

Appendix L. Building the Basinwide Framework

The Bay Program Partners developed its basinwide BMP verification framework building directly from a number of existing and ongoing programs and efforts which addressed specific components of the overall framework. Those programs and efforts are briefly described below.

Jurisdictions' Existing BMP Tracking, Verification and Reporting Programs

All seven watershed jurisdictions—Delaware, District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia—have existing programs in place for tracking, verifying, and reporting on implementation of BMPs and other treatments and technologies leading to reductions in nutrient and sediment pollutant loads. As a condition for receiving Chesapeake Bay Implementation Grant and Chesapeake Bay Regulatory and Accountability Grant funding from EPA, each of the seven jurisdictions have developed quality assurance project plans describing their collection, management, and reporting of environmental data.¹ The seven jurisdictions' existing quality assurance project plans are principally focused on documentation of their extensive BMP tracking and reporting programs and procedures for submitting the collected data to EPA through their state's national environmental information exchange network (NEIEN) node. The Bay Program Partners' work on BMP verification builds directly on these existing jurisdictions' BMP tracking, verification, and reporting programs. The jurisdictions' current Quality Assurance Project Plans provide detailed descriptions of verification procedures currently in place. Revised versions of these documents will serve as the basis for documenting further improvements in the jurisdictions' verification programs and protocols.

USDA Agricultural Conservation Practice Verification²

USDA cost-share programs provide incentives for a number of conservation practices. Individual agencies—Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA)—have procedures in place to evaluate landowner eligibility, validate practices, and monitor implementation. A multi-agency effort—the Conservation Effects Assessment Project, or CEAP—evaluates the environmental outcomes of USDA-supported conservation practices.

NRCS Conservation Practices. NRCS provides technical and financial assistance to landowners to implement specific conservation practices through programs like the Environmental Quality Incentives Program (EQIP). After a practice is implemented, agency personnel check compliance with plans and specifications and certify the practice(s) as qualified for cost share. While third party technical service providers (TSPs) may perform this function, they typically do not. In the Chesapeake Bay watershed, some non-governmental (NGO) organizations such as the Chesapeake Bay Foundation have become TSPs for supporting implementation of specific practices such as riparian buffers under the Conservation Reserve Enhancement Program (CREP). Data used to support practice certification includes location identification, practice

¹ The seven Chesapeake Bay watershed jurisdictions' current (as of May 2014) quality assurance plans are available under the "Projects & Resources" tab at

http://www.chesapeakebay.net/groups/group/best_management_practices_bmp_verification_committee.

² Text summarized from the June 2011 USDA Office of Environmental Markets' *Verification of Environmental Credits: Chesapeake Bay Environmental Markets Team Discussion Paper*.

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design and specifications, and field notes from on-site inspections. Practice specifications are laid out at the county level in the various NRCS Field Office Technical Guides.

In addition to certifying cost-shared practices, NRCS policies require the agency to perform spot checks on offices that certify conservation practices, the practices themselves, and practices performed by technical service providers. Offices are to be checked once every third year. Each fiscal year, the agency performs spot checks on 5 percent of practices, up to a total of 20 practices per state. Spot checks are distributed among different types of practices and technical work of agency employees. They focus on practices that are more costly, represent a high proportion of total cost-share funds, or have higher risk of failure. There is a requirement to spot check all cost-shared practices on farms owned by NRCS employees, or in which agency employees have an interest. Further requirements are in place to ensure employees are not checking their own work. Spot checking of TSPs is more intense during the first three years in which the contractor is a certified TSP (NRCS 2009).

NRCS Conservation Program Contracts. NRCS also evaluates its conservation planning activities. Conservation program contracts may include a number of conservation practices. These contracts are reviewed on an annual basis, either by an NRCS conservationist or a TSP performing conservation planning work. Review elements include adequacy of the plan, whether or not practices are completed or on track to be completed, status of operation and maintenance, status of payments, and agreement on practices to be implemented in the following year. The agency also checks 5 percent of contracts annually to verify farmer self-certifications. These include being certified as a limited-resource farmer, a beginning farmer, or having control of the land for the life of the contract. The agency may also check up on additional landowners if it receives a complaint or suspects the certification to be incorrect (NRCS 2010).

Conservation Reserve Program. FSA administers the Conservation Reserve Program (CRP), which compensates roughly one million landowners or producers for long-term conservation. FSA has a partnership with NRCS to achieve program goals. Once FSA determines who is eligible for payment, NRCS works with those producers to develop conservation plans. Producers then sign contracts with FSA to implement their plan. In the past, USDA staff would certify all practices before making payments. However, spurred by USDA Office of the Inspector General's recommendations to reduce spending on site visits, FSA now allows producers to self-certify that they have implemented practices. Roughly 90 percent of practices are self-certified; the remainder being certified by USDA staff. Of the 90 percent that are self-certified, the agency spot checks 5 percent per year. Thus about 14 percent of practices are verified via site visits each year.

Due to the nature of the CRP practices, FSA or other USDA agency staff can use aerial photos to monitor land cover throughout the life of the contract. The agency's National Agricultural Imagery Program acquires these photos on a three-year cycle. During a recent reenrollment/extension cycle, FSA inspected all CRP practices up for renewal or extension, spending about \$19 million to verify 28 million acres of conservation practices. At that time, only a small percentage of practices were found to be below standard.

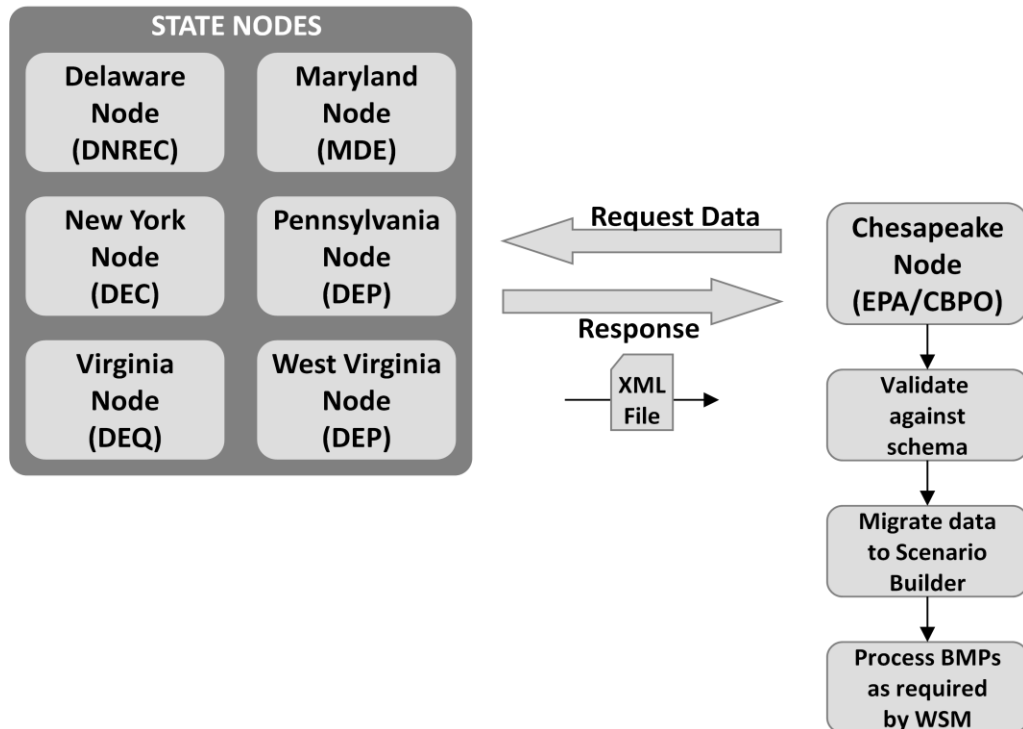
The Conservation Reserve Enhancement Program (CREP) is an offshoot of the Conservation Reserve Program (CRP). Administered by the FSA, CREP targets high-priority conservation issues identified by local, state, or tribal governments or non-governmental organizations. In exchange for removing environmentally sensitive land from production and introducing conservation practices, farmers, ranchers, and agricultural land owners are paid an annual rental rate. Participation is voluntary, and the contract period is typically 10–15 years.

The National Environmental Information Exchange Network

The National Environmental Information Exchange Network (NEIEN) is a state-federal data-sharing partnership by which environmental information can be shared, integrated, analyzed, and reported without having to take possession of the data. Within the Bay Program, NEIEN is an internet- and standards-based method for securely exchanging non-point source BMP information between jurisdictional partners and EPA through a system of “nodes” that communicate and handle requests. The Bay Program is building on the existing NEIEN system to incorporate data field and standards for exchanging information relevant to verification of individual practices, treatments, and technologies.

BMP data from the jurisdictions is submitted to NEIEN in the form of an XML file which allows multiple data elements to be associated with each record. Some of those elements include: implementation date, maintenance date, inspection date, reporting agency, funding source, geographic coordinates, etc. This detailed BMP information is then migrated into Scenario Builder and is processed according to Watershed Model needs, based on rules developed in consultation with the state and documented in the appropriate Quality Assurance Project Plan (QAPP).

Figure L-1. Illustration of National Environmental Information Exchange Network (NEIEN) Process



National Association of Conservation Districts

The [*Strategy for Protecting and Restoring the Chesapeake Bay Watershed*](#),³ developed by the [Federal Leadership Committee](#) under [Executive Order 13508](#),⁴ called for increased commitment from federal agencies in the Chesapeake Bay watershed to assist the six watershed states to reach their water quality goals. As described previously, one of the issues highlighted in the Executive Order and its Strategy was for USDA to assist states to get a full accounting of both cost- and non-cost-shared conservation practices. It was in this spirit that USDA contracted with the National Association of Conservation Districts (NACD) to determine if there was a common protocol possible to collect information on voluntary practices, and to assist states to develop state protocols to collect additional non-cost shared practices that have been implemented in the six Chesapeake Bay watershed states.

The NACD concluded that development of a common protocol for collection of non-cost shared conservation practices for use by all six watershed states would be extremely difficult at that time.⁵ All six watershed states now see the value in gathering as much information as possible on BMPs that are farmer funded and not in a database anywhere, but the lack of adequate funds was a major stumbling block. The cross-state discussions proved very valuable and encouraged many in decision making and funding positions to consider the payback on the investment to gather voluntary BMP information. The Bay Program Partners's basinwide BMP verification framework has drawn from these lessons learned through the NACD process in building verification protocols which can be used to account for and credit non-cost shared practices installed by agricultural producers.

USGS 1619 Data Sharing Agreements with NRCS and FSA

Concerns have long been expressed by the agricultural community that nutrient and sediment load reductions were not being fully reported by the Chesapeake Bay watershed states nor fully credited in the Annual Progress Review, owing to lack of consistent access to USDA conservation practice implementation data and to reporting inconsistencies among the six watershed states.

In 2010, NRCS entered a partnership with the U.S. Geological Survey (USGS) establishing USGS as a Conservation Cooperator with privacy protected access to USDA farmland datasets. The USGS coordinated with NRCS and the Bay Program and assisted in the compilation of an accurate, comprehensive dataset that has been well integrated with the jurisdictional datasets that are also used to assess, track, and reporting implementation progress in conservation practices. To help provide consistency and completeness of conservation practice reporting among the six Chesapeake Bay watershed states, USDA requested USGS take on the role as a facilitator to use its expertise to acquire and process conservation data from NRCS and FSA. As an impartial scientific third party, USGS was able to play a key role in communication and data transfer between the agencies responsible for implementation of Federal conservation programs—NRCS and FSA, the six watershed states— Delaware, Maryland, New York, Pennsylvania, Virginia,

³ Federal Leadership Committee for the Chesapeake Bay. 2010. *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*. Available online at <http://executiveorder.chesapeakebay.net/page/Reports-Documents.aspx>

⁴ <http://executiveorder.chesapeakebay.net/>

⁵ Ensor, R., and D. York. 2011. Final Report. *National Association of Conservation Districts State Protocol Collection of Non-Cost Shared BMPs*. Available online at http://howardscd.org/SCD/scd_nacdprotocolproject.htm

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and West Virginia, and the organization responsible for tracking progress towards attaining conservation goals—the Bay Program. Recognizing 1619 data sharing agreements are a fundamental building block on which the state partners will be assured full access to federal cost shared conservation practice data, modification of existing and development of new 1619 data sharing agreement between USDA and the six watershed states are building off of the experiences of USGS’s data sharing agreements (see Appendix E).

USGS took on the task of acquiring, assessing, and evaluating agricultural conservation practice data records for USDA programs and transferring those datasets in aggregated format to state agencies for use in reporting conservation progress to the Bay Program. The USGS role was to pilot this work, resolve issues, and set a foundation for future tracking and reporting of USDA practices by the six watershed states⁶. A methodology was developed to request and acquire the USDA conservation practice datasets, clean them to remove internal duplication, aggregate the data to protect farmer privacy, and transfer the data to the six watershed states.

The objectives of the project were the following:

- Provide the six watershed states with a consistent dataset of USDA financially assisted agricultural conservation practices implemented by NRCS and FSA throughout the Chesapeake Bay watershed, along with consistent definitions for agricultural conservation practices.
- Document the various methods used by the six watershed states to obtain agricultural conservation data and address double counting where financial assistance was jointly provided through federal and state programs.
- Provide a “crosswalk” document that translates between USDA conservation practice codes and the Bay Program’s approved practice definitions.
- Streamline the overall tracking and reporting process to reduce the workload for the six watershed states.
- Document and improve existing protocols to support ongoing adaptive management of conservation practice data reporting for Chesapeake Bay watershed agricultural lands and operations.

In 2013, USGS published the findings of its work with NRCS, FSA, and the six watershed states in a detailed report entitled [*Integrating Federal and State Data Records to Report Progress in Establishing Agricultural Conservation Practices on Chesapeake Bay Farms*](#)⁷ (see Appendix P).

⁶ The USGS is providing only short-term assistance with obtaining and aggregating USDA conservation practice data, given the USGS-USDA 1619 Conservation Cooperator Agreements are set to expire in 2015.

⁷ Hively, W.D., Devereux, O.H., and Claggett, P. 2013. *Integrating Federal and State data records to report progress in establishing agricultural conservation practices on Chesapeake Bay farms*: U.S. Geological Survey Open-File Report 2013–1287, 36 p., <http://dx.doi.org/10.3133/ofr20131287>. <http://pubs.usgs.gov/of/2013/1287/>

Virginia Non-cost Share Practice Tracking and Report Pilot Study

At the direction of their state General Assembly, the Virginia Department of Conservation and Recreation undertook a pilot study for further developing a strategy for collecting and reporting non-cost shared agricultural and forestry conservation practices. Grant agreements were initiated with six soil and water conservation districts—Blue Ridge, Holtson River, Shenandoah Valley, Thomas Jefferson, Three Rivers, and Virginia Dare—to pilot procedures for on-farm assessment, data collection, entry and reporting of non-cost shared practices. These Districts were selected to represent the diversity of agricultural operations that exists throughout Virginia. Each District was directed to develop and document their outreach and assessment procedures, develop necessary assessment tools, and conduct a minimum of 10 on-farm assessments per month.

The results of these assessments were evaluated to determine if the practices met established standards and specifications for design and construction. In total, 725 farm visits were conducted resulting in 519 practices collected during the pilot study. Assuming the farm visits conducted and the BMPs collected during the pilot study were representative of the state as a whole, extrapolation would suggest that an additional 5-10 percent additional non-cost shared BMPs could be reported beyond the federal and state cost share program practices already tracked and reported by Virginia⁸.

USDA Office of Environmental Markets

The USDA Office of Environmental Market's Chesapeake Bay Environmental Markets Team (CB EMT) was chartered by the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, issued on May 12, 2010 as directed by Executive Order 13508. The CB EMT facilitated collaboration among federal agencies in development of the infrastructure needed for enabling environmental markets to function effectively in the Chesapeake Bay watershed. The CB EMT's working papers^{9,10} presented the perspectives of technical experts on a broad variety of issues related to the development and operation of environmental markets. USDA helped lead the way on thinking through the different approaches to undertaking verification through these key Office of Environmental Markets publications (see Appendices R and S).

Response to NAS Chesapeake Bay Evaluation Panel Report

On May 4, 2011, the National Research Council (NRC) of the National Academy of Sciences publically released the report entitled [*Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation*](#).¹¹ This work was conducted under the direction of the [Chesapeake Executive Council](#). The [Principals' Staff Committee](#), at its [May 10, 2011](#) meeting, directed the Bay Program to provide a formal written response to all 25 of the NRC panel's science based conclusions within 90 days (by August 4,

⁸ Stephanie Martin. Personal Communication. Draft Report on Virginia Department of Conservation and Recreation Non-Cost Shared Practices Tracking and Reporting Pilot Study. October 31, 2012. Virginia Department of Conservation and Recreation, Richmond, Virginia.

⁹ Chesapeake Bay Environmental Markets Team. 2011. A Registry for Environmental Credits: Chesapeake Bay Environmental Markets Team White Paper. Prepared by Kate Bennett and Al Todd. Provided as Appendix F.

¹⁰ Chesapeake Bay Environmental Markets Team. 2011. Verification of Environmental Credits: Chesapeake Bay Environmental Markets Team Discussion Paper. Prepared by Katie Cerretani and Al Todd. Provided as Appendix G.

¹¹ National Research Council. 2011. *Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation*. Washington, DC: The National Academies Press. Available on-line at: http://www.nap.edu/catalog.php?record_id=13131

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2011); the deadline was later extended to 180 days (November 4, 2011) by the CBP's [Management Board](#). The Principals' Staff Committee reconvened the [Independent Evaluator Action Team](#) to produce a written response to provide a public record on how the Bay Program was implementing the NRC panel's science based conclusions.

The Chesapeake Bay Program Partners's formal response was comprised of two documents—[Key Challenges](#)¹² and [CBP Suggested Responses to May 2011 NRC Report](#)¹³—were formally transmitted to the Principals' Staff Committee on November 3, 2011¹⁴. Both documents specifically addressed the NRC Panel's science based conclusions in regards to Best Management Practice effectiveness with a focus on monitoring, tracking and accountability. The Panel's conclusions were a major driver for the Partnership's development and adoption of the Chesapeake Bay Basinwide BMP Verification Framework.

¹² *Key Challenges Identified by the Chesapeake Bay Program Partners from the NAS/NRC Report Entitled 'Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation.'* 2011. November 2011 version. Available on the [February 16th, 2012 PSC meeting page](#), or: http://www.chesapeakebay.net/channel_files/17880/%28attachment_iii.d%29_key_challenges_v11-1-2011_v11-17-2011.pdf

¹³ *CBP Suggested Responses to May 2011 NRC Report.* 2011. November 2011 version. Available on-line on the [February 16th, 2012 PSC meeting page](#), or: http://www.chesapeakebay.net/channel_files/17880/%28attachment_iii.c%29_cbp_partner_suggested_responses_to_may_2011_nrc_report_v11-17-2011.pdf

¹⁴ Memorandum from Nicholas DiPasquale, Chair CBP Management Board, to Shawn Garvin, Chair, CBP Principals' Staff Committee, November 3, 2011. Available on-line on [February 16th, 2012 PSC meeting page](#), or: http://www.chesapeakebay.net/channel_files/17880/%28attachment_iii.b%29_memo_mb_to_psc_ie_recommendations_final_11-3-2011.pdf.