

Fire and Air Issues Coordinating Group Meeting: February 9 & 10, Austin, TX

In attendance: See attendance list

- Introduction: Pete Lahm summarized issues and concerns leading to the meeting, including:
 - Need to formalize connections between PM2.5, Ozone, and Regional Haze (RH) SIP processes, as they relate to Fire, both Rx and Wildfire.
 - Perception that Smoke Management Plan (SMP) process for the states may augment SIP processes.
 - Technical issues to be discussed the first day
 - Policy issues to be discussed second day
- EPA: Tom Pace, via speaker phone
 - Review of Inter-RPO Technical Workshop last year in New Orleans, highlighting differences between RPOs in fire EI work, need for improvements in fire tracking, lack of Ag burning policy, need for improvements in organic speciation, need for improved understanding of plume rise, need for long term projections, need for fuel characterization mapping, and need to integrate emissions and grid models (e.g. SMOKE and CMAQ). We have advanced in all areas, but much has to be done.
 - Most important issues: Ag burning, Speciation, Plume rise, Activity tracking/most important data elements, Integration of SMOKE and CMAQ data formats
 - Canadian and Mexican emissions data continue to be elusive, but various satellite based efforts has been shown to fill some data gaps.
 - Boundary (between RPOs) emission concentration/formats and information compatibility is a real issue
 - MANE-VU's subcontractor, RWDI, to determine fire emissions in 3 Canadian Provinces (NB, Que, Ont).
 - What we thought was a rich database for Canadian fires identified in New Orleans does not exist.
 - MANE-VU developed emission factors for NB = 27.8 tons/acre plus 17% addition for smoldering. Que and Ont = same as Alaska Black Spruce, or 57.6 tons/acre with smoldering effects incorporated into the total tons/acre
 - See <http://www.marama.org/visibility/Inventory%20Summary/2002EmissionsInventory.htm>
 - Remote sensing methods seen as promising and perhaps adequate for international fire emissions
 - GOES and MODIS satellite integration looks promising
 - EPA/NOAA/Navy collaboration
 - Hazard Modeling System (HMS) by NOAA may go into BlueSkies/RAINS
 - Two EPA reports initiated in New Orleans are ready; will be on WRAP website soon

Mexican and Canadian fire EI continued 2nd day, following section only

- Tom Moore from WRAP: "Draft Mexican fire EI is sort of like county level data as area sources on an annual basis, but has not been released yet.

- Tom Pace and Ernesto Alvarez (FS-PNW Station): Mexico offered 2003 activity information (out next month), but 2002 is emissions inventory needed. Tom Pace tells us that he has located 2000 and 2002 Canadian and Mexican satellite fire data, and the 2002 data is by day (NCAR).
 - 2003 fire activity was mostly from central and southern Mexico, so not as applicable to United States. Questionable utility.
- Canada: 2003 and 2004 is being done, but has problems with northern forest consumption data.
- Discussion about the applicability of 2003 Canadian questioned worth of this data unless we understand how 2003 relates to future years.
- Discussion of 2002 Mexico development...Sam Sandberg says it can be developed and would have worth.
- All RPOs Still Waiting on 2001 Canadian point source data.
- Discussion on worth of looking at historical content on Mexico state fire data (has some worth with documentation). WRAP used 1996 in a past analysis.
- Remote Sensing could give us something on 2002 Mexico (location and size is available now), but does not tell us consumption or condition class. GOES satellite (geosynchronous) and MODIS satellite info (i.e. Dept of Navy is mapping fires over the globe (FLAMBE, see unclassified website)...perhaps we could get Navy data for 2002...maybe not (works off GOES). NOAA may also archive info beyond United States boundaries.
 - “But only occurrence data only” and is of limited value. “But may be useful based on number of pixels.”
 - FLAMBE folks are making emissions estimates
 - Best satellite data: 800 acre fires, 50% of time, with high percentage of false positives as cited by Sam Sandberg.
 - GOES and MODIS have been integrated for fire. Don’t know if FLAMBE is doing something different.
 - Tom will follow up, and find out if this is a good road to go down.
 - Mexico also uses MODIS for fire. “archived data is in Mexico City.”
 - BlueSkies utilizing this HMS system data to locate plumes. Modeled plume and satellite plumes may be different.
 - Tom suggests reworking archived data with newer algorithms for 2002.
 - Tom suggests using southern Mexico data, but Ernesto says those are numerous but small.
 - Notes from past Remote Sensing calls are on the WRAP website.
 - NOAA: fires as small as 10-15 acres can be detected.

Back to Day One Notes...

- Inter-RPO Wildfire Emissions 2002 Inventory Review: Dave Randall contractor for Air Sciences, Inc. See Powerpoint in interactive agenda.
 - Technical Method, not rich in results, just in development
 - Air Sciences Inc. and EC/R (Bill Battye) joint contract
 - Revise and feedback committee comments
 - Strawman document released

- Wildland Fire Use data to be flagged and id method developed, but Rx and Ag burning is not followed.
 - Larger fires take precedent, but smaller fires near Class I's will be stressed
 - Smallest fire category = 0-50 acres
 - QA/QC methods seem comprehensive (e.g. Complex event duplication elimination)
 - RPO differences still need to be addressed
 - Fuel consumption via Fire Emission Production Simulator (FEPS) in batch mode w/ smoldering
 - Plume characteristics still being developed: Strawman to be developed - hard wired (WRAP-style) or FEPS algorithm or Smoke input Spreadsheet (SIS)...must be decision as emissions in wrong time of day may overestimate emissions in CMAQ. VISTAS DaySmoke approach to be assessed for use as well.
 - Hourly emission profiles. However, potential conflicts with SMOKE (CMAQ) and NIF 3.0 formats (i.e. SMOKE methodology does not deal directly with hourly data)
 - Fires treated as point sources for emissions output
 - VISTAS has already modeled, but MRPO is using exclusively NIF 3.0 and CAMX
- CENRAP Review: Annette Sharp
 - Includes Rx, Ag and other (fence row, land clearing, ditch burning, pile burning)
 - FOFEM defaults represent CENRAP (FS with MN on board)
 - Survey of Ag extension agents for Ag burns
 - Pile burn defaults are absent in FOFEM
 - **Need for FLM review.**
 - Mostly area source emissions, but not temporally refined...not day specific
 - FOFEM or CONSUME use? Is it important for RPOs to be consistent????? Will inconsistency punish one RPO over another?
 - FCCS mapping for Ag is not far along, and now AP42 is now followed, and next step should not be difficult because fuel differences are not as complex as forests.
 - Annette identifies RPO consistency having high importance
 - Problem: Many events are treated as area sources (first vertical layer emissions), as opposed to point source vertical layer refinements.
 - CENRAP to rely on National Wildfire EI project if timing appropriate
 - MANE-VU: Megan Schuster
 - Pechan was CERR contractor
 - MANE-VU to rely on National Wildfire EI project if timing appropriate
 - Only about 12000 wildfire acres (maybe 20K)
 - Various states = various methods (most AP42, some EPA 03 Report)
 - Most states are annual, but PA for 6 month period, DE very resolved data
 - RI and DC not included
 - Wildfires treated as area sources, except Canada
 - Ag burning and land clearing burning not addressed
 - Fuels supplied mostly by states
 - Limited prescribed fire data
 - No Ag submitted
 - Limited slash burning included
 - Land Clearing unknown

- MRPO: Mark Janssen via phone
 - Non-fire 2009 and 2018 focus, but now writing fire issue paper for states
 - Fire modeled in April and May 2002...very small impact on performance
 - Most extreme impact was only 0.1 ug/m3 in MN
 - Biggest fire = average one day Chicago vehicle inventory
 - Fires treated as point sources
 - Land clearing is included
 - Daily emissions
 - No fire outside MRPO in current model efforts
 - Looking to EDMS of WRAP as possible fire tracking tool they could use.
 - MRPO will read NIF 3.0, uses temporal info (start and end time, with calculations in the middle)...”Better than SMOKE” i.e. SMOKE has to do the temporalization ahead of time. EDMS can convert SMOKE to NIF
 - **MRPO will not use other RPO data which is not in NIF, and will use its own**
 - **Inter-RPO Wildfire EI to provide all data in NIF 3.0**
- VISTAS: Rosalina Rodriguez
 - CMAQ already used, because two states need results by December for legislature
 - Final modeling at end of 05 and beginning of 06
 - Fire does not play a big role in the 20% worst days
 - Only wildfires were covered by all states...need for Ag, Rx, and land clearing data
 - Fires treated as area sources with thought to use satellites
 - 12km temporal data, most in the spring (mostly Rx fire)
 - AP42 national temporal profile is wrong for VISTAS; it shows summer peaks, which is a western wildfire profile: VISTAS Rx fire peaks in spring.
 - CMAQ vertical layer input peaks in the 9th layer for most Rx fires, as model default.
 - Hierarchy of data: state, fed, NFDRS model, AP42 regional default
 - Fire plume model developed by FS-SHRMC FCAMM
 - Problem: photochemical models do not normally put smoke above boundary layer, and if they do, they may overestimate effect. Note: CENRAP puts overnight and early morning smoke in surface layer.
 - “MM5 represents ground level obs, so if smoke is injected to upper levels, the big photochemical models may not represent reality.”
 - MRPO uses upper air soundings to validate MM5
 - In WRAP, small fires’ smoke stays in surface layer as does larger fires during ow daily activity periods-evening and early morning.
 - Key question: Is VISTAS approach for vertical distribution using Daysmoke tool that was used uses narrow range of met and fire temp inputs compatible with WRAP wildfire approach. Can the approaches be melded to improve plume height approaches for Inter-RPO WF EI?
 - 2002 NIF 3.0 has more specific raw data
 - March RPO meeting in Dallas will roll out national comprehensive modeling results, for multiple RPO collaboration, but focused on EGUs.
 - Some fires treated as point sources
- WRAP: Dave Randall
 - NIF 3.0 after using EDMS tool (see MRPO above) for CERR

- Using actual 2002 for WF, Rx, Ag is a modeled 2018 Ag based on “typical” burning data from 1996-2000.
- Day temporally resolved
- Wildfire deminimus is **10 acres**, ICS-209 supplemented with
- Rx no deminimus, geo referenced
- Fuel loading with GIS if needed.
 - Modified NFDRS to include duff and crown fuels
- Plume profile based on heat release (Briggs)

AFTERNOON SESSION of First Day:

- 2002 Base Year or Typical Case Studies
 - CENRAP: 36km and 12km, 12km to start around April
 - EGUs are primary, and EGAS5 used to grow EGUs
 - Fires will now be kept constant for future years, but EGAS may deal with fire.
 - March will be month to see if 2002 should be revamped.
 - Emission reduction techniques/alternate control options will not be addressed in the first round of modeling.
 - **Discussion focused on need to grow fire emissions for 2018 and reflect land manager stated projected increase.** Must be done to maintain credibility in process with other sources.
 - VISTAS: Rosalina Rodriguez
 - 2018 acres based on 2002 (i.e. held constant)
 - 5 year normalization done for 2002 Base Case run
 - drop high and low 5% during normalization
 - resulted in slightly higher acres for typical fires in 2018
 - gaps in 2002 data
 - no gap filling planned
 - Canada and Mexico data is limited (i.e. Canadian Criteria Air Contaminant data)
 - Initial model results SO2 is visibility driver
 - fire is low priority impact, particularly on 20% worst days
 - No ERT's in base data or projections
 - No alternate control strategies at this point
 - WRAP (Tom Moore):
 - WRAP issuing RFP for typical (i.e., baseline) and projected fire EIs very soon
 - A baseline inventory reflecting 2000-2004 will be developed for five fire types (Ag, Rx, WF, WFU, Rangeland)
 - Activity data to be reviewed for 2000-2004
 - Will assess temporal and spatial differences between actual (2002) and proposed baseline: Preserve time and location of actual fires still uncertain?
 - For WRAP states only: Will address ERTs that are found in existing SMPs
 - Will analyze future ERTs and annual emission goals for Rx and Ag fire, including possible total ban on future Ag burning in select areas
 - Will consider three regimes (low, medium, high) for several fire types, classify into anthropogenic/natural, and classify into controllable or not (see the diagram in the RFP) where applicable (by program /state/tribe)

- Wildfire will be held constant between baseline and 2018
 - Some thought that holding wildfire high unrealistic as it may be reduced by long-term Rx programs (Note: an area for more discussion)
 - Deliverables: 2000-2004 baseline, 2018 projection; work will span April - August
 - Data formats: SMOKE-IDA, NIF, and Excel
 - Attribution of Haze (AoH) report is available on WRAP website
 - Shows fire (both anthro and natural) can play a role in impacts
 - MANE-VU: Megan Schuster
 - Will be starting inventory projections soon, but no plans for fire yet
 - Their approach to baseline and projections remains open
 - MRPO: Mark Jansen
 - Used 2001, 2002, and 2003 and baseline
 - Will scale baseline inventory based on input from states and others
 - Temporal and spatial parameters will be held same – will not use “randomized” future fire scenarios
 - Using 2-3 times increase in Rx fire for 2018
 - WF and Ag held to 2002 values
 - Will use WRAP methods for emission factors and fuel loading
 - Issues: Pete Lahm leading group discussion
 - Timing of 2018 inventory data in planning process
 - Relation of 2018 to baseline – particularly in terms of spatial and temporal assumptions
 - How to reflect policy for much more Rx fire in future (i.e., how do we reflect it in projected inventories)
 - How to account for reducing wildfire to reflect increasing Rx fires
 - Why is consistency between RPOs (and thereby states) important? Answer: equity, efficiency, development of SMPs.
 - Long Term: Need for national fire activity data tracking system (in development but stalled), which includes data elements for air purposes.
 - Need national protocol for 2005 EPA CERR requirements
- Greg Stella on VISTAS’ way of doing business:
 - 2018 now (constant from 2002 with no increased activity)
 - will be working on 2009.
 - Fire data will be available in March on website
 - Daysmoke is not ready for prime time (Gary Achtimeier), but used default met data for Category 2 and 3 Rx fires, developed plume rise algorithm.
 - Found elevated fires in Cat 2 & 3 were getting in layers lower than Briggs method (i.e. fixed stack is used in Briggs). New FL prescribed fire data says plumes no more than 2km
- FS-PNW Station - FERA Fire Research Briefing: Roger Ottmar
 - Products:
 - Photo Series: Midwest V
 - FCCS: Any scale across the United States. Fuel Beds can be customized. Fire potentials and fuelbed characteristics (down to 1 km scale)
 - West available now
 - Rest of lower 48 July 05

- Alaska?
- CONSUME 3.0: Needs improvement, SE pine, shrub and grasslands in Midwest. Consumption and emissions. Linked to FCCS. Done by June 2005.
- Fire Emission Product Simulator (FEPS): estimate amount and rate from wildfire or Rx fire. Input from real data (i.e. FCCS, or more conventional systems)
 - Not set up for batch processing

DAY 2:

- 308 SIP issues:
 - A lot of RPO relevant info in the “Recommendations of the Clean Air Act Advisory Committee, January 2005.” EPA should put out guidance before SIPs are due. Fire stakeholder group ought to be courted
 - Exceptional Events policy needs to be updated.
 - Should be Regional Haze connection
 - Now works more for NAAQS issues, but not Regional Haze.
 - Chuck Layman says EE is not as needed for RH.
 - Now applies for PM10, Lydia Wegman has said it should apply to PM2.5
 - Should it apply to Ozone?...Discussion
 - Mark Fitch...need EE for RH because of 20% worst days should not be associated with fire....disagreement within group. Opposite view from Tom Moore supporting Chuck Layman’s statement...attribution for 20% should be unobstructed, then separate control decisions could then be made.
 - EPA:
 - 1996 Natural Events Policy for PM10 will include 2.5, Exceptional Events policy, everything else
 - Latest Transportation Bill directs Congress to address this with new rule, with other policies in force for the time being. Draft legislation does exist now...does not originate with EPA. Creates new definition for “exceptional event”
 - SMPs? Would not change the status quo
 - Looking for stakeholders for update? “EPA is just beginning, but wants to listen now.” Larry Ginsberg and Larry Wallace will be leads.
 - WESTAR has given guidance (2.5 and O3), FAICG welcomed by EPA. Lydia will be putting together a group (i.e. stakeholders including WESTAR)
 - Inclusion of O3 is positive move....Pete.
 - Ag will be included, but only for exceptional events...Interim Policy will be updated separately.
 - Will be a combo of all other policies, with natural background policy. (PM2.5 and O3, and RH, and fire)
 - Two stages: on the books followed by comprehensive document.
 - Not specific to what type event...it sets generic criteria

- Timeline for revision: same as on PM standard...end of calendar year to year after.
 - Pete's context: EPA should interpret the cases where multiple years of fire or volcanos, etc may mask the improvement by anthro sources.
 - Tom Moore: Coming in later with this guidance may conflict with ongoing state SIP development
 - Darla Potter: Anti mask language is in p28 of WRAP IOC policy letter, item 4 (Categorizing Fire Emissions document), and EPA had made it clear that present documents do not address the issue.
 - EPA: no credit for stagnations or hot summers...direction from Congress needed, draft legislation is on the Hill.
- Interim Policy on Wildland Fire discussion
 - Revision uncertain
 - Concern about old Fire RACM/BACM Guidance doc still on the books-very outdated
- EPA update PM2.5 and O3 implementation:
 - Schedule PM2.5
 - Dec 17 Administrator signed decision on NAAs (for April 5, 2005) with consideration of 2004 data (data must be in by February 28)
 - Attain standard by 2010.
 - Have not proposed implementation guidance yet (OMB is still reviewing...period is up next week). Draft posted sometime this spring...finalized spring of 2006.
 - SMPs are considered RACT (RACM) for fire in PM2.5 implementation guidance
 - Does this apply to Ag...Not directly. But, states will have to consider Ag in their SIPs. **SMPs have to have Ag burning segments in OMB draft. Will drive state legislators to allow Ag regulations**
 - Ag burn policy is 05 priority
 - O3, base year of 2002
 - NAAs on June 5, 2004
 - Signed March 2005 implementation guidance (final), proposal was in June of 2004.
 - June 5, 2007 SIP submittal, and attainment by 2009
 - Fire was not part of implementation guidance
 - Fire still being pulled into control strategies
- Interim Air Quality Policy on Wildland and Prescribed Fires: (Charlene Spells...EPA) Will not modify now, but will develop and finalize Ag policy in 05.
 - May 98
 - Interim because Ag was not dealt with...Now will be Final
 - Forest Health issues will make it more important
 - Not applicable to open burning
 - SMP basic elements (also same in new Ag policy)
- EPA:
 - Overall Fire Issues Coordinator: Sharon Nizich, OAQPS, 919/541-2825, nizich.sharon@epa.gov
 - Ag Burning: Larry Elmore, OAQPS, 919/541-5433, elmore.larry@epa.gov

- Wildland and Prescribed Fire: Charlene Spells, OAQPS, 919-541-5255, spells.charlene@epa.gov
- RPO Coordinator: Bill Beal OAQPS, 919-541-5667, bbeal@epa.gov
- Natural Events: Larry Wallace, OAQPS, 919-541-0906, wallace.larry@epa.gov
- Fire Emissions: Tom Pace, OAQPS, 919-541-5634, pace.tom@epa.gov
- Dennis Haddow: 1992 RACM and BACM, EPA Rx guidance should not be used by states.
- EPA Reg Haze Rule Presentation:
 - Draft CAIR Rule sets up “Better than BART” trading proposal for the East. EPA is trying to get CAIR out the door.
 - Everybody’s Reasonable Progress plans have to be mutually agreeable to all affected states.
 - Pete: Varying perceptions as to importance of developing SMPs. Is national office going to pull together 308 guidance as to SMP requirement? EPA’s answer: Not really or not yet, but guidance may be in proposed document to bring other policies together. Timeframe? EPA does not have a timeframe now...will get back to you.
 - Pete: Will EPA support giving a break to states that develop “voluntary” SMPs? i.e. SIP credits...Ans: EPA does not have an answer, but is working on it.
 - Natural vs Anthropogenic???: If all fires are considered natural in long range strategy, is that a problem for EPA based on preamble of RH Rule? Ans: No useful guidance. There is no bright line between Natural and Anthro, but states need to at least consider difference to mitigate visibility impairment. Maximum flexibility. **FAICG needs to draft questions to the EPA Team for their consideration.**
 - Tom Moore: Please come out with a laundry list of guidance for 308 SIPs.
 - Pete: SIP template for Fire...we may do that.
 - June 1st and 2nd for date of next National Meeting (Chicago or Kansas City) Memorial Day Weekend!!!!
- PM NAAQS review: John Langford is EPA lead
 - 2nd draft of PM paper is out...more stringent PM standard
 - PM10 to course (i.e. PM10-PM2.5)
 - Separate secondary standard (for visibility)...daytime average...final for end of next year.
 - Primary standard options: leaving annual at 15, 24 hour to 25-35
 - Or annual to 13 and 24 hour at 25-40 (will double number of NAAs).
 - See draft for final figures.
 - Visibility secondary: 20-30, 90th percentile, 8 hour daytime.
 - EPA takes flagged data into consideration now. Natural vs Anthro becomes more important as lower standards go into effect. EPA has not put out additional guidance to states regarding flagging. “Political will is weak, but the science is strong.”
 - “States should flag data even if its below the standard.” EPA
 - Group commits to provide EPA written questions and concerns.
 - Considering cheaper PM monitoring methods.
 - Weight of evidence will be on monitoring vs modeling.
- After EPA presentations
 - Concern that new standards will greatly increase concern about smoke from Rx fires. 30 ug/m3 for 24 hour is very low.
 - How far away from monitors should we model from monitoring data for compliance.

- Discussion about wisdom of developing draft SIP language re: Fire. Consensus: states will likely use it, but may modify...or possibly not use the draft language..
- Smoke reduction techniques vs optional SMPs. Is it better to not write an SMP and simply have SRTs?
- Next Steps...
- **SIP Development Template for Fire Issues:** Proposal - To Develop a Strawman – Outline, Approach, Concept
- **Potential Participants:**
 - Bill Beal (the National EPA person for RPO coordination issues)
 - FAICG
 - RPOs
 - State Planners
 - State Foresters
 - Tribal

Question – Should Agriculture emissions and players be included? (Yes, no- lots of discussion)

Decision – Primarily the wildland fire sector, agriculture as available.

Question – Should private industry (private forestry) be included?

Question – How should we pull this off? Facilitator? How do we get support to move ahead from the RPOs? Develop a one page white paper? Need for co-leaders?

Decision – Pete will develop a 1 page white paper (proposal) by the end of next week for distribution to the RPOs. Pete will contact NRCS, Mike Ziliko will contact the State Foresters. Dennis Haddow will coordinate with DOI.

Include possible links to ozone and fine particulates