Appendix A. BMP Verification Principles

The Bay Program Partners developed and adopted a set of BMP verification principles to both guide the development of the verification guidance by the workgroups and other components of the basinwide verification framework and establish the basis on which to evaluate the development and implementation of enhanced jurisdictional BMP verification programs. The BMP Verification Committee developed the five verification principles, with review and input provided by the BMP Verification Review Panel, Water Quality Goal Implementation Team, and Management Board, and approval by the Principals' Staff Committee. The Bay Program Partners had these five original verification principles approved at the Principals' Staff Committee's December 5, 2012 meeting[1] and in place more than a year prior to final review and approval of the workgroup's BMP verification guidance along with the rest of the verification framework. The principles have provided the common bar with which the partners could judge the distinct components of the framework to ensure in the end, everything would be aligned to hit the same mark.

Chesapeake Bay Program Partnership's BMP Verification Principles[2]

The priority of the Chesapeake Bay Program (CBP) Partnership is the implementation of the Chesapeake Bay TMDL, the jurisdictions' Watershed Implementation Plans, and 2-year milestones. The Partnership has committed to the development of a basinwide best management practice (BMP) verification framework for use by the seven watershed jurisdictions to assure data quality for BMP reporting for annual Model Progress runs. The CBP Partnership will establish a BMP Verification Review Panel which will examine the degree to which a jurisdiction's program meets the parameters established by the Partnership's BMP verification framework. This review will include an examination of existing BMP measurements, accounting, and inspection systems and any proposed improvements to those systems submitted for CBP Partnership review. The Partnership recognizes that some jurisdictional programs may already achieve some of these principles and may not require significant modification or enhancements.

The CBP Partnership has defined verification as the process through which agency partners ensure practices, treatments, and technologies resulting in reductions of nitrogen, phosphorus, and/or sediment pollutant loads are implemented and operating correctly. The process for verifying tradable nutrient credits or offsets is a separate, distinct process not addressed either by these principles or through the partnership's BMP verification framework.

Working to verify that practices are properly designed, installed, and maintained over time is a critical and integral component of transparent, cost efficient, and pollutant reduction effective program implementation. Verification helps ensure the public of achievement of the expected nitrogen, phosphorus, and sediment pollutant load reductions over time. The CBP Partnership will build from existing practice tracking and reporting systems and work towards achieving or maintaining the following principles.

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[1] http://www.chesapeakebay.net/calendar/event/19044/
[2] Adopted by the Chesapeake Bay Program Partnership's Principals' Staff Committee at its December 5, 2012 meeting.

PRINCIPLE 1: PRACTICE REPORTING

Verification is required for practices, treatments, and technologies reported for nitrogen, phosphorus, and/or sediment pollutant load reduction credit through the Chesapeake Bay Program (CBP) partnership.

Verification protocols may reflect differing tools and timelines for measurement, as appropriate, for a specific BMP. For example:
- A permit (e.g., MS4) may establish periodic inspections for a regulatory BMP;
- A contract may govern examinations of a cost-shared structural (e.g., manure storage structure) or annual (e.g., cover crops) BMPs; or
- A statistical sampling may best define measurement for non-cost shared structural, annual and/or management BMPs.

Verification protocols will ensure that under normal operating conditions:
- Structural practices are properly designed, installed, and functionally maintained to ensure that they are achieving the expected nitrogen, phosphorus, and sediment pollutant load reductions reviewed and approved to by the CBP Partnership;
- Practices, including annual practices, meet the CBP Partnership's implementation and management definitions;
- Practices are consistent with or functionally equivalent to established practice definitions and/or standards;
- Practices are not double counted; and
- Practices are currently functional at the time of seeking credit and not removed from the landscape.

For verified practices not consistent with, nor fully or partially functionally equivalent to, established practice definitions and/or standards, partners and stakeholders can seek CBP Partnership approval for crediting through the established CBP Partnership's BMP review protocol.

Any practice, treatment, and technology (or partial or full equivalency) approved by the CBP Partnership that is properly tracked, verified, and reported will be incorporated into the CBP Partnership's models and credited in the accounting of progress toward the jurisdictions' milestones and in the interpretation of observed trends in monitoring data.

PRINCIPLE 2: SCIENTIFIC RIGOR

Verification of practices assure effective implementation through scientifically rigorous and defensible, professionally established and accepted sampling, inspection, and certification protocols regardless of funding source (cost share versus non-cost share), source sector (agriculture, urban, etc.), and jurisdiction (state, local). A method and schedule for confirmations to account for implementation progress over time will help ensure scientific rigor. Verification shall allow for varying methods of data collection that balance scientific rigor with cost-effectiveness and the significance of or priority placed upon the practice in achieving pollution reduction.

PRINCIPLE 3: PUBLIC CONFIDENCE
Verification protocols incorporate transparency in both the processes of verification and tracking and reporting of the underlying data. Levels of transparency will vary depending upon source sector, acknowledging existing legal limitations and the need to respect individual confidentiality to ensure access to non-cost shared practice data.

PRINCIPLE 4: ADAPTIVE MANAGEMENT
Advancements in Practice Reporting and Scientific Rigor, as described above, are integral to assuring desired long-term outcomes while reducing the uncertainty found in natural systems and human behaviors. Verification protocols will recognize existing funding and allow for reasonable levels of flexibility in the allocation or targeting of those funds. Funding shortfalls and process improvements will be identified and acted upon when feasible.

PRINCIPLE 5: SECTOR EQUITY
Each jurisdiction's program should strive to achieve equity in the measurement of functionality and effectiveness of the implemented BMPs among and across the source sectors.

Transparency
The public confidence principle was amended from its original form adopted in the fall of 2013 in response to separate requests originating from the Bay Program's Agriculture Workgroup and the Citizens Advisory Committee for a specific definition of transparency and descriptions of how it would be operationally applied (Table 3). The Transparency Subgroup of BMP Verification Committee members,[3] along with Rebecca Hanmer, Citizen Advisory Committee member, drafted up the addendum to the public confidence principle working closely with the Bay Program's Agriculture Workgroup, the BMP Verification Review Panel, and the BMP Verification Committee (Appendix N).

As described in the May 22, 2013 Recommendations of the CAC workgroup on verification and transparency memorandum[4]:

> "Transparency means operating in a way that is easy for others to see what actions are performed. Thus, when applied to government programs, transparency is a method where decision-making is carried out in a manner readily accessible to the public. Absent a legal constraint, all draft documents, work products, and final decisions or document, and the decision making process itself, are made public and remain publicly available. Transparency means an outside reviewer can determine what data were used as a basis for a deliberative decision or conclusion to generate a report. Included would be how the data were obtained, what measure are employed to ensure the data is accurate, who is responsible for data generation and collection as well as who is responsible for ensuring data accuracy, and the methods of analysis utilized."

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[3] http://www.chesapeakebay.net/groups/group/bmp_verification_transparency_subgroup
[4] Harrison, V., Hanmer, R., Der, A., and J. Blackburn. May 22, 2013. Recommendations of the CAC workgroup on verification and transparency. Available on-line at:
http://www.chesapeakebay.net/channel_files/20829/memo_to_cac_from_verification_and_transparency_workgroup_may_22_2013.pdf

Transparency is incorporated in the Clean Water Act and its regulatory and policy frameworks, which establishes public access and site-specific data transparency requirements for all sources of nutrients and sediments regulated as point sources. The following transparency definition and numbered descriptions of how this definition will be applied (Table 3) were recommended to the Bay Program Partners by the Committee to clarify how the concept of transparency operationally applied across all nonpoint sources of nutrient and sediment pollutants.

Table A-1. Transparency Addendum to the BMP Verification Public Confidence Principle

Transparency means operating in a way so any outside reviewer can determine what actions were taken, which data were synthesized to generate a report or conclusion, how data was collected and obtained, what measures were employed to ensure data accuracy, who is responsible for data collection and synthesis, who is responsible for ensuring data accuracy, and the methods of data analysis utilized.

1. The measure of transparency will be applied to three primary areas of verification: data collection, data validation, and data reporting.
2. Transparency of the process of data collection must incorporate clearly defined quality assurance/quality control (QA/QC) procedures, which may be implemented by the data-collecting agency or by an independent external party.
3. Transparency of the data reported should be transparent at the finest possible scale that conforms with legal and programmatic constraints, and at a scale compatible with data input for the Chesapeake Bay Program Partnership's modeling tools.
4. It is recognized that transparency of data reported will vary across verification methods and data collection and reporting programs. This variance, however, should not negate the commitment and obligation to ensure transparency at the highest level possible in collection, synthesis and reporting.

[**Editor's note**: The transparency addendum text in Table A-1 is still draft and subject to change pending final review and approval by the Bay Program's Principals' Staff Committee]

The definition for transparency and its operational application were largely drawn from the work of the Bay Program's Citizens Advisory Committee and its Workgroup on Verification and Transparency as documented within their May 22, 2013 memorandum[5] (See Appendix T). The BMP Verification Review Panel carefully reviewed the proposed transparency addendum and provided their recommended text changes in their transmitted November 19, 2013 recommendations document (Appendix D). The BMP Verification Committee made its

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[5] Harrison, V., Hanmer, R., Der, A., and J. Blackburn. May 22, 2013. Recommendations of the CAC workgroup on verification and transparency. Available on-line at:
http://www.chesapeakebay.net/channel_files/20829/memo_to_cac_from_verification_and_transparency_workgroup_may_22_2013.pdf

decisions on the transparency addendum text that was then forwarded to the Bay Program for final review and decisions by the PSC as part of the larger basinwide BMP verification framework.

In its November 19, 2013 recommendation document[6], the BMP Verification Review Panel recommended the Bay Program adopt and use the following terms and definitions in all its individual partners' and collective programmatic descriptions and documentation of verification, particularly in place of the terms like "third party". The Panel recommended the following definitions to both compliment and further clarify the application of the transparency addendum to the BMP public confidence principle as well as clarify the use of these terms in the workgroup's BMP verification guidance and the resultant jurisdictions' BMP verification programs.

Each of these terms has significant implications when they are used in verification guidance and protocols, each carrying with it time and resource investment implications. The use of the terms "independent" and "external independent" and parts of the wording for the definitions below were drawn directly from publications on the topic of peer review authored by the National Research Council, the U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency, and are consistent with USDA Natural Resources Conservation Service verification procedures.

> Independent Review: a review carried out by someone within the same organization having technical expertise in the subject matter to a degree at least equivalent to that needed for the original work, but who was not involved as a participant, supervisor, technical reviewer, or advisor in the development or operations of the program/practice under review.
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> External Independent Review: a review carried out by a separate outside organization with technical expertise in the subject matter to a degree at least equivalent to that needed for the original work. Generally, this level of review is sought when considering key decisions that are being made that could affect the overall verification program.

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[6] Chesapeake Bay Program Partnership BMP Verification Review Panel's Guidance and Recommendations to the Six Source Sector Workgroups, the CBP BMP Verification Committee, and the Seven Watershed Jurisdictions. Distributed November 19, 2013.
http://www.chesapeakebay.net/channel_files/21511/cbp_bmp_verif_review_panel_recommendations_11_19_2013.pdf