

Procedures for Reporting BMP Implementation Data to the Chesapeake Bay Program Office

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1.0 Introduction

This document summarizes procedures used for compiling data on best management practice (BMP) implementation within Pennsylvania for subsequent use by the Chesapeake Bay Program Office (CBPO). Such information is utilized within the Chesapeake Bay watershed model for the estimation of nutrient and sediment loads generated by different source areas within the Pennsylvania portion of the Chesapeake Bay watershed. (Load estimates for areas of the watershed outside of Pennsylvania are derived using similar BMP data prepared by other states as well). The submittal of such information is a requirement of the Chesapeake Bay Implementation Grant agreement between the Pennsylvania Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA) Region 3.

BMP information has been submitted to EPA by DEP and other state agencies within the Chesapeake Bay region for over two decades, and the methods utilized for compiling this information in Pennsylvania for past data submissions have been previously documented (DEP Water Planning Office, 2006 and 2011). As a result of newly-established CBPO data submission requirements, however, it was necessary to use a revised approach starting with the 2010 data submittal. Among other things, this new approach is based on a need to format BMP data in a way that is more directly compatible with “Scenario Builder”, which is the software interface used by CBPO to feed input data to the current version of the Chesapeake Bay watershed model (i.e., Phase 5.3). More specifically, as of December 2010, all BMP information submitted to the CBPO must be in a format compatible with National Environmental Information Exchange Network (NEIEN) protocols that dictate the use of BMP-specific fields and units. A major part of DEP’s data collection effort for 2010 and later involved the “translation” of various BMP descriptions and units currently used by various state and federal programs to the newer NEIEN-compatible format. Procedures for doing this are discussed in greater detail in Section 3.0 of this document.

To a large extent, the process by which data were compiled from various state and federal sources for the 2010 data submission did not differ much from the process used in previous submissions. In fact, the greatest difference was primarily related to the need to complete the additional “NEIEN data translation” step mentioned above. Although the initial data compilation process for 2010 and later has not changed significantly from previous years, it is entirely possible (and expected) that this process for future data compilation efforts will be substantially different, particularly given the expressed desire by DEP to quickly move to much more automated procedures. As this occurs, this document will be updated to reflect any changes in procedures. Provided in the following sections are discussions on: 1) how the BMP data are obtained from the various source agencies and programs, 2) how these data are represented for later submission to EPA via the new NEIEN protocols, and 3) the procedures used to verify the location and implementation of the BMPs reported.

2.0 Primary Agency/Program Data Sources and Data Formats

For data compilations effort completed since 2009, BMP-related information has been obtained from up to 18 different state and federal agency/program (and other) sources for submittal to the CBPO. For the most part, this information has been obtained in electronic format (primarily as Excel spreadsheet files). A listing of the primary sources currently used is given in Table 1 below. In many cases, data for the “post-NEIEN” submissions were obtained from the same sources used in earlier data compilation efforts. In some instances, data were obtained from entirely new sources not used in previous submittals (e.g., SCC Resource Enhancement and Protection Program and DEP’s Nutrient Trading Program). In other cases, sources were not used for submissions after 2010 due to lack of data (e.g. American Farmland Trust) or to the fact that the programs are no longer in existence (e.g., PDA Agri-Link Program).

Table 1. Sources of BMP information.

Data Source/Type	How Information was Received	Staff Contact
DEP Stream Bank Fencing Program	Excel file obtained from program contact	D. Lewis
DEP Chesapeake Bay Implementation Grants	Excel file obtained from program contact	M. Thomas
DEP Section 319 Non-Point Source Program	Excel file obtained from program contact	C. Rohr
DEP Abandoned Mine Land Reclamation Program	Excel file obtained from program contact	B. Bradley
DCNR/PGC Forest Harvest Information	Excel file obtained from program contact	T. Coulter
PA Act 6 Nutrient Management Program ¹	Excel file obtained from program contact	D. Goodlander
PA Growing Greener Grant Program	Excel file obtained from program contact	J. Ritter
PA Chapter 102 Erosion & Sedimentation Program	Excel file obtained from program contact	J. Orr
Urban Stormwater BMPs	Excel file obtained from program contact	J. Orr
FSA program-specific BMPs	Tabular data obtained from FSA website	USGS
NRCS program-specific BMPs	Excel file obtained from program contact	USGS ²
USDA Rural Development Program	Listing received from program contact	S. Gantz
SCC Resource Enhancement and Protection Program	Excel file from program contact	J. Semke
USDA National Agricultural Statistics Service ²	Data obtained from USDA-NASS website	NA
SCC Dirt and Gravel Road Program	Excel file obtained from program contact	S. Bloser
DEP Nutrient Trading Program	Tabular data obtained from program	V. Kasi
PennVest Program	Tabular data obtained from program	R. Boos
DEP Waterways Engineering and Wetlands	Excel file obtained from program contact	W. Kcenich
Grass Roots Program	Tabular data obtained from program	S. Richards

¹ Data for acres of land under nutrient management are also obtained from other sources as described in Section 3.3.3

² Cover crop data is estimated from this and other sources as described in Section 3.3.5.

As indicated in the above table, BMP data from both state and federal sources are obtained and re-formatted for submission to the CBPO via NEIEN. More detailed descriptions of the types of data obtained from these sources, and the “post-processing” that is completed in

order to get these data in a format that can then be used to submit the data via established NEIEN protocols, are provided in the following section.

3.0 Assembling BMP Data for Transfer to CBPO via NEIEN

3.1 Overview of Process

As briefly described in Section 1.0, BMP-related data are obtained from a number of sources. These include data on such activities as agricultural BMPs, urban BMPs, stream protection, manure transport, animal waste management systems, and other similar activities that can potentially result in model-simulated decreases in nutrient and sediment loads within Pennsylvania's portion of the Chesapeake Bay watershed. Depending on the source, information on a variety of BMP types and activities may be included with data obtained from either state or federal programs. In some cases (e.g., NRCS, SCC REAP, DEP Growing Greener, DEP CBIG, and DEP 319 Program), data related to a fairly extensive list of BMPs may be obtained. Whereas in other cases (e.g., the SCC Dirt and Gravel Road Program, the DEP Stream Bank Fencing Program, and the USDA Rural Development Program), information may be provided for only one or two specific BMPs. In all cases, as described in more detail in following sub-sections, additional processing is undertaken to translate BMP information into the specific BMP-related names and units required by NEIEN protocols.

Prior to compiling data for the 2010 submittal, DEP staff prepared an example listing of BMPs and related activities for which it had been collecting information on for various programs, and which represented the types of BMPs and activities that it intended to submit to CBPO for use in future Chesapeake Bay model runs. A copy of this list is provided in Figure 1. Over the years, the types of BMPs compiled have changed as BMP additions and subtractions have been made since this list's initial development. More recently, an Excel-based "BMP Cross-walk" has been developed that contains a list of BMPs that have been submitted by DEP since the advent of NEIEN. Included in this list are the BMP types typically collected from the sources given in Table 1, along with their corresponding BMP name used by CBPO for watershed modeling purposes. Figure 2 shows a screen capture of a part of this crosswalk. A more complete listing of these BMPs is given in Appendix A.

Upon identifying the type of BMP information needed by CBPO, early NEIEN-related efforts were focused on ways to re-format the data to conform to the data requirements of NEIEN and Scenario Builder, and ultimately the Chesapeake Bay model. At present, this is basically done by making various adjustments to Excel files, or other tabular information, obtained from those sources listed in Table 1. These adjustments are based on data formatting guidance provided by CBPO in the form of "Data Flow Appendices."

Using data files and reports obtained from the sources listed in Table 1, a number of Excel files are prepared and delivered to an individual within DEP's Bureau of Information Technology (BIT) who has the responsibility for entering BMP information contained in the Excel files into

Agency	Funding Source	County	Practice Code	BMP	Practice description	Units Installed	Unit Type	Date
State Conservation Commission	Nutrient Management Fund	CENTRE	312	?	ANIMAL WASTE MANAGEMENT SYSTEM	1	number	6/30/09
State Conservation Commission	Nutrient Management Fund	BRADFORD	313	?	ANIMAL WASTE MANAGEMENT SYSTEM	1	number	9/30/09
NRCS	NRCS	JUNIATA	314	yes	Brush Management	88	acre	9/30/09
NRCS	NRCS	CUMBERLAND	316	yes	Animal Mortality Facility	1	no	9/30/09
State Conservation Commission	Nutrient Management Fund	CENTRE	317	yes	Composting Facility	1	number	6/30/09
NRCS	NRCS	DAUPHIN	324	no	Deep Tillage	170	acre	9/30/09
State Conservation Commission	Nutrient Management Fund	CHESTER	327	no	CROPLAND TILLAGE SYSTEM	943.8	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	JUNIATA	328	no	CONSERVATION CROPPING SEQUENCE	6000	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	SULLMAN	329	yes	CONSERVATION TILLAGE SYSTEM	93	ACRE	9/30/09
State Conservation Commission	Nutrient Management Fund	LANCASTER	330	yes	STRIP CROPPING & CONTOUR FARMING SYSTEM	40	ACRE	6/30/09
NRCS	NRCS	ADAMS	331	yes	Contour Orchard and Other Fruit Area	26	acre	9/30/09
NRCS	NRCS	JUNIATA	332	yes	Contour Buffer Strips	25	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	PERRY	340	yes	COVER & GREEN MANURE CROP	2087	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	YORK	342	yes	CRITICAL AREA PLANTING	1	ACRE	9/30/09
NRCS	NRCS	LEBANON	344	yes	Residue Management, Seasonal	5	acre	9/30/09
NRCS	NRCS	YORK	345	yes	Residue and Tillage Management, Mulch Till	450	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	LEBANON	357	no ??	BARNYARD RUNOFF CONTROL	1	ACRE	9/30/09
NRCS	NRCS	LANCASTER	360	yes	Closure of Waste Impoundment	1	no	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	ADAMS	362	yes	DIVERSION	10	ACRE	9/30/09
NRCS	NRCS	PERRY	366	yes	Anaerobic Digester, Ambient or Controlled Temperature	1	no	9/30/09
NRCS	NRCS		378	no	Pond		no	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	YORK	382	yes	FENCING	835	FEET	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	JUNIATA	386	yes	FIELD BORDER	2	FEET	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	FULTON	390	yes	RIPARIAN HERBACEOUS COVER	1	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	TIOGA	391	yes	RIPARIAN FOREST BUFFER	10	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	ADAMS	393	yes	FILTER STRIP	1	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	TIOGA	395	yes	FISH STREAM IMPROVEMENT	100	FEET	9/30/09
NRCS	NRCS	LANCASTER	396	no	Fish Passage	1	mile	9/30/09
NRCS	NRCS	CLINTON	403	no	Irrigation Water Conveyance, Pipeline	3000	feet	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	LEBANON	412	yes	GRASSED WATERWAY	24	ACRE	9/30/09
NRCS	NRCS	DAUPHIN	422	yes	Hedgerow Planting	550	feet	9/30/09
NRCS	NRCS	LUZERNE	441	yes	Irrigation System, Microirrigation	3	acre	9/30/09
NRCS	NRCS	COLUMBIA	442	yes	Irrigation System, Sprinkler	111	acre	9/30/09
NRCS	NRCS	LUZERNE	443	no	Irrigation System, Surface and Subsurface	5	acre	9/30/09
NRCS	NRCS	ADAMS	449	yes	Irrigation Water Management	47	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	YORK	468	yes	LINED WATERWAY OR OUTLET	1	NUMBER	9/30/09
NRCS	NRCS	BRADFORD	472	yes	Access Control	626	acre	9/30/09
NRCS	NRCS	LYCOMING	490	no	Tree/Shrub Site Preparation	3	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	JUNIATA	500	no	OBSTRUCTION REMOVAL	1	ACRE	9/30/09
NRCS	NRCS	SNYDER	511	yes	Forage Harvest Management	17	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CLINTON	512	yes	PASTURE & HAYLAND PLANTING	3	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	HUNTINGDON	516	yes	PIPELINE	3300	FEET	9/30/09
NRCS	NRCS	YORK	521	yes	Pond Sealing or Lining	2	no	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CENTRE	528	yes	Prescribed Grazing	12	ACRE	9/30/09
NRCS	NRCS	PERRY	553	no	Pumping Plant	140	no	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	NORTHUMBERLAND	558	yes	ROOF RUNOFF MANAGEMENT	1	NUMBER	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CLINTON	560	yes	ACCESS ROAD	1603	FEET	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	YORK	561	yes	HEAVY USE AREA PROTECTION	1	NUMBER	9/30/09
State Conservation Commission	Nutrient Management Fund	LANCASTER	570	yes	RUNOFF MANAGEMENT SYSTEM	1	number	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	LEBANON	574	yes	SPRING DEVELOPMENT	1	NUMBER	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	ADAMS	575	yes	ANIMAL TRAILS & WALKWAYS	1300	FEET	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	YORK	578	no	STREAM CROSSING	819	FEET	9/30/09

Figure 1. Example BMP data prepared in advance of 2010 NEIEN submittal by DEP.

Agency	Funding Source	County	Practice Code	BMP	Practice description	Units Installed	Unit Type	Date
Pa DEP	Chesapeake Bay Implementation Grant	CAMBRIA	580	yes	STREAMBANK & SHORELINE PROTECTION	800	FEET	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	LYCOMING	584	yes	STREAM CHANNEL STABILIZATION	500	FEET	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	JUNIATA	585	yes	STRIP CROPPING-CONTOUR	21	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	YORK	587	no	STRUCTURE FOR WATER CONTROL	1	NUMBER	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CENTRE	590	yes	NUTRIENT MANAGEMENT PLAN	1	NUMBER	9/30/09
NRCS	NRCS	WYOMING	595	no	Pest Management	103	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	ADAMS	800	yes	TERRACE	45	ACRE	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	HUNTINGDON	808	yes	SUB SURFACE DRAIN	450	FEET	9/30/09
NRCS	NRCS	CHESTER	812	yes	Tree/Shrub Establishment	3	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	ADAMS	814	no	TROUGH OR TANK	1	NUMBER	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	NORTHUMBERLAND	820	yes	UNDERGROUND OUTLET	1	NUMBER	9/30/09
NRCS	NRCS	CHESTER	833	no	Waste Utilization	77	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CHESTER	834	no	MANURE WASTE TRANSFER	1	NUMBER	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CHESTER	835	yes	WASTEWATER TREATMENT STRIP	1	ACRE	9/30/09
NRCS	NRCS	FRANKLIN	835	yes	Vegetated Treatment Area	1	acre	9/30/09
NRCS	NRCS	BERKS	838	yes	Water and Sediment Control Basin	2	no	9/30/09
NRCS	NRCS	FRANKLIN	842	no	Water Well	13	no	9/30/09
NRCS	NRCS	LYCOMING	844	no	Wetland/Wildlife Habitat Management	4	acre	9/30/09
NRCS	NRCS	NORTHUMBERLAND	845	no	Upland Wildlife Habitat Management	106	acre	9/30/09
NRCS	NRCS	SNYDER	846	yes	Shallow Water Development and Management	4	acre	9/30/09
NRCS	NRCS	SOMERSET	847	yes	Early Successional Habitat Development/Management	16	acre	9/30/09
NRCS	NRCS	MONTOUR	857	yes	Wetland Restoration	37	acre	9/30/09
NRCS	NRCS	CAMBRIA	859	yes	Wetland Enhancement	5	acre	9/30/09
NRCS	NRCS	LYCOMING	860	no	Tree/Shrub Pruning	170	acre	9/30/09
NRCS	NRCS	TIOGA	866	yes	Forest Stand Improvement	48	acre	9/30/09
Pa DEP	Chesapeake Bay Implementation Grant	CENTRE	999	no	SOIL ANALYSIS	44	NUMBER	9/30/09
NRCS	NRCS	ADAMS	313/317/359	yes	Total Waste Storage	5	no	9/30/09
NRCS	NRCS	LANCASTER	329A	yes	Residue Management, No-Till/Strip Till	31	acre	9/30/09
NRCS	NRCS	CENTRE	329B	yes	Residue Management, Mulch Till	131	acre	9/30/09
NRCS	NRCS	JUNIATA	329C	yes	Residue Management	13	acre	9/30/09
NRCS	NRCS	FRANKLIN	380/650	yes	Windbreak/Shelterbelt	1158	acre	9/30/09
NRCS	NRCS	BEDFORD	395/644/645	yes	Total Wildlife Habitat	10	acre	9/30/09
State Conservation Commission	Nutrient Management Fund	FRANKLIN	521A	yes	POND SEALING-FLEXIBLE MEMBRANE	1	number	9/30/09
NRCS	NRCS	POTTER	528A	yes	Prescribed Grazing	259	acre	9/30/09
NRCS	NRCS	HUNTINGDON	657/658/659	yes	Wetlands Created, Restored, or Enhanced	2	acre	9/30/09
NRCS	NRCS	POTTER	686/612	yes	Forestland Re-established or Improved	121	acre	9/30/09
FSA	FSA	BRADFORD	CP1	yes	INTRODUCED GRASSES	618.5	acre	9/30/09
FSA	FSA	FULTON	CP10	yes	ESTABLISHED GRASS	-986.2	acre	9/30/09
FSA	FSA	SCHUYLKILL	CP11	yes	ESTABLISHED TREES	-3.9	acre	9/30/09
FSA	FSA	LYCOMING	CP12	no	WILDLIFE FOOD PLOTS	3.8	acre	9/30/09
FSA	FSA	LUZERNE	CP15A	yes	CONTOUR GRASS STRIPS	6.2	acre	9/30/09
FSA	FSA	LUZERNE	CP2	yes	NATIVE GRASSES	39.9	acre	9/30/09
FSA	FSA	UNION	CP21	yes	FILTER STRIPS	-12.9	acre	9/30/09
FSA	FSA	TIOGA	CP22	yes	RIPARIAN BUFFERS	145.8	acre	9/30/09
FSA	FSA	MONTOUR	CP23	yes	WETLAND RESTORATION	-12.5	acre	9/30/09
FSA	FSA	SUSQUEHANNA	CP29	no??	MARGINAL PASTURELAND WILDLIFE HABITAT	8.2	acre	9/30/09
FSA	FSA	DAUPHIN	CP3	yes	TREE PLANTING	-20.3	acre	9/30/09
FSA	FSA	LANCASTER	CP30	no??	PASTURELAND WETLAND BUFFER	8.7	acre	9/30/09
FSA	FSA	CAMBRIA	CP3A	yes	HARDWOOD TREE PLANTING	-25.8	acre	9/30/09
FSA	FSA	YORK	CP4B	no	HABITAT CORRIDOR (SU 10+)	-12.4	acre	9/30/09
FSA	FSA	LANCASTER	CP4D	yes	WILDLIFE HABITAT (SU 10+)	30.8	acre	9/30/09
FSA	FSA	HUNTINGDON	CP5A	yes	FIELD WINDBREAKS (SU 10+)	-3.3	acre	9/30/09
FSA	FSA	INDIANA	CP8	yes	GRASS WATERWAYS (SU 1-12)	4.2	acre	9/30/09
FSA	FSA	HUNTINGDON	CP9	no	WILDLIFE WATER	-1.9	acre	9/30/09
State Conservation Commission	Nutrient Management Fund	LANCASTER	n/a		Nutrient Management	32.7	ACRE	6/30/09

Figure 1. Example BMP data prepared in advance of 2010 NEIEN submittal by DEP (cont.)

Funding Source	County Name	BufferTypeDesc	LengthFirstSide	AverageWidthFirst	Acres - First	LengthSecond Side	AverageWidthSecond	Acres - Second	Acres - All
DEP Stream Relief	Adams	Forest	3300	50	3.8	3300	50	3.8	7.6
DEP Stream Relief	Montgomery	Forest	1200	50	1.4	1230	50	1.4	2.8
Commodity	Practice	Year	State	County	District	Planted (acres)			
USDA National Agriculture Statistics Service	Wheat Winter All	Cover Crop	2008	Pennsylvania	Adams	80	12,900		
Agency	BMP TYPE	COUNTY	Non-Urban Acres	Urban Acres					
DCNR	Erosion and Sedimentation Control Plan	Bedford	20						
DCNR	Planting - Wildlife	Centre	13						
DCNR	Wildlife Habitat Development	Centre	28						
DCNR	Stream Improvement for Fish Habitat	Schuylkill	100						
DCNR	Wildlife Habitat Development	Snyder	15						
DCNR	Trees Planted	Franklin	350						
DCNR	Trees Planted	Snyder		250					
USDA Rural Development County	Practice	Units hooked-Up	Unit Description	Watershed					
Dauphin Borough	Septic System Hook-Ups	15	Systems	Stoney Creek					
Dirt and Gravel Road Program - Fictibus Values County	Municipality	Practice	Practice Units Installed	Unit Description					
Bedford	Southampton	E&S Controls and outlets	2530	Feet					
Fulton	Licking Creek	Outlets Only	1850	Feet					
Lycoming	Cummings	Surface Aggregate and Raised Roadbed	876	Feet					
Stormwater Management - Fictibus Values County	Practice	Practice Units Installed	Unit Description						
BLAIR	Wet Ponds and Wetlands	267	acres						
FRANKLIN	Dry Detention Ponds and Hydrodynamic Structures	850	acres						
LANCASTER	Dry Detention Ponds	623	acres						
MIFFLIN	Infiltration Practices	250	acres						
TIOGA	Filtering Practices	36	acres						

Figure 1. Example BMP data prepared in advance of 2010 NEIEN submittal by DEP (cont.)

an internal NPS BMP database, which is subsequently used for transferring data to CBPO in XML format via NEIEN. (In the past various individuals within BMP have provided this service. As of the 2013 NEIEN submission, this has been the responsibility of John Griffin). During this process, data relating to BMPs contained in the Excel files are revised and corrected as needed to ensure that all data are properly submitted to CBPO. In 2013, a standardized approach for formatting the initial Excel files that are delivered to BIT was implemented to facilitate the process of getting the BMP data compiled from various agency/program sources into DEP’s internal NPS BMP database. Figure 3 illustrates this format using data from DEP’s 319 Program. In this case, specific codes included in “look-up” tables are used to create the necessary units and field required by NEIEN. Included in Appendix B is a more complete listing of how the BMPs from different sources are represented in the Excel files created for each program that are subsequently imported into DEP’s NPS BMP database.

	A	B	C
1	Source BMP Name	NPSBMP_NAME	Source programs
2	Access Control	Access Control	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
3	Animal Mortality Facility	Animal Mortality Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
4	Animal Trails & Walkways	Animal Trails and Walkways	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
5	Solid/Liquid Waste Separation Facility	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
6	Waste Management System	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
7	Waste Storage Facility	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
8	Waste Storage Pond	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
9	Waste Storage Structure	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
10	Barnyard Controls	Barnyard Runoff Controls	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
11	Barnyard Runoff Management	Barnyard Runoff Controls	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
12	Rain gardens/Bio-retention	Bioretention	Urban Stormwater BMPs
13	Vegetated Swales	Bioswale	Urban Stormwater BMPs
14	Brush Management	Brush Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
15	Cover Crop (NASS Winter Wheat)	Commodity Cover Crop- Standard	From NASS at present; likely to change in future
16	Compost Facility	Composting Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
17	Dead Poultry Composting Facility	Composting Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
18	Conservation Cover	Conservation Cover	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
19	Wildlife food plot	Conservation Cover	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
20	Conservation Crop Rotation	Conservation Crop Rotation	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
21	Conservation Cropping Sequence	Conservation Crop Rotation	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
22	Conservation Plan Supporting Organic Transiti	Conservation Plan	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
23	Conservation Plans	Conservation Plans	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
24	Conservation Tillage	Conservation Tillage	Currently done using CRC&D survey
25	Constructed Wetland	Constructed Wetland	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
26	Contour Buffer Strips	Contour Buffer Strips	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
27	Contour Farming	Contour Farming	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
28	Continuous cover crops	Cover Crops - Wheat	From NRCS at present
29	Cover Crop	Cover Crops - Wheat	From NRCS at present
30	Use of Cover Crop Mixes	Cover Crops - Wheat	From NRCS at present
31	Riparian buffer	CREP Riparian Forest Buffer	From FSA
32	Permanent wildlife habitat, non-easement	CREP Wildlife Habitat	From FSA
33	Critical Area Planting	Critical Area Planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener

Figure 2. Example of part of new data cross-walk showing the “source” BMP names, the “Bay” BMP names, and the typical sources from which the BMPs are obtained.

3.2 Source-Specific Data Compilation Procedures

In this section, brief descriptions of data obtained, and procedures used, for compiling BMP data for the program sources given in Table 1 are provided, along with examples of the files used and/or created during the process. It should be noted that the results of past NEIEN data submissions are still being evaluated, and that some of the sources and descriptions given may change through time. Consequently, expectations are that this procedures document will be updated as necessary in the future in order to provide sufficient guidance on the preparation and submittal of BMP data to the CBPO in the future.

In some cases, estimates of implementation levels of various BMPs (i.e., nutrient management, cover crops, conservation tillage, street sweeping, and manure transport) are derived from several of the sources listed in Table 1 or are compiled via more specialized procedures. These are discussed separately in Section 3.3

3.2.1 DEP Stream Bank Fencing Program

Contact: David Lewis, DEP Conservation & Restoration (717-783-5205, dalewis@pa.gov)

Data Compilation Procedures

Data from DEP's streambank fencing program is obtained in tabular form (e.g., listed in an email or given in a Word document) from Mr. David Lewis of the Bureau of Conservation and Restoration and subsequently entered into an Excel file that is then provided to the responsible individual in DEP/BIT. This data is initially obtained by Mr. Lewis from staff located in DEP's regional offices located throughout the state.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. However, any BMP activities identified as being federally-funded (either partially or fully) are removed before compiling the data for submission to CBPO. These deletions are typically reported as part of the NRCS data submitted to CBPO as described in later sections.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERAL_BMP	CHESAPEAKE_BMP
2	Luzerne	Stream Channel Stabilization	56	1	700	18	1	41	4/22/2014	N	Y
3	Chester	Urban Forest Buffer	827	1	9.53	119	5	57	4/10/2014	N	Y
4	Centre	Fencing	107	1	922	18	1	52	10/3/2013	N	Y
5	Northumberland	Animal Waste Management Systems (All Types)	313	2	1	177	1	53	4/2/2014	N	Y
6	Northumberland	Nutrient Management	153	1	400	119	1	108	4/2/2014	N	Y
7	Warren	Conservation Plans	314	1	150	119	1	40	5/5/2014	N	Y
8	Warren	Fencing	107	1	5697	18	1	52	5/5/2014	N	Y
9	Blair	Riparian Forest Buffer	184	2	0.09	119	1	57	1/27/2014	N	Y
10	Blair	Stream Channel Stabilization	56	1	722	18	1	41	1/27/2014	N	Y
11	Northumberland	Grass Buffers	245	1	1.06	119	1	39	11/4/2013	N	Y
12	Northumberland	Stream Channel Stabilization	56	1	4250	18	1	41	11/4/2013	N	Y
13	Franklin	Conservation Plans	314	1	378	119	1	40	1/28/2014	N	Y
14	Franklin	Stream Channel Stabilization	56	1	360	18	1	41	1/28/2014	N	Y
15	York	Riparian Forest Buffer	184	2	7.18	119	1	57	11/4/2013	N	Y
16	York	Fencing	107	1	1110	18	1	52	11/4/2013	N	Y
17	York	Wet Ponds & Wetlands	360	1	0.76	119	5	48	10/1/2013	N	Y
18	Dauphin	Conservation Plans	314	1	160	119	1	40	4/7/2014	N	Y
19	Mifflin	Prescribed Grazing	173	2	241.2	119	1	57	10/25/2013	N	Y
20	Mifflin	Fencing	107	1	710	18	1	52	10/25/2013	N	Y
21	York	Urban Forest Buffer	827	1	3.49	119	5	57	8/16/2013	N	Y
22	Mifflin	Nutrient Management	153	1	347	119	1	108	10/17/2013	N	Y
23	Mifflin	Fencing	107	1	6878	18	1	52	10/17/2013	N	Y
24	Luzerne	Urban stream restoration	233	1	692	18	5	78	8/5/2013	N	Y
25	Luzerne	Urban Forest Buffer	827	1	0.19	119	5	57	8/5/2013	N	Y
26	Luzerne	Stream Channel Stabilization	56	1	1877	18	1	41	11/19/2013	N	Y
27	Bradford	Stream Channel Stabilization	56	1	6956	18	1	41	6/19/2014	N	Y
28	Union	Conservation Plans	314	1	5500	119	1	40	10/22/2013	N	Y
29	Bedford	Stream Channel Stabilization	56	1	400	18	1	41	10/22/2013	N	Y
30	York	Riparian Forest Buffer	184	2	1.21	119	1	57	6/28/2014	N	Y
31	Wyoming	Stream Channel Stabilization	56	1	1500	18	1	41	11/18/2013	N	Y
32											

Figure 3. Example of standardized format using “fixed fields” for transferring data containing program-specific BMP data to DEP’s NPS BMP database within BIT. In this example, data from DEP’s 319 program for use in the 2014 NEIEN submission are shown.

3.2.2 DEP CBIG and Nutrient Management Act Programs

Contact: Michael Thomas, DEP Conservation & Restoration (717-772-5623, michthomas@pa.gov)

Data Compilation Procedures

BMP implementation data related to DEP's Chesapeake Bay Innovation Grants and Nutrient Management Act programs are initially compiled separately by various DEP staff and other DEP-supported staff in offices (primarily County Conservation Districts) located throughout the state. These data are submitted to DEP's central office in Harrisburg where they are entered into an ACCESS database. For NEIEN reporting purposes, a request is made to an individual within DEP/BCR (most recently Mike Thomas), who then prepares a "BMP extract" for any given year. A view of a portion of the CBIG extract prepared for 2014 is shown in Figures 4a, and a view of a portion of the "NEIEN-formatted" data for transfer to DEP's NPS BMP database is shown in Figure 4b.

Both of the DEP source programs mentioned above fund the implementation of a number of agricultural BMPs. An example of just the CBIG data is shown in Figures 5a and 5b; however, the Nutrient Management program does fund similar, but fewer, field-scale agricultural BMPs. However, the latter program also specifically funds nutrient management, which the former program does not. Within Pennsylvania, the total acres under nutrient management from year-to-year are also compiled using data from other sources as well, which are described more fully in Section 3.3.3.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. However, any BMP activities identified as being federally-funded (either partially or fully) are removed before compiling the data for submission to CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

	A	B	C	D	E	F	G	H	I	J
1	County	Watershed Name	Practice Code	Practice Desc	Units Installed	Unit	CBP cost share	Landowner cost	Federal/other cost	Quarter ending
2	ADAMS	CONEWAGO CR. (WEST)	560	ACCESS ROAD	244	FEET	0.00	195.20	585.60	3/31/2014
3	ADAMS	CONEWAGO CR. (WEST)	560	ACCESS ROAD	248	FEET	585.60	195.20	0.00	12/31/2013
4	ADAMS	CONEWAGO CR. (WEST)	362	DIVERSION	1	ACRE	0.00	0.00	250.25	12/31/2013
5	ADAMS	CONEWAGO CR. (WEST)	362	DIVERSION	4	ACRE	0.00	0.00	1,235.00	9/30/2013
6	ADAMS	ROCK CREEK	362	DIVERSION	7	ACRE	0.00	0.00	3,606.20	9/30/2013
7	ADAMS	CONEWAGO CR. (WEST)	382	FENCING	1253	FEET	0.00	626.50	3,759.00	12/31/2013
8	ADAMS	CONEWAGO CR. (WEST)	382	FENCING	1572	FEET	0.00	2,358.00	3,144.00	12/31/2013
9	ADAMS	CONEWAGO CR. (WEST)	382	FENCING	2910	FEET	0.00	0.00	8,534.10	12/31/2013
10	ADAMS	CONEWAGO CR. (WEST)	382	FENCING	5240	FEET	0.00	7,632.80	7,232.00	12/31/2013
11	ADAMS	CONEWAGO CR. (WEST)	382	FENCING	7625	FEET	9,153.10	8,302.21	3,027.80	3/31/2014
12	ADAMS	CONEWAGO CR. (WEST)	382	FENCING	7756	FEET	12,180.90	8,302.17	0.00	12/31/2013
13	ADAMS	CONEWAGO CR. (WEST)	412	GRASSED WATERWAY	1	ACRE	0.00	0.00	91,206.00	6/30/2014
14	ADAMS	CONEWAGO CR. (WEST)	412	GRASSED WATERWAY	2	ACRE	0.00	0.00	10,480.00	9/30/2013
15	ADAMS	CONEWAGO CR. (WEST)	412	GRASSED WATERWAY	2	ACRE	0.00	0.00	1,185.50	6/30/2014
16	ADAMS	ROCK CREEK	412	GRASSED WATERWAY	2	ACRE	0.00	0.00	10,825.00	9/30/2013
17	ADAMS	CONEWAGO CR. (WEST)	412	GRASSED WATERWAY	3	ACRE	0.00	0.00	218,907.00	6/30/2014
18	ADAMS	ROCK CREEK	412	GRASSED WATERWAY	600	ACRE	4,434.00	1,478.00	0.00	9/30/2013
19	ADAMS	CONEWAGO CR. (WEST)	468	LINED WATERWAY OR OUTLET	1	NUMBER	0.00	0.00	708.00	6/30/2014
20	ADAMS	CONEWAGO CR. (WEST)	468	LINED WATERWAY OR OUTLET	1	NUMBER	0.00	0.00	1,953.00	6/30/2014
21	ADAMS	ROCK CREEK	468	LINED WATERWAY OR OUTLET	1	NUMBER	0.00	0.00	1,657.60	9/30/2013
22	ADAMS	CONEWAGO CR. (WEST)	590	NUTRIENT MANAGEMENT PLAN	1	NUMBER	63.00	0.00	0.00	3/31/2014
23	ADAMS	CONEWAGO CR. (WEST)	590	NUTRIENT MANAGEMENT PLAN	1	NUMBER	42.75	0.00	0.00	3/31/2014
24	ADAMS	CONEWAGO CR. (WEST)	500	OBSTRUCTION REMOVAL	1	ACRE	0.00	0.00	93.00	6/30/2014
25	ADAMS	CONEWAGO CR. (WEST)	516	PIPELINE	1300	FEET	0.00	774.76	3,099.06	12/31/2013
26	ADAMS	CONEWAGO CR. (WEST)	578	STREAM CROSSING	3	FEET	8,143.28	2,714.43	0.00	12/31/2013
27	ADAMS	ROCK CREEK	587	STRUCTURE FOR WATER CONTROL	1	NUMBER	33.42	110.14	0.00	9/30/2013
28	ADAMS	ROCK CREEK	587	STRUCTURE FOR WATER CONTROL	3	NUMBER	0.00	0.00	2,700.00	9/30/2013
29	ADAMS	CONEWAGO CR. (WEST)	606	SUBSURFACE DRAIN	298	FEET	0.00	0.00	1,192.00	6/30/2014

Figure 4a. View of portion of file showing original CBIG data.

	A	B	C	D	E	F	G	H	I	J
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE	NPSBMP_NAME_TYPE_CODE	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERA
2	CENTRE	Animal Trails and Walkways	77	2	200	18	1	78	9/30/2013	N
3	DAUPHIN	Animal Trails and Walkways	77	2	2850	18	1	78	6/30/2014	N
4	SNYDER	Animal Trails and Walkways	77	2	1168	18	1	78	12/31/2013	N
5	CLINTON	Critical Area Planting	95	2	1	119	1	57	6/30/2014	N
6	YORK	Critical Area Planting	95	2	1	119	1	57	6/30/2014	N
7	BRADFORD	Diversion	101	2	1	119	1	57	9/30/2013	N
8	CENTRE	Diversion	101	2	1	119	1	57	9/30/2013	N
9	CLINTON	Diversion	101	2	1	119	1	57	6/30/2014	N
10	DAUPHIN	Diversion	101	2	1	119	1	57	6/30/2014	N
11	DAUPHIN	Diversion	101	2	1	119	1	57	6/30/2014	N
12	ADAMS	Fencing	107	1	7756	18	1	52	12/31/2013	N
13	BERKS	Fencing	107	1	144	18	1	52	6/30/2014	N
14	BRADFORD	Fencing	107	1	1241	18	1	52	9/30/2013	N
15	CENTRE	Fencing	107	1	1149	18	1	52	9/30/2013	N
16	CENTRE	Fencing	107	1	2260	18	1	52	12/31/2013	N
17	CENTRE	Fencing	107	1	610	18	1	52	9/30/2013	N
18	CENTRE	Fencing	107	1	220	18	1	52	12/31/2013	N
19	CENTRE	Fencing	107	1	770	18	1	52	12/31/2013	N
20	FRANKLIN	Fencing	107	1	957	18	1	52	6/30/2014	N
21	FRANKLIN	Fencing	107	1	314	18	1	52	6/30/2014	N
22	LANCASTER	Fencing	107	1	200	18	1	52	12/31/2013	N
23	SNYDER	Fencing	107	1	5416	18	1	52	6/30/2014	N
24	SNYDER	Fencing	107	1	160	18	1	52	12/31/2013	N
25	WYOMING	Fencing	107	1	2770	18	1	52	6/30/2014	N
26	YORK	Fencing	107	1	1312	18	1	52	6/30/2014	N
27	ADAMS	Grassed Waterway	120	2	600	119	1	57	9/30/2013	N
28	DAUPHIN	Grassed Waterway	120	2	3	119	1	57	6/30/2014	N
29	FRANKLIN	Grassed Waterway	120	2	1	119	1	57	6/30/2014	N
30	LANCASTER	Grassed Waterway	120	2	1	119	1	57	6/30/2014	N
31	BERKS	Heavy Use Area Protection	122	2	1	119	1	57	6/30/2014	N
32	BERKS	Heavy Use Area Protection	122	2	1	119	1	57	6/30/2014	N
33	BRADFORD	Heavy Use Area Protection	122	2	1	119	1	57	9/30/2013	N
34	BRADFORD	Heavy Use Area Protection	122	2	1	119	1	57	9/30/2013	N

Figure 4b. View of file showing “NEIEN-formatted” data for entry into DEP’s NPS BMP database.

3.2.3 DEP Growing Greener Program

Contact: Jennifer Ritter, DEP Grants Center (717-705-3565, jritter@pa.gov)

Data Compilation

In NEIEN submissions prior to 2012, BMP data associated with this particular program were assembled in GIS format by Garry Price within DEP/BCR. However, Mr. Price has since retired, and information on BMP implementation levels is now obtained from Growing Greener project completion reports obtained from Jennifer Ritter at DEP's Grants Center. These reports describe types and extents of various BMPs (mostly agricultural), and this information is used to prepare the Excel files that are subsequently provide to BIT for inclusion in the NPS BMP database. Shown in Figure 5a are two pages from a typical Growing Greener project report. Figure 5b shows BMP data compiled from such reports for the 2014 NEIEN submission.

Data Verification

Information on BMP implementation obtained from the above reports is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. However, any BMP activities identified as being federally-funded (either partially or fully) are removed before compiling the data for submission to CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.3 DEP Section 319 Program

Contact: Carl Rohr, DEP Conservation Program (717-772-5653, crohr@pa.gov)

Data Compilation

Information on BMPs funded by Section 319 funds is tracked by Carl Rohr in DEP/BCR. For NEIEN reporting purposes, a request is initially made to Mr. Rohr, who then prepares an Excel file that contains "raw" information on the location and extent of 319-funded BMPs. As with other programs, this information is re-formatted into NEIEN-specific fields and values for later inclusion in BIT's NPS BMP database. Examples of "raw" and "NEIEN-formatted" BMP data for 2014 are shown in Figures 6a and 6b, respectively.



Growing Greener Goals and Accomplishments Worksheets

Project Name: Small Farm Agricultural Stewardship Program II
 Project Number: NW080113 \ 4100050385 County: Warren
 State Watershed Plan Name and Code:
 Date Prepared: 06/09/2014

This Report is:

- Project Goals
- Project Accomplishments

Project Type:

- Organization of a Watershed Group (complete Sheet A*)

Watershed Assessments and Development of Restoration and/or Protection Plan
 (check all that apply and complete Sheet B*)

- AML/AMD
- Non-Point Source
- Assessment
- Development of a Restoration Plan
- Development of a Protection Plan

Implementation of Watershed Restoration and/or Protection Project
 (check all that apply and complete sheets C, D, E, F and G*)

- AML/AMD
- Oil and Gas
- Non-Point Source
- Restoration
- Protection

- Demonstration (complete Sheet H*)
- Education/Outreach (complete Sheet I*)

*Please complete all appropriate information on the sheet(s) corresponding to your project type(s). Leave blank any sheets or information which do not apply to your project. If you have any questions, please contact the DEP Grants Center at (717)705-5400.

Keywords:

diversion wells, manure storage



Non-Point Agricultural



Farmstead/Barnyard

Manure Storages:

Type	#	Vol. (cub. ft)	AEU's

Latitude:
Longitude:

Barnyard runoff controls:

- Built with manure storage: 0 #
- Built w/out manure storage: 0 #
- Curbing: 0.00 ft
- Roof gutters: 730.00 ft
- Buffer strips: 0.00 ft
- Silage Leachate Treatment Systems 2
- Structures for Water Control 6
- Animal Trail & Walkway 2,400 ft

Describe your organization's other activities to date:

Improvements such as improved walkways, grassed waterways and diversion were applied to existing pasture systems. Approximately 150 acres of cropland was converted to pasture, with watering systems being developed to eliminate the need for animals to have continuous access to streams or ponds. These pasture acres were set up to be managed grazed systems. Four farms installed Heavy Use Area Protection practices in their barnyards. Two farms installed Roof Runoff Structures. Two farms installed complete Silage Leachate Treatment Systems.

Upland

Soil conservation plans developed:

- On conventional cropland: 0.00 acres
- On hayland: 0.00 acres
- On pasture: 150.00 acres
- Grazing land: 0.00 acres protected
- No till: 0.00 acres protected
- Cover crops planted: 0.00 acres planted
- Nutrient management plans: 0.00 acres
- Waterways: 200.00 ft
- Diversions/Terraces: 700.00 ft
- Pesticide management: 0.00 acres
- Wildlife land improved: 0.00 acres
- Woodland improved: 0.00 acres
- Stream fencing: 5,697.00 ft
- Stabilized crossings: 0 ft
- Latitude:
- Longitude:

Figure 5a. View of information contained in a typical Growing Greener report.

	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERAL_BMP	CHESAPEAKE_BMP
2	Luzerne	Stream Channel Stabilization	56	1	700	18	1	41	4/22/2014	N	Y
3	Chester	Urban Forest Buffer	827	1	9.53	119	5	57	4/10/2014	N	Y
4	Centre	Fencing	107	1	922	18	1	52	10/3/2013	N	Y
5	Northumberland	Animal Waste Management Systems (All Types)	313	2	1	177	1	53	4/2/2014	N	Y
6	Northumberland	Nutrient Management	159	1	400	119	1	108	4/2/2014	N	Y
7	Warren	Conservation Plans	314	1	150	119	1	40	5/5/2014	N	Y
8	Warren	Fencing	107	1	5697	18	1	52	5/5/2014	N	Y
9	Blair	Riparian Forest Buffer	184	2	0.09	119	1	57	1/27/2014	N	Y
10	Blair	Stream Channel Stabilization	56	1	722	18	1	41	1/27/2014	N	Y
11	Northumberland	Grass Buffers	245	1	1.06	119	1	39	1/4/2013	N	Y
12	Northumberland	Stream Channel Stabilization	56	1	4250	18	1	41	1/4/2013	N	Y
13	Franklin	Conservation Plans	314	1	378	119	1	40	1/28/2014	N	Y
14	Franklin	Stream Channel Stabilization	56	1	360	18	1	41	1/28/2014	N	Y
15	York	Riparian Forest Buffer	184	2	7.18	119	1	57	1/4/2013	N	Y
16	York	Fencing	107	1	1110	18	1	52	1/4/2013	N	Y
17	York	Wet Ponds & Wetlands	360	1	0.76	119	5	48	10/1/2013	N	Y
18	Dauphin	Conservation Plans	314	1	160	119	1	40	4/7/2014	N	Y
19	Mifflin	Prescribed Grazing	173	2	241.2	119	1	57	10/25/2013	N	Y
20	Mifflin	Fencing	107	1	710	18	1	52	10/25/2013	N	Y
21	York	Urban Forest Buffer	827	1	3.49	119	5	57	8/16/2013	N	Y
22	Mifflin	Nutrient Management	159	1	347	119	1	108	10/17/2013	N	Y
23	Mifflin	Fencing	107	1	6878	18	1	52	10/17/2013	N	Y
24	Luzerne	Urban stream restoration	233	1	692	18	5	78	8/5/2013	N	Y
25	Luzerne	Urban Forest Buffer	827	1	0.19	119	5	57	8/5/2013	N	Y
26	Luzerne	Stream Channel Stabilization	56	1	1877	18	1	41	11/19/2013	N	Y
27	Bradford	Stream Channel Stabilization	56	1	6956	18	1	41	6/18/2014	N	Y
28	Union	Conservation Plans	314	1	5500	119	1	40	10/22/2013	N	Y
29	Bedford	Stream Channel Stabilization	56	1	400	18	1	41	10/22/2013	N	Y
30	York	Riparian Forest Buffer	184	2	1.21	119	1	57	6/26/2014	N	Y
31	Wyoming	Stream Channel Stabilization	56	1	1500	18	1	41	11/18/2013	N	Y
32											
33											
34											

Figure 5b. Example of re-formatted Growing Greener project data ready for inclusion into DEP's NPS BMP database.

	A	B	C	D	E	F	G
	State	BMP Type (name)	Units Installed	Units of Measure	BMP Implementation Date	County	NPS Project # (for reference)
1	PA	Riparian Forest Buffer	4.50	Ac	9/30/2013	York	2931I
2	PA	Stream Channel Stabilization	2410.00	Ft	9/30/2013	York	2931I
3	PA	Streambank and Shoreline Protection	4820.00	Ft	9/30/2013	York	2931I
4							
5	PA	Riparian Forest Buffer	2.00	Ac	9/30/2013	Bradford	2931K
6	PA	Stream Exclusion with Grazing Land	2000.00	Ft	9/30/2013	Bradford	2931K
7	PA	Streambank and Shoreline Protection	6290.00	Ft	9/30/2013		2931K
8							
9	PA	Riparian Forest Buffer	1.40	Ac	9/30/2013	Franklin	2931O
10	PA	Stream Channel Stabilization	1730.00	Ft	9/30/2013	Franklin	2931O
11	PA	Streambank and Shoreline Protection	3095.00	Ft	9/30/2013	Franklin	2931O
12							
13	PA	Barnyard Runoff Mgmt	0.50	Ac	9/30/2013	Mifflin	2933
14	PA	Waste Management System	1.00	Units	9/30/2013	Mifflin	2933
15	PA	Waste Storage Facility	1.00	Units	9/30/2013	Mifflin	2933
16							
17	PA	Erosion and Sediment Control Plan	491.00	Ac	12/31/2013	Mifflin	1002D
18	PA	Nutrient Management Plan	448.00	Ac	12/31/2013	Mifflin	1002D
19							
20	PA	Access Road	15220.00	Ft	12/31/2013	Lancaster	1028
21	PA	Animal Trails and Walkways	16133.00	sq ft	12/31/2013	Lancaster	1028
22	PA	Cover Crop	20.00	Ac	12/31/2013	Lancaster	1028
23	PA	Critical Area Seeding	3.25	Ac	12/31/2013	Lancaster	1028
24	PA	Diversion	156.00	Ft	12/31/2013	Lancaster	1028
25	PA	Filter Strip	0.31	Ac	12/31/2013	Lancaster	1028
26	PA	Grassed Waterway	2.00	Ac	Ac	Lancaster	1028
27	PA	Grazing Planned Systems	10.60	Ac	12/31/2013	Lancaster	1028
28							

Figure 6a. View of “raw” data from the 319 Program for the 2014 submission to CBPO.

	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE	NPSBMP_NAME_TYPE_CODE	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT	NPSBMP_TYPE_CODE	NPSBMP_DESC	EVENT_STATUS	FEDERAL_B	CHESAPEAKE_B
2	Lancaster	Animal Trails and Walkways	77	2	8066.5	18	1	78	12/31/2013	N	Y
3	Mifflin	Animal Trails and Walkways	77	2	200	18	1	78	9/30/2013	N	Y
4	Mifflin	Animal Trails and Walkways	77	2	105	18	1	78	9/30/2013	N	Y
5	Mifflin	Animal Trails and Walkways	77	2	625	18	1	78	12/31/2013	N	Y
6	Mifflin	Barnyard Runoff Controls	311	2	1	177	1	53	9/30/2013	N	Y
7	Mifflin	Barnyard Runoff Controls	311	2	1	177	1	53	12/31/2013	N	Y
8	Mifflin	Barnyard Runoff Controls	311	2	1	177	1	53	9/30/2013	N	Y
9	Mifflin	Barnyard Runoff Controls	311	2	1	177	1	53	9/30/2013	N	Y
10	Mifflin	Barnyard Runoff Controls	311	2	1	177	1	53	9/30/2013	N	Y
11	Dauphin	Critical Area Planting	95	2	0.46	119	1	57	9/30/2013	N	Y
12	Lancaster	Critical Area Planting	95	2	3.25	119	1	57	12/31/2013	N	Y
13	Lancaster	Diversion	101	2	156	18	1	52	12/31/2013	N	Y
14	Dauphin	Diversion	101	2	220	18	1	52	6/30/2014	N	Y
15	Dauphin	Diversion	101	2	891	18	1	52	6/30/2014	N	Y
16	Mifflin	Erosion & Sediment Control	290	1	491	119	5	50	12/31/2013	N	Y
17	Dauphin	Fencing	107	1	680	18	1	52	11/18/2013	N	Y
18	Lancaster	Filter Strip	109	1	0.31	119	1	57	12/31/2013	N	Y
19	Lancaster	Grassed Waterway	120	2	2	119	1	57	6/30/2014	N	Y
20	Dauphin	Grassed Waterway	120	2	3.5	119	1	57	6/30/2014	N	Y
21	Dauphin	Grassed Waterway	120	2	0.6	119	1	57	6/30/2014	N	Y
22	Dauphin	Grassed Waterway	120	2	0.35	119	1	57	9/30/2013	N	Y
23	Lancaster	Prescribed Grazing	173	2	10.6	119	1	57	12/31/2013	N	Y
24	Lancaster	Lined Waterway or Outlet	152	2	1430	18	1	78	12/31/2013	N	Y
25	Lancaster	Nutrient Management	159	1	72	119	1	108	12/31/2013	N	Y
26	Dauphin	Nutrient Management	159	1	100	119	1	108	9/30/2013	N	Y
27	Lancaster	Nutrient Management	159	1	90	119	1	108	9/30/2013	N	Y
28	Mifflin	Nutrient Management	159	1	448	119	1	108	12/31/2013	N	Y
29	York	Piparian Forest Buffer	184	2	4.5	119	1	57	9/30/2013	N	Y
30	Bradford	Piparian Forest Buffer	184	2	2	119	1	57	9/30/2013	N	Y
31	Franklin	Piparian Forest Buffer	184	2	1.4	119	1	57	9/30/2013	N	Y
32	Lancaster	Piparian Forest Buffer	184	2	37.2	119	1	57	12/31/2013	N	Y
33	Dauphin	Piparian Forest Buffer	184	2	0.5	119	1	57	6/30/2014	N	Y
34	Lancaster	Piparian Forest Buffer	184	2	2.5	119	1	57	9/30/2013	N	Y

Figure 6b. View of “NEIEN-formatted” data from the 319 Program for the 2014 submission to CBPO.

Data Verification

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. However, any BMP activities identified as being federally-funded (either partially or fully) are removed before compiling the data for submission to CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.4 DEP Abandoned Mine Land Reclamation Program

Contact: Brian Bradley, BAMR (at 717-783-0378 and brbradley@pa.gov)

Data Compilation Procedures

Information on the acres of reclaimed mine land is obtained in Excel file format from Brian Bradley within the Bureau of Abandoned Mineland Reclamation (BAMR). This information is subsequently re-formatted for NEIEN purposes (see Figures 7a and 7b). As shown, all reclaimed acres of this type are assigned a "Land Use" type of "Urban". The specific NEIEN BMP type is identified as "Land Reclamation, Abandoned Mined Land", and the implementation units are in acres.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.5 DCNR/PGC Forest Harvest Information

Contact: Tracey Coulter, DCNR (at 717-783-0381, trcoulter@pa.gov)

Data Compilation Procedures

Information on the acres of forest land harvested on a yearly basis is obtained from both the Department of Conservation and Natural Resources, and the Pennsylvania Game Commission. In both cases, the respective state agencies require that the appropriate erosion and sediment control measures be applied to land harvested for trees. Acreage data from both DCNR and PGC are initially compiled by an individual from DCNR (most recently, Tracey Coulter) and then forwarded to DEP upon request for NEIEN reporting purposes. Figures 8a and 8b show some harvest/BMP data from DCNR before and after re-formatting for NEIEN reporting purposes.

Data Verification Procedures

Information on BMP implementation obtained from the above reports is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.6 PA Chapter 102 Erosion & Sedimentation Program

Contact: Jennifer Orr, DEP NPDES Constr. and Erosion Control (at 717-772-5961, jeorr@pa.gov)

Data Compilation Procedures

Standards and criteria for minimizing erosion and preventing sediment pollution from different types of earth disturbance activities are contained within DEP's Chapter 102 rules and regulations as authorized under Pennsylvania's Clean Stream Laws (see <http://www.pacode.com/secure/data/025/chapter102/chap102toc.html>). Data on BMPs applied for E&S control are obtained from an individual (currently, Jen Orr) responsible for maintaining such information within DEP. For NEIEN reporting purposes, a yearly request is made and E&S BMP data are extracted from an in-house DEP database and provided in an Excel file. These data are then re-formatted using established procedures for subsequent entry into DEP's NPS BMP database.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

1	2	3	A	B	C	D	E	F	G	H	I	J	K
	1		Abandoned Mined Land - Reported Acres of Reclamation County Name IN ('Adams','Bedford','Berks','Blair','Bradford','Cambria','Cameron','Centre','Chester',, Program = 'MA', Date Reclamation Completed BETWEEN '01-JUL-2013' AND '30-JUN-2014'										
	2												
			County Name	Municipality Name	Acres	Cost	Date Reclamation Completed: Year	Project Number	Project Name	Status	Type Description	Date Reclamation Completed	Program
	3												
	5		Cambria Total		37.6	629,330.49							
	6		Centre	Snow Shoe	2.0	-	2013	GFCC 14-04-01	POORMAN SIDE OPERATION (SNOW SHOE)	COMP	Abandoned Mine Land Reclamation	07/02/2013	MA
	7		Centre	Snow Shoe	6.5	-	2013	GFCC 14-05-01	MORGAN (GILLINTOWN WEST)	COMP	Abandoned Mine Land Reclamation	09/16/2013	MA
	8		Centre Total		8.5								
	9		Clearfield	Huston	100.0	14,608,912.68	2013	AMD 17(1416)202.1, DGS 193-37	HOLLYWOOD TREATMENT FACILITY BENNETT BRANCH	COMP	Acid Mine Drainage Treatment - Chemical	08/30/2013	MA
	10		Clearfield	Cooper	54.7	661,949.46	2013	OSM 17(6802)101.1	GRASSFLAT	COMP	AML Surface Mine Reclamation	09/05/2013	MA
	11		Clearfield Total		154.7	15,270,862.14							
	12		Elk	Benezette	38.5	457,293.39	2013	OSM 24(3888)101.1	DARK HOLLOW	COMP	AML Surface Mine Reclamation	07/02/2013	MA
	13		Elk Total		38.5	457,293.39							
	14		Lackawanna	Fell	17.6	2,214,617.80	2014	OSM 35(4294)101.1X	SIMPSON NORTHEAST REFUSE BANK FIRE	COMP	Mine Fire Control - Mine Fire Extinguishment	05/28/2014	MA
	15		Lackawanna Total		17.6	2,214,617.80							
	16		Northumberland	Coal	74.0	788,533.00	2014	OSM 49(3232)101.1	FERNDALE SOUTHWEST	COMP	Abandoned Mine Land Reclamation	05/16/2014	MA
	17		Northumberland Total		74.0	788,533.00							
	18		Somerset	Paint	3.0	30,755.00	2013	OSM 56(2517)201.1	RAILROAD STREET	COMP	Refuse Bank Reclamation	09/12/2013	MA
	19		Somerset Total		3.0	30,755.00							
	20		Grand Total		333.9	19,391,391.82							
	21												
	22												
	23		Discoverer: brbradley_Chesapeake_Bay_COMP --- Prepared: 16-SEP-14										
	24												
	25												
	26												
	27												

Figure 7a. Example BMP data provided by DEP's abandoned mine land program.

	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERAL_BI	CHESAPEAKE_BMP
2	Cambria	Land Reclamation, Abandoned Mined Land	147	1	37.6	119	5	107	6/30/2014	N	Y
3	Centre	Land Reclamation, Abandoned Mined Land	147	1	8.5	119	5	107	6/30/2014	N	Y
4	Clearfield	Land Reclamation, Abandoned Mined Land	147	1	154.7	119	5	107	6/30/2014	N	Y
5	Elk	Land Reclamation, Abandoned Mined Land	147	1	38.5	119	5	107	6/30/2014	N	Y
6	Lackawanna	Land Reclamation, Abandoned Mined Land	147	1	17.6	119	5	107	6/30/2014	N	Y
7	Northumberland	Land Reclamation, Abandoned Mined Land	147	1	74.0	119	5	107	6/30/2014	N	Y
8	Somerset	Land Reclamation, Abandoned Mined Land	147	1	3.0	119	5	107	6/30/2014	N	Y
9											
10											
11											
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Figure 7b. Reclaimed abandoned mine land data after re-formatting for NEIEN reporting purposes.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	OBJECTID_1	FID_chesap	OBJECTID	gislink	chesapeake	chesapeake_1	chesapeake_2	chesapeake_3	acres	chesapeake_5	FID_PA_Cou	NAME	FID_PA_Mun	PAMUNIC08_	COUNTY	NAME_1
2	32	62	1440	072006BC04	7	2006	0	4	119	11/20/2013	168	UNION	3467	806	59	WEST BUFFALO
3	10	112	1305	042007BC01	4	2007	0	1	158	7/30/2013	193	SOMERSET	5001	2340	55	MIDDLECREEK
4	99	56	1396	162008BC13	16	2008	0	13	578	11/26/2013	141	TIOGA	2974	312	58	MORRIS
5	134	101	1591	162008BC14	16	2008	0	14	60	7/31/2013	141	TIOGA	2895	233	58	WARD
6	3	82	1774	042009BC03	4	2009	0	3	240	9/25/2013	193	SOMERSET	5239	2578	55	ADDISON
7	33	64	1787	072009BC03	7	2009	0	3	123	11/20/2013	168	UNION	3463	802	59	WHITE DEER
8	34	63	1574	122009BC01	12	2009	0	1	158	11/20/2013	155	CLINTON	3404	743	18	CRAWFORD
9	61	98	1603	082009BC06	8	2009	0	6	48	8/8/2013	158	JEFFERSON	3170	508	33	HEATH
10	74	26	1538	102009BC04	10	2009	0	4	407	6/4/2014	155	CLINTON	3099	437	18	CHAPMAN
11	88	57	1411	152009BC01	15	2009	0	1	144	11/26/2013	143	POTTER	3027	365	52	STEWARDSON
12	93	132	1601	152009BC22	15	2009	0	22	86	7/2/2013	143	POTTER	3027	365	52	STEWARDSON
13	98	67	1563	122009BC02	12	2009	0	2	192	11/19/2013	141	TIOGA	2938	276	58	ELK
14	102	126	1552	152009BC11	15	2009	0	11	216	7/22/2013	143	POTTER	2971	309	52	SYLVANIA
15	120	113	1665	162009BC14	16	2009	0	14	152	7/30/2013	141	TIOGA	2930	268	58	BLOSS
16	122	131	1532	152009BC12	15	2009	0	12	87	7/2/2013	143	POTTER	2913	251	52	WEST BRANCH
17	123	95	1614	152009BC30	15	2009	0	30	60	8/15/2013	143	POTTER	2907	245	52	SUMMIT
18	127	48	1625	142009BC01	14	2009	0	1	27	12/5/2013	144	CRAWFORD	2900	238	20	STEUBEN
19	131	127	1556	152009BC14	15	2009	0	14	115	7/22/2013	143	POTTER	2913	251	52	WEST BRANCH
20	141	133	1602	152009BC28	15	2009	0	28	40	7/2/2013	143	POTTER	2851	189	52	SWEDEN
21	144	68	1621	162009BC13	16	2009	0	13	92	11/19/2013	141	TIOGA	2792	130	58	CHATHAM
22	1	138	1818	012010BC07	1	2010	0	7	128	7/2/2013	194	FRANKLIN	5309	2648	28	WASHINGTON
23	4	144	2043	012010BC05	1	2010	0	5	68	7/2/2013	194	FRANKLIN	5253	2592	28	QUINCY
24	9	53	1820	012010BC06	1	2010	0	6	59	12/2/2013	194	FRANKLIN	4920	2259	28	SOUTHAMPTON
25	18	99	1728	032010BC03	3	2010	0	3	310	8/8/2013	186	PERRY	4510	1849	50	TOBOYNE
26	20	100	1715	052010BC04	5	2010	0	4	193	8/7/2013	178	HUNTINGDON	4544	1883	31	TODD
27	23	81	1703	052010BC02	5	2010	0	2	97	9/25/2013	178	HUNTINGDON	4091	1430	31	PORTER
28	27	103	1747	092010BC08	9	2010	0	8	137	7/31/2013	162	CENTRE	3567	906	14	RUSH
29	29	118	1791	092010BC01	9	2010	0	1	158	7/25/2013	162	CENTRE	3567	906	14	RUSH
30	31	105	1824	072010BC03	7	2010	0	3	89	7/31/2013	162	CENTRE	3510	849	14	MILES
31	44	110	1939	092010BC06	9	2010	0	6	143	7/31/2013	161	CLEARFIELD	3284	623	17	HUSTON
32	10	10	1327	112010BC01	11	2010	0	1	80	12/17/2013	145	LACKAWANNA	3268	508	55	THORNHURST

Figure 8a. Raw forest harvest data from DCNR.

	A	B	C	D	E	F	G	H	I	J
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	F
2	ADAMS	Forest Harvesting Practices	315	1	58	119	2	40	1/15/2014	N
3	BEDFORD	Forest Harvesting Practices	315	1	37	119	2	40	1/15/2014	N
4	BEDFORD	Forest Harvesting Practices	315	1	37	119	2	40	1/15/2014	N
5	BEDFORD	Forest Harvesting Practices	315	1	27	119	2	40	2/4/2014	N
6	CAMERON	Forest Harvesting Practices	315	1	35	119	2	40	12/5/2013	N
7	CAMERON	Forest Harvesting Practices	315	1	44	119	2	40	6/25/2014	N
8	CAMERON	Forest Harvesting Practices	315	1	141	119	2	40	11/19/2013	N
9	CENTRE	Forest Harvesting Practices	315	1	137	119	2	40	7/31/2013	N
10	CENTRE	Forest Harvesting Practices	315	1	215	119	2	40	11/19/2013	N
11	CENTRE	Forest Harvesting Practices	315	1	158	119	2	40	7/25/2013	N
12	CENTRE	Forest Harvesting Practices	315	1	197	119	2	40	9/25/2013	N
13	CENTRE	Forest Harvesting Practices	315	1	89	119	2	40	7/31/2013	N
14	CENTRE	Forest Harvesting Practices	315	1	69	119	2	40	6/9/2014	N
15	CENTRE	Forest Harvesting Practices	315	1	96	119	2	40	6/4/2014	N
16	CENTRE	Forest Harvesting Practices	315	1	20	119	2	40	5/5/2014	N
17	CENTRE	Forest Harvesting Practices	315	1	20	119	2	40	6/11/2014	N
18	CENTRE	Forest Harvesting Practices	315	1	54	119	2	40	7/2/2013	N
19	CLEARFIELD	Forest Harvesting Practices	315	1	29	119	2	40	9/25/2013	N
20	CLEARFIELD	Forest Harvesting Practices	315	1	104	119	2	40	11/20/2013	N
21	CLEARFIELD	Forest Harvesting Practices	315	1	194	119	2	40	5/5/2014	N
22	CLEARFIELD	Forest Harvesting Practices	315	1	109	119	2	40	9/23/2013	N
23	CLEARFIELD	Forest Harvesting Practices	315	1	143	119	2	40	7/31/2013	N
24	CLEARFIELD	Forest Harvesting Practices	315	1	40	119	2	40	6/11/2014	N
25	CLEARFIELD	Forest Harvesting Practices	315	1	17	119	2	40	6/9/2014	N
26	CLEARFIELD	Forest Harvesting Practices	315	1	58	119	2	40	6/9/2014	N
27	CLINTON	Forest Harvesting Practices	315	1	158	119	2	40	11/20/2013	N
28	CLINTON	Forest Harvesting Practices	315	1	132	119	2	40	7/2/2013	N
29	CLINTON	Forest Harvesting Practices	315	1	47	119	2	40	7/2/2013	N
30	CLINTON	Forest Harvesting Practices	315	1	65	119	2	40	7/31/2013	N

Figure 8b. Forest harvest/BMP data from DCNR after re-formatting for NEIEN reporting purposes.

3.2.7 Urban Stormwater BMPs (New Construction)

Contact: Jennifer Orr, DEP NPDES Construction and Erosion Control (at 717-772-5961, jeorr@pa.gov)

Data Compilation Procedures

In Pennsylvania, all new residential/construction activities over a certain size require that DEP-approved BMPs be implemented to mitigate flow and water quality issues caused by an increase in impervious surface. (See the following website for more information on NPDES/urban stormwater-related information:

http://www.portal.state.pa.us/portal/server.pt/community/npdes_construction_erosion_control/21657)

For such activities, permits are required, and information on such permits (including the type of BMP used) are recorded in an ACCESS database maintained within the Bureau of Waterways Engineering and Wetlands. On average, in Pennsylvania about 10,000 acres of new development occur each year within the Chesapeake Bay portion of the state. Of this total, surface water runoff from about 80% of this total area (around 8,000 acres) is treated/captured via the use of various urban best management practices.

Prior to 2014, data submitted to NEIEN with regard to urban stormwater BMPs included information on the type of BMP, acres of area treated, location (i.e., county), and the installation date of the BMP. Starting with the 2014 NEIEN data submission cycle, an attempt was made to submit urban BMP data using the new “performance standard” option. Table 2 shows the urban BMPs currently submitted to EPA by Pennsylvania that do or don’t qualify for using this new option. For those that qualify, the newer format requires information on BMP Category (in this case, the type is always “New Development”), BMP Name, Runoff Storage Volume, Impervious Area, Acres Treated, Date Installed, and Location. For those BMPs that don’t qualify for this option, the data are compiled as done in prior NEIEN submissions.

Shown in Figure 9a is a partial view of some of the NEIEN-formatted data submitted for the 2014 data cycle that shows BMP data for urban stormwater activities that did not qualify for the new performance standard option (i.e., the data were submitted as done for previous NEIEN submittals). Figure 9b, on the other hand, shows a partial view of urban stormwater BMPs that were formatted using the newer performance standard option.

Table 2. List of urban BMPs currently submitted by Pennsylvania

Urban BMP Type	Qualifies for New Performance Standard
Bioretention	Yes
Bioswales	Yes
Filtering Practices	Yes
Disconnection of Rooftop Runoff	Yes
Dry Detention Ponds & Hydrodynamic Structures	No
Dry Extended Detention Ponds	No
Urban Infiltration Practices	Yes
Urban Forest Buffers	No
Wet Pond	Yes
Wet Ponds & Wetlands	No

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO’s initiative to strengthen the verification of BMPs. To support CBPO’s initiative, Pennsylvania is employing the document titled “Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework” to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.8 USDA – Farm Services Agency

Contact: Olivia Deveraux, under contract with USGS (301-325-7449, olivia@devereuxconsulting.com)

Data Compilation Procedures

Information on BMPs implemented by USDA’s Farm Services Agency (FSA) through the Conservation Reserve Program (CRP) and Conservation Reserve Enhanced Program (CREP) has historically been compiled by DEP for submittal to the CBPO. In recent years, such data have been obtained for DEP by CBPO staff working under a 1619 Agreement set up between USDA and the U.S. Geological Survey. On a yearly basis, USGS staff (or their contractor) provide a specially-prepared Excel file that contains information on FSA-implemented BMPs for a given

	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYFE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYFE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERAL_BMP	CHESAPEAKE_BMP
61	Lancaster	Dry Detention Ponds & Hydrodynamic Structures	241	1	4.34	119	5	48	12/31/2013	N	Y
62	Lancaster	Dry Detention Ponds & Hydrodynamic Structures	241	1	4.65	119	5	48	12/31/2013	N	Y
63	Lancaster	Dry Detention Ponds & Hydrodynamic Structures	241	1	5.045	119	5	48	12/31/2013	N	Y
64	Lancaster	Dry Detention Ponds & Hydrodynamic Structures	241	1	7.81	119	5	48	12/31/2013	N	Y
65	Lancaster	Dry Detention Ponds & Hydrodynamic Structures	241	1	19.45	119	5	48	12/31/2013	N	Y
66	Lebanon	Dry Detention Ponds & Hydrodynamic Structures	241	1	5.434	119	5	48	12/31/2013	N	Y
67	Luzerne	Dry Detention Ponds & Hydrodynamic Structures	241	1	1.62	119	5	48	12/31/2013	N	Y
68	Luzerne	Dry Detention Ponds & Hydrodynamic Structures	241	1	11.94	119	5	48	12/31/2013	N	Y
69	Lycoming	Dry Detention Ponds & Hydrodynamic Structures	241	1	2.15	119	5	48	12/31/2013	N	Y
70	Montour	Dry Detention Ponds & Hydrodynamic Structures	241	1	5.1	119	5	48	12/31/2013	N	Y
71	Northumberland	Dry Detention Ponds & Hydrodynamic Structures	241	1	2.31	119	5	48	12/31/2013	N	Y
72	Schuylkill	Dry Detention Ponds & Hydrodynamic Structures	241	1	1.09	119	5	48	12/31/2013	N	Y
73	Schuylkill	Dry Detention Ponds & Hydrodynamic Structures	241	1	11.4	119	5	48	12/31/2013	N	Y
74	Schuylkill	Dry Detention Ponds & Hydrodynamic Structures	241	1	12.24	119	5	48	12/31/2013	N	Y
75	York	Dry Detention Ponds & Hydrodynamic Structures	241	1	0.767	119	5	48	12/31/2013	N	Y
76	York	Dry Detention Ponds & Hydrodynamic Structures	241	1	1.466	119	5	48	12/31/2013	N	Y
77	York	Dry Detention Ponds & Hydrodynamic Structures	241	1	5.71	119	5	48	12/31/2013	N	Y
78	York	Dry Detention Ponds & Hydrodynamic Structures	241	1	9.44	119	5	48	12/31/2013	N	Y
79	Bradford	Dry Extended Detention Ponds	242	1	26.2	119	5	48	12/31/2013	N	Y
80	Chester	Dry Extended Detention Ponds	242	1	36.96	119	5	48	12/31/2013	N	Y
81	Dauphin	Dry Extended Detention Ponds	242	1	2.53	119	5	48	12/31/2013	N	Y
82	Dauphin	Dry Extended Detention Ponds	242	1	3.16	119	5	48	12/31/2013	N	Y
83	Franklin	Dry Extended Detention Ponds	242	1	2.53	119	5	48	12/31/2013	N	Y
84	Franklin	Dry Extended Detention Ponds	242	1	6.46	119	5	48	12/31/2013	N	Y
85	Lancaster	Dry Extended Detention Ponds	242	1	0.445	119	5	48	12/31/2013	N	Y
86	Lancaster	Dry Extended Detention Ponds	242	1	0.85	119	5	48	12/31/2013	N	Y
87	Lancaster	Dry Extended Detention Ponds	242	1	2.09	119	5	48	12/31/2013	N	Y
88	Lancaster	Dry Extended Detention Ponds	242	1	2.67	119	5	48	12/31/2013	N	Y
89	Lancaster	Dry Extended Detention Ponds	242	1	2.71	119	5	48	12/31/2013	N	Y
90	Lancaster	Dry Extended Detention Ponds	242	1	3.01	119	5	48	12/31/2013	N	Y
91	Lancaster	Dry Extended Detention Ponds	242	1	3.89	119	5	48	12/31/2013	N	Y
92	Lancaster	Dry Extended Detention Ponds	242	1	5.17	119	5	48	12/31/2013	N	Y
93	Lancaster	Dry Extended Detention Ponds	242	1	5.22	119	5	48	12/31/2013	N	Y

Figure 9a. Example NEIEN-formatted data for urban BMPs that do not qualify for using the new “performance standard” option.

1	A	B	C	D	E	F	G	H	I	J	K
	County	BMP	NEIEN BMP	BMP_NAME_CODE_ID	BMP Type	Meas_Desc_Code	Meas_Desc_ID	Value	UOM_Code - Component	Funding Source	Funding Type
97	Lebanon	Federal	Bioretention	828	Urban	Site Area	114	0.483	1	Private	Private
98	Chester	Federal	Bioretention	828	Urban	Site Area	114	0.752	1	Private	Private
99	Dauphin	Federal	Bioretention	828	Urban	Site Area	114	0.435	1	Private	Private
100	Luzerne	Federal	Bioretention	828	Urban	Site Area	114	0.143	1	Private	Private
101	York	Federal	Bioretention	828	Urban	Site Area	114	1.56	1	Private	Private
102	Lackawanna	Federal	Bioretention	828	Urban	Site Area	114	0.08	1	Private	Private
103	Clearfield	Federal	Bioretention	828	Urban	Site Area	114	1.21	1	Private	Private
104	Schuylkill	Federal	Bioretention	828	Urban	Site Area	114	3.7	1	Private	Private
105	Lancaster	Federal	Bioretention	828	Urban	Site Area	114	0.12	1	Private	Private
106	Dauphin	Federal	Bioretention	828	Urban	Site Area	114	7.335	1	Private	Private
107	Clinton	Federal	Bioswale	322	Urban	Site Area	114	53.17	1	Private	Private
108	Lebanon	Federal	Bioswale	322	Urban	Site Area	114	60.58	1	Private	Private
109	Lancaster	Federal	Bioswale	322	Urban	Site Area	114	80.08	1	Private	Private

1	L	M	N	O	P	Q	R	S	T	U	V
	Meas_Desc_Code	Value	Meas_Desc_ID	UOM_Code - Component	Meas_Desc_Code	Value	Meas_Desc_ID	UOM_Code	Comment	Category	Component_Name_id
97	Impervious Area	0.31	115	1	Volume	0.03196	113	26		New Development	360
98	Impervious Area	1.138	115	1	Volume	0.03175	113	26		New Development	360
99	Impervious Area	0.551	115	1	Volume	0.03065	113	26		New Development	360
100	Impervious Area	1.1	115	1	Volume	0.02886	113	26		New Development	360
101	Impervious Area	1.73	115	1	Volume	0.01694	113	26		New Development	360
102	Impervious Area	5.81	115	1	Volume	0.01322	113	26		New Development	360
103	Impervious Area	1.11	115	1	Volume	0.01054	113	26		New Development	360
104	Impervious Area	0.96	115	1	Volume	0.00962	113	26		New Development	360
105	Impervious Area	0.38	115	1	Volume	0.00615	113	26		New Development	360
106	Impervious Area	5.506	115	1	Volume	0.00121	113	26		New Development	360
107	Impervious Area	41.4	115	1	Volume	12.1	113	26		New Development	360
108	Impervious Area	21.6	115	1	Volume	6.56536	113	26		New Development	360
109	Impervious Area	24.05	115	1	Volume	6.242	113	26		New Development	360
110	Impervious Area	4.85	115	1	Volume	1.96568	113	26		New Development	360

Figure 9b. Example NEIEN-formatted data for urban BMPs that do qualify for using the new “performance standard” option.

time period pertaining to that year's NEIEN submission. This information is subsequently reviewed by DEP and re-formatted for inclusion in its NPS BMP database.

In the FSA data provided by USGS, there are two columns of implementation: "Practice Acres" and "Expired Acreage". The "practice" acres represent the total acres implemented (including re-enrolled acres). Since historical data are rarely removed, including the re-enrollment acres would result in double-counting. To avoid problems with potential duplication, the "Expired Acreage" values are subtracted from the "Practice Acres" values to derive acreage estimates that are submitted to CBPO (after eliminating "0" values and negative numbers).

For practices that FSA cost-shares, but NRCS provides technical assistance on, the practices are included in the FSA data and are not included in the NRCS data. The overlap only occurs for some CRP practices. These practices were identified by NRCS using the FSA Handbook for Agricultural Resource Conservation Program for state and county offices (2-CRP (Revision 5) 8/7/2013). The section referenced begins on page 555.

The practices included in the original file provided by USGS may have received funding from sources other than FSA (e.g., various state programs). In some of the data files provided by state sources described elsewhere in this document (e.g. Chesapeake Bay Implementation Grants), there is often an indicator flag or value that signifies that funding has been provided by federal sources. In these cases, the federally-funded BMPs are deleted from the "state-funded" datasets submitted via NEIEN and included in either the FDA or NRCS dataset.

Figure 10a shows a portion of the FSA BMP data recently provided by USGS to DEP under the 1619 arrangement, and Figure 10b shows BMP data that has been re-formatted by DEP for inclusion in its' NPS BMP database and subsequent submission to CBPO via NEIEN.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. As described above, BMP data from USDA/FSA are obtained and compiled by USGS under an existing 1619 agreement. It is assumed that data tracking and verification protocols followed by USDA meet the requirements established by the CBPO.

	A	B	C	D	E	F	G	H
1	ProgressYear	State	FIPS	PracticeCode	PracticeDescription	PracticeAcres	ExpiredAcreage	RecordCount
255	2014	42	---	CP1	Establishment of permanent introduced grasses & legumes	448.5	705.1	20
256	2014	42	---	CP12	Wildlife food plot	3	146.3	5
257	2014	42	---	CP2	Establishment of permanent native grasses	170.8	955	18
258	2014	42	---	CP21	Filter strips	33.2	82.4	12
259	2014	42	---	CP22	Riparian buffers	207.7	53.8	31
260	2014	42	---	CP4D	Permanent wildlife habitat – Non Easement	64.2	189	9
261	2014	42	---	CP8A	Grassed waterways – Non Easement	11	20.3	10
262	2014	42	42009	CP1	Establishment of permanent introduced grasses & legumes	159	724.8	5
263	2014	42	42011	CP1	Establishment of permanent introduced grasses & legumes	134.2	0	8
264	2014	42	42011	CP2	Establishment of permanent native grasses	65.6	0	5
265	2014	42	42015	CP22	Riparian buffers	68.9	0	9
266	2014	42	42037	CP2	Establishment of permanent native grasses	189.1	382.3	10
267	2014	42	42041	CP1	Establishment of permanent introduced grasses & legumes	149.4	470.7	8
268	2014	42	42041	CP2	Establishment of permanent native grasses	41.6	128.2	5
269	2014	42	42043	CP1	Establishment of permanent introduced grasses & legumes	97.7	984.6	6
270	2014	42	42055	CP1	Establishment of permanent introduced grasses & legumes	100	257.3	5
271	2014	42	42057	CP1	Establishment of permanent introduced grasses & legumes	253.9	901.9	12
272	2014	42	42067	CP1	Establishment of permanent introduced grasses & legumes	144.2	503.1	5
273	2014	42	42071	CP2	Establishment of permanent native grasses	126.6	530.8	5
274	2014	42	42071	CP22	Riparian buffers	35.5	0	11
275	2014	42	42097	CP1	Establishment of permanent introduced grasses & legumes	497.7	2136.3	35
276	2014	42	42097	CP2	Establishment of permanent native grasses	266.6	1133.8	16
277	2014	42	42097	CP21	Filter strips	22.1	34.8	8
278	2014	42	42097	CP22	Riparian buffers	26.2	59.2	5
279	2014	42	42099	CP1	Establishment of permanent introduced grasses & legumes	343.2	1345.1	9
280	2014	42	42107	CP1	Establishment of permanent introduced grasses & legumes	146.7	433.2	12
281	2014	42	42107	CP2	Establishment of permanent native grasses	221.8	483.9	15
282	2014	42	42109	CP1	Establishment of permanent introduced grasses & legumes	173.8	412.3	9
283	2014	42	42111	CP1	Establishment of permanent introduced grasses & legumes	229.3	842.4	5

Figure 10a. View of portion of FSA data as originally compiled by USGS for PaDEP under a 1619 agreement.

	A	B	C	D	E	F	G	H	I	J
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FE
2	Berks	Land Retirement	316	1	134.2	119	1	46	6/30/2014	Y
3	Berks	Land Retirement	316	1	65.6	119	1	46	6/30/2014	Y
4	Susquehanna	CREP Riparian Forest Buffer	334	1	29.7	119	1	39	6/30/2014	Y
5	Lancaster	CREP Riparian Forest Buffer	334	1	35.5	119	1	39	6/30/2014	Y
6	Tioga	CREP Riparian Forest Buffer	334	1	47	119	1	39	6/30/2014	Y
7	Bradford	CREP Riparian Forest Buffer	334	1	68.9	119	1	39	6/30/2014	Y
8	Statewide	CREP Riparian Forest Buffer	334	1	153.9	119	1	39	6/30/2014	Y
9										
10										
11										
12										
13										
14										
15										

Figure 10b. View of portion of FSA data after reformatting for entry into DEP's NPS BMP database..

3.2.9 USDA – Natural Resource Conservation Service

Contact: Olivia Deveraux, under contract with USGS (301-325-7449, olivia@devereuxconsulting.com)

Data Compilation Procedures

Similar to the description for FSA given above, information on BMPs implemented by USDA/NRCS has historically been compiled by DEP for submittal to the CBPO. In recent years, such data have been obtained for DEP by CBPO staff working under a 1619 Agreement set up between USDA and the U.S. Geological Survey. On a yearly basis, USGS staff (or their contractor) provide a specially-prepared Excel file that contains information on NRCS-implemented BMPs for a given time period pertaining to that year's NEIEN submission. This information is subsequently reviewed by DEP and re-formatted for inclusion in its NPS BMP database.

Some of the BMP activities included in the original file provided by USGS may have received funding from sources other than NRCS (e.g., various state programs). In some of the data files provided by state sources described elsewhere in this document (e.g. Chesapeake Bay Implementation Grants), there is often an indicator flag or value that signifies that funding has been provided by federal sources. In these cases, the federally-funded BMPs are deleted from the "state-funded" datasets submitted via NEIEN and included in either the FDA or NRCS dataset.

For practices that FSA cost-shares, but NRCS provides technical assistance on, the practices are included in the FSA data and are not included in the NRCS data. The overlap only occurs for some CRP practices. These practices were identified by NRCS using the FSA Handbook for Agricultural Resource Conservation Program for state and county offices (2-CRP (Revision 5) 8/7/2013). The section referenced begins on page 555.

In the original file provided by USGS, data on NRCS Conservation Technical Assistance (CTA) practices are also provided. A CTA practice is one that is recommended by NRCS, reviewed by NRCS, or meets NRCS technical standards; but are not funded at any level by USDA. For NEIEN reporting purposes, it is assumed that these practices are being funded by state programs described elsewhere in this document. Consequently, they are not included with other FSA or NRCS data submitted via NEIEN to CBPO.

Figure 11a shows a portion of the NRCS BMP data recently provided by USGS to DEP under the 1619 arrangement, and Figure 11b shows BMP data that has been re-formatted by DEP for

1	A	B	C	D	E	F	G	H	I
	ProgressYear	StateAbbreviation	practice_fips	practice_code	practice_name	practice_measurement_unit_name	practice_land_use_name	practice_certified_quantity	RecordCount
2137	2014	PA	42097	340	Cover Crop	ac	Crop	337.8	15
2138	2014	PA	42107	340	Cover Crop	ac	Crop	49.9	18
2139	2014	PA	42109	340	Cover Crop	ac	Crop	221.8	27
2140	2014	PA	42115	340	Cover Crop	ac	Crop	97.1	9
2141	2014	PA	42117	340	Cover Crop	ac	Crop	222.5	15
2142	2014	PA	42127	340	Cover Crop	ac	Crop	38.8	5
2143	2014	PA	---	342	Critical Area Planting	ac	ag	41.2	54
2144	2014	PA	42001	342	Critical Area Planting	ac	ag	20.7	26
2145	2014	PA	42029	342	Critical Area Planting	ac	ag	5.5	11
2146	2014	PA	42037	342	Critical Area Planting	ac	ag	3.1	7
2147	2014	PA	42071	342	Critical Area Planting	ac	ag	11.5	18
2148	2014	PA	42097	342	Critical Area Planting	ac	ag	5.1	9
2149	2014	PA	42109	342	Critical Area Planting	ac	ag	1.5	8
2150	2014	PA	42133	342	Critical Area Planting	ac	ag	1.4	6
2151	2014	PA	---	362	Diversion	ft	ag	21200	42
2152	2014	PA	42037	362	Diversion	ft	ag	2510	5
2153	2014	PA	42071	362	Diversion	ft	ag	892	5
2154	2014	PA	---	647	Early Successional Habitat Development/Management	ac	ag	225.7	29
2155	2014	PA	42009	647	Early Successional Habitat Development/Management	ac	ag	718.7	32
2156	2014	PA	42015	647	Early Successional Habitat Development/Management	ac	ag	13.5	6
2157	2014	PA	42029	647	Early Successional Habitat Development/Management	ac	ag	21	7
2158	2014	PA	42061	647	Early Successional Habitat Development/Management	ac	ag	180	7
2159	2014	PA	42079	647	Early Successional Habitat Development/Management	ac	ag	56.3	5
2160	2014	PA	42111	647	Early Successional Habitat Development/Management	ac	ag	37.8	9
2161	2014	PA	42113	647	Early Successional Habitat Development/Management	ac	ag	49	6

Figure 11a. Example of a portion of the raw NRCS BMP data provided by USGS.

	A	B	C	D	E	F	G	H	I	J	K
1	County	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_ITYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERAL_BMP	CHESAPEAKE_BMP
2	Statewide	Animal Mortality Facility	76	2	5	177	1	56	6/30/2014	Y	Y
3	Berks	Animal Trails and Walkways	77	2	2367	18	1	78	6/30/2014	Y	Y
4	Bradford	Animal Trails and Walkways	77	2	2284	18	1	78	6/30/2014	Y	Y
5	Columbia	Animal Trails and Walkways	77	2	2263.8	18	1	78	6/30/2014	Y	Y
6	Franklin	Animal Trails and Walkways	77	2	19330	18	1	78	6/30/2014	Y	Y
7	Juniata	Animal Trails and Walkways	77	2	1035	18	1	78	6/30/2014	Y	Y
8	Statewide	Animal Trails and Walkways	77	2	11771	18	1	78	6/30/2014	Y	Y
9	Berks	Animal Waste Management Systems (All Types)	313	1	12	177	1	53	6/30/2014	Y	Y
10	Chester	Animal Waste Management Systems (All Types)	313	1	6	177	1	53	6/30/2014	Y	Y
11	Franklin	Animal Waste Management Systems (All Types)	313	1	9	177	1	53	6/30/2014	Y	Y
12	Juniata	Animal Waste Management Systems (All Types)	313	1	7	177	1	53	6/30/2014	Y	Y
13	Lancaster	Animal Waste Management Systems (All Types)	313	1	20	177	1	53	6/30/2014	Y	Y
14	Statewide	Animal Waste Management Systems (All Types)	313	1	33	177	1	53	6/30/2014	Y	Y
15	Statewide	Animal Waste Management Systems (All Types)	313	1	28	177	1	53	6/30/2014	Y	Y
16	Statewide	Animal Waste Management Systems (All Types)	313	1	7	177	1	53	6/30/2014	Y	Y
17	Centre	Brush Management	82	2	27.5	119	1	57	6/30/2014	Y	Y
18	Statewide	Brush Management	82	2	103.6	119	1	57	6/30/2014	Y	Y
19	Blair	Conservation Cover	88	2	36.4	119	1	57	6/30/2014	Y	Y
20	Columbia	Conservation Cover	88	2	16.5	119	1	57	6/30/2014	Y	Y
21	Juniata	Conservation Cover	88	2	2.5	119	1	57	6/30/2014	Y	Y
22	Susquehanna	Conservation Cover	88	2	13	119	1	57	6/30/2014	Y	Y
23	Statewide	Conservation Cover	88	2	59.4	119	1	57	6/30/2014	Y	Y
24	Bradford	Conservation Crop Rotation	89	2	197.1	119	1	57	6/30/2014	Y	Y
25	Statewide	Conservation Crop Rotation	89	2	106.3	119	1	57	6/30/2014	Y	Y
26	Bradford	Conservation Crop Rotation	89	2	255.3	119	1	57	6/30/2014	Y	Y
27	Statewide	Conservation Crop Rotation	89	2	364.3	119	1	57	6/30/2014	Y	Y
28	Bradford	Cover Crops - Wheat	432	1	473.5	119	1	57	6/30/2014	Y	Y
29	Bedford	Cover Crops - Wheat	432	1	65.6	119	1	57	6/30/2014	Y	Y
30	Bradford	Cover Crops - Wheat	432	1	187.6	119	1	57	6/30/2014	Y	Y
31	Carbon	Cover Crops - Wheat	432	1	109.3	119	1	57	6/30/2014	Y	Y
32	Centre	Cover Crops - Wheat	432	1	243.6	119	1	57	6/30/2014	Y	Y
33	Cumberland	Cover Crops - Wheat	432	1	214.5	119	1	57	6/30/2014	Y	Y
34	Huntingdon	Cover Crops - Wheat	432	1	80.8	119	1	57	6/30/2014	Y	Y
35	Indiana	Cover Crops - Wheat	432	1	57.5	119	1	57	6/30/2014	Y	Y
36	Juniata	Cover Crops - Wheat	432	1	150.3	119	1	57	6/30/2014	Y	Y
37	Lackawanna	Cover Crops - Wheat	432	1	25.3	119	1	57	6/30/2014	Y	Y
38	Lancaster	Cover Crops - Wheat	432	1	163.4	119	1	57	6/30/2014	Y	Y

Figure 11b. Example of “NEIEN” formatted NRCS BMP data.

inclusion in its' NPS BMP database and subsequent submission to CBPO via NEIEN. As described below, the data received from USGS are believed to be accurate, and are not modified once received, with one exception. That is, the unit values pertaining to "fencing" are reduced by 70% since not all fencing installed as NRCS practice code 382 is used for streambank fencing (which is what DEP utilizes this information to estimate). Based on discussions with NRCS staff in Pennsylvania, it is estimated that up to 30% of the total fencing installed in the state could be used for this particular BMP. Consequently, beginning with the 2014 Progress Run submission, DEP will use 30% of the total fencing as an estimate for streambank fencing until a better approach for quantifying this particular practice from NRCS data is developed.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. As described above, BMP data from USDA/NRCS are obtained and compiled by USGS under an existing 1619 agreement. It is assumed that data tracking and verification protocols followed by USDA meet the requirements established by the CBPO.

3.2.10 USDA Rural Development Program

Contact: Susanne Gantz, USDA Rural Development Program (717-237-2281, Susanne.Glantz@pa.usda.gov)

Data Compilation Procedures

The USDA Rural Development Program funds the connection of on-lot septic systems to centralized wastewater treatment plants. The reduction of nutrient loads via such connections is considered to be a "Rural" BMP within the Bay watershed model, and is recognized as a "SepticConnect" BMP type within Scenario Builder. Data on such connections within the Bay watershed are obtained from the program contact (typically in list form in an email or Word document) and entered into an Excel file. From this source, the number of connections (i.e., "COUNT" data) is given as the number of equivalent domestic units (EDUs), which are equal to 3.5 persons per connection.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Since USDA is a federal agency, it is assumed that data tracking and verification protocols followed by USDA meet the requirements established by the CBPO.

3.2.11 PA PennVest Program

Contact: Ted Tesler, DEP (717-772-5621, thtesler@pa.gov)

Data Compilation Procedures

Similar to the USDA program described above, PennVest is a state program that, among other things, funds septic system connections to wastewater treatment plants (see http://www.portal.state.pa.us/portal/server.pt/community/available_funding/11211). Data on such connections are obtained from PennVest (usually in report form), and entered into an Excel file similar to that described for the USDA program above. In this case, the septic system data may be provided as either “population” or “households/EDU” data. If the former is provided, the data need to be converted into EDUs (see above discussion) prior to being delivered to the appropriate staff in BIT for later inclusion in the NPS BMP database.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO’s initiative to strengthen the verification of BMPs. To support CBPO’s initiative, Pennsylvania is employing the document titled “Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework” to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.12 SCC Resource Enhancement and Protection Program

Contact: Joel Semke, SCC REAP, (717-705-4032, jsemke@pa.gov)

Data Compilation Procedures

Pennsylvania’s State Conservation Commission (SCC) funds the implementation of a number of BMPs through its’ Resource Enhancement and Protection (REAP) program (see http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/ProgramDetail.aspx?palid=22&). Historically, these data had not been compiled as part of earlier BMP data submittals prior to NEIEN. Consequently, for the 2010 submittal, data on all BMPs implemented for the period 9/30/2007-6/30/2010 were compiled for subsequent delivery to CBPO. For the model reporting years of 2011 and later, all REAP data submitted have pertained only to that year’s data.

In the Excel files originally received from the REAP program prior to 2014 (i.e., those containing the “raw” BMP data), most of the activities reported did not include information pertaining to the number of units installed (e.g., acres). (The one exception was the “No Till”

acres, which are no longer used for estimating conservation tillage [see related discussion in Section 3.3.3]). Instead, the cost of each activity was given. Therefore, in order to estimate the extent to which various BMPs were implemented, information on typical unit costs were used as shown in Table 3. Starting with 2014, the REAP program is now providing DEP with actual “units implemented” numbers for the BMPs reported.

Table 3. Unit costs for estimating extent of REAP BMP implementation.

Reported REAP Activity	Typical Per Unit Cost
Cover Crop	\$275/acre
Critical Area Planting	\$500/acre
Fence / Prescribed Grazing	\$1,425/acre
Grassed Waterway	\$2.76/sq yd
Heavy Use Area Protection	\$13.95/sq ft
Pasture and Hay Planting	\$2.25/acre
Tree/Shrub Establishment	\$3,300/acre

In the case of “Composting” and “Composting Facility” BMPs, each individual activity (funded project) was assumed to represent one “MortalityComp” BMP unit as recognized by Scenario Builder. Acres of “Cover Crop” and “Critical Area Planting” were estimated by dividing the project cost by the cost per acre values given in Table 3. Each “Fence” or “Prescribed Grazing” entry was assumed to represent some quantity of “Prescribed Grazing” units (i.e., acres), and the total number of acres was calculated by dividing the activity cost by the value of \$1,425 per acre of fenced grazing land. The units (acres) of “Grassed waterway” were estimated by dividing the project cost by the unit cost of \$2.76/square yard, and then converting the square yards to acres. The “Heavy Use Area Protection” acres were calculated in a similar fashion using a unit cost of \$13.95 per square foot of protected land. Acres for “Pasture and Hay Planting” and “Tree/Shrub Establishment” were estimated using the appropriate units cost given in Table 3. Finally, each “Animal Waste Management Systems (All Types)” entry was assumed to represent the equivalent of one “AWMSLivestock” unit as currently assumed by Scenario Builder.

Again, since 2014, there is no longer a need to estimate units of BMPs implemented based on unit cost such as those given in Table 3 as unit information is now being provided by the REAP program. Figure 12a shows a portion of the REAP BMP data recently provided by the program to DEP, and Figure 12b shows BMP data that has been re-formatted by DEP for inclusion in its’ NPS BMP database and subsequent submission to CBPO via NEIEN.

	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
	Taxpayer Type	County	Allocation Year	BMP Name	unit	Bmp Units	Reap Id	Application Status	Actual Cost	Public Funding	Source	Reap Eligible Amount	Reap Request Amount	Completed Revenue Notified Date	Completed Date	Credit Granted Amount	Notes
1	S Corporation	SOMERSET	2011	Critical Area Planting - 50%	ac.	3.4	11-200-05	Sent to DOR - RICS	3397.3	600	nrcs	2797.3	1398.65	5/23/2014	11/4/2013	0	
19	Individual	ADAMS	2013	Diversion - 50%	ft	2655	13-203-01	Credit Awarded	11140.05	10559.2	cbwi	580.85	290.42	11/1/2013	6/6/2013	290.42	
20	Individual	YORK	2012	Diversion - 50%	ft	715	12-308-02	Credit Awarded	3172	1577.1	CBWI	1594.9	797.45	1/10/2014	6/14/2013	797.45	
21	Individual	LEBANON	2013	Diversion - 50%	ft	683	13-186-01	Credit Awarded	4662.98	3065	NRCS	1597.98	798.99	10/18/2013	6/15/2013	798.99	Diversion - 683ft
22	Sole Proprietorship	BRADFORD	2011	Diversion - 50%	ft	955	11-134-05	Credit Awarded	2000	1387		613	306.5	3/7/2014	11/7/2013	306.5	
23	Individual	Huntingdon	2011	Diversion - 50%	ft	300	11-196-10	Credit Awarded	6374.4	5099.52	growing greener	1274.88	637.44	3/21/2014	2/28/2014	637.44	
24	S Corporation	ADAMS	2013	Grassed waterway - 50%	ac.	300000	13-234-01	Credit Awarded	70396.39	56985	CBWI	13411.4	6705.7	11/15/2013	6/5/2013	6705.7	
25	Individual	YORK	2012	Grassed waterway - 50%	ac.	68010	12-308-03	Credit Awarded	10076.9	8187.5	CBWI	1889.4	944.7	1/10/2014	6/14/2013	944.7	*includes REAP request for Lined Waterway
26	Partnership	Indiana	2012	Grassed waterway - 50%	ac.	0	12-280-02	Credit Awarded	4035	0		2000	1000	9/20/2013	8/20/2013	1000	Actual calculated REAP credit (\$2,017.50) exceeds approved application amount (\$1,000)

Figure 12a. Example of the type of data included in the REAP file for 2014.

1	A	B	C	D	E	F	G	H	I	J	K
	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE	NPSBMP_NAME_TYPE	NPSBMP_MEASURE_VALU	NPSBMP_MEASURE_UNIT	NPSBMP_TYPE_CODE	NPSBMP_DESC	EVENT_STATUS_D/	FEDERAL_B/	CHESAPEAKE
2	HUNTINGDON	Animal Trails and Walkways	77	2	13000	18	1	78	2/27/2014	N	Y
3	PERRY	Animal Waste Management Systems (All Typ	313	2	1	177	1	53	7/31/2013	N	Y
4	BERKS	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	1/3/2014	N	Y
5	BRADFORD	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	11/7/2013	N	Y
6	BRADFORD	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	5/22/2014	N	Y
7	CHESTER	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	11/25/2013	N	Y
8	DAUPHIN	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	7/31/2013	N	Y
9	HUNTINGDON	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	7/31/2013	N	Y
10	INDIANA	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	9/30/2013	N	Y
11	LANCASTER	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	12/9/2013	N	Y
12	LYCOMING	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	10/25/2013	N	Y
13	PERRY	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	10/17/2013	N	Y
14	PERRY	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	12/31/2013	N	Y
15	SOMERSET	Animal Waste Management Systems (All Ty	313	2	1	177	1	53	7/19/2013	N	Y
16	CENTRE	Composting Facility	87	2	1	177	1	56	10/1/2013	N	Y
17	BRADFORD	Critical Area Planting	95	2	2	119	1	57	11/7/2013	N	Y
18	BERKS	Fencing	107	1	1454	18	1	52	6/15/2013	N	Y
19	CHESTER	Fencing	107	1	490	18	1	52	7/31/2013	N	Y
20	HUNTINGDON	Fencing	107	1	11525	18	1	52	2/28/2014	N	Y
21	INDIANA	Fencing	107	1	3643	18	1	52	8/20/2013	N	Y
22	LEBANON	Fencing	107	1	5678	18	1	52	6/7/2014	N	Y
23	BERKS	Fencing	107	1	450	18	1	52	9/19/2013	N	Y
24	BERKS	Fencing	107	1	2554	18	1	52	9/19/2013	N	Y
25	BERKS	Grassed Waterway	120	2	1	119	1	57	11/20/2013	N	Y
26	BERKS	Pasture & hay planting	162	2	4.5	119	1	57	10/31/2013	N	Y
27	LACKAWANNA	Pipeline	164	2	2000	18	1	78	11/21/2013	N	Y
28	CUMBERLAND	Roof Runoff Structure	187	2	1	177	1	56	6/20/2014	N	Y
29	BERKS	Roof Runoff Structure	187	2	1	177	1	56	1/3/2014	N	Y
30	CUMBERLAND	Roof Runoff Structure	187	2	1	177	1	56	6/20/2014	N	Y
31	BERKS	Structure for Water Control	202	1	1	177	1	56	6/24/2014	N	Y
32	LEBANON	Water and Sediment Control Basin	224	1	1	177	1	56	6/1/2014	N	Y
33	HUNTINGDON	Watering Facility	225	2	1	177	1	56	2/28/2014	N	Y
34	CHESTER	Critical Area Planting	95	2	1	119	1	57	7/31/2013	N	Y
35	HUNTINGDON	Diversion	101	2	300	18	1	52	2/28/2014	N	Y
36	BRADFORD	Diversion	101	2	955	18	1	52	11/7/2013	N	Y
37	WYOMING	Streambank and Shoreline Protection	200	2	500	18	1	52	5/28/2014	N	Y
38	BERKS	Subsurface Drain	203	2	3450	18	1	78	3/17/2014	N	Y
39	BERKS	Subsurface Drain	203	2	4070	18	1	78	5/27/2014	N	Y
40	BERKS	Subsurface Drain	203	2	2550	18	1	78	3/17/2014	N	Y

Figure 12b. View of a portion of data “NEIEN-formatted” for entry into DEP’s NPS BMP database.

Data Verification

Information on BMP implementation obtained from the REAP program is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. However, any BMP activities identified as being federally-funded (either partially or fully) are removed before compiling the data for submission to CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.13 SCC Dirt and Gravel Road Program

Contact: S. Bloser, PSU Center for Dirt & Gravel Roads (814-865-6967, smb201@psu.edu)

Data Compilation Procedures

The state's "Dirt & Gravel Road" program is administered by the State Conservation Commission, and the technical work is actually managed by the Dirt and Gravel Road Center at Penn State University (see www.dirtandgravel.psu.edu). This particular program funds a number of activities to reduce pollutant loads from unpaved roads in rural areas of the state. Three of these activities are recognized as BMPs by Scenario Builder; however, only one of them ("Surface Aggregate and Raised Roadbed") has been validated for use in the Bay watershed model. Therefore, only information on this specific BMP is compiled for subsequent transmittal to CBPO.

On a yearly basis, data on the lengths of roads upgraded in each county within Pennsylvania are obtained from the Dirt and Gravel Road Center at Penn State in the form of an Excel file called "DirtGravelRoad_data". Data for "stabilized roads" (represented by the "RD_STAB" field in the Excel file) from only Chesapeake Bay counties are then extracted and copied into a "NEIEN_Data" tab of this file in which the data have been re-formatted for subsequent inclusion in DEP's NPS BMP database as previously described. Figure 13a shows a portion of the "Dirt and Gravel Road" data recently provided by the program to DEP, and Figure 13b shows data that has been re-formatted by DEP for inclusion in its' NPS BMP database and subsequent submission to CBPO via NEIEN.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to

	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	PROJDATE	PARTIC	LENGTH	LENGTH_FT	LENGTH_MI	OUT_STAB	DITCH_STAB	BANK_STAB	STRM_STAB	FABRIC	STRM_CULV	CROS_PIPE	RD_STAB	VEG_PLANT	CULV_LENTH	PIPE_LENTH	BASE	TOTEXPEND	INKINDCONT	YEAR	COUNTY
2	1213	-TWP	773.278	2537.0	0.48	569	1657	354	2124	570	0	0	37888	12766	0	180	935	19924.20	33996.75	2013	Adams
3	0913	-TWP	861.974	2828.0	0.54	160	2300	0	0	0	0	9	23000	0	0	280	860	14718.26	15980.52	2013	Bedford
4	0813	-TWP	337.109	1106.0	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Bedford
5	1213	-TWP	168.524	552.9	0.10	0	0	0	0	0	0	1	0	0	0	140	0	35300.00	7684.89	2013	Berks
6	0813	-TWP	522.793	1715.2	0.32	0	0	0	0	0	0	1	85536	0	0	40	1248	10835.88	19060.00	2013	Berks
7	0413	PARK	105.948	347.6	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Berks
8	1113	GAME	251.155	824.0	0.16	90	180	910	455	10800	0	2	10920	5460	0	40	192	8909.59	7094.82	2013	Blair
9	1113	-TWP	356.006	1168.0	0.22	30	60	1100	550	0	0.22	1	18700	4400	0	20	0	2996.00	9944.00	2013	Blair
10	0913	-TWP	961.034	3153.0	0.60	1126	28197	3171	300	700	0	6	67320	23791	0	403	0	93687.27	15809.31	2013	Bradford
11	0313	-TWP	656.692	2154.5	0.41	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Bradford
12	0113	-TWP	701.589	2301.8	0.44	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Bradford
13	1213	-TWP	487.985	1601.0	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Cambria
14	1213	-TWP	347.167	1139.0	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Cambria
15	1213	-TWP	694.639	2279.0	0.43	0	2400	0	0	6000	4	6	11250	0	150	240	0	26170.89	13200.00	2013	Cambria
16	0513	-TWP	832.714	2732.0	0.52	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Carbon
17	1213	-TWP	26.182	85.9	0.02	0	0	0	0	0	0	0	31050	0	0	0	570	12000.00	8056.10	2013	Centre
18	0913	-TWP	712.927	2339.0	0.44	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Clearfield
19	0913	-TWP	575.767	1889.0	0.36	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Clearfield
20	1213	-TWP	1012.027	3320.3	0.63	0	0	0	0	0	0	2	16422	0	0	70	0	8235.00	11175.00	2013	Clinton
21	0713	-TWP	300.228	985.0	0.19	0	1970	800	0	0	0	0	14240	0	0	0	0	14625.00	2586.47	2013	Clinton
22	1213	-TWP	1012.027	3320.3	0.63	0	100	1000	0	0	0	0	0	800	0	0	0	5000.00	2591.11	2013	Clinton
23	1213	-TWP	478.048	1568.4	0.30	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Clinton
24	0913	-TWP	687.995	2257.2	0.43	30	600	0	0	13545	1	0	0	0	30	81	400	11700.00	16578.50	2013	Columbia
25	0413	-TWP	748.589	2456.0	0.47	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Columbia
26	1013	-TWP	220.980	725.0	0.14	0	0	0	72	0	0	3	20000	0	0	116	0	14997.06	6091.75	2013	Columbia
27	1213	-TWP	285.902	938.0	0.18	0	0	0	0	0	0	0	21500	0	0	0	50	14375.00	3698.62	2013	Columbia
28	0213	-TWP	741.578	2433.0	0.46	250	0	0	0	0	0	4	47000	0	0	440	92	33927.11	13834.18	2013	Columbia
29	1213	-TWP	647.395	2124.0	0.40	80	580	0	0	0	0	2	0	0	0	148	0	4798.68	13543.05	2013	Columbia
30	1213	-TWP	478.353	1569.4	0.30	256	2200	0	0	0	0	0	28000	0	0	0	0	21930.00	15608.42	2013	Columbia
31	1213	-TWP	611.612	2006.6	0.38	0	0	0	0	0	0	0	24000	0	0	0	0	24976.00	4587.25	2013	Cumberland
32	1213	-TWP	1281.714	4205.1	0.80	0	0	0	0	0	0	0	0	0	0	0	0	7311.00	413.29	2013	Cumberland
33	1013	-TWP	491.642	1613.0	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	2013	Dauphin

Figure 13a. Example of BMP data provided in a typical "Dirt & Gravel Road" file.

	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TTYPE_CODE_ID	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TTYPE_CODE_ID	NPSBMP_DESC_ID	EVENT_STATUS_DATE	FEDERAL_BMP	CHESAPEAKE_BMP
2	Adams	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2537	18	2	41	12/31/2013	N	Y
3	Bedford	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2828	18	2	41	12/31/2013	N	Y
4	Berks	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1715.2	18	2	41	12/31/2013	N	Y
5	Blair	D&G Road - Surface Aggregate and Raised Roadbed	367	1	824	18	2	41	12/31/2013	N	Y
6	Blair	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1168	18	2	41	12/31/2013	N	Y
7	Bradford	D&G Road - Surface Aggregate and Raised Roadbed	367	1	3153	18	2	41	12/31/2013	N	Y
8	Cambria	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2279	18	2	41	12/31/2013	N	Y
9	Centre	D&G Road - Surface Aggregate and Raised Roadbed	367	1	85.9	18	2	41	12/31/2013	N	Y
10	Clinton	D&G Road - Surface Aggregate and Raised Roadbed	367	1	985	18	2	41	12/31/2013	N	Y
11	Clinton	D&G Road - Surface Aggregate and Raised Roadbed	367	1	3320.3	18	2	41	12/31/2013	N	Y
12	Columbia	D&G Road - Surface Aggregate and Raised Roadbed	367	1	725	18	2	41	12/31/2013	N	Y
13	Columbia	D&G Road - Surface Aggregate and Raised Roadbed	367	1	938	18	2	41	12/31/2013	N	Y
14	Columbia	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1569.4	18	2	41	12/31/2013	N	Y
15	Columbia	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2433	18	2	41	12/31/2013	N	Y
16	Cumberland	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2006.6	18	2	41	12/31/2013	N	Y
17	Fulton	D&G Road - Surface Aggregate and Raised Roadbed	367	1	494.4	18	2	41	12/31/2013	N	Y
18	Fulton	D&G Road - Surface Aggregate and Raised Roadbed	367	1	356.2	18	2	41	12/31/2013	N	Y
19	Huntingdon	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1648.3	18	2	41	12/31/2013	N	Y
20	Huntingdon	D&G Road - Surface Aggregate and Raised Roadbed	367	1	947.5	18	2	41	12/31/2013	N	Y
21	Huntingdon	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1451.7	18	2	41	12/31/2013	N	Y
22	Huntingdon	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2138.5	18	2	41	12/31/2013	N	Y
23	Huntingdon	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1375.1	18	2	41	12/31/2013	N	Y
24	Huntingdon	D&G Road - Surface Aggregate and Raised Roadbed	367	1	4172	18	2	41	12/31/2013	N	Y
25	Indiana	D&G Road - Surface Aggregate and Raised Roadbed	367	1	642	18	2	41	12/31/2013	N	Y
26	Indiana	D&G Road - Surface Aggregate and Raised Roadbed	367	1	893	18	2	41	12/31/2013	N	Y
27	Indiana	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1472	18	2	41	12/31/2013	N	Y
28	Jefferson	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1194.5	18	2	41	12/31/2013	N	Y
29	Jefferson	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1515.8	18	2	41	12/31/2013	N	Y
30	Jefferson	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1780.6	18	2	41	12/31/2013	N	Y
31	Juniata	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1320	18	2	41	12/31/2013	N	Y
32	Juniata	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2684	18	2	41	12/31/2013	N	Y
33	Luzerne	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1332	18	2	41	12/31/2013	N	Y
34	Luzerne	D&G Road - Surface Aggregate and Raised Roadbed	367	1	731	18	2	41	12/31/2013	N	Y
35	Luzerne	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2936	18	2	41	12/31/2013	N	Y
36	Luzerne	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1826	18	2	41	12/31/2013	N	Y
37	Luzerne	D&G Road - Surface Aggregate and Raised Roadbed	367	1	1441	18	2	41	12/31/2013	N	Y
38	Luzerne	D&G Road - Surface Aggregate and Raised Roadbed	367	1	2828	18	2	41	12/31/2013	N	Y

Figure 13b. Data from the 2014 “Dirt & Gravel Road” file reformatted for entry into DEP’s NPS BMP database.

strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.14 DEP Nutrient Trading Program

Contact: Veronica Kasi, DEP Bureau of Point and Non-point Source Management (717-772-4053, vbkasi@pa.gov)

Data Compilation Procedures

Information on the extent of a small number of BMPs implemented as a result of various nutrient trading activities have been included in previous NEIEN submissions to CBPO. However, data on BMPs related to trades have not been submitted since 2012 due to the lack of data.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate (particularly since verification is required as part of the nutrient credit generation process), and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.15 DEP Waterways Engineering and Wetlands

Contact: Bill Kcenich, DEP Waterways Engineering and Wetlands (717-783-0369, wkcenich@pa.gov)

Data Compilation Procedures

Among other activities, this particular group within DEP is responsible for undertaking various stream restoration projects throughout the state. For NEIEN reporting purposes, tabular data on stream restoration projects completed by this group are obtained from the appropriate contact (currently Bill Kcenich) on a yearly basis and re-formatted for entry into DEP's NPS BMP database as described previously.

Data Verification Procedures

Information on BMP implementation obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.16 DCNR Bureau of Forestry, TreeVitalize Program

Contact: Christine Ticehurst, DCNR Bureau of Forestry (717-346-9583)

Data Compilation Procedures

Among other activities, this particular group within DCNR is responsible for a program (TreeVitalize) that undertakes the planting of trees in urbanized areas around the state. For NEIEN reporting purposes, tabular data on urban tree planting projects are obtained from the appropriate contact (currently Christine Ticehurst) on a yearly basis and re-formatted for entry into DEP's NPS BMP database as described previously. In this case, information on the number of trees planted in various counties is obtained and subsequently reported to CBPO as "Tree Planting" (Bay BMP code 356).

Data Verification Procedures

Information on urban tree planting obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.2.17 Grass Roots Program

Contact: Susan Richards, Capital RC&D (717-241-4361, srichards@capitalrcd.org)

Data Compilation Procedures

The Grass Roots program (administered under the auspices of the Capital Resource Conservation and Development Area Council [Capital RC&D]) is an initiative funded by the National Fish and Wildlife Foundation (NFWF) that is focused on the implementation of

prescribed grazing systems within a 14-county area of south-central Pennsylvania, including Adams, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, Union, Snyder and York Counties. For the last few years, tabular data on prescribed grazing projects have been obtained from the appropriate contact (currently Susan Richards) and re-formatted for entry into DEP's NPS BMP database as described previously. Depending on continuing funding from NFWF, this program may or may not be providing similar information beyond 2014. See <http://www.capitalrcd.org/projects.php> for further information.

Data Verification Procedures

Information on prescribed grazing projects obtained from the above source is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. NRCS staff occasionally provides technical assistance on prescribed grazing projects under the Grass Roots program. When such assistance is provided, this activity is typically reported as "CTA" activities in the NRCS report provided to DEP by USGS (see Section 3.2.9). Such activities, however, are not included in the NRCS data submitted to CBPO via NEIEN.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.3 Data Compilation Procedures for Special Cases of BMPs

In Section 3.2, brief descriptions of procedures used for compiling BMP data for many of the program sources given in Table 1 are provided. However, in some cases, estimates of implementation levels of various BMPs (i.e., nutrient management, cover crops, conservation tillage, street sweeping, and manure transport) are derived from several of the sources listed in Table 1 or are compiled via more specialized procedures. These are discussed in more detail in the sub-sections below.

3.3.1 Manure Transport Data

Contact: Tom Juengst, DEP Conservation & Restoration (717-772-5646, tjuengst@pa.gov)

Data Compilation Procedures

For NEIEN reporting purposes, information on manure transport are based on a survey completed by Conservation Districts. Among other things, this survey includes information on

the amounts, as well as the “sources” and “destinations”, of the manure within, and outside of, the state of Pennsylvania.

Data Verification Procedures

Information on manure transport obtained from the above survey is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO’s initiative to strengthen the verification of BMPs. To support CBPO’s initiative, Pennsylvania is employing the document titled “Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework” to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.3.2 Urban Street Sweeping

Contact: Ted Tesler, DEP Interstate Waters Office (717-772-5621, ttesler@pa.gov)

Data Compilation Procedures

Information on urban street sweeping is obtained on a yearly basis from a number of municipalities in Pennsylvania. (Currently, only information from municipalities in Lancaster and York Counties has been compiled for recent NEIEN submissions; although this is expected to change for future submissions). Information obtained includes data on location and mass of loads swept up. This information is re-formatted and entered into DEP’s NPS BMP database for subsequent submission to CBPO.

Data Verification Procedures

Data on street sweeping obtained from the above sources is assumed to be accurate, and the data are not further checked or verified by DEP prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO’s initiative to strengthen the verification of BMPs. To support CBPO’s initiative, Pennsylvania is employing the document titled “Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework” to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.3.3 Nutrient Management

Contact: Ted Tesler, DEP Interstate Waters Office (717-772-5621, ttesler@pa.gov)

Data Compilation Procedures

Data on nutrient management acres are compiled from a number of different sources. In general, these acres can be described as pertaining to: 1) imported acres, 2) acres related to implementation of the State's Nutrient Management Act, and 3) acres reported by NRCS as "590" nutrient management acres. The first category (imported acres) refers to manure being imported to farms for fertilizer. Not all of these farms are required to implement a "state-approved" nutrient management plan, but for many, manure application is controlled through the use of a "Manure Management Plan". It is these specific acres that are included in the compilation of nutrient management acres for NEIEN reporting purposes. These acres are currently reported as "Tier 1" acres.

Nutrient management acres implemented under the State's Nutrient Management Act (NMA – Act 38) are those required to do so based on animal density thresholds established by the State, which include both high-density (CAO) and low-density (VAO) operations (see <http://extension.psu.edu/plants/nutrient-management>). Such acres are considered to meet the definitions of "Tier 2" acres, but are currently being submitted to CBPO as "Tier 1" acres. Similar to the NRCS 590 acres discussed below, however, it is fully expected that these will qualify as Tier 2 acres after 2014. Data on NMA acres are currently obtained from Frank Schneider of the State Conservation Commission and Mike Thomas in DEP's Bureau of Conservation and Restoration.

Nutrient management acres implemented as a "590" practice by NRCS are also included in the NEIEN compilation. These acres are included in the NRCS dataset currently provided to DEP by USGS (see Section 3.2.9 for related discussion), and are also currently reported as "Tier 1" acres. However, it is fully expected that these acres will be reported as "Tier 2" acres in the future (i.e., after 2014) once the new nutrient management protocols currently being discussed by the Bay partnership are implemented.

Data Verification Procedures

Information on nutrient management acres obtained from the above sources is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

3.3.4 Conservation Tillage

Contact: Ted Tesler, DEP Interstate Waters Office (717-772-5621, ttesler@pa.gov)

Data Compilation Procedures

Prior to the initiation of BMP data submissions to CBPO via NEIEN in 2010, EPA Bay watershed modelers used estimates on the extent of conservation tillage in Pennsylvania provided by the Conservation Tillage Information Center (CTIC) that were based on the use of infrequently-conducted field surveys. For the first NEIEN submission in 2010, DEP modified this approach somewhat by using additional data obtained via a survey conducted by the Capital Resource Conservation and Development Area Council (Capital RC&D) in its' seven-county region. This initial survey was designed using procedures previously established by CTIC (see <http://www.crmsurvey.org>). Capital RC&D conducted its' first survey in spring of 2007 and repeated it again in 2010. The results of these first two surveys were used to update data submitted previously using only sporadically-collected CTIC data, and were the basis of conservation tillage acres submitted to CBPO for the 2010 and 2011 NEIEN cycles.

After 2010, Capital RC&D was engaged by PaDEP to conduct a more extensive survey in which additional counties were added. This first survey (conducted in spring of 2012) was used as the basis for the 2012 NEIEN submission. In 2012, fifteen (15) counties were included in the survey. In 2013, the survey was conducted in twelve (12) new counties and repeated in three (3) counties that were done in 2012. One additional county was surveyed in 2014, and plans call for repeating this survey for all counties previously evaluated on a rotating basis. A description of the survey procedures used in Pennsylvania is included in Appendix C.

As part of the survey, data are collected for seven different categories of tillage. Data on only four of these categories where residue exceeds 30% are used for NEIEN reporting purposes. In this case, all BMP acres are submitted as "Conservation Tillage" acres. An example of the type of data collected in recent surveys is shown in Figure 13. The 2014 survey, and all future surveys, will include a 60% residue classification to capture high-residue conservation tillage in accordance with CBPO-approved guidance.

Data Verification Procedures

Information on conservation tillage obtained from the above survey approach is QA/QC checked as part of the survey methodology provided in Appendix C. The reported results are assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	2013 Data Point Count & Percentages per County by Crop & Tillage Type													
2	Bradford County	Crop	# of Crop	Conv. Till <15%	Reduced Till 15-30%	Mulch Till >30%	No-Till 0-15%	No-Till 15-30%	No-Till 30-50%	No-Till >50%	Totals			
3		Corn	401	216	66	5	9	27	17	61	401			
4				53.87%	16.46%	1.25%	2.24%	6.73%	4.24%	15.21%	1			
5		Forage	61	55	3	0	0	3	0	0	61			
6				90.16%	4.92%	0.00%	0.00%	4.92%	0.00%	0.00%	1			
7		Soybeans	21	3	0	0	0	3	0	15	21			
8				14.29%	0.00%	0.00%	0.00%	14.29%	0.00%	71.43%	1			
9		Spring Grain	1	1	0	0	0	0	0	0	1			
10				100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1			
11		Total:	484	275	69	5	9	33	17	76	484			
12	% Tillage		56.82%	14.26%	1.03%	1.86%	6.82%	3.51%	15.70%	100.00%	20.25%	>30%		
13														
14	Centre County	Crop	# of Crop	Conv. Till <15%	Reduced Till 15-30%	Mulch Till >30%	No-Till 0-15%	No-Till 15-30%	No-Till 30-50%	No-Till >50%	Totals			
15		Corn	324	112	2	0	35	72	43	60	324			
16				34.57%	0.62%	0.00%	10.80%	22.22%	13.27%	18.52%	1			
17		Forage	28	14	0	0	5	4	5	0	28			
18				50.00%	0.00%	0.00%	17.86%	14.29%	17.86%	0.00%	1			
19		Soybeans	123	27	2	0	6	15	14	59	123			
20				21.95%	1.63%	0.00%	4.88%	12.20%	11.38%	47.97%	1			
21		Spring Grain	2	1	0	0	1	0	0	0	2			
22				50.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	1			
23		Tobacco	6	6	0	0	0	0	0	0	6			
24			100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1				
25	Total:	483	160	4	0	47	91	62	119	483				
26	% Tillage		33.13%	0.83%	0.00%	9.73%	18.84%	12.84%	24.64%	100.00%	37.47%	>30%		
27														

Figure 13. Example of the type of data obtained in recent conservation tillage surveys funded by DEP.

3.3.5 Cover Crops

Contact: Ted Tesler, DEP (717-772-5621, thtesler@pa.gov)

Data Compilation Procedures

Annual estimates of the cultivated land in the Pennsylvania portion of the Chesapeake Bay watershed where cover crops are grown is obtained via a combination of two sources of data. First, estimates of the amount of acres with winter wheat are obtained for Bay region counties by downloading the appropriate data from USDA's NASS (National Agricultural Statistical Service) website (see http://www.nass.usda.gov/Quick_Stats/index.php). For NEIEN reporting purposes, it is assumed that half of this acreage would meet the definition of "cover crop" as set forth by CBPO. In submitting this data to CBPO, it is represented as acres of "Commodity Cover Crop – Standard."

Additional cover crop acres are extracted from the NRCS file provided to DEP by USGS (see related discussion in Section 3.2.9). These acres (depicted in the USGS file as NRCS practice code 340) are submitted to CBPO as "Cover Crops – Wheat." NRCS does not report the actual cover crop type funded in its' records; however, this type (in the form of winter wheat) is assumed to be the most common type in Pennsylvania.

While it is recognized that the approach described above has limitations, it is the only approach available to DEP currently since no programs now exist to either fund or track cover crop acres. It is expected that more precise ways to estimate these acres will be developed in the near future.

Data Verification Procedures

Information on crop types or cover crop acres obtained from the above sources is assumed to be accurate, and the data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. (NASS-based estimates of winter wheat, however, are reduced by 50% as described above to provide a reasonable estimate).

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. To support CBPO's initiative, Pennsylvania is employing the document titled "Strengthening Verification of BMPs Implemented in the Chesapeake Bay Watershed: A Basinwide Framework" to capture verification procedures. Draft documentation is due to CBPO in mid-2015.

APPENDIX A

Shown on the following pages are the data included in an Excel file called “PA BMP Crosswalk.” Included in this file are the BMP types typically collected from the sources given in Table 1, along with their corresponding BMP name used by CBPO for watershed modeling purposes. Also given are the sources (i.e., DEP programs, other government agencies, etc.) from which these data are typically collected.

Source BMP Name	NPSBMP_NAME	Source Programs
Access Control	Access Control	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Animal Mortality Facility	Animal Mortality Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Animal Trails & Walkways	Animal Trails and Walkways	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Solid/Liquid Waste Separation Facility	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Waste Management System	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Waste Storage Facility	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Waste Storage Pond	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Waste Storage Structure	Animal Waste Management Systems (All Types)	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Barnyard Controls	Barnyard Runoff Controls	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Barnyard Runoff Management	Barnyard Runoff Controls	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Rain gardens/Bio-retention	Bioretention	Urban Stormwater BMPs
Vegetated Swales	Bioswale	Urban Stormwater BMPs
Brush Management	Brush Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Cover Crop (NASS Winter Wheat)	Commodity Cover Crop- Standard	From NASS at present; likely to change in future
Compost Facility	Composting Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Dead Poultry Composting Facility	Composting Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Conservation Cover	Conservation Cover	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Wildlife food plot	Conservation Cover	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Conservation Crop Rotation	Conservation Crop Rotation	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Conservation Cropping Sequence	Conservation Crop Rotation	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Conservation Plan Supporting Organic Transition -	Conservation Plan	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Conservation Plans	Conservation Plans	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Conservation Tillage	Conservation Tillage	Currently done using CRC&D survey
Constructed Wetland	Constructed Wetland	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Contour Buffer Strips	Contour Buffer Strips	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Contour Farming	Contour Farming	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Continuous cover crops	Cover Crops - Wheat	From NRCS at present
Cover Crop	Cover Crops - Wheat	From NRCS at present
Use of Cover Crop Mixes	Cover Crops - Wheat	From NRCS at present
Riparian buffer	CREP Riparian Forest Buffer	From FSA
Permanent wildlife habitat, non-easement	CREP Wildlife Habitat	From FSA
Critical Area Planting	Critical Area Planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Road Stabilization	D&G Road - Surface Aggregate and Raised Roadbed	From Dirt & Gravel Road Program
Rooftop Disconnection	Disconnection of Rooftop Runoff	Urban Stormwater BMPs
Diversion	Diversion	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Detention Basin	Dry Detention Ponds & Hydrodynamic Structures	Urban Stormwater BMPs
Underground Detention	Dry Detention Ponds & Hydrodynamic Structures	Urban Stormwater BMPs

Dry Extended Detention Basin	Dry Extended Detention Ponds	Urban Stormwater BMPs
Early Successional Habitat Development/Management	Early Successional Habitat Development/Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Nutrient Management	Enhanced Nutrient Management	Currently not used. Expect to use Tier 2 acres in future.
Nutrient Management Plan	Enhanced Nutrient Management	Currently not used. Expect to use Tier 2 acres in future.
Erosion & Sediment Control	Erosion & Sediment Control	From DEP Stormwater/Chap102
Feed Management	Feed Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Fence	Fencing	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Fencing	Fencing	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Field Border	Field Border	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Filter Strip	Filter Strip	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Filter Strips	Filter Strip	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Constructed Filters	Filtering Practices	Urban Stormwater BMPs
Forage and Biomass Planting	Forage and Biomass Planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Forage Harvest Management	Forage Harvest Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Forest Harvesting Practices	Forest Harvesting Practices	From DCNR BoF, PaGameComm
Forest Stand Improvement	Forest Stand Improvement	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Grass Buffers	Grass Buffers	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Grassed Waterway	Grassed Waterway	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Grassed waterways, non-easement	Grassed Waterway	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Grazing	Grazing Land Protection	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Hedgerow Planting	Hedgerow Planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Irrigation System, Microirrigation	Irrigation System, Microirrigation	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Irrigation Water Conveyance, Pipeline, High-Pressure	Irrigation Water Conveyance, Pipeline, High-Pressure,	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Irrigation Water Management	Underground, Plastic	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
AML Surface Mine Reclamation	Irrigation Water Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Establishment of permanent introduced grasses and legumes	Land Reclamation, Abandoned Mined Land	From state AML program
Establishment of permanent native grasses	Land Retirement	From FSA
Lined Waterway or Outlet	Land Retirement	From FSA
Nutrient Management	Lined Waterway or Outlet	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Pasture & Hayland Planting	Nutrient Management	NMA, Imported Acres, NRCS
Pipeline	Pasture & hay planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Prescribed Grazing	Pipeline	From NRCS, CBIG, NMA, NRCS, Grass Roots, Growing Greener
Riparian Forest Buffer	Prescribed Grazing	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Riparian Herbaceous Cover	Riparian Forest Buffer	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Roof Runoff Management	Riparian Herbaceous Cover	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Roof Runoff Structure	Roof runoff management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Roofs and Covers	Roof Runoff Structure	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Septic Connections	Roof Runoff Structure	From USDA/RuralDev, PennVest
Stream Channel Stabilization	Septic Connections	From Waterways Engineering, Growing Greener
	Stream Channel Stabilization	From NRCS, CBIG, NMA, 319, REAP, Growing Greener

APPENDIX B

Shown on the following pages are the data included in an Excel file called "PA BMP Master List." Included in this file are the specific field names, labels and codes used to import BMP data from Excel files created from various source program information directly into the NPS BMP database maintained by BIT staff within DEP. Data from this database are subsequently transferred to CBPO via NEIEN protocols established by EPA and other Bay partners. (Note: some of the fields [such as those pertaining to unit numbers, dates, etc.] have been omitted in order to make the images fit on the page).

	A	B	C	E	F	G
1	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID
2	Access Control	391	2	119	1	57
3	Animal Mortality Facility	76	2	177	1	56
4	Animal Trails and Walkways	77	2	18	1	78
5	Animal Waste Management Systems (All Types)	313	1	177	1	53
6	Barnyard Runoff Controls	311	1	177	1	53
7	Brush Management	82	2	119	1	57
8	Commodity Cover Crop- Standard	44	1	119	1	43
9	Composting Facility	87	2	177	1	56
10	Conservation Cover	88	2	119	1	57
11	Conservation Crop Rotation	89	2	119	1	57
12	Conservation Plans	314	1	119	1	40
13	Conservation Tillage	182	1	504	1	NA
14	Constructed Wetland	90	2	119	1	48
15	Contour Buffer Strips	91	2	119	1	57
16	Contour Farming	92	2	119	1	57
17	Cover Crops - Wheat	432	1	119	1	57
18	CREP Riparian Forest Buffer	334	1	119	1	39
19	CREP Wildlife Habitat	336	1	119	1	40
20	Critical Area Planting	95	2	119	1	57
21	D&G Road - Surface Aggregate and Raised Roadbed	367	1	18	2	41
22	Diversion	101	2	119	1	57
23	Dry Detention Ponds & Hydrodynamic Structures	241	1	119	5	48
24	Dry Extended Detention Ponds	242	1	119	5	48
25	Early Successional Habitat Development/Management	105	1	119	1	57
26	Enhanced Nutrient Management	370	2	119	1	40
27	Erosion & Sediment Control	290	1	119	5	50

Figure B1. List of BMPs submitted by PaDEP along with codes used to set up correct NEIEN formatting for eventual submission to EPA/CBPO via electronic transfer.

	A	B	C	E	F	G
1	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID
26	Enhanced Nutrient Management	370	2	119	1	40
27	Erosion & Sediment Control	290	1	119	5	50
28	Feed Management	106	2	177	1	60
29	Fencing	107	1	18	1	52
30	Field Border	108	2	119	1	40
31	Filter Strip	109	2	119	1	57
32	Forage and Biomass Planting	516	2	119	1	57
33	Forest Harvesting Practices	315	1	119	2	40
34	Forest Stand Improvement	116	2	119	2	57
35	Grass Buffers	245	1	119	1	39
36	Grassed Waterway	120	2	119	1	57
37	Grazing Land Protection	27	1	119	1	48
38	Hedgerow Planting	123	2	18	1	78
39	Irrigation System, Microirrigation	132	2	119	1	57
40	Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic	139	1	18	1	52
41	Irrigation Water Management	145	2	119	1	57
42	Land Reclamation, Abandoned Mined Land	147	2	119	5	107
43	Land Retirement	316	1	119	1	46
44	Lined Waterway or Outlet	152	2	18	1	78
45	Nutrient Management	159	2	119	1	108
46	Pasture and Hay Planting	162	2	119	1	57
47	Pipeline	164	2	18	1	78
48	Prescribed Grazing	173	2	119	1	57
49	Riparian Forest Buffer	184	2	119	1	57
50	Riparian Herbaceous Cover	185	2	119	1	57
51	Roof runoff management	320	1	177	1	58
52	Roof Runoff Structure	187	2	177	1	56

Figure B1 (continued)

	A	B	C	E	F	G
1	NPSBMP_NAME	NPSBMP_NAME_CODE_ID	NPSBMP_NAME_TYPE_CODE_ID	NPSBMP_MEASURE_UNIT_CODE	NPSBMP_TYPE_CODE_ID	NPSBMP_DESC_ID
53	Septic Connections	348	1	177	5	55
54	Stream Channel Stabilization	56	1	18	1	41
55	Stream Habitat Improvement and Management	199	2	119	1	57
56	Stream Restoration	236	1	119	1	48
57	Streambank and Shoreline Protection	200	2	18	1	52
58	Streambank Protection (Fencing)	397	1	119	1	66
59	Street Sweeping	352	1	1	5	106
60	Stripcropping	353	2	119	1	57
61	Structure for Water Control	202	2	177	1	56
62	Subsurface Drain	203	2	18	1	78
63	Terrace	207	2	18	1	78
64	Terrace	207	2	119	1	48
65	Tree Planting	356	1	119	1	39
66	Tree Planting	356	1	177	5	109
67	Tree/Shrub Establishment	208	2	119	1	57
68	Upland Wildlife Habitat Management	212	2	119	1	57
69	Urban Forest Buffer	827	1	119	5	57
70	Urban stream restoration	233	1	18	5	78
71	Vegetated Treatment Area	214	2	119	1	57
72	Wastewater Treatment Strip	221	1	119	1	57
73	Water and Sediment Control Basin	224	2	177	1	56
74	Watering Facility	225	2	177	1	56
75	Wet Ponds & Wetlands	360	1	119	5	48
76	Wetland Creation	229	2	119	1	57
77	Wetland Restoration	231	2	119	1	57
78	Windbreak/Shelterbelt Establishment	394	2	18	1	52
79						

Figure B1 (continued)

APPENDIX C

Included on the following pages is a description of the conservation tillage survey conducted by the Capital RC&D for PaDEP.

Residue Survey of the Chesapeake Bay Watershed Counties in Pennsylvania Quality Assurance and Quality Control Components for BMP Verification

Developed and Implemented by Capital Resource Conservation and Development Area Council
(Capital RC&D)

Method

Cropland residue transect survey procedures used by the Pennsylvania Chesapeake Bay Counties Survey were adapted from those developed by the Conservation Technology Information Center (CTIC) and detailed by the National Crop Residue Management Survey on their website, <http://www.crmsurvey.org/>. Survey procedures are described in “Cropland Roadside Transect Survey: Procedures for Using the Cropland Roadside Transect Survey for Obtaining Tillage/Crop Residue Data,” available online through Purdue University, <http://www2.ctic.purdue.edu/core4/ct/transect/TransectF.doc>. According to this document, “When conducted properly, this cropland transect survey procedure provides a high degree of confidence in the data summaries. Users can have 90% or more confidence in the accuracy of the results”. The Chesapeake Bay Counties Survey uses CTIC procedures and data collection standards with the goal of collecting data that can be authenticated and published by CTIC.

In addition to working within CTIC guidelines, quality assurance and quality control components are detailed below.

Survey Routes - Routes were developed for each county using the CTIC procedures and were adapted to a hilly geography. Each county survey route was developed by a local county agriculture technician with route development guidance adapted from CTIC guidelines. The routes will be reused for each future resurvey.

Survey Teams and Qualifications – County survey teams are staffed by three individuals; two of whom work in multiple counties in order to achieve greater consistency of process between counties. Each team includes one county agriculture agency staffer (from the county to be surveyed), one consulting technician and one data entry technician, the consulting and data entry technicians staff multiple counties. A description of each observation (identification of the growing crop and estimation of the percentage of residue cover) is made by the consulting technicians. Qualifications for this position include extensive experience as an agricultural professional working with crop land. The Data Entry Technician qualifications include experience with mapping and GIS data. The county agricultural agency member is typically from the conservation district and is selected for their knowledge of agriculture in the surveyed county.

Training – The training was developed by the survey organizer, Capital RC&D, in collaboration with a technical consultant, Joel Myers. A one-day training is required for the entire survey team. Training includes an overview of the entire survey process and review of multiple in-field examples of crop residue. The training is supported by multiple photo guides and written survey procedures. Training may be modified and expanded depending upon the experience of the consulting technicians. In-field post-training testing of the consulting technicians is done during the first week of the survey by the technical consultant and documented for quality assurance. Evaluation of the data entry technicians is

also conducted by the technical consultant and documented. This training was shown to be effective for the 2012/2013 tillage survey.

Data Collection and Entry – Survey data is entered electronically during the survey using an Excel-based data entry sheet with drop-down data selection on a tablet computer. The data entry technicians are responsible for locating and confirming each data point, using GPS and entry of the observation information for each data point into the data entry sheet. The GPS waypoints are pre-loaded and also appear on screen in a map of the survey route. The pre-entered points were visited in previous surveys. The location of the survey vehicle is tracked on the tablet GPS and shown on the map. With this system the data points can be found easily and entered with minimal data entry error.

Independent Verification of Data – Independent verification of the data collected by each survey technician is conducted by the technical consultant during the first two weeks of the survey. Ten-percent of the crop observations of each technician is visited and documented. Review of the verification documents is performed by Capital RC&D and results of that review are reported to the technical consultant and the survey technician team. Any concerns are appropriately addressed to ensure data reliability.

External Validation of Data – Data summaries are developed from the collected data for each county and entered in the CTIC data collection system. CTIC authenticates and publishes the residue data on an annual basis.