Agriculture Workgroup (AgWG)

May 31st, 2017

10:00 AM – 11:00 AM

AgWG Conference Call Summary

Meeting materials: http://www.chesapeakebay.net/calendar/event/25209/

Actions & Decisions:

Decision: The AgWG made a recommendation to the WQGIT to move forward with implementing a 25-year time frame for P simulation in the initial Phase 6 scenarios. During the summer of 2017, other time-frames of 1, 10, 50, and 100 years will be tested, and this decision will be revisited during fall of 2017.

Welcome, introductions, roll-call, review meeting minutes Workgroup Chairs

Meeting minutes from the May 18th meeting were approved.

Defining the Time-scale for Future P Scenarios Matt Johnston

Matt Johnston, UMD, presented options for defining the length of time conditions will be held in place for a given scenario to estimate changes in P runoff. This presentation and discussion provided AgWG members with the opportunity to provide a workgroup recommendation to the WQGIT, who is scheduled to make a final decision on June 12th.

Discussion:

- Ken Staver: So during the calibration period, soil P doesn't change? But if during the calibration period, more was being applied than was removed, then you would have increasing soil P during this period?
  - Matt Johnston: That's correct.
  - Gary Shenk: If uptake and applications are similar to where they were, and it was changing, then it would continue to change as it did in the calibration. But if inputs are in balance with export, then you wouldn't have change.
- Tim Sexton: There was a study done by Clemson on piedmont soils which looked a P drawdown. They were projecting 25+ years in piedmont soils, and did regression plots for their work. Based upon what the soil chemists tell us, I don't know how you can predict soil P history to change much more quickly than that.
- Ed Kee: How does the group feel about eliminating the 1-year scenario?
  - Support from EPA and VA.
- James Davis-Martin: The example you gave is for a scenario where there's a reducing trend in soil P. Am I correct in assuming that in areas where there was an increase in P, that it would also be carried forward for a number of years, producing higher and higher loads?
  - Johnston: That's correct. If a Phase III WIP shows applications increasing in a county, it would show higher run-off for P in that county.
  - Davis-Martin: It's important to consider that forecasting out further gives you greater reductions the longer period you choose, but if you have areas moving in the wrong

direction (increasing P concentrations), they will be increasing loads and potentially offsetting any reductions you thought you had.

- Frank Coale: It's important to note that the slope of decreasing scenarios is higher than the slope of increasing scenarios.
- Ken Staver: If you're saying after 10 years, soil P levels will be changed by X units, I'm struggling to understand what a WIP looks like.
    - Matt Johnston: What a WIP scenario is, is if all the practices are in place by 2025, will it eventually meet water quality standards? For N, eventually means essentially 10 years. For P, we don't have that number yet.
    - Ken Staver: Maybe it doesn't matter; it's just how the mass balance shakes out.
- Chris Brosch: I agree with Ken. It seems to me that we're giving you an expiration date for manure transport and nutrient management (NM) plans. I don't think any state operates their programs with an expiration date for those practices.
- Gary Shenk: The assumption in the WIP is that by 2025, you'll have those programs in place and that will hold management steady at that rate into the future. The point of this presentation is that, if you hold that steady just for 1 year, then you've got 1 P concentration in the soil that results in ta particular export rate. If you hold it constant for 10 years, it goes up or down depending on that rate. So the question is, if we hold management constant, then what will be the eventual result?
- Jason Keppler: We're talking about annual management here. It's not like a buffer; transport or NM is an annual practice. So I don't know if MD could commit to a number for 10 years.
- Jeremy Daubert: Does it make a difference on what your starting ppm is?
    - Matt Johnston: No it doesn't.
    - Quirine Ketterings: The P drawdown is typically not linear – and it's a function of what the starting point is.
    - Gary Shenk: When we looked at how APLE behaves and Frank's plots, it's asymptotic, but only over a very long time-period. So for 10-25 years, our recommendation was to assume linear during that time.
- Robin Pellicano: Is there any reason why we wouldn't be able to have a table or more information for each incremental year? IE - what's the percentage towards equilibrium? If it's 10 years, is it any different from 25 years?
    - Gary Shenk: We could run some APLE runs to see what it says, or you can refer to Frank Coale's chart. Essentially, the way that we're conceptualizing it is that it's linear with the number of years.
- Jill Whitcomb: What is the overall effect that this would have when we're dealing with annual practices, like NM? How does 10 or 25 years affect that?
    - Gary Shenk: I have to go back to the definition of a scenario that we've always used – if the watershed was at a certain state, with a certain land use, number of people, animals, wastewater treatment, animals, and BMPs, then what is the eventual load that we see coming out? The problem with applying that to P is that it really doesn't reach that steady state very quickly – if you're drawing down, then it's very low, and if you're building up then it's very high. We thought it was much more reasonable to define a window that we're assuming has constant management for a scenario.
- Rich Batiuk: What would be the problem with using the same logic the Partnership is using for N, and applying it to P?
    - Gary Shenk: I don't see a problem with a 10-year value. The Partnership didn't decide that it was 10-years, but that it was 'eventually'. And only recently have we realized that

'eventually' is 10-years on average for N. I also want to emphasize James Davis-Martin's point – if you're in an area where P in the soil is decreasing then the benefit is bigger the further you go out, and vice versa. But then uncertainty comes into play, because we're forecasting an assumption that things will stay constant going into the future.

- Tim Sexton: I think that's a good point – that if you're trying to determine how to get residual soil P down, you need to understand that whatever we put in our WIP goals, we have to maintain those practices for the soil to be able to recover for that period of time because of lag time.
- Ken Staver: This is not a lag-time issue, it's a mass-balance issue. If the model gives you X reduction per unit drawdown, and you do that for 10-years, then you can do that in 10 years and applications can equal removal.
- Chris Brosch: It seems like there is no one-size-fits-all for the WIPs for all counties. If soil test P is low on a short order, then you can bring up soil test P levels to a desired point. If soil test P is high and needs to be drawn down, it could take 25 years of practices. I don't agree with the premise because it's impossible to decide for every county what duration to implement the management on these county-size farms.
    - Quirine Ketterings: I think we're looking for an appropriate soil-test P range, and how do we credit mass balances?
- Rich Batiuk: Given what we're talking about, how do we proceed forward without tailoring each and every scenario at the county-specific scale?
    - Chris Brosch: I don't like the amount of data that went into running APLE; it doesn't have a consistent history for me to evaluate my counties. Unfortunately, I don't agree with the premise of the question.
- Dave Montali: Within our WIPs, we're going to spell out a certain level of NM planning and manure transport, and that's the point of this question. We need to have a decision for June 15 to see how it all works, and something between 10 and 20 seems like a reasonable compromise. We can't do anything if we don't have this question answered.
    - Chris Brosch: I don't think that this decision has anything to do with actual on-the-ground P implementation and management.
    - Dave Montali: Getting back to Rich's question – what do we do if we don't answer this question?
    - Chris Brosch: Go back to default.
    - Jill Whitcomb: I agree with Chris; I think this is going to have an unfair disadvantage to our high P loading counties, and I don't see how we could message this appropriately to get the point across to our farmers that this is good.
- Rich Batiuk: My suggestion to the AgWG, and this could be a motion, is to proceed forward to the WQGIT expressing these concerns and unknowns. But the recommendation would be to lead with putting a 10-year timeframe on the table. Since it doesn't impact calibration, we also have the flexibility to test out different time-frames. We could do this over the summer, look at results in the context of real scenarios, so that the partners can see what the difference would be between the time-frames. But at least let's set the course for 10 years right now, and we can revisit this in the fall after we've done the fatal flaw review and know how this might influence our thinking in terms of changes to our allocation for responsibilities among partners.
- Chris Brosch: What's the APLE scenario look like in pervious urban?
    - Gary Shenk: We don't use APLE in urban areas.
    - Chris Brosch: Are there soil P inputs, or background soil test P?
    - Gary Shenk: No.

- Mark Dubin: We have a motion from Rich. Is there a second to discuss that proposal?
- Motion: Present to the WQGIT concerns expressed by the AgWG, and a preliminary recommendation to implement a 10-year time period for scenarios. During the summer of 2017, other time-frames can be tested and this decision could be revisited during fall of 2017.
    - Greg Albrecht: So this would be done with WIP IIs?
    - Rich Batiuk: Correct – we could apply it to WIP IIs to look at it within the WIP context.
    - Tim Sexton seconded.
- James Davis-Martin: I need more detail about how this would be accommodated in the Phase 6/MPA schedule?
    - Gary Shenk: From a technical standpoint, it's pretty straight-forward to put in a different number and generate a set of scenarios based on 5, 15, or 25 years. We can generate multiple groups of scenarios that the Partnership could then look over to make a future determination. But we can't run our initial set of scenarios until we have some idea of what that number should be. If we decide that it's 10 now, with the option to revisit later, then the first group of scenarios released on 6/15/17 would be using 10 years.
    - Rich Batiuk: So we can get us out of the starting gates with 10 years, and the understanding would be that the Partnership could agree a select set of scenarios with which to analyze a series of years that could be potential alternative options. Then when we're coming to Fall 2017, we've narrowed down on the sets of scenarios to go forward to the PSC, we could change that number at that time.
    - James Davis-Martin: Whether it's 1, 10, or 25, it's going to change the results for P in our No Action and E3 scenarios, right?
    - Rich Batiuk: Right – I would prefer the Partnership make a clear decision, but I'm hearing from several jurisdictions a concern about making a decision without understanding the implications.
    - James Davis-Martin: My leaning would be to use 1 as our temporary answer, and explore implications of alternatives from there. It's an identical proposal, but with a different starting point.
    - Ken Staver: I think that's a reasonable point about using 1 year.
    - Dave Montali: I would argue that we already know the answer about 1 year. All of the acres of NM and manure transport would have no effect – it wouldn't lower loads, so you'd have to find treatment BMPs to actually lower loads.
    - Rich Batiuk: If we're saying NM or manure transport is a 1-year practice, then why are we even investing in that? 1-year would cheat the states and would look falsely wrong. A WIP is a long-term planning horizon.
    - Ken Staver: The 1-year tells you where you'll be in 10 years though.
    - Chris Brosch: The problem is that zeroing out P applications is not implementable on the county-scale. If we operate on a scenario where NM never goes away, manure always moves to areas of need, then I don't understand why a 100-year scenario isn't on the table.
    - Rich Batiuk: I agree with everything that's been said, but I just want to know if we can get to a starting point.
- Mark Dubin: Are there objections to the motion on the table?
    - DE objects, PA abstains
- Chris Brosch: Motion to have an analysis for equity between ag simulation using the APLE model with 10, 25, and 100 year scenarios, with the result for the same time period of urban land. When you remove the treatment capacity for crops of high P soils, and put homes on the lot – this is not a cap and fill solution.

    - PA seconded the motion.
    - Gary Shenk: The methods of simulation for urban and agriculture for Phase 6 were decided years ago, and we've been through all of the workgroups to discuss. We're just not able to change around the way we do the simulation at this late date, with the draft Phase 6 being released tomorrow.
    - Chris Brosch: Lots of these things are being ramrodded at the last minute, so all do respect to the comment – I can't in good faith continue the discussion on some arbitrary number of years to apply APLE to change the baseline when I think the underlying data is insufficient for many states, and the assumptions are inequitable for the urban sector.
    - Quirine Ketterings: I fully agree with Chris's comments, and have the same concerns with APLE's use.
- Dave Montali: Like Gary said, we're working to get this first draft out for fatal flaw review, and it sounds like Chris's argument is bigger than this discussion – it's about the use of APLE. I'm more towards putting some scenarios out with some time frame, so we can all have the best look at things during the fatal flaw review.
- Mark Dubin asked if there were objections to the motion.
    - EPA objects: the question at hand is to get AgWG recommendations on the years for the P time-frame, but the question of whether to use APLE is not pertinent to this question.
    - VA objected for similar reasons to EPA.
    - Consensus was not reached.
- Bill Angstadt: In our governance doctrine, we're allowed to have a report out to the WQGIT of a majority/minority report. On March 15, we approved the recommendations of the AMS to model soil P history using APLE, and I stated at that point that I'm not comfortable with this, but we need to do something. I have been a long supporter of the interconnection of all of these decisions. We're being asked to make a silo decision here, but unless we run something to get us to the fatal flaw review to look at how all of these pieces relate, we can't do a good thorough overall review of this. I would welcome going back to Rich's motion of running 10 years as a stop-gap, and then we can look at the interconnection of other pieces as Chris and Jill mention to see if P makes sense.
- Mark Dubin: We have a suggestion from Bill to reconsider the first motion from Rich. Is there interest to do that?
- Chris Brosch: Can you run the 100-year scenario?
    - Rich Batiuk: We certainly can.
    - Chris Brosch: I can only get confidence from having the book-end time frames.
    - Rich Batiuk: If we put 100 on there, we need something in the next 2 months to get some scenarios run. We can do the range from 1-100 on a selected scenario. We will lose some time, but over the summer we're going to be running many scenarios and making adjustments. But we need something to have a core set of scenarios.
- Chris Brosch: Without any endorsement of the APLE approach, I would like to see a 1, 25, and 100 year APLE scenario run to ascertain the bookends of the value of the longevity of this practice in order to better understand the lag times for soil test P in the beta version of the model.
    - Rich Batiuk: So if I could amend that we would do those runs, initially recommend to the WQGIT using 10, but plan to do a 1, 25, and 100 year simulations on a select set of scenarios this summer. Then we will return back to the AgWG and WQGIT with that information to make adjustments as necessary.
    - Chris Brosch: I don't know what the value of 10 is.

    - Tim Sexton: I agree, and I think 25 and 50 would have more value.
    - Mark Dubin: Can we use 25 years as the basis?
    - Rich Batiuk: I'm comfortable with that.
    - Chris Brosch: This motion comes with no APLE endorsement whatsoever.
- Motion for an AgWG recommendation to the WQGIT to move forward with implementing a 25-year time frame for P simulation and initial Phase 6 scenarios. During the summer of 2017, other time-frames of 1, 10, 50, and 100 years will be tested, and this decision will be revisited during fall of 2017.
    - Seconded by Tim Sexton.
    - No concerns raised; motion passed with membership consensus.

Decision: The AgWG made a recommendation to the WQGIT to move forward with implementing a 25-year time frame for P simulation in the initial Phase 6 scenarios. During the summer of 2017, other time-frames of 1, 10, 50, and 100 years will be tested, and this decision will be revisited during fall of 2017.

Next meeting: Wednesday June 28th – Thursday June 29th Quarterly Face-to-Face Meeting at the University of Maryland's Wye Research and Education Center in Queenstown, MD.

Participants:

Name	**Affiliation**
Ed Kee	DDA Retired
Mark Dubin	UMD
Lindsey Gordon	CRC
Chris Brosch	DDA
Clint Gill	DDA
Frank Schneider	PA SCC
Jill Whitcomb	PA DEP
Jason Keppler	MDA
Alisha Mulkey	MDA
Guido Yactayo	MDE
Robin Pellicano	MDE
Greg Albrecht	NYS
Sara Latessa	NYS
Bobby Long	VA DCR
Tim Sexton	VA DCR
James Davis-Martin	VA DEQ
Dave Montali	WV DEP/Tetra Tech
Joel Blanco	EPA
Rich Batiuk	EPA
Jeff Sweeney	EPA
Bill Angstadt	Angstadt Consulting
Peter Hughes	Red Barn Consulting
Jennifer Reed-Harry	PennAg Industries Assoc.
Bobby Grisso	VT
Jeremy Daubert	VT
Frank Coale	UMD

Ken Staver	UMD
Matt Johnston	UMD
Quirine Ketterings	Cornell
Bill Angstadt	Angstadt Consulting
Curt Dell	USDA
Jeremy Hanson	VT
Gary Shenk	USGS
Kristen Saacke Blunk	Headwaters LLC
Beth McGee	CBF