

Standard Operating Procedures for Managing Nonpoint Source BMP Data

and other inputs to the Chesapeake Bay Watershed Model

West Virginia
Revised June 30, 2014

Alana Hartman, Potomac Basin Coordinator
West Virginia Department of Environmental Protection
22288 Northwestern Pike
Romney, WV 26757
(304) 822-7266

Jennifer Pauer Project Manager, WV Department of Environmental Protection	Date
Lucinda Power Project Officer, U.S. Environmental Protection Agency	Date
Quality Assurance Officer, Richard Batiuk, U.S. Environmental Protection Agency	Date

I. Project Management

Project Staff and Organization:

1. **West Virginia Department of Environmental Protection (WVDEP)** - Alana Hartman, Potomac Basin Coordinator (PBC), is the coordinator for this project, and collects septic BMP data and information from local governments. Teresa Koon requests data from a USDA Forest Service contact. Megan Grose and Natalie Hardman support the BMP, concurrently permitted acres, and landuse change reporting by MS4 and Construction Stormwater permittees. Sebastian Donner, WVDEP Stormwater Specialist (SS), manages the WV Stormwater BMP Database and assesses the presence and condition of post-construction stormwater BMPs.

The PBC will perform a check on the new entries in the Stormwater BMP database, and the SS will perform a check on the new entries in the NPS BMP Database. See Section III for descriptions of these QA/QC functions.

2. **West Virginia Conservation Agency (WVCA)** – Carla Hardy serves as the Watershed Program Coordinator and oversees data collection for the agency including litter transport from private vendors and other grant- and state-funded agricultural BMP programs. In addition, WVCA provides Erosion and Sediment Control data for projects less than 1 acre. Barbara Elliott, Watershed Specialist, assists with the submission of agricultural BMP data from the Agricultural Enhancement Program (AgEP) in the Eastern Panhandle Conservation District. Ben Heavner, Conservation Specialist in the Potomac Valley assists with the agricultural BMP data collection for the AgEP Program within the Potomac Valley Conservation District. Melissa Merritt, Conservation Specialist, assists with nonagricultural nutrient management collection. Regina Lucas, Conservation Specialist assists with any urban BMP data collection from the Eastern Panhandle Conservation District.

3. **West Virginia Department of Agriculture (WVDA)** – Matt Monroe, Assistant Director, Environmental Programs, is West Virginia’s representative on the Chesapeake Bay Program’s Agriculture Workgroup, and is overseeing the development of new protocols for reporting Nutrient Management Plans in which WVDA staff are involved, and also for collecting and reporting data about previously un-reported agricultural BMPs. Andy Yost is West Virginia’s representative on some of the Agriculture Workgroup’s expert panels and subcommittees. Jerry Ours, **the WV Nutrient Management Coordinator**, assists WVCA with collection of poultry litter transport data, **contributes to WVDA’s nutrient management plan spreadsheet, and checks the accuracy and completeness of nutrient management data.** Mark Hedrick **contributes to WVDA’s nutrient management plan spreadsheet.**

4. **West Virginia Division of Forestry (WVDOT)** - Herb Peddicord, Chesapeake Watershed Forester, collects and reports forest buffer plantings, tree planting, forest harvesting BMPs, and forest conservation data. He participates in the Chesapeake Bay Program’s Forestry Workgroup.

5. **Natural Resources Conservation Service (NRCS)** - Herb Andrick, NRCS Assistant State Conservationist – Field Operations – East, and J.R. Wolfe support the interpretation of NRCS data.

6. **Farm Service Agency (FSA)** – Kevin Hinkle and Mike Taylor support the collection and interpretation of FSA data. Data collection includes quarterly reports from county offices starting in mid-2012, which capture the date, length, width, and other details of each CREP contract. This will allow us to divide the year into the EPA-requested timeframe (July-June).

7. Cacapon Institute – Frank Rodgers and Molly Barkman report to DEP any BMPs installed at schools in WV’s Potomac Basin through the Potomac Headwaters Leaders of Watersheds (PHLOW) program. **In addition, Tanner Haid submits tree planting data from the CommuniTree Program to Herb Peddicord (see above).**

County Health Departments (sanitarians or administrative personnel) providing information:

Berkeley County (Martinsburg), Grant County (Petersburg), Hampshire County (Augusta), Hardy County (Moorefield), Jefferson County (Charles Town), Mineral County (Keyser), Morgan County (Berkeley Springs), Pendleton County (Franklin).

Federal Facilities potentially providing information:

These facilities are listed in Appendix F of WV’s Watershed Implementation Plan, <http://www.wvca.us/bay/documents.cfm>

County governments potentially providing information:

Berkeley County*: Martinsburg, WV (Curtis Keller, Berkeley Co. Public Service Sewer District)
Grant County: Petersburg, WV (Commission President)
Hampshire County: Romney, WV (Charles Baker, County Commission staff)
Hardy County: Moorefield, WV (Melissa Scott, Planner)
Jefferson County: Charles Town, WV (Roger Goodwin, Chief County Engineer)
Mineral County: Keyser, WV (Commission President)
Morgan County: Berkeley Springs, WV (Alma Gorse, Planner)
Pendleton County: Franklin, WV (Commission President)

Municipalities potentially providing information:

Hedgesville, WV (Mayor)
Martinsburg, WV* (Steve Knipe, Water & Sewer Dept., **Jeff Wilkerson, Stormwater Program**)
Bayard, WV (Mayor Durst)
Petersburg, WV (Richard Harper)
Romney, WV (Eileen Johnson, City Administrator)
Capon Bridge, WV (Mayor)
Moorefield, WV (Rick Freeman, City staff)
Wardensville, WV (Amanda Barney)
Bolivar, WV (Mayor)
Charles Town, WV (Katie See, City staff)
Harpers Ferry, WV (Mayor)
Ranson, WV (Sarah Kleckner, Planning Director)
Shepherdstown, WV (Frank Welch, Public Works)
Carpendale, WV (Butch Armentrout, City staff)
Elk Garden, WV (Mayor)
Keyser, WV (Mayor)
Piedmont, WV (Mayor)
Ridgeley, WV (Mayor)
Bath (Berkeley Springs), WV (Debra Peck, Town Clerk)
Paw Paw, WV (Jack Delawder)
Franklin, WV (Mayor)

*Berkeley County and Martinsburg are the only local governments with MS4 permits. A third MS4 permittee in WV's Chesapeake Bay watershed is the Division of Highways, with Stephen Sites as our contact.

Data are also potentially collected from:

- Groundskeepers/superintendents of golf courses
- US Fish & Wildlife Service- John Schmidt
- Trout Unlimited- Gary Berti, Dustin Wichterman
- Watershed Associations
- Land Trusts and county Farmland Preservation programs
- Conservation Districts
- Public Service Districts
- MS4 permittees not listed above

Project Objectives/Background:

The objective is to supply annual, nonpoint source BMP implementation data for inclusion into the Chesapeake Bay Watershed Model (CBWM) annual progress evaluations. We aim to count as accurately as possible the number and kinds of BMPs being implemented in the eight-county Potomac Basin of West Virginia. One reason is to obtain credit for and document in one place the worthy water quality improvement work carried out by multiple public and private entities in West Virginia. Another reason is so that the CBWM will reflect reality as closely as possible, and any assessments made by using the model will be as true as possible. Data collection occurs approximately July through **November** each year (due on December 1), gathering data about implementation that occurred the previous (July through June) year. Since West Virginia began participating in the Chesapeake Bay Program (CBP), we have continually expanded and refined the methods we use for collecting these data. We have done so while communicating with the CBP's Watershed Modeling tools ("Scenario Builder") team and with representatives of other jurisdictions who participate in the workgroups. Meanwhile, as the CBWM has become more sophisticated, we have attempted to provide more sophisticated inputs. We have always used the best, most accurate, most detailed data reasonably attainable, and we welcome suggestions for improvement.

Project Description and Schedule:

The purpose of the project is to produce, as accurately as possible, a count of BMPs installed each year. This involves several individual phone calls and e-mails made by the personnel listed above, beginning sometime in the summer, to remind them to initiate their respective data-gathering tasks.

Beginning Sept. 10, 2013, the CBP **annually** calls for data from federal facilities using a template we provided: "Federal Facilities Reporting Data Template WV_06122014.xlsx." **If WVDEP receives data from the federal facilities, WVDEP will report the BMPs through NEIEN as appropriate. It is assumed these facilities are not already reporting BMPs to Scenario Builder and the CBWM (per Matt Johnston email, 10/21/13).** If they do not provide data to us separately, we will still capture some stormwater management information from any projects one acre or greater, for which they would have had to seek WV DEP's Construction Stormwater Permit.

To seek data on developed lands BMPs that might have been missed by other databases, e.g. disturbance less than one acre, WVDEP staff mails an urban/suburban BMP worksheet to each of 8 counties and 21 incorporated municipalities, except Berkeley County and the City of Martinsburg (both MS4 permittees). This worksheet is provided as Appendix A. We also use the annual reports

from the MS4s to extract data. The MS4 permit requires permittees to inventory and track stormwater management practices deployed at new development and redevelopment projects, and additional restoration practices, e.g. tree planting, may also be included.

For the bulk of the agriculture BMPs, we receive data in November from Olivia Devereux, known as the “Aggregated NRCS and FSA data for Annual Progress Reporting.” Details about its source and aggregation principles are provided in Appendix B. We share this dataset with representatives from the agriculture agencies and work out problems it raises, if any.

WVDA is defining a process to record and track non-cost-shared, previously un-reported, BMPs implemented by farmers. In 2006, WVCA conducted a pilot survey in the Lost River watershed to assess BMPs previously missed because they were not part of any agency-tracked program. For details, see “Lost River BMP Assessment”, by Carla Hardy, Laurie Olah, and Laurel Kessel, by West Virginia Conservation Agency in cooperation with West Virginia Department of Agriculture and the Chesapeake Bay Program. In 2011, a more comprehensive procedure was begun and described in Appendix G of West Virginia’s Phase II Watershed Implementation Plan. It will be finalized once the CBP Verification Protocols are available.

The people we contact might be conducting other data compilation and/or analysis efforts that are not documented herein.

This project is considered ongoing because reporting to the CBP is required annually.

Geographic reporting units are by county, or by latitude/longitude point location if it is known.

II. Data Acquisition and Management

The rationale for collecting data on each of these BMPs is because they are credited in the Chesapeake Bay Watershed Model, unless otherwise noted below.

BMPs for Agricultural Land Uses

Beginning in Progress Year 2012, we now use some of the data provided to us by Olivia Devereux, known as the “Aggregated NRCS and FSA data for Annual Progress Reporting.” Details about its source and aggregation principles are in Appendix B. The USDA database is not set up to match the BMPs definitions approved by the CBP. Therefore, we have assigned NRCS and FSA practice codes to CBP-defined practice names, as listed below. This source is denoted by “Aggregated NRCS/FSA data,” below.

Numbers such as (8.4.12) or (SB 8.4.12) below refer to the section of Scenario Builder documentation (“*Estimates of county-level nitrogen and phosphorus data for use in modeling pollutant reduction; Documentation for Scenario Builder version 2.2*” December 2010) from which we used language in the definition.

“MAWP” refers to “*Developing best management practice definitions and effectiveness estimates for nitrogen, phosphorus and sediment in the Chesapeake Bay watershed*” December 2009, by Dr. Thomas Simpson and Sarah Weammert, University of Maryland Mid-Atlantic Water Program.

1. **BMP name: Alternative Watering Facility** (Scen. Builder documentation 8.4.26) **Off Stream Watering without Fencing (MAWP report p. 417)**

Definition(s): Alternative watering facilities typically involves the use of permanent or portable livestock water troughs placed away from the stream corridor. The source of water supplied to the facilities can be from any source including pipelines, spring developments, water wells, and ponds. In-stream watering facilities such as stream crossings or access points are not considered in this definition (Scen. Builder documentation 8.4.26) This BMP requires the use of alternative drinking water sources away from streams to reduce the time livestock spends near and in streams and streambanks reducing direct manure deposition to streambeds and banks and also reducing erosion and nutrient deposition to riparian areas. (MAWP p. 414)

NRCS practice(s) counted: 614 (Watering facility)

Source of data: “Aggregated NRCS/FSA data”

Procedure used to compile data: Staff enters numbers into a table by county

Data analysis: *NEIEN converts to feet?*

Checks for accuracy:

Units: number

2. **BMP name: Animal Access Control with Fencing / Stream Access Control with Fencing (SB 8.4.27) Off Stream Watering with Fencing (MAWP p. 414)**

Definition(s): Stream access control with fencing involves excluding a strip of land with fencing along the stream corridor to provide protection from livestock. The fenced areas may be planted with trees or grass, or left to natural plant succession, and can be of various widths. (SB 8.4.27) This BMP excludes animals from streams. It incorporates both alternative watering and installation of fencing that eliminates livestock access to narrow strips of land along stream. (MAWP 414)

FSA practice(s) counted: CP22

Source of data: “Aggregated NRCS/FSA data”

Procedure used to compile data:

Data analysis: Acres are reported

Checks for accuracy: Cross-checked with FSA’s reporting form regarding CREP fencing projects

Units: acres; we can now also enter length and width as separate measurements for the same BMP in NEIEN.

3. **BMP name: Animal Waste Management Systems- Livestock (SB 8.4.1)**

Definition(s): Practices designed for proper handling, storage, and utilization of wastes generated from confined animal operations. (SB 8.4.1)

NRCS practice(s) counted: 313 (Waste storage facility), [359 (Waste treatment lagoon) – usually not done in WV but should check just to be sure]

Source of data: “Aggregated NRCS/FSA data,” plus emailed request to local NRCS staff to provide the number of animals associated with each system.

Procedure used to compile data:

Data analysis: Number of animals is converted into animal units by NEIEN

Checks for accuracy: Confirmed with local NRCS staff

Units: number of animals → animal units

4. **BMP name: Animal Waste Management Systems-Poultry (SB 8.4.1)**

Definition(s): Practices designed for proper handling, storage, and utilization of wastes generated from confined animal operations. (SB 8.4.1)

NRCS practice(s) counted: 313 (Waste storage facility),

Source of data: “Aggregated NRCS/FSA data,” plus emailed request to local NRCS staff to provide the number of animals associated with each system.

Procedure used to compile data:

Data analysis: Number of animals is converted into animal units by NEIEN

Checks for accuracy: Confirmed with local NRCS staff

Units: number of animals → animal units

5. BMP name: **Barnyard Runoff Control (8.4.2)**

Definition(s): Includes the installation of practices to control runoff from barnyard areas. This includes practices such as roof runoff control, diversion of clean water from entering the barnyard and control of runoff from barnyard areas. (SB 8.4.2)

NRCS practice(s) counted: 558 (Roof runoff structures), 575 (Animal trails and walkways), and possibly Roof Runoff Management

Source of data: “Aggregated NRCS/FSA data”

Procedure used to compile data:

Data analysis: The two practices would have to be reported separately, because # 575 is in feet.

Checks for accuracy:

Units: # of systems; # 575 is in feet.

6. BMP name: **Conservation Tillage (8.4.12)**

Definition(s): Conservation tillage involves planting and growing crops with minimal disturbance of the surface soil. Conservation tillage requires two components, (a) a minimum 30% residue coverage at the time of planting and (b) a non-inversion tillage method (SB 8.4.12) *Note:short-term expert panel recommendations were approved October 2013.*

NRCS practice(s) counted: 329 (Residue and Tillage Management, No-Till/Strip Till/Direct Seed); 344 (Residue Management, Seasonal); 345 (Residue and Tillage Management, Mulch Till)

Source of data: “Aggregated NRCS/FSA data”

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Sum the three NRCS practices by county. [Past method: Since this is a practice that keeps happening for a number of years after it is first counted as new acreage, from 2005 to 2007 we managed the numbers in the following way: multiply cumulative total acreage from past years by 75%, then add most recent year’s new acreage. In 2007 the reporting period changed and this method no longer made sense, so we started only reporting the numbers as recorded from NRCS.]

Checks for accuracy:

Units: acres

7. BMP name: **Continuous No-Till** (placeholder; not currently reporting this)

Definition: a crop planting and management practice in which soil disturbance by plows, disk or other tillage equipment is eliminated. CNT involves no-till methods on all crops in a multi-crop, multi-year rotation. When an acre is reported under CNT, it will not be eligible for additional reductions from the implementation of other practices such as cover crops or nutrient management planning.

Multi-crop, multi-year rotations on cropland are eligible. Crop residue should remain on the field.

Planting of a cover crop might be needed to maintain residue levels. Producers must have and follow a current nutrient management plan. The system must be maintained for a minimum of five years. All crops must be planted using no-till methods (SB 8.4.20) Note:short-term expert panel recommendations were approved October 2013.

NRCS practice counted: none available

Source of data:

Procedure used to compile data:

Data analysis:

Checks for accuracy:

Units: acres

8. BMP name: Cover Crops

Definition(s): Planting and growing of cereal crops (non-harvested) with minimal disturbance of the surface soil. The crop is seeded directly into vegetative cover or crop residue with little disturbance of the surface soil (8.4.19). Non-harvested winter cereal cover crops, including wheat, rye and barley, designed for nutrient removal (MAWP p. 99). *Note:short-term expert panel recommendations were approved October 2013.*

NRCS practice(s) counted: 340 (Cover crops)

Source of data: “Aggregated NRCS/FSA data”, WVCA’s AgEP Program (both generate very specific data)

Procedure used to compile data: staff enters acreages into a table by county.

Data analysis:

Checks for accuracy:

Units: acres

9. BMP name: Commodity Cover Crops

Definition(s): Cover crops which may be harvested for grain or silage; they may receive nutrient applications, but only after March 1 of the spring following their establishment. *Note:short-term expert panel recommendations were approved October 2013.*

NRCS practice(s) counted: 340 (Cover crops)

Source of data: “Aggregated NRCS/FSA data”, WVCA’s AgEP Program (both generate very specific data)

Procedure used to compile data: staff enters acreages into a table by county.

Data analysis: Checks for accuracy:

Units: acres

10. BMP name: Grass Buffers

Definition(s): Grass plantings between fields and rivers and streams. Linear strips of vegetation along rivers and streams, helping to filter nutrients, sediment, and other pollutants carried in runoff. Min width = 35’, recommended 100’ (SB 8.4.10).

NRCS practice(s) counted: 390 (Riparian Herbaceous Cover), 393 (Filter Strip), 412 (Grassed Waterway)

Source of data: “Aggregated NRCS/FSA data,” WVCA may also have acreages from its own projects to add.

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Acreages are summed by county.

Checks for accuracy: Cross checked with FSA reporting sheet to local Conservation Districts for CREP projects

Units: acres; we can now also enter length and width as separate measurements for the same BMP in NEIEN.

11. BMP name: Loafing Lot Management

Definition(s): *The stabilization of areas frequently and intensively used by people, animals or vehicles by establishing vegetative cover, surfacing with suitable materials, and/or installing needed structures. This does not include poultry pad installation (SB 8.4.3.)*

NRCS Practice(s) counted: 561 (Heavy use area protection)

Source of data: "Aggregated NRCS/FSA data"

Procedure used to compile data:

Data analysis:

Checks for accuracy:

Units: systems, but animal units would be preferred because LU is "afo."

12. **BMP name: Animal Mortality Composting** (has not been reported through 2012)

Definition(s): A physical structure and process for disposing of dead poultry. Composted material is combined with poultry litter and land applied using nutrient management plan recommendations. (SB 8.4.6) Mortality composters involve composting routine mortality in a designed, on-farm facility, with subsequent land application of the compost. This prevents the necessity to bury dead animals that could result in nutrient leachate, or rendering of dead animals for processing into animal feeds or incineration. Mortality composting can be, and is applied, to various species including poultry, swine and dairy calves (p. 395 MAWP).

NRCS practice(s) counted: 316 (Animal Mortality Composters) also 317 manure (and other organic byproducts) composters

Source of data: "Aggregated NRCS/FSA data"

Procedure used to compile data:

Data analysis:

Checks for accuracy:

Units: systems, but animal units seems more appropriate

13. **BMP name: Non-urban Stream Restoration**

Definition(s): A collection of site specific engineering techniques used to stabilize an eroding streambank and channel. These are areas not associated with animal entry (SB 8.4.5)

NRCS practice(s) counted: 395 (stream habitat improvement and management)

Source of data: "Aggregated NRCS/FSA data" with follow-up to NRCS staff to learn what kind of project it was. Combined with county level WVCA data, with staff follow-up to learn type of project.

Procedure used to compile data: staff enters feet into a table by county

Data analysis: Number of acres of practice #395 reported separately from the number of feet treated by other projects

Checks for accuracy:

Units: acres of #395; other known projects reported in feet.

14. **BMP name: Nutrient Management Plan**

Definition(s): Application of nutrients to croplands [although WVDA also keeps track of nutrient management plans' pasture and hay acreage, as well, so these can be reported separately]. Details type, rate, timing, and placement of nutrients for each crop. Soil, plant tissue, manure and/or sludge tests used to assure optimal application. Revised every 2-3 years (SB 8.4.8). *Note: short-term expert panel recommendations were approved October 2013.*

NRCS practice(s) counted: 590 (Nutrient management)

Source of data: NRCS, and a WVDA spreadsheet updated annually by nutrient management planners on staff.; beginning in 2014, all certified nutrient management planners are required to submit an annual report to WVDA to enable WVDA to count nutrient management plans in which its staff were not involved.

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Acreages provided by WVDA are added across all 8 counties by landuse (crop, hay, and pasture). The percentages of NMP on crop vs. hay vs. pasture are calculated, and these percentages are

applied to the NRCS acreages as well. Then the NMP acreages are entered by county, land use, and source agency (NRCS, WVDA).

Checks for accuracy:

Units: acres

15. BMP name: **Prescribed Grazing**

Definition(s): This practice utilizes a range of pasture management and grazing techniques to improve the quality and quantity of the forages grown on pastures and reduce the impact of animal travel lanes, animal concentration areas or other degraded areas (SB 8.4.29); part of proposed Pasture Management BMP in MAWP p. 746.

NRCS practice(s) counted: 528 (prescribed grazing) & 528A

Source of data: "Aggregated NRCS/FSA data"

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Acreages are summed by county.

Checks for accuracy:

Units: acres

16. BMP name: **Riparian Forest Buffers (ag)**

Definition(s): Agricultural riparian forest buffers are linear wooded areas along rivers, stream and shorelines. Forest buffers help filter nutrients, sediments and other pollutants from runoff as well as remove nutrients from groundwater. The recommended buffer width for riparian forest buffers (agriculture) is 100 feet, with a 35 feet minimum width required. min width = 35', recommended 100' ... defined as having a vegetative cover of 60% or greater (SB 8.4.9). *Note: expert panel recommendations are expected in 2014.*

NRCS practice counted: 391 (Riparian Forest Buffer)

FSA practice counted: CP-22

Source of data: "Aggregated NRCS/FSA data;" more detailed info provided by FSA. WVCA and WVDOF may also have acreages from their own projects to add. If so, specific location and other information may be available for separate entry.

Procedure used to compile data: staff enters acreages into a table by county or enters data separately if appropriate. If FSA provides length and width, and width is 35' or greater, and confirms they're on pasture, then report this as Forest Buffers TRP.

Data analysis: If length and width are provided, acreage is calculated. Acreages are summed by county, or in the case of projects whose details are known and that are assured to be not double-counted, they are entered individually.

Checks for accuracy: WVDOF staff uses lat/long reading to plot each project on Terrain Navigator map; WVDOF staff checks for double-counting by consulting with soil conservationists at the county Field Offices of NRCS. Cross checked with FSA reporting sheet to local Conservation Districts for CREP projects.

Units: acres; we can now also enter length and width as separate measurements for the same BMP in NEIEN.

17. BMP name: **Tree planting (ag)**

Definition(s): (Row Crop): Any tree plantings on any site except those along rivers and streams. Tree plantings do not include reforestation. Targets land that is highly erodible or identified as critical resource area. Density should be sufficient to produce forest-like cover over time. CRP planting given as an example (SB 8.4.4). *Note: expert panel recommendations are expected in 2014.*

NRCS practice(s) counted: 612 (Tree/Shrub Establishment)/666 (Forestland Re-established or Improved)

Source of data: “Aggregated NRCS/FSA data”, WVDOF might have projects to add.

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Acreages are summed by county.

Checks for accuracy:

Units: acres; we can now also enter length and width, or number of trees planted, as separate measurements for the same BMP in NEIEN.

18. BMP name: **Wetland Restoration**

Definition(s): Agricultural wetland restoration activities re-establish the natural hydraulic condition in a field that existed prior to the installation of subsurface or surface drainage. Projects may include restoration, creation and enhancement acreage. Restored wetlands may be any wetland classification including forested, scrub-shrub or emergent marsh (SB 8.4.11).

NRCS practice(s) counted: 646 (Shallow Water Development & Management), 657 (Wetland Restoration); **According to wetland workgroup participants 11/6/13, 656 and 658 are also possibilities. Nita mentioned 657 might include rehabilitation.**

Source of data: “Aggregated NRCS/FSA data”, USFWS’s Partners for Fish and Wildlife Program might also have some of these to report.

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Acreages are summed by county.

Checks for accuracy:

Units: acres

19. BMP name: **Land Retirement (Conventional Till to Pasture)**

Definition(s): Voluntary contracts between a landowner and a government agency to take land out of production to protect certain natural resource characteristics for a specified number of years with monetary compensation. Land retired and planted to trees is reported under Tree Planting.

NRCS practice(s) counted: **a) 2010 & 2011 Progress years:** 512 (Pasture and Hay Planting); **b) 2013 Progress year: Establishment of permanent introduced grasses and legumes**

Source of data: “Aggregated NRCS/FSA data”

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: **a) Originally, we specified only 40% of the 512 numbers in NRCS’s will be reported, because it is estimated that 60% of the acres in this practice are planted with something that will be harvested, thus the land is still in production. However, in 2011 Progress Year we appear to have reported the full amount, and in 2010 Progress Year we were credited with > the full amount; need to investigate where the additional numbers were from. b) Beginning with Progress Year 2013, we reported Establishment... at 100%.**

Checks for accuracy:

Units: acres

20. BMP name: **Conservation Plans / SCWQP**

Definition(s): Cropland management practices. Agronomic, management and engineered practices that protect soil productivity and water quality, and prevent deterioration of natural resources. CDs, NRCS, or consultant can prepare plan, but must meet technical standards.

NRCS practice(s) counted: none

Source of data: (past: PRS database, use Report 1.2, Conservation Plan Acres, and use “planned” numbers. NRCS staff explained December 2010 why Planned was the better number to report.)

Procedure used to compile data: staff enters acreages into a table by county

Data analysis: Acreages are summed by county.

Checks for accuracy:

Units: acres

21. BMP name: **Poultry Litter Transport**

Definition(s): participation in a litter transfer program, also voluntary broker participation

Source of data: NRCS field offices in West Virginia (n= ~30) except those over 200 miles from the Potomac Basin, also voluntary broker participation

Procedure used to compile data: WVCA and/or WVDA staff contacts each field office and asks for the tonnage, type, sending county (often this is simply the field office contacted) and receiving county.

Private vendors are also contacted by and data is collected based on litter type, tonnage, county of production and end use location (county). WVCA staff enters tonnages into a table by county.

Data analysis: All data are reported to Chesapeake Bay Program with receiving county specified, even if it is within the Chesapeake Bay watershed. Tons are summed by county.

Checks for accuracy:

Units: tons (=2000 lbs)

Resource BMPs

22. BMP name: **Abandoned Mine Reclamation**

Definition(s): mine reclamation stabilizes the soil on lands mined for coal or affected by mining, such as wastebanks, coal processing, or other coal mining processes.

Source of data: CBWM acreage of “Extractive” land use

Procedure used to compile data: WVDEP requests acreage from CBPO

Data analysis: acres are summed by county

Checks for accuracy: reporting of this BMP is currently under discussion between WVDEP and CBPO

Units: acres

23. BMP name: **Forest Harvesting Practices**

Definition(s): land harvested under Division of Forestry’s (WVD OF’s) permitting process, using Logging Sediment Control Act’s required BMPs.

Source of data: By law, all timber harvest operations are required to notify the WV Division of Forestry. The notifications include, among other items, acreage to be harvested, what type of harvest, location and time period. Data from the notifications are entered into the LONIE system. (Logging Operation Notification, Inspection and Enforcement) The system was developed by the Appalachian Hardwood Center at West Virginia University.

Procedure used to compile data: The LONIE system can be queried to report on a number of different requests and compile them as an Excel spreadsheet. For acreage reporting, we use job start dates only to avoid double counting. WVD OF reports acres to WVDEP staff.

Data analysis: 98% of the timber registration acres are reported for this BMP. Rationale: Occasionally, we do have illegal logging activity that is discovered after the fact and does not get reported. We do not track these because there are others that we never discover. 2% is an estimate of unknown illegal activity that may or may not have BMP’s applied. This number is probably higher in other parts of the state but not a major problem in the Potomac drainage.

Checks for accuracy: none at this time; should check WVD OF’s new BMP manual and document how well it matches Chesapeake Bay Program definition of this BMP (Forest harvesting practices are a suite of BMPs that minimize the environmental impacts of road building, log removal, site preparation and forest management. These practices help reduce suspended sediments and associated nutrients that can result from forest operations. E.g. Innovative road design, bridged stream crossings, preservation

of stream and wetland buffers, soil stabilization, water bars, logging mats, road surfacing, broad-based dips and avoiding operations when very wet.)

Units: acres

24. BMP name: **Forest Conservation**

Definition(s): Forest land use protected under conservation easement. *We realize the BMP guidance from Chesapeake Bay Program says only Maryland is eligible for this BMP at this time, but we still feel this BMP (with above definition) is worth tracking.*

Source of data: WVDOF staff contacts region's land trusts and other local organizations involved in conserving land, e.g. county farmland protection agencies, to determine acreages to report in this category. We attempt to track location of acres reported, or a property name, so they will not be double counted in the future.

Procedure used to compile data: Contact organizations and ask whether they oversaw any contracts to this effect and how many acres these contracts represent within each county; add acres within each county

Data analysis: presumably none needed

Checks for accuracy: Our region is small enough that if we saw an unreasonably large number in any of these categories reported on by counties and municipalities, we could question the location.

Units: acres

Developed Lands BMPs

The Phase 5 Chesapeake Bay Watershed Model includes “developed” landuses such as “High-Intensity Impervious Urban (IU), High-Intensity Pervious Urban (PU), Low-Intensity Impervious Urban (IU), and Low-Intensity Pervious Urban (PU). In general, “Urban” is used below to denote High-Intensity (PU and IU), and “Suburban” is considered Low-Intensity (PU and IU).

The expert panel reports for Stormwater Performance Standards

http://www.chesapeakebay.net/documents/Final_CBP_Approved_Expert_Panel_Report_on_Stormwater_Performance_Standards_LONG.pdf

and Stormwater Retrofits led to a shift in the way many of the BMPs listed here will be reported:

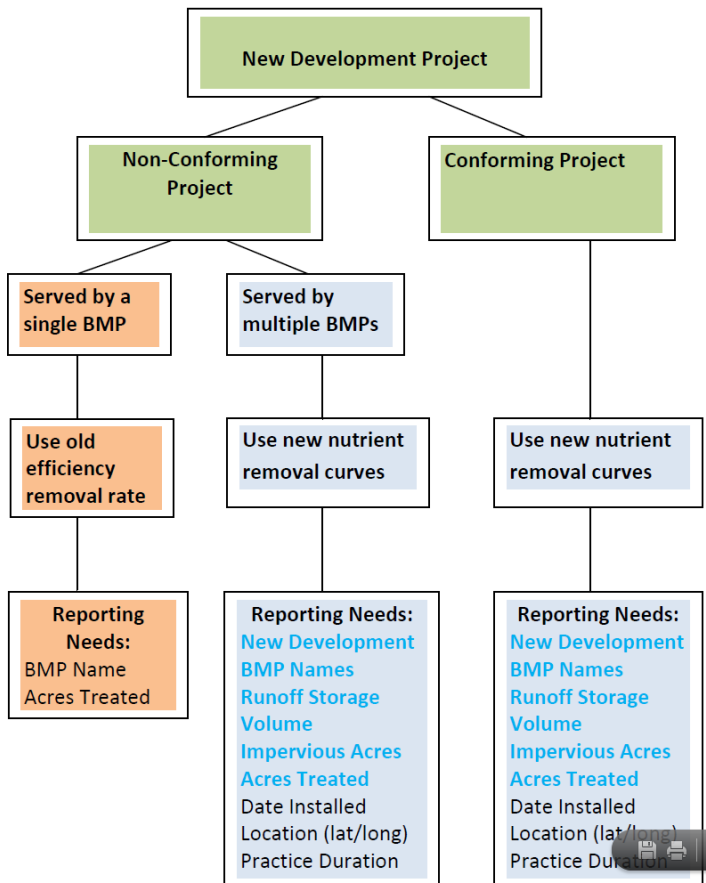
Table 4 Classification of BMPs based on Runoff reduction capability¹	
<i>Runoff Reduction (RR) Practices</i>	<i>Stormwater Treatment (ST) Practices ²</i>
<i>Non-Structural Practices</i>	
Landscape Restoration/Reforestation	Constructed Wetlands
Riparian Buffer Restoration	Filtering Practices (aka Constructed Filters, Sand Filters, Stormwater Filtering Systems)
Rooftop Disconnection (aka Simple Disconnection to Amended Soils, to a Conservation Area, to a Pervious Area, Non-Rooftop Disconnection)	Proprietary Practices (aka Manufactured BMPs)
Sheetflow to Filter/Open Space* (aka Sheetflow to Conservation Area, Vegetated Filter Strip)	Wet Ponds (aka Retention Basin)
Non-Structural BMPs, PA 2006 BMP Manual, Chapter 5	Wet Swale
<i>Practices</i>	
All ESD practices in MD 2007	
Bioretention or Rain Garden (Standard or Enhanced)	
Dry Swale	
Expanded Tree Pits	
Grass Channels (w/ Soil Amendments, aka Bioswale, Vegetated Swale)	
Green Roof (aka Vegetated Roof)	
Green Streets	
Infiltration (aka Infiltration Basin, Infiltration Bed, Infiltration Trench, Dry Well/Seepage Pit, Landscape Infiltration)	
Permeable Pavement (aka Porous Pavement)	
Rainwater Harvesting (aka Capture and Re-use)	
*May include a berm or a level spreader	
¹ Refer to DC, MD, PA, VA or WV State Stormwater Manuals for more information	
² Dry ED ponds have limited removal capability , their efficiency is calculated using rates in Table B-4, Appendix B	

(from p. 12 of above-referenced report) West Virginia’s Stormwater Management Design and Guidance Manual” can be accessed at

<http://www.dep.wv.gov/WWE/Programs/stormwater/MS4/Pages/StormwaterManagementDesignandGuidanceManual.aspx>

The March 4, 2013 minutes of Watershed Technical Workgroup (WTWG) indicate “The WTWG approved 2018 as a deadline for reporting all new and retrofit projects using the new state stormwater performance standards, with the understanding that the date can be adjusted as necessary.” We are working toward being able to report the necessary fields, indicated in blue font in the flowchart that follows. In the meantime, many stormwater BMPs will still be reported using the “old” method indicated in orange boxes of the flowchart

(http://www.chesapeakebay.net/channel_files/19137/attachment_flow_charts_for_stormwater_performance_standards.pdf).



25. **BMP name: Wet Ponds and Wetlands**

Definition(s): A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. (from “SBDocTables_06062014.xlsx”)

Source of data: Beginning fall 2005, applicants for construction stormwater permits are asked to indicate which permanent stormwater management practices they will use, and the number of acres draining to each. WVDEP staff enters these applications into the Environmental Resources Information System (ERIS) database within a few days of receipt, and the Stormwater Specialist queries this information for the progress year after June 30. The query includes Industrial Stormwater permittees. In addition, the Potomac Basin Coordinator sends a letter with a blank table to the appropriate person in county government, incorporated municipalities, and watershed groups, asking him/her to fill out the table with appropriate units of each urban/suburban BMP installed in the county in the past calendar year. Data from the annual reports from the MS4s is also a potential source.

Procedure used to compile data: ERIS reports are run for the construction stormwater general permit (sites ≥3 acres) and Notice of Intent sites (1-3 acres). An ERIS report is also run for Industrial Stormwater permits.

Data analysis: None needed; BMPs will be entered separately instead of being summed by county, whenever possible.

Checks for accuracy: The letter mentioned above may serve as a check for accuracy.

Units: Measurement name is “Area Treated,” or “Drainage Area,” units are acres.

26. BMP name: Dry Extended Detention Ponds

Definition(s): Dry extended detention ponds or basins that provide for a gradual release of storm water in order to increase settling of pollutants and to reduce stormwater volumes downstream at a given time; and that are usually dry between rainfall events.

Source of data: see source of data for #25.

Procedure used to compile data: See procedure used for #25.

Data analysis: See data analysis for #25

Checks for accuracy: See #25

Units: acres drained

26.a. Dry Detention Ponds

Definition: depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms (from SBDocTables_06062014.xlsx).

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: Measurement name is “Area Treated,” units are acres.

27. BMP name: Infiltration Practices, or Urban Infiltration Practices

Definition(s): Practices such as a trench, basin or porous pavement that capture and temporarily store storm water before allowing it to infiltrate into the soil. Includes bioretention with no underdrain, e.g. most rain gardens.

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: Measurement name is “Drainage Area,” units are acres.

27.a. BMP name: Bioretention

Definition: An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation.

These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants (from SBDocTables_06062014.xlsx).

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: Measurement name is “Area Treated,” units are acres.

27.b. BMP name: Bioswale

Definition: With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area (from SBDocTables_06062014.xlsx).

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: Measurement name is “Area Treated,” units are acres.

28. BMP name: **Filtering Practices**

Definition(s): Practices that capture and may temporarily store stormwater then pass it through a filter bed such as sand, organic matter, soil or other media. These can include sand or peat filters, bioretention with underdrain tied into storm sewer system. Maintenance plan is usually key.

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: Measurement name is “Area Treated,” units are acres.

29. BMP name: **Urban Grass Buffer**

Definition(s): Linear strips of planted grass or other non-woody vegetation between the edge of urban/suburban land use and streams or rivers. “This BMP changes the land use from pervious urban to pervious urban. Therefore, there is no change and no reduction from using this BMP (from SBDocTables_06062014.xlsx).”

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: acres or length and width

30. BMP name: **Forest Buffers (developed lands)**

Definition(s): Linear wooded areas planted along rivers and streams that help filter nutrients, sediment and other pollutants. Recommended width for urban = 50’, with a 35’ width as minimum.

Recommended width for suburban landuse = 100’, with a 35’ width as minimum. *Note: expert panel recommendations are expected in 2014.*

Source of data: See source of data for #25; Also WVDOF and other agency partners’ knowledge of projects.

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25. WVDOF staff uses lat/long reading to plot each project on Terrain Navigator map.

Units: acres or length and width

31. BMP name: **Impervious Surface Reduction**

Definition(s): This practice includes natural area conservation, rain barrels, green roofs, directing sheet flow from impervious surfaces such as sidewalks or driveways to pervious surfaces instead of using storm drains, and disconnecting roof top drainage pipes to allow infiltration.

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25

Checks for accuracy: See checks for accuracy for #25

Units: acres

32. **BMP name: Street Sweeping** (reporting of this BMP has been on hold since 2010 due to requirement to sweep 24 x per year)

Definition(s): Includes oil and grit separators.

Source of data: See source of data for #25

Procedure used to compile data: See procedure used for #25

Data analysis: See data analysis for #25; If reported in pounds, divide by 2000 to convert to tons.

Checks for accuracy: See checks for accuracy for #25

Units: tons (=2000 lbs)

33. **BMP name: Urban Stream Restoration** (none has been reported in recent years but it is possible)

Definition(s): Restoring the natural ecosystem by restoring the stream hydrology and natural landscape.

Source of data: The Potomac Basin Coordinator sends a letter with a blank table to the appropriate person in county government and incorporated municipalities, asking him/her to fill out the table with appropriate units of each urban/suburban BMP installed in the county in the past calendar year. In addition, agency partners may also report these projects.

Procedure used to compile data: None needed

Data analysis: None needed

Checks for accuracy: None

Units: linear feet

34. **BMP name: Tree Planting (developed lands)**

Definition(s): any tree plantings on any site except those along rivers and streams, which are considered forested buffers and are treated differently. *Note: expert panel recommendations are expected in 2014.*

Source of data: See source of data for #33; also, WVDOF tracks “seedlings planted,” using categories: erosion control, seedling, and timber production

Procedure used to compile data:

Data analysis: Distribute numbers by county (how?) Sum the totals from the different sources. Divide by 100 to get “acres.”

Checks for accuracy:

Units: acres; We can now also enter # of trees planted, and/or length and width as separate measurements for the same BMP in NEIEN.

35. **BMP name: Erosion/Sediment Control**

Definition(s): practices that protect water resources from sediment pollution and increases in runoff associated with land development activities. By retaining soil on-site, sediment and attached nutrients are prevented from leaving disturbed areas and polluting streams. *Examples:* Silt fence, slope drain, permanent vegetation

Source of data: Applicants for coverage under WV DEP NPDES Stormwater Construction Permit; WVCA projects less than one acre.

Procedure used to compile data: WV DEP enters data into a database (ERIS), then searches the database for acreage permitted in the period of interest, under the Notice of Intent (NOI) and General Permit (GP). These data are summed by county. This number for each county is added to any acres reported by WVCA for projects less than one acre.

Data analysis: Acreages are summed by county.

Checks for accuracy: WV DEP Environmental Enforcement Inspector enforces compliance for sites 1 acre or greater.

Units: acres disturbed

36. **BMP name: Suburban, or non-agricultural, Nutrient Management**

Definition(s): Reduction of fertilizer applications to lawns, golf courses, parks and other pervious surfaces. This practice involves taking a soil sample to determine the appropriate amount of nutrients needed.

Source of data: See source of data for #33. In addition, WVCA staff sends a letter to every golf course in the Basin and asks how many acres are under nutrient management.

Procedure used to compile data: None needed.

Data analysis: Sum the totals from the different sources by county.

Checks for accuracy: None

Units: acres

37. **BMP name: Septic Connection**

Definition(s): Septic connections/hookups represent the replacement of traditional septic systems with connection to and treatment at wastewater treatment plants (WWTPs).

Source of data: Public Service Districts (PSDs)

Procedure used to compile data: WVDEP staff calls PSDs and asks them how many septic systems were connected to sewer lines in the past calendar year.

Data analysis: numbers are summed by county if applicable.

Checks for accuracy: Unreasonably large numbers overall could be questioned. We do not routinely question say, a certain subset, however.

Units: number of systems

38. **BMP name: Septic Pumping**

Definition(s): When septic tanks are pumped and sewage removed, the septic system's capacity to remove settleable and floatable solids from wastewater is increased. On average, septic tanks need to be pumped once every 3-5 years to maintain effectiveness.

Source of data: Septic pumping companies that have DEP permits to dispose of septage at POTWs or by land application.

Procedure used to compile data: WVDEP calls septic pumping companies in the region and asks how many tanks they pumped per county in the past calendar year.

Data analysis: some companies do not track number of septic tanks pumped, and we must take the number of gallons reported to WVDEP under their permit and estimate number of tanks by dividing by 1000. Also, some companies do not track the county in which the pumping was done, so we ask them to estimate the percent of their total pumping business conducted in each county. Then we multiply the total tanks they reported by the appropriate county percentage.

Checks for accuracy:

Units: number of systems

39. **BMP name: Septic denitrification**

Definition: the replacement of traditional septic systems with more advanced systems that have additional nitrogen removal capabilities; provides further treatment of nitrogen through processes that encourage denitrification of the wastewater (excerpt from SBDocTables_06062014.xlsx).

Source of data: partners' knowledge of 319 or other grant-funded projects

Procedure used to compile data:

Data analysis:

Checks for accuracy:

Units: Count (number of systems)

III. Further procedures:

Assembling data:

For non-stormwater BMPs, the PBC uses Microsoft Excel to assemble and store the BMP data. Files are stored on a network drive within WVDEP's system, and are backed up nightly by the Information Technology Office. The file structure is easy to understand: Alana's "Z:" drive/Chesapeake Bay Documents/bmp spreadsheets/...then filed under the "Progress Year," e.g. 2013 July - 2014 June, for which the data were collected.

These data are then entered by hand into the NPS BMP database, accessible at <https://apps.dep.wv.gov/npsbmp/index.cfm>, either county summary data or individual record data for each BMP. This database was created in Fall 2010, and the ability to enter components and landuse information was added in Fall 2011. For the annual data submission, the NPS BMP Database is used to convert the data to an "xml" file.

One of WV's 2015 milestones in the agriculture sector is to "develop and implement a tracking and reporting system for agricultural non-cost-shared BMPs." WVDA staff are coordinating this new database's development with assistance from WVDEP staff and TetraTech. Its functions will be described in the next version of this QAPP.

For stormwater BMPs, the "WV Stormwater BMP Database" was completed by TetraTech for WVDEP in 2013. This database was used for the stormwater BMPs in 2012 as a test; Tetra Tech acquired the data from DEP's ERIS database, DEP staff checked it for accuracy, and TetraTech submitted the xml file to NEIEN. For 2013 Progress and going forward, the WV Stormwater BMP Database is used to generate an "xml" file. One of WV's 2015 milestones in the stormwater sector is to "work with DEP ITO and/or Tetra Tech to incorporate new stormwater performance standards and retrofits into BMP and land use change database," (also see above, Section II. Data acquisition and management, Developed Lands BMPs).

Data review and verification process:

Regarding NRCS cost-shared practices, see attachments:

1. "wv_4_spotChecking.pdf" which is Title 450 General Manual part 407: Documentation, Certification, and Spot Checking
2. "05_quaAssRev.pdf" which is a form used when spot checking
3. "05_engSpotCheckReport.pdf" which is a form used when spot checking

Also see "Checks for Accuracy" in some of the entries above.

By early November, the PBC will review for accuracy and completeness 10% of the new entries in the WV Stormwater BMP database, limiting this review to the fields that are relevant to the Chesapeake Bay Program requirements. The SS will perform a review for accuracy and completeness on 10% of the new entries in the NPS BMP Database. In both cases, if substantial (>5%) errors or omissions are detected, a full review of all entries will be performed in order to ensure accuracy and inform a better procedure for the following year. Duplicates of BMPs reported by non-profits and partners other than DEP will be avoided by the SS or PBC looking at a map (in WV DEP's Stormwater BMP Database) of projects being reported for the progress year, and investigating whether any that are within ~500 ft. of each other are truly different projects.

Regarding agricultural BMPs, by early November, the PBC will contact WVDA and WVCA staff with specific requests to review a certain sample of the data they provided. Specifically, the WV Nutrient Management Coordinator will be tasked with reviewing a subset of the nutrient management data provided by WVDA. BMPs that are installed both through USDA programs and through programs administered by WVCA are not in danger of being counted twice on the same acres, because the Watershed Program Coordinator checks with USDA field office staff to be sure the producers don't already have a USDA contract for the same practice.

Regarding verification, two of West Virginia's 2015 milestones in the agriculture and stormwater sectors are to "enhance the [agriculture/urban stormwater] BMP tracking, verification, and reporting program so that it is consistent with the Chesapeake Bay Program Partnership's forthcoming verification framework and guidance." Formal adoption of lifespans for BMPs will be part of that process. West Virginia will likely adopt a procedure wherein BMPs that are not re-verified at the end of their assigned lifespan will be removed from the system. At this time, all BMPs transmitted from WV through NEIEN to scenario builder use the BMP Event Status Code "Implemented," but we recognize that we can and will begin to use other codes such as "Implemented with verification by State agency" and "Exceeded or out of life span."

For the stormwater verification program, we will likely adopt the distinct categories of regulated, semi-regulated, and unregulated BMPs, with inspection and verification procedures varying for each category. For 2014 Progress, West Virginia will not report any un-inspected stormwater BMPs.

Reporting data to EPA:

The PBC uses Node Client Lite software to submit "NPS BMP Database" xml file through WV DEP's node to the National Environmental Information Exchange Network (NEIEN). Beginning with the 2013 BMP Progress submission, an additional xml file generated by the "WV Stormwater BMP Database" was submitted in this manner. When WVDA's agriculture BMP database becomes operational, it is anticipated that a third separate xml file will be submitted annually for WV's Progress.

National Environmental Information Exchange Network (NEIEN):

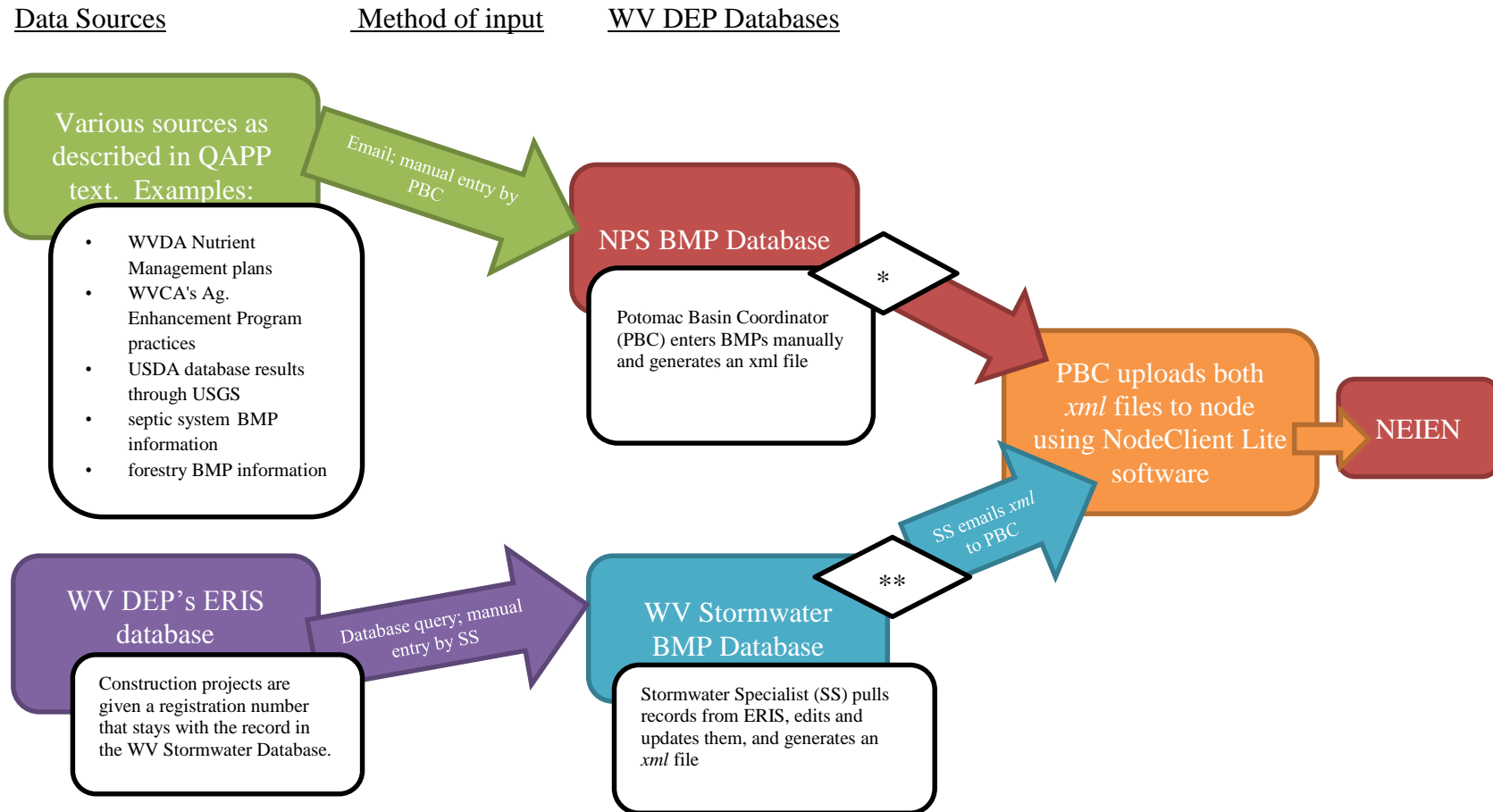
Beginning with the 2010 Progress submission, we supplied these data to the CBP through NEIEN using the nonpoint source BMP schema instead of through an Excel workbook. Beginning with the 2011 Progress submission, our database incorporated "components" elements of BMPs, which allowed us to specify landuses on which practices occurred. So far, we have been using a "full refresh" approach, where previous NEIEN submissions are overwritten by re-submitting the same data again, sometimes with slight modifications based on new knowledge.

To ensure our entries are in the proper format, we work with DEP's Information Technology staff to assign the most recent NPS BMPs codes for NEIEN input tables. The most recent version is the NEIEN Chesapeake Node Codes List - Version 2.11 (Dec. 2013).

To ensure our entries use the proper titles of BMPs and measurement names, we refer to the "NEIEN NPS BMP CBP data flow Appendix A", which is often updated and shared with CBP partners via the website, e.g.: <http://www.chesapeakebay.net/calendar/event/20844>

See also "Custom_082613_SRS_neien_nps_bmp..." PDF file of (NEIEN) Appendix A, but cropped and annotated for WV's use.

Work-flow diagram of the data management structure



*SS checks 10% of new records before finalizing *xml* file from database

**PBC checks 10% of new records before finalizing *xml* file from database

Cumulative versus annual:

Measurements of “annual” BMPs submitted through NEIEN are considered to represent the number on the ground during that progress year. In contrast, measurements of “cumulative” BMPs submitted through NEIEN should be added to the cumulative total of BMPs from the previous year’s submission. The CBP’s Scenario Builder team maintains a list of each type of BMP that WV submits, in the file “AnnCumulBMPsWV.xlsx”

Reasonableness of each BMP’s implementation level:

Reports are circulated to lead staff in various sectors so they can review the final totals and/or subsets of the data for reasonableness. Also refer to the procedures outlined under “Data review and verification process,” above. Errors in units or other database-related errors may be revealed during the Progress Review period, when the CBP modeling team provides NEIEN reports and schedules review meetings with the PBC and other staff to discuss BMP levels that seem too high or too low.

Final QAPP Checklist for 2012-13 Nonpoint Source BMP Data submitted in December 2013:

1. Were the data collected according to an EPA-approved Quality Assurance Plan? *Yes, if this QAPP is approved.*
2. Are the descriptions of the survey design clear, complete and sufficient to enable the survey to be reproduced? *Yes.*
3. Were the compilation and analysis methods performed consistently throughout the data record? *Yes.*
4. If datasets from two or more agencies are merged, are their survey designs and methods comparable? *Yes.*
5. Are uncertainty measurements or estimates available for the data sets? *No.*
6. Do the uncertainty and variability impact the conclusions that can be inferred from the data and the utility of the ultimate use of the data – nutrient and sediment load changes as assessed by CBP watershed models? *Yes.*
7. Are there noteworthy limitations or gaps in the data records? *We believe we adequately address any of these, as they are raised.*

IV. Other Inputs Provided to the Chesapeake Bay Watershed Model

Acres of Harvested Forest

By law, all timber harvest operations are required to notify the WV Division of Forestry. The notifications include, among other items, acreage to be harvested, what type of harvest, location and time period. Data from the notifications are entered into the Logging Operation Notification, Inspection and Enforcement (LONIE) system. The system was developed by the Appalachian Hardwood Center at West Virginia University. The LONIE system can be queried to report on a number of different requests and compile them as an Excel spreadsheet. For acreage reporting, we use job start dates only to avoid double counting. WVDOP reports these acres to WVDEP staff when CBP issues the data call, around August.

Permitted Construction Acres

Concurrently disturbed acres for each Chesapeake Bay watershed county in WV are recorded monthly. This data is pulled directly from ERIS, WVDEP's in-house database for permits. We report the total acres of disturbance permitted under the Construction Stormwater General Permit for each county at the end of that month.

Land Use Change (conversion to developed lands)

In the process of reviewing registrations under the Construction Stormwater General Permit, WVDEP Construction Stormwater staff will track location, developed area and pre- and post-construction land use in the Chesapeake Bay watershed. WVDEP is working with a contractor to develop and implement a database for managing all of our urban stormwater BMP and land use change data.

Number of Septic Inspections or Permits (as an estimate of number of new septic tanks)

Source of data: 8 county health departments

Procedure used to compile data: WVDEP staff calls each health department, and appropriate personnel (sanitarian or other staff member) reports the number of inspections they conducted in previous calendar year. If they do not have this number and are unwilling to tally it, we ask for the number of permits issued.

Data analysis: number is summed by county.

Checks for accuracy:

Units: number of systems

Appendix A: 2011 BMP Reporting Worksheet.xls

County or Municipality: _____ **Person completing form:** _____ **Date** _____

BMP = Best Management Practice

Please note the specific location of each BMP in as many cases as possible! Use another page if necessary.

Developed Lands BMPs	Reporting Units	Briefly list, describe, or tally BMPs installed January 1-Dec 31, 2011
Street Sweeping	lbs collected	Are these streets swept at least 24 times per year? Y: ___ N: ___
Post-construction stormwater management: especially on developments/projects less than one acre	Wet Ponds and Wetlands	acres treated
	Dry Extended Detention Ponds (typical stormwater management dry ponds)	acres treated
	Infiltration Practices	acres treated
	Filtering Practices	acres treated
Impervious Surface Reduction/Non Structural Practices	acres	
Tree Planting (on non-agricultural lands)	acres	
Riparian Forest Buffers (on non-agricultural lands)	acres	
Riparian Grass Buffers (on non-agricultural lands)	acres	
Wetland Restoration (on non-agricultural lands)	acres	
Stream Restoration (on non-agricultural lands)	linear feet	
Nutrient Management (soil testing to avoid over-fertilization, e.g. on park land or golf course)	acres	
Other	(units?)	

Does your city/town or county have a **stormwater management ordinance**? **Y:** ___ **N:** ___ If "No", are you interested in funding to support the development of such an ordinance for your council/commission to consider? **Y:** ___ **N:** ___

Thank you!

Appendix B: Information provided via email by Olivia Devereux 11/8/12, regarding the “Aggregated NRCS and FSA data for Annual Progress Reporting”

Data source: These NRCS data were taken from the National Conservation Database (NCP). NCP is fed by Toolkit and in turn feeds Protracks. NCP interacts with PRS. NCP is the link between all of those NRCS data storage systems.

Aggregation: The rules specified by USDA are that data may be shared only when each practice is reported by five or more producers. Otherwise, individual producers potentially could be identified and this would violate producer confidentiality. Where there were five or more producers reporting a practice in a county, then the data are provided at the county scale. Where there were less than five producers reporting a practice in a county, then the data are provided at the state scale. You may see some data aggregated at both the county and state scale. In these cases, it was possible to aggregate county level data in some places, but not in others. For instance, there could be some counties where there were lots of producers implementing a practice. In other counties, the practice was less popular. In the counties where the practice was less popular, a few of the counties were aggregated to the state scale. There were some practices where there were less than five producers reporting that practice in the state. These data cannot be shared in unaggregated form and are not included.

Geographic Scale: Practices are included for the entire county for all counties that are in the Chesapeake Bay Watershed for your state. There are some counties that have only a portion in the Chesapeake Bay Watershed. When you report to NEIEN, indicate that you are reporting for “state” and do not specify “CBWS-only”. By providing the data at the county scale, there were fewer practices that had to be aggregated to the state scale and fewer that were not able to be reported at all. Scenario Builder apportioned the BMPs throughout the entire county which typically results in less cut-off.

Timeframe: The data are provided by year of practice installation. I provided 2010, 2011, and 2012. The year is for the progress reporting year of July 1 through June 30. The Chesapeake Bay Program will use the total for 2012 for annual practices. For cumulative practices, the 2012 number is summed with 2011, 2010 and the history. The Chesapeake Bay Program has allowed revisions to previous years (2011 and 2010). While resubmissions for these prior years do not change the published progress report for prior years, it can change the amount implemented for this progress report.

CTA: The NRCS Conservation Technical Assistance (CTA) data are included solely for your information. Those practices implemented as CTA did not receive cost-share from USDA. While not strictly voluntary because NRCS did recommend the practice, NRCS has indicated that CTA generally receives a lower level of QA/QC than practices installed under EQIP, CREP, or other cost-share programs. The practices implemented under CTA are generally those that are included in conservation plans anyway and have not previously been reported by most, if not all, states.

FSA and NRCS overlap: For practices that FSA cost-shares, but NRCS provides technical assistance, the practices are included in the FSA data and are not included in the NRCS state-wide summary of CTA. The overlap only occurs for some CRP practices.