

MEMORANDUM

September 17, 2002

To: John Vimont, NPS and WRAP Modeling Forum Co-Chair
Tom Moore, WRAP Technical Coordinator
Zac Adelman, MCNC
Gail Tonnesen, UC-Riverside

From: Lee Alter, WRAP Policy Coordinator
Colleen Delaney, UT DEQ and WRAP Market Trading Forum Co-Chair

Re: Design of Sensitivity Runs for Stationary Source NO_x and PM₁₀ Emissions

In a September 17, 2002 email, Zac posed several questions that need to be answered to properly generate the emissions files for the NO_x and PM₁₀ (yes, 10 um) sensitivity analysis. This memo provides answers to these questions and also reiterates the purpose of the modeling to provide broader guidance and context to the specific questions and answers. This memo should be considered formal input from the Market Trading Forum (MTF) to the Modeling Forum.

The purpose of the modeling runs is to provide some of the data needed for a report required in Section 309(d)(4)(v). Specifically, the rule states:

The [SIP] must include a report which assesses emissions control strategies for stationary source NO_x and PM, and the degree of visibility improvement that would result from such strategies. In the report, the State must evaluate and discuss the need to establish emission milestones for NO_x and PM to avoid any net increase in these pollutants from stationary sources within the transport region, and to support potential future development and implementation of a multipollutant and possibly multisource market-based program. The plan submission must provide for an implementation plan revision, containing any necessary long-term strategies and BART requirements for stationary source PM and NO_x (including enforceable limitations, compliance schedules, and other measures) by no later than December 31, 2008.

To write this report, we are planning to summarize the monitoring and emissions data, fill in some gaps in the stationary source inventory, and assess the emission reduction potential and cost of applying existing or state-of-the-art control technologies to stationary sources throughout the region. In addition, NO_x and PM sensitivity runs would be very helpful if not necessary in this assessment, especially with respect to estimating “the degree of visibility improvement that would result from such strategies” and evaluating the need to establish milestones “to avoid any net increase in these pollutants.”

It is important to note that this is only the first step in defining BART or alternative strategies for NO_x and PM. For example, for the time being, we only need to discuss the need for additional milestones, not what their actual levels should be. These won't be fully addressed

until 2008. Hence, we view the near-term work as sensitivity (or exploratory) analyses, not strategy analyses. In that vein, some aspects of the emission controls applied in the sensitivity runs can be flexibly defined – especially in consideration of staff and modeling resources – without sacrificing the information needed to gauge the general need or effect of milestones for NOx and PM.

Finally, we assume that the inventory being adjusted and modeled is the 1996 inventory. This avoids the uncertainties associated with emissions projections. It also allows us to answer the question of whether milestones are needed to avoid any net increase in NOx or PM while not impairing our ability to gauge the potential benefits of control strategies. Again, if this were a control strategy being developed for a SIP, we would be working of the 2018 projection, but we're not there yet.

Please note that in our answers to Zac's questions we are providing our "ideal preferences." Some of these can be altered if they would result in significant workload reductions. Please call us if you think these opportunities exist. The important thing is that the runs performed are well documented. Our answers to Zac's questions are provided below:

1. Which states will the controls affect? GC only? All 13 WRAP states? Tier 1? Tier 2? Eastern Tier?

ANSWER: The controls should be applied to stationary sources in all WRAP, Tier 1, and Tier 2 states. That is, all 13 contiguous states in the WRAP region, plus those bordering the WRAP region, plus the additional layer of bordering states (MN through LA, as I understand it). Although the rule requires us to assess control strategies for the GC states, we want to go beyond that requirement and include all states since all states will ultimately have to address NOx and PM from stationary sources. Similarly, the visibility benefits should be summarized for all Class I areas in the WRAP region, not just the GC states.

2. Stationary sources are point sources only? or does that also include area sources?

ANSWER: Controls should be applied to all stationary sources > 100 tpy. This includes point sources (i.e., those with stack data) and stationary, non-area sources, such as fugitive emissions from stockpiles and surface mines. In other words, emissions from industrial facilities and operations, not agriculture or dust blown off natural lands. Unfortunately, we do not understand precisely how these are defined in the inventories, how they make their way through the emissions processing, and at what point in the process you are making the adjustments. As a general matter, we recommend doing what's easiest, but not knowing what that is, we have provided our ideal preference. This may be something you wish to discuss with us further.

3. Are we using the 100 TPY cut off or are we controlling all sources?

ANSWER: For the two emission reduction scenarios, only apply a 50% reduction factor to pollutants that are emitted at 100 tpy or more. This is consistent with our approach in

the SO2 Annex and reflects the reality that some control strategies, especially those that involve emissions trading and high-quality monitoring, may not be practical or cost-effective among small sources, especially given their smaller contribution to total emissions. If control of small sources is raised as a policy issue, we can use the emissions inventory to estimate/extrapolate their contribution, with the understanding that this issue can be addressed in greater detail in the 2003-08 period. So for the NOx sensitivity run, reduce NOx by 50% at facilities which emit 100 tpy or more of NOx. Same for PM10. For the emission increase scenario, apply a 25% increase to all stationary sources of NOx and PM10 regardless of size. Note, this is different than what I said in my September 13 email. We prefer no emissions threshold for this scenario because it is designed to assess the need for milestones to avoid any net increases, which can happen at all kinds of sources. If, in the future, we decide that milestones are needed, we can always apply the strategy runs and regulation to sources ≥ 100 tpy, but set the milestones a bit lower to make up for small sources, assuming they do not offer a cost-effective means of emission reductions. If setting a 100 tpy threshold for two scenarios but not the third poses an added work burden, then we should just use the threshold for all three scenarios, so long as it's documented. Likewise, if setting a 100 tpy threshold for any of the scenarios poses a significant work burden, then let's not use any threshold at all.

4. If we are using the 100 TPY cut off, for sources with NOx or PM10 > 100 TPY are we only controlling the pollutant that exceeds the threshold, or will both pollutants from those sources be controlled?

ANSWER: For the two emission reduction scenarios, only reduce the pollutant(s) that is greater than or equal to 100 tpy. For the emission increase scenario, increase both pollutants from all stationary sources, regardless of size.

5. For the last stationary source control scenario, Lee mentioned that it should be a combined 25% increase in NOx and PM10 not a combined decrease, this needs to be confirmed.

ANSWER: Yes, for reasons stated above, the third scenario should be a simultaneous 25% increase in NOx and PM10 from all stationary sources.

6. The issue with the fugitive emissions in the inventory needs to be resolved, i.e. how are the fugitive emissions from point sources included emissions inventory? We obviously want to control these if they meet the threshold. Since Pechan is now the point source inventory contractor, they can probably shed some light on this.

ANSWER: We agree with this statement. Unfortunately, we can not offer any clarification other than our intentions noted in Answer #2 for including fugitive emissions from facilities. Please let us know if and how we can be of assistance.

Thanks for all your help and for making sure these runs are as appropriate and useful as possible.