**CONTROL MEASURES SUBCOMMITTEE**

**NOTES OF CONFERENCE CALL**

**Tuesday, April 23, 2019**

Notes by Ed Merta, City of Albuquerque

**Attendance**:

Attendance: Phil Allen (OR), Tim Allen (FWS), Pat Brewer (NPS), Brenda Harpring (NV) Craig Henrikson (MT), Gary Huitsing (WA), Aislinn Johns (ID), Kirsten King (NPS), Ed Merta (Abq), Tom Moore (WRAP), Kerwin Singleton (NM), Tina Suarez-Murias (CA), Curt Taipale (CO), Elias Toon (AZ), Emily Weissinger (Ramboll), D Wu (OR).

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

* Anyone with feedback or questions on the Ramboll work products discussed today should send it to Emily Weissinger or Tom Moore in the week following the call.
* Curt asked Tom for input on the review of single source modeling approaches prepared by Ralph Morris (of Ramboll), which has been revised since the Control Measures subcommittee discussed it on a December 2018 call.
* Curt will send out a Doodle poll to schedule a May meeting of the subcommittee.
* Curt will work with Amanda Brimmer to set up a joint call in June of the Control Measures subcommittee and the Oil and Gas Work Group.
* Curt will contact Jay Baker, Rebecca Harbage, and Amber Potts about distributing the Ramboll draft work products for our subcommittee (discussed on this call) to the general membership of the Regional Haze Planning Work Group. Curt will suggest that feedback from states regarding the Ramboll products include what the state is currently doing in regard to moving ahead on control measures analysis.
* Tom said that as WRAP receives feedback from states on their activities regarding control measures analysis, he can place references and documentation on the web page of the Control Measures subcommittee for those states that are using alternatives to the WRAP control measures analysis approach.
* Pat suggested that the Control Measures subcommittee get in touch with the Emissions Inventory/Modeling Protocol subcommittee to make sure the two groups are on the same page in regard to modeling the future emissions impact of control measures selected through four factor analysis.
* Tom stated that he would get in touch with other Regional Planning Organizations (LADCO and CENSARA were mentioned) to let them know about the availability of WRAP work products regarding control measures analysis and emissions projections.

**1. Welcome, Roll Call, Agenda Review, Note-Taking Responsibilities – Curt**

Curt recapped and summarized recent work of the subcommittee, including (A) the March 20 outreach webinar and (B) WRAP contracting with Ramboll for a Q/d analysis of facilities in the 15 WRAP states. Curt said he can send a copy of his Power Point slides from the webinar to anyone who requests them.

**2. Presentation and discussion of Ramboll draft work products – Emily Weissinger, Ramboll**

Emily Weissinger summarized recent Ramboll work related to control measures analysis. Ramboll, she related, geared its work products towards screening of sources to determine which would be brought forward for a four factor analysis. The draft EPA guidance on Regional Haze says states are expected to evaluate their sources to determine which of these should have controls for making reasonable progress on visibility at Class 1 Areas (“C1A”). As part of this process, states can screen sources to determine which should actually be evaluated for control measures. Ramboll has developed tools for doing this based on the emissions divided by distance approach, known as “Q over d.”

Ramboll also prepared a memo for use by states when evaluating existing, recently implemented controls at facilities identified by Q over d assessment as potentially subject to a Four Factor analysis.

The following notes summarize Emily’s presentation of specific Ramboll work products.

**Q/d analysis pivot table**

The first Ramboll work product is a compilation of data presenting Q over d analysis (hereinafter “Q/d”) for sources in the 15 WRAP states.

States can use Q/d as a method that helps characterize visibility impact of sources at Class 1 areas. In this approach, “Q” equals facility level emissions. In Ramboll’s Q/d work, the emissions are those for NOx plus SO2 plus PM10, summed as a combined total. The “d” in Q/d equals the distance from the facility to the nearest C1A boundary.

Ramboll populated its Q/d tool with facilities for which Q was greater than 1 ton per year (“tpy”) and which were within 400 kilometers of a C1A. Ramboll ended up with 125,000 data pairs, each consisting of a binary relationship between a facility and a C1A. Initially, Ramboll put the data into an Excel spreadsheet, which was intended to include functionality allowing a change in thresholds of Q/d totals, or Q thresholds, to see how many facilities would be captured by each threshold. But this kind of spreadsheet proved too “clunky” to use.

So the draft Excel spreadsheet for today’s call has a fixed Q/d threshold of 10 and Q threshold of 25 tons per year. Queries using the Excel pivot tables will automatically be based on these thresholds.

However, Ramboll also put the same data into two Microsoft Access databases (one 32 bit, the other 64 bit), which allow queries that tailor the Q/d or Q thresholds.

The Ramboll data encompasses facilities and C1As in WRAP states, plus states affiliated with LADCO and CENSARA.

Ramboll used emissions data from the 2014 National Emissions Inventory (“NEI”), v. 2, as updated by WRAP states and shakeout modeling by the Ramboll modeling team during the first quarter of 2019. Ramboll’s Q/d tools list emissions by individual facility. To obtain a unique latitude and longitude point for each facility, Ramboll used the latitude and longitude of the emissions unit or process within the facility that had the highest individual Q. Emissions for the facility still consisted of the facility-wide total, however.

To obtain C1A boundaries, Ramboll used EPA shape files for use with GIS software. This method can produce certain artifacts that may show up regarding the location of C1A boundaries – please direct questions on any oddities you may notice in that regard to Ramboll.

Ramboll geared its tools to evaluate Q/d and Q separately, generating results that fall within an identified threshold. Ramboll invites features on how queries work and how results of queries are displayed.

Ramboll’s tools evaluate Q/d and Q separately. If a user searches for a certain Q/d threshold, the search will capture all the facilities that meet this threshold, with no ability of a user to modify this list. Other queries focus on C1As. Ramboll invites feedback on these characteristics of the Q/d tools.

Emily walked the group through the Excel tool pointing out how different worksheets present different types of data. In response to a question, she noted that because the spreadsheet displays Q/d calculations for all facilities within 400 kilometers of a C1A, the spreadsheet can capture the potential impact of facilities outside a state in which a C1A is located.

Emily then moved on to a walkthrough of the Access tool. The Access version of the tool is based on the same underlying data as the Excel tool, with the same categories of data presented at a user’s request (captured Q, captured Q/d, Q/d summary). The Access tool, though, allows a user to change the Q and Q/d thresholds of a user inquiry, whereas the Excel spreadsheet fixes the Q threshold of an inquiry at 25 and the Q/d threshold at 10.

Curt Taipale asked for confirmation that the captured Q in the Ramboll tools reflects only point sources in the 2014 NEI, with no inclusion of data for mobile, area or other emissions categories. Emily confirmed that this understanding was correct. She added that only sources with a Q greater than or equal to 1 are represented in the raw data that is the basis of the tools.

Emily stated that both the Excel and Access tools are avail for download via the calendar invite for this call. They are also posted on TSS version 2.

**Q/d methodology description memo**

Emily described this memo as a summary in written form of how Ramboll came up with the data presented in its Excel and Access tools.

Tina asked whether the percentage of emissions captured, as retrieved by the tools, – is for all facilities in the database, thus excluding area sources. Emily answered that yes, this is the case, but she added that the percentage of emissions captured reflected, by default, sources emitting 25 tons per year or more. Tina noted that most Western states don’t inventory non-stationary, i.e., non-point, sources. This can make it difficult, she said, for states to get to the 80% threshold of visibility impacts mentioned in the EPA draft Regional Haze guidance.

Elias Toon stated that when Arizona debuted the Q/d method to stakeholders, Arizona got feedback regarding the transportability of PM – pointing out that PM isn’t transported nearly as far as NOx and SO2. But the Ramboll tool gives equal weight to all three pollutants in performing its Q/d calculations. Elias thought it would be good to limit Q/d’s consideration of coarse mass, given the significantly greater transportability of NOx and SO2. He suggested that if such a feature couldn’t be built into the tool, then maybe it was a factor for states to consider in their planning process.

Emily pointed out that the Ramboll tools do include Q/d calculations for individual pollutants, i.e. for NOx, SO2, and PM considered separately.

In a subsequent discussion of how to account for fugitive versus non-fugitive emissions, Emily stated that Ramboll couldn’t figure out a good way to do this in its Q/d tools. So both types of emissions are grouped together.

Addressing Elias’ point about transportability of PM, Curt wondered whether states could use the Access tool to examine shorter distances when dealing with for PM.

Emily replied that no, a user can only lower the Q/d threshold, without the ability to filter by the “d” in Q/d. Curt suggested that WRAP members could provide feedback to Ramboll on this point. Emily noted that users can sort data by the “d” column where appropriate, but then they’d have use “the eyeball method” to sift through the results.

**Source control assessment considerations memo**

Emily described this memo as addressing a topic different than the method for performing a Q/d analysis. The memo describes approaches for analyzing recently implemented existing controls at a facility, to determine whether they are stringent enough, based on EPA guidance, to allow excluding the facility from a four factor analysis.

Emily noted a challenging feature of EPA’s draft 2016 guidance: it uses two new terms, not appearing in previous Regional Haze regulations and guidance, to describe the aforementioned stringency. One term is “most effective control technology,” applying to potential four factor sources generally. The other term applies only to certain EGUs, which are new or modified, with “highly effective control technology,” within five years of submittal of the Regional Haze SIP.

Ramboll’s memo describes considerations states may want to account for when comparing existing controls at a facility to the EPA guidance conceptions of “most effective” and “highly effective” controls. The memo examines these issues by going through key features of control technologies mandated under federal Clean Air Act programs, including NSR, BART, NSPS, and MATS.

**Next steps**

Emily asked for feedback to go to Ramboll on any aspects of the work products discussed on today’s call. Such feedback can go to Emily or to Tom Moore.

**Discussion/Q&A**

Tom Moore suggested to the group that feedback to Ramboll on the existing control measures memo should try to identify ways to insert “bright line” tests into the memo, to help states navigate the various federal control measure requirements when deciding whether or not a sources can be exempted from four factor analysis. For example, he said, there is a big difference between a PSD analysis of a source conducted ten years ago compared to one conducted thirty years ago. Are there instances of clear cut-offs that the memo could provide to ask whether a source’s existing controls under whatever federal program are good enough to count as “most effective”/”highly effective?”

Curt elaborated on the need for feedback to Ramboll by suggesting that the feedback pose particular questions about the work products or identify new features that might be included in them. He and Emily reiterated that feedback can be sent to Emily or Tom.

Curt outlined the general process of control measures analysis, of which the Q/d method is one aspect. The first stage for a state in the process is figuring out Q/d threshold gives your state the best captured Q. After that, a state can look at PM and transport. Then it can identify sources that will be subject to a four factor analysis, and notify those sources of this fact, working with them to get cost information on potential new control measures. That will take some time. Once you have that cost information from facilities, you need to decide whether any of the control measures analyzed are reasonable and cost effective. This will entail getting a sense of what emissions reductions might occur as a result of implementing the measures. It’s hoped states will get that data near the end of this calendar year. Ultimately WRAP will use that data to run control scenario modeling in spring 2020. That’s the ultimate end point of the Regional Haze control measures analysis process – to nail down total emissions reductions obtained from implementing control measures at affected facilities.

Curt described Colorado’s experience with that process during the first Regional Haze planning periodic. The primary emphasis was on assessing the potential visibility impact of Colorado facilities impact on Colorado C1As. The Ramboll Q/d tools discussed today allow assessment of impacts that your state sources might have on C1AS outside your state. This is an important change. It’s conceivable that a state’s Q/d visibility screening might entail a four factor analysis by a source outside your state. States need to think about analysis that can identify such sources, and then plan what to do next. If the source is long distance away from your state’s C1As, maybe that fact could inform whatever further analysis is done.

In response to a question from Tina, Curt commented that different states might choose different Q/d thresholds. A threshold of 10 in one state might identify a lot of sources for four factor analysis, but that same threshold might not make sense in another state. Maybe the threshold in that other state would need to be lower than 10, or higher, to capture the appropriate “reasonably large fraction” of emissions, which EPA’s draft guidance characterizes as 80% of statewide emissions.

Tina said that California wants to make sure that whatever approach it takes to Q/d and four factor analysis won’t end up confusing WRAP’s regional modeling, which will be based on data supplied by the states.

Curt asked that, over the next week, subcommittee members provide feedback to Emily and Tom on the spreadsheet/Access tools. Feel free to address considerations unique to your state or applicable to everyone. Please look through the control measures analysis memo for specific suggested changes that would be helpful to any state user.

Curt asked Tom for input on the review of single source modeling approaches prepared by Ralph Morris (of Ramboll), which has been revised since the Control Measures subcommittee discussed it on a December 2018 call.

**3. Discuss desired level of information for “potential additional emission reductions by 2028 beyond Rules on the Books” by end of 2019 for a 2028 “Control Strategy Sensitivity” regional modeling run in early 2020 – Tom and Curt**

This item was deferred to a future call.

**4. Date and time for next Control Measures subcommittee call – Curt and all**

After some discussion, the group agreed to schedule a call for next month. Curt will send out a Doodle poll for this purpose. The call will aim to reach consensus on a path forward for the subcommittee following availability of the Ramboll control measures work products. A key concern, Cur noted, will be getting states to move forward with their four factor analyses.

Tom suggested that the subcommittee may want to hold a join call with the Oil and Gas Work Group, perhaps in June. That group has been tasked with developing control technology options for upstream oil and gas sources, for both point and area sources. Oil and gas could be an example of one area source category that does require a four factor analysis. A joint call could discuss how to pursue such an analysis in light of the options being explored by the Oil and Gas Work Group.

Tina, Curt, and Tom discussed the difficulty of applying a Q/d approach to assessing potential visibility impacts of oil and gas sources, which number in the thousands and are widely scattered. This makes the Q/d approach essentially meaningless, given the difficulty of choosing a “center” for a sprawling oil and gas field and drawing a line from that arbitrarily chosen point to a C1A boundary. The discussion noted that many oil and gas sources already have reasonable controls in place, or at least practices. Tom cautioned that he can’t speak for the Oil and Gas Work Group, but they appear to be exploring a category-wide four factor analysis that would be based on a series of “bright line” tests that a state could work through in a step-by-step procedure. Tom noted that states are free to pursue category-wide four factor analyses of area sources if they wish and could do so in regard to numerous categories. That could help get a state to the 80% threshold mentioned in EPA’s draft guidance.

Curt stated that the priority for the subcommittee right now is to get states rolling on four factor analysis of major sources. After that, we can follow up with some consideration of oil and gas area sources. Perhaps the subcommittee could discuss a common four factor WRAP approach to these. Curt noted that during the first planning period Colorado chose such a category wide approach to four factor analysis of oil and gas, without doing a point-by-point assessment.

Tina seconded the notion of the subcommittee holding a discussion of a common approach to four factor analysis of oil and gas.

Curt said he would work with Amanda Brimmer to set up a joint call in June of our subcommittee and the Oil and Gas Work Group.

In further discussion, based on questions from Pat Brewer, the group agreed it would be a good idea to share the draft Ramboll work products with the Regional Haze Planning Work Group as a whole. Although the work products are still in draft form, sharing them could be a way to prod states toward movement on contacting sources about doing a four factor analysis. Getting them to move will help meet WRAP’s modeling deadlines.

Curt said he will contact Jay Baker, Rebecca Harbage, and Amber Potts about distributing the Ramboll draft work products for our subcommittee to the general membership of the Regional Haze Planning Work Group. In response to a suggestion from Tom, Curt said he will suggest that feedback from states regarding the Ramboll products include what the state is currently doing in regard to moving ahead on control measures analysis.

Pat suggested that the Control Measures subcommittee may want to get in touch with the Emissions Inventory and Modeling Protocol subcommittee to make sure the two groups are on the same page. The Emissions/Modeling subcommittee is working on methods for making projections of future emissions from sources potentially subject to four factor analysis. It would be a good idea to make sure the two subcommittees are the on the same page. She suggested that this subject be addressed in the May phone call of the Control Measures subcommittee.

Pat’s suggestion led to a discussion of sharing information with other Regional Planning Organizations on the subject of control measures selection and modeling emissions in light of those measures. The discussion mentioned LADCO and CENSARA. Sharing of information among RPOs on these topics could be beneficial.

Tom stated that he would get in touch with other RPO’s to let them know about the availability of WRAP work products regarding control measures analysis and emissions projections.

Elias Toon mentioned that Arizona’s approach to control measures analysis deviates from the approach taken by WRAP. He thought it would be a good idea for WRAP’s web page to display or link to technical documentation from states taking alternative approaches. Tom said that he can place such documentation on the web page of the Control Measures subcommittee as states update WRAP on the approach they are taking to control measures analysis and selection.