Watershed Technical Workgroup Meeting

October 2nd, 2025
10:00 AM-12:00 PM
Visit the meeting webpage for meeting materials and additional information.

Purpose: To discuss an update to the August construction decisional item, approve the AMT recommendation for default buffer width for conversion calculations, hear a processing update for reporting of riparian exclusion fencing from VA DEQ, and to learn about innovative nanobubble technology.

Summary of Actions and Decisions

Decision: The WTWG approved the September meeting minutes.
Decision: The WTWG approved an update to the August 2025 WTWG construction decisional item to read "Mapping Construction With High-Resolution LULC data: All patches of barren land uses (except ~~"bare shore" and~~ "extractive barren") that became at least 20% developed within 3-5 years represent "Regulated Construction"... The August minutes will be updated to reflect this change.
Decision: The WTWG approved the AMT recommendation to change the default buffer widths for calculations to be 22.5 ft and 67.5 ft for narrow and regular buffers.
Action: Auston Smith, EPA, and Caroline Kleis, CRC, will follow up with Olivia Devereux, Devereux Consulting, to see if the same analysis used to support Virginia's proposed processing update for the reporting of riparian exclusion fencing can be done for each jurisdiction. Updates will be made, when possible, at a subsequent meeting.
Action: Auston Smith, EPA, will follow up with Bill Keeling, VA DEQ, to discuss the Riparian Exclusion Fencing processing update in relation to Virginia's QAPP.
Action: If you have any additional questions or would like to get in touch with Moleaer to discuss applications of nanobubble technology, please reach out to Chris Stephan (chris@moleaer.com), Denise Devotta (denise@moleaer.com), Shane Hoyt (shane@moleaer.com), Jonathan Morales (Jonathan@moleaer.com), and Erin Klores (Erin@moleaer.com).

Minutes

I. Introductions and Announcements

Lead: Auston Smith, EPA
WTWG staff walked the group through a variety of announcements below:

- 2025 Progress Schedule
  - Auston Smith, EPA, sent out meeting invitations to verification teams for the week of December 8-12, in an effort to discuss information that has been submitted to CAST, prior to the holidays and ahead of February. Any conflicts

with the proposed meeting times should be communicated to Auston as soon as possible.

- Initial QAPP Revision
  - Auston Smith, EPA, thanked the group for non-point source and point source QAPP submissions. Reviews for QAPPs are taking place, and the review team is in the process of getting first memos back to people.
- BMP and Wastewater Submissions to NEIEN
  - Wastewater and BMP data submissions are underway. Additional discussions have taken place about federal facility data layers. Everything is moving forward, and verification meetings have also gone out for those.
- Upcoming NEIEN Appendix for Phase 7
  - The NEIEN Appendix was approved in August for 2025 progress. In November or December, Jess Rigelman will help provide an overview of the Phase 7 NEIEN appendix and go through changes.
- Partial Update to the August Construction Decisional Item- Caroline Kleis, Staffer
  - Following an updated decision at the September Land Use Workgroup (LUWG) meeting, Caroline Kleis, LUWG/WTWG Staffer provided an overview of the construction update, and the WTWG was asked to amend the first portion of the August construction decisional item to remove the words "bare shore and".

Decisions:

1. The WTWG approved the September meeting minutes.
2. The WTWG approved an update to the August 2025 WTWG construction decisional item to read "Mapping Construction With High-Resolution LULC data: All patches of barren land uses (except ~~"bare shore" and~~ "extractive barren") that became at least 20% developed within 3-5 years represent "Regulated Construction"... The August minutes will be updated to reflect this change.

Discussion Notes:

Bill Keeling (in chat): Is the final 2025 appendix available for download somewhere?
Jess Rigelman (in chat): Yes - https://cast.chesapeakebay.net/Home/TMDLTracking#progressReportingSection

Construction Update Decision

Auston Smith: Any questions or concerns about this before we head to a vote? If not, we can pull up the tracker. By chat is great, but if you have comments as well, feel free to raise your hand and we can unmute you.
Caroline Kleis: I did just want to note we received a few votes in advance from Kaylyn, EPA, in the case that EPA wasn't able to be here. Kaylyn, if you'd like to update your vote, please let me know. We also received votes from Kevin who has a conflict with the Management Board.
Scott Heidel (in chat): PA DEP 3
Christina Lyerly (in chat): MD: 5
Samuel Canfield (in chat): WV-5
Matt Kofroth (in chat): 5
Alicia Ritzenthaler (in chat): DC DOEE 4
Bill Keeling (in chat): 3
Joshua Glace (in chat): 3
Caroline Kleis: I will follow up with those not present offline to record their votes in the tracker but, otherwise, tentatively approved.

II. Update on BMP Excess and Discussion of Default Buffer Width

Lead: Tom Butler, EPA

The WTWG heard an update on the status of BMP excess deliberations at the Agricultural Modeling Team (AMT), following their September meeting. At the September AMT meeting, the AMT worked to provide a recommendation to the WTWG for updating default buffer widths. The WTWG was asked to discuss and vote on this recommendation.

Decisions:

1. The WTWG approved the AMT recommendation to change the default buffer widths for calculations to be 22.5 ft and 67.5 ft for narrow and regular buffers.

Discussion Notes:

Dave Montali: We can provide area and, when we do that with the default widths, we are getting too much credit for the riparian deposition exclusion part of it. So, I just want to make sure that everybody is clear that it's not like because we're increasing these widths, we're going to give ourselves more credit. It's actually the opposite with regard to the riparian fence part of the BMP. To your last point about whether there may be some CAST concerns, our situation is we can only report area. So, we don't have length or width, and this will be a step in the right direction for our over crediting. But, if states only report length, then we have this width issue in order to develop the area for land use conversion and upland filtering. I guess that is something we really didn't talk too much about as a group. So, in my mind, if we're going to assume these widths in the absence of length reported, should we assume these widths in the absence of area reported? That can go the other way. That would be a less conservative credit if we were using these default widths along with lengths to calculate area.

Jess Rigelman: I guess I never would have thought that there would be different widths for different crediting until Bill and Elizabeth brought it to my attention when he said CAST is coded that way, we have these default widths, and it's used for both the land use change portion of it and the animal units. So, the thought was that we use the default widths and if these default widths are updated, they would be changed in both places so that everything would be consistent. Like I told both of them, if somebody wants to disagree with that, they can, but the proposal here is to change the default widths and to do the default widths in both places.

Bill Keeling: As I remember it, the original 10 and 35 were recommended because there was no information available at the time to examine by the Expert Panel on width of actual reported. Over time, Virginia and New York have developed that capacity and have an actual history of what's going on. So, I think those recommendations were in lieu of having any other information, which was zero. We now have new real-world information to look at, and I think that's the question- do we ignore the new information? Or do we look at what the AMT has come up with and say, hey, is there reason to look at different widths? I am for a consistent approach. I think it would be very difficult for Jess to program 10 and 35 under this set of rules and 22.5 and 67.5 for another set of rules, and that will lead to inconsistent application of things. So, I think we need to be consistent one way or the other. I'm for incorporating new data and new information into the new model in this case.

Elizabeth Hoffman (in chat): I just have a question for clarity - can a jurisdiction report BOTH acres and width for the same fence? And if so, which one is then used to get to the AU conversion (22.9AU/AC (assumes 35' to get to linear feet) or 17.6AU/1000LF)?

Jess Rigelman: The way it is now, if they report width, then we use the width that they report. So, you would only get these defaults if they were needed. So, the width you do report is the one that is used in all cases.

Elizabeth Hoffman (in chat): Thanks, that helps.

Auston Smith: Thanks, Bill and Dave, for helping ground this conversation. To go the other way, are any folks on the line confused or have major concerns about this recommendation? I think we can just go ahead and move to the vote tracker. If you want to put your vote in the chat, great. If you want to add some verbal comments, feel free to raise your hand or come off mute.
Caroline Kleis: I also wanted to note that last time we didn't have New York either.
Scott Heidel (in chat): PA DEP 3
Bill Keeling (in chat): 5
Alicia Ritzenthaler (in chat): DC DOEE 3
Christina Lyerly (in chat): MD: 5
Joseph Schell (in chat): Holly is at Management Board for DE, I'm actually the new secondary for DE. I can vote for DE – 3. Also I can vote in the last votes.
Joshua Glace (in chat): 4
Samuel Canfield (in chat): WV-4
Matt Kofroth (in chat): 3
Caroline Kleis: So, looks like we are just missing votes from Norm and Cassie. I can follow up there. Joseph, if you wanted to put your vote for the last time in the chat, I could also record that. Otherwise, tentatively approved.
Joseph Schell (in chat): Last item would be a 3 as well.
Caroline Kleis (in chat): Thank you, Joseph!

III. Processing Update Proposal for Riparian Exclusion Fencing from VA DEQ

Lead: Bill Keeling, VA DEQ

Bill Keeling, VA DEQ, discussed a proposed processing update to report Riparian Exclusion Fencing for 2025 Progress for the workgroup's consideration.

Actions:

1. Auston Smith, EPA, and Caroline Kleis, CRC, will follow up with Olivia Devereux, Devereux Consulting, to see if the same analysis used to support Virginia's proposed processing update for the reporting of riparian exclusion fencing can be done for each jurisdiction. Updates will be made, when possible, at a subsequent meeting.
2. Auston Smith, EPA, will follow up with Bill Keeling, VA DEQ, to discuss the Riparian Exclusion Fencing processing update in relation to Virginia's QAPP.

Discussion Notes:

Dave Montali: I know that Alana, way back, attempted to do that. I think maybe she was using 35% of 382, but it got very difficult for her because of potential double counting issues and the idea that the 382 could be reported along with another practice that was the same buffer. I know she had those kinds of problems. I think I read in your bullet that Olivia's work was grass buffers. So, you're only talking grass buffers?
Bill Keeling: Well, I don't have any information to report, whether it's' grass or forest. So, in that situation, I was under the understanding that we were to report a default of grass.
Dave Montali: Ok, I am just trying to understand the last comment you made about how in Virginia they have to be at least 35. Just the Feds only, the EQIP buffers can be 10 in West Virginia. So, it may be that there is a special provision in Virginia that I don't know about. But, in West Virginia, EQIP buffers are a minimum of 10. So, I'd be a little concerned if you're taking this 29% number and then saying they're all standard size buffers, that might be a little too much.
Bill Keeling: From what I understand, and when I was dealing with the DC's and other people on the local TMDLs and other things, was NRCS and Virginia just did not do less than 35 foot. Maybe they do things different in West Virginia, I don't know. I don't have any hard information

from NRCS to back that up. It's just based off of my experience, but the 35 foot is what I have currently submitted to be used in my information I've sent EPA. If we are going to use something else to calculate buffer acres and I have no information, do I use some third factor? In lieu of any other information, if the assumption is it's 35 foot or larger, I would argue I should use the same factors we just talked about. Since I don't have anything for narrow, I was just proposing a single number.
Auston Smith: Thanks a lot, Bill, and Dave, for those leading questions. Are any other partners interested in asking a question on this?
Scott Heidel: I like that this has been investigated, because our NRCS data has been a real black box for us. We can't dig into it. We can't analyze it. We can't even really see what's going on with a lot of it. What I don't like is that it was only done for one jurisdiction within the watershed. If studies are going to be done like this, why isn't it done throughout the entire watershed for all of the jurisdictions, since we don't have access to the real details of the data?
Bill Keeling: I think in this case, it was because VA DCR has very extensive and very detailed records, and Olivia can see their protected data that I can't, so that she could rule out the instances where both agencies were involved with a fencing project, because a lot of times they do piggyback with each other. So, if I understand the study right, it's what NRCS alone would have done. To answer the question about the CTA, I'd have to go back and look at the data sent to me, whether there was much, if any, 382 in that particular CTA tab or if it was from the others. The two BMPs that I historically reported were fence and access control. As Dave Montali pointed out, you usually have fence associated with access control. So, I'm proposing you only report one of these because that, to me, would be double counting potentially.
Samuel Canfield (in chat): Bill, would you apply this to the NRCSLandBMPsCTAWithLandUse tab from Olivia for only the 382 Pasture (practice_land_use_name)? There are other land uses where 382 is applied: Forest, Crop, and Other rural land.
Dave Montali: For an FSA C22 project, are we confident that they don't take the exclusion fencing part of that and also report it as 382?
Bill Keeling: That's why, historically, until recently, I did not report FSA, because I always had thought FSA was more of the funding arm of USDA and the NRCS was more of the ones doing the actual BMPs. Supposedly they talked well with each other, but I didn't always find that to be true, so I usually just stuck with NRCS data. That has changed, so I'd have to look at that particular code and whether that's matched that way in our system to see. But I'm willing to forego reporting the FSA data in lieu of this for that code. I'd be glad to put that in there and say we're going to set that aside to reduce the potential duplication, because this has more detail for me.
Dave Montali: That's fine. I am just thinking, should we try to bring back what we tried to do in the past and report some amount of the 382? We rely mostly on the FSA stuff for our buffers. We rely on the CP22. So, it just seems like the way things work in the different states trying to address our black boxes are different.
Bill Keeling: I've gotten stuff from James Martin, who is the Soil and Water Conservation Director here in Virginia DCR about how other states are reporting 382 already. So, if people are already getting credit, and I have, I think, a legitimate way to report credit for this, I would like to get credit for it. USDA is doing exclusion. Not reporting it is not realistic either. It's just we've never been able to have something that we could decipher and report their data in a way that was potentially realistic.
Samuel Canfield: What I meant with this, Bill, was just looking at the data Olivia has provided, I think there are records on more than just the CTA tab. On the CTA tab in particular, the land use that the 382 is applied to is broken down into different land uses (pasture, forest, other rural land). I was just wondering if you would submit 382 and for this 29%, I think out of any of these land uses it could be applied to in terms of exclusion fence with grass buffer, it would likely be pasture. For West Virginia, going back to 2007 to 2021 or whenever it ends recording on that

sheet, for pasture, there's over 400,000 linear feet. I just wanted to make that note about the breaking up of the land uses. So, what you apply that 29% to will likely be a pasture in my mind.
Bill Keeling: Well, a pasture can be a pasture, but it doesn't mean it is riparian pasture is the issue. You can get the land use provided, but you don't have to, and Virginia has generally opted not to because we have not found the land use reported as necessarily realistic. There's a lot of variability in what we've seen. So, I believe what we would do is look at 382 and assume it's some sort of fencing somewhere. Generally, fencing is associated with some form of pasture, but we would be using this 29% from the Olivia study to report what we think of the total is actually exclusion.
Samuel Canfield: You making the note about pasture not necessarily being associated with the stream would make it even more difficult to apply this 29%. I know what you just said about making the 382 not associated with any land use, just taking it as it is, but there are more questions there, especially since the pasture isn't necessarily associated with the stream, and then exclusion fencing with grass buffer wouldn't be necessarily appropriate in that sense.
Bill Keeling: Why not? If you are doing exclusion and you don't know what you are planting, you would assume that the pasture has been excluded, which is grass, and it would come by putting the fence in a grassland buffer. We're only talking about Virginia because we have this data for Virginia. I'm not asking everybody to do this. I am just saying, if others are reporting it, and I have been told they are, and I have a reasonable way to make an estimation, I'm just informing you what we proposed. If others are doing it, I don't see why I can't. I'm not really asking for permission, I am informing you of what we are planning to do.
Auston Smith: So, I'm maybe getting the sense that people would like to maybe see an example of this study around the watershed or in another jurisdiction. We can certainly try and work that up with colleagues for a future meeting.
Dave Montali: I was just wondering if it's a decision for this group or whether it's a decision between Virginia and the Bay Program Office.
Auston Smith: Right. I don't have a problem myself seeing this on a QAPP, but it would need to be kind of approved. So, I think it would be nice to be able to see this across the watershed or maybe another jurisdictional example to see if other folks might like to take this same approach. Bill, if we were able to come back to this in November and, theoretically, come to some sort of agreement on a decision, would that allow you and your team and other teams as well to turn that around by December 1st? Would that be too quick of a turnaround for that work? If we came back to this in November, would that still work with your BMP submission timeline generally in Virginia?
Scott Heidel (in chat): All studies should be watershed-wide to remove any doubts about preferential treatment
Bill Keeling: A lot will depend on when we actually get the USDA data. It was late last year. So, it's really hard for me to say when I am going to be able to report anything for USDA. I was planning on pulling this in with all of that as part of the annual progress and, again, I didn't necessarily believe I was putting this forward as a request for approval. I was putting this forward to be transparent and clear with everybody what we are planning to do, assuming that the EPA is willing to approve it all.
Auston Smith: To be clear, I don't mind seeing this in a QAPP.
Bill Keeling: I am just trying to be upfront with everybody and illustrating that not everything that is reported as a 382 could be considered riparian. At least we have something, in this case, to base what we would report it on.
Auston Smith: Thank you, and certainly not trying to direct this one way or another. As I mentioned, I don't mind seeing it in a QAPP. Dave, you've been patient with a hand up. I'm curious to hear from other jurisdictional partners. Do you want to see a revised version of this for next month for your own work, and Virginia is ok doing this? Is that a general ok agreement from the workgroup here? Is there heartburn?

Dave Montali: Yes, if some kind of assessment about the struggles and pitfalls of using 382 for other states other than Virginia could be made, or we look at what kind of studies might be available for other states, so that they might use a portion of 382, addressing the potential double counting concerns, that would be helpful. But I go back to my last question of if this is a QAPP decision for Virginia and EPA, fine. This group doesn't need to vote on it. If this group is going to vote on it and say Virginia is ok, then I am a little bit concerned about the other states that might be reporting all their 382 as exclusion fencing. That seems like a problem if that's going on, and I don't know that it is, but somebody's told Bill that other states are using it. So, if other states are using it at a reduced rate like we were 10 or 15 years ago, that's a decision between EPA and the state about whether that is fair or not. Certainly 100% of 382 is not right.
Elizabeth Hoffman (in chat): To Dave's question, I also took this as VA sharing this method for others to understand methodology, not them asking permission to put it in their QAPP.
Joseph Schell (in chat): I'd like to know if 382s could be utilized for Delaware as well
Scott Heidel (in chat): And PA, NY, WV, MD
Joseph Schell (in chat): Agreed Scott
Elizabeth Hoffman (in chat): In MD, we back out all 382 interior pasture fencing.
Christina Lyerly (in chat): MD is comfortable leaving this decision to VA's QAPP review
Auston Smith: So, what I am generally hearing in the chat is that it would be useful for this group to really see a state-by-state approach, and we can plan on that at a future meeting. Bill, I am not hearing heartburn over Virginia including this in their QAPP for this year. But, other jurisdictions really want to take a look at this themselves as well and possibly include it. I think that is totally valid, so we can try and turn that around.
Bill Keeling: I am proposing that Virginia does this because we need to report what's being done. We're supposed to be reporting the management actions, and this is a way that we can fill a hole in the reporting. But, if we do, there will be a significant new amount of implementation reported all of a sudden in one year, and that's why I wanted everybody to realize that it's the 2025 progress and everybody in the world is going to be looking at it, so I wanted this well documented.
Auston Smith: Thank you. I consider this well documented, and you and I can talk about the Virginia QAPP more specifically. Caroline will mark this for action items, but it seems like we need to have a presentation either from Devereux Consulting or otherwise to look at this for each other jurisdiction as well. Other questions or comments on this? Thanks so much, Bill, for walking through everything.

IV. Sustainably Restoring Natural Water Bodies with Moleaer Nanobubble Treatment

Lead: Chris Stephan, Moleaer

Chris Stephan, Moleaer, and the Moleaer team presented on the use of innovative nanobubble technology to support water quality restoration efforts.

Actions:

1. If you have any additional questions or would like to get in touch with Moleaer to discuss applications of nanobubble technology, please reach out to Chris Stephan (chris@moleaer.com), Denise Devotta (denise@moleaer.com), Shane Hoyt (shane@moleaer.com), Jonathan Morales (Jonathan@moleaer.com), and Erin Klores (Erin@moleaer.com).

Discussion Notes:

Auston Smith: I was just curious, on your third slide, is this particular diagram on the right one of your larger units? Is this what we were seeing in the barge pictures?

Chris Stephan: Actually, it's a little bit different, but that's a great question. Thank you. So, the picture on the left is inside one of the barges, the first barge that was deployed at Lake Elsinore. So, all of our systems are a skid mounting system. When these are deployed in the containers on those floating barges, they're not in a skid formation like this where it is all one. Why there's two containers in most of those is the gas side, the air compressor oxygen concentrator and the ozone generator when we're using that are in a separate container. The other container is the controls. It's the pump and the nanobubble generator. So, we do that just for HVAC reasons. We don't need to air condition and heat each of those. We need to treat those different. So, we separate those, but all of our configurations are custom configurations based on the environment. What we build for Minnesota is going to be different from what we build for Lake Elsinore in California, because it gets much hotter, it's hot all year round, and it doesn't get cold. Really, in some systems where we know they're going to be floating on a barge, there may be different configurations than if it's a shore mounted system. But, that's a great question. The diagram here, just to be specific and to answer directly, that's a skid mounted system and we're typically building those when we're trying to put a system into an existing building or skid mounting it so that we can configure it at the factory and send it as one piece.
Kaylyn Gootman: Thank you all so much for your presentation. Really appreciate it. I have two initial questions regarding power requirements of an individual unit. I know you said it's customizable, so that might vary, but, generally, what are the power requirements and also the cost? What does it look like upfront versus annual maintenance?
Chris Stephan: In regard to the power use, most of these larger systems like you see here in the containerized systems, these are three Phase 460 volt-based systems. Some of the smaller ones, that maybe run what we consider to be smaller like 1000 gallons a minute, those would be putting in maybe 22 pounds an hour of oxygen. It's 100-amp FLA (full load amp) is what you'd have to have for electrical connection, but it's going to run less than that. Everything's on a VFD and then on the gas flow, we can turn it up or down. So, that means the compressor runs more or less. So, the exact electrical usage would be based on where we have that pump set and where we have the gas set. So, on the cost of that system, you're probably talking somewhere in the 300-500,000-dollar range for a container like that. Some of the larger systems like for drinking water reservoirs are really large. I can think of a team member who is not on this call but our person who works on the West Coast working on some drinking water projects. Those systems are like a 20,000 gallon a minute system that is putting in about 10,000 pounds a day of oxygen. It's somewhere in the 600-800 amps FLA, and you'd be running much less than that. We've yet to find a case where the electrical use didn't meet the cost benefit of the environment that we are trying to treat. These systems can be up in the 4- or 5-million-dollar range when they're that size, but based on the other oxygenation technologies, we're somewhere between 30 and 50% less for the same amount of gas. To Denise's point about how these nanobubbles catalyze these interactions and, in many cases, will result in less gas needed. On the potential operational costs side, power makes up the biggest cost on these very large systems and makes up the biggest operational cost. It can be anywhere from $2,000 a month in power costs on the smaller systems for 1,000 gallon a minute system and then upwards when you're pumping about 20,000 gallons a minute. You could be up into the $50-60,000 a month type for power, but you are treating a lot of water at that rate. In some of these environments, we're in flowing systems that are running hundreds of CFS, and the dammed-up portion is in the thousands of acres. So, very large systems. The maintenance on them is really simple. It's an air compressor, so you can subcontract that air compressor maintenance to Ingersoll, Rand, Quincy, or whoever the local distributor for that is in the area, and that's not specific to Moleaer. We're partnered with Xylem, and so we typically use flight pumps and then you just find a local flight distributor and you have the ability then to contract locally for that. The nanobubble generator, somewhere between once a month and once every six months, you stop the system. There are no moving parts in the nanobubble generator. So, you stop the system and inject 30% vinegar into the airlines to be able to go into the diffusers and descale

the diffusers, and then you start the system back up again. Moleaer likes to have a service contract to be able to come out and do routine inspections and optimization of the system, but we also have remote monitoring on nearly every system, large systems like this, where a lot of times we don't need to be there to touch it. We can see what's happening from a far and be able to monitor that and help guide if there's any maintenance issues and any questions. We also put cameras inside the containers, not just for security reasons, but even if a service tech is on site, they have the ability to interact with Moleaer headquarters to be able to talk with an engineer and to be able to actually point and talk directly with us. So, the maintenance on the system is really easy. It's an air compressor system, it's a pump, and then our nanobubble generator. So, most of that, the majority of that, can get contracted for locally.

Dave Montali: Do you have clients in Chesapeake Bay Watershed and what are the applications?

Chris Stephan: In the Chesapeake Bay Watershed, I am sure we have smaller units that were sold by lake management companies. So, I've been the director of this division now for about 2.5 years and prior to me taking over the division, we primarily sold into surface water through lake management companies, and they were focused on smaller water bodies. So, I'm sure we have smaller systems like 100-200 gallon a minute sized systems operating in the watershed, but no larger container systems right now. The next thing closest would be a system that's actually shipping today to Pennsylvania, just outside of Kennett Square, PA. We're shipping a containerized oxygen ozone nanobubble system to actually operate at a mushroom compost facility that has a lagoon with high H2S levels, and they're looking to improve aerobic decomposition of their compost piles. So, we're deploying that system in these lagoons. It's going to get connected next week. For a containerized solution, I believe that would be the closest. There are probably others running in municipal wastewater, but I don't lead that division. So, I am less familiar with where all those are. We work in municipal wastewater on the front side. It's not the aeration basin, but it's on the front side to pretreat the wastewater with just air nanobubbles, no oxygen, to be able to catalyze all the biological and physical properties and interactions through the system. If you want to shoot me an email, my email is on the invite, but I'd be glad to give you specifics as to where systems are located.

Auston Smith: Chris and team, thank you all so much for coming and presenting on this really interesting technological innovation going on. Any last remarks that you or your team want to make?

Chris Stephan: I'd like to thank everybody for the time and the opportunity. We'd love to look at different opportunities to be able to treat within the Chesapeake Watershed, regardless of size, to be able to find a project there to demonstrate success. So, if there's an opportunity in anybody's region who is on the call, we'd love to look at what a solution could look like. So, I'd just offer that my email is on the invite here and, afterwards, I will send a thank you to the entire group so that you have my contact information.

Auston Smith: That sounds like a great set of next steps to me. Note all the jurisdictions in the watershed, except maybe New York today, are all on the call. So, you are asking the right folks, Chris. Look forward to that follow up email.

V. Wrap-Up

Lead: Caroline Kleis, WTWG Staffer

VI. Adjourn

Next Meeting: Thursday, November 6th, 10:00 AM – 12:00 PM.

Attendees:

Auston Smith, EPA
Caroline Kleis, CRC
Arianna Johns, VA DEQ
Bill Keeling, VA DEQ

Christina Lyerly, MDE
Samantha Cotten, DNREC
Dylan Burgevin, MDE
Matt Kofroth, LCCD
Samuel Canfield, WVDEP
Tom Butler, EPA
Joshua Glace, Larson Design Group
Alicia Ritzenthaler, DOEE
Scott Heidel, PA DEP
Dave Montali, Tetra Tech
Tyler Trostle, PA DEP
Jess Rigelman, J7 Consulting/CBPO
Bailey Robertory, MD DNR
Kaylyn Gootman, EPA
Shane Hoyt, Moleaer
Helen Smith, Devereux Consulting
Eugenia Hart, Tetra Tech
Denise Devotta, Moleaer
Sabine Miller, MDE
Lori Brown, DNREC
Chuck Smith, Pinnacle Ozone
Joseph Schell, DNREC
Jonathan Morales, Moleaer
Elizabeth Hoffman, MDA
Scott Raubenstine, Perdue
Caitlin Bolton, MWCOG
Chris Stephan, Moleaer
Erin Klores, Moleaer
John Lancaster, PA DEP