



Chesapeake Bay Program
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Analysis Steps to Inform Verification Calls

Annual Progress towards Modeled Load Reduction Indicator

September 4, 2025

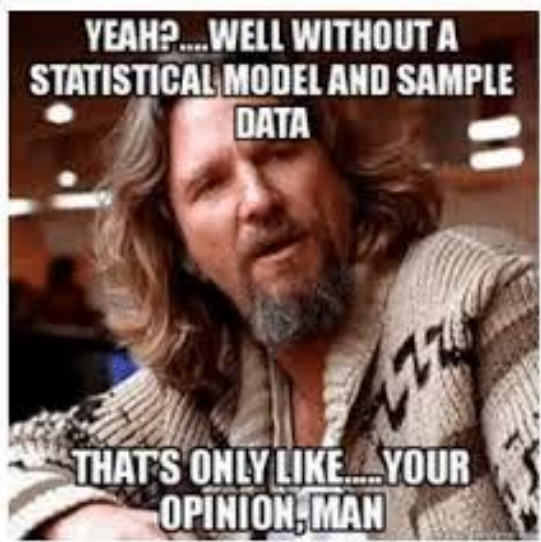
Auston Smith
EPA, Chesapeake Bay Program
Office



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Summary of Verification Review

- The annual verification review of Best Management Practice (BMP) data submitted by the seven Bay watershed jurisdictions for model progress is an assessment of the quality of reported information and follows CBP partnership protocols and procedures described in the 2014 [*Strengthening Verification of Best Management Practices Implemented in the Chesapeake Bay Watershed: A Basinwide Framework*](#), and [*Appendix V: Protocols for Verification of Annual BMP Data Submissions*](#).



- In association with the data, reviews of jurisdictions' BMP Verification Program Plans (aka BMP Quality Assurance Program Plans (QAPPs)) are performed to ensure the QAPPs include descriptions of how the quality of the BMP and wastewater data are assured. The QAPPs should follow protocols outlined in the above verification framework document and developed by the CBP partnership, including the Water Quality Goal Implementation Team, its source workgroups, and the BMP Verification Committee and its advisory panel.
- These meetings are the final effort each year to make a better model! Initial meetings will be held week of Dec 8-12! Please ensure members of your team are available the week of December 8th, 2025.**



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Verification Process and Schedule 2025

-July

-August

-September

-October

-November

-December

**NEIEN APPENDIX
ADJUSTMENTS**

LAND USE SUBMISSIONS

These 3 items are the major focus during the verification meetings; however, they depend on the understanding and completion of the above two steps.

QAPP UPDATES

WASTEWATER SUBMISSIONS

BMP SUBMISSIONS

**VERIFICATION
MEETINGS!**



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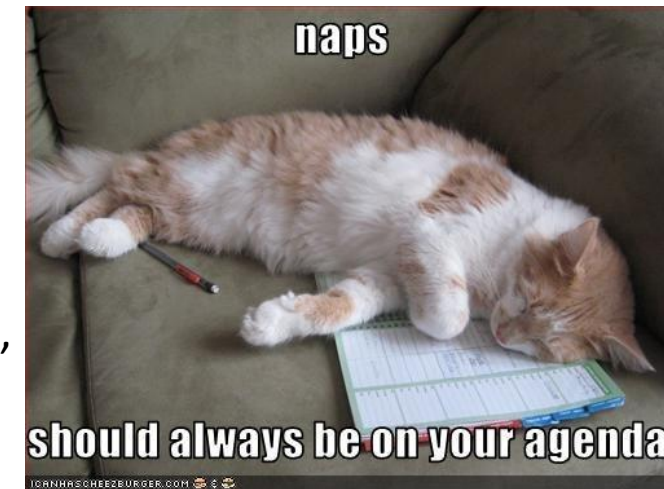
Verification Meeting Schedule and Agenda



The initial verification meetings will be held in early December! Please ensure members of your team are available the week of December 8th, 2025.



- **Verification meeting agenda of overview items and specific BMPS will be sent out and attached to the meeting invite ~one week ahead of time.**
 - Questions on the agenda prior to the verification meeting conversation are encouraged, however, the sooner the better to allow for a reply prior to the call!
 - This meeting is an assessment of the reported BMP and wastewater data alongside the outline within the corresponding QAPP.
 - This advance agenda notice provides time for preparation but **also can produce a lag time if data submissions are still ongoing.**





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Agenda Inclusion Criteria

- The analysis, as outlined in the by EPA and CBPO staff to assess the quality of submitted BMP data includes assessments for the following information:
 1. over- and under-reported implementation rates
 2. newly reported BMPs
 3. reported dates for implementation and inspection
- **Generally, EPA is looking for trends in reported implementation, BMP project information, and modeled nutrient and sediment loads that seem illogical, and where there is no explanation for the anomalies.**
 1. Additionally, the analysis quantifies load increases and decreases for each major source sector from the previous year's model-estimated loads – as percent changes.
 1. For changes that are significant and not explained in a jurisdiction's QAPP, EPA asks for an explanation about what a jurisdiction attributes the load changes to. In the past, “significant” has been defined as being greater than 2% but this can change from year to year depending on the measure of load changes.

Appendix V Protocols for Verification of Annual BMP Data Submissions

- I. **Background – The Need for BMP Verification & Assessment**
As established by the Chesapeake Bay Program (CBP) partnership, the annual verification review of Best Management Practice (BMP) data submitted by the seven Bay watershed jurisdictions for the model progress assessment is an assessment of the quality of reported information. This assessment of the quality of the BMP data follows the CBP partnership protocols and procedures as described in the 2014 document entitled, [Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basin-wide Framework](#) (verification framework document). The data being reviewed by EPA, with assistance from staff at the Chesapeake Bay Program Office (CBPO), include BMPs submitted by jurisdictions through NEIEN (National Environmental Information Exchange Network) and wastewater facility data submitted through the CBPO wastewater application.

In association with the data, reviews of jurisdictions' BMP Verification Program Plans (aka Quality Assurance Program Plans (QAPPs) or BMP Quality Assurance Program Plans) are performed to ensure the QAPPs include descriptions of how the quality of the BMP and wastewater data are assured. The QAPPs should follow protocols outlined in the verification framework document and developed by the CBP partnership, including the Water Quality Goal Implementation Team, its source workgroups, and the BMP Verification Committee and its advisory panel. A wealth of the CBP partnership's verification information can be found at:

https://www.chesapeakebay.net/what/programs/bmp_introduction_to_bmp_verification

According to the verification framework document:

Chesapeake Bay Program Office staff will review the jurisdictions' annual NEIEN-based submissions of implementation progress data for the documentation of verification as part of their routine evaluations of the quality and completeness of the submitted data. The annual progress data reviews will be conducted following the specific guidelines and protocols agreed to by the Bay Program partners through the Watershed Technical Workgroup. Any implementation progress practice data submitted without the required verification documentation will be returned to the jurisdiction for incorporation of required documentation and resubmission.



**[Appendix V of the 2014
Verification Framework](#)**



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Agenda Inclusion Criteria (Continued)

1. The determination of a $\leq 2\%$ load change in a major source is usually based on the prior progress year, unless anomalies are flagged ahead of time to allow for a different point of comparison.
 1. If a major source shows this level of change past this threshold that is not easily explained by the above criteria, then the EPA does further analysis to include potential practices of interest to the agenda.

For example, the Ag sector has a load increase of 5%. What were the possible reasons; was a reduced amount of a certain BMP implemented/verified this year compared to years past? Was this expected?
2. BMPs with increased/decreased rate of implementation:
 1. EPA flags BMPs where the latest annual rate of implementation is more than double the rate since the 2009 starting point of the Bay TMDL.
3. Practices that are newly reported or practices that are now not being reported:
 1. EPA reviews data for BMPs that are reported for the first time in the 40+ year historic BMP record and ensures that there is QAPP information that corresponds to this new practice.
4. Reported dates for implementation and inspection
 1. Instances of reporting in NEIEN showing a significant number of implementation dates that are the same, this would be highlighted to jurisdictions if descriptions cannot be found in the QAPP.



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Agenda Inclusion Caveats

1. Load Changes:
 1. $\pm 2\%$ variance can happen across a lot of sectors each year, especially when there is a model change, such as in 2024 when we updated to CAST-23. When sector shows these changes, often first analysis is BMP implementation.
2. BMPs with increased/decreased rate of implementation:
 1. Has this BMP exhibited mercurial implementation in the past? Due to weather/program funding/staffing?
 2. Is 2x the rate of 2009-2010 implementation only 1 acre? Should this very small difference meeting the technical criteria be included on the agenda?
 3. Was it a very dry/wet year popularizing/preventing that practice this progress year?
3. Practices that are newly reported or are now not being reported:
 1. Has it been flagged already in a past verification discussion that this BMP is not reported yearly and so needs to stay constant for this progress year? This would be one example of why a BMP met this criteria, but was not included on the agenda.
4. Reported dates for implementation and inspection
 1. One specific practice has had to be aggregated at the county-level and this process lost the implementation date, so they are mass reported on one day. This would ideally be represented in your QAPP that would indicate this reporting date status.



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Agenda Inclusion Caveats (Cont)



5. COMMON SENSE!

1. If a practice has been reported at 200 acres for several years, this can possibly be due to a data reporting schedule or possible weather events so it is held constant. If it jumps up to 390 acres in progress year 2024, and there is no update in the QAPP, should this BMP be on the agenda?
 1. Yes, to ensure this update should have happened, and if so to please update the QAPP accordingly should this be a change in data collection procedure or reporting.
2. If the Ag sector load went down by 3% between 2023 and 2024, should most Ag BMPs be included on the verification agenda, even if the rate did not more than double since the 2009 starting point of the Bay TMDL?
 1. No, likely the ones with greater levels of implementation that correspond to greater load changes would be looked at, as ~2% of a load change could correspond to those BMPs changing, but not at the level described above.

Example: (2025 Progress Street Sweeping of 1 acre - 2025 Progress Street Sweeping submission of 5 acres) / (2025 Progress Street Sweeping of 1 acres) = **-400% percent change, but only 4 acres!**



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Wastewater Facility Agenda Inclusion

1. CBPO is making an effort to more comprehensively review wastewater facility submissions.
2. There are not guidelines explicitly laid out in Appendix V so when the wastewater sector has a $\leq 2\%$ load change since the previous progress year, significant and then nonsignificant facilities are noted for major differences.
 1. Major difference can be defined as a deviation from the historical load average since 2009 by $>100\%$.
 2. Was it flagged in the PS QAPP that a lot of default rates were shifted from in favor of monitored values?
 1. This might be a reason several facilities would not be included on the agenda.
 3. This can assist with Phase 6/7 trendline determination for facilities.





Thank you!

Any questions?

You can contact me at smith.auston@epa.gov



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