WWTWG's Biosolids Ad Hoc Task Force

February 9th, 2016 Conference Call

Meeting Notes

Welcome/Introductions

Karl Berger (MWCOG) asked the members to introduce themselves.

Purpose of Group

Berger noted that he had been asked by the Bay Program's Wastewater Treatment Workgroup to organize an ad hoc group to assist the Bay Program in its incorporation of biosolids data into the new Phase 6 version of the watershed model. He said the group has two main tasks:

- To see if any further data could be submitted by the states to augment what has already been submitted
- To develop recommendations for how biosolids data should be used in Scenario Builder and to develop rules for how to address data gaps.

Overview of Biosolids in Scenario Builder

Matt Johnston (UMD, CBPO) gave an overview of how biosolids are currently incorporated into the Bay Program's Scenario Builder tool. Matt can be contacted for further questions by email (mjohnston@chesapeakebay.net) or phone (410-267-5707).

Discussion:

- Trudy Johnston (Material Matters): There can be wide swings in application based on regulatory changes. It would be helpful for regulators to put together a timeline of regulatory changes.
- Brian Churchill (DE DNREC): I tried to figure out why such there are such large data swings in Delaware and have some thoughts on why there might be such discrepancies. I am happy to keep working through these with Ning and Matt.
- Berger: Do you need N speciation for biosolids?
    - Johnston: Yes, I believe we ask for organic N, ammonia N, and total N.
- Johnston: Right now, the way biosolids are applied to crops, is the exact same as how manure is applied to crops. A task for this group is to tell us if there is a better way to represent how biosolids are applied.
- A member noted that there is a big difference in the timing of application between manure and biosolids. Does the current manure application curve take timing into account?
    - Johnston: The curves are the same, but they are applied on a month by month basis. However, the model is less sensitive to the timing of the application than it is to the total pounds applied and the location of the application.
- T. Johnston: In Pennsylvania I would say the majority of biosolids still go to corn, and a lot go to hay.
- Bill Keeling (VA DEQ): Virginia has a lot of pasture acres, so our application may be different than other states.

- Al Razik (MES): From my experience, in Virginia, more biosolids is applied to forage and hay than to corn.
- Johnston: The main goal is to describe the preferential treatment of biosolids in terms of land application. In other words, what land uses receive biosolids first, and how much do they get before biosolids are applied to the next land use.
- Berger: If we could develop a chart that shows the state, the month, and the percent of application in each month that is applied to each crop category, could the model handle that type of information?
    - Johnston: I think that is exactly where the group should start. The question of making an algorithm for how to do that in the model is the tougher question, but you need to start with what you described. Then we can talk about whether we use curves or some other method.
- Keeling: We also need to consider how changes in state regulations over the model calibration period (1985-2014) could have affected application patterns.
- Berger: Do we need to consider nutrient management plans that regulate application rates?
    - Johnston: That is something the AGWG is dealing with. The way the model is set up, we are trying to follow nutrient management plans in the decade they were made. This group doesn't need to go down that route, just know that once we get the data we try to follow the nutrient management plan.
- T. Johnston: Are we focusing on both N and P?
    - Johnston: Yes.
- T. Johnston: Have PSU or UMD weighed in on the the extent to which wastewater treatment processes, such as Fe addition, reduce the environmental availability of biosolids P?
    - Berger: It doesn't come into play in Scenario Builder (SB). That is addressed in the Watershed Model (WSM). The Bay Program is using an additional model called APLE (Applied P Loss Equation) and right now they don't have anything specifically for biosolids because APLE was developed only for manure and fertilizer. I have talked to Gary Shenk (USGS, CBPO) and Chip Elliott (PSU) about using some terms in APLE to account for some of the things you've mentioned.
- John Uzupis (Synagro): N chemistry and environmental fate is similar between manure and other organic sources of N, but this is not true true for P; P solubility is much different for most biosolids than it is for most manures.
- Alisha Mulkey (MDA): I don't know what Chip Elliott may propose, but I don't recommend using APLE to account for the P solubility characteristics of biosolids. It would be better to adjust P characteristics in Scenario Builder to account for the differences between biosolids and manures. I have more confidence doing this in SB than in the WSM.
    - Johnston: Yes, it could be done in Scenario Builder because we can account for the amount of biosolids applied by each source and these sources have their own nutrient data that could be combined into an overall P availability number in each state.
- Berger: I'm not sure how sensitive the modeling framework is to this information, but it is important to the model's credibility among wastewater plant managers and others in the biosolids community that P solubility/availability of biosolids be addressed.
- Johnston recommended the following timeline for the Task Force:

    - By March 18: Try to have all state data in the basic spreadsheet format: i.e. total pounds of N and P by county
    - By June 3: Have all the new rules for applying biosolids to agricultural crops in the model finalized as well as all the rules for filling in missing data.
- Berger: I'm not sure that we can meet the mid-March deadline, but I would like to see the group finish its work by the end of April. This may require 2 or perhaps 3 additional conference calls.

Review of Data Received from the Jurisdictions

Ning Zhou (VT, CBPO) reviewed the biosolids data that has been received by CBPO to this point from each of the jurisdictions. (Note: this data is summarized in a document prepared for the call.)

Discussion:

- Johnston: This lack of data in some places demonstrates the need for one of the group's major tasks: to come up with rules about interpolating between years and filling other data gaps. There was discussion of resources available and means of improving the data collection. The group concluded that it was unlikely it would be able to fill in all (or, for some states, any) of the gaps, reinforcing the need to establish rules for how to address data gaps.
- Greg Busch (MDE): We are looking at the data template and seeing the extent to which we can provide additional information that we already have available electronically. Then we can make assumptions to fill in the gaps. I think we can at least provide more data to better identify temporal trends if not at the detailed level of spatial resolution that we originally provided.
- Neil Zahradka (VA DEQ): We have more data, at least from 2008 forward in an electronic format, but we do not want to put more effort into collecting and submitting additional information until we know what the rules on filling data gaps are going to be and the amount of data other states are going to be able to provide.
- Johnston: The county in which the biosolids are applied and the total pounds of N and P applied are the two most important aspects of biosolids data for the WSM. It is good to have data to which crops and in which months biosolids are applied in each state, but the model is not as sensitive to those parameters.
    - Busch: That is good to hear, I think we have that available and can really improve our data.
- A question was raised about whether the data should capture biosolids application on non-ag lands, such as mine reclamation or application to forests. Johnston: We are primarily concerned with application to agricultural lands in this group.
- Churchill: What is the model's definition of biosolids?
    - The group discussed whether the data should capture other forms of residuals, such as those from industrial sources, or the direct application of septage or liquid biosolids.
    - Berger: My original thought, based on knowledge of Virginia, was to capture all s sludge treated to Class A or B biosolids standards that are applied to agriculture lands. That would capture about 95% of the nutrient application from all such materials.
        - There was agreement that there should be a narrow definition of biosolids.
        - Johnston: I think whatever the definition is, it should accommodate the vast majority of the data that each state has. I encourage there to be one definition that would apply to all of the states.

- Next Steps
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- Berger: We will aim for the week of Feb, 29th - March 4 for our next conference call. I will work with Matt, Ning and David to put together some suggestions for organizing data and filling data gaps to which the group can react. In the meantime, please send any suggestions to the group by replying to one of our earlier emails.

List of Call Participants

Name	**Affiliation**
David Wood	CRC, CBPO
Brian Churchill	DE DNREC
Trudy Johnston	Material Matters
Lisa Boudeman	Material Matters
Alisha Mulkey	MDA
Allison Marong	MDE
Greg Busch	MDE
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