



AGENDA

Wastewater Treatment Workgroup (WWTWG)

Teleconference

Tuesday, June 6, 2017, 10:00 AM – 12:00 PM

Conference Line: 866-299-3188, **code:** 267-985-6222#

Adobe Connect: <http://epawebconferencing.acms.com/wwtwg/>

Calendar Page: <http://www.chesapeakebay.net/calendar/event/25151/>

Summary of Actions and Decisions

Decision: The May meeting summary was approved, provided the following edits are included. On the first action item, change text to: “Comments will be reviewed on this documentation for the Phase 6 model, and WWTWG would look at wastewater comments exclusively at the next call.” Page numbers will also be added.

Action: Ning Zhou and Tanya Spano will coordinate on options for identifying spray irrigation loads and biosolids loads in the phase 6 model. Options include a post-processing isolation of spray irrigation and biosolids load data; or inclusion in the phase 6 model itself as new categories..

Action: Ning and Michelle will flag wastewater-related comments on the phase 6 model for discussion at the July WWTWG call.

Action: Tanya Spano and George Onyullo will review the agriculture model documentation relating to spray irrigation and biosolids and bring back comments to the WWTWG in July.

Action: The WWTWG will review all the documentation relating to wastewater in the phase 6 model and submit any comments for review prior to the July WWTWG conference call.

Action: Ning will add a metadata page to the spreadsheet to better identify changes between different versions of data.

Welcome, Introductions, and Announcements —Tanya Spano (Chair)

Action item: Approval of May minutes.

Discussion:

- Tanya Spano suggested edit to action items from May minutes: On the first, “Comments will be reviewed on this documentation for the Phase 6 model, and WWTWG would look at wastewater comments exclusively at the next call,” and suggested that page numbers be added.

Decision: The May meeting minutes were approved on the condition of the above edits being incorporated.

Final Model Review Protocol –Ning Zhou (VT), Tanya Spano (MWCOG)

The WWTWG discussed the [model review protocol](#) approved by the WQGIT on May 8, discussed the draft review document to be created by the WWTWG, and set up a plan to complete the review by the schedule defined in the protocol.

Discussion:

- Zhou: We will be looking to improve this data beyond just identifying fatal flaws, so if you have comments to improve the data, please send those as well as fatal flaw comments.
 - Spano: This is quite likely, and it's a matter of updating the database. We have to make sure where we've allocated loads beyond the WWTPs. It will be a correction, not a fatal flaw.
- Greg Busch: My question is how we see Agricultural spray irrigation. There's no explicit output for spray irrigation loads, as those come up as loading rates for crop land. The only way you can see this is isolation scenarios with and without spray irrigation.
 - Spano: You're right, it's difficult to find out what's causing an issue with loadings. We at least need to do due diligence to look and see if there are fatal flaw there.
 - Busch: Can we do isolation scenarios for spray irrigation?
 - Zhou: We can make this a workgroup request to the Modeling WG. The Ag Workgroup is working on spray irrigation BMPs right now. We need some category in the model to define that so that we can have a better handle on where the data is coming from and to record those BMPs.
 - Spano: I am always concerned about the equity of biosolids. Karl Berger's work was to develop an approach for more accurately portraying biosolids. We have some crossover issues with the AgWG with spray irrigation and biosolids that need to be evaluated. Does this prompt any other particular land-related wastewater loads that would necessitate more isolation runs?
 - No responses were recorded from the WG.
- Tanya: So we have some loads that we need to coordinate with AGWG to run isolation scenarios.
 - Zhou: We can expand this collaboration to cover ground discharge, spray irrigation, etc. We discussed ground discharge and rapid infiltration at the last call. We can continue that discussion later, but this can be one thing we include in this review.
 - Spano: Most of what we will be dealing with is cleaning database issues rather than loading errors. However, those new categories need evaluation to determine if, in those scenarios, there are fatal flaws.
- Zhou: We can separate these loads into the model—those aren't direct loads, and some are land discharges, like fertilizer.
 - Spano: This is why it doesn't get a land use designation, correct?
 - Zhou: Right, so that won't be put into the model directly even though it is a land use impact. They don't have surface runoff because it all goes to groundwater.
- Spano: A WWTP discharges through a pipe. There's dispersion and leakage and mixing zones, but it's simplified in the model to a discreet input at a particular stream segment-shed. These loads are treated the same way, as though they were piped into one segment. That's a database way of handling the input to the model. Should we be using that assumption, or should we use a different approach, since the current assumption has a very concentrated effect in the model that doesn't reflect reality?
- Zhou: If the load goes through the ground, along with surface runoff.
- Marya Levelev: Ag loads are associated with different scenarios, BMPs, etc. I'm not clear how we would find these facilities or discharges in the model. This discharge—the loads are going to be much lower than other Ag practices.
- Zhou: You won't find those loads right now in the model.
- Levelev: If we can't find them in the model, then we can't assess how accurate these loads are and if they're a fatal flaw or not.
- Spano: So some of these loads are lumped in and we can't extract it for the fatal flaw review. We need those inputs and where those inputs would discharge (Segment) to begin to target where they see anomalies. We need to be able to narrow down segments that have biosolids

and not, so that we can determine, if there is an anomaly, whether it's a WW issue or another sector.

- Zhou: In the past we calculated the delivered load. That's calculated from the input file separately. I can do the same for the other new sources as well. If we do want to see that in the model result itself, then it needs to be added as a separate load category for biosolids and spray irrigation. Now it's lumped together with fertilizer so you can't see how much of the fertilizer load on farmland is biosolids and spray irrigation. Post-process I can calculate separately and tell you but it won't be in the model result.
 - Levelv: If you can give us some sense or some draft of what this would look like that would be helpful.
 - Spano: Not only for the review, but also for credits. There are multiple reasons we are doing this.
 - Zhou: The way we did this in the past, post-process could work, or we could directly build this into the model.
 - Levelv: Can we get some examples of what the data visualization will look like for each option?
 - Zhou: I can do the post-process for this review, but I don't think this will be a qualifying number to use for trading or credits.
- Levelv: What would a separate model category look like?
- Spano: We need to capture how this information would be used—not just for fatal flaw but beyond. I want to make sure that we're allowing states to account for these practices for credit. We need to make sure we didn't fail to account for some other use of this information. Ning has given one post-process way to get his information. Another way is to include this in the model itself as a new category. Ning, can you and I confer after the call and decide what to produce and when? We need to be able to see these loads in new categories in order to do FF review. Maybe we'll have to ask for explicit changes/labeling/outputs that haven't been identified.
- Spano: I really want to make sure we are being as thorough as possible in this review
- Dave Schepens: We have very little spray irrigation in DE. Either of those two options would be fine with us, as we don't expect that to be a source of any major issues.
- Tanya: We won't wait till the next call to look at some of these options. We will do a lot of this offline, over email. Ning and Michelle will flag WW-related comments on the model for us.

Action: Ning Zhou and Tanya Spano will coordinate on options for representing spray irrigation loads and biosolids loads in the phase 6 model. Options include a post-processing isolation of spray irrigation and biosolids load data; inclusion in the phase 6 model itself as a new category; or a workgroup request of isolation scenarios from the AgWG for determining the loads in these sectors.

Action: Ning and Michelle will flag wastewater-related comments on the phase 6 model for discussion at the July WWTWG call.

Discussion of Documentation for Phase 6 Model – Ning Zhou (VT), Tanya Spano (MWCOG)

The WWTWG reviewed documentation from [phase 4](#) and [phase 5](#) in preparation for creating a phase 6 model review document. Documents discussed include:

- Resources listed in the one pager (Phase 4 and phase 5 model documentation), available on the [June 1 calendar page](#) and the [WWTWG page](#) under Projects and Resources tab
- The final model review protocol, approved by the WQGIT 5/8/17
- Draft phase 6 model documentation chapters 1 and 8, and appendix F for phase 5 and section 7 for phase 5.

Discussion:

- Spano: We will have to propose some edits on the existing documentation. Ning, what are the most critical aspects that needs to be revised in this chapter 8 documentation?
- Zhou: Looking at the fatal flaw review schedule, it looks like anything we submit will have to be by the end of July. So we would like to have something to talk about in early July at our next conference call.
- Spano: We will want to submit some of these scenario requests well before that deadline.
- Zhou: The draft up here is very early, and we want to propose some changes. We may want to include some state-specific information that's not in there right now. This draft is based on what the Modeling WG has outlined, so we will likely have a lot more to add.
- Zhou: The [ftp website](#) is up and will be updated—temporarily houses the [model documentation](#), eventually will be housed on the CBP website.
- Zhou: Flows have increased, and N loads have decreased since the voluntary reduction in early years and continued going lower with recent implementation of ENR.
 - Spano: I still have a problem representing this graph without the TMDL cap showing on the graph as well. We need to show that this is a planned increase in flows. There also has to be text that goes with it to indicate the TMDL.
 - Zhou: I also have a graph of population, flow and load as well that might show those planned increases as well. The story is complicated and we have to decide what we want to include in this document.
- Ning Zhou showed a pie chart of the share of WW in the total N and P in the Bay from 1985 to 2015.
 - Spano: What's missing from the pie chart is all the other new categories of loads that are being added to the WW load.
 - Allan Brockenbrough: I would try another color palette—the blues and greens are hard to tell apart.
 - Zhou: Originally it was very colorful and I was told to move to a more restricted palette, but I can tweak it a little.
- Zhou: Also in the [draft chapter 8 documentation](#) is the definition of significant and nonsignificant facilities. This definition has been used for more than 10 years now. Tables summarizing significant and nonsignificant facilities in 2016 are also included.
- Spano: Are you capturing the changes since the last documentation?
- Zhou: I have a section that talks about that.
- Zhou: The appendix F for the phase 4 model documentation has a lot of detailed information on data sources, how data was collected, and how we incorporated it into the model. One editor said it was too much before, but if we want to have all that information we can add it back in.
- Zhou: A section in phase 4 ([Appendix F](#)) shows how loads were calculated, but in phase 5 documentation. Since people are interested in this calculation, it is included in the phase 6 documentation.
- Brockenbrough: We still are adding P to WW in West Rock, by the way. It's phosphorus-deficient, so we have to add it back for proper biological functioning.
 - Zhou: If VA can provide some updated information to us for this plant, we can discuss that.
 - Brockenbrough: There is a discrepancy somewhere, so this might be the load that hasn't been accounted for. We'll coordinate with West Rock to make sure they're aware they're being called out on this.
- Spano: I can see this has been a lot of work so I just want to express my appreciation.
- Spano: We run into the same issue with spray irrigation, that this needs to be documented, but it won't be in chapter 8. Folks will have to review other chapters for spray irrigation and other

data cross-listed with WW and agriculture. Michelle will include the appropriate chapter for these loads in a follow-up note later this month.

- Spano: Does anyone have a strong desire to work very closely to look at this and bring back comments to the WG as a whole in July? We need to do this over the next couple weeks to focus on this. We will look at this on behalf of, not in lieu of the WG in a big picture review.
 - George Onyullo: I would be happy to volunteer.
- Spano: Send us comments, we'll curate them and send them out every couple weeks to the WG to check in and get feedback. We don't have a lot of time to do this on the call itself and Ning needs time to write in these comments or make requests. Let us know periodically, don't wait till the next call.
- Spano: What information do we need from Ning? Do we need to preserve anything else from the old documentation, and is there anything in the new document that we missed or is misstated?
 - Marya Levelev: Ning added that he can add a chart showing population, so where would he get that data?
 - Zhou: Peter Claggett has sources for all the population data, the same data that is being used for land use and growth projections.
- Spano: To the extent that you think something is missing, please provide an example or some suggested text to help us out.
- Zhou: This should be the product of the WG, not me alone. Anyone who can help with anything small or large will help.

Action: Tanya Spano and George Onyullo will review the agriculture model documentation relating to spray irrigation and biosolids and bring back comments to the WWTWG in July.

Action: The WWTWG will review all the documentation relating to wastewater in the phase 6 model and submit any comments for review prior to the July WWTWG conference call.

Review of Phase 6 Calibration Data—Ning Zhou (VT)

Ning presented the final [phase 6 calibration data and analyses](#) for review. The database has been summarized the database into different formats and tables to assist workgroup review. Annual total wastewater loads between phase 6 and phase 5.3.2 at both bay wide and state levels have been compared as well.

Discussion:

- Zhou: Greg Busch pointed out that some spreadsheets didn't match. The bay-wide one was made before the stateones individually with additional updates, so some didn't match—everything has been updated online, so that should match now if you look at it.
- Spano: The [ftp site](#) is the most updated versions of the calibration data. In the future, if there are changes made throughout, that's fine. For any revisions to just one state or summary. There should be a metadata page up front that shows what's been revised, etc. so people don't have to hunt for the changes. Show the link again to confirm the change in numbers. If DE didn't change, then they don't need to re-download the data.

- Ning: I will specify what exactly has been changed and who needs to download what in a follow-up email. Only the summary has been changed, not the state-specific data.
- Tanya: I would suggest considering a metadata sheet attached to the spreadsheet in lieu of having to look at the model documentation. A metadata sheet would give a more updated

Action: Ning will add a metadata page to the spreadsheet to better identify changes between different versions of data.

Updates

- Sewer and CSO Spatial Coverage in the [Phase 6 Land Use Viewer](#)—workgroup members should have reviewed the coverage available and provided comments using the online tools.
- A log of WWTWG decisions has been drafted, and is posted to the calendar page.
- Dave Schepens will be retiring, and Jack Hayes will officially be taking over as the DE rep for WWTWG.
- DE has reviewed and approved the spatial coverage on the land use viewer website.

Action item: Confirm CSO Spatial Coverage.

Adjourned

Next conference call:

As the WWTWG regular meeting will fall on the 4th of July, a suggested alternate date of July 11 was proposed. Michelle will confirm availability for July 11.

Call Participants:

Tanya Spano, Chair (MWCOG)
 Ning Zhou, Coordinator (VT)
 Michelle Williams, Staffer (CRC)
 Rashid Ahmed, NY DEQ
 Greg Busch, MDE
 Marya Levelev, MDE
 Dave Schepens, DNREC
 Jack Hayes, DNREC
 George Mwangi, DNREC
 Allan Brockenbrough, VA DEQ
 Matt Richardson, VA DEQ
 Angela Redwine, VDH
 Meghan Browning, WV DEP
 Mindi Ramsey, WV DEP
 George Onyullo, DOEE
 Nasser Ameen, MWCOG