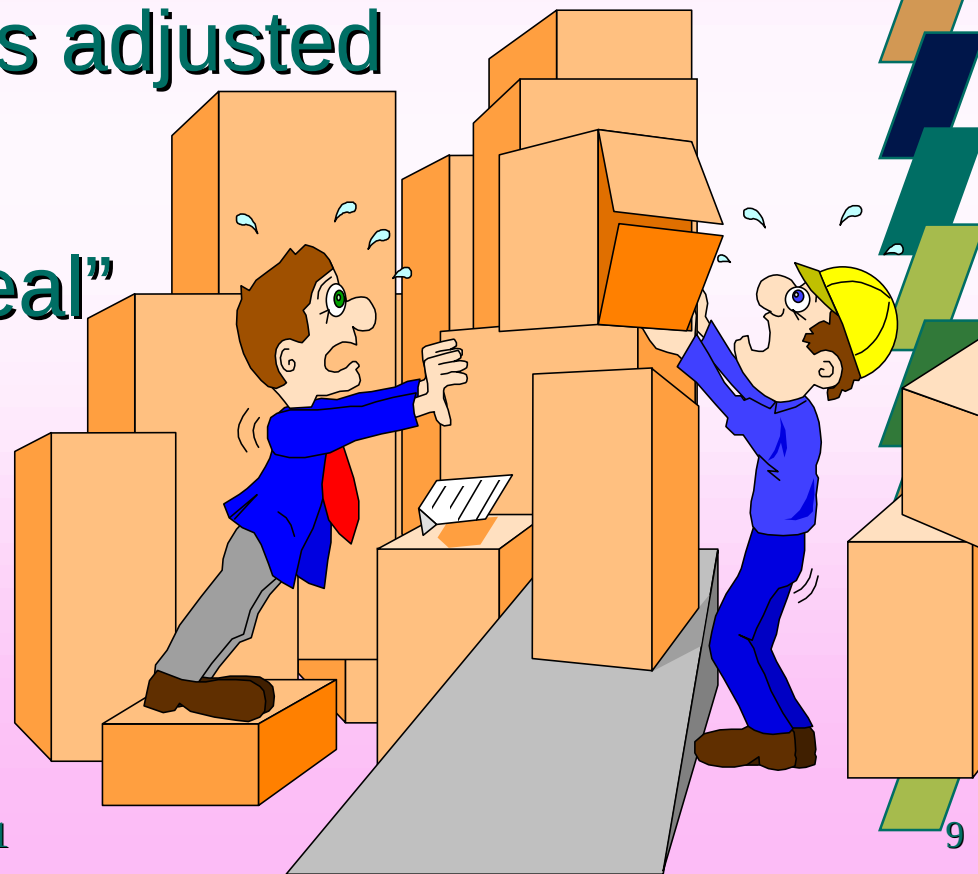


Reporting and Reality Take Different Paths

- Modelers want particular day/hour
- Permits typically set max limit
- Malfunctions/start-ups may be exempted from fees, but not reality
- Add in reality and there may be a prima face violation – legally reported differs from what mother nature sees

Impact of Differences in Reported and Reality

- Report is “legal”
- Models look at “real” as adjusted
- Rules look at “real”
- Rules are based on “real”
- Therefore rules may not be consistent with the legally reported



Improvements in EI from TV

- Emissions are money $$$
- Errors can mean money $$$
- Money gets attention $$$!!!
- An impetus to get away from RE
- More documentation
- More review and scrutiny

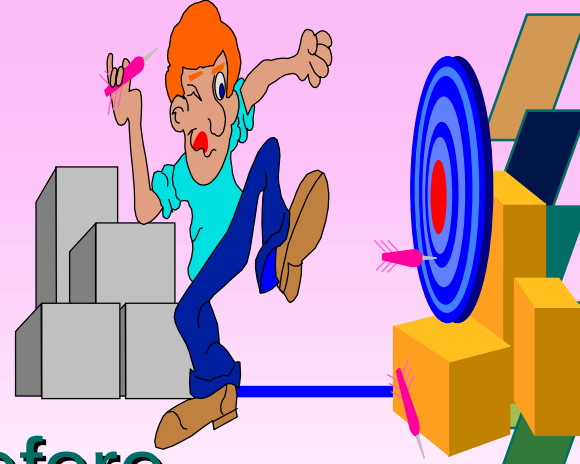
"THE" Emission Inventory

- Often reference is made to the haze inventory, or the SIP inventory or the modeling inventory, etc.
- In reality, there is ONE inventory that may have many surfaces and views: temporal, spatial, pollutants, details, etc.
- Short term, narrow focus efforts tend to distract from this concept and waste time and effort, and ultimately quality of final product

Timing and Scheduling Realities

- In many states (most?) facility provides the estimates of emissions – signed/certified
- Facility needed warning of what to collect before CY of EI began (CY – 3 to 6 months)
- State needs to know and develop information to communicate information changes in needs to facilities (CY – 6 to12 months)
- EPA guidance needs be final by CY-1, minimum

Timeline Realities



- CY of inventory must be over before facility can summarize and report (CY + 3 to 6 months) data to state
- EPA's SARA 313 sets a parallel universe that ends July 1 of EI CY+1
- Trying to tighten up before June 30 is near impossible with reasonable facility support

Schedules & Timelines

- States must enter, review, quality assure,and manipulate or analyze
- Staff/data systems may be limited
- Fees/TV's come first - NC TV's are <500 of 3,300 (of integrated EI)
- In NC 600 SM's which are "nearly TV"
- In NC 2,200 Smalls - may be significant HAP emitters (+NC TAPs)

Pollutant Definitions

- Particulate
  - PM - TSP - PM-10 - PM-2.5
  - Move afoot to report new compounds
    - Organic carbon
    - Elemental carbon
  - Need to look at ammonia for “haze”
    - Chicken or the egg
    - A precursor

Particulate Matter

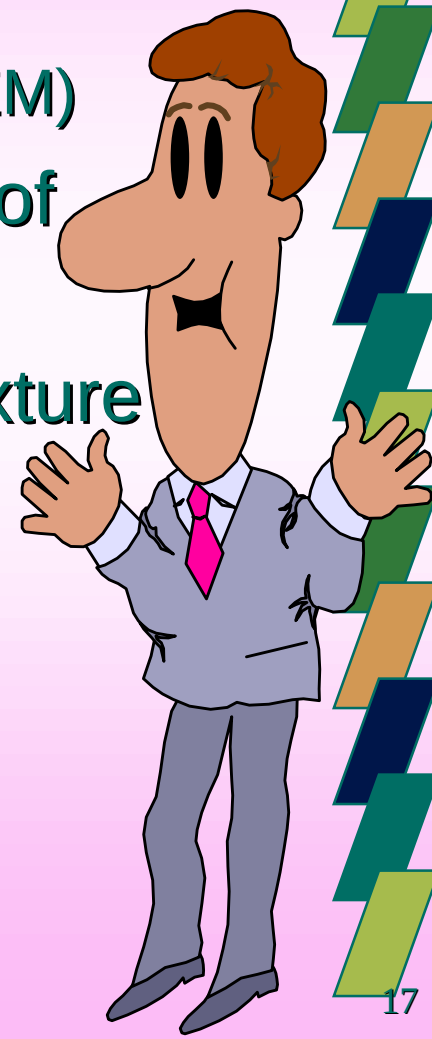
- Stack
  - Method 5
  - Condensibles
  - Back half
  - Misses pre-cursors

- Ambient
  - Captures reacted aerosols/'air'trates
  - What people breathe
  - Different "animal" than emitted from source

- **Lab tests still different**

Volatile Organic Compounds

- Similar situation to PM (See March '01EM)
  - Stack attempts to measure adequacy of control device and how well working
  - Ambient measures only part of the mixture
  - Reactions occur between source and ambient
- Facilities monitor for different substances than control agency



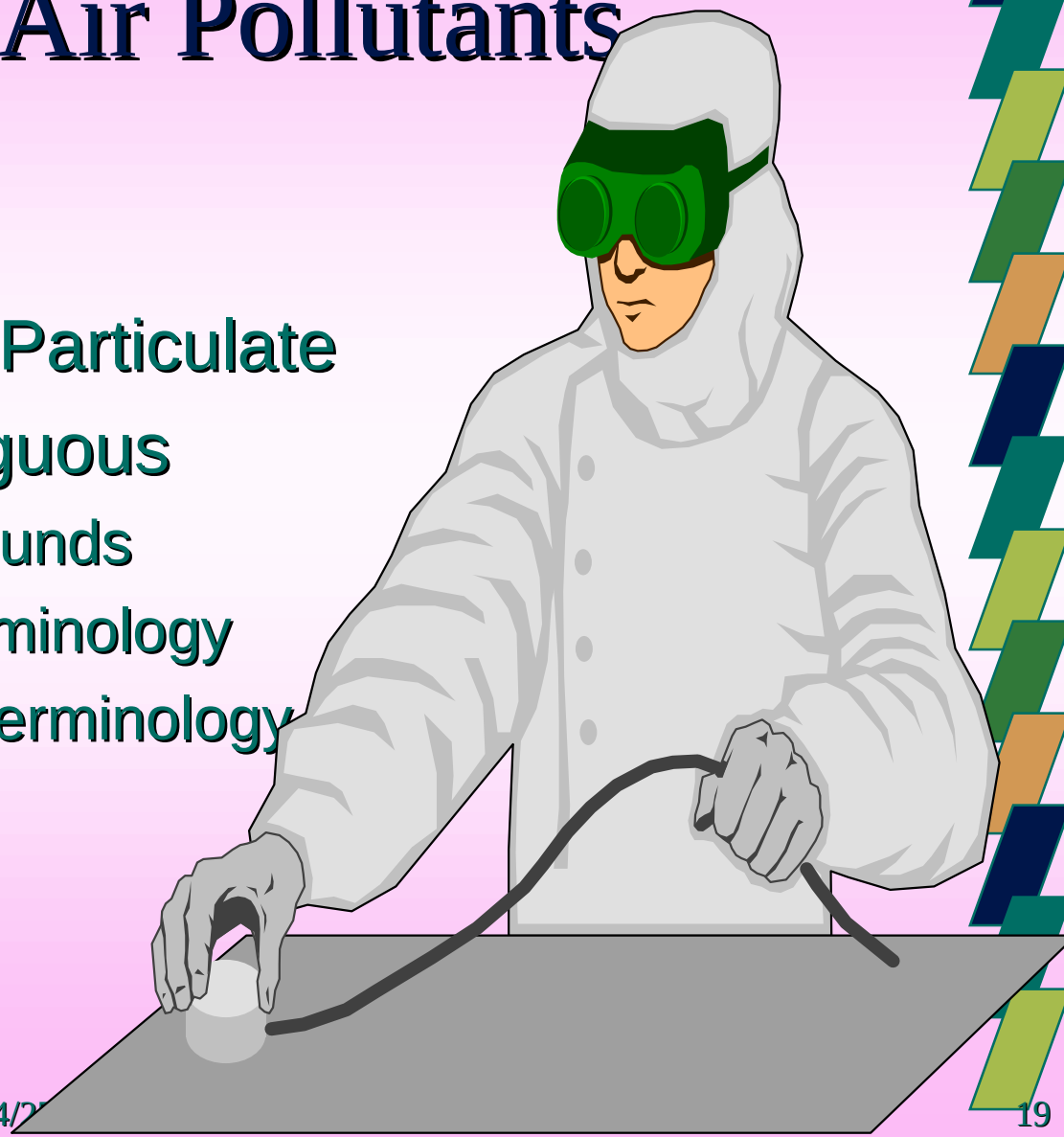
Volatile Organic Compounds

(Good article in March 01 EM magazine – A&WMA)

- Stack
  - FID-based
  - MS-based
  - oxygenates
  - carbon reporting
  - meet equipment verification purpose
- Ambient
  - Model vs Instrument
  - Photochemical reactivity
  - model practices
  - ozone is ultimate measure

Hazardous Air Pollutants

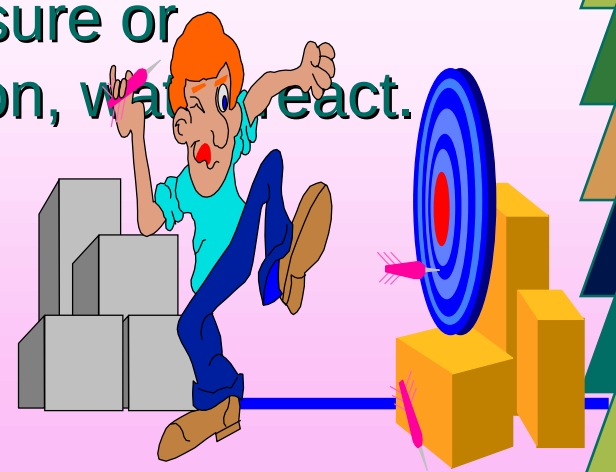
- Attributes
  - Most are VOC or Particulate
  - Sometimes ambiguous
    - families of compounds
    - imprecision in terminology
    - inconsistency of terminology



Hazardous Air Pollutants

- Specific Uncertainties in the Real World
  - Who has a complete list of pollutants for the layman - technician?
  - Not often clear or consistent whether the anion, cat ion or entire chemical mass is appropriate
  - Not possible in many cases to measure or estimate – std. Methods, auto ignition, w[illegible]eact.
  - EPA guidance is not consistent

    (CAA, Seitz, NIF)



Pollutant Definitions - Examples

- 2,3,7,8 TCDD – CAA legal pollutant- permits- not TEQ per NIF – NO One measures
- POM –
  - Seitz 8,11,2000 – 16 compounds
    - Plus “many of” 17 other listed
    - Implied anything measured by M8270c
  - 40+ specific and groups in NIF
  - 7 PAH, 16 PAH, PAH Total
  - NO ONE measures

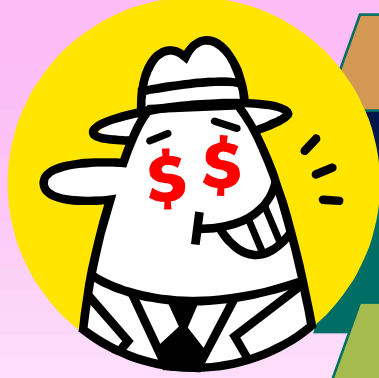
Pollutant Definitions – Examples
(Continued)

- Radon/radio nuclides –not mass
- Glycol ethers
  - A complex definition
  - Thousands of hits
  - Revised definition – made simple, complex
  - Only a few commonly used – solvents
  - Many aids available (NC, EPA +)
- Metals –groups (metal is part of group)

Integration & Multimedia

- Cost & efficiency
  - CAA
  - CWA
  - TSCA
  - TRI-Superfund
  - RCRA
  - OSHA
  - xyzA

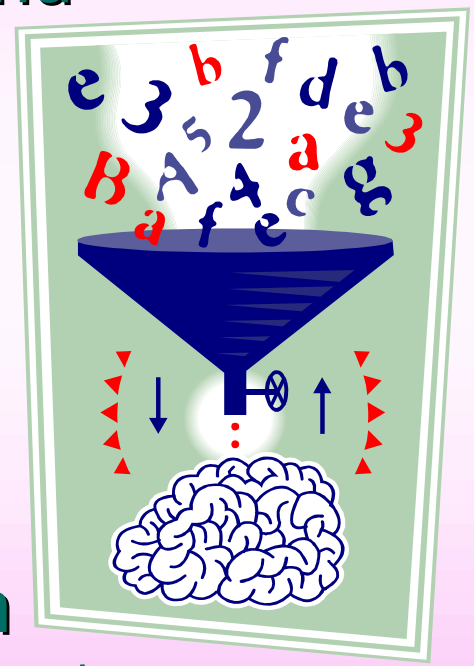
Integration & Multimedia



- How is one person to know and do all?
  - Recognize the situation
  - Gear instructions and programs to recognize
  - Help streamline and eliminate overlaps
  - Be sympathetic – not all are scientists
  - Assist with training and communications

Conclusions

- The CAA has been a monumental and successful legislation
- It has flaws
  - Confusing, complex and redundant
  - Errors in chemistry and physical laws
  - Often misunderstood
- “Adjustments” are likely in near term
- Informed legislators need our help in chemistry, logic and laws of mother nature



I’m Finished!