

Initial Feedback on Jurisdictions' Draft BMP Verification Program Plans

Prepared by the Chesapeake Bay Program Partnership's
BMP Verification Review Panel

August 7, 2015



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Background

The Chesapeake Bay Program Partnership (Partnership) convened its independent BMP Verification Review Panel (Panel) in September 2012 to provide an independent perspective and expert evaluation of both the components of the *Chesapeake Bay Basinwide BMP Verification Framework* (framework) as they were being developed as well as the jurisdictions' subsequently proposed enhanced verification program plans (program plans). There were no examples to follow in terms of a comprehensive BMP verification program extending across a large, multi-state watershed, addressing a multitude of source sectors all at the same time. Therefore, the Bay Program partners sought the expertise and advice of recognized experts in related disciplines. The Panel brought to the Bay Program Partnership a diversity of experiences and expertise, drawn from programs, institutions, and agencies around the Chesapeake Bay watershed and across the country. In the past three years, the Panel has focused its time and expertise in helping the Partnership develop its *Chesapeake Bay Basinwide BMP Verification Framework*, formally adopted by the Partnership in September 2014.

In the past six months, the Panel turned its attention towards the second half of its charge from the Partnership, to "use the verification principles as criteria for assessing the strengths and any possible vulnerabilities in the state verification programs, providing written feedback and recommendations" and to "also evaluate whether the level of verification rigor is consistent across source sectors and across all seven watershed jurisdictions."

Based on in-depth reviews of each of the jurisdictions' draft BMP verification program plans, submitted around the June 30, 2015 deadline, and an intensive two-day July 30-31 meeting, the Panel has developed the below initial feedback below on jurisdictions' draft BMP verification program plans. Based on the Partnership's agreed to BMP verification schedule, the Panel will deliver its final written feedback to the Partnership on October 15, 2015, completing its formal charge, and then sunset as an independent advisory panel to the Partnership.

Structure of this Panel Report

This report, developed by the BMP Verification Review Panel, provides a comprehensive set of feedback and recommendations to improve upon the jurisdictions' draft enhanced verification program plans. This report explains the evaluation criteria the Panel used when assessing the programs, provides general findings from across all of the seven jurisdictions and six source sectors, and then delves into a jurisdiction-by-jurisdiction look at specific pros, cons, questions and suggestions identified by the panelists. This approach is intended to provide a high degree of transparency regarding the Panel's assessment methods, allows for a high-level review of the draft verification programs, and provides the evaluation tools and detailed feedback needed to continue to build upon and further improve the draft jurisdictional BMP verification program

plans before they are formally reviewed for approval by the U.S. Environmental Protection Agency in December.

July 30-31, 2015 Panel Meeting

The BMP Verification Review Panel met over the course of two days (July 30-31) in Annapolis, Maryland to review their individual evaluations of the jurisdictions' draft verification program plans, and to collectively compile a comprehensive set of feedback and recommendations. The following Panel members participated in the two-day meeting:

- Dana York, Chair
- Curtis Dell
- Mike Gerel
- Tim Gieseke
- Rebecca Hanmer
- Dianna Hogan
- Tom Simpson
- Rebecca Stack
- Robert Traver

Day 1 was dedicated to developing a simple visual indicator that could summarize the degree to which a jurisdiction's draft verification program plan, on a sector by sector basis, followed the Partnership's recommended sector specific guidance and the Partnership's five verification principles. The Panel then discussed each jurisdiction's draft BMP verification program plan, sector-by-sector, to come up with a summary rating for each sector, as well as a specific list of pros, cons, suggestions, and questions for each jurisdiction. Day 2 of the meeting was primarily dedicated to looking back at the program plans and panel comments and suggestions to offer additional advice and make note of exemplary portions of each jurisdiction's program.

Panel's Evaluation Form

To assist with the evaluation of the jurisdictions' draft verification program plans, the Panel used the [Evaluation Form for Jurisdiction Draft Verification Programs](#). The evaluation form drew upon key points from each of the sector guidance documents from Appendix B of the Basinwide BMP Verification Framework, as highlighted by the Partnership's six source sector workgroup coordinators. The evaluation form was distributed to the Panel as well as the Partnership's BMP Verification Committee for review and comment on April 23, 2015, and a final version of the form was distributed to Panel and Committee members on May 22, 2015 (see Appendix A for evaluation questions).

Summary of the Panel's Feedback Across Jurisdictions

Over the course of the two day meeting, the Panel developed a common understanding of where the collective set of jurisdictions' BMP verification program plans took the Partnership towards achieving each of the agreed to BMP verification principles. Given there was not always enough information available through the individual program plans to evaluate each jurisdiction

separately in terms of progress toward achievement of the principles, the Panel developed the following table to clearly signal to the Partnership both progress to date and challenges ahead (Table 1).

Table 1. Summary of the BMP Verification Review Panel initial comments on relative achievement of the Partnership's verification principles across jurisdictions based on the July 2015 draft BMP verification program plans.

Verification Principle	Panel Comments
Practice Reporting	Most states affirmed the need for, and developed inspection and verification protocols. However, states that failed to include specific provisions for inspection and verification in their protocol – and only provided how they collect and transmit data to the Bay Program – would not meet this Principle. Panel members could in some cases identify that states had good programs in place, but had not followed the guidance and provided the requested information in the program plan itself.
Scientific Rigor	Some sectors, by their nature, have a high degree of scientific rigor (i.e. wastewater). However, statistical sampling without jurisdiction-specific justification (such as accepting others' methods, i.e. NRCS 5%) may not contain the required robustness or meet the jurisdictions' watershed implementation plan (WIP) requirements. Varying methods of verification were proposed, but documentation provided did not always allow the Panel to determine scientific rigor.
Public Confidence	The Panel felt that states that used the suggested, data-filled tables and concise narratives could be more easily understood by a layman. Independent knowledge that sector-specific programs are in place and described elsewhere is not sufficient. Identifying the connections to the jurisdictional WIP priorities will help increase public understanding. Use of independent verification methods is necessary to increase public confidence.
Adaptive Management	Few states addressed how to learn from uncertainty found in natural systems and human behaviors to inform the process and improve long-term BMP effectiveness. Some jurisdictions did indicate how they would respond to specific non-compliance with verification procedures for individual BMPs. Information collected from inspection and verification can also be used to improve or adapt future verification guidance through the technical workgroups and expert panels. The Panel urges more conversation about what adaptive management entails at the practice and protocol level and how it will specifically be applied to verification within the various funding/staffing levels. Several states discussed pilot projects to determine the efficacy of various verification techniques. These pilots will be valuable if findings are reported out so that others might consider adding them to sector verification protocols.

Sector Equity	If states follow the sector guidance published in the Partnership's Basinwide BMP Verification Framework, most of the time sector equity should be achieved. However, the Panel felt that program elements that specifically respond to the evaluation questions, especially for stream restoration and wetlands, should be incorporated into their programs. Since the forestry sector guidance was changed after jurisdictions draft plan submissions, jurisdictions should review and adjust their verification program plans to incorporate those revised requirements.
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The Panel also developed a color code based illustration of its evaluation of each jurisdiction's draft sector verification protocols and procedures (Table 2).

Table 2. Summary of the BMP Verification Review Panel evaluations of jurisdictions' July 2015 draft BMP Verification Program Plans by the six sectors.

	DE	MD	WV	VA	PA	NY	DC
Agriculture	Green	Green	Yellow	Yellow	Yellow	Red	NA
Forestry	Yellow	Red	Yellow	Yellow	Yellow	Red	Red
Stream Restoration	Green	Red	Yellow	Red	Red	Red	
Urban Stormwater	Yellow	Yellow	Yellow	Yellow	Red	Red	
Wastewater	Red	Red	Green	Yellow	Yellow	Yellow	Red
Wetlands	Green	Red	Yellow	Red	Red	Red	?
KEY:		= Predominately consistent with the Partnership's Sector Guidance and Verification Principles published in the Chesapeake Bay Basinwide BMP Verification Framework.					
	Yellow	= Notable gaps and some inconsistencies compared to Sector Guidance. Jurisdictions must fill gaps in order to be in agreement with Sector Guidance and Verification Principles.					
	Red	= Inadequate or does not follow Sector Guidance or meet many Verification Principles. Missing substantial amounts of information or may need to change approach.					

Key

NA-no agricultural lands within the District of Columbia.

? – Panel questioned whether the District of Columbia would be seeking credit for restoration wetlands

Good Examples Reflecting What the Panel Was Looking for in Meeting the Principles

The Panel would like to direct particular attention to the following exemplary components of each jurisdiction's draft verification program plans. These components should be looked to as examples for other jurisdictions as they enhance and refine their own BMP verification plans.

Delaware:

- Overall format and content. The Panel took particular note of the cross-referencing of Delaware's protocols within their larger verification program.
- Delaware's comprehensive tabular listing of BMPs by major sector (see pages 16-52)

West Virginia:

- Overall format and content
- Status of their wastewater treatment facilities meeting their WIP commitments

Pennsylvania:

- Documentation of quantifying priority BMPs and linking them to WIP goals
- Format provides an excellent level of transparency

Virginia:

- Comprehensive table of all proposed statistical confidences
- Urban nutrient management verification protocols

New York:

- Description of training for agriculture personnel involved in the AEM program and technical staff involved in wastewater treatment facility permit compliance

District of Columbia:

- Transparency and public access to urban stormwater data

Maryland:

- Agricultural verification protocols and tables
- Proposal for an independent verification team

Big Picture/Cross-Jurisdictional Findings

The BMP Verification Review Panel identified a number of comments and suggestions that spanned across jurisdictions and across sectors. Those comments and suggestions can be roughly grouped into four broad categories: 1) Formatting and General Content; 2) Use of Statistical Sampling Approaches and Practice Prioritization; 3) Practice Inspections; and 4) Enhancing Existing Programs. The Panel asks that all jurisdictions review and consider these comments in addition to the jurisdiction-specific comments.

Formatting and General Content:

1. Many of the red scores that jurisdictions received in the Panel's evaluations of their sectors were due to the complete lack of submission of any verification protocol documentation (see Table 2). However, some jurisdictions who provided sufficient description still have programmatic gaps that need to be addressed.
2. In many cases, Panel members were aware of the existence of jurisdictional BMP verification programs and protocols which were NOT included in the draft submissions from the jurisdictions.
3. Based on their experience of reviewing the draft program plans, the Panel asked that EPA now require the states and the District to follow the recommended formats and content (e.g. Table 8 from the Basinwide BMP Verification Framework) that the Panel had previously recommended. Delaware's and West Virginia's draft verification plans provide good examples to follow in this regard. Following these formats greatly aided comparisons across jurisdictions and sectors and improved the readability by a wider audience.
4. The Panel felt as though the questions in the wetlands and streams restoration evaluation form were actually clearer than the original workgroups' BMP verification guidance (see Appendix A). They asked that EPA require that the jurisdictions directly address these questions from the evaluation form within their revised BMP verification program documentation. This will help to increase both scientific rigor and public confidence. Panel members felt that answers to these questions were already readily available in existing jurisdictional guidance.
5. The Panel strongly encourages jurisdictions to provide answers to all the questions posed in all six sector-specific sections of the evaluation form in their revised verification program documentation, particularly for wetlands and stream restoration verification protocols as described above. The full list of evaluation questions organized by the six sectors can be found in Appendix A to this Panel report. The complete evaluation form and list of questions can also be found at the following link on the Partnership's web site: http://www.chesapeakebay.net/documents/Evaluation_Form_for_Jurisdictional_BMP_Ve_rification_Programs_Final.pdf
6. The Panel felt that the approach of building a program plan around citations of verification procedures provided in often-lengthy attached appendices was not effective or transparent. The Panel highly recommends pulling out the relevant information (text, tables etc.) from such referenced appendices and placing them directly in the jurisdiction's program plan, and then provide a link to the full document within the program plan's text.

Use of Statistical Sampling Approaches and Practice Prioritization:

7. Appropriate use of statistical-based sampling design is an issue that needs more attention by the jurisdictions, the Panel and the Partnership's Statistical Design Review Team convened by Virginia Tech at the request of the BMP Verification Committee.

8. Anytime the jurisdictions select a subsampling percentage—e.g., 5 percent—they should document the process and rationale for how they selected that specific percentage. Simply citing a methodology used by NRCS or other data submitting partners is not sufficient in the Panel’s opinion. Emphasis should be placed on documenting the criteria for subsample selection on how that percent subsampling meets the jurisdiction’s own WIP and verification objectives to ensure they have achieved the Partnership’s BMP Verification Principles.
9. When using a statistical sampling based verification protocol (e.g., CTIC), the jurisdiction should clearly document how they plan to translate the findings from the statistical survey into the actual numbers and geographical distribution of practices submitted through NEIEN for crediting through the Partnership’s annual progress runs.
10. Jurisdictions should consider basing the rigor of their verification protocols by a practice’s contributions to planned pollutant reductions under the jurisdiction’s Watershed Implementation Plans (WIPs). Risk of practice failure may also be a workable means to prioritize verification if clear justification for assignment of risk to individual BMPs is provided.
11. Jurisdictions should provide the overall percentage of the total WIP load reductions contributed by BMPs that the jurisdiction has included in its BMP verification protocols. Pennsylvania’s draft program plan provides good examples of this approach (see page 5 for one example).
12. While the Panel recommends the prioritization of BMPs, they note that verification protocols must be developed for *all* BMPs that a jurisdiction plans to report. Therefore, the Panel is asking for the jurisdictions to fill in the blanks for any low and medium priority BMPs for which verification protocols have not yet been submitted. The Panel asks for a specific timeframe for providing verification protocols for these low and medium priority BMPs, as well as a description of the envisioned level(s) of verification, recognizing the Basinwide Framework allows for less rigorous levels of verification for these low priority practices.
13. The Panel requests that all six states describe their proposed verification of septic systems/on-site treatment systems EVEN if those treatment technologies may be low priority and/or if the jurisdiction does not have plans to submit these technologies in the near future for pollutant reduction credit.
14. Most jurisdictions only committed to verifying cost-shared practices. As stated in the Partnership’s Basinwide BMP Verification Framework, all practices that a jurisdiction plans to report for annual progress starting in 2018 must have a documented verification program in place. The Panel recommends the jurisdictions consider verifying non-cost shared practices as well, ensuring those investments in pollutant load reduction actions are also recognized and credited by the Partnership into the future.

Practice Inspections:

15. Training requirements for inspectors were not clearly documented throughout the verification program plans. (See New York’s draft agricultural plan for a good working example of what the Panel was looking for across the jurisdictions.)

16. Third party inspections is a term that is frequently used, but not well defined from an operational perspective.
17. The Panel feels that independent, third party review is necessary in most cases to meet the Public Confidence Principle.
18. Initial inspection in the urban sector is not always well defined in terms of specific timing during the construction process, or following construction.
19. Initial inspections of stormwater management practices and systems were not well connected to timing of storm events.
20. If a BMP has been inspected and found to meet standards, then the jurisdiction needs to clearly document their plans to ‘restart the clock’ on that practice and apply a new life span.
21. If a BMP has been inspected and found not to meet standards, then the jurisdiction needs to clearly document the process for corrective maintenance and the application of a new life span, or alternatively, to remove it from the jurisdiction’s tracking data base.
22. Across the jurisdictions, the way that verification of erosion and sediment control for active construction and stormwater management for post-construction was conflated and/or confusing at times. A clear distinction between the verification approaches for these very different categories of BMPs should be provided.
23. Moving forward, BMP expert panels should be charged with providing, as part of their larger BMP verification recommendation, their professional recommendations for: 1) the type and frequency of the initial inspection; and 2) details regarding follow-up inspections/visits.

Enhancing Existing Programs:

24. The Panel strongly encourages the jurisdictions to move beyond simply documenting their current programs, and strive for actual enhancements to their verification programs. However, the focus should not be on change, but whether or not the jurisdiction’s program meets the sector guidance and the BMP principles. The Panel felt that few jurisdictions clearly articulated what was improved in their draft submissions.
25. If a jurisdiction has not finished issuing all its MS4 permits, the Panel questions relying on MS4 permits for carrying out verification. Jurisdictions must develop a program plan that is consistent with the urban sector guidance, and cannot simply default to MS4 methodologies.
26. Where Bay TMDL NPDES permit limits are not yet met, a schedule for treatment upgrades and issuance of associated permits should be included in the jurisdictions’ wastewater treatment verification sections.
27. The Chesapeake Bay Program Partnership will need to establish a clear process to address gaps in the existing BMP verification guidance well into the future. As the jurisdictions come forward with recommended alternatives or new verification protocols not already recognized in the respective sector workgroup’s guidance (particularly for medium to low priority BMPs), then the Partnership’s sector workgroups will need to take on the responsibility for review and approval of those alternative or new BMP

verification approaches, with formal amendments to the Partnership's Basinwide BMP Verification Framework guidance to follow.

28. Verification procedures for BMPs owned or operated by Federal agencies, facilities and landowners were essentially absent from the jurisdictions' initial draft BMP verification program plans—this is an issue that needs to be addressed by both the jurisdictions AND their federal agency and facility partners.

Panel's Requests of the Statistical Sampling Design Review Team

The BMP Verification Review Panel would like the Partnership's Statistical Sampling Design Review Team (Team) to further evaluate and provide recommendations on the following:

- For all verification designs that sample less than the recommended minimum of 5 percent of practices:
 - How would a jurisdiction justify and then publically communicate how a <5% subsample constitutes an improvement over the current common practice of a non-randomized 5% subsample? Under what circumstances might this lesser subsample (even with improved confidence and randomization) constitute a decrease in verification rigor?
 - How would a jurisdiction best achieve a subsample that is selected properly in a random or appropriately distributed fashion?
- In regards to the CTIC statistically-based sub-sampling design:
 - Is the methodology appropriate for application to BMP verification as described within the Basinwide Framework?
- In the proper use of risk in establishing the percent sub-sample:
 - Are the pass/fail assumptions made by the jurisdictions appropriate?
 - Is there an objective method for setting pass/fail rates based on data?
- Providing clear guidance to each jurisdiction on addressing the Panel's request for each state to document their assumptions, their judgment calls, and their selection of the percentile of subsampling.
- How to translate the outcomes of a statistical sampling into the annual BMP progress submissions.

The Team needs to review the following statistically based sub-sampling verification protocols submitted by the following four jurisdictions:

- Delaware's conservation tillage and high residue tillage initial inspection and follow up inspections (Table 2.1.5.1 on page 79)
- Maryland's approach to determining its spot check sub-populations for agricultural production
- Pennsylvania's conservation tillage pages 14-17, cover crops pages 18-21, remote sensing pilot study with NRCS

- Virginia's Appendix 3 Table 1 Agriculture/State and Federal Cost Share practices (page 34), Appendix 3 Table 2 Urban/Urban Nutrient Management (page 35), Appendix 5
- West Virginia's 5 percent of structural/agronomic practices through aerial coverage (page 12)

The Team should then share its review comments with both the Panel and the respective jurisdictions and proceed to work closely with individual jurisdictions on ensuring that sound methods of statistically-based sampling design systems are put into place.

The Panel's Jurisdiction-Specific Feedback

Delaware

Overall Feedback

- The best jurisdictional draft program plan reviewed by the Panel; structured and formatted following the Panel's recommendations (e.g., extensive use of Table 8 structure throughout).
- Well structured as a comprehensive quality assurance plan. The language was very understandable by a wide audience and the documentation was thorough, addressing all the points in the Panel's checklists.
- Clearly the result of working with teams of state agencies, conservation districts, and local partners, all with a defined role in BMP verification.
- Need to provide URL links to all other documents, reports, and publications referenced within the draft plan so that readers/users can easily access those references (e.g., page 11, first paragraph).
- Need to provide a specific schedule for developing and publishing verification protocols for the remaining BMPs with lower anticipated contributions to the overall load reductions (cited on page 55).
- Recommend development of an overall summary and work to make the report more concise by reducing redundant text included in each subsection without losing any understanding of what is being proposed

Agriculture (Green)

Pros:

- The use of tables provided one of the best examples for other jurisdictions to follow and will be easy to update into the future.

- Delaware was the only state to have addressed CAFOs in its verification program plan.
- Clear, strong write-up on cover crops.

Concerns:

- It appears there is no plan to verify Resource Improvement projects or non-cost share agricultural conservation practices; only cost-shared, regulatory and permitted practices appear to be the focus of verification—please confirm that this is the case.
- Plans for follow up inspections were not clear across many of the practices, with some contradictory information in the table versus the supporting text.
- Most practices have a 100% review on initial implementation. The Panel was not sure how the 10% of subsampled practices are selected, as no documentation is provided. The Panel assumes that since multiple agencies report the data, that there are multiple methods for selection (NRCS, SCDs). Need to provide some documentation on the selection of subsamples.

Cons:

- Given Delaware's plans to review only 5% of practices every year, they need to provide more detailed documentation supporting this choice of a subsampling amount and whether/how this is related to Delaware's Watershed Implementation Plan's list of practices.
- Visual inspections for nutrient management plans seem to be complaint driven rather than the systematic, random inspections that would be necessary to ensure public confidence (page 67, 68, 70).
- No reference to plans for independent review of any collected or reported data.

Suggestions:

- List Delaware's set of high priority BMPs on which the state will focus most of its verification efforts and include percent contributions to total planned WIP reductions.
- Inspection practices differ from BMP to BMP and program to program. While the provided tables and narrative do a good job of explaining the programs, a justification of the differences would be useful.

Questions:

- What percent of nutrient management plans are 60 field inspections per year?
- Does the program plan commit to conducting annual conservation tillage surveys at 90% confidence?

- For agriculture, transparency is a documented issue for the public. Is there any value to a small, comparative study of CAFO performance on BMPs to inform the public, and a discussion of comparative aggregate AFO performance?

Forestry [Yellow]

Pros:

- Good overall write up/documentation.
- Tree planting has great follow-up inspections.
- Delaware's program comes closest to meeting the forestry guidance, and with relatively minor tweaks could meet the guidance in nearly all forestry categories.

Concerns:

- Delaware does not explain how they are going to track practices after 15 years.
- Need to clarify inspection timeline for some BMPs (e.g. page 94-96).
- For CREP, it would only take a few minor tweaks to meet forestry guidance.
- A follow-up inspection should added for high-risk plantings.

Cons:

- Does not follow the Partnership's Forestry Workgroup's verification guidance for agricultural riparian forest buffers, particularly in terms of the recommended inspection times and frequency (note: forestry sector guidance was changed after the state's submission).
- No justification for sub-sampling percentages.
- Did not see evidence that the baseline acres for each practice is tracked in order to ensure there is a net gain of acres over time.

Suggestions:

- Partner with Delaware Forest Service and NGOs to augment the NRCS buffer inspections.
- Need to better follow the Forestry Workgroup's verification guidance, particularly the sequence of inspections over the 15 year life span/contract or propose an alternative of comparable rigor.
- Should add relevant portions of referenced documents into the main document so that reviewing additional materials is not required for basic comprehension of the program plan.

Questions:

- None.

Stream Restoration [Green]

Pros:

- Clear formatting and tables.
- Follows guidance on frequency of inspections and certification of inspectors.

Concerns:

- Need to provide answers to the questions in the Panel's stream restoration evaluation form in the revised verification program plan.
- Need to clarify the inspection time frames between the text on page 108 and Table 2.3.1.1 on page 107 after three years.
- Need to define heavy storms.

Cons:

- Relying strictly on visual inspection and not functional assessments as recommended by the Stream Health Workgroup's guidance. If post-construction inspections are only visual, the inspection may not be able to truly address function, and stability of hydrology and vegetation.
- Unclear from the text on pages 108-109 exactly how Delaware plans to implement the USFWS Rapid Stream Restoration Monitoring Protocol methodology—right now that USFWS protocol is strictly referenced and briefly described in the text.

Suggestions:

- Recommend documenting what actual stream restoration verification protocols Delaware is employing by using the answers to the questions in the Stream Restoration sector section of the Panel's evaluation form to help in that documentation process.
- There were a lot of citations to outside documents. As noted earlier, pull relevant details into the body of the document so it offers a complete picture of the program.

Questions:

- There is 100% visual inspection, but who is the non-regulatory agency performing the inspections to assess the project design and installation?

Urban Stormwater (Yellow)

Pros:

- All stormwater management practices, regardless of origin of the practice, are verified with a consistent level of rigor.
- Strong initial inspection program.

Concerns:

- Need to address the end of life span, re-verification, continued reporting and crediting procedures.
- Should move the urban street sweeping practice into the stormwater verification section, and ensure appropriate consistency with the inspection approach for other urban stormwater practices.
- Please ensure the tables and text are fully consistent on pages 117 and 119 in relation to timing of visual inspections and practice lifespan.

Cons:

- Includes confusing statements about inspection by the owner and then giving a report to the owner.
- Need to describe verification procedures all the way through corrective maintenance and applying a new life span to set the clock for the next follow-up inspection.
- MS4 program and any other post-construction stormwater verification protocols should be cited and clearly documented. Narrative and tables seem to be limited to erosion and sediment control stormwater regulations.

Suggestions:

- None.

Questions:

- None.

Wastewater (Red)

Pros:

- Requirement for owners to have a contract with a certified septic system/on-site treatment system maintenance contractor.

Concerns:

- Need to state that there are four significant wastewater treatment facilities which discharge to land and surface water within Delaware's Chesapeake Bay watershed and where they stand in terms of reaching their Bay TMDL permit limits.
- Onsite systems inspections appear to be only complaint-driven rather than consistent with the recommendations from Table B-17 of the Onsite Wastewater Treatment Expert Panel report.

Cons:

- No reference to/documentation of wastewater treatment discharge facilities and their verification procedures (e.g., DMR, annual reports, etc.).
- No inspection of on-site treatment systems.

Suggestions:

- Should briefly describe the current status of wastewater treatment plant permits and discharges to the Bay watershed.
- Please explicitly state that there are no CSOs in Delaware's portion of the Chesapeake Bay watershed.

Questions:

- None.

Wetlands (Green)

Pros:

- Excellent level of verification details on page 112.

Concerns:

- There are a lot of details missing from this guidance that are likely included and cited in the NRCS wetland guidance. Need to extract the important procedures and concepts from the references documents add them into the main document.
- Need to clearly cite the outside guidance documents and provide URL links for further information.
- Make consistent the reference to 5 years in the text on page 111 vs. reference to 10 years in the Table 2.3.2.1 on page 110.
- Unsure if onsite monitoring was required within 3 years following construction or whether aerial imagery is used for remote observation of long-term monitoring of wetland BMPs.

- Unclear whether a project file is maintained by the installing agency for each restoration project installed.

Cons:

- Need to address what happens at the end of the established life span and plans for re-inspection.

Suggestions:

- The Panel recommends documenting what actual wetland verification protocols Delaware are employing, by answering the questions in the Wetlands portion of the Panel's evaluation form.

Questions:

- Does Delaware use aerial imagery?
- Do follow-up inspections stop after 15 years? What happens to the practices after that point?

Maryland

Overall

- Maryland submitted eight different quality assurance plans and related data management documents, however, only the agriculture plan provided specific documentation on verification protocols consistent with the formats and checklists provided in the Basinwide Framework.
- The other sectors' plans were principally detailed description of the BMP tracking and reporting procedures (some dated several years ago), but with verification protocols largely lacking or completely absent.

Agriculture (Green)

Pros:

- Good recommendations for improvements to the AIRs.
- Good use of the tables and supporting narrative in the text.
- Maryland has used the approved guidance and developed a procedures manual for the collection of RI practices.

- The Panel liked that agriculture is going to use a unique BMP Task Force of five individuals that are separate from the districts, to complete verification. An evaluation should be completed and shared on the strengths and weaknesses found using this method.
- Regardless of funding source, all BMPs in the grouping on page 24 of the program plan are subject to rigorous quality assurance protocols to verify and report implementation.

Concerns:

- The Panel recognizes the incremental improvements in Maryland's AIRs, but more can be done to further improve the AIRs data.
- Need to address agricultural riparian forest buffers.
- Nutrient management plan assessment is fairly new and still relies upon farmer supplied information.

Cons:

- No mention of CAFOs and different inspection levels compared with AFOs.

Suggestions:

- Expand the proposed Maryland verification team's responsibilities to include nutrient management plan verification.
- The documentation could be better organized and a bit more concise.

Questions:

- Is the proposed BMP Task Force currently funded?

Forestry (Red)

Pros:

- None.

Concerns:

- Maryland did not appear to follow the Forestry Workgroup verification guidance's inspection schedule.
- Need updated information on forestry harvesting practices.

Cons:

- The overall Maryland forestry verification program is inadequate in that it is inconsistent with Forestry Workgroup's sector guidance and is missing many key elements. This is not a surprise since the submitted forestry practice verification document was dated 2011,

WELL prior to the Partnership's adoption of the Basinwide BMP Verification Framework in September 2014.

- Does not include any verification protocols for urban forestry practices.

Suggestions:

- Maryland needs to commit to following the CBP Forestry Workgroup's verification protocols (note: the Forestry Workgroup's guidance was changed after the state's submission).
- Need to include a plan for surveying urban forests.

Questions:

- None.

Stream Restoration (Red)

Pros:

- None.

Concerns:

- There are only two references to stream restoration within the 8 documents that Maryland provided: page 71 in the sediment and stormwater document mentions load reductions for an interim rate; and page 4 in the forestry document mentions a potential BMP category. Neither provides verification information.

Cons:

- Stream restoration verification was not addressed in the documentation provided.

Suggestion:

- The Panel is aware of Maryland's well respected stream restoration inspection work, but documentation on the program was completely missing from the program plan.

Questions:

- None.

Urban Stormwater (Yellow)

Pros:

- None.

Concerns:

- The reader is required to wade through detailed standard operation procedures in order to try and piece together what the actual verification procedures for urban BMPs.

Cons:

- Missing clear documentation of the who, when, where and how responsibilities for each of the described urban stormwater verification procedures.

Suggestions:

- Fill out Table 8 from the Basinwide Framework, answer the questions provided in the urban stormwater sector section of the Panel's evaluation form (see Appendix A), and provide an executive summary up front that offers key elements of the detailed SOP document—think in terms of providing the reader with a preview of and a guide to the detailed SOP document.

Questions:

- What is the field performance verification schedule?

Wastewater (Red)

Pros:

- None.

Concerns:

- Panel members had difficulty finding the relevant verification protocols/procedures included within the 2012 QA plan, which was focused on the data reporting processes.

Cons:

- Provided no documentation for verification of septic system/on-site treatment systems.

Suggestions:

- Provide an up-front executive summary which includes answers to the set of wastewater sector questions contained in the Panel's evaluation form.

Questions:

- None.

Wetlands (Red)

Pros:

- None.

Concerns:

- None.

Cons:

- Wetlands restoration was only briefly referenced in several of the documents submitted, however, no verification protocols were provided.

Suggestions:

- Provide documentation of Maryland's wetland verification programs by providing complete answers to the series of questions contained within the wetlands sector section of the Panel's evaluation form (see Appendix A).
- Even if wetlands practices do not make up a significant part of Maryland's WIP reduction goals, verification information should still be provided, or a timeline for when the program will be fully developed should be submitted.

Questions:

- None
-

West Virginia

Overall

- West Virginia's draft verification program plan followed the Panel's recommendations in terms of format and content, making the documentation easy to follow and understand.
- The Panel had a number of questions and requests for clarification for each of the proposed sector BMP verification protocols.
- West Virginia attached several manuals from NRCS, FSA, Chesapeake Bay Program and West Virginia, making the combined document 541 pages in total length. The Panel would advise against appending all these documents to the final plan; citations with links would be preferred.

Agriculture (Yellow)

Pros:

- The concept of a BMP verification pilot is excellent.
- Table 2 and Attachment B were very helpful.
- The document was well-written, very clear and easy to follow.

- For structural BMPs funded under CWA 319, the commitment to annual review for 5 years is very strong.

Concerns:

- The plans for a BMP verification pilot study are lacking in details.
- The extensive appendices are not necessary; suggest pulling out the relevant sections/pages/tables, not hundreds of pages.
- Did not describe their use of NEIEN for the reporting and transmittal of their BMP data.
- West Virginia has expressed interest in collecting and reporting resource improvement practices, but they are not proposing to do it in the short-term. Should offer a timeframe for when this may happen.
- Since the program mostly adopts existing NRCS oversight, the Panel does not see much increase in transparency unless NRCS or state's practices are somehow disaggregated, subject to random sampling, and/or verified by a third party in public view.
- Mentions statistical sample/paper check for BMP data validation but does not discuss their methodology.

Cons:

- The draft program plan states that West Virginia is planning to only verify BMPs installed by “willing land owners”—it is unclear whether this approach is for cost-shared practices only, or non-cost shared as well. Need clarification as this approach as stated would severely bias the sub-sample and would not meet the Public Confidence and Scientific Rigor Principles.
- Going to use NRCS/FSA funded and verified conservation practice data only and does not account for CBP-NRCS practice definition differences or spot check methodology compared to state WIP practice verification priorities.
- Appears to be no regulated or permitted activities (CAFOs) included in the verification program plan.
- Nutrient Management plans evaluation is a paperwork assessment that appears to be done in the office, without field visits or onsite verification of records.
- Statistical justification for 5% subsampling regime was not included (simply adopting NRCS' sampling regime without justification is not sufficient).
- West Virginia's program plan mentions that a transect method will be used for cover crops, but provides no discussion of the details.
- No on-farm review of manure transport.

Suggestions:

- Need to explain how NRCS/FSA's 5 percent inspection rate is relevant to/supportive of verification in West Virginia. The Panel recommends actually adopting the approaches outlined in West Virginia's Attachments J and K.
- BMP Verification protocols should incorporate transparency in both processes of verification and tracking and reporting of the underlying data
- The Panel urges West Virginia to strengthen its riparian forest buffer follow-up inspections.

Questions:

- What does West Virginia mean by its reference to "willing land owners"?

Forestry (Yellow)

Pros:

- Best write up of urban forestry practices—great to see Cacapon Institute having the lead for this verification work
- Every 5 years, buffer and tree canopy are reassessed to show that there has not been a decrease in overall acres.
- Generally followed the verification framework. Table 5 and Attachment B were useful.

Concerns:

- Forest harvest practices appear to depend on self-reporting only, with no quality assurance
- More detail regarding rigor and enforcement of forest harvesting inspections is needed.

Cons:

- Verification depends on NRCS methodology—need to bring their protocols up to the level of the Forestry Workgroup's verification guidance or justify the 5% subsampling approach used by NRCS for use in West Virginia.
- The Panel's opinion is that verification via aerial imagery is not reliable for newly planted forest buffers.
- Selection of only willing landowners for verification, as mentioned in the agriculture section, prevents compliance with the public confidence, and scientific rigor principles because it biases the sample.

Suggestions:

- Cooperate with West Virginia Department of Forestry or NGO's to meet the inspection requirements of the forestry guidance.
- May want to separate out agriculture land conservation from the forestry sector or explain how much land conservation is forest versus non-forest.

Questions:

- None.

Stream Restoration (Yellow)

Pros:

- Frequency of field verification is consistent with the sector guidance.
- Strategy for follow-up inspections and corrective maintenance seems thorough, though there are some inconsistencies.

Concerns:

- Key features that relate to stream function seem to be recorded during the inspection but the Panel felt it could be more clear.

Cons:

- The frequency of follow-up checks are different between the listed agencies.

Suggestion:

- Would like more information on what is actually being required as part of the inspection.
- Recommend following the Stream Health Workgroup's verification guidance on the frequency of inspections and the focus on functional assessments.
- Recommend providing answers to the stream restoration sector's evaluation form questions.
- The timeline for inspections seems consistent with the guidance, but it could be further clarified.

Questions:

- None.

Urban Stormwater (Yellow)

Pros:

- Great format for documentation and excellent summary table.

- Generally follows the sector guidance.
- Good section on the legacy BMPs West Virginia plans to address in the future.
- West Virginia is developing a training program to increase number of qualified inspectors who can relieve public agencies.

Concerns:

- There is a full schedule for inspections for first five years, and then nothing.
- West Virginia states that they plan to inspect 10% of practices a year, and 100% of practices within 10 years. When there are new BMPs being installed every year, both statements cannot be true.
- Seems to be differences between what's written up in the text and what's included in the summary table in terms of timing of the inspections and number of inspections.

Cons:

- If problems are identified as a result of an inspection, there is no description of the required corrective actions, or removal of the BMP from the crediting system.
- No discussion of post-construction stormwater.

Suggestions:

- None.

Questions:

- Has West Virginia issued all of the necessary MS4 permits? If not, relying on MS4s for verification doesn't work.
- Are verification efforts prioritized according to practice importance?
- In semi-regulated communities, are the fastest-growing communities prioritized?

Wastewater (Green)

Pros:

- Good summary information on when the permitted facilities would install their treatment upgrades and when they will meet their Bay TMDL limits.

Concerns:

- The Panel was surprised that West Virginia did not address septic/on-site treatment systems at this time.

Cons:

- No discussion of septic systems or CSOs.

Suggestions:

- Answer all the wastewater sector evaluation form questions (see Appendix A) in the documentation.
- Panel asked West Virginia to confirm that they have no plans to seek credit for septic system pump outs and upgrades given the growth in this source sector.

Questions:

- Do any West Virginia cities in the Potomac Basin have CSOs needing control?

Wetlands (Yellow)

Pros:

- Used good field indicators – at a minimum, functionality, acreage and location are documented. In some cases, hydrology, presence of wetlands plant species, and soil type are also recorded.
- Some projects received further inspection by Trout Unlimited.

Concerns:

- Did not fully address all the elements of the Stream Health Workgroup's verification guidance.
- Did not have a set of follow up requirements (within agency).
- For cost-shared practices, the follow-up inspection is conducted by NRCS, which is not necessarily consistent with the verification guidance. It must be justified.

Cons:

- Wetlands were referenced in several of the documents submitted, but no verification protocols were provided.
- Again, sampling only “willing landowners” is referenced.

Suggestions:

- Provide wetland verification protocols.
- Use randomized sampling method to check all practices (not just willing landowners).

Questions:

- None.

Virginia

Overall

- Virginia utilized the overall checklist and the CBP recommended table format for reporting all BMPs.
- There was no prioritization of BMPs by load.
- Virginia has a significant emphasis on statistical selection practices that will need further analysis by Statistical Sampling Design Review Team.
- Because Virginia Department of Environmental Quality (DEQ) is an aggregator of data from many diverse sources, DEQ does not have direct involvement or control over much of the original data collecting and reporting. Therefore, the table includes a link to the originating organization's internal quality assurance procedures where available.
- Virginia proposes a statistical approach with 95% +/-5% confidence for inspection protocols. How this approach is evaluated by CBP Partnership sets the precedent for all other jurisdictions. From the page on calculations, the crucial determinant appears to be the pass/fail assumption. The determination that agricultural practices such as Forest Buffers are "low risk" is definitely open to debate. In fact, all cost-shared practices in the contractual period are so designated. Low risk of what? To be credible, there should be further explanation and potentially an independent and transparent study.

Agriculture (Yellow)

Pros:

- Provided a comprehensive table of the statistical survey assumptions.
- The Bay Program Partnership approved credit durations will be used as the basis for removing reported BMPs for all verification groups in the agricultural sector unless the practices are re-inspected to verify continued operation. Information from the sample based follow-up checks will also be used to remove practices from the reporting record based on identified failure/abandonment rates.

Concerns:

- Want to see more underlying statistical sampling design documentation and clearer explanations that help the public understand how it will be implemented.
- Very concerned about the implications of going 10 percent to 1 percent sub-sampling in terms of: loss of confidence, reduce rigor, lost opportunities for interactions with farmers and working to correct practices found to be substandard, loss of 'incentive' on the part

of the farmers to do the right thing given a one in ten chance of being inspected each year.

- There was no distinction of the relative priority of the different practices.
- Have to go out to a host of other documents cited in draft document to really understand what is being recommended within Virginia's draft verification plan. It would be better to pull relevant parts and include in the program plan.
- The Panel believes the assignment of low risk is crucial. The Panel questions who made the assessment and whether there was any independent review of such a crucial determination.
- Initial on-site inspections are conducted on 100% of practices for all but three of the agricultural verification groups; tillage practices will use a transect survey, manure transport will be based on hauler records, and feed additives will come from sampling by integrators and growers. The frequency of grower sampling is unclear. Rather than a standard on-site visit frequency of 10% per year, stratified random sampling will be conducted that results in follow-up checks of 1-10% of practices each year. All structural practices are re-inspected one year prior to the end of the credit duration and all NMPs and RMPs re-checked roughly every three years. Given the state is going below the recommended 10% threshold, the underlying statistical approach needs more explanation and to be reviewed by the statistical design review team.
- Further clarity on feed additive sampling is needed.
- No specifics on farmer interviews and record evaluations are provided to explain how each component or standard will be reviewed for compliance.

Cons:

- Virginia was unable to reach a 1619 agreement with USDA; therefore, NRCS data will be delivered to the state in aggregate. Unless Option 1 (1619 signed) or Option 2 (a third party is engaged to disaggregate the data before inclusion in Virginia's data) on page 20 are implemented, USDA/NRCS practices must not be counted toward Virginia's pollution reduction goals. Aggregated data that is not verified by a third party falls far short of the Public Confidence verification principle.
- No proposal provided for third party verification with exception of the Resource Management Plan process.
- Entire re-inspection process is based on a 90/10 pass/fail assessment and 97 percent compliance—that level of compliance is not believable, is based on intensive technical assistance, and draws into question the actual inspection program itself.
- Having a 1 percent level of re-inspections takes away any incentive by the producer to do the right thing AND significantly reduces the opportunities for re-inspections yielding important provision of technical assistance to correct.

- The Panel doesn't agree with statement at all practices are under a low risk of failure with exception of stream restoration in the absence of any data provided and other supporting documentation.
- There is no documentation on verification of CAFOs. The Panel assumes that verification would be conducted in accordance with the NPDES permit, but this needs to be clearly documented.
- As far as the Panel can tell, site-specific USDA/NRCS data will not be available to the public. Also, it is unclear whether RMP-related data will be public. The absence of transparency for these practices is currently a flaw for this protocol.

Suggestions:

- Need to adopt a more conservation pass/fail ratio at the beginning, something on the order of 50/50 or 60/40 and not 90/10 or 97/3 given the underlying data are not publically accessible.
- Provide documentation on how Virginia plans to take the result of its statistical-based subsampling verification protocols and convert the resultant findings into numbers of BMPs spread over what geographical areas for reporting on its progress every year.
- Appendix 3 and 4 are great. Appendix 5 is also good, but describing the sub-sampling approach in more layman's terms and including the underlying analysis as an additional Appendix would increase transparency.

Questions:

- None.

Forestry (Yellow)

Pros:

- None.

Concerns:

- Virginia Department of Forestry's follow up inspections for riparian forest buffers are not documented within Virginia's draft plan.
- For Forest Buffers, there is more than a low risk of buffers not receiving the necessary management during the establishment phase, and the Forestry guidance cites circumstances when buffer performance can be undermined after establishment. In Virginia, buffer follow-up inspections are reinforced by Forestry Department to a greater degree than in any other state. This degree of scrutiny has to be taken into account if Virginia's buffer success rate is as advertised.

- As with the agricultural protocol, the lack of NRCS data transparency is a flaw here. The proposed procedures themselves are solid and fairly close to the sector guidance. If the NRCS data issue is resolved and some additional clarity is added to Appendix 3 on the urban sector, this protocol could be fully consistent with the Public Confidence principle.
- The "Lifespan" column in Appendix 3 indicates that maintenance is required in accordance with permit requirements, but does not provide further specifics in the protocol. These specifics may be included elsewhere.
- There is no discussion of net gain. Urban practices are checked every five years in accordance with state and federal programs—does that same frequency apply to urban buffers and tree canopy?

Cons:

- If adopted, the proposed statistical approach would dramatically cut back on the number of follow-up inspections.
- No existing 1619 data sharing agreement means no access to un-aggregated NRCS and FSA data, thus preventing accounting for double counting and prompting a call for independent validation.
- Does not address verification of urban forestry practices. Virginia Department of Forestry is working on an urban forestry program and actively encourages and trains local forest partners, but this program was not included in the protocol.
- Virginia Department of Forestry's verification of forest harvest BMPs are not documented.

Suggestions:

- Virginia needs to follow the Forestry Workgroup's verification guidance and address the full suite of forestry related practices—buffers, urban forestry and forest harvesting.
- Appendix 3 was helpful; however, this table did not document answers to all the Panel's evaluation form questions. The protocol referred to other programs where specific requirements and procedures were included. However, links to all the documents were not provided.
- The stratified sub-sampling approach for agricultural buffers noted in Appendix 5 was clear. A description of the basis for the table in layman's terms would be useful. A statistical analysis of the every 5 year frequency for urban practices was not provided, and the follow-up rate for harvesting was not included in the protocol.
- The lack of two inspections in the first four years is common across sectors. Specific justification for inspection/follow-up frequency is included in Appendix 3 and 5 for agricultural practices, while the urban and harvesting sectors refer to existing permitting

requirements. Further upfront inspection and including greater clarity on urban permitting requirements within the protocol would be useful.

Questions:

- None.

Stream Restoration (Red)

Pros:

- None.

Concerns:

- None.

Cons:

- No evidence of any specific stream restoration verification procedures beyond credit durations.

Suggestion:

- Some of the Panel members are aware of strong stream restoration inspection and verification procedures and programs in place in counties, but they should be clearly articulated.
- Please document the verification procedures for the various stream practices mentioned (see pages 34, 38, 39, and 43).
- The frequency of field verification is not clear and the draft protocols do not address functionality of the practices.
- To assist with the documentation, please use Table 8 from the Verification Framework, as well as the Panel evaluation questions.

Questions:

- None.

Urban Stormwater (Yellow)

Pros:

- Process for re-inspecting a practice at the end of its credit duration and using that inspection date to “reset the clock” on credit duration good.
- Urban nutrient management verification protocols are excellent.
- Only jurisdiction specifically committing to “reported BMPs will be reduced to account for identified non-compliance with the above maintenance requirements”.

Concerns:

- Verification protocols are confusing as written in the text and table.
- Need more documentation supporting the statistical-based sampling design recommendations.
- Need more details on what exactly how the certified applicators are verified (soil samples?).
- Need more documentation of verification procedures directed towards non-regulated stormwater.
- The Panel does not see the following as a valid statement: Page 27: “Many of the BMPs implemented in the urban sector are required by permits or regulatory programs. These programs and permits include requirements for BMPs to be properly maintained. Typically, this includes a requirement that a maintenance agreement be recorded with the parcels land records. These regulatory programs also include compliance and enforcement processes that ensure the regulatory requirements are being followed. Collectively, these procedures ensure the proper initial implementation and continued operation of the BMPs installed pursuant to these programs. As such, this class of BMPs is expected to be maintained in perpetuity and no sunsets will apply.”

Cons:

- Timeframe for allowing practice owners to take corrective actions following a failed inspection was not described.
- Federal, state and local permitting requirements are not included in the protocol, which makes it difficult to definitively assess whether the proposed protocol complies with the Verification Principles.

Suggestions:

- Provide the requested additional documentation in the same format as Table 8 in the guidance document and at the same time provide answers to questions listed on the urban stormwater sector evaluation form (see Appendix A).

Questions:

- What is the schedule for making the proposed network database (page 21) operational?
- Are all MS4 programs under up-to-date permits? If not, the assumption that the regulatory program can be relied upon for verification is not valid.

Wastewater (Yellow)

Pros:

- Nutrient loads from non-significant facilities are estimates provided by DEQ using a percentage of the waste load allocations included in the TMDL. Virginia is working on sampling protocols to help verify the reported non-significant loads. The Panel recognizes and commends with work.

Concerns:

- Minimal narrative descriptions of wastewater treatment discharge verification protocols.
- Minimal narrative descriptions of septic systems/on-site treatment systems verification protocols.
- Whether the program requires significant wastewater treatment facilities to monitor and report monthly flows and loads via DMRs was not clearly stated in the protocol.

Cons:

- Lacks documentation on verification of CSOs.

Suggestions:

- For each of the specific sources under this sector, need to provide answers to the questions in the wastewater sector of the Panel's evaluation form.

Questions:

- When will the sampling protocols for non-significant facilities be available and operational?

Wetlands [Red]

Pros:

- None.

Concerns:

- None.

Cons:

- Minimal to no documentation of the wetland verification protocols.
- Wetland restoration was included in Ag land conversion, but not as a separate section.

Suggestions:

- Please take the references to wetlands practices (pages 39, 47, 42) and expand upon them by providing the details requested in the panel evaluation form and the sector guidance.

Questions:

- Are no USDA practices reported?

Pennsylvania

Overall

- Pennsylvania was the only jurisdiction that documented, up front, the percentage of the nitrogen, phosphorus and sediment load reductions in each source sector.
- Pennsylvania was honest about their many gaps in their verification protocols in their initial submission, which will make it easier to address those gaps in the future.
- Pennsylvania notes that NRCS is doing a pilot study of remote sensing in the Potomac River Basin, with completion expected in December 2015. The study includes many agricultural BMPs and also forestry, and results will be shared with other jurisdictions and Forestry Workgroup.
- Good use of tables and supporting narrative text. One of the best examples for external readability.

Agriculture (Yellow)

Pros:

- The Panel is impressed by Pennsylvania's work with NRCS on the remote sensing-based verification pilot project.
- The Panel recognizes Pennsylvania's commitment to annual on-site inspections of nutrient management plans.
- Good documentation of Pennsylvania's effort to focus its initial BMP verification protocol development on the BMP making the highest pollutant load reduction contributions toward achievement of their Watershed Implementation Plan.
- BMPs are prioritized based on their contribution to reductions. BMPs with lower anticipated contributions to the overall load reductions will be developed but at a slower pace given the reduced reliance on these practices to Pennsylvania's reduction strategy.

Concerns:

- No documentation for how the results of the remote sensing pilot project be shared with the Partnership's Agriculture Workgroup (and other relevant sector workgroups, e.g., Forestry Workgroup) and the Watershed Technical Workgroup for review in comparison with the Partnership's Basinwide Framework's verification guidance and acceptance as a new set of verification procedures by the Partnership's technical workgroups.
- The Panel is concerned that the results of the pilot study will only be applied to counties with 50,000 or more acres of conservation tillage (cited on page 17).
- No attempt was made to justify levels of follow-up inspections, which are proposed as being below the guidance levels.
- If NRCS normally checks 5% of total practices in the state with a limit of 20 per practice, no more than 3-5 low risk practices would be checked. Spot checks are to be distributed among various practices applied during the year, and each type practice should be spot checked at least every three years. Staff for practices implemented under Pennsylvania's Growing Greener Program, the Section 319 program, and Nutrient Management Act program are certified immediately following implementation by NRCS Technical Specialists, Qualified State and Federal Fish and Wildlife Staff, Qualified Private Sector Engineers and Agricultural BMP Experts, DEP Watershed Managers, TSPs, Qualified Conservation District Staff and Other Qualified Individuals. Each priority practice has a frequency amount. Frequency depends on which agency is doing review. Projects implemented using DEP provided funds are well verified at implementation time but are not consistently tracked by DEP staff after that time. There is no established and consistently followed statistical sampling of past installed state funded projects by DEP staff. A majority of these state funded projects are inspected in later years by local grant administrators but this information is not collected or verified at the state level. FSA has spot checking procedures of up to 10% on riparian buffers until all practices are implemented. NRCS (10%) and DEP check Riparian forest buffers (25%). If NRCS/FSA data is used with no further validation, their Agency selection process needs to be reviewed to determine if it is the practices that are in the state's WIP.
- Conservation Tillage is being assessed in Capital RC&D counties (15) using the CTIC Roadside Transect Survey methodology (see Appendix C in Pennsylvania's draft program plan) with 10% independent verification. Currently only counties with greater than 50,000 acres of agriculture are surveyed. The Panel saw no documentation on how the results from the transect surveys translates to BMP Watershed Model progress input data.

Cons:

- No timeframes for filling in the admitted gaps in their verification protocols, for not only the high priority BMPs but also for the medium and low priority BMPs.

- Pennsylvania seems to be making an effort to review the MMP and NMPs, but the documentation was unclear as to the extent to which there were onsite inspections. The reference in Table 8 on page 33 to “NMPs for CAOs and CAFOs are inspected yearly, on site.” What does an onsite review of NMPs really mean?
- Pennsylvania makes the statement: “Information on BMP implementation obtained from USDA is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN.” This statement caused the Panel significant concerns, as USDA’s spot checks were established for programmatic purposes beyond verification. Pennsylvania needs to determine if, and document, why (or why not) USDA’s protocols achieve Pennsylvania’s verification objectives.
- Pennsylvania notes a number of verification protocol gaps: animal waste management, manure transport, animal waste management systems, and manure management plans. These gaps are a flaw that need to be addressed.
- Specific details of how each component of a nutrient management plan will be reviewed and verified is not provided.

Suggestions:

- Given Pennsylvania is depending on NRCS for verification at the 5 percent subsampling rate, need to provide documentation that this subsampling rate is supportive of Pennsylvania programmatic use of the verification outcomes.
- Need the Statistical Sampling Design Review Team’s review of the CTIC statistical sampling design protocol, need sub-sampling of actual field residues to validate the protocol, and need Pennsylvania to confirm this protocol’s application to cover crops.
- Provide documentation on how Pennsylvania plans to take the result of its statistical-based subsampling verification protocols and convert the resultant findings into numbers of BMPs spread over what geographical areas for reporting on its progress every year.

Questions:

- When does PA intend to fill the identified verification gaps?
- In the case of conservation tillage, how often is the road survey done?

Forestry (Yellow)

Pros:

- None.

Concerns:

- May meet the Forestry Workgroup's guidance, but the level of documentation is incomplete. More information must be provided in order to explain if there are alternative approaches being followed.
- Only addresses high priority practices with no schedule for when the verification protocols for the other forestry practices will be provided.
- Forestry practices are prioritized, but it is unclear if verification intensity is driven by this prioritization. For buffers, forest and grass buffers receive the same level of inspection, and only forest buffers are high priority.
- There is a need to clarify the frequency of site visits on cost-shared agricultural forest buffers.

Cons:

- Strictly relies on NRCS 5 percent subsampling/FSA 10 percent subsampling for forest buffers.
- Does not address urban forestry practices.
- Does not address forestry harvesting practices.

Suggestions:

- Pennsylvania is a leader in past buffer acreage gains, so a strong program to confirm reenrollment is essential and should be documented.
- In addition to the DEP Forestry Program, there are numerous NGOs that assist with forest buffers that could help PA improve on its program and meet the Forestry Workgroup's verification guidance.
- Pennsylvania should document its urban forestry program oversight. It is one of the high priority set of urban infiltration BMPs.

Questions:

- None.

Stream Restoration (Red)

Pros:

- None.

Concerns:

- None.

Cons:

- No documentation of stream restoration verification protocols.

Suggestion:

- If Pennsylvania plans to submit and seek credit for stream restoration, Pennsylvania needs to develop and receive approval of stream restoration verification protocols.

Questions:

- None

Urban Stormwater (Red)

Pros:

- The Panel recognizes the level of documentation provided by Pennsylvania within its initial submission and its upfront acknowledgement of significant gaps in verification protocols and programs.
- Clear procedures included for erosion and sediment control during active construction.
- Detailed procedures for compilation and submission through NEIEN.

Concerns:

- Pennsylvania's commitment to hiring three staff to conduct follow-up verification seems to be a significantly underwhelming response to a significant resource need.
- The lack of follow-up inspection program, which is under development, is a gap that is acknowledged by Pennsylvania, but also concerned the Panel. Stormwater guidance elements include good points for orienting this program (relative reduction capacity of BMPs, fast growing areas) and the Panel recommends that PA incorporate it into their follow-up inspection protocol.

Cons:

- Inspections and larger verification procedures to be further fleshed out—current process is largely complaint driven.
- Did not commit to verification of legacy BMPs resulting in phasing out of these practices.
- No verification protocols and no established life spans for the post construction practices.
- BMPs implemented or retrofitted as part of an MS4 program, or the Section 319 and Growing Greener grant programs were not addressed.

Suggestions:

- Need to provide more details in place of language like “a variety of data collection methods” (pages 42-43) in discussing how Pennsylvania plans to address their acknowledged verification gaps.
- Pennsylvania should consider extending the findings from the York and Lancaster counties’ pilot studies on addressing MS4s collectively to addressing the stormwater inspection and larger verification procedures needs across multiple townships.

Questions:

- What is the status of putting Phase II WIPs into place? It is relevant for the MS4-related protocol. What is the timeline?

Wastewater (Yellow)

Pros:

- Wastewater treatment plant information is consistent and based upon its adherence to NPDES permit requirements—however, more details are needed.

Concerns:

- The Panel asks the Pennsylvania to provide relative details about the status of efforts to put in place permits consistent with the Chesapeake Bay TMDL.
- Need to discuss the non-significant facilities and any planned verification efforts.

Cons:

- Missing descriptions of the verification procedures for septic systems and CSOs.
- Relies on NPDES reporting and compliance monitoring for verification. No information is provided on frequency of inspections.

Suggestions:

- The Panels asks that Pennsylvania answer the series of questions contained within the wastewater sector section of the Panel’s evaluation form.
- The Panel asks Pennsylvania to confirm that they will not seek future pollutant load reduction credits from the septic system sector.

Questions:

- Have all significant wastewater treatment facilities received up-to-date permits with nutrient limits and nutrient reporting requirements for DMRs?

Wetlands [Red]

Pros:

- None.

Concerns:

- None.

Cons:

- Beyond constructed wetlands, there are no wetland verification procedures documented.

Suggestions:

- The Panel asks Pennsylvania to document its schedule for development of wetlands restoration verification protocols.

Questions:

- None.
-

New York

Overview

- New York submitted excellent documentation of the BMP tracking and reporting systems in place for all its source sectors, but provided minimal to absolutely no documentation on their verification protocols and programs.
- The New York Point source QAPP did not use any of the CBP forms provided. It covers wastewater treatment plants, concentrated animal feeding operations (CAFO), municipal separate storm sewer systems (MS4), and land disturbance activities. It mainly reports who is responsible for data collection and to some extent what data is collected, but nothing on the protocols are verification and re-verification protocols.
- New York State reports Agricultural Best Management Practice (BMP) implementation to the Chesapeake Bay Program (CBP) through the Upper Susquehanna Coalition (USC), but they did not provide any documentation on their agriculture verification protocols.
- The USC relies on the New York State funded Agricultural Environmental Management (AEM) 5 Tier program (<http://www.nys-soilandwater.org>) as its framework for data collection, reporting, and verification. AEM is the state-wide “umbrella program” that provides a consistent format to efficiently identify and address environmental concerns through a comprehensive on-farm assessment. AEM utilizes a five-tiered process that includes inventory, assessment, plan development, implementation and evaluation

(<http://www.nys-soilandwater.org/aem/index.html>). The inventory and documentation of existing BMPs occurs during any one of the five tiers, depending on where each particular farm is in the process.

Agriculture (Red)

Pros:

- Provided detailed documentation on their BMP data tracking and reporting system.
- Provided one of a best sets of documentation on training of field staff.

Concerns:

- New York appears to be collecting some of the recently approved resource improvement practices, but there is no mention of the approved verification procedures and visual indicators.

Cons:

- Provided no documentation on verification of agricultural conservation programs.

Suggestions:

- Many Panel members are well aware of the procedures followed by USC members in carrying out their agricultural inspections and the New York's AEM program so please provide documentation of these programs.
- New York should review the verification guidance, review other jurisdictional examples and resubmit their protocol.

Questions:

- None.

Forestry (Red)

Pros:

- None.

Concerns:

- Forest harvesting practices will provide for a significant percentage of the pollutant load reductions committed to in New York's Watershed Implementation Plan.
- New York mentions forest buffers as an agricultural BMP (page 11) and forest conservation (page 15 as part of urban). They do not track forest harvest. There are no other details provided, such as on verification or inspections.

Cons:

- No verification protocols for forest harvesting practices.
- New York does not have a forest harvesting regulatory program for private lands but presumably implements BMPs on public forest.

Suggestions:

- The WIP relies on forestry practices for 17.4% of sediment reduction. It is urgent that New York develop a verification protocol for such a significant set of practices. There are options in the forestry guidance that provide flexibility to the states.

Questions:

- Does New York's stormwater general permit cover forest harvesting?

Stream Restoration (Red)

Pros:

- None.

Concerns:

- Stream restoration will provide for a significant percentage of the pollutant load reductions committed to in New York's Watershed Implementation Plan.

Cons:

- No verification protocols were submitted for stream restoration practices.

Suggestion:

- Provide a Verification Framework Table 8 formatted set of information on New York's existing and planned stream verification program and answers the series of questions in the stream restoration sector's section of the Panel's evaluation form.

Questions:

- None.

Urban Stormwater (Red)

Pros:

- None.

Concerns:

- Stormwater program description is based on New York's erosion and sediment control construction general permit program. The Panel assumes the regulations outline inspection requirements, but they are not described.

Cons:

- There is a requirement for the local permittee to hire an inspector for conducting the inspection of post construction practices—this approach seems flawed from the beginning, given the conflict of interest.
- Initial inspection program needs to build on verification of the inspection process.
- Lacking sufficient documentation.

Suggestions:

- The state should review the Verification Framework and Table 8 and develop a document consistent with that guidance.

Questions:

- Does New York have Phase II MS4 permittees in the Bay watershed? If so, it needs to upgrade its stormwater protocol and respond to the Panel evaluation form questions and elements within the urban stormwater sector guidance.

Wastewater (Yellow)

Pros:

- The Panel recognizes and applauds New York's plans for requiring monitoring at their top 37 non-significant facilities.
- New York Department of Environmental Conservation (DEC) submits data for significant treatment plants to the Chesapeake Bay Program Office according to the schedule outlined in EPA's Grant Guidance. For each outfall, DEC provides average monthly flow and concentration data.

Concerns:

- New York did not provide sufficient documentation in order for the Panel answer the wastewater treatment facilities sector's questions within the Panel's evaluation form (see Appendix A).

Cons:

- No verification procedures for septic systems/on-site treatment systems were included in the verification program plan. This is alright if the WIP does not include septic nitrogen reductions, but that should be clearly documented.

- No verification procedures for CSOs.

Suggestions:

- The Panel asks that New York provide answers to the series of wastewater sector questions within the Panel's evaluation form (see Appendix A).

Questions:

- Does New York have CSOs within the Bay portion of the watershed?

Wetlands (Red)

Pros:

- None.

Concerns:

- None.

Cons:

- No wetlands verification protocols were provided in the verification program plan.

Suggestions:

- None.

Questions:

- None.

District of Columbia

Overview

- The District of Columbia submitted excellent documentation of the BMP tracking and reporting systems in place for all its source sectors, but provided minimal to absolutely no documentation on their verification protocols and programs.

Agriculture (NA)

Forestry (Red)

Pros:

- The District of Columbia Department of Environment's (DDOE) Urban Forestry Administration is the lead along with District of Columbia Department of Transportation

(DDOT), the National Park Service, and private groups funded/non-funded by DDOE for tracking, reporting and maintenance of expanded tree canopy. This needs to be clearly documented.

Concerns:

- The only difference between the District of Columbia's program and the Forestry Workgroup's verification guidance was the lack of a second inspection within the first 4 years of tree planting, but inspections may be conducted more often for trees, per other guidance not noted in the verification program plan. The District of Columbia needs to clarify this.

Cons:

- The submitted documentation only addressed the flow of urban forestry related BMP data from other agencies and organizations, but nothing about verification.
- There is no information on inspection and maintenance of planted trees, which is an issue in District of Columbia because they typically have a high rate of damage.
- The District of Columbia relies on urban forestry for an appreciable nitrogen reduction in its WIP, therefore it is a priority BMP and District of Columbia needs to address *how* the practices will be inspected and maintained

Suggestions:

- Clarify whether tree plantings are all new plantings vs. replacements.
- The District of Columbia needs to follow the Forestry Workgroup's verification guidance and provide documentation following the formatting suggestions in Table 8 of the Basinwide BMP Verification Framework and the evaluation form (see Appendix A).

Questions:

- None.

Stream Restoration (Red)

Pros:

- New database streamlines participation in the Stormwater Retention Credit (SRC) and RiverSmart Rewards programs, which incentivize installation of run-off reducing Green Infrastructure.

Concerns:

- None.

Cons:

- The submitted documentation only addressed the flow of stream restoration related BMP data, but nothing about verification.
- No mention of a checklist for inspections, or any other tool.
- Frequency of inspections were not specified.

Suggestion:

- Please respond to the stream restoration sector questions in the Panel's evaluation form (see Appendix A).

Questions:

- None

Urban Stormwater (Red)

Pros:

- Data that are collected are divided into HUC 11 watersheds tracked in acres for erosion and sediment controls as well as for other stormwater management practices.
- The District of Columbia also tracks which of these practices are located in the combined sewer system versus those that are in the separated sewer system.

Concerns:

- Most of the Panel members were well aware of the strengths of the District of Columbia's stormwater management programs, but the submitted draft verification QA plan provided no supporting documentation beyond their urban BMP data base.
- Federal agencies, facilities and landowners' verification procedures/protocols were essentially absent—this is an issue that needs to be addressed.
- No information is given on legacy BMPs, but District of Columbia is under EPA's MS4 permit and its annual reports are public information.

Cons:

- The submitted documentation only addressed the flow of urban stormwater related BMP data from other agencies and organizations, but nothing about verification.

Suggestions:

- None.

Questions:

- None.

Wastewater (Red)

Pros:

- D.C. Water is tasked with overseeing and implementing upgrades to its Blue Plains wastewater treatment plant and to its combine sewer system. These upgrades are closely tracked by D.C. Water and are regulated by the EPA as a part of its discharge permit and it's Long Term Control Plan.

Concerns:

- One third of the District of Columbia is in a CSS area, governed by an EPA CSO permit. District of Columbia's melon chart shows zero reductions from CSO; does this mean that no future nutrient/sediment reductions are needed or will occur, or does it mean that D.C. is counting on the permit/long term control plan to be carried out? If the latter, then more information is needed regarding compliance reporting, monitoring and inspections.

Cons:

- Many of the Panel members are well aware of the strengths of the District of Columbia's verification and oversight of wastewater treatment, but the initial draft documentation failed to provide any documentation of verification procedures followed.

Suggestions:

- None.

Questions:

- None.

Wetlands [Red]

Pros:

- None.

Concerns:

- None.

Cons:

- The submitted documentation only addressed the flow of wetland related BMP data from other agencies and organizations, but nothing about verification.

Suggestions:

- None.

Questions:

- None.

Summary of the Joint BMP Verification Review Panel and BMP Verification Committee Members July 31, 2015 Conference Call

BMP Verification Committee Members Connecting into BMP Verification Review Panel meeting:

- Andy Zemba, PA DEP
- James Davis-Martin, VA DEQ
- George Onyullo, DDOE
- John Rhoderick, MDA
- Wendy Walsh, NY USC
- Bevin Buchheister, CBC
- Beth McGee, CBF
- Bill Angstadt, DMAA
- Susan Marquart, NRCS
- Marcia Fox, DE DNREC

Overview of Panel Review Process – Dana York, Chair

- About 400-450 hours of time were invested by the BMP Verification Review Panel members
- A subset of 9 of the 13 panel members were involved in the review due to prior travel and time commitments
- All the panel feedback will be provided minus attribution to the individual panel members

Questions and Comments from Committee Members

John Rhoderick: Will the results of the pilot studies mentioned by the Panel be used by the jurisdictions prior to 2018?

Roy Hoagland: Snapshot should be provided for the public on what has changed between before the Partnership under took this process and when the Panel completed its work.

James Davis-Martin: Disagreed with Roy's point—even if we got to the point of providing more documentation on the jurisdiction's verification program, that is clear progress

Andy Zemba: The dialogue has already changed in Pennsylvania in terms of BMP verification as well as has the resource allocation, whereby funds have provided to improve BMP tracking, verification and reporting.

James Davis-Martin: Part of the challenge of what has change, is we did not have solid documentation on what have already been happening in terms of BMP verification.

Bevin Bucheister: Would be great to better understand what is new in terms of verification so others can understand and recognize what's new.

Bevin Bucheister: How can we reconcile the difference between the jurisdictions selection of the sub-sampling percentages and methodologies?

Panel Sector Leads

The BMP Verification Review Panel has chosen to divide itself up into sector teams and sector leads for the remainder of the verification program review process. The Panel felt that allowing sector experts to focus their efforts on just those sectors would provide improved dialogue between the jurisdictions and the Panel moving forward. The sector discussion leads identified below will be the primary points of contact for jurisdictions if they have any questions or would like clarification as they work through the Panel's feedback and recommendations.

Agriculture: Lead: Curt Dell; Back-ups: Mike Gerel and Dana York

Forestry: Lead: Rebecca Hanmer

Stream restoration: Lead: Rebecca Stack; Backup: Dianna Hogan

Stormwater: Lead: Rob Traver (Mike Gerel will be lead for Pennsylvania)

Wastewater: Lead: Rebecca Hanmer; Back-up: Mike Gerel

Wetland: Lead: Dianna Hogan; Back-up: Tom Simpson

Overall Verification questions and concerns: Dana York

Plans for the August 27-28 Panel Meetings with Each of the Jurisdictions

The Panel requested that Chesapeake Bay Program Office staff ask each jurisdiction to send a team of program managers and lead technical staff leads to sit down with the Panel during the August 27-28 meeting representing the agencies involved in developing BMP verification within each jurisdiction.

The Panel is asking for very candid discussions for all the jurisdictional partners. The Panel will meet 'one-on-one' with each individual jurisdiction during a two-hour time slot to help ensure candid discussions. All discussions with the Panel will be held in confidence and will not be attributed to any individual jurisdictional representative or Panel member during the Panel's August meeting.

Changes Since Publication of the September 2015 Framework Considered by Panel

Forestry Workgroup's revision to their verification guidance in two areas: taking full advantage of the every five year acquisition of high resolution land cover data, and clear articulation of inspection schedule for CRP/CREP programs.

One inspection at installation, one inspection at year two, and one inspection just prior to the end of the contract to determine if the land owner plans to re-enroll in CRP/CREP for the land with a riparian forest buffer. Total of three inspections over the life of the 15 year CRP/CREP contract.

Phase 5.3.2 Nutrient Management Expert Panel's draft June 2015 report to the Partnership contains a *Section 6 Phase 5.3.2 Nutrient Application Management Tracking, Verification, and Reporting* which provides more guidance to the states on expectations for NMP tracking, verification and reporting.

APPENDIX A.

Listing of Sector Specific Questions from the Evaluation Form Used by the Panel for Review of the Submitted Jurisdiction Draft Verification Program Plans

Agriculture

Will agriculture BMPs be identified and verified according to the recommended verification categories (Visual Assessment-Single Year, Visual Assessment-Multi-Year, and Non-Visual Assessment)?

Will agriculture BMPs be identified and verified according to oversight categories (non-cost shared, cost-shared, regulatory, and permitted)?

Does the program define the frequency of verification assessments for initial and subsequent years of implementation and reporting? (For priority BMPs, onsite visits are recommended for 10% of BMPs per year)

If an alternative strategy to sub-sampling is utilized than the strategy outlined in the sector guidance, is it properly identified and appropriately justified?

Does the program identify a process where BMP assessment methods would change with a change in BMP oversight (i.e. cost-shared contractual BMP to non-contractual BMP)?

Does the program identify the difference in sub-sampling for subsequent years for BMPs under a CAFO permit oversight? (I.e. 20% compared to 10/5%)

Are the assessment methods utilized to verify BMPs based on type and category of oversight clearly explained and consistent with the sector guidance?

Does the program identify the level of verification effort in relation to TMDL sector nutrient and sediment reduction goals?

For on-site non-visual assessments of plans for Nutrient Management, does the program identify the assessment methods utilized to verify each component of the plans, the degree of compliance with the CBP-defined practice standards, and the ability to track and report data on compliance levels of each component or standard?

Is the intensity of verification efforts prioritized in proportion to a practices contribution to the overall TMDL pollution reduction in the jurisdiction's WIP?

Does the program make an effort to increase the transparency of its BMP verification programs? If so, what steps have been proposed?

Forestry

Is the intensity of verification efforts prioritized in proportion to a practices contribution to the overall TMDL pollution reduction in the jurisdiction's WIP?

Do verification methods for cost-shared agricultural riparian buffers utilize and build upon the existing verification programs for cost-shared contracts?

Are the frequency of site-checks consistent with the following recommendation from the sector guidance: Two visits within the first 4 years, spot-checked between years 5-10, and spot checked between years 10-15 to determine contract continuation? If not, are they sufficient to ensure scientific rigor? Are CREP partners involved in the reenrollment process?

Do proposed site inspection methods focus on common maintenance issues specifically related to water quality standards such as channelization or concentrated flows?

Do statistical sampling methods document how they demonstrate a clear improvement over the current sampling rate? (The recommended rate is 80% confidence in reported practices)

Are the baseline acres for each practice tracked in order to ensure there is a net gain in acres across a county or watershed segment over time?

Are tree canopy and riparian buffer acres re-assessed every 5 years to ensure net gain in tree canopy acres and riparian buffer acres over time?

Does the program rely upon qualified local forestry partners for tracking, reporting, and maintenance for expanded tree canopy practices?

Do existing and planned forest harvesting inspection programs track total acres or rate of implementation of forest harvesting BMPs? Do they require site-visits to ensure proper installation?

Stormwater

Is the existing MS4 permit inspection and maintenance framework the foundation of the jurisdiction's program?

Is field performance verification scheduled for every other MS4 permit cycle? How often?

Does the program link the timing of visual inspections to the length of credit durations for urban stormwater practices?

Will MS4 communities be assessing their entire BMP populations within two permit cycles? If so, will they address pre-2000 BMPs prior to pre-1990 BMPs?

What is the defined amount of time a locality/federal facility has to take corrective maintenance or rehabilitation to bring a sub-standard BMP back into compliance?

Does the program address proper installation, whether or not the practice meets the design standards, and whether it functions in the hydrologic manner in which it was designed prior to submitting the BMP for credit?

Is the program consistent with the Bay Program-approved reporting standards? Do they allow appropriate flexibility for practices that don't lend themselves to the NEIEN geographic reporting requirements?

Are verification efforts prioritized according to a practice's contribution to the overall TMDL pollutant reduction in a state's urban source sector?

Will the jurisdiction provide spot checks on a subset of local and federal facility BMP project files to validate the reported BMP data?

Does the program address semi-regulated communities by following one of the three options provided in the sector guidance?

Are the fastest-growing semi-regulated communities prioritized?

Stream Restoration

Is a professionally appropriate checklist or other tool used to assess the design of the project and whether the project was installed according to the design?

Does the verification program seek to identify the key features that relate to stream function?

Is a professionally appropriate checklist or other tool used to assess post-construction performance?

Is the frequency of field verification defined?

Are inspections required two years after the initial construction and once every five years after that?

Does the program require a post-construction certificate to ensure that the project was installed properly, meets its functional restoration objectives, and is hydraulically and vegetatively stable?

What is the defined amount of time a locality/federal facility has to take corrective maintenance or rehabilitation to bring a sub-standard BMP back into compliance?

Are separate procedures necessary, and if so, identified for verifying restoration projects built for the purpose of nutrient trading within a state or to offset new loads elsewhere in the watershed?

Is the program consistent with the Bay Program-approved reporting standards as far as reporting units, geographic location, and removal rates?

Wastewater

Does program require significant wastewater treatment facilities to monitor and report monthly flows and loads via DMRs?

Does program require significant facilities to submit annual loading reports where trading or general permit conditions apply to a facility and when annual WIP reporting applies?

For non-significant wastewater treatment facilities, will NPDES DMR be used to report load reductions from BMPs (i.e. upgrades and offsets of new or expanding facilities)?

Will non-significant facilities be tracked against aggregate waste-load allocations with loads reported annually via the mechanisms documented in the jurisdiction's WIPs?

Will Combined Sewer Overflows (CSOs) undergo construction verification to ensure proper design, installation and maintenance?

Are plans in place to ensure that CSOs receive sufficient post-construction monitoring and inspection, and that they are being properly tracked and reported?

Are Onsite treatment system verification procedures based on existing state regulations or do they follow the set of minimum elements for verification based on existing state programs in Delaware (DE), Maryland (MD) and Virginia (VA)?

Are proper checks in place to ensure the design and installation on-site BMP systems will be done and reported by certified service providers and verified in the permitting processes?

Is the frequency of maintenance and inspection of onsite systems annual, or otherwise consistent with the recommendations from Table B-17 of the Onsite Wastewater Treatment Expert Panel report?

Wetlands

Were a combination of site assessments and groundwater flow equations used to determine the changes in surface ponding?

Were remote sensing technologies used to determine the area of effect?

For rehabilitation projects, were hydraulic models of stream flow used in combination with topographic data to determine the area of effect? Was validation completed through site visits during storm flow?

Were appropriate field indicators used to check for periodic soil saturation or inundation? Does the program use the suggested checklist for field verification?

Are post-construction site visits mentioned and do they check for the following: predominance of native wetland vegetation; was the project completed as designed; that the hydrology is as planned; and that structures are operating properly?

Will the installing agency provide a post-construction certification?

Does the verification program use the monitoring requirements for financial assistance programs? Which ones?

Will a project file be maintained by the installing agency for each restoration project installed?

Is onsite monitoring required within three years following construction? Is aerial imagery used for remote observation of long-term monitoring of wetland BMPs?