



DRAFT CALL SUMMARY

Wastewater Treatment Workgroup (WWTWG)

Teleconference

Tuesday, August 15, 2017, 10:00 AM – 12:00 PM

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

Calendar: <http://www.chesa->

peakebay.net/what/event/wastewater_treatment_workgroup_conference_call_august_2017

Summary of Actions and Decisions:

Decision: The WG concurred with the task group's recommendation to use this approach for representing biosolids in the P6 Watershed Model; and pursuing the other two options over time.

Action: The WWTWG should send any further updates, suggestions, and corrections on the Phase 6 calibration data to Ning Zhou (zhou.ning@epa.gov) by COB Friday, August 25.

Decision: The WWTWG proposed no updates at this time to the documentation review schedule. The original schedule will stay in place and the WWTWG will finalize the documentation by September 5.

Action: Staff will make the recommended changes to the draft July call summary and inform the workgroup when the changes have been incorporated. The July call summary will be reviewed and approved at the September WWTWG conference call. The following recommended changes will be incorporated:

- Include page numbers;
- Reflect the comment that 'the use of Red in CAST pass-through scenarios may not be a good color choice because it automatically implies that there is a problem, so the use of another more neutral color spectrum should be considered; and
- Adjust language in last announcement "can't make it"

Action: Ning Zhou will draft a data summary and proposed recommendation to the WQGIT to consider sewer service overflows and bypass issues in a future phase of the Watershed Model. The WWTWG will review the draft proposal and approve a path forward at the September WWTWG conference call.

Action: Ning Zhou will include a footnote in the CAST pass-through factor documentation that addresses Maryland's apparent outlying representation.

Action: The workgroup approved the recommendation to draft a memo that documents the biosolids small group's recommendations to allow the use of a water extractable phosphorus parameter (WEP) to be used in a future phase of the Watershed Model in order to quantify variations in loads with biosolids. This memo will be presented for approval at the WWTWG September conference call and presented to the WQGIT for approval.

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Decision: The workgroup did not recommend any fatal flaws in the septic pass through factors and scenario results for biosolids, spray irrigation, large monitored onsite systems, and rapid infiltration basins.

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

- Spano: We need more time to review the July minutes. We will approve the July minutes at the September conference call.

Action: Staff will make the recommended changes to the draft July call summary and inform the workgroup when the changes have been incorporated. The July call summary will be reviewed and approved at the September WWTWG conference call. The following recommended changes will be incorporated:

- Include page numbers;
- Reflect the comment that ‘the use of Red in CAST pass-through scenarios may not be a good color choice because it automatically implies that there is a problem, so the use of another more neutral color spectrum should be considered
- Adjust language in last announcement “can’t make it”

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

The WWTWG continued to collect comments on chapter 8 of the draft phase 6 model documentation. The WWTWG will finalize and approve the documentation for chapter 8 of the Phase 6 Watershed Model at the September 2017 WWTWG call. Background resources include:

- Resources listed in the one pager (Phase 4 and phase 5 model documentation), available on the August 15 calendar page and the Projects and Resources tab on the [WWTWG page](#).
- The final model review protocol, approved by the WQGIT 5/9/17
- Draft Phase 6 model documentation chapters 1 and 8, and Phase 4 model documentation appendix F.

Discussion:

- Zhou: All the calibration data as well as related summaries and analyses were uploaded and ready at the ftp site: https://archive.chesapeakebay.net/VT/Phase_6_Calibration_Data_Review/

The last folder “9b-Annual Loading Summary for Septic, Biosolid and etc” is new, and all the septic and new source loading summary and analysis is in this folder. Data review: wrapping up calibration data this month, the modeling team will recalibrate the model at the end of this month. If any WG members have any further updates, please send to Ning by end of

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next week (Aug 25). If you haven't reviewed your data yet, please do that in the next week or two, and send me either your approval or comments soon.

- Spano: can you let us know what states you've already heard from and what states you still need confirmation from?
 - Zhou: I got approval from DE, WV, and one update from MD. I still need confirmation from other states. I received the latest one yesterday, so states are pretty active on this.
 - Spano: Thanks, that's good to know. You need edits, confirmation, comments by Aug 25 just to reiterate.
 - Zhou: Yes.
- Zhou: starting with Chapter 8. We planned to work through state comments today, and we haven't received comments yet. Time is running out, and we need to finish this by next call. Are there comments now?
- Spano: To help the process: I started looking through documentation, and I have some observations to point out as we go through. Are we starting with section 1 or section 8 right now?
- Zhou: 8.
- Spano: There is a huge amount of documentation out there, and thanks to Ning for pulling this all together. There are suggestions about the WW in 8.4. Some of that lacks big picture context, and I am concerned with managing expectations for those who don't understand the load caps or wastewater capacity. Loads from WW will increase over time, so the decreases we are seeing are only a moment in time.
 - Zhou: Thanks, that's a good point. Many of those graphs don't have detailed descriptions, so I will add an explanatory paragraph or two after each figure.
- Spano: Can you walk through the elements of the documentation, so we can have a reference?
- George Onyullo: I have a document with track changes that I sent to Ning.
- Spano: George, you and I can confer and provide some suggestions to the group.
- Zhou: That's a good idea. In 8.4, the intro is very brief, so let us know if we need to add more here.

Documentation, Section 8.4.1-- Wastewater Flows and Loads:

- Zhou: This first chart (Fig 8-2) shows the loading trend and graphically documents our efforts of nutrient reduction in the past 30 years or so. I need to put some description on this chart.
- Zhou: Fig 8-3 shows total nitrogen (TN) and total phosphorus (TP) loads over time. Fig 8-4 is taken from the publication of the overall wastewater success story that we showed the Partnership. The color, bluer and green was commented on before, but this is the preferred color scheme of the professional editor that put this together.
- Zhou: Fig 8-5 needs to be updated. This is more detailed trends based on each river basin in the model. Additional information at the local level can be gotten from this chart—at least at the major basin scale. When we put everything on one chart, we lose some insights. We should think about if this is how we want to present this information.

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- Spano: I have a suggestion. Can we provide some context that this is a snapshot, a moment in time of these relationships, and give a link to annual updates, so that as the documentation ages readers can go to newer updated data somewhere else.
 - Zhou: We can do that. We can link to the online database and send readers to download data themselves. This chart isn't on the website but we can link to the online database.

Documentation, Section 8.4.3:

- Zhou: Our major target in this workgroup is significant dischargers, we have less than 500 significant facilities, and many more nonsignificant facilities. We have the most changes in nonsignificant between Phase 5 and Phase 6 in the model. We cleaned up those loading numbers mainly of nonsignificant plants so there are slightly less total wastewater nutrient loads listed in Phase 6 than Phase 5.
- Spano: Looking at the tables, what's missing is an executive summary of WW changes between p5 and p6. That should be an intro in the beginning of the section before the tables. That summary needs to be up front in chapter 8.
 - Zhou: I put that executive summary at the end so I can re-organize to put that in the front.

Documentation, Section 8.4.8:

- Zhou: There is a major change due to one plant. The phosphorus inputs differed significantly from the river numbers, which created a problem with the model. To make the model run smoothly, we had to make some artificial changes. VA confirmed the changes with some evidences from their investigation on this issue at the Westvaco plant. We described the changes made to match the observed levels.
- Spano: To make it clear to audiences, can we change the title label to "resolution of special case" so that readers know that this was a unique problem that got resolved? If other things like this come up in the future, then that should be labeled like this too.
- Zhou: I think that's a good suggestion.
- Allan Brockenbrough concurred.

Documentation, Section 8.4.9:

- Zhou: Table 8-7 is to document the changes made to some industrial flows to have net flow values for the model hydrology simulation This table shows all the ratios that we use to artificially change the flow numbers after calculating the loads. Please review this table and make sure the ratios were still up to date and correct. One recent major change to this table was the Invista plant—this permit has been revised and the water source change from river to well water. So, Invista will have 0% river water and 100% well water for future reporting and model run. Because this change happened after the calibration period, the old ratio is used in this table.
- Spano: When we capture the changes, we need to explain the changes in the number of facilities or data points and differentiate between changes due to loadings and trends. This becomes our baseline right?

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- Zhou: That's a good idea. One significant change in Phase 5 to Phase 6 is the number of plants included.
- George Onyullo: You can break it down by significant facilities and nonsignificant facilities, and under each you can note the changes. The changes we are documenting here should be major changes, but if we need to highlight smaller changes at the facility scale we can do that in the descriptions for these tables.

Documentation, Section 8.4.10—Wastewater Data Changes Between Model Phases:

- Zhou: This is the section that I should move up in the document to create an executive summary. This is about changes between phase 5 and 6, so the loading trend changes over the 30 years may not belong in this section.
- Spano: I suggest that if we summarize the changes up front we can distinguish between general progress trends and what were fixes to the database, and put those two categories of changes in context. Changes to the database should be documented, but might not change the trends. This simply acknowledges that as of this moment in time, this is the progress we've made. Then there are the changes in impacts, then there are the changes to the database. If we note that in the exec summary, then we can refer to the specific place in the document where each change is characterized.
- Onyullo: to add to that, the major changes that occurred under this review are the database changes. Start with the summary of the database changes, and then talk about the trends using the database changes. Then note that trends aren't necessarily due to changes in loads because you have changes to the database that are noted. There's a progression to that story about how the loads are changing.
- Spano: Let's craft some language that adds what George suggested into the document.
 - Workgroup call participants concurred.
- Zhou: We have to stop discussing the documentation here, and continue to work through offline as we are running out of time. We have three weeks on this. We have till the end of August for documentation, earlier for calibration review.
- Spano: George, Ning and I should work offline to work through comments and incorporate the edits we've discussed today.

Action: The WWTWG should send any further updates, suggestions, and corrections on the Phase 6 calibration data to Ning Zhou (zhou.ning@epa.gov) by COB Friday, August 25.

Decision: The WWTWG proposed no updates at this time to the documentation review schedule. The original schedule will stay in place and the WWTWG will finalize the documentation by September 5.

CAST Pass Through Factors and New Data Sources—Ning Zhou (VT)

Ning updated the WWTWG on the unique septic system setting in MD and MDE's modification on the soil texture data used to determine the septic pass through factors in MD, which made most areas in MD have higher pass through rates comparatively than the rest of the watershed.

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Ning also updated the WWTWG on the isolation runs and requests for determining loads from new wastewater data sources in the model: biosolids, spray irrigation, large monitored onsite systems, and rapid infiltration basins. All the model run results, summaries and analyses are available at https://archive.chesapeakebay.net/VT/Phase_6_Calibration_Data_Review/9b-Annual%20Loading%20Summary%20for%20Septic,Biosolid%20and%20etc/

Two major findings from the results are:

- 1) Biosolids application results in the negative phosphorus load pass-through, which means Biosolids won't contribute any phosphorus load, but also reduce the phosphorus load from Ag land. This result is in line with the modeling method Tanya updated below.
- 2) Spray Irrigation on Ag land also presents negative contribution in both TN and TP. This could be due to the fact that spray irrigation enhances plant uptake, according to our Ag experts.

Tanya also gave updates on a report from Chip Elliot containing an update on biosolids data work and modeling inputs:

- Spano: I want to remind the workgroup that there were concerns about biosolids representation in the Watershed model. In wastewater, we are aware that use of Al and FeCl₃ bind manure nutrients and render them less bioavailable. And the purpose of this project was an attempt to find a better way of representing the real world impacts in the Watershed Model. There were concerns that biosolids land applied would have negative impacts if the model showed that they were introducing phosphorus loads. We (COG) hired Dr. Elliot, and Karl Berger worked on that issue. A biosolids task group, of Mr. Berger and Dr. Elliot, working with representatives from the states, came up with an approach that allowed for the use of water extractable phosphorus parameter (WEP) to be used in the model that can quantify variations in loads with biosolids. Biosolids have low WEP, so you can modify the phosphorus loads coming off biosolids so that you can more accurately portray biosolids phosphorus loads. The task group worked that process out with the Modeling workgroup and incorporated that into the P6 model. Ning will show us that data and we will see what that is telling us. There were two other recommendations from Dr. Elliot that could not be implemented in time for use in the P6 Watershed Model, but should be worked on in the future.
 - 1: Post processing BMPs, for biosolids that have Al and FeCl₃ added you can further reduce the phosphorus load in the application. This would need a BMP expert panel to evaluate.
 - 2: Applied phosphorus loss equation (APLE) this was developed for phosphorus in the Ag world. That fix can't easily be done, but if APLE can be modified to quantify some phosphorus sensitivity, that would be good for a future model iteration. We want to establish an expert panel to look at the post processing BMP approach, and look closer at modifying APLE to represent phosphorus in biosolids application.

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- The recommendation is to craft a memo that documents what has been agreed to, approve it at our September call and pass it up through the appropriate channels (i.e, WQGIT).

Decision: The WG concurred with the task group's recommendation to use this approach for representing biosolids in the P6 Watershed Model; and pursuing the other two options over time.

Discussion:

- Spano: We want to ask MD reps about the way MD's data is portrayed here. If this data is correct, we need some documentation or footnote that explains why MD's data appears to be an outlier.
- Levelev: We need a footnote saying that we have agreed with this representation and that it's consistent with our data.
- Greg Busch concurred.
- Spano: Ning can write something up that documents why this apparent anomaly is being shown.
- Onyullo: Why does DC have a septic system shown?
 - Zhou: Does DC have any load for septic? It is odd, that DC had no septic in phase 5 and has septic in phase 6.
 - Onyullo: I'm not sure, I will check and get back to you.
 - Spano: We also expect septic to be 0 in DC, so when you do that analysis can you share that with us at COG?
- Spano: For the biosolids aspect, I'm not surprised that there is a sig reduction in phosphorus from biosolids, when you apply the bioavailability factors it should go down. Whether the amount it went down is reasonable is something we'll have to look into.
- Q for the WG: is this something that you all are comfortable sending to AgWG to work through? Or do we want a liaison?
- Brockenbrough: The loads are minute, so I'm not personally interested in doing that.
- Spano: We will rely on AgWG to revisit this issue and make sure that we can explain these results and ID any issues that need to be addressed.
- Zhou: If we can make sure that everything on this result summary table is correct, that would be great for everyone involved.
- Spano: I don't know if this is a fatal flaw or not, but it has to be considered.
- Spano: When you show the WW trends, labeling issue—is the load trend from the WWTP only?
- Zhou: Yes, that's from WWTPs. We are only looking at new WW sources here.
- Spano: Part of the story is WW effluent loads, and new WW related loads in the model.
- Spano: Are there any fatal errors in the data that's being reviewed. Is the WG ok with saying yes without reviewing the data?
- Zhou: All the data I presented here is available on FTP. I just summarized it here for you today.
- George O: I don't know if this is fatal flaw level, but the presence of septic in DC is a serious concern. We need to elevate this to whoever created that data and tell them that it's not correct.

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- Spano: Have you all had a chance to look over this data?
- Brockenbrough: VA has not been able to look at this in any detail yet. I don't know if the health department has reviewed septic loads yet.
- Spano: If something is wrong with the data, if there are any edits they have to be resolved by August 25. If any errors miss that deadline then they will have to be addressed in some subsequent update.
- Onyullo: I would downgrade this to a data error level as opposed to a fatal flaw issue, but it still needs to be addressed.
- Spano: Is that distinction clear to the states? In terms of Fatal Flaw Review, if we haven't identified fatal flaws by Aug 25, then we won't be able to bring them up after that date.

Action: Ning Zhou will include a footnote in the CAST pass-through factor documentation that addresses Maryland's apparent outlying representation.

Action: The workgroup approved the recommendation to draft a memo that documents the biosolids small group's recommendations to allow the use of a water extractable phosphorus parameter (WEP) to be used in a future phase of the Watershed Model in order to quantify variations in loads with biosolids. This memo will be presented for approval at the WWTWG September conference call and elevated to the WQGIT for approval.

Decision: The workgroup did not recommend any fatal flaws in the septic pass through factors and scenario results for biosolids, spray irrigation, large monitored onsite systems, and rapid infiltration basins.

CBP Wastewater Data Reporting System—Megan Thyng

Megan discussed updates on the development of the Chesapeake Bay Program's wastewater data reporting system.

The WG ran out of time; Megan's presentation will be postponed till September. In the interim, the workgroup is asked to reach out to Megan or Ning with any questions.

Updates

- Changes in CBP wastewater coordination and data support -- Ning Zhou is leaving, as the CBP stopped funding the wastewater data manager position to focus resources on Agriculture and nonpoint sources because the wastewater sector already met the TMDL loading targets. Ning is leaving in early September. Data support will be provided by Sucharith (NPS data manager). Someone from EPA R3 will take over as WWTWG coordinator.
- Recommendation to include SSO and Bypass in future model --Ning Zhou
 - Spano: We decided in April to postpone this for introduction in a future model, if that's what we want then Ning can get that data together if we want to propose

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that to the WQGIT. I suggest that Ning gives us a draft of what the proposal might look like and we can decide in September.

- Zhou: That proposal draft would be this presentation, I don't have a write up right now. After the September call there won't be time for me to do any more on this issue.
- Onyullo: If we need Ning's help then he can do that but we have to elevate this to an agenda item for WQGIT consideration. Can we make a workgroup decision here to elevate this matter?
- Spano: We need something prepared and in September we will review and decide to prepare it or hold it. The minutes and the presentation from that day provides the context that we need to make this decision. Let's send those out to the workgroup to prepare to make a decision on this matter.
- Point Source Data QAPP status — Ran out of time, updates will be moved to the September WWTWG conference call.
- Boat pump-out and the second onsite system BMP expert panels are back to work to wrap-up these two projects—ran out of time, updates will be moved to the WWTWG September conference call

Action: Ning Zhou will draft a data summary and proposed recommendation to the WQGIT to consider sewer service overflows and bypass issues in a future phase of the Watershed Model. The WWTWG will review this draft and approve a path forward at the September WWTWG conference call.

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12:00 PM **Adjourned**

Call Participants:

Tanya Spano, (MWCOG), Chair
Ning Zhou (VT), Coordinator
Michelle Williams (CRC), staffer
Rashid Ahmed, NYSDEC
Dharmendra Kumar, PA DEP
Marya Levelev, MDE
Greg Busch, MDE
Jack Hayes, DNREC
George Mwangi, DNREC
George Onyullo DOEE
Allen Brockenbrough, VA DEQ
Matt Richardson, VA DEQ
Angela Redwine, VDH
Meghan Browning, WV DEP
Mukhtar Ibrahim, MWCOG
Nasser Ameen, MWCOG
Lana Sindler, MWCOG
Katherine Wares, CRC
Megan Thyng, CBP staff