**REGIONAL HAZE PLANNING WORK GROUP**

**CONTROL MEASURES SUBCOMMITTEE**

**NOTES OF CONFERENCE CALL**

**Monday, October 22, 2018**

Notes by Ed Merta, City of Albuquerque

**Attendance**: Pat Brewer (NPS), Frank Forsgren (NV), Philip Gent (WA), Rebecca Harbage (WY), Craig Henrikson (WY), Gary Huitsing (WA), Scott Inlowes (WA), Aislinn Johns (ID), Kirsten King (NPS), Tom Moore (WRAP), Jeremy Neustifter (CO), Kerwin Singleton (NM), Curt Taipale (CO), Elias Toon (AZ).

**Action items that resulted from the call**:

* Curt asked persons involved with the subcommittee to present further ideas on how the draft Protocol being developed by the subcommittee can best address the “80% threshold” (per EPA’s draft 2016 Guidance), or other potential approaches, in defining what constitutes a “reasonable” number of sources to bring forward for four factor analysis. Anyone with ideas can email Curt at [curtis.taipale@state.co.us](mailto:curtis.taipale@state.co.us).
* Tom said he would circulate an article providing an overview of the SCICHEM model to the group [*Tom did this immediately after the call*].
* Frank stated that he would draft some proposed language for the Protocol addressing source apportionment and how it might be used to shed at least some light on visibility impacts of sources at particular C1As.
* Following extensive discussion of source apportionment and visibility impact, Gary from Washington said he would send to the group a source specific analysis using the state’s Reasonably Available Control Measures (RACT) approach, with background material.

**Other decisions**:

* Curt summed up discussion of visibility as a “fifth factor” by stating that the subcommittee needs to devote greater attention to this issue, or find some other way to address visibility, given the importance to some states of meaningfully linking source emissions to the effect of those emissions on visibility.
* The group needs to reach a consensus on whether and how the group will recommend SCICHEM as a tool for addressing visibility impacts.

**DISCUSSION OF AGENDA ITEMS**

**1. Request a volunteer to take notes**

Ed Merta (City of Albuquerque) volunteered.

**2. Wrap up discussion of Comments on Draft WRAP RP Protocol Document from FLMs; WA; CA; and Albuquerque**

Curt noted that on the last call the group ended its discussion on comment number 11, of 17 total. Curt briefly described how he had, to the extent feasible, incorporated responses for comments 11 through 17 into the revised draft WRAP Reasonable Progress Source Identification and Analysis Protocol (“Protocol”).

Curt noted that his revised draft added a bit more regarding comment #15 (“Could more explanation of relationship between Q/d method and EPA’s 80% threshold be included?”). However, he commented that adding additional material on this point was hard to do because in his view the operational meaning of the 80% threshold, as described in EPA’s 2016 draft Regional Haze Guidance (“2016 Guidance”), isn’t entirely clear in practice.

Curt further stated that his revised draft doesn’t address comment #16 (“More guidance on how a four-factor analysis should select ‘reasonable’ control measures”). This subject is more of an issue to be addressed by individual states based on their circumstances. But Curt invited the group to talk more about this subject if desired.

**3. Group discussion review of new changes to RP Protocol Document**

Curt suggested that he walk the group page by page through his revised draft, seeking comments. There was no objection. Comments and discussion on specific pages are described below.

*Page 2.*

Curt’s draft includes language addressing language in the EPA Guidance suggesting states should not consider mobile source emissions in assessing sources whose emissions affect visibility at Class 1 Areas (“C1As”). Curt’s revised draft suggests states may in fact want to look at mobile source impacts, since for some C1As mobile sources might have a significant impact and states may have related control measures in place, such as an inspection and maintenance program for vehicles. Curt cited California as a state in this situation. There were no comments on this language in the revised draft.

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Curt’s draft added acknowledgment of possible sea salt impacts, which could play a role in coastal areas. There were no comments on this language in the revised draft.

*Page 4*

Curt summarized how the revised draft broke out the discussion of visibility impairing pollutants more distinctly and systematically, explaining key aspects of each in more detail. Frank Forsgren commented favorably on the revisions, saying that it did a good job of spelling out different considerations regarding specific pollutants.

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Curt summarized new material on sulfates (SO4). He noted that many states may not inventory SO4 as a distinct pollutant, but he wanted to add a discussion of it in relation to caution about double counting pollutants. Curt also added material noting that nonattainment areas may have major source permitting thresholds lower than what would otherwise be the case and this would mean adjusting the 100-ton threshold in a state’s Q/d source screening calculation.

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Curt’s revised draft includes discussion of a “step down” approach to the Q/d analysis. The initial draft recommended an initial screening based on a Q/d result of 10 or more. The revised version expands upon this by indicating that if “no sources are identified” for further analysis by this calculation, then a state should repeat the Q/d calculation at lower thresholds (e.. 9 or less, 8 or less, etc.) until “a reasonable number of sources are identified for further review.” On the call, Curt noted that his revised draft doesn’t define “reasonable” because states need flexibility to address how their situation relates to EPA’s 80% threshold screening out sources that impact visibility at C1As. We don’t want to end up with 10,000 sources to analyze, nor do you want zero, Curt said. Rather, you have to conduct an iterative process to “step into” a number that is reasonable under the circumstances. The overall goal is to make sure that you’re analyzing sources that most affect visibility at a C1A on the “most impaired days” as defined in the Regional Haze Rule. Curt’s revised Protocol includes a general mention of the possibility of analyzing area sources, if a state’s Q/d screening fails to yield a reasonable number of sources for further analysis. In some state’s, Curt observed, area sources may be too widely scattered to be amenable to analysis.

Kirsten wondered whether it was advisable for the discussion of the Q/d screening threshold on page 6 to mention EPA’s 80% threshold, at least as a way of giving states “something to look at” when trying to decide what constitutes a “reasonable” number of sources to bring forward for four factor analysis. Curt stated that the draft included further discussion of visibility impacts on later pages, but he said that it might be useful to include reference to the 80% threshold here. Curt stated that the whole issue of what “reasonable” means in this constitute is a big challenge. For some C1As, Curt noted, getting to 80% might be too technically challenging and thus, in fact, not reasonable, depending on circumstances. He also noted that WRAP’s Regional Haze Planning Work Group will not have modeling information available until later in the planning process to help examine visibility impacts of sources for purposes of screening for a four factor analysis. Kirsten pointed out that the draft 2016 Guidance leaves room for states to explain why the 80% threshold may not be reasonable in some circumstances. Curt stated that for this subcommittee and its Protocol, the challenge is how to adopt a general, “broad brush” approach to screening sources for later four-factor analysis, while still acknowledging that different C1As will be in different situations.

**Action Item**: Curt asked persons involved with the subcommittee to present further ideas on how best to address the 80% threshold, or other potential approaches, in defining what constitutes a “reasonable” number of sources to bring forward for four-factor analysis. Anyone with ideas can email Curt at [curtis.taipale@state.co.us](mailto:curtis.taipale@state.co.us). Curt stated that he would give this matter additional thought. In further discussion on this topic later in the call, he noted Tim Allen’s past suggestion on the importance of “not getting too wrapped up” in the 80% threshold per se and instead focusing on a thoughtful demonstration that a state has addressed a significant portion of visibility impacts.

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Here Curt’s draft altered prior language so as to include analysis of fugitive PM10 emissions. He also included more detail on how the three step screening process in the Protocol would work. Curt suggested that the Protocol might need to provide a better sense of how to use Weighted Emissions Potential (“WEP”) analysis to find out how particular grid cells (in the WEP mapping process) impact C1As.

Group discussion then considered ways the Protocol might better address visibility impacts of sources during the screening, whether as a “fifth factor” added to the four-factor analysis or by some other route. The following general points came up during the discussion.

* Is there a way the Protocol can import work being done by the Emissions Inventory and Protocol Subcommittee on source apportionment? Several of the deliverables for that subcommittee, as specified in the Work Plan, relate to source apportionment as an aspect of the work of the Control Measures Subcommittee. This seems to be at odds with the process laid out in the current draft of the Protocol. Source apportionment data might be important in addressing concerns of regulated sources regarding linkage between (A) emissions from particular categories or sources and (B) visibility impacts at particular C1As. There was a suggestion from the group that visibility impact might be added as a fourth step in the three step screening analysis currently described in the draft Protocol.
* To provide background helpful in understanding this topic, Tom gave an overview of how source apportionment will work in WRAP’s efforts to assist states. He described two models used for regional modeling, the Comprehensive Air Quality Model with Extensions (“CAMx”) and the Particulate Matter Source Apportionment (“PSAT”) model. In the regional source apportionment typically performed by these models, the model “tags” (i.e. models dispersion of pollutants from) emissions from source categories, not individual sources. The emissions are modeled as they disperse hourly through 12 kilometer-square grid cells. The net effect is that the impact of emissions from individual point sources (i.e. larger sources) on pollutant concentrations at nearby C1As are not as well represented as such impact due to emissions from nonpoint/area sources, where the modeled results tend to be closer to reality. A model like the CALPUFF model, used in the first planning period (but not available in the second) is much better at modeling the impact on C1As of individual point sources. For regional models like CAMx and PSAT, it’s just not feasible to model the impact of individual sources due to the huge computational demands of doing so.
* Tom suggested that WRAP can look for models that might be helpful in assessing the impact of individual sources on C1As. But if states want to pursue such an approach, they’re going to have to decide which individual sources they want to assess. They will likely need to collect relevant information from those sources as part of the assessment process. For now, the plan is for WRAP’s Regional Haze source apportionment efforts to use regional models in assessing contributions by source categories in each state rather than individual sources.
* Adding to Tom’s above point, Curt noted that the WRAP source apportionment will be conducted on a C1A by C1A basis. For example, at a particular C1A, source apportionment might indicate that 10% of the visibility impairing pollutants may come from EGUs in a particular state, and most of these are sulfates, with 80% of the rest of the visibility-impacting pollutants originating from other source categories. In such cases, it may not be clear to the state how to approach control measures for an individual source within a particular category.
* Curt pointed to a model that may be helpful in assessing visibility impacts of individual sources: the Second-Order Closure Integrated Puff Model with Chemistry (“SCICHEM”) model SCICHEM is complicated to set up but it may be helpful.
* **Action item:** Tom stated that he would distribute after the call an article providing an overview of SCICHEM [*Tom did so immediately after the call concluded*].
* Tom pointed out that if the Subcommittee is going to recommend assessing visibility impact of individual sources, whether as part of a screening process or as a “fifth factor” added to the four factor analysis, an import corollary issue to think about is whether WRAP should recommend a regionally consistent approach to doing this. If the answer is “yes,” then some sort of regional model like SCICHEM would need to be used, with source-specific inputs specified by the states. It may be possible, using SCICHEM, to address visibility by some approach that falls short of an explicit “fifth factor” for visibility impacts added onto the four factor analysis. However, it might be difficult for all the WRAP states to reach consensus on a uniform or consistent approach, since they may have differing ideas and needs about how to approach their own individual sources.
* Curt’s revised draft addresses the AERMOD model as a potential tool in assessing the visibility impact of single sources. However, the draft emphasizes that using AERMOD would be “pretty challenging,” in view of its limitations.
* A suggestion came from the group that the Protocol might include a few sentences on the use of source apportionment to identify source categories whose impact on visibility is well documented, as opposed to those whose impact is less well documented (or, perhaps, whose impact is well documented but lower).
* Tom noted that source apportionment data from WRAP’s Regional Haze efforts is expected to be available sometime in second quarter 2019. Tom noted that the review of NEI provided by states as part of the emission inventory process did not include providing or assessing data on individual sources. If WRAP is going to do source apportionment for individual sources, states will need to provide input data on such sources. Frank stated that he was speaking more about source apportionment for source categories. There was additional discussion on the extent to which WRAP efforts could or should perform individual source apportionment as opposed to regional, source category modeling to help assess visibility impacts at particular C1As.

**Decision**: Curt summed up the discussion by stating that the subcommittee needs to devote greater attention to the use of visibility as a fifth factor, or find some other way to address visibility, given the importance to some states of meaningfully linking source emissions to the effect of those emissions on visibility. Curt noted that the Regional Haze rule could be regarded as taking an “additive” approach to emissions, in that it proposes controls on sources whose individual visibility impact at a C1A may be difficult or impossible to quantify but that, collectively, could have a significant visibility impact which could in fact be mitigated by controls on an array of sources.

**Action item**: Frank stated that he would draft some proposed language for the Protocol addressing source apportionment and how it might be used to shed at least some light on visibility impacts of sources at particular C1As.

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Discussion of this page in the revised draft went further into visibility impacts, by discussing the issue of whether and how to address them as an explicit fifth factor in addition to the four-factor analysis. Curt suggested potentially creating a table in the Protocol that would provide guidance on “decision points” at which states might need to consider a fifth factor for visibility impacts after the state had already done a four-factor analysis for a particular source. In this approach, a table in the Protocol might specify emission thresholds beyond which a standard control measure evaluation using only four factors was required for a source, or was discretionary, or was not required. Purely as a hypothetical example, perhaps 1,000 tons might require a four-factor analysis, with some lower “gray area” threshold (500 tons or more? 100 tons or more?) possibly requiring such an analysis, and an even lower threshold requiring no threshold at all. Area sources in a source category, in this speculative example, might require such a four factor analysis if their collective emissions totaled up to some very large amount, such as 1000 tons or more. In the approach outlined in a possible table like this, states would have criteria for making a decision on a four factor analysis before going on to a fifth factor addressing visibility impacts.

On a related note, Curt suggested that one state cooperating with another on out of state visibility impacts at one of its C1As could involve the other state in the analysis process, in order to get to a common understanding of the sources that need to be assessed.

Curt invited those with feedback on these ideas to contact him by email.

*Pages 10-15*

There was no comment from the group on these pages. Curt again invited email comments on this material.

**4. Next Steps**

The consensus of the group, per the discussion described above, is that the subcommittee needs to give more thought to how the Protocol can discuss use of source apportionment regarding visibility impacts.

**Decision:** As part of deciding about how to address visibility impacts, the group needs to reach a consensus on whether and how the group will SCICHEM as a tool for addressing visibility impacts.

**Action Item:** Gary from Washington said he would send to the group a source specific analysis using the state’s Reasonably Available Control Measures (RACT) approach, with background material.

Curt concluded the discussion by again inviting email and phone calls on the matters discussed during the call.

Need to have some more thought put into modeling options regarding visibility. If we see a lot of states that want to do that, that helps us with decision process on whether SCICHEM is something we want to look at. Curt really wants more feedback on this. He’s happy to have offline phone calls to learn more, for those who feel they don’t know enough, they can get in touch with him.

Sounds like we’re close to something final, but need more on source apportionment and visibility impacts. Any other areas where additional conversation needed? Frank: earlier Curt mentioned 80% is a fuzzy target, is there room to improve that, or is that based on how fuzzy the guidance is? Curt: I don’t have insights on what final guidance will look like, don’t know whether this aspect will change. Tim Allen has said just focus on impacts at the C1A w/o getting too wrapped up in 80% per se, focus on showing that you’ve been thoughtful. Curt will take another look at language on this, give some more but w/o limiting states’ flexibilities. Any other questions on particular areas? Can talk now or send emails? Can have conversations on technical side to get better understanding of technical details. \*\*\*\*Gary from WA: will send source specific analysis using their RACT approach, with background; EPA said they prefer category approach, individual won’t have as much of an impact.

Curt: when I get suggested edits fro Frank (see above), he’ll insert some new things on 80% threshold, highlighted in track changes.

**5. Next Call**

Wednesday, November 28, 2018