

CHESAPEAKE BAY PROGRAM WATER QUALITY GOAL IMPLEMENTATION TEAM

August 14, 2017 Call Summary

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Summary of Actions and Decisions

Decision: The WQGIT concurred that the AgWG recommendation to conduct an uncertainty analysis of the Phase 6 Watershed Model does not meet the Partnership-approved definition of a fatal flaw.

Action: Consensus was not reached on whether the issue regarding inequity in soil phosphorus modeling is a fatal flaw in the Phase 6 Watershed Model. CBPO staff will work with jurisdictions that have raised similar comments regarding this issue in order to develop a recommendation for resolution. This recommendation will be reviewed for approval by the WQGIT at the August 28 WQGIT conference call.

Action: No adjustments to the PSC-approved Midpoint Assessment Schedule were proposed at this time..

Welcome/Confirm Call Participants/Workgroup Updates – James Davis-Martin, WQGIT Chair

Discussion:

- James Davis-Martin: There were more than 100 comments submitted during the review process and it is the Partnership's goal to address and resolve as many comments as possible during the resolution period. We need to identify a path forward for each of the comments submitted during the review process.

Transitioning from Phase 5 to Phase 6 Modeling Tools, Resolution of Identified Fatal Flaws – Lee Currey, MDE and Dave Montali, WV DEP/TetraTech, Modeling Workgroup Co-Chairs

Lee and Dave [briefed](#) the WQGIT on key model changes and assumptions in transitioning between Phase 5 and Phase 6. Lee and Dave also reviewed the fatal flaw comments received by the Partnership on the Phase 6 suite of modeling tools and recommendations for paths forward on the comments. Overview included a checklist of what's been completed and items that still need to be completed based on the midpoint assessment priorities identified in 2012; an overview of key points on Phase 6 models (attainment, consistency with Phase 5.3.2, changes due to improved nutrient inputs and data); and status of peer reviews of Phase 6 model approaches. The fatal flaw presentation included an overview of the fatal flaw definition and process for comment categorization and resolution, and the Phase III WIP planning target development timeline following fatal flaw resolution. The biggest question is: does the flaw present a problem with establishing planning targets or evaluating BMP progress?

Discussion:

- Lee Currey: A lot of good work has gone into this.
- Davis-Martin: I think a lot of the review materials so far have been a comparison between Phase 6 and Phase 5. Is that comparison still useful?
 - Currey: To an extent it's useful to see that the model is responding the same way, but the values shouldn't be expected to be exactly the same.
- Tanya Spano: We still have to explain the difference between Phase 5 and Phase 6. My sense is that if we have made improvements to the model, then shouldn't we see those responses show up on the ground? For instance, if we added more accuracy with agriculture, then wouldn't we see shifts that follow the improvements in the model?
- Currey: What should be presented to the WQGIT and what should we consider as important from the WQGIT standpoint? For review of Phase 6, I would compare back to Phase 5 and ask if and why results are different, but that is done at a very fine scale.
- Spano: From a Bay-wide perspective, I want to make sure that this transition and the changes made to Phase 6 make sense.
- Dave Montali reminded the WQGIT that if the WQGIT cannot reach consensus by August 28, then decisions will be raised to the Management Board for resolution. The Phase 6 Watershed Model will be recalibrated after September 1 when new BMPs from 2014-2016 have been submitted.
- Davis-Martin: We have some new information in there that relates to the schedule, evaluation, and need for recalibration. Is everyone comfortable with these proposed dates for model recalibration? This is all coming down for our September 25-26 Face-to-Face meeting.
- Ted Tesler: You mentioned the small committee that made decisions on what was a fatal flaw or not. How transparent is that group?
 - Davis-Martin: The WQGIT determines what is or is not a fatal flaw. The issues that are listed as not a fatal flaw doesn't mean that they won't become a fatal flaw through this process. This initial binning was done by CBP staff, myself, and Teresa Koon.
 - Tesler: I'm surprised that there's only one fatal flaw so far.
- Bill Angstadt: We need to make a distinction between fatal flaws that require recalibration, and fatal flaws that give us problems with responsiveness of the model as we move towards planning targets and scenarios—those that would give us illogical outcomes in Phase 6. For example, the average loads issues aren't calibration issues, but it is a concern that we are still using Phase 5 ratios that don't reflect the data we're using in Phase 6.
 - Davis-Martin: Are you suggesting that in the column, we add another category of breakout elements?
 - Angstadt: Yes, we do need that extra category.
 - Spano: That's a variation on what constitutes a fatal flaw. If a fatal flaw only means it's fatal because of calibration issues, that doesn't seem consistent with the definition we've agreed on. Issues of scale for instance would give you problems with developing WIPs.
 - Lew Linker: We understand the meaning of the comment, which is that we want to aim for understanding and insights, not just numbers. In our comments we will

look to see if we can reach that understanding. We need to make sense of those model results.

- Spano: I would ask that you provide some reassurance at the September Face-to-Face that you have resolved those two faces of the fatal flaw.
- Angstadt: I think we need to delineate some policy decisions. There are 3 that the WQGIT needs to talk about before the Face-to-Face: **1)** We have historically used a ratio of load responsibility of certain ratios of land uses. Will we continue to use that ratio even if it's illogical in P6? **2)** Will we accept that some factors are producing opposite outcomes of what we intend them to be? If we accept them how will we plan around that? **3)** There is a gap between inputs, Scenario Builder, mass balance, and the model at EOS (Edge of Stream). Will we accept that coefficient that affects responsiveness, where you are creating a load that doesn't respond to inputs? These are not workgroup decisions. Those are WQGIT policy decisions.
 - Gary Shenk: On issues 1 and 3: relative loading rates between land use categories, and delivery to the system, those are Modeling workgroup decisions that cross sectors, based on multiple models. Those were discussed years ago. Those were decided prior to September 31 and are based on a lot of evidence. Manure Transport is an issue many have brought up. It can go up or go down, and there is an assumption in the model that inorganic fertilization will replace manure in that application. That is in discussion now but based on decisions that have already been made.
 - Currey: We brought these relative differences to the WQGIT a while ago and we came to a decision to resolve these potential inequities.
 - Shenk: Those ratios are based on multiple models. The question isn't equity, it's a factual question of what is the relative loading rates of these land uses.
 - Currey: That's why we decided on relative loads not absolute ones, because we were worried about the potential issues of the ratios.
 - Angstadt: All the issues brought up today are on the spreadsheet, right? These aren't new issues.
 - Shenk: Right.
- Sarah Diebel: What are we saying about the schedule of the resolutions?
 - Davis-Martin: By the end of this month we will have a plan of action to address each comment to the satisfaction of the commenter. If we can't get a path forward, we will have to come back to it at our last WQGIT meeting in August and come to an agreement on the path for resolution.
 - Diebel: I would want some clarification on the language, resolution seems inaccurate if what we want is a path forward, not a solution to have already been implemented. When do fixes need to be made? One for BMPs and another date for other issues?
 - Davis-Martin: Some of these changes will be relatively easy to make (e.g., MS4 construction name change). Others that we agree to change may not be able to be implemented before September 10, but will be included in the October recalibration if needed.
 - Shenk: We are aiming to have everything changed to the modeling system by September 1. We will run that model without calibration to get to the Sept 25 WQGIT F2F. Then we will look at the calibration results and see if a recalibration

is needed after the F2F meeting. If anything else comes up in that timeframe, we may not be able to meet the schedule that's been approved.

- Angstadt: That's an issue the WQGIT has to decide. We have to decide whether to abandon the MPA schedule to include changes or not include changes and stick to the schedule.
- Linker: This goes into all the fatal flaw comments received. All the responses will be retained in the documentation. We will do our best to respond in time, but those that we can't get to will not go away, but will be addressed later in some future effort.
- Spano: When we meet for the Face-to-Face you will have made all the changes you could make by September 1. But you won't recalibrate. We will be looking at results that have not been calibrated. When will you test to see if recalibration is needed? When will we know whether recalibration will happen or not?
 - Linker: We will start to assess by September 8 if recalibration is needed. By that time, we assume that all the major loads don't change much from the fatal flaw comments. We will be able to tell you by the Face-to-Face if recalibration will happen or not and what changes may likely occur.
 - Spano: I would ask that you put it in load terms, that's the currency here. Even the geographic isolation scenarios, we need to feel comfortable that any recalibration will show up in specific places at specific orders of magnitude. Specific decisions include planning targets, Conowingo, and climate change. We want to make sure that we are deciding these issues with a solid set of model results.
- Angstadt: A week before the Face-to-Face we should have that knowledge of what changes are needed and what might change.
- Currey: The point of Phase 5 is important here. Big changes will have to be explored and quantified. Conowingo, sediment, and phosphorus, it helps us to figure out what are the big decision points that move the needle. Large practices that can really change the planning targets are going to be really important.
- Spano: That's what we will want to show for the WQGIT, is what will really move the needle when we're making these recommendations. There have to be no questions or uncertainty when we commit to these decisions.
- Diebel: What are the actions for those who have commented? Do we have to wait for those who are responsible for addressing the comments to get back to us, or are we expected to pursue a response ourselves?
- Montali: We would like commenters to actively pursue responses.
- Davis-Martin: Commenters should work through the CBPO contact and see if you can find a resolution offline, if you can't then you can raise it to the WQGIT to resolve on August 28. Make those contacts, follow up, be proactive. One point I want to raise is that the focus of conversation is going to be between the lead commenter and the point of contact for the comment raised.
- Diebel: Do we have the full list of comments received?
 - Lucinda Power: We have 109 comments, plus Bill Keeling's review of the WQSTM (Water Quality Sediment Transport Model).
 - Davis-Martin: We will continue to update the spreadsheet as we work through comments, so look for weekly updates on the [WQGIT web page](#).

Loretta Collins [presented](#) the AgWG recommendations for fatal flaw review. There are three strong recommendations from the AgWG meeting: Uncertainty analyses in the Phase 6 Watershed Model; inequity issues of soil phosphorus applications in agricultural and urban sectors (this issue was raised to the WQGIT for resolution, commenters noted that using APLE for agricultural land uses raises an inequity issue as no equivalent model exists for urban land uses); AMS-recommended updates to crop removal nutrient tool data; and revisions to stream exclusion practice benefits.

- Beth McGee: What is being considered in the last issue, stream exclusion practices?
 - Matt Johnston: The way it was set up is that loads from livestock and pasture were going down to 0 in 2013, and we are trying to fix that representation in the model.
- Davis-Martin: There are 17 very similar comments on this theme of soil phosphorus inequity. Bill Angstadt, what do you think about convening a call with all those who have submitted comments on the soil phosphorus issue?
 - Angstadt: Alisha Mulkey worked with Gary Shenk and Matt Johnston to resolve the MDA comment to get more info on the soil P issue.
 - Montali: I had raised an issue too.
 - Davis-Martin: Is there benefit to a collective conversation with all those who have raised the soil phosphorus issue?
 - Lindsay Thompson agreed. AgWG ran out of time to discuss the issue, so they need more time to discuss.
 - John Schneider asked for a timeline of calling this meeting.
 - Davis-Martin: Very soon.
- Shenk: There are 2 major categories: Dealing with APLE and urban vs ag sector equity, and dealing with the timescale issue. Discussion of each recommendation would fall to different groups. The WQGIT needs to deal with the timescale issue since it cuts across sectors.
 - Davis-Martin: I think the resolution of the APLE equity issue is information the resolution of the timescale issue.
- John Schneider: And don't forget the turf issue—why wasn't that used?
- Johnston: The timeline here really concerns me. It's clear the AgWG can't resolve this issue, so what is the protocol here?
 - Davis-Martin: AgWG asked the WQGIT to make this decision, so that's what we should do.
 - Montali: I think we shouldn't do anything to throw the schedule out the window.
 - Dianne McNally: I would need information on why it should be determined as a fatal flaw.
- Bill Angstadt: The issue that DE presented as an inequity is that APLE was used for ag and not urban. There is no soil P history in urban soils. No short term solutions to the inequity issue can be made in time to keep with our schedule.
 - Norm Goulet: We discussed this before, this isn't new. APLE is strictly for agriculture, there is nothing equivalent for the urban sector.
 - Spano: In the WWTWG, we have a process that can more accurately reflect biosolids in the model. I want to make sure that nothing being proposed here puts our decision at risk.

- Davis-Martin: I agree, we know that APLE doesn't operate for urban sectors, but that doesn't mean it's not an issue of inequity. Eventually we will have to fall back on those definitions of a fatal flaw. If there is an issue that the majority of jurisdictions have raised, the fact that the issue doesn't meet that definition doesn't mean it's not a fatal flaw.
- Angstadt: Soil P is a sensitivity to inputs, not inputs themselves. Sensitivity for P in urban is something we really have to consider over some time. If you want answers to that, we will have to really work over the next couple weeks and come up with some details to help you make a decision.
- Power: That level of detail is appropriate since the AgWG has asked for a decision from us. I think we need to follow up on the AgWG request today.
- Chris Brosch: A concentrated effort from a small group would be useful, and it would be useful to identify the decision points. There was a lot of disagreement in the AgWG over what the right information is.
- McNally: I'm concerned about not following the definition of a fatal flaw. If it doesn't meet the definition, why are we considering a change at all?
- Goulet: I don't have a problem with convening a small group. But we have to be concerned with time. There are a lot of issues with soil P in ag, and maybe that group should deal with it separately and not worry about other issues with soil P.
- George Onyullo: If APLE was originally designed to be in ag, then where is there inequity if there is nowhere where the model is misapplied?
 - Davis-Martin: There is soil test P available in urban settings, but it is not applied in the model.
 - Onyullo: Don't we have to decide whether this is a fatal flaw first? If the AgWG couldn't reach consensus and we can't, then it shouldn't be counted as a fatal flaw.
 - McNally: I don't see how this is a fatal flaw. How is this meeting that definition? Is the AgWG asking us to decide whether this is a fatal flaw?
- Spano: When someone has better data, we use it as long as it's sound. That might give you better results based on the data in different places, it's not inequitable in my mind.
- Davis-Martin: Do we think that inequity is a fatal flaw? Is this residual P difference in applications a fatal flaw or not?
- Schneider: We think it's fatal in DE.
- Davis-Martin: We can't reach consensus today. We will table this and move on.
- Davis-Martin: What do we think about the recommendation on an uncertainty analysis?
- McGee: What is the level of effort involved in conducting an uncertainty analysis?
 - Shenk: It's a huge lift for us. This isn't a fatal flaw, so we don't need to make a decision this month. We can present on what we need from management in terms of data and to estimate the lift involved here.
 - Davis-Martin: Do we have consensus on fatal flaw or no?
 - McNally: I would want a timeline as well. If this moved forward, we'd have to put resources in to complete it over the next 18 months.
 - Steve Levitsky: I am perplexed that just because something is a "big lift" that we don't do it? If it scientifically is what should be done, then it needs the resources to do it.

- Consensus was reached that uncertainty analysis is not a fatal flaw according to the Partnership-approved definition. The WQGIT will revisit this issue after the fatal flaw review and resolution process has completed.

Decision: The WQGIT concurred that the AgWG recommendation to conduct an uncertainty analysis of the Phase 6 Watershed Model does not meet the Partnership-approved definition of a fatal flaw.

Action: Consensus was not reached on whether the issue regarding inequity in soil phosphorus modeling is a fatal flaw in the Phase 6 Watershed Model. CBPO staff will work with jurisdictions that have raised similar comments regarding this issue, in order to develop a recommendation for resolution. This recommendation will be reviewed for approval by the WQGIT at the August 28 WQGIT conference call.

Revisiting the Midpoint Assessment Schedule—James Davis-Martin, WQGIT Chair

The WQGIT reviewed the PSC-approved Midpoint Assessment schedule to determine if any changes should be made based on findings from the fatal flaw review.

Discussion:

- No adjustments to the schedule were proposed at this time.
- Davis-Martin: It wouldn't surprise me to see schedule adjustments coming down the line or at least clarifications to the revised schedule.
- Spano: The question is a little premature.
- Angstadt: I would ask that we send a memo to the PSC of issues we are working towards and what resolutions will come forward.
- Power: I understand that we may not be ready to make a decision, but I want to stress what Secretary Grumbles' outlined on his memo to the WQGIT.
- Diebel: It is up to those identified as responsible for responding to comments to resolve the issues in a timely way. The commenters have done their due diligence and now it's up to CBPO staff.
- Davis-Martin: The action here is to develop a memo to the MB and PSC to make them aware of our preliminary fatal flaw review and that we have a number of comments and are working to resolve comments, but will face challenges staying to the schedule.
- Linker: The Modeling Workgroup has resources to provide the WQGIT with the information they need in time for the September Face-to-Face meeting. The Modeling Workgroup wants to move forward but needs guidance on what to do.
 - McNally: Thanks Lew, that's nicely put.
 - Davis-Martin: Nobody is asking for a change in the schedule, but we want to share progress and process with the MB and PSC.
 - Diebel: I think we should respond to that memo.
- Davis-Martin: We will make sure everyone gets a copy of that memo.

Action: No adjustments to the PSC-approved Midpoint Assessment Schedule were proposed at this time.

Introductory Briefing to E3 Scenarios –Jeff Sweeney (EPA) and Gary Shenk (USGS)

Jeff and Gary [briefed](#) the WQGIT on the purpose and definition of E3 scenarios. The proposed definition of the Phase 6 E3 model scenario (BMPs, control technologies, and implementation levels) was presented to the WQGIT for approval at the August 28 WQGIT conference call. Jeff reviewed key decisions the WQGIT has already made.

Discussion:

- Davis-Martin: Why isn't it achievable but it is practicable?
 - Shenk: Practicable is a little different than the limit of technology. In E3 you choose the best possible set of BMPs that would normally go on the landscape.
- Jeff Sweeney: I want to remind the WQGIT that we need decisions on what background condition year to use for developing planning targets—that is an issue coming up in September.
- Davis-Martin: Do the latest E3 scenarios in CAST reflect the numbers you showed us today?
- Sweeney: I can finish the scenario in the next couple weeks and get an updated draft in CAST.
- Jeff responded to a question about manure transport: The crop goal is the reference point, and manure transport is applied to any nutrients from manure applied beyond the crop goal. It won't be finished this week, but we will be showing results to the AgWG soon.
- Davis-Martin: Does this presentation help put to rest sector inequity issues?
 - Angstadt: WQGIT was very insistent that we come back with a new approach by August 28. Is this it?
 - Sweeney: No, and I don't think you're going to see any difference in equity between the sectors here. There is more lift in the agricultural sector due to the greater number of BMPs available in Phase 6, and slightly greater efficiencies with agricultural BMPs in Phase 6.
- Davis-Martin: The existing urban land retrofit in urban is only 75%, and 100% of the eligible land in agriculture is used. That's where the inequity shows up.
- Sweeney: There is a physical constraint in urban land uses that limit where you can physically implement BMPs. In agricultural land uses, 100% implementation doesn't mean across all agricultural land in the watershed, it's only 100% of all the land use that the BMP applies to. Only certain row crops get cover crops, for example.
- Davis-Martin: When were these new BMPs applied?
 - Sweeney: The domain for new development were taken from the 2025 growth projections.
 - Mark Dubin: We are scheduled for August 17 to go back to the AgWG to discuss this issue and bring it back to the WQGIT by August 28.

- McNally: Based on this discussion, I don't know if there's a need to change the AgWG E3 scenario. I don't know if there is an inequity issue, but that's what the AgWG is going to decide, right?
 - James concurred.

Results of Latest Conowingo Analysis—Gopal Bhatt, PSU and Lew Linker, EPA

Lew and Gopal briefed the WQGIT on the latest results of the quantification of additional nutrient and sediment loads from the Conowingo Dam infill.

Discussion:

- Beth McGee: Can you clarify the constant for delivery factors? Are you assuming a constant increase or the dynamic equilibrium?
- Gopal Bhatt: The constant represents the average flow over the hydrology period.
- Davis-Martin: Are the 1990 and 2010 infill conditions measured? How do we know what those infill conditions were?
 - Bhatt: There is a stationary WRTDS model designed to simulate those conditions.
 - McNally: What is the difference between the 2010 versus the true condition?
 - Bhatt: The behavior of the reservoir changes over the model period, and the true condition reflects that change in behavior over time.
- Bhatt: The simulation we're seeing today is from the draft Phase 6 Watershed Model of July 2017.
- Davis-Martin: The conditions represented in the 2010 TMDL, what were those conditions?
 - Bhatt: Those would be the same as the true conditions for the 1991-2000 period.
- Ted Tesler: Are you just looking at average loads in total, or is there a model that you are putting inputs to?
 - Bhatt: The simulations we have are a product of that hourly simulation, we have summarized to the average annual time scale. The average annual time scale also highlights some details. There are periods of scour and periods of deposition.
 - Linker: The Marietta calibration is the same as it has always been, and now we have that as well as the Conowingo calibration.
- Davis-Martin: What does this change mean for current TMDL phosphorus loads? The new loads as a percentage of what the WIP load was?
 - Bhatt: If we were to simulate the change from WIP II levels, it's around 10-12 % higher.
 - Linker: Current estimates are that WIP II achieved water quality standards in the deep channel, but that didn't account for this issue of additional Conowingo loads.
- Ted: We are going to see that the reductions we need are more than 10% when you get beyond the Susquehanna.
 - Linker: This is the most robust simulation we've ever had.

- Spano: Bay-wide we know what the impacts will be. When are the geographic isolation runs going to come up so we can see the impact of the Susquehanna and Susquehanna flats?
 - Linker: The Modeling team will start running geo-runs on the cloud in a matter of weeks. We will get those done by September 1 for the WQSTM we have. We will have runs to show you in the next couple weeks.
- Davis-Martin: Of the various infill conditions, which is applied to determine the geo-run for the Susquehanna, the true condition?
 - Shenk: We started with the WIP, but we haven't discussed which condition to run yet.
 - Linker: We will have to put our heads together and send the WQGIT an email with our idea for an approach. I would suggest now that we do WIPs with Conowingo infill.
 - Davis-Martin: So, dynamic equilibrium.
 - Linker: Yes.
- Nicki Kasi: What do you mean by WIP II?
 - Linker: The modeling team puts together a level of effort based on WIP IIs. When we put in Conowingo, we expect to see some nonattainment and we will have to resolve that. We use that run because it's closer to what our management plans are based on.
- Nicki Kasi asked for an explanation for geo-runs.
 - Linker: Depending on where a load is applied to the Bay, it might take longer or shorter residence time in the Bay before getting flushed. Nutrients in the upper Bay stick around longer and thus cause more algal blooms and water quality degradation, versus loads that enter lower in the Bay.
 - Spano: Will we get a run that shows Conowingo loads that aren't controlled so we can see the implications for no action on Conowingo? I think we need that as well as geo-runs that show loads addressed.
 - Linker: Our job is to provide targets as well as WIP level of effort, plus Conowingo infill. That level of effort will come down in a week or so, and we can come back to the WQGIT with that later this month if you want. We can also incorporate climate change level of effort on top of that if you want.
- Kasi: Why are we spending time simulating what went into the WIP IIs? Wasn't that modeled already?
 - Linker: You're right, but we don't have Phase III WIPs available yet, and we want to be able to compare the level of effort that we've already agreed to with the additional Conowingo load so we know what the baseline is.
 - Spano: I'd agree with that, we compare this to something that's already been defined.
- Kasi: Level of effort in Phase II might not be realistic for PA.

- Linker: If PA has a different approach, we could take a look at inputs, but that would be a big lift and we'd want information that's comparable to what we've agreed to before.
- Montali: If you didn't have WIP II you'd have to pick another scenario that's comparable across the watershed. Having different approaches for every state wouldn't be ideal for running geo isolation runs.

Wrap-Up:

- James Davis-Martin reminded fatal flaw commenters to reach out to points of contact at the Chesapeake Bay Program Office to resolve comments offline. Comments not resolved offline may be resolved at a future WQGIT conference call or be put on hiatus for resolution in a future version of the Watershed Model.

Adjourned

James Davis-Martin (VA DEQ), Chair
 Teresa Koon (WV DEP), Vice-Chair
 Lucinda Power (EPA CBPO), Coordinator
 Michelle Williams (CRC), Staffer
 Lindsey Gordon (CRC), Staffer
 Dinorah Dalmasy, MDE
 John Schneider, DNREC
 Lauren Townley, NYS DEC
 Kristen Wolf, PA DEP
 Dave Montali, WV DEP/TetraTech
 CBC: Ann Jennings
 EPA: Dianne McNally
 DC: George Onyullo
 Jenn Volk, UD
 Tanya Spano, MWCOG
 Sarah Diebel, DOD
 Chris Thompson, Lancaster County Conservation District
 Beth McGee, CBF
 Mary Gattis, LGAC
 Jessica Blackburn, CAC
 Lee Curry, Modeling Workgroup Co-Chair
 Lew Linker, Modeling Workgroup Coordinator
 Loretta Collins, AgWG Coordinator
 Norm Goulet, USWG Chair
 Ted Tesler, WV DEP/WTWG Chair
 Chris Day, EPA R3
 Jeff Sweeney, EPA CBPO
 Gary Shenk, EPA CBPO
 Matt Johnston, UMD/WTWG Coordinator

Gopal Bhatt, PSU
Jeremy Hanson, VT
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Chris Brosch, DDA