Urban Stormwater Workgroup Meeting
Meeting Minutes
Tuesday, April 18th, 2024
10:00 AM - 11:00 AM
Meeting Materials

Summary of Actions and Decisions

Action: David, Scott, Jeff, and others, will work to put together the necessary enhancement paperwork and will bring that forward for a presentation at a future USWG meeting.

Action: David Wood will send out an invitation for May 3, 2025, at 2pm to the UNM task force for a follow up conversation on the use of an all AAPFCO data set for establishing urban fertilizer application rates in Phase 6.

Action: Please send any additional questions to Kaylyn Gootman (Gootman.Kaylyn@epa.gov), Jeff Sweeney (Sweeney.Jeff@epa.gov), Norm Goulet (ngoulet@novaregion.org), and David Wood (wood.csn@outlook.com).

10:00 Welcome and Review of February Meeting Minutes.
Norm Goulet, Chair.

Decision: The USWG approved the February meeting minutes.

10:05 Announcements and Updates
- BUBBAs Winners and Grand Prize Voting
- Some Stormwater Retreat Highlights
- Highlights from STAC Workshops

10:15 Coagulant Enhanced Stormwater Pond Performance
Scott Smith, Hampton VA

Coagulant treatment involves adding a common flocculent to stormwater/surface water which forms precipitates which trap total phosphorus (TP), total nitrogen (TN), bacteria, total suspended solids (TSS), and other pollutants. Scott presented findings from past research on these systems and shared a proposal for a BMP interpretation request. The USWG had time to review the presentation and white paper. A decision on whether to consider the request will be made at the next workgroup meeting.

Discussion:

Norm Goulet: Scott, what do you guys plan on doing with the coagulant as it is collected for this?
Scott Smith: Right now, within the city, we have a landfill, so we would probably look at doing a landfill disposal. We haven't talked with the regional HRSD wastewater

treatment facility as far as them treating it, so we haven't gotten that far. We know that we have an option with the Big Bethel landfill of disposing it at the landfill. But, we would talk with HRSD and see if the further treatment, similar to what is done in Florida, is a possibility.
Dave Montali: That was one of my questions. I guess it is economically viable without that option of dumping the flop to the POTW. Is that a true statement then? You could go down other paths -separate dewatering landfill?
Scott Smith: Yes.
Dave Montali: Any examples of this in a watershed where the drainage tends to the acidic side, particularly in terms of dissolved aluminium in the discharge from this operation?
Jeff Herr: We have treated water that's more acidic and we typically would not use aluminum in a situation like that. If we have a water that has low alkalinity and a lower pH, we might use a coagulant that actually provides some additional buffer, maybe even increases the pH, or at least a neutral pH compound like polyaluminum chloride, or aluminum chlorohydrate. So that's all part of the jar testing to determine which is the right coagulant for that water to achieve the desired finished water quality.
Dave Montali: Ok, but aluminum is a concern in the finished water quality, right?
Jeff Herr: Dissolved aluminum concentration is purely a function of water pH and then the neutral pH range is in the range of 6.5-8 and you could even do this through the aquatic life calculator. Dissolved aluminum is at its minimum solubility. So oftentimes what we find is that we actually substantially reduce the dissolved aluminum concentration and total aluminum in the discharge to the raw water because of that pH optimization.
Dave Montali: Ok. My last question might not be for you guys but might be for others on this call. Isn't this practice approved under ENS level 3 in the BMP Expert Panel for Construction Stormwater.
Norm Goulet: I think you might be right. That's the level 3 treatments that we put in there that nobody was ever using. We'll have to go back and look at that. Good point.
Dave Montali: Ok, thanks.
Cassie Davis: I was wondering if any of these larger examples you've given end up becoming a permitted facility or have a NPDES permit associated with them because of the pollution reductions, and if they require whole effluent toxicity testing?
Jeff Herr: The Boise facility is part of the city's NPDES wastewater permit, and they did not require whole effluent toxicity testing for that permit. Typically a state permit is issued for a stormwater treatment facility and it's not a separate NPDES permit.
Fernando Pasquel (in chat): Scott, what is the cost per pound of TP? Does the cost include annual O&M?

Scott Smith: Yes, that life cycle cost includes the capital cost and the 20 year O and M. For the Billy Woods canal example, we haven't gotten far enough in the design to come up and calculate the annual operating costs.
Cecilia Lane (in chat): And doesn't it get credit under the PEDs for BMPs protocol?
Norm Goulet: Cecilia asked if it gets credit under the PEDs BMP. I don't believe that it does. We can verify that. I think the E and S were, like I said, the level 3 treatment there.
Norm Goulet: At this point, David and I have talked and what we're proposing to do is take advantage of the enhancements aspect of the BMP protocol. We've done that a number of times and what that does is we don't end up having to go through a full BMP expert panel process. We will, of course, pull a number of folks in who would like to volunteer but David, with the help of Scott and Jeff and the consultants, will take that white paper and put together the enhancement paperwork that would be necessary and then we would bring that forward to the USWG at that point for another presentation. They'll probably follow a meeting with a thumbs up or a thumbs down on moving it through the process. At this point, what I'd like to do is see if there are any concerns of the folks in this meeting with moving forward on this in that aspect. I'm not seeing any hands or hearing any voices, so I assume everyone is ok with what I've laid out. David, how does that sound to you?
David Wood: That works for me, Norm. We will go ahead and take a look and put together some options for how to move it along. We will probably provide an update in May about how that process is going in terms of what options are on the table in terms of how to handle it from a review perspective, and we'll go from there.
Dave Montali: I just think as you go through and look at this stuff, you ought to really have in mind unanticipated consequences based on the types of coagulants used. I understand it may not always be aluminium, but other things. Just ask that question, what pollutant might the effluent contain that we need to know about?
David Wood: In some of the conversations before today's meeting, KC, Norm, and I have sort of raised that point as well. So, we've asked it to get incorporated and addressed pretty thoroughly in the white paper. It'll definitely be something that is at the forefront of that review.
Olivia Devereux: Just as a reminder, when we put things into CAST, we will need to have the cost. So, if you could include those in the documentation, that would be really awesome.
Norm Goulet: Yeah. It will basically follow the protocol. We will have the cost information. We will have the removal calculations, the whole nine yards. It's just allowing us not to have a full blown expert panel.

Action: David, Scott, Jeff, and others, will work to put together the necessary enhancement paperwork and will bring that forward for a presentation at a future USWG meeting.

11:05 UNM Task Force Meeting

Members of the UNM Task Force convened to hear updates from CBPO staff on the status of efforts to develop a method to smooth non-farm fertilizer data and to incorporate new, state datasets.

Discussion:

KC Filippino (in chat): Are partial counties calculated as such, so you're only including the acres in the watershed, or is the whole county included in the calculations?

Norm Goulet: KC and I have been in somewhat of an envious position of actually seeing a lot of this as it was being developed over time. One of the issues with the NAWQA is that the people that publish that data are no longer working for USGS, so it is virtually impossible to get any kind of specific questions answered on this. But, we spent all the time going over it and there were a few things that we weren't aware of. One of which was that there was a certain amount of data calling that occurred. There was a number of what was being called "unknowns" in that original data, and it's looking like some of the post processing they did of that data really influenced the trend line that we essentially adopted wholesale and started working from and, like you said, it looks like the NAWQA data is the crux of the issue. What we probably should have done was use the AAPFCO and every single time we did this update, we needed to go back to the original AAPFCO and continue and recalculate it through time as opposed to some of the methods that we chose over the years. Another observation is, my understanding is the comparison between the AAPFCO database and the information you obtain from the states are relatively consistent. That has always been an outstanding question. Can you verify that for the group?

Kaylyn Gootman: At least for the Virginia example, that seems to be the case. That's really exciting. My ideal world would be if every state could provide all of their data all of the time and it would be imported over correctly. But, if that's not an option, maybe using AAPFCO for the whole time in terms of what's the new proposed method may be a really good path forward. We also went on the journey as well of trying to track back with NAWQA and it ran into the same things. The folks that worked on it retired. Our team has worked so much and had lots of conversations with folks from AAPFCO and we are very confident now in our understanding. It's not so much a black box anymore of, you have these Ascii files, what does this code mean? Our group has a good legend, or glossary, or way to translate that into values where we know what it is.

Dave Montali: I think you guys answered my question. When I raised my hand, it was based on the comment that USGS processed the raw AAPFCO data via smoothing and outliers. So, I wanted to confirm that some unknown method of outlier removal and smoothing occurred with the AAPFCO data. Is that true?

Kaylyn Gootman: That is out understanding, Dave. It's been challenging to get exactly what it is nailed down. But, those plots clearly show that, looking at the raw data,

something was done. Maybe they didn't quite have the right use code, or maybe something wasn't translated properly with the Ascii files. I think, unfortunately, it's one of those things that's been lost to time and retirements.

Dave Montali: The issue that is in front of us is really how to play Phase 6, and all this stuff is fair game for Phase 7. But, we were at a point in this group of saying lets go through a process for this newer AAPFCO data and remove outliers and use a three row average. Where does this new analysis of the whole period leave us in relation to where were before? Are we still in the same place and we are thinking about what to do here now to make this all better in Phase 7, or are we thinking about going back and trying to use the AAPFCO all the way back to 95 for Phase 6?

Olivia Devereux (in chat): We are including the entire county. The application rate is the same across the state for all CBWS counties, whole county area. VA cities are talked about as if they are counties.

Olivia Devereux (in chat): Original NAWQA data are published here. https://pubs.usgs.gov/sir/2012/5207/

Olivia Devereux (in chat): AAPFCO is the American Association of Plant Food Control Officials. States are members and provide data to AAPFCO.

Jeff Sweeney: The idea is to, in fact, scrap the NAWQA and use all AAPFCO. We were operating that we could not change application rates after the calibration period for Phase 6, which ended in 2012. But, after a lot of talking with Gary Shenk in the modeling group, we are able to change application rates as long as we hold that point constant on the application rates of TN and TP at '95. So, that needs to be consistent with what was used in the calibration, but we can change everything after that because the TMDL is a lot rooted in that change from 1995 forward. 1995 is the end of that three-year averaging period for dissolved oxygen in the main stem of the Bay. So, all of our goals and our progress towards those goals is really a measurement of how things have changed since 1995. So, the idea really is to use just the AAPFCO data. I've worked everything up and kind of brought it to the point where we were before, but things are going to look very much different now using three year rolling averages and removing outliers. I've worked it up removing outliers at the county scale and the state scale, so we have all that worked up to bring back to the task force, but they have not yet seen it.

Dave Montali: The whole problem with this, especially on the non-farm side, and this is what I've learned from talking with our fertilizer folks, but the county of sale is really way off from the county of use. So, we are going down a fool's path of saying here's what we've got in these counties because, at least in West Virginia, it's some crazy stuff where the manufacturers must report where it's first available for trade in West Virginia and they're allowed to leave that blank. There may not be a lot of discrepancy about what is farm versus what is non-farm, but that county stuff that we are relying on is really suspect in that it's just not cared about by the folks collecting this data and it's not mandatory. So, you have a bunch of unknowns. You didn't talk today about how we've

dealt with the unknowns, and maybe we don't want to get into that, but there's just problems with it that cant be fixed, and just keep that in mind. We can go back and look at all this, but what was really being argued for was a simple let's smooth the new information out and remove the outlier. So, we don't really introduce much more change from where we were back in 2013. That was the argument, because of the data being so bad.

Norm Goulet: Yeah, Dave. That's one of the reasons why we asked them to look at two levels- the state level of smoothing and the county level smoothing, once we identify the erroneous numbers and in some of the county databases as well.

Dave Montali: Right, and it's not as bad on the farm side because we're dumping it into a watershed bucket and smoothing it out another way. But, on the non-farm side, we're really focused on these counties in the Bay, in the state. We'll just have to wait and see where we go with this.

Norm Goulet: Yeah. Ideally, we want to process both ways at this point, so we can see what the difference is.

Olivia Devereux: We did process the sales data removing outliers at both county and state scale, and I guess that's not on today's presentation, but we do have those data. I just want to make sure everybody's clear that removing outliers is one step, whether it's done at state or county. Then the three-year rolling average is a second step that comes after that. So, we need to think about the purpose for doing both. One is to remove outliers which assumes some expectation of a mean in the data over time. The other is to smooth over time because we think that what is purchased in one year might not be used in that same year. So, there are two separate processing methods to address two separate problems. We talk about the outliers and rolling average kind of lumped up as if they're addressing the same problem, and they're not.

Norm Goulet: We need to make sure all of that is in the documentation, and that's a problem with some of this stuff. It wasn't documented as well as it needed to be documented.

Marty Hurd: My comments aren't specifically about the fertilizer application rate or the methodology, but it's more about how the state and the regulated entities can report back on implementation to true up what's happening on the ground and on turf. I realize that we report nutrient management plan implementation as one of the practices to the model. For instance, I think last year we reported 1,000 acres under nutrient management plans, and I'm sure that was factored into the run, but we have probably 2,000-3,000 of acres of turf that we manage by not applying nutrients, and that information doesn't really have a mechanism to inform the model as to what's really happening on the ground and maybe identify some regulated turf that the model assumes has nutrient applications going on it. So, in the future, if there's an opportunity to discuss this and maybe reevaluate the nutrient management plan expert panel recommendations and how that's reported within the technical workgroup.

Helen Golimowski (in chat): Conservation Landscaping Practices definition: The conversion of managed turf into actively maintained perennial meadows, using species that are native to the Chesapeake Bay region. Enter unit of total acres treated or percent of acres treated.
Marty Hurd (in chat): In my example, turf is not being converted to a meadow. It is managed as "unfertilized turf."
Norm Goulet: At one point we had a 50/50 split. Is that still in effect, Jeff? Olivia?
Olivia Devereux: I don't know the answer to that. I am sorry.
Jeff Sweeney: It was a 50/50 split between what, Norm?
Norm Goulet: We assumed that half of the people did not fertilize, and half did. So, we were cutting a rate in half and then applying that to all turf grass.
Jeff Sweeney: We don't use that split in any way. We use the total sales, but then we distribute it across all turf grass acres, because we really don't have any hard data other than that one estimate from Scotts that half of the households fertilize, and half don't.
Kaylyn Gootman: I guess that's where there is a difference with the ag side, right? That's coming from NASS data or application by crop type and other things. So, it's got different types of information available, if I am understanding that correctly, Jeff.
Jeff Sweeney: Yeah. Mathematically it doesn't make any difference as far as what you would get for load if you would apply half of the mass on twice the number of acres.
Marty Hurd: My question then is, if the model has these assumed application rates based on the sales data, is there a mechanism for the jurisdictions to report implementation against those rates? How do we true it up if we have some available information. I'm not sure it would require a lot of conversation as how to factor that in. But, other than nutrient management plan implementation, is there another way for jurisdictions to implement against the sales data?
Norm Goulet: I am not aware of anything, Marty. I see where you are driving at. I have to give this some thought. You are basically looking for an exclusion from application to a turf. At the same time, I see Jeff's point where the total mass is being applied evenly across all the turfs and, if we were to exclude some turf, we'd have to find a way of increasing the load to the turf that's not excluded to account for the mass that's been sold.
David Wood: That was something that we did raise. We have sort of a Phase 2 workplan where we are kind of starting with this specific issue around how the fertilizer is being processed and applied, but we do still intend to kind of pull together some folks and talk about some of these reporting related issues around both nutrient management plans and these large acreages because it is sort of a sticky issue in terms of accounting for what to do with the rest of the bucket if we take away application on some of these installations. I know some of the DoD folks have raised this as well, particularly applicable and large public lands and maybe academic institutions, those kinds of areas as well. So, something that we are thinking about, but we are not quite there yet.
Marty Hurd: Ok, thanks.

KC Filippino: I don't have an answer to that question, but I was thinking back to the smoothing and the rolling averages. Thank you, Kaylyn, great presentation. It really helped me understand a lot. So, is it possible for us in the next round of having this conversation to look at smoothed versus not smoothed or not removing outliers and removing outliers at the state and county and the three-year rolling averages of the state county? Are we going to be able to vote on those differences in methods at this point, or are we stuck and wetted to three year rolling averages and outliers removed etc.? What are our options?

Jeff Sweeney: We are not stuck on anything, but I have worked up everything using just the AAPFCO data for each state. So, it would be similar in terms of type of slides, but it's going to look much different since we aren't using any of the NAWQA data.

KC Filippino: Ok. That's good to hear and then, Kaylyn, you said that data stopped at 2017 but since the states report that data to AAPFCO, are we going to be incorporating state data post 2017?

Kaylyn Gootman: That's a great question. I guess that's one of the downsides with AAPFCO is their latency and they have the data every year from the states, but the most recent release was just from 2017. Lee, did you want to say anything about that?

Lee McDonnell: I'd like to get the group together in two weeks before the next large gathering of the USWG and really walk through that. It would be the all AAPFCO data set. There are no unknowns in it now, and we could show you what smoothing looks like by two different methods, meaning by the state scale or county scale. So, that's something we can certainly do. I'd like us to have that through the point where we have data, ending in 16, because we still don't have the 17 AAPFCO data, but we will be ending it there and using that for the proposal. We're actively trying to partially expand the AAPFCO data set by getting state data directly from the states. We don't have it from everyone, but we want to do that on both the farm and non-farm side, so we are actively working on that. But, if we could, I'd like to see us pursue and get that smoothing method in place, agree on that, and then we can see how it looks to get the rest of the state data incorporated or, if we don't get data from every state, what that looks like and talk about rules for how that would be applied.

Kaylyn Gootman: That brings up a good point we've had in discussions with Virginia. There's a lot that's happened in Virginia post 2016 and 2017, and what's the best way to make sure we get the most up to date data as close to 2023 or whatever the most forward point in time we can. There's a lot of action across the watershed between 2016, 2017, and 2023.

KC Filippino: I'm looking at the Urban Nutrient Management Expert Panel Report and there's a table in there that talks about the statewide fertilizer legislations. So, for P, it was a 25% reduction with legislation, 20% without, and then effective in 2013 for 3 years. In 2016 you need to show reduction in phosphorous using 2 years of fertilizer sales data. This sounds exactly like what we are talking about. Am I confused?

Norm Goulet: No, you're not confused, KC. Unfortunately, nobody really followed it. So that kind of got scrapped. We've just been going along with Jeff's methods overtime. Obviously looking at what Kaylyn presented, we've made some decisions every time we hit one of these junction points. In hindsight, what we should have done, and we weren't really aware that we could do it, is we should've gone back from the very beginning and calculated a trend all the way through using the new data as it became available, instead of having all these inflection points with different calculations. I think that's why Jeff is kind of implying that what he's going to show next time is going to be very different compared to what we've seen and in some of the prior methods that we've used. Is that a good way of putting it Kaylyn and Jeff?
Jeff Sweeney: Yeah, it was tough. We needed data for the calibration of Phase 6 and we didn't quite have an improved method from the Urban Stormwater Workgroup at that time that used just AAPFCO data. So, that's kind of how we ended up doing this projection of NAQUA which really in hindsight did mess things up.
Dave Montali: My wish list when we get into this for Phase 7 is that we talk with the manufacturers about the effects of the individual states' fertilizer bans and also about the amount of phosphorous that might be present in products relative to the agronomic need of turf as well. Do these big manufacturers make different products, the phosphorous laden ones they sell in West Virginia versus the non-phosphorous ones they sell in Maryland, I don't know. If the deal is that, because of multiple phosphorus bans across the country, they only make one type of product, that would be good information to know. So, I think that we tried that in the past. We couldn't really get it before but, as we're talking about what to do in Phase 7, I'd like to have some input from the industry.
Brock Reggi (in chat): If there is anything specific as far as data needed from Virginia DEQ I could try and help. send me an email brock.reggi@deq.virginia.gov.
Norm Goulet: Yeah, we've tried contacting the industry for some specific questions and we didn't get a lot of help over there. I know Tom has been trying to engage them on the farm side, but I don't know how much involvement they've had over there. Like you said for Phase 7, the entire thing is open at this point. We may not do what we're doing, we may end up doing something completely different. We'll figure that out as we get there. I did see a question from Brock. Brock, Kaylyn and Jeff have been working very closely with Evan and Mike. Mike has been trying to get a lot of information from VDACS and they've had some success over there.
Brock Reggi: Ok, sounds good. I just wanted to make sure you had a contact.
Olivia Devereux (in chat): We have been working with Evan Branosky and have VDACS data through the present. Big thanks to DEQ for working so hard to get us the data! It was a big lift.
Kaylyn Gootman: Olivia has already connected with Evan Branosky as well. So, Virginia is one of the ones we feel like we've got data from, so that's a big win.

Tom Butler: I wanted to talk about Dave's question for industry and make a clarification. So, we have been actually talking to some people from a smaller company called The Mill as well as some people from the fertilizer institute. So, we hope to really connect with them, and we can probably be asking them those questions about phosphorous bans and the products there. So, if you want to reach out offline, Dave, I can try and get some of the questions from you that you might like specifically asked, and then we can communicate that to those people.
Dave Montali: Great, yeah. I can give you two or three.
Norm Goulet: I've seen some of Tom's presentations and the one thing it keeps coming back to is there are another of other entities throughout the U.S. that estimate phosphorous, and it appears that almost everybody is using the AAPFCO database in one form or another. There is no one single bullet out there other than the AAPFCO database other than just getting it directly from the states and, like I said earlier, that database is matching up fairly well with the state information.

Action: David Wood will send out an invitation for May 3, 2025, at 2pm to the UNM task force for a follow up conversation on the use of an all AAPFCO data set for establishing urban fertilizer application rates in Phase 6.

Action: Please send any additional questions to Kaylyn Gootman (Gootman.Kaylyn@epa.gov), Jeff Sweeney (Sweeney.Jeff@epa.gov), Norm Goulet (ngoulet@novaregion.org), and David Wood (wood.csn@outlook.com).

Participants

Norm Goulet, NVRC
KC Filippino, HRPDC
Sushanth Gupta, CRC
David Wood, CSN
Olivia Devereux, Devereux Consulting
Samuel Canfield, WVDEP
Sophia Grossweiler, MDE
Aileen Craig, The Nature Conservancy MDDC
Allie Wagner, NVRC
Elaine Webb, DNREC
Tom Butler, EPA
Scott Smith, City of Hampton, VA
Amanda Pollack, CWP
Kyndal Gehlbach, M-NCPPC, Montgomery Parks
Jeff Coella, Wyoming Valley Sanitary Authority
Fernando Pasquel, Arcadis
Joe Parfitt, VDOT ENV/TMDL
Cassie Davis, NYSDEC
Ginny Snead, AMT
Shawn Hill, VA DEQ
Ho-Ching Fong, Montgomery County DEP
Ted Brown, Biohabitats
Liz Ottinger, EPA R3
Marty Hurd, Fairfax Co, VA
Priyanka Mohandoss, Brown and Caldwell
Helen Golimowski, Devereux Consulting
Jeff Herr, Brown and Caldwell
Krista Romita Grocholski, MARISA/RAND
Alex Foraste, VDOT
Jamie Eberl, PA DEP
Cecilia Lane, DOEE
Allan Brockenbrough, VADEQ
Jeff Sweeney, EPA
Kaylyn Gootman, EPA
Dave Montali, Tetra Tech
Lee McDonnell, EPA