Wastewater Treatment Workgroup Conference Call

November 1, 2016

Meeting Summary

Summary of Action and Decision Items

ACTION: Ning will send WWTWG members the list of CSOs and will indicate those which are no longer CSOs.

ACTION: Ning will share preliminary information on bypasses with the WWTWG.

DECISION: WWTWG members approved the October 14th Meeting Minutes.

ACTION: Karl Berger will develop a short briefing paper summarizing the recent work of the Biosolids Task Force. Paper would include a summary of the three options and timing for addressing the simulation of phosphorus dynamics, the new way of simulating Pennsylvania's biosolids, and the revised application curves.

Updates and Announcements

Tanya Spano (MWCOG, WWTWG Chair) reviewed the actions and decisions from the October Water Quality Goal Implementation Team (WQGIT) meeting. The WQGIT approved application of the proposed updated wastewater treatment E3 scenario components previously approved by the Wastewater Treatment Workgroup and presented to the WQGIT. The WQGIT will schedule a future discussion on the wastewater treatment decision rules for the Phase III WIP planning target methodology—whether to change the total nitrogen concentrations of 4.5 mg/L and 8 mg/L and the total phosphorus concentrations of 0.22 mg/L and 0.54 mg/L which define the two wastewater treatment 'hockey stick' lines within the existing methodology to better reflect the more recently reported concentrations by hundreds of municipal wastewater treatment facilities across the watershed.

CSO Data for the Phase 6 Model

The current simple approach for modeling CSO data uses a formula developed by Tetra Tech to calculate the overflow amount from rainfall data. In the Phase 6 Model, the results of this approach do not match well with the available data from several individual CSOs. Ning discussed several options for simulating CSO data in Phase 6 and asked the WWTWG for feedback.

Discussion:

- George Onyullo (DOEE): Are the data you're presenting monitored or modeled data?
    - Ning Zhou (VT, WWTWG Coordinator): It is individually estimated. It is not monitored data.
- Onyullo: If we are comparing different model results, that is a different judgment we are trying to make.
- Allan Brockenbrough (VA DEQ): It seems like an improvement. They are modeled projections based on models calibrated to individual CSOs.

    - Zhou: Correct, the Tetra Tech formula was one overall projection we tried to fit to everything.
- Spano: Part of the premise of the discussion was that data points were not matching well. If you take the D.C. chart and look at 2004, that is when the long-term control plan was approved and started implementation. Frankly, for everything after 2004, the match doesn't matter because it is no longer the same system. That data should be dropped from the analysis because it has no meaning for describing CSO loads going forward.
    - Onyullo: Building on your point, if the original models were constructed without contemplating development up to this point, they have no value for how they would be applied. They were developed with an understanding of a physical system that has since changed.
- Spano: I assume a similar question could be asked of other systems as well. We are looking at how to best portray CSO loads going forward.
- Zhou: The data presented here is for the model calibration. We want the best available data to calibrate the model. You are talking more about management scenarios. We can't use "what if" data to calibrate the model.
    - Spano: Are you saying that there has been a problem with calibrations that seems to be linked to the Tetra Tech estimation methods?
        - Zhou: Because the CSO load is one of the model inputs, when we raised the Tetra Tech approach to the Modeling Workgroup, it raised eyebrows. We started to look into it and found that there may be better ways to simulate it for the calibration.
- Spano: What points are we trying to calibrate? Where is the problem?
    - Zhou: We are just always trying to use the best available data to simulate what happened with loads in the past in order to create the best calibration.
    - Jeff Sweeney (EPA): The calibration period is 1985-2013. We are looking at monitoring stations across that period of time and trying to match the model to the monitoring data, that is why we need the best available data inputs for the model.
- Spano: That presumes the calibration in the past is an indicator of the load going forward. I don't think that is a valid conclusion because the systems are changing. I understand the logic but I don't think it applies to this sector.
    - Onyullo: I agree.
- Sweeney: When you do future scenarios, you have an opportunity to make adjustments to reflect management changes.
- Greg Busch (MDE): I will talk to Ning a little offline to think through the data.
- Brockenbrough: The hybrid approach looks like it makes sense. Where we have LimnoTech data, I think we ought to use it.
- Onyullo: You also indicated that in the aggregate, the Tetra Tech data seems to capture the Bay-wide values. The next thing to look at, when you aggregate the individualized data, will they add up to what you think is a better Bay-wide number? You don't want a scenario where what you think is a better Bay-wise aggregate load is an underestimate of the individualized estimates added together.
    - Zhou: In the past, we didn't have solid support for the average number that the Tetra Tech data matched, but we carried it through. It is an assumption based on a rough

estimate Bay-wide. Using better data may cause some changes, but we will have a more defensible answer.

- Spano: Please send out a list of all the CSO facilities.

ACTION: Ning will send WWTWG members the list of CSOs and will indicate those which are no longer CSOs.

- Zhou: I also didn't bring up the issue of bypass. We currently do not track them other than Blue Plains, but we may want to decide at the next meeting whether we want to continue the current approach or not.

ACTION: Ning will share preliminary information on bypasses with the WWTWG.

DECISION: WWTWG members approved the October 14th Meeting Minutes.

Biosolids Task Force Update

- Karl Berger (MWCOG) provided an update on the Task Force's status and review some preliminary information regarding how the modelers can address biosolids phosphorus dynamics in the Phase 6 model. An adjustment was made to application curve for the Beta 4 model so that application rates better match the Task Force Recommendations. A new approach was also used for simulating Pennsylvania's biosolids.
- For phosphorus dynamics, there is work being done because biosolids P behaves differently than manure P. We have a 3-pronged approach at this point. We are proposing a change in the P input sensitivities to add a new one to deal with water extractable P. That would get into the final Phase 6 Model. It would have the effect of basically tilting more loads to manure P and slightly less to biosolids P, which matches experimental data. The second proposal (not in time for the initial Phase 6 Model) is to set up a new BMP to account for Fe and Al based phosphorus. The model basically simulated P fate a transport through APLE, the issue is that is doesn't take the Fe and Al in combination with P materials. When you use APLE in that manner, you slightly overestimate buildup of soil-test P. Establishing a BMP that reduced post-process P would help address that overestimate. Because that is a panel process, it would wind up probably be added to the model in 2019 or so. Longer term, the best thing would be to revise APLE to take account of these materials or go to a different way of simulating P but that would be in a Phase 7 model.
- Spano: Can you please lay out a briefing paper to the workgroup addressing those 3 options and the timing? I want to make sure everyone is comfortable with the approach. Maybe also add a short description of the Pennsylvania data and the application curve.

ACTION: Karl Berger will develop a short briefing paper summarizing the recent work of the Biosolids Task Force. Paper would include a summary of the three options and timing for addressing the simulation of phosphorus dynamics, the new way of simulating Pennsylvania's biosolids, and the revised application curves.

Adjourned

List of Call Participants

Name	Affiliation
Tanya Spano (Chair)	Metropolitan Washington Council of Governments
Ning Zhou (Coordinator)	Viginia Tech, CBPO
David Wood (Staff)	CRC, CBPO
Tony Hummel	DE DNREC
George Onyullo	DOEE
Jeff Sweeney	EPA, CBPO
Greg Busch	MDE
Marya Levelev	MDE
Matt Richardson	VA DEQ
Allan Brockenbrough	VA DEQ
Will Hunley	HRSD
Megan Browning	WV DEP
John Wirt	WV DEP
Lana Sindler	MWCOG
Karl Berger	MWCOG