Quality Assurance Project Plan for Tracking, Verifying, and Reporting Nutrient and Sediment Pollutant Load Reducing Practices, Treatments, and Technologies

Prepared by the

Chesapeake Bay Office
Pennsylvania Department of Environmental Protection

Updated September 30, 2019

A1: Title and Approval Sheet

A2: Table of Contents

A3: Distribution List

A4: Project/Task Organization

A4.1: Introduction

This document summarizes procedures used for compiling data on best management practice (BMP) implementation within Pennsylvania for use by the United States Environmental Protection Agency's (EPA's) 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/data is a requirements of the Chesapeake Bay Implementation (CBIG) and Chesapeake Bay Regulatory and Accountability Program (CBRAP) Grant agreements between the Pennsylvania Department of Environmental Protection (DEP) and 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, 2011, and 2015). The Chesapeake Bay watershed model requires data in a format compatible with National Environmental Information Exchange Network (NEIEN) protocols that dictate the use of BMP-specific fields and units and Phase 6 requirements. 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 B 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. Since 2010 the data reporting has expanded and improved. It is likely that this process for future data compilation efforts will change, particularly given the expressed desire by DEP to move to more automated procedures. As this occurs, this document will be updated to reflect any changes in procedures.

A4.2: New Programs Providing Data

Through completion of the Phase 3 WIP process, additional programs were contacted to ensure as complete a collection of creditable BMPs for EPA reporting as possible. Programs with delegated storm water permitting authority were contacted to collect and report their completed permits from the period between 2013 and 2018. These newly contacted programs include Oil and Gas, Waste Management, Air Quality, Wetland Mitigation, and Nutrient Trading. Specifically, delegated E&S Control

and Post-Construction Storm Water Management activities were collected from the Oil and Gas and Waste Management programs. Air Quality, Wetland Mitigation, and Nutrient Trading Program records are being developed for reporting but will not yet be available for reporting in NEIEN for 2019 progress reporting. It is expected that the Air Quality Program reporting specifically related to the VW Air Emissions Settlement (equipment replacement/NOx reductions) will be reported outside of NEIEN. The predominant new BMP information resulting out of this effort is related to the reporting of additional storm water management BMPs installed at permitted development sites. These facilities are reported by the facility permittee and inspected by regional DEP staff. Details regarding the program reporting are provided in Section B10.

A4.3: Primary Agency/Program Data Sources and Formats

For data compilation efforts completed since 2009, BMP-related information has been obtained from up to 31 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 A1 below. In many cases, data for NEIEN submissions since 2010 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., State Conservation Commission (SCC) Resource Enhancement and Protection Program and potentially DEP's Agricultural Planning Reimbursement 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 active (e.g., Pennsylvania Department of Agriculture (PDA) Agri-Link Program).

As indicated in Table A1, 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 Section B.

A4.4: Organizational Information Pertaining to Primary Data Providers

Table A1 below provides staff information related to data reporting. The data management related to this reporting can be found in Section B10 Data Management (subsections B10.2.1-B10.3.10).

Table A1. Primary Sources of BMP information.

Data Source/Type	How Information is Received	Contact	BMP Type	Implementation Mechanism
DEP Stream Bank Fencing Program	Text or Excel file obtained from program	P. Tarby	Agricultural	Cost-Share
DEP Chesapeake Bay Implementation Grants	Excel file obtained from program contact	K. Bresaw	Agricultural	Cost-Share
DEP Section 319 Non-Point Source Program	Excel file obtained from program contact	S. Carney	Agricultural	Cost-Share
DEP Abandoned Mine Land Reclamation Program	Excel file obtained from program contact	B. Bradley	Forestry	Non-Cost Share
DCNR Forest Harvest Information	Excel file obtained from program contact	D. Haubrick	Forestry	Regulatory
PGC Forest Harvest Information	Excel file obtained from program contact	P. Lupo	Forestry	Regulatory
PA Act 6 Nutrient Management Program[1]	Excel file obtained from program contact	K. Bresaw	Agricultural	Cost-Share
PA Growing Greener Grant Program	Excel file obtained from program contact	S. Carney	Various	Regulatory
PA Chapter 102 Erosion & Sedimentation Program	Excel file obtained from program contact	N. Crawford	Agric/Urban	Regulatory
PA Oil and Gas Program	Excel file obtained from program contact	J. Kelly	Urban	Regulatory
PA Waste Program	Excel file obtained from program contact	J. Dunham	Urban	Regulatory
PA Air Quality Program	Excel file obtained from program contact	K. Ramamurthy	Various	Cost-Share
Urban Stormwater BMPs	Excel file obtained from program contact	S. Furjanic	Agric/Urban	Regulatory
FSA program-specific BMPs	Excel file obtained from USGS	USGS/Devereux[2]	Agricultural	Regulatory
NRCS program-specific BMPs	Excel file obtained from USGS	USGS/Devereux[2]	Agricultural	Cost-Share
USDA Rural Development Program	Listing received from program contact	S. Gantz	Urban	Cost-Share
SCC Resource Enhancement and Protection Program	Excel file from program contact	J. Semke	Agricultural	Cost-Share
DEP-funded Cover Crop Survey[3]	Excel file from program contact[3]	S. Richards	Agricultural	Cost-Share
SCC Dirt and Gravel Road Program	Excel file obtained from program contact	S. Bloser	Rural land	Non-Cost Share
DEP Nutrient Trading Program[4]	Tabular data obtained from program	T. Hofstetter	Various	Cost-Share
PennVest Program	Tabular data obtained from program	P. Wenrich	Various	Non-Cost Share
DEP Waterways Engineering and Wetlands	Excel file obtained from program contact	W. Kcenich	Stream Restoration	Cost-Share
Grass Roots Program	Tabular data obtained from program	S. Richards	Agricultural	Non-Cost Share
TreeVitalize/Urban Forestry Program	Tabular data obtained from program	R. Reyna	Urban	Cost-Share
DEP-funded Conservation Tillage Survey	Excel file obtained from program contact	S. Richards	Agricultural	Cost-Share
Penn state Survey	Excel file obtained from PSU	M. Royer	Agricultural	Non-Cost Share
NRCS Potomac Pilot	Excel file provided by NRCS	J. Kraft	Agricultural	Non-Cost Share & Cost-Share
DEP-funded Ag Planning Reimbursement Program	Excel file provided by program contact	N. Shrawder	Agricultural	Cost-Share

DEP Ag Inspections	Excel file provided by program contact	K. Bresaw	Agricultural	Regulatory
National Fish & Wildlife Foundation	Excel file provided by program contact	J. Reilly	Various	Cost-Share
Dept. of Defense – Federal Lands	Excel file provided by program contact	S. Diebel	Urban	Federal Funds

[1] Data for acres of land under nutrient management are also obtained from other sources as described in Section B10.3.3

[2] Data obtained from USGS via sub-contractor (Olivia Devereux) under 1619 agreement between USDA and USGS

[3] County-level cover crop are based on surveys described in Section B and Appendix D.

[4] Data have been infrequently provided from this program due to lack of activity since 2010.

A5: Problem Definition/Background

A5.1: Overview

DEP compiles and reports BMP data to the CBPO for assessments of progress towards meeting the state's Phase II & Phase III Watershed Implementation Plans. The data are reported in standardized formats and codes via the NEIEN. The CBPO creates annual progress scenarios using the CBP Watershed Model (WSM) to describe, assess and report the status of the restoration efforts, and anticipated reductions in nitrogen, phosphorus and sediment loadings to Chesapeake Bay and its tidal tributaries.

In reporting BMP data to CBPO, DEP adheres to the following principles:

- Changes in management actions include implementation of a new BMP; maintenance of an existing BMP (not to be reported as a new practice); or renewed practices such as nutrient management plans.
- Changes in management actions do not include the reporting of existing practices in a new year under a new BMP name.
- BMPs units are tracked directly. In other words, BMP units are not calculated by estimating a percentage of total acres available except for the two cases in which acres of BMP implementation are extrapolated based on surveys completed by a third party, funded by DEP. These two cases include the extrapolation of conservation tillage acres and cover crop acres. The process used to establish the extent of these two BMP types is discussed in more detail in Section B of this document.

At this point in time, DEP does not have direct access to US Department of Agriculture (USDA) cost-share practice data pertaining to Natural Resource Conservation Service (NRCS) and Farm Service Agency (FSA) activities due to USDA's reluctance to sign a 1619 data-sharing agreement with a regulatory agency such as DEP. Consequently, such data are provided to DEP on a year-to-year basis by the US Geological Survey (USGS) under a 1619 agreement that it has with USDA.

CBPO-approved verification protocols for a variety of Resource improvement (RI) practices are addressed in the Chesapeake Bay Agricultural Inspection Program SOP No. BCW-INSP-018, effective July 2018 and available at the following link:

http://files.dep.state.pa.us/Water/BPNPSM/AgriculturalOperations/AgriculturalCompliance/Final_SOP_Chesapeake_Bay_Agricultural_Inspection_Program.pdf

Information on these BMPs will also be collected as part of Pennsylvania's Agriculture Conservation and Stewardship (PACS) Program, when that program is rolled out. Additional plans for reporting Resource Improvement (RI) practices will be detailed in future versions of Pennsylvania's QAPP Addendum Verification Program.

A6: Project Description

BMPs that are compiled and submitted to EPA by DEP and other jurisdictions on an annual basis are described in the "NEIEN NPS CBP Data Flow Appendix" which is updated as needed by EPA. Of the total number of BMPs described in this Appendix, only a portion are actually compiled and reported by DEP. Table A2 provides a listing of these BMPs along with their corresponding default Scenario Builder names and the geographic scales at which they are compiled and reported.

In addition to the BMP names provided in Table A2 below, EPA's Appendix Q requires that the jurisdictions provide a table with BMP definitions that each state uses for describing reported BMPs. PA DEP only reports implemented practices that meet CBPO definitions or NRCS codes. There are no Pennsylvania-specific defined BMPs.

A7: Quality Objectives and Criteria

1) Accuracy Objectives (Qualitative)

As part of EPA's evaluation of Pennsylvania's annual progress data, EPA evaluates expected numbers vs. actual counts using Pennsylvania's prior years' numbers. Application of credit duration(s) in the Phase 6 Model will remove and preclude continued use of unverified BMPs. Issues related to verification of implemented BMPs will be addressed in PA's QAPP Addendum Verification Program. Pennsylvania strives to collect the most complete information and is expanding and improving data collection sources and methods.

2) Completeness Objectives - data sets expected from internal and external sources

Data Providers are to submit data to DEP for the reporting period by November 1st of each reporting year. A reporting year is to include 12 months of program data. Source specific verification will be addressed in PA's QAPP Addendum Verification Program, which is currently undergoing revision.

A8: Training and Qualifications

Staff responsible for on-site inspections and data reviews have technical expertise, qualifications, and titles established by their respective programs related to this reporting and verification. These qualifications can be found within the appropriate job descriptions, work agreements, and program specific SOPs, links to which will be contained in Section B10 Data Management (subsections B10.2.1-B10.3.109), when applicable:

1) Database Managers
2) NRCS and State Conservation Specialists
3) Stormwater Inspectors
4) Nutrient Management Specialists who write Nutrient Management Plans

5) Forestry Inspectors
6) CAFO inspectors
7) Chesapeake Bay Agriculture Inspection Program inspectors

See also Appendix B, “Outstanding Issues for PA’s QAPP Comment/Response”, bullet point 14.

A9: Documentation and Records

Staff responsible for documentation and records retention follow specific program guidelines established by their respective programs as well as state records retention policies. BMP data are stored on Commonwealth servers that are backed up to prevent data loss.

Inspection forms, where applicable, and other documentation are available at the appropriate links within Section B10 Data Management (subsections B10.2.1-B10.3.10).

Table A2. List of BMPs compiled by DEP for submittal to EPA

BMP	Default Scenario Builder Name	Geographic Scale[1]
Access Control	PastFence	County
Animal Compost Structure RI	MortalityComp	County
Animal Mortality Facility	MotalityComp	County
Animal Trails and Walkways	BarnRunoffCont	County
Animal Waste Management Systems (All Types)	AWMS	County
Barnyard Runoff Controls	BarnRunoffCont	County
Barnyard Clean Water Diversion RI[5]	BarnRunoffCont	County
Bioretention[4]	New SWPerf	County, Lat/Long
Bioswale[4]	New SW Perf	County, Lat/Long
Brush Management	ConPlan	County
Channel Stabilization	NonUrbStrmRest	County
Commodity Cover Crop- Standard[2]	CovCropSOW	County
Composter Facilities	MortalityComp	County
Composting Facility	MortalityComp	County
Conservation Cover	LandRetireHyo	County
Conservation Crop Rotation	ConPlan	County
Conservation Plans	ConPlan	County
Conservation Tillage[2]	ConserveTillPercent	County
Constructed Wetland	WetPondWetland	County
Constructed Wetland[3]	WetPondWetland	County, Lat/Long
Contour Buffer Strips	ConPlan	County
Contour Farming	ConPlan	County
Cover Crops – Wheat[2]	CoverCropLOW	County
CREP Riparian Forest Buffer	ForestBuffers	County
CREP Wildlife Habitat	LandRetireHyo	County
Critical Area Planting	LandRetireHyo	County
D&G Road – Surface Aggregate and Raised Roadbed	DirtGravelDSA	County, Lat/Long
Disconnection of Rooftop Runoff[4]	New SW Perf	County, Lat/Long
Diversion	ConPlan	County
Dry Detention Ponds & Hydrodynamic Structures	DryPonds	County, Lat/Long
Dry Extended Detention Ponds	ExtDryPonds	County, Lat/Long
Dry Waste Storage Structure RI[5]	AWMS	County
Early Successional Habitat Development/Management	ConPlan	County
Erosion and Sediment Control Level 2	EandS2	County
Erosion and Sediment Control Extractive	Eandsext	County, Lat/Long
Feed Management	DairyPrecFeed	County
Exclusion Fence with Narrow Grass Buffer	GrassBuffExclNar	County

Table A2 (cont.). List of BMPs compiled by DEP for submittal to EPA

BMP	Default Scenario Builder Name	Geographic Scale[1]
Field Border	GrassBuffers	County
Filter Strip	GrassBuffers	County
Filtering Practices[4]	New SW Perf	County, Lat/Long
		County
Forage and Biomass Planting	*Draft*	County
Forest Buffer on Watercourse RI	ForestBuffers	County
Forest Buffers	ForestBuffers	County
Forest Harvesting Practices	ForHarvestBMP	County
Forest Stand Improvement	ForHarvestBMP	County
Grass Buffer on Watercourse RI	GrassBuffers	County
Grass Buffer Strip	GrassBuffers	County
Grass Buffers	GrassBuffers	County
Grassed Waterway	GrassBuffers	County
Grazing Land Protection	PrecRotGrazing	County
Hedgerow Planting	ConPlan	County
High Residue Tillage Management[2]	HRTill	County
Horse Pasture Management	HorsePasMan	County
Irrigation System, Micro irrigation	ConPlan	County
Irrigation Water Conveyance, Pipeline, HP, Under…	ConPlan	County
Irrigation Water Management	ConPlan	County
Land Reclamation, Abandoned Mined Land	AbanMineRec	County
Land Retirement	LandfRetireHyo	County
Lined Waterway or Outlet	ConPlan	County
Manure Transport	ManureTransport	County
Nutrient Management Core N	nmcoren	County
Nutrient Management Core P	nmcoreP	County
Nutrient Management N Rate	nmraten	County
Pasture and Hay Planting	LandRetirePas	County
Pipeline	ConPlan	County
Prescribed Grazing	PrecRotGrazing	County
Reduced Tillage	LowResTill	County
Riparian Forest Buffer	ForestBuffers	County
Riparian Herbaceous Cover	GrassBuffers	County
Roof runoff management	BarnRunoffCont	County
Roof Runoff Structure	BarnRunoffCont	County
Septic Connections	SepticConnect	County
Stream Channel Stabilization	NonUrbStrmRest	County
Stream Habitat Improvement and Management	ConPlan	County
Stream Restoration	UrbStrmRest	County
Streambank and Shoreline Protection	NonUrbStrmRest	County
Streambank Stabilization	NonUrbStrmRes	

Table A2 (cont.). List of BMPs compiled by DEP for submittal to EPA

BMP	Default Scenario Builder Name	Geographic Scale[1]
StreetSweeping	StreetSweepLbs	County
Stripcropping	ConPlan	County
Structure for Water Control	WaterContStruc	County
Terrace	ConPlan	County
Tree Planting	TreePlant	County
Tree Planting[3]	UrbanTreePlant	County
Tree/Shrub Establishment	TreePlant	County
Upland Wildlife Habitat Management	ConPlan	County
Urban Forest Buffer	ForestBufUrban	County, Lat/Long
Urban Infiltration Practices[4]	New SW Perf	County, Lat/Long
Urban stream restoration	UrbStrmRest	County
Vegetated Treatment Area[4]	New SW Perf	County
Waste Storage Facility[6]	AWMS	County, Lat/Long
Wastewater Treatment Strip	BarnRunoffCont	County
Water and Sediment Control Basin	ConPlan	County
Watering Facility	OSWnoFence	County
Wet Pond[4]	New SW Perf	County, Lat/Long
Wet Ponds & Wetlands	WetPondWetland	County, Lat/Long
Wetland Creation	WetlandRestore	County
Wetland Restoration	WetlandRestore	County
Windbreak/Shelterbelt Establishment	TreePlant	County

[1] The majority of all BMP data are only captured at the county scale. Depending on the source program, some data (e.g., the Growing Greener Program and urban stormwater and mining data from regulatory programs) are also captured at the lat/long scale.
[2] These data are estimated at the county scale based on field-scale surveys.
[3] Used in urban settings for stormwater runoff control
[4] Submitted using new stormwater performance standard options
[5] Data derived from Penn State Survey
[6] Derived from new “re-inspected” waste storage facility data

B. DATA GENERATION AND ACQUISITION

B1-B9. These sections are not applicable to the acquisition and reporting of BMP data.

B10: Data Management (Tracking and Reporting Procedures)

B10.1 Overview of Process

As briefly described in Section A, 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 CBRAP or 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 from 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 on Figure B1. Over the years, the types of BMPs compiled have changed as BMP additions and subtractions have been made. 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 A1, along with the corresponding BMP names used by CBPO for watershed modeling purposes. Figure B2 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 A1. These adjustments are based on data formatting guidance provided by CBPO NEIEN Data Appendices.

Using data files and reports obtained from the sources listed in Table A1, a number of Excel files are prepared and delivered to an individual within DEP's Chesapeake Bay Office who has the responsibility for entering BMP information contained in the Excel files into DEP's BMP Warehouse application, which is subsequently used for transferring data to CBPO in XML format via NEIEN.

Since 2016, BMPs have been reported to NEIEN using the Phase 5 BMP Warehouse application, developed by WorldView Solutions, LLC. A new Phase 6 version of the BMP Warehouse application released in October 2018 was used for 2018 and subsequent data submissions. Prior to uploading data, related BMPs contained in the Excel files are revised and corrected as needed to ensure that all data are properly submitted to CBPO. BMP data are error checked during the BMP import process into the BMP Warehouse. Figure B3 illustrates the template used for the 2019 NEIEN reporting.

Jen Gumert, within DEP Bureau of Information Technology, is the NEIEN node operator. She uploads the BMP batch files from BMP Warehouse to NEIEN.

Agency	Funding Source	County	Practice Code	BMP	Practice description	Units Installed	Unit Type	Date
State Conservation Commission	Nutrient Mangement Fund	CENTRE	312	?	ANIMAL WASTE MANAGEMENT SYSTEM	1	number	6/30/09
State Conservation Commission	Nutrient Mangement 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 Mangement 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 Mangement Fund	CHESTER	327	no	CROPLAND TILLAGE SYSTEM	943.8	ACRE	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	JUNIATA	328	no	CONSERVATION CROPPING SEQUENCE	6000	ACRE	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	SULLIVAN	329	yes	CONSERVATION TILLAGE SYSTEM	93	ACRE	9/30/09
State Conservation Commission	Nutrient Mangement Fund	LANCASTER	330	yes	STRIPCROPPING & 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
PaDEP	Chesapeake Bay Implementation Grant	PERRY	340	yes	COVER & GREEN MANURE CROP	2087	ACRE	9/30/09
PaDEP	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
PaDEP	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
PaDEP	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
PaDEP	Chesapeake Bay Implementation Grant	YORK	382	yes	FENCING	835	FEET	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	JUNIATA	386	yes	FIELD BORDER	2	FEET	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	FULTON	390	yes	RIPARIAN HERBACEOUS COVER	1	ACRE	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	TIOGA	391	yes	RIPARIAN FOREST BUFFER	10	ACRE	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	ADAMS	393	yes	FILTER STRIP	1	ACRE	9/30/09
PaDEP	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
PaDEP	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
PaDEP	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
PaDEP	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
PaDEP	Chesapeake Bay Implementation Grant	CLINTON	512	yes	PASTURE & HAYLAND PLANTING	3	ACRE	9/30/09
PaDEP	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
PaDEP	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
PaDEP	Chesapeake Bay Implementation Grant	NORTHUMBERLAND	558	yes	ROOF RUNOFF MANAGEMENT	1	NUMBER	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	CLINTON	560	yes	ACCESS ROAD	1603	FEET	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	YORK	561	yes	HEAVY USE AREA PROTECTION	1	NUMBER	9/30/09
State Conservation Commission	Nutrient Mangement Fund	LANCASTER	570	yes	RUNOFF MANAGEMENT SYSTEM	1	number	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	LEBANON	574	yes	SPRING DEVELOPMENT	1	NUMBER	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	ADAMS	575	yes	ANIMAL TRAILS & WALKWAYS	1300	FEET	9/30/09
PaDEP	Chesapeake Bay Implementation Grant	YORK	578	no	STREAM CROSSING	819	FEET	9/30/09

Figure B1. 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
PaDEP	Chesapeake BayImplementation Grant	CAMBRIA	580	yes	STREAMBANK & SHORELINE PROTECTION	800	FEET	9/30/09
PaDEP	Chesapeake BayImplementation Grant	LYCOMING	584	yes	STREAM CHANNEL STABILIZATION	500	FEET	9/30/09
PaDEP	Chesapeake BayImplementation Grant	JUNIATA	585	yes	STRIPCROPPING-CONTOUR	21	ACRE	9/30/09
PaDEP	Chesapeake BayImplementation Grant	YORK	587	no	STRUCTURE FOR WATER CONTROL	1	NUMBER	9/30/09
PaDEP	Chesapeake BayImplementation Grant	CENTRE	590	yes	NUTRIENT MANAGEMENT PLAN	1	NUMBER	9/30/09
NRCS	NRCS	WYOMING	595	no	Pest Management	103	acre	9/30/09
PaDEP	Chesapeake BayImplementation Grant	ADAMS	600	yes	TERRACE	45	ACRE	9/30/09
PaDEP	Chesapeake BayImplementation Grant	HUNTINGDON	606	yes	SUBSURFACE DRAIN	450	FEET	9/30/09
NRCS	NRCS	CHESTER	612	yes	Tree/Shrub Establishment	3	acre	9/30/09
PaDEP	Chesapeake BayImplementation Grant	ADAMS	614	no	TROUGH OR TANK	1	NUMBER	9/30/09
PaDEP	Chesapeake BayImplementation Grant	NORTHUMBERLAND	620	yes	UNDERGROUND OUTLET	1	NUMBER	9/30/09
NRCS	NRCS	CHESTER	633	no	Waste Utilization	77	acre	9/30/09
PaDEP	Chesapeake BayImplementation Grant	CHESTER	634	no!	MANURE WASTE TRANSFER	1	NUMBER	9/30/09
PaDEP	Chesapeake BayImplementation Grant	CHESTER	635	yes	WASTEWATER TREATMENT STRIP	1	ACRE	9/30/09
NRCS	NRCS	FRANKLIN	635	yes	Vegetated Treatment Area	1	acre	9/30/09
NRCS	NRCS	BERKS	638	yes	Water and Sediment Control Basin	2	no	9/30/09
NRCS	NRCS	FRANKLIN	642	no	Water Well	13	no	9/30/09
NRCS	NRCS	LYCOMING	644	no	Wetland Wildlife Habitat Management	4	acre	9/30/09
NRCS	NRCS	NORTHUMBERLAND	645	no	Upland Wildlife Habitat Management	106	acre	9/30/09
NRCS	NRCS	SNYDER	646	yes	Shallow Water Development and Management	4	acre	9/30/09
NRCS	NRCS	SOMERSET	647	yes	Early Successional Habitat Development/Management	16	acre	9/30/09
NRCS	NRCS	MONTOUR	657	yes	Wetland Restoration	37	acre	9/30/09
NRCS	NRCS	CAMBRIA	659	yes	Wetland Enhancement	5	acre	9/30/09
NRCS	NRCS	LYCOMING	660	no	Tree/Shrub Pruning	170	acre	9/30/09
NRCS	NRCS	TIOGA	666	yes	Forest Stand Improvement	48	acre	9/30/09
PaDEP	Chesapeake BayImplementation 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 Mangement 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	666/612	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	WILDLIFEFOOD 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??	PASTURE LAND 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 Mangement Fund	LANCASTER	n/a		Nutient Mangement	32.7	ACRE	6/30/09

Figure B1. Example BMP data prepared in advance of 2010 NEIEN submittal by DEP (cont.)

Funding Source	CountyName	BufferTypeDesc	LengthFirstSide	AverageWidthFirst	Acres - First	LengthSecondSide	AverageWidthSecond	Acres - Second	Acres - All
DEP Stream Releaf	Adams	Forest	3300	50	3.8	3300	50	3.8	7.6
DEP Stream Releaf	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 Acre
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 - Fictitious 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 Aggragate and Raised Roadbed	876	Feet

Stormwater Management - Fictitious 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 B1. Example BMP data prepared in advance of 2010 NEIEN submittal by DEP (cont.)

	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 B2. 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.

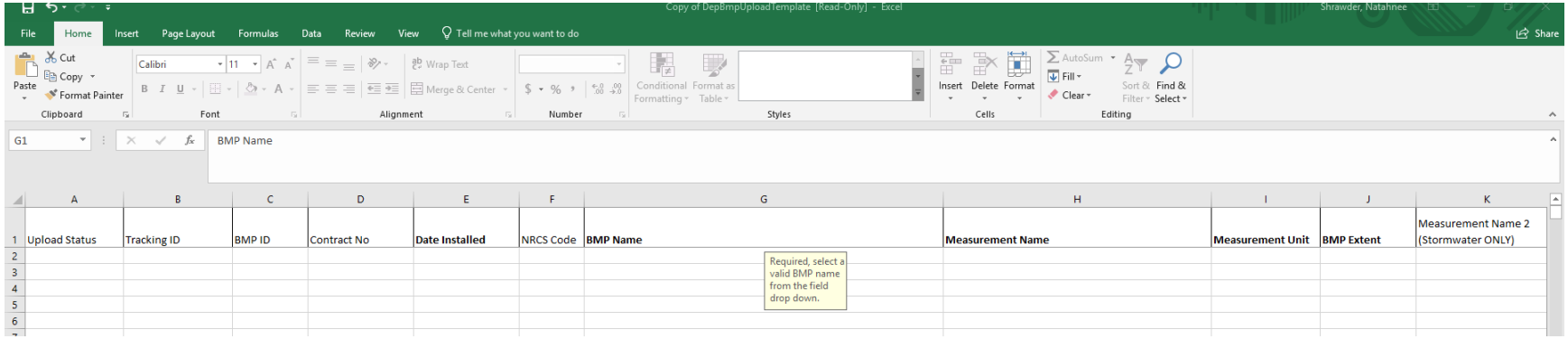


Figure B3. Example of BMP Input Template for use in the 2018 NEIEN submission are shown.

B10.2 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 A1 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 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 A1 or are compiled via more specialized procedures. These are discussed separately in Section B10.3.

B10.2.1 DEP Stream Bank Fencing Program

Contact: Peter Tarby, DEP Conservation District Field Rep., ((570) 826-2102, ptarby@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. Peter Tarby in the DEP Northeast Regional Office and subsequently entered into an Excel file that is then uploaded to the BMP Warehouse by DEP.

Data Verification Procedures

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.2 DEP CBIG and Nutrient Management Act Programs

Contact: Kate R. Bresaw, DEP Bureau of Clean Water (717-772-5650, kbresaw@pa.gov)

Data Compilation Procedures

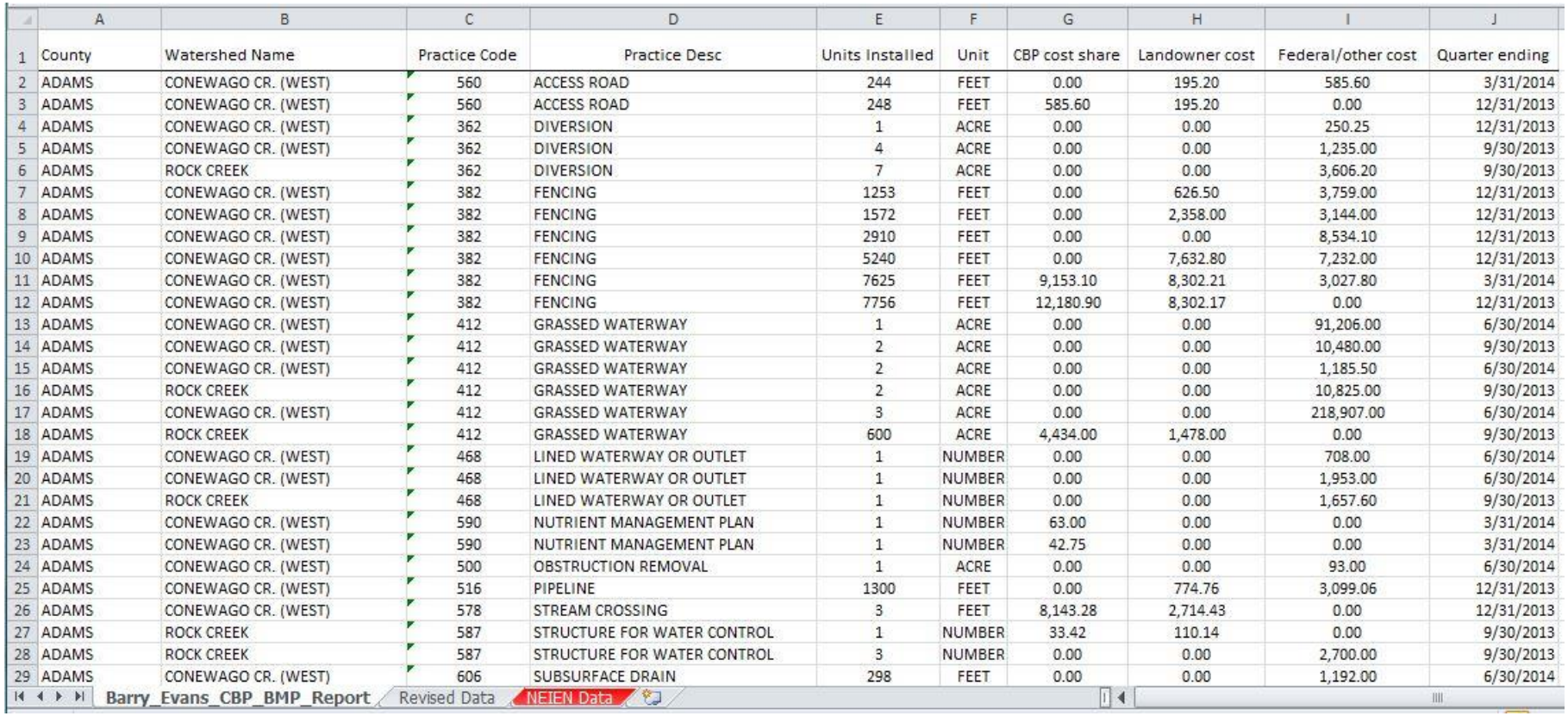
BMP implementation data related to DEP's CBIG and Nutrient Management Act programs are now tracked through PracticeKeeper, which is a GIS-based software program used by DEP staff and County Conservation District staff. BMP data is compiled by using the data export option within PracticeKeeper to provide an excel spreadsheet to DEP staff for entry in the BMP Warehouse and inclusion in the NEIEN submittal.

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 on Figures B4; however, the Nutrient Management program reports similar, but fewer, field-scale agricultural BMPs. 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 B10.3.3.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.



	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

Barry_Evans_CBP_BMP_Report | Revised Data | NEIEN Data

Figure B4. View of portion of file showing original CBIG data.

B10.2.3 DEP Growing Greener Program

Contact: R. Scott Carney, DEP Planning and Conservation (717-783-2944, rscarney@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. When Mr. Price retired, information on BMP implementation levels was obtained from Growing Greener project completion reports obtained from Jennifer Ritter at DEP's Grants Center. These reports are now supplied by Scott Carney in DEP's Planning and Conservation Division. These reports describe types and extents of various BMPs (mostly agricultural), and this information is used to prepare the Excel files that are subsequently provided to DEP's Chesapeake Bay Office for inclusion in the BMP Warehouse. Shown on Figure B5a are two pages from a typical Growing Greener project report. Figure B5b shows BMP data compiled from such reports for the 2014 NEIEN submission.

Data Verification

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

7010-FM-PPCA-0010 9/2/2003

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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 Restoratoin 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

7010-FM-PPCA-0010 9/2/2003

Non-Point Agricultural

Farmstead/Barnyard

Manure Storages:

Type	#	Vol. (cub. ft)	AEUs

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

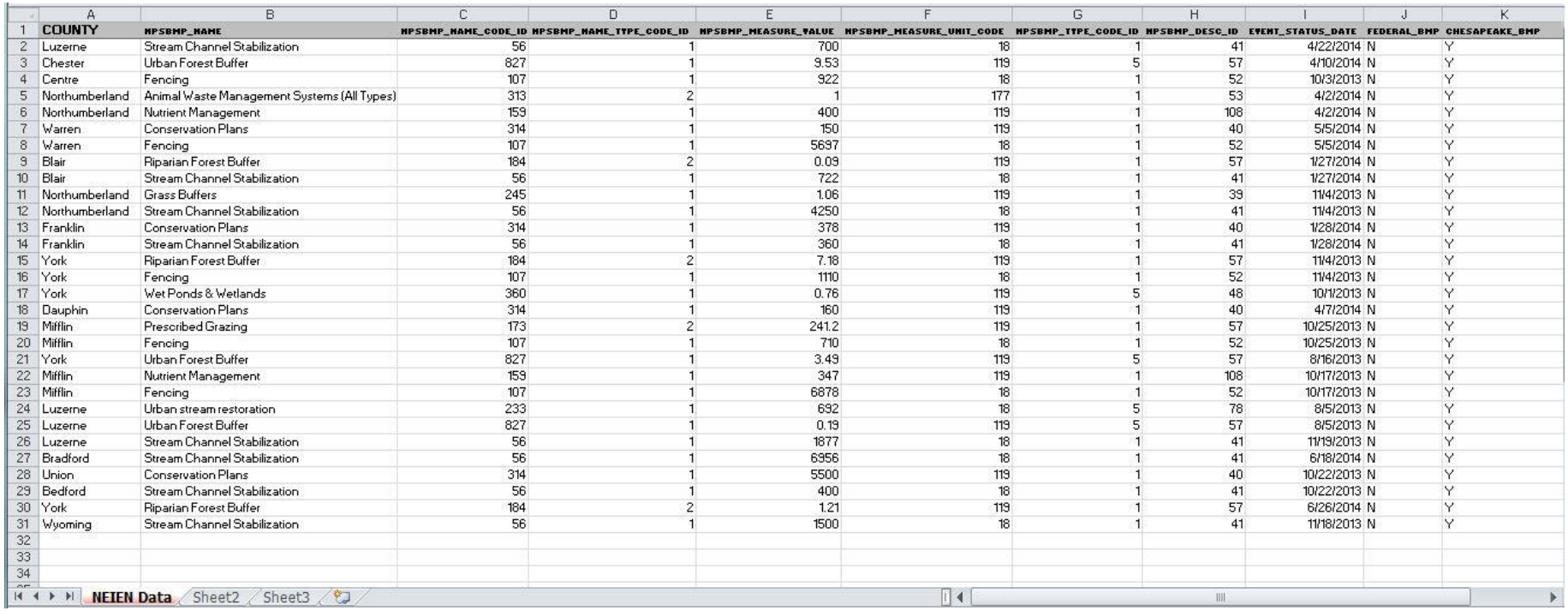
Upland

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:	

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.

Figure B5a. View of information contained in a typical Growing Greener report.



	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	MPSBMP_NAME	MPSBMP_NAME_CODE_ID	MPSBMP_NAME_TYPE_CODE_ID	MPSBMP_MEASURE_VALUE	MPSBMP_MEASURE_UNIT_CODE	MPSBMP_TYPE_CODE_ID	MPSBMP_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	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	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											

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Figure B5b. Example of re-formatted Growing Greener project data ready for inclusion into DEP's BMP database.

B10.2.4 DEP Section 319 Program

Contact: R. Scott Carney, DEP Planning and Conservation (717-73-2944, rscarney@pa.gov)

Data Compilation

Information on BMPs funded by Section 319 funds is tracked by Scott Carney in DEP's Central Office. For NEIEN reporting purposes, a request is initially made to Mr. Carney, 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 the BMP Warehouse. Examples of "raw" and "NEIEN-formatted" BMP data for 2014 are shown on Figures B6a and B6b, respectively.

Data Verification

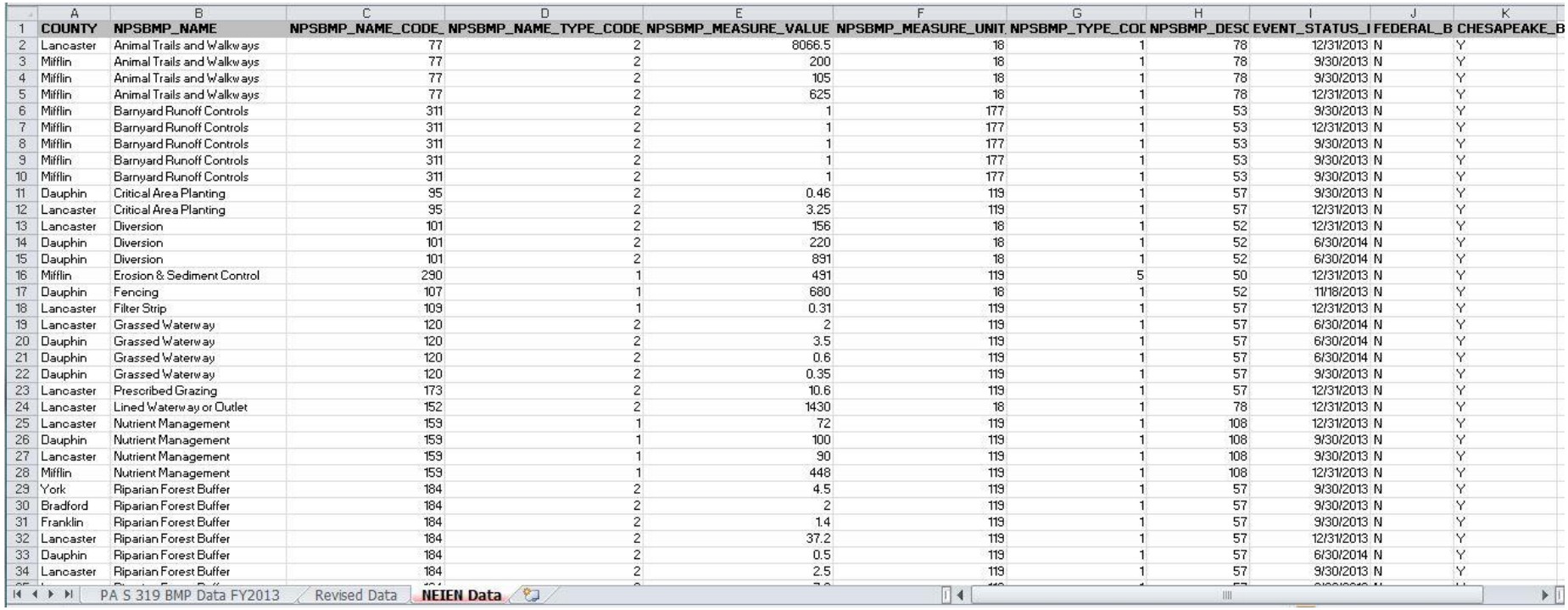
Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. The data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

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

PA S 319 BMP Data FY2013 | Sheet2 | Sheet3

Figure B6a. 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_COI	NPSBMP_DESC	EVENT_STATUS_I	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	Riparian Forest Buffer	184	2	4.5	119	1	57	9/30/2013	N	Y
30	Bradford	Riparian Forest Buffer	184	2	2	119	1	57	9/30/2013	N	Y
31	Franklin	Riparian Forest Buffer	184	2	1.4	119	1	57	9/30/2013	N	Y
32	Lancaster	Riparian Forest Buffer	184	2	37.2	119	1	57	12/31/2013	N	Y
33	Dauphin	Riparian Forest Buffer	184	2	0.5	119	1	57	6/30/2014	N	Y
34	Lancaster	Riparian Forest Buffer	184	2	2.5	119	1	57	9/30/2013	N	Y

Figure B6b. View of “NEIEN-formatted” data from the 319 Program for the 2014 submission to CBPO.

B10.2.5 DEP Abandoned Mine Land Reclamation and Active Mining Program

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

Data Compilation Procedures

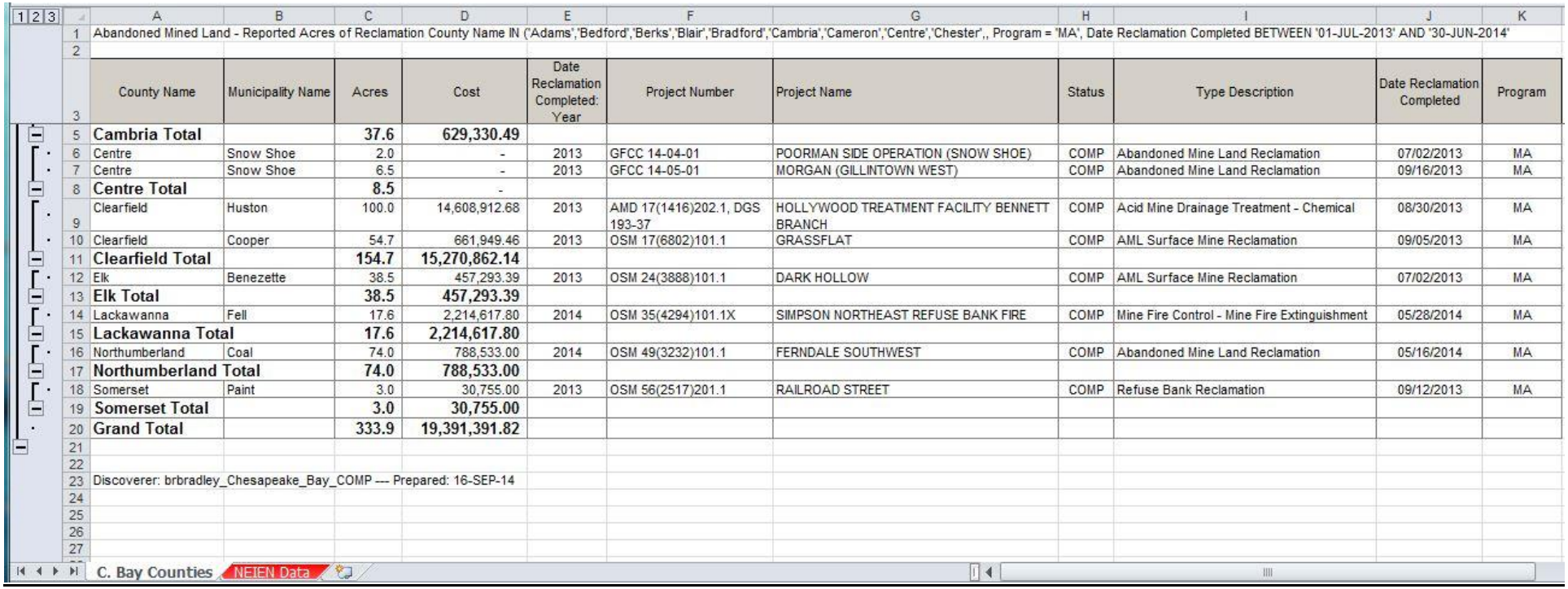
Information on the acres of reclaimed mine land is obtained in Excel file format from Brian Bradley within the Bureau of Abandoned Mineland Reclamation (BAMR). This information is subsequently re-formatted for NEIEN purposes (see Figures B7a and B7b). As shown, all reclaimed acres of this type are assigned a "Land Use" type of "Urban" (NPSBMP_TYPE_CODE_ID = 5). The specific NEIEN BMP type is identified as "Land Reclamation, Abandoned Mined Land", and the implementation units are in acres.

Currently active mining acres as reported by the program through their database tracking are reported by the mining program for E&S Control level 2 BMP.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.



	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											
3	County Name	Municipality Name	Acres	Cost	Date Reclamation Completed: Year	Project Number	Project Name	Status	Type Description	Date Reclamation Completed	Program
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											

C. Bay Counties | NEIEN Data

Figure B7a. 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

C. Bay Counties | NEIEN Data

Figure B7b. Reclaimed abandoned mine land data after re-formatting for NEIEN reporting purposes.

B10.2.6 DCNR/PGC Forest Harvest Information

Contact: Rachel Reyna, DCNR (at 717-783-0385, rreyna@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 (DCNR), and the Pennsylvania Game Commission (PGC). 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, Rachel Reyna) and then forwarded to DEP upon request for NEIEN reporting purposes. Figures B8a and B8b show some harvest/BMP data from DCNR before and after re-formatting for NEIEN reporting purposes.

Data Verification Procedures

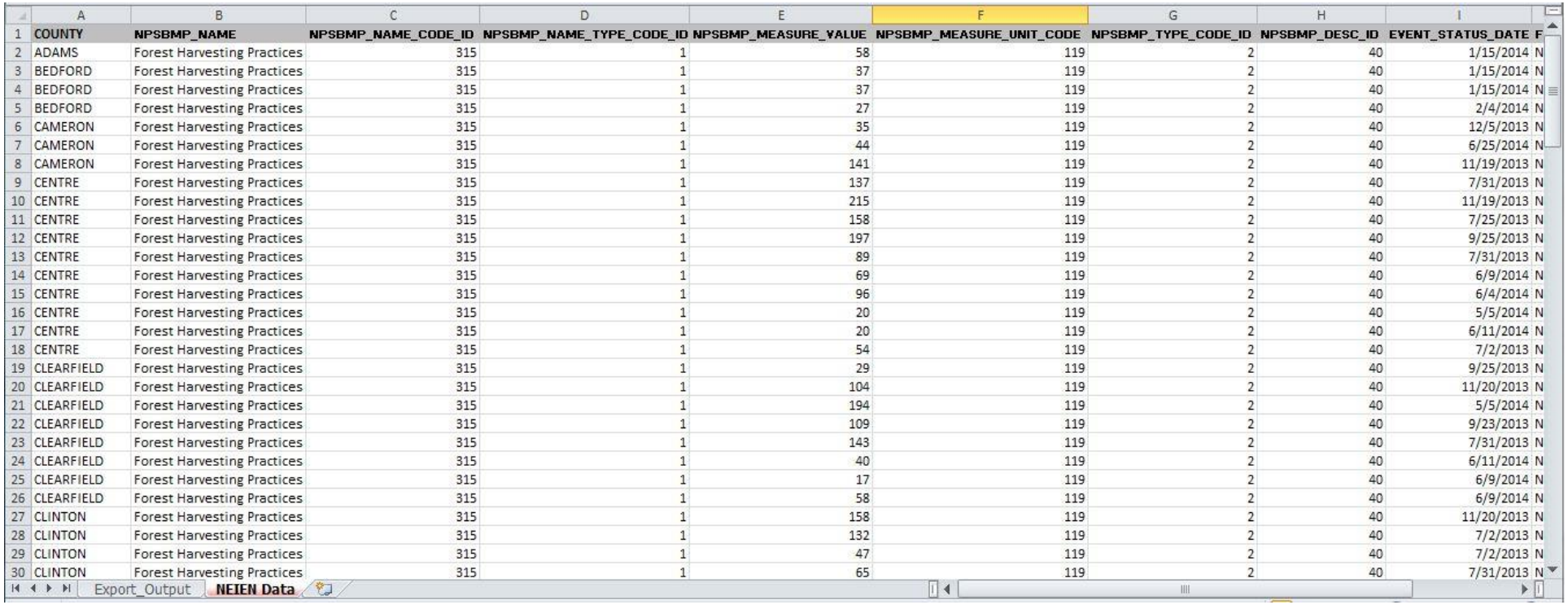
Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. The data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	OBJECTID_1	FID_chesap	OBJECTID	gislink	chesapeake	chesapea_1	chesapea_2	chesapea_3	acres	chesapea_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

Export_Output NEIEN Data

Figure B8a. Raw forest harvest data from DCNR.



	A	B	C	D	E	F	G	H	I	
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

Export_Output | NEIEN Data

Figure B8b. Forest harvest/BMP data from DCNR after re-formatting for NEIEN reporting purposes.

B10.2.7 PA Chapter 102 Erosion & Sedimentation Program (Active Construction Acres)

Contact: Nathan Crawford, P.E., DEP NPDES Permitting Division, Bureau of Clean Water (717-783-9726, nathcrawfo@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 Erosion and Sediment (E&S) control are obtained from an individual (currently, Nathan Crawford) 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 by county and provided in an Excel file. These data are then re-formatted using established procedures for subsequent entry into DEP's BMP Warehouse application.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.8 Urban Stormwater BMPs (Ch. 102 Post Construction Stormwater Management)

Contact: Sean Furjanic, DEP Bureau of Clean Water (at (717) 787-2137, sefurjanic@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):

https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater/Pages/default.aspx

For such activities, permits are required, and information on such permits (including the type of BMP used) is recorded in an ACCESS database maintained within the Bureau of Clean Water. 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 B1 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 usually "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 and reported as done in prior NEIEN submissions.

Shown on 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 B1. List of urban BMPs currently submitted by Pennsylvania

Urban BMP Type	Qualifies for New Performance Standard[1]
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

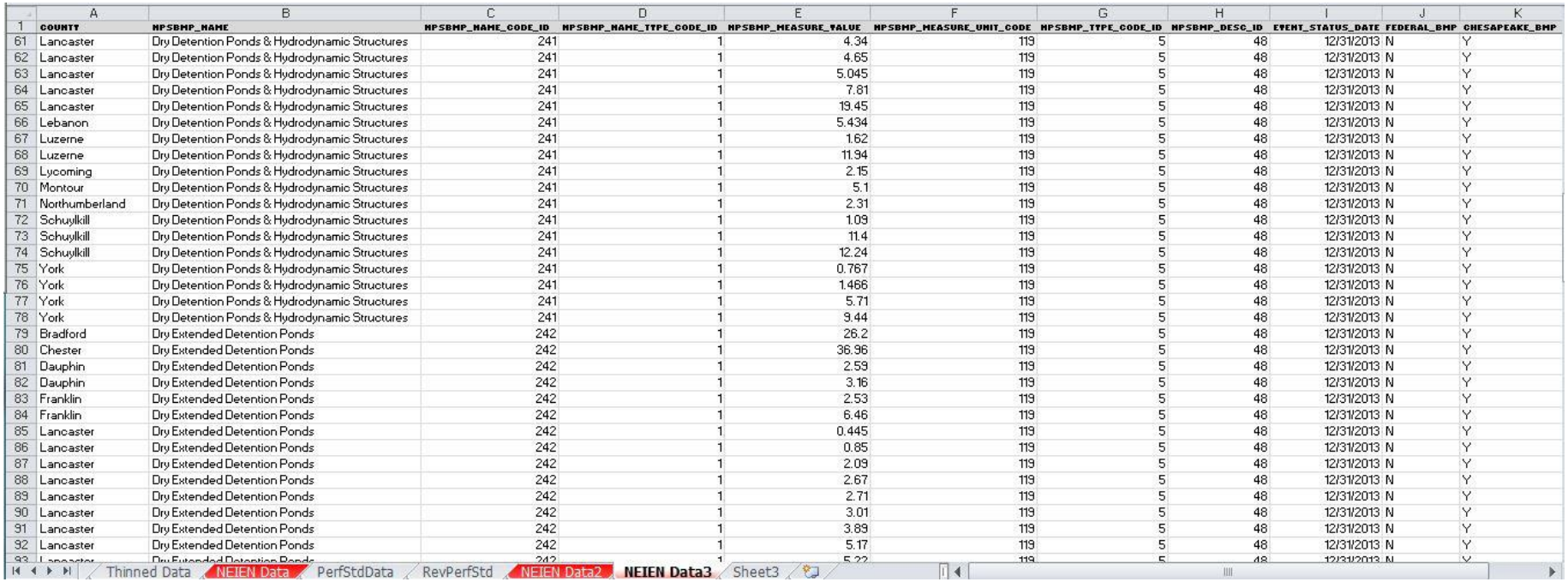
Wet Pond	Yes
Wet Ponds & Wetlands	No

[1] Such qualification refers to instances when the listed BMPs are used individually. In PA, a series of BMPs are almost always used (i.e., a treatment train), in which case, the performance option is usually deemed to apply.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.



	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
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	2.59	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

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

	A	B	C	D	E	F	G	H	I	J	K
1	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

	L	M	N	O	P	Q	R	S	T	U	V
1	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.

B10.2.8.1 Oil and Gas Program Stormwater BMPs (Ch. 102 PCSM delegation)

Contact: Joseph Kelly, DEP Bureau of Oil and Gas (717) 772-5991, josephkel@pa.gov)

Data Compilation Procedures

In Pennsylvania, all new Oil and Gas construction activities 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/stormwater-related information):

http://www.portal.state.pa.us/portal/server.pt/community/office_of_oil_and_gas_management/20291

For such activities, permits are required, and information on such permits (including the type of BMP used) is recorded in a database maintained within the Bureau of Oil & Gas Planning and Program Management. Oil and Gas Program permit information was collected from the regional DEP offices and processed for reporting using the stormwater performance standard BMP for new development runoff reduction based on the activity conducted at the permit site. BMP Name, Runoff Storage Volume, Impervious Area, Site Area, and Acres Treated, Date Installed, and Location fields are provided for reporting.

Emphasis was placed on collecting and data from 2013 through June 2019. Efforts to collect earlier implementation data are on-going and this section of the QAPP will be updated as this information becomes available.

B10.2.8.2 Waste Management Program Stormwater BMPs (Ch. 102 PCSM delegation)

Contact: Jason Dunham, DEP Bureau of Waste Management (717-787-1982, jadunham@pa.gov)

Data Compilation Procedures

In Pennsylvania, all Solid Waste Municipal Landfill activities 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/stormwater-related information):

https://www.dep.pa.gov/Business/Land/Waste/SolidWaste/MunicipalWaste/Pages/default.aspx

For such activities, permits are required, and information on these permits (including the design of BMP used) is recorded in permit files maintained in the DEP regional offices. Waste Program permit information was collected from the regional DEP offices and processed for reporting using the stormwater performance standard BMP for new development runoff reduction based on the activity conducted at the permit site. BMP Name, Runoff Storage Volume, Impervious Area, Site Area, and Acres Treated, Date Installed, and Location fields are provided for reporting.

Emphasis was placed on collecting and data from 2013 through June 2019. Efforts to collect earlier implementation data are on-going and this section of the QAPP will be updated as this information becomes available.

B10.2.9 USDA – Farm Services Agency

Contact: Olivia Devereux, 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 between USDA and the USGS. 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 time period pertaining to that year's NEIEN submission. This information is subsequently reviewed by DEP and re-formatted for inclusion in its BMP Warehouse application.

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). To avoid problems with potential duplicate reporting, the "Expired Acreage" values are subtracted from the "Practice Acres" values to derive acreages 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. CBIG), there is often an indicator flag or value that signifies that funding has been provided by NRCS or FSA sources. In these cases, these BMPs are deleted from the datasets submitted via NEIEN and included in either the FSA 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 the BMP Warehouse application for subsequent submission to CBPO via NEIEN.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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 initial verification protocols followed by USDA meet the requirements established by the CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

	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

ReadMe | FSA | NRCS_LandBMPs | NRCS_AnimalBMPs | NRCS_LandAnimalBMPsCTA

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
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
2	Berks	Land Retirement	316	1	134.2	119	1	46	6/30/2014
3	Berks	Land Retirement	316	1	65.6	119	1	46	6/30/2014
4	Susquehanna	CREP Riparian Forest Buffer	334	1	29.7	119	1	39	6/30/2014
5	Lancaster	CREP Riparian Forest Buffer	334	1	35.5	119	1	39	6/30/2014
6	Tioga	CREP Riparian Forest Buffer	334	1	47	119	1	39	6/30/2014
7	Bradford	CREP Riparian Forest Buffer	334	1	68.9	119	1	39	6/30/2014
8	Statewide	CREP Riparian Forest Buffer	334	1	153.9	119	1	39	6/30/2014
9									
10									
11									
12									
13									
14									
15									

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

B10.2.10 USDA – Natural Resource Conservation Service

Contact: Olivia Devereux, 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 USGS. On a yearly basis, USGS staff (or their contractor) provides 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 the BMP Warehouse.

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 FSA 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.

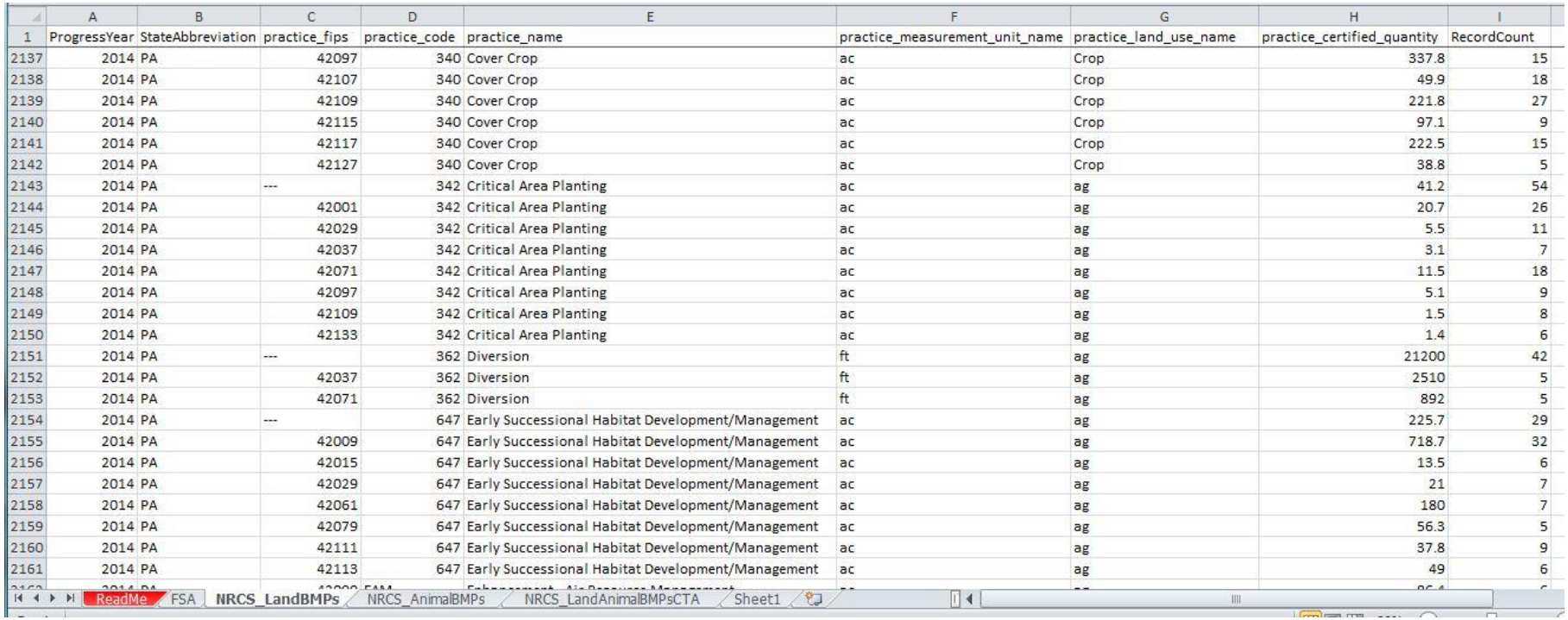
Figure 11a shows a portion of the NRCS BMP data recently provided by USGS to DEP under the 1619 arrangement, and Figure 11b shows BMP data that has been re-formatted by DEP for inclusion in the BMP Warehouse application for subsequent submission to CBPO via NEIEN. As described below, the data received from USGS are presumed accurate, and are not modified

once received, with one exception. That is, the unit values pertaining to "fencing" are reduced by 90% since only a portion of the 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 10% of the total fencing installed in the state could be used for this BMP. Consequently, beginning with the 2017 Progress Run submission, DEP will use 10% of the total fencing as an estimate for streambank fencing until a better approach for quantifying this practice from NRCS data is developed.

Data Verification Procedures

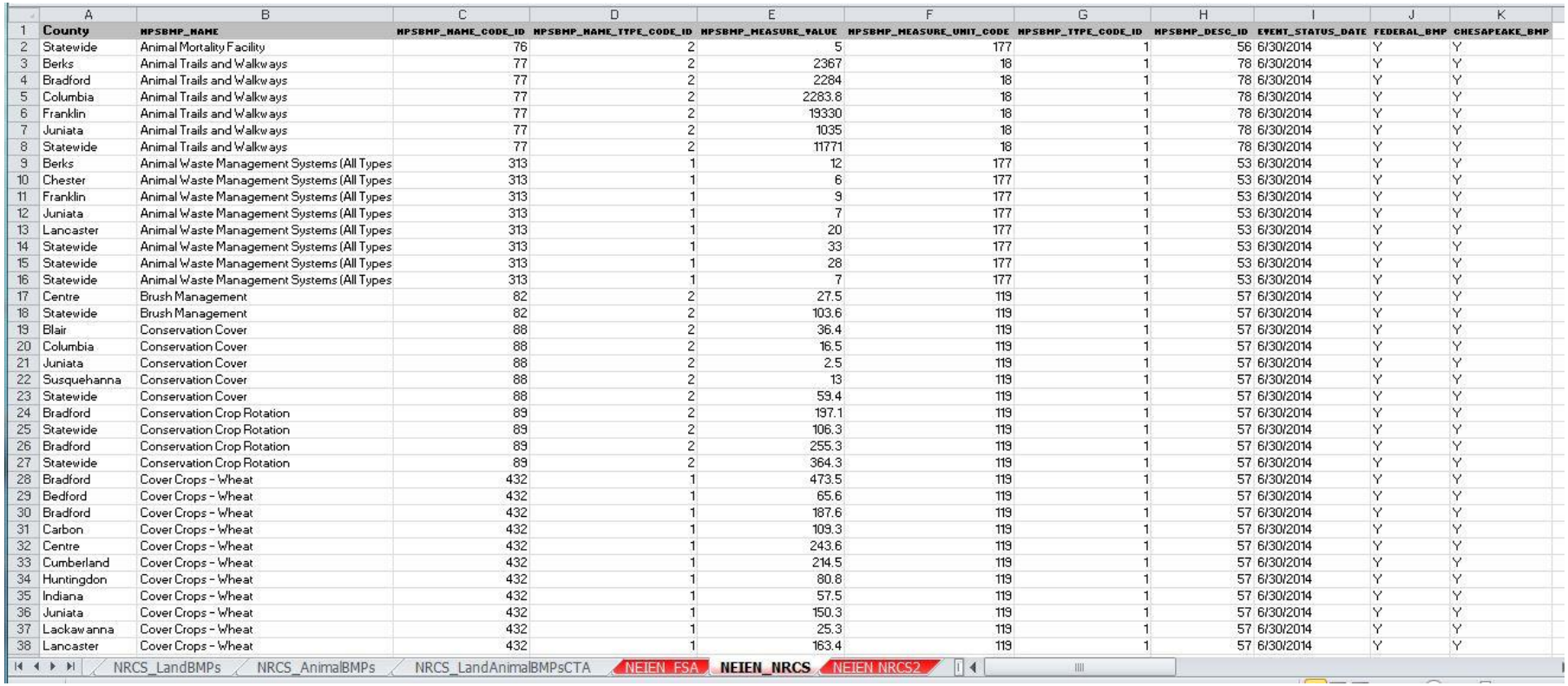
Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. The data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. As described above, BMP data from USDA/NRCS are obtained and compiled by USGS under an existing 1619 agreement. It is presumed that data tracking and initial verification protocols followed by USDA meet the requirements established by the CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.



	A	B	C	D	E	F	G	H	I
1	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	MPSBMP_NAME	MPSBMP_NAME_CODE_ID	MPSBMP_NAME_TYPE_CODE_ID	MPSBMP_MEASURE_VALUE	MPSBMP_MEASURE_UNIT_CODE	MPSBMP_TYPE_CODE_ID	MPSBMP_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	2283.8	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.

B10.2.11 USDA Rural Development Program

Contact: Susanne Gantz, USDA Rural Development Program (717-237-2281, Susanne.Gantz@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 initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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 initial verification protocols followed by USDA meet the requirements established by the CBPO.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.12 PA PennVest Program

Contact: Robert Boos, DEP (717-783-4493, rboos@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 and other non-point source (typically Agricultural) BMPs. Data on such connections and BMPs 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 for

later inclusion in the BMP Warehouse. Non-point source BMPs are typically animal waste storage or barnyard projects and reported in a similar manner.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.13 SCC Resource Enhancement and Protection Program

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

Data Compilation Procedures

Pennsylvania's SCC funds the implementation of a number of BMPs through its' REAP program (https://www.agriculture.pa.gov/Plants_Land_Water/StateConservationCommission/REAP/Pages/default.aspx). 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 B10.3.4]). 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 B3. Starting with 2014, the REAP program is now providing DEP with actual "units implemented" numbers for the BMPs reported.

Table B3. 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 B3. 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 B3. 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 the BMP Warehouse and subsequent submission to CBPO via NEIEN.

Data Verification

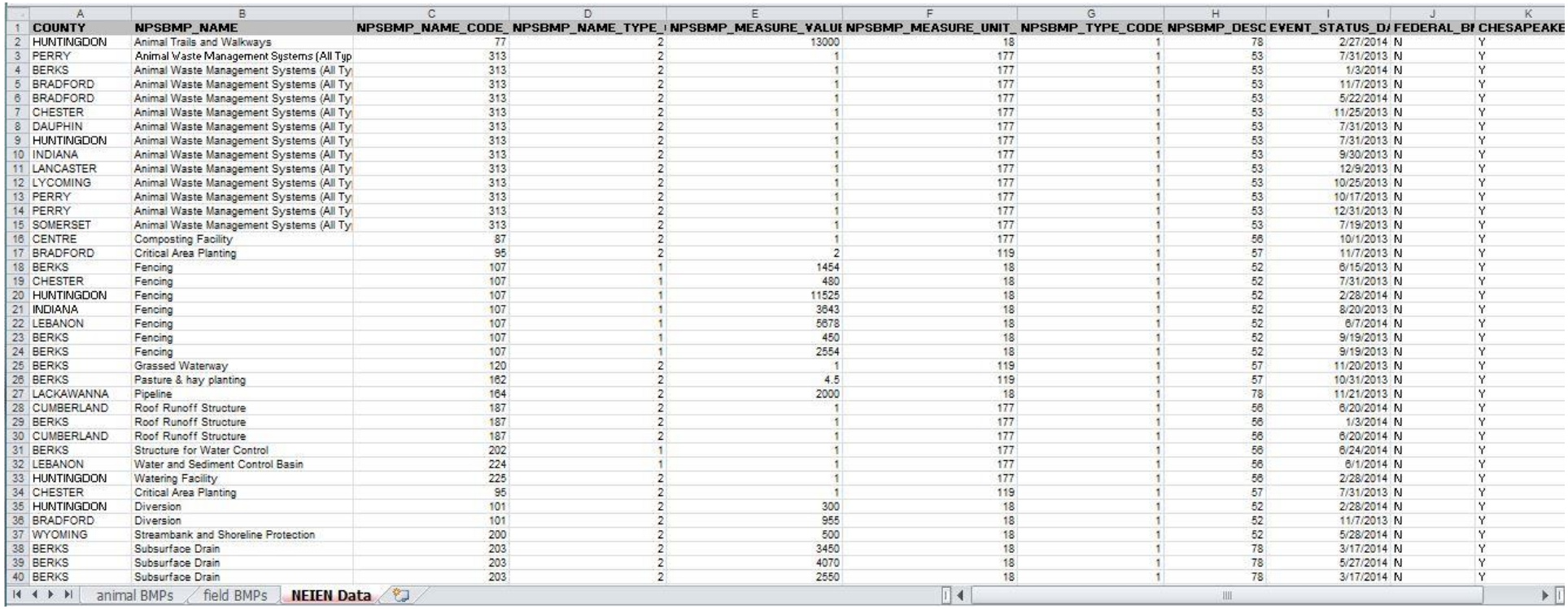
Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. The data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN. However, any BMP activities identified 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	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
19	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	
20	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	
21	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	
22	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
23	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	
24	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	
25	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	
26	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
	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)

AllApplicantsAllApplicationsAll | plans | no-till equipment | LDME | animal BMPs | field BMPs

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



	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	NPSBMP_NAME	NPSBMP_NAME_CODE_	NPSBMP_NAME_TYPE_	NPSBMP_MEASURE_VALUE	NPSBMP_MEASURE_UNIT_	NPSBMP_TYPE_CODE	NPSBMP_DESC	EVENT_STATUS_D/	FEDERAL_BI	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	480	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 BMP database.

B10.2.14 SCC Dirt and Gravel Road Program

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

Data Compilation Procedures

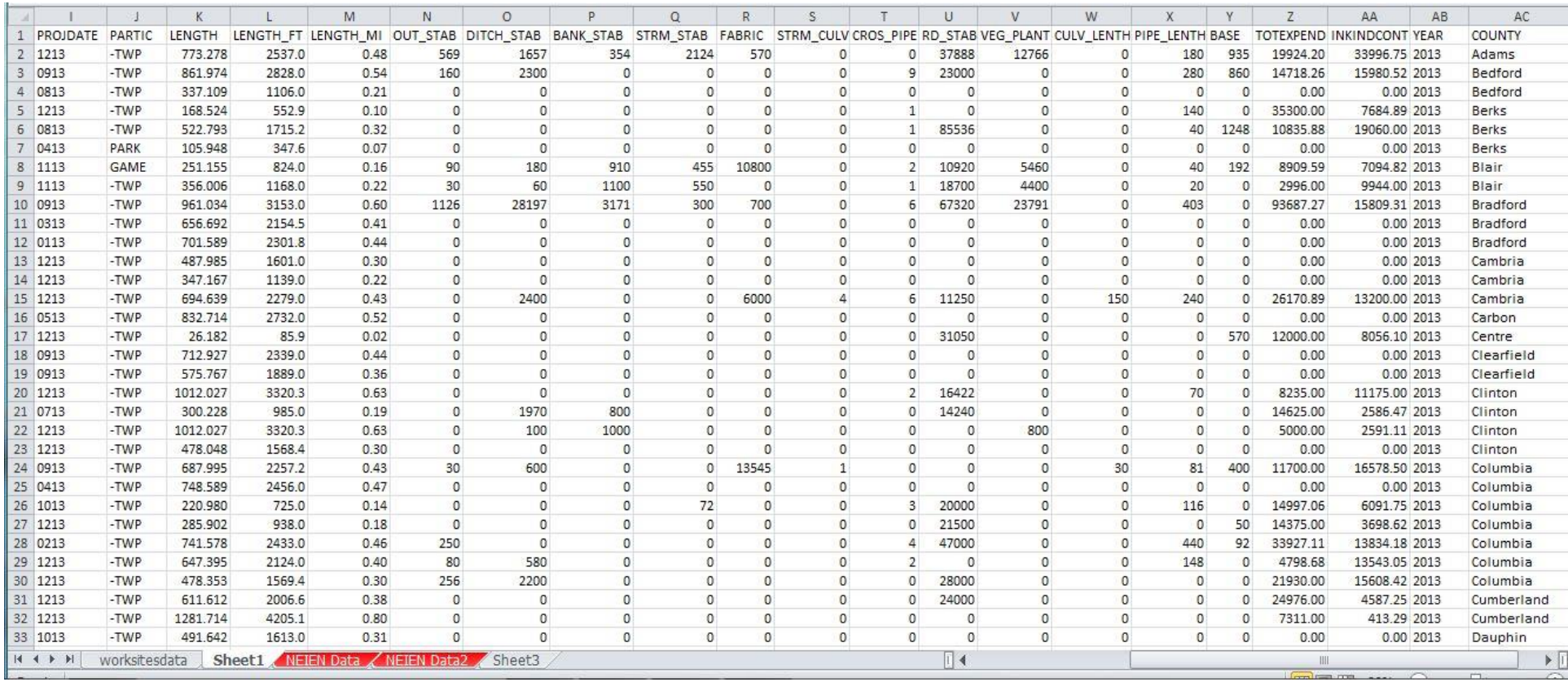
The state's "Dirt & Gravel Road" program is administered by the SCC, and the technical work is managed by the Dirt and Gravel Road Center at Penn State University (see www.dirtandgravel.psu.edu). This particular program funds a number of activities to reduce pollutant loads from unpaved roads in rural 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 BMP Warehouse application 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' BMP Warehouse for subsequent submission to CBPO via NEIEN.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.



	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	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

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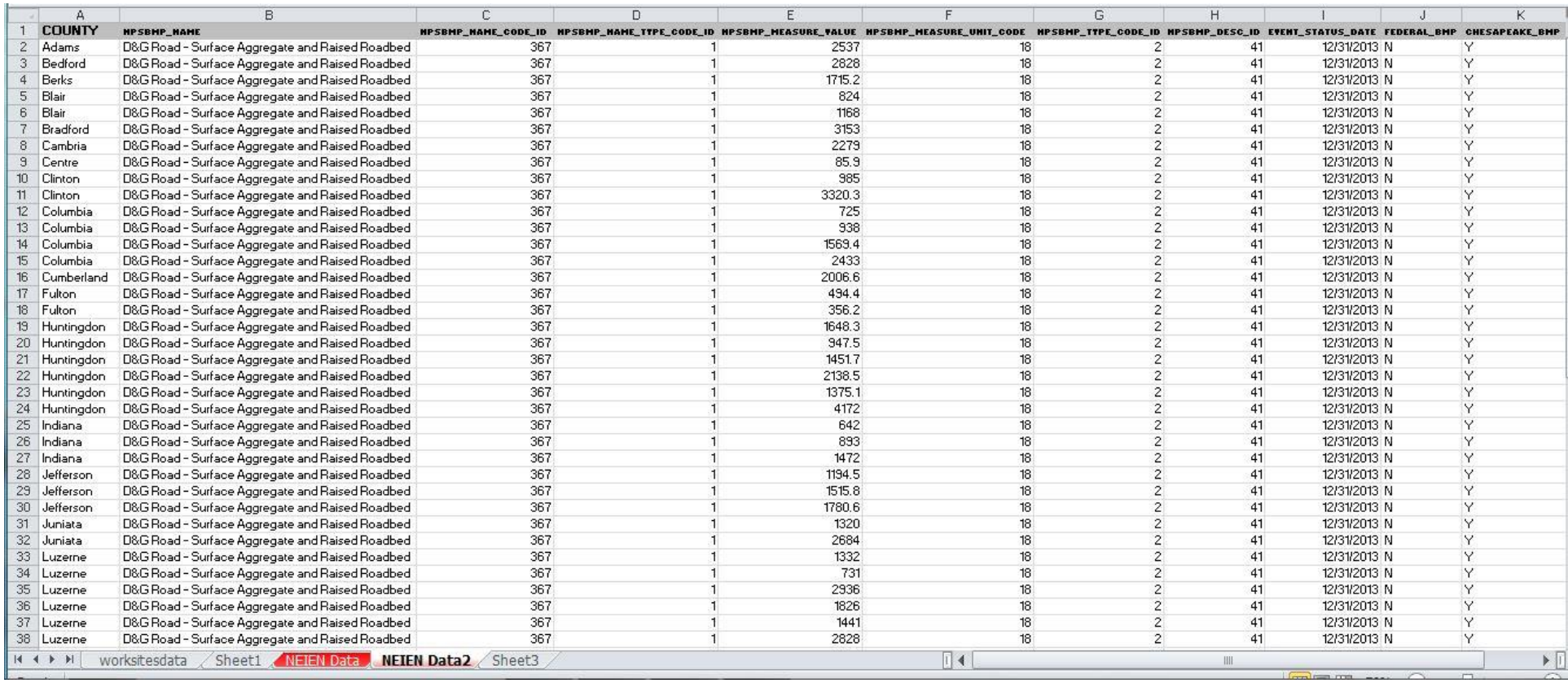
Figure 13a. Example of BMP data provided in a typical “Dirt & Gravel Road” file.



	A	B	C	D	E	F	G	H	I	J	K
1	COUNTY	MPSBMP_NAME	MPSBMP_NAME_CODE_ID	MPSBMP_NAME_TYPE_CODE_ID	MPSBMP_MEASURE_VALUE	MPSBMP_MEASURE_UNIT_CODE	MPSBMP_TYPE_CODE_ID	MPSBMP_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

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

B10.2.15 DEP Nutrient Trading Program

Contact: Theia Hofstetter, DEP Bureau of Point and Non-Point Source Management (717-783-8394, thhofstett@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 initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8 (particularly since verification is required as part of the nutrient credit generation process). 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.16 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 BMP Warehouse as described previously.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.17 DCNR Bureau of Forestry, TreeVitalize Program

Contact: Rachel Reyna, DCNR (at 717-783-0385, rreyna@pa.gov)

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 Rachel Reyna) on a yearly basis and re-formatted for entry into DEP's BMP Warehouse application 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 initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.18 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 BMP Warehouse as described previously. Depending on continuing funding from NFWF, this program may or may not be providing similar information beyond 2014. See https://www.capitalrcd.org/grass-roots.html for further information.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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 B10.2.10). 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP

Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.2.19 Federal Facilities

Contact: Sarah Diebel, U.S. Department of Defense (757-341-0383, sarah.diebel@navy.mil)

Data Compilation Procedures

BMP records for BMPs installed at federal facilities is provided by federal reporting sources directly to DEP. This data is provided on a master list or on the BMP Warehouse input template worksheet (Excel). Department of Defense records comprise nearly all the reported BMPs from federal agencies. These records are reported as provided by the reporting agency without correction.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3 Specialized Data Compilation Procedures for Selected BMPs

In Section B10.2, brief descriptions of procedures used for compiling BMP data for many of the program sources given in Table A1 were provided. However, in some cases, implementation levels of some BMPs (i.e., nutrient management, cover crops, conservation tillage, street sweeping, and manure transport) are compiled via more specialized procedures. These are discussed in more detail in the sub-sections below.

B10.3.1 Manure Transport Data

Contact: Kate R. Bresaw, DEP Bureau of Clean Water (717-772-5650, kbresaw@pa.gov)

Data Compilation Procedures

For NEIEN reporting purposes, information on manure transport is collected from Nutrient Balance Sheet quarterly activity reports submitted by County Conservation Districts to the State Conservation Commission (SCC) within the Department of Agriculture. These data are collected by DEP from PracticeKeeper as entered by Conservation District personnel. Among other items, these reports include information on the amounts, as well as the "sources" and "destinations", of the manure within, and outside of, the county and the Chesapeake Bay Watershed.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.2 Urban Street Sweeping

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

Data Compilation Procedures

Information on urban street sweeping has been periodically reported based on episodic reporting 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 BMP Warehouse for subsequent submission to CBPO. Lacking a consistent data reporting process, no street sweeping has been reported for the 2019 progress run. It is expected that this practice will be collected through the MS4 reporting tool coming on-line in 2020 for submission in 2020.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.3 Nutrient Management

Contact: Kate R. Bresaw, DEP Bureau of Clean Water (717-772-5650, kbresaw@pa.gov)

Data Compilation Procedures

Data on nutrient management acres are compiled from a number of different sources, including reports from PracticeKeeper. 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, and 4) Manure Management Plans identified through the Agricultural Inspection Program. 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 manure application is controlled through the use of a Manure Management Plan. These specific acres are included in the compilation of nutrient management acres for NEIEN reporting purposes and are currently reported as "Core N" acres only.

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 "Core N & P" acres and are currently being submitted as such to CBPO. All nutrient management acres in this particular program are tracked and submitted to DEP. In this database, locations are identified as to whether permits for nutrient management acres are "active" or "expired". On a year-to-year basis, only "active" acres are submitted to EPA via NEIEN for progress reporting purposes.

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 B10.2.10 for related discussion) and were previously reported as "Tier 2" acres in the Phase 5 Watershed Model. However, starting in 2018, these are being reported as "Core N & P" acres. In the past, only the current year's acreage was reported to CBPO. However, DEP now understands that NRCS 590 acres are typically under a contract for 3 years. Consequently, starting in 2016, "590" acres reported by NRCS will be reported to CBPO in 3-year cycles. That is, the acres reported for any given year will include the current year acres as well as the acres for the 2 previous years.

Data Verification Procedures

Information on initial BMP implementation obtained from the above source is presumed to be accurate as reported by the program per the requirements in A8. The data are not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN.

Pennsylvania understands that it is not appropriate to extrapolate data currently available for these practices. A scientifically valid study designed specifically to allow for the extrapolation may be considered for reporting or validating these practices in the future.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.4 Conservation Tillage

Contact: Ted Tesler, DEP Chesapeake Bay Office (717-772-5621, thtesler@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 Area RC&D) in its' seven-county region. This initial survey was designed using procedures previously established by CTIC. 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 DEP to conduct more extensive surveys 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. Additional

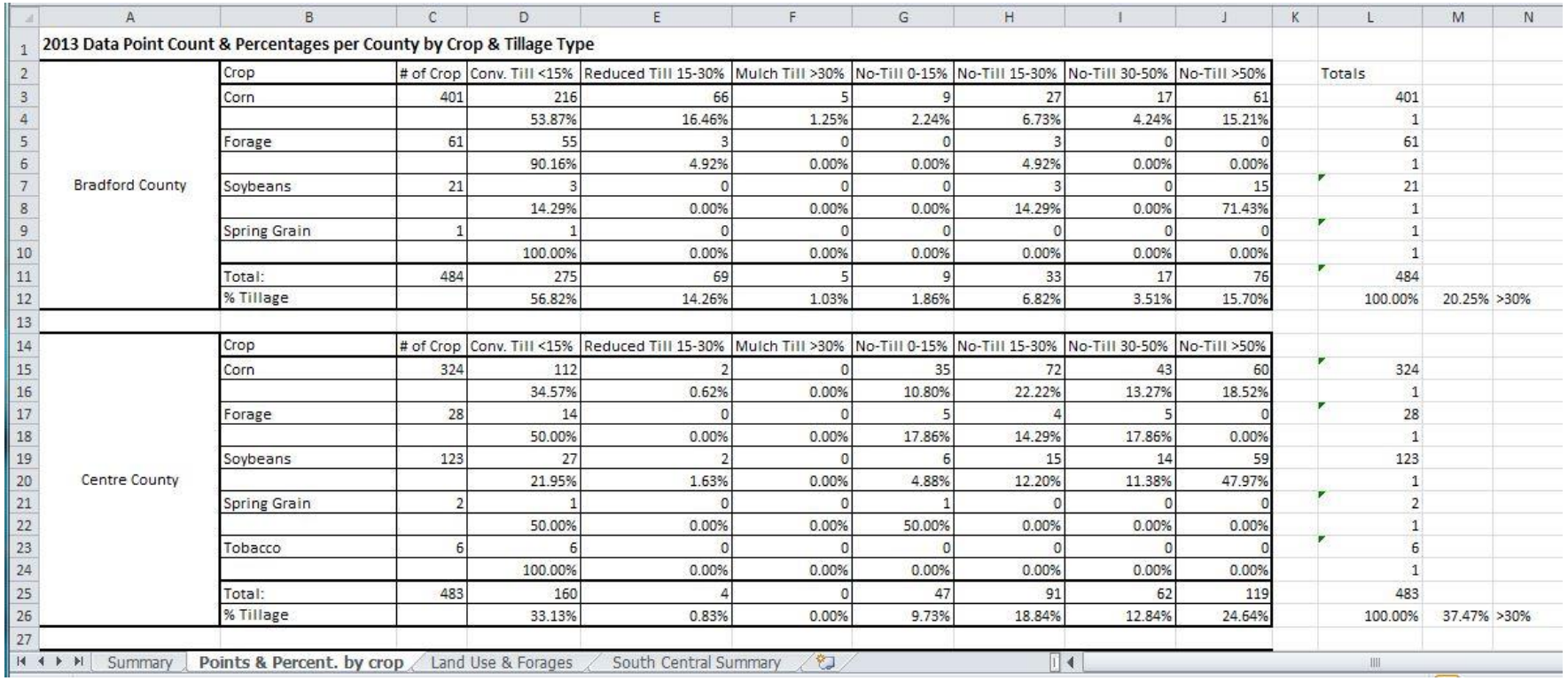
surveys were completed for 2015 through 2018. A description of the survey procedures used in Pennsylvania is included in Appendix C.

As part of the survey, data are collected for seven different categories of tillage. Data on only four of these categories where residue exceeds 15% are used for NEIEN reporting purposes. In this case, BMP acres are submitted as "Reduced Conservation Tillage" are 15-30% residue, "Conservation Tillage" is 30%-60% residue, and "High Residue Management" is greater than 60% residue. An example of the type of data collected in recent surveys is shown on Figure 14. The 2014 survey, and all future surveys, include a 60% residue classification to capture high-residue conservation tillage in accordance with CBPO-approved guidance. Consequently, starting in 2015, data on "high-residue" conservation tillage acres (Bay BMP "High Residue Tillage Management") are being submitted to CBPO via NEIEN.

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 presumed 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.



2013 Data Point Count & Percentages per County by Crop & Tillage Type

	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		
Bradford County	Corn	401	216	66	5	9	27	17	61	401		
			53.87%	16.46%	1.25%	2.24%	6.73%	4.24%	15.21%	1		
	Forage	61	55	3	0	0	3	0	0	61		
			90.16%	4.92%	0.00%	0.00%	4.92%	0.00%	0.00%	1		
	Soybeans	21	3	0	0	0	3	0	15	21		
			14.29%	0.00%	0.00%	0.00%	14.29%	0.00%	71.43%	1		
	Spring Grain	1	1	0	0	0	0	0	0	1		
			100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1		
	Total:	484	275	69	5	9	33	17	76	484		
	% Tillage		56.82%	14.26%	1.03%	1.86%	6.82%	3.51%	15.70%	100.00%	20.25%	>30%

	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%			
Centre County	Corn	324	112	2	0	35	72	43	60	324		
			34.57%	0.62%	0.00%	10.80%	22.22%	13.27%	18.52%	1		
	Forage	28	14	0	0	5	4	5	0	28		
			50.00%	0.00%	0.00%	17.86%	14.29%	17.86%	0.00%	1		
	Soybeans	123	27	2	0	6	15	14	59	123		
			21.95%	1.63%	0.00%	4.88%	12.20%	11.38%	47.97%	1		
	Spring Grain	2	1	0	0	1	0	0	0	2		
			50.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	1		
	Tobacco	6	6	0	0	0	0	0	0	6		
			100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1		
	Total:	483	160	4	0	47	91	62	119	483		
	% Tillage		33.13%	0.83%	0.00%	9.73%	18.84%	12.84%	24.64%	100.00%	37.47%	>30%

Summary | Points & Percent. by crop | Land Use & Forages | South Central Summary

Figure 14. Example of the type of data obtained in recent conservation tillage surveys funded by DEP.

B10.3.5 Cover Crops

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

Data Compilation Procedures

For the 2012, 2013 and 2014 NEIEN cycles, annual calculations of the cultivated land in the Pennsylvania portion of the Chesapeake Bay watershed where cover crops are grown were based on a combination of two sources of data. First, determinations of the amount of acres with winter wheat were 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 was assumed that half of this acreage would meet the definition of "cover crop" as set forth by CBPO. In 2012, these acres were submitted as "Cover Crop – Wheat". In later years, they were submitted as acres of "Commodity Cover Crop – Standard."

Additional cover crop acres were also extracted from the NRCS file provided to DEP by USGS (see related discussion in Section B10.2.10). These acres (depicted in the USGS file as NRCS practice code 340) were 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) was assumed to be the most common type in Pennsylvania.

While it was recognized that the approach described above has limitations, it was the only approach available to DEP at the time since no cost-share programs now exist to either fund or track cover crop acres. It was expected that more precise ways to establish these acres would be developed in the near future.

Starting with the 2015 NEIEN cycle, a new approach has been implemented to determine cover crop acres. This new approach is based on cover crop data developed as a result of a transect survey conducted by Capital Area RC&D similar to the one conducted for determining conservation tillage acres (see section B10.3.4 above). This survey was developed with input from Mark Dubin, an agricultural advisor to CBPO. The Ag Workgroup approved the BMP verification methodology used in the PA cover crop transect survey pilot projects for cover crop BMP annual progress reporting on November 21, 2016. (A more detailed description of this survey is provided in Appendix D). For 2015 reporting purposes, the percentage of cultivated acres under two types of cover crops ("cover crops" and "commodity cover crops") were calculated using survey results for five counties in south-central Pennsylvania (Adams, Cumberland, Huntingdon, Juniata, and Union).

The percent values for the two types of cover crops for the five counties in this recent survey are shown in Table B4. As can be seen from this table, the percent values for the five counties surveyed range from 10.2% – 16.4% for "commodity cover crops" and 4.3% - 22.4% for "cover

crops", with averages of 13.4% and 11.8%, respectively. For 2015 NEIN reporting purposes, these percent values were applied against 2012 "harvested acres" obtained from NASS. More specifically, the percent values obtained for each county were applied against the 2012 harvested acre values for the respective county. For counties not included in the survey, the average percent values were used. As discussed above with the conservation tillage survey, it is DEP's intent to have Capital Area RC&D repeat this survey for a new group of counties every year so that the results will become more reliable and robust in future years. For the 2018 progress submission, cover crops reported from the transect report were submitted to NEIEN as "cover crops with fall nutrients" applied.

Table B4. Results of 2015 Capital Area RC&D Cover Crop Survey

County	Cover Crop %	Commodity Cover Crop %
Adams	10.5	14.7
Cumberland	9.1	16.4
Huntingdon	12.8	10.2
Juniata	4.3	15.8
Union	22.4	10.0
Average	11.8	13.4

DEP believes that the results of this survey are in line with those reported by NRCS in their 2013 CEAP report. In the CEAP report, it was determined that cover crop implementation levels for the Susquehanna River and Potomac River Basins (which did not include commodity cover crops) were 13% and 26%, respectively, for the years 2011-2014. After accounting for the fact that five PA counties (Adams, Bedford, Franklin, Fulton and Somerset) are partially located within the Potomac River Basin, the adjusted cover crop implementation level for PA counties within the Chesapeake Bay watershed would be about 14.3 %, which is slightly higher than the average value of 11.8% given above.

For the purposes of reporting historic (pre-NEIEN) cover crop acreage, a similar approach as described in Appendix E was used that is based on the recent CEAP report from NRCS.

Data Verification Procedures

Information on cover crops obtained from the above survey approach is QA/QC checked as part of the survey methodology (see Appendix D). Information on crop types or cover crop acres obtained from both of the above sources (NRCS or Capital Area RC&D) is presumed 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.6 Penn State University Agricultural Voluntary BMP Reporting Outreach

Contact: Matt Royer, Director of Agriculture & Environment Center, PSU

Data Compilation Procedures

The Penn State University Agricultural Voluntary BMP Reporting outreach was an effort to allow producers to voluntarily report BMPs implemented on their operations through paper or web-based forms. The survey was mailed to approximately 20,000 farmers in late January 2016, with returns accepted until the end of April 2016. A total of 6,782 were completed and returned. The reporting was comprised of agricultural BMPs installed without cost-share including structural and management action BMPs. (Structural BMPs reported as Resource Improvement (RI) Practices without known design specifications (shorter Credit Duration than BMPs meeting Federal/State Cost Share standards)).).

The final report (December 15, 2016) is available at the link below:
http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/Farm%20Survey%20Report%20Final%20121516.pdf

Future producer surveys will use the revised TetraTech recommendations contained within the report at the link below:

https://www.chesapeakebay.net/channel_files/25874/producer_survey_recommendation_report_2018-02-14.pdf

Data Verification Procedures

Information on BMPs obtained from the above survey approach was QA/QC checked and corrected as part of the survey methodology. Information on farm conservation practices

QA/QC checked as part of the survey methodology is presumed to be accurate, and the data was 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.7 NRCS Remote Sensing (Potomac Pilot)

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

Data Compilation Procedures

NRCS and DEP's Remote Sensing proof of concept effort to determine if aerial imagery could be used to identify and inventory BMPs was carried out in the five counties of the Potomac River Basin by analyzing grids within the study area. A total of 28 NRCS conservation practices were targeted for identification in the pilot project. The list of practices was based on BMPs that could be detected remotely. Field verification was used to assess accuracy. Five percent of farms in Somerset, Bedford, Fulton and Adams County where visited while ten percent of the farms were visited in Franklin County. Field verification methods were established based on the agreed scope of work by NRCS, DEP, and EPA. The CBP's Agriculture Workgroup approved only a limited number of practices (limited population size) based on specific remote sensing statistical standards for accuracy developed by a contractor for the Agriculture Workgroup.

The BMPs counted included: Forest Buffers, Prescribed Grazing, Access Control, Fencing, and Mortality Composters.

The final report (December 13, 2016) is available at the link below:
https://www.chesapeakebay.net/channel_files/24633/assessment_of_pilot_remote_sensing_12-13-2016.pdf

Data Verification Procedures

Information on BMPs obtained from the above approach is QA/QC checked as part of the pilot project methodology. The data itself is presumed to be accurate and was 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector

leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.8 Pennsylvania's Agriculture Inspection Program

Contact: Kate R. Bresaw, DEP Bureau of Clean Water (717-772-5650, kbresaw@pa.gov)

Data Compilation Procedures

PA's Agriculture Inspection Program is a phased regulatory farm inspection program implemented by DEP and participating County Conservation Districts to track (Manure Management Plans (MMPs), Agriculture E&S plans, NMPs, and other BMPs in place. This program uses PracticeKeeper software to document planning and inspections. PA is initially looking at plan completeness but will expand to implementation in the future.

Pennsylvania recently completed modifications to the SOP (Version 1.2) for the Bay Agriculture Inspection Program (SOP No BCW-INSP-018) to address the following:

- The Chesapeake Bay Program Partnership's Nutrient Management Best Management Practice panel report for the 5 elements to address core nitrogen requirements.
- The specific approach to compliance with PA DEP's regulatory requirements.
- How inspectors are assessing farms to determine if plans are administratively complete.
- The qualifications and training requirements for inspectors.

The SOP was effective July 1, 2018 and describes the procedures by which DEP and participating County Conservation Districts will conduct Initial and Follow-Up Inspections of Agricultural Operations within the Chesapeake Bay watershed to ensure compliance with agricultural planning requirements found in the Pennsylvania Clean Streams Law and regulations promulgated thereunder and can be found at the following link:

http://files.dep.state.pa.us/Water/BPNPSM/AgriculturalOperations/AgriculturalCompliance/Final_SOP_Chesapeake_Bay_Agricultural_Inspection_Program.pdf

The agricultural compliance annual summary for 2016-2017, as well as related webinars, and a sample inspection checklist can be found on DEP's website at the link below:

https://www.dep.pa.gov/Business/Water/CleanWater/AgriculturalOperations/Pages/Agricultural-Compliance.aspx

Data Verification Procedures

These data were compiled and reported for the first time in 2018. While manure management plans have been required on farms since 1985, this is the first time that the farms are being inspected and asked to verify implementation. Based on the requirements of the Agriculture Workgroup, it was determined that these Manure Management Plan acres qualified for supplemental "Nutrient Management N Rate" reporting. All data reported reflects an actual inspection. No information is extrapolated at this time. Information on BMPs obtained from the above approach is presumed accurate as reported into the PracticeKeeper application. The data itself was not further checked or verified prior to inclusion in the annual submission to CBPO via NEIEN for this annual practice.

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.9 Pennsylvania's Agriculture Conservation Stewardship Program (PACS)

Contact: Frank Schneider, State Conservation Commission,
(717-705-3895, fschneider@pa.gov)

This is a placeholder for future reporting. This program is not actively reporting currently.

Data Compilation Procedures

PACS is a conceptual voluntary program designed to recognize and provide certain benefits to Pennsylvania farmers who step forward to document their environmental stewardship. The program focuses on ensuring farmers meet Pennsylvania environmental regulatory compliance (soil conservation and manure management) along with the utilization of practices that demonstrate the farmer's conservation stewardship addressing all resource concerns on the farm.

The program relies on third party entities to perform environmental assessments of farms applying for recognition, with the oversight of the local county conservation district or other designated entity to administer and provide assessment of program applications.

For conservation districts that choose to support the implementation of this program, the conservation district will provide on-farm inspections on at least 10% of the farms submitting PACS program applications to the conservation district for consideration. These inspections will be considered as counting towards the county's Chesapeake Bay agriculture initial inspection goal if the farm has not been previously accounted for in the inspection program, the farm is not a prior identified Confined Animal Operation (CAO) or Confined Animal Feeding Operation (CAFO) with an approved nutrient management plan, and the inspection is performed

consistent with the with Standard Operating Procedure No. BCW-INSP-018, *Chesapeake Bay Agricultural Inspection Program.*, including the completion of the required inspection report and the record keeping and compliance follow up. For every 10 applications received by participating conservation districts, there will be a minimum of one on-farm inspection completed. This language is included in the Technician Agreement.

How it works:

Farmer outreach and education: Farmers obtain an information packet explaining the program, including eligibility criteria and the benefits of program participation. This packet includes a checklist/self-evaluation form of program eligibility criteria.

- Packets could be available from CCDs, DEP, SCC, PDA, PSU, private sector, and on agency and organization websites, etc.
- Participating farmers would enroll at least all contiguous acres under their management control, both owned and rented.
- Farmers can use the checklist and program description information to self-assess their farm situation to determine if they appear to be eligible for program participation.

Initial farm assessments: Farmers will contact a third-party entity to do an initial farm assessment. These third-party assessors would include private sector agricultural consultants and other agriculture industry professionals. Conservation district staff would not be involved in this element of the program as their more effective role is expected to be the review of program applications and local administration of the program.

- Authorized third party verifiers need to be certified under PDA's Nutrient Management Specialist Certification Program. In addition, authorized third party verifiers will be required to attend an additional one-day training outlining the requirements for the PACS program.
- Farmers initially applying for participation in the program must at a minimum be implementing their required 102 agriculture erosion control plan (or conservation plan), as applicable, and their manure management plan (or nutrient management plan), as applicable in order to be eligible.
- Participating farms will be required to demonstrate environmental stewardship in excess of the regulatory requirements when submitting application for renewal in the program in later years.
- Third-party verifiers would work with the farmer to complete the PACS program application/verification form.

Farm application submission and review: The farmer sends the completed program application/verification form (completed by the farmer and the verifier) to the participating district (or other designated entity) for review and acceptance. Conservation districts will provide a screening review of every application to assess compliance with program criteria. Applications with questionable information will be further assessed by contacting the farmer and/or the verifier to confirm the validity of the information provided with the application. Districts will perform an on-site inspection of at least 10% of the submitted applications to assess if the verifier is properly assessing the farm. Districts may be able to count farms where

they do on-site checks, as counting towards their obligations under the CB agriculture initial inspection program.

- The application/verification form includes a summary of the information relating to implementation of the relevant erosion control and manure management plans, as well as information relating to the BMPs installed on the farm.
- This farm summary information will be submitted to the conservation district electronically to facilitate data entry for farms approved under the program.
- Districts may be able to reduce their Act 38 NM plan inspection frequency for CAOs and CAFOs if the farm has a track record of compliance in the Act 38 Program
- The review process will include an assessment to verify there are no SCC, PDA or DEP open compliance issues with the farm prior to approving the farm for program participation.
- Where a district does not participate, the SCC will authorize an alternative entity to perform the application review and administration of the program.

Application approval: Conservation districts or other authorized entities will approve the application based on SCC application review guidance. The conservation district or other authorized entity will notify the farmer of their program approval/disapproval. Once approved, the district or other authorized entity will record the farm information in a program database for PACS program tracking.

- The initial approval under the program will be valid for 5 years, at which time a renewal application would be required for consideration of continued participation.
- An annual self-certification form will be required to be completed by the farmer and submitted to the conservation district to retain program participation throughout the 5-year program approval lifespan.
- Conservation districts would update the farm information in the program database if the self-certification form indicates changes are needed.
- If major changes were made to the operation (such as inclusion of additional acreage) a new application and application review will need to take place.

The Scope of work for this program would be covered within the Ag Inspection SOP here: http://files.dep.state.pa.us/Water/BPNPSM/AgriculturalOperations/AgriculturalCompliance/Final_SOP_Chesapeake_Bay_Agricultural_Inspection_Program.pdf

This is a placeholder for future reporting. This program is not actively reporting at this time.

Data Verification Procedures

Information on BMPs obtained from the above approach will be QA/QC checked as part of the project methodology described above. The data itself is presumed to be accurate and was 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

B10.3.10 Pennsylvania's Agricultural Planning Reimbursement Program (APRP)

Contact: Natahnee Miller, DEP Chesapeake Bay Office (717-772-5952, natamiller@pa.gov)

This is a placeholder for future reporting. This program is not actively reporting currently.

Data Compilation Procedures

PA's Agricultural Planning Reimbursement Program is a state funded program through which agricultural operators/landowners in PA's portion of Chesapeake Bay Watershed can be reimbursed for fees they've paid to consultants to create MMPs, NMPs, and Agriculture E & S control plans. This program is open to all agricultural operators/landowners in Pennsylvania's Chesapeake Bay watershed.

This program is in its second year and is managed by DEP staff through two contractors (TeamAg, Inc. and Larson Design, Inc.). The contractors collect the forms, review the submitted plans for completeness, and reimburse operators once all forms and receipts are submitted and the plan(s) deemed administratively complete. The consultants then submit the planning information- both in pdf form and in an excel spreadsheet- to DEP for entry into PracticeKeeper. As of this date only some of the planning information has been entered into PracticeKeeper due to the sheer volume of plans received. The planning information for the first round of the APRP will be submitted in an excel sheet for the 2018 progress run.

The coordinators attended an afternoon training session for completing Agricultural Planning administrative reviews via webinar on September 21, 2017. Guidance used by the contractors to determine whether the Ag E&S plan is administratively complete, can be found here:

http://files.dep.state.pa.us/Water/BPNPSM/AgriculturalOperations/AgriculturalCompliance/Ag_E%26S_Plan_Admin_Complete_Guide.docx

The guidance used by the contractors to determine whether a MMP is administratively complete, can be found here:

http://files.dep.state.pa.us/Water/BPNPSM/AgriculturalOperations/AgriculturalCompliance/MMP_Admin_Complete_Guide.docx

A copy of the reimbursement form, which must be signed by the landowner and also the contractor, ensuring that the plans were reviewed and approved to be administratively complete, can be accessed here:

http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/Ag%20page/3020-FM-CBO0003b.docx

Data Verification Procedures

Information on Agricultural planning obtained as part of this program is reviewed for administrative completeness. The data itself is presumed to be accurate and was 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. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

C1: Assessment and Response Action

Assessments and response actions are the responsibility of the appropriate program delivering the data and will be outlined in the respective program's SOP and guidance where applicable. Reference or links to these documents, if applicable, can be found in Section B10 Data Management (subsections B10.2.1-B10.3.10.).

C2: Reports to Management

Annual reports from data reporting sources are collected and processed for upload into the BMP Warehouse Application housed on DEP Servers. The application is designed to streamline NEIEN record submission and additionally allows for data analytics. The new Phase 6 BMP Warehouse application (replacing the Phase 5 version) was delivered in October 2018 and will be used each fall to create upload batch files for submission to CBPO over the NEIEN. For 2018 reporting, source data files were possessed by Dr. Barry Evans (Drexel University), quality checked and uploaded into the Phase 6 BMP Warehouse by Ted Tesler (DEP) and uploaded to the NEIEN by the node operator, Jen Gumert (DEP).

D1: Data Review, Verification and Validation

Data review, verification and validation is addressed under each specific data source outlined above in Section B10 Data Management.

D2: Verification and Validation Methods

Pennsylvania is actively participating in CBPO's initiative to strengthen the verification of BMPs. DEP has convened several meetings with Agriculture, Stormwater, and Forestry Sector leads and stakeholders in an ongoing effort to update Pennsylvania's QAPP Addendum BMP Verification Program Plan for non-point source pollution as part of the Phase 3 WIP planning process. The revised BMP Verification Program Plan is included as an appendix.

Appendix A: PA BMP Crosswalk

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
Commodity Cover Crop	Commodity Cover Crop- Standard	From Capital Area RC&D cover crop survey
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
Cover Crop	Cover Crops - Wheat	From Capital Area RC&D cover crop survey
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 Core N&P in future.
Nutrient Management Plan	Enhanced Nutrient Management	Currently not used. Expect to use Core N&P 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-Pressu	Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Irrigation Water Management	Irrigation Water Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
AML Surface Mine Reclamation	Land Reclamation, Abandoned Mined Land	From state AML program
Establishment of permanent introduced grasses and legumes	Land Retirement	From FSA
Establishment of permanent native grasses	Land Retirement	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Lined Waterway or Outlet	Lined Waterway or Outlet	NMA, Imported Acres, NRCS
Nutrient Management	Nutrient Management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Pasture & Hayland Planting	Pasture & hay planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Pipeline	Pipeline	From CBIG, NMA, NRCS, Grass Roots, Growing Greener
Prescribed Grazing	Prescribed Grazing	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Riparian Forest Buffer	Riparian Forest Buffer	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Riparian Herbaceous Cover	Riparian Herbaceous Cover	From NRCS, CBIG, NMA, 319, REAP, Growing Greener

Roof Runoff Management	Roof runoff management	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Roof Runoff Structure	Roof Runoff Structure	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Roofs and Covers	Roof Runoff Structure	From USDA/RuralDev, PennVest
Septic Connections	Septic Connections	From Waterways Engineering, Growing Greener
Stream Channel Stabilization	Stream Channel Stabilization	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Stream Habitat Improvement and Management	Stream Habitat Improvement and Management	From Waterways Engineering, Growing Greener
Streambank & Shoreline Protection	Stream Restoration	From CBIG, NRCS, Growing Greener
Streambank & Shoreline Protection	Streambank and Shoreline Protection	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Fencing	Streambank Protection (Fencing)	From various municipalities
Street Sweeping	Street Sweeping	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Stripcropping-Contour	Stripcropping	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Structure for Water Control	Structure for Water Control	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Subsurface Drain	Subsurface Drain	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Terrace	Terrace	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Terrace	Terrace	From FSA
Hardwood tree planting	Tree Planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Tree Planting	Tree Planting	From Urban Forestry DCNR (must be urban ID)
Tree Planting	Tree Planting	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Tree/Shrub Establishment	Tree/Shrub Establishment	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Upland Wildlife Habitat Management	Upland Wildlife Habitat Management	From Growing Greener
Urban Forest Buffer	Urban Forest Buffer	Urban Stormwater BMPs
Restoration: Buffers/Landscape/Floodplain	Urban Forest Buffer	Urban Stormwater BMPs
Bio-Infiltration Areas	Urban Infiltration Practices	Urban Stormwater BMPs
Dry Well/Seepage Pit	Urban Infiltration Practices	Urban Stormwater BMPs
Infiltration Basin	Urban Infiltration Practices	Urban Stormwater BMPs
Infiltration Berm/Retentive Grading	Urban Infiltration Practices	Urban Stormwater BMPs
Infiltration Trench	Urban Infiltration Practices	Urban Stormwater BMPs
Pervious Pavement	Urban Infiltration Practices	Urban Stormwater BMPs
Protect/Conserve/Enhance Riparian Areas	Urban Infiltration Practices	Urban Stormwater BMPs
Subsurface Infiltration Bed	Urban Infiltration Practices	Urban Stormwater BMPs
Urban stream restoration	Urban stream restoration	From Growing Greener
Other	Varies	Urban Stormwater BMPs
Vegetated Treatment Area	Vegetated Treatment Area	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Wastewater Treatment	Wastewater Treatment Strip	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Wastewater Treatment Strip	Wastewater Treatment Strip	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Water and Sediment Control Basin	Water and Sediment Control Basin	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Trough or Tank	Watering Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Watering Facility	Watering Facility	From NRCS, CBIG, NMA, 319, REAP, Growing Greener

Retention Basins	Wet Pond	Urban Stormwater BMPs
Wet Ponds	Wet Pond	Urban Stormwater BMPs
Constructed Wetlands	Wet Ponds & Wetlands	Urban Stormwater BMPs
Sediment Forebay	Wet Ponds & Wetlands	Urban Stormwater BMPs
Wetland Creation	Wetland Creation	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Wetland Restoration	Wetland Restoration	From NRCS, CBIG, NMA, 319, REAP, Growing Greener
Windbreak/Shelterbelt Establishment	Windbreak/Shelterbelt Establishment	From NRCS, CBIG, NMA, 319, REAP, Growing Greener

Appendix B: Comment/Response PA QAPP Issues

Shown on the following pages are Comment/Response dialogues between PA DEP and EPA regarding the August 2019 and October 2018 updates of PA's QAPP and revised PA DEP's QAPP Addendum Verification Program Plan.

Outstanding Issues for Pennsylvania's BMP Verification Program Quality Assurance Plan

Pennsylvania

Pennsylvania responses in blue, submitted February 20, 2019

(EPA final comments in bold green)

Major sources with > 2% load reductions 2017–2018:

- None
- **Septic Nitrogen (2.2%). Net septic decreases are very difficult to achieve so investigate BMPs**
  - **Septic Connections**

Major sources with > 2% load increases 2017–2018:

- None
- **Current Wastewater Nitrogen (11%) and Wastewater Phosphorus (4%) increases**
- **Adjusted Agriculture Phosphorus (2.4%)**
  - **Nutrient Application Management Core Phosphorus**
  - **Forest and Grass Buffers**
  - **Wetland Restoration**
  - **Pasture Management Composite**

- Please provide the status of PA's wastewater data submission, both significant and non-significant facilities.

See the line charts below for trends of Nitrogen and Phosphorus loads with comparisons to the goals.

DEP submitted corrected Significant facility data on February 1st. Non-Significant facility data was submitted using an Excel file. It is our understanding that this data was received and processed, and that DEP will confirm the data is complete prior to the release of the final 2018 Progress run.

OK

BMPs where there is no reported historic implementation until 2018:

- Please identify the sections and page numbers in your state BMP Verification Program Plan (QAPP) where there's an explanation of the quality of the data for each of the following BMPs (compliance program, visual inspection, etc.) and why each BMP has not been previously reported. For example, does this represent new on-the-ground implementation between 7/1/17 and 6/30/18 – or a new source of data – or both?

  - Nutrient Application Management Rate Nitrogen

    For 2018 Progress, these data were compiled for the first time from Practice Keeper data compiled by DEP. It was determined that these Manure Management Plan acres qualified for supplemental "Nutrient Management N Rate" reporting based on the requirements of the Agriculture Workgroup. It is expected that similar data from this source will continue to be reported in the future. Section B10.3.3 Nutrient Management, page 58, (to be amended).

DEP needs to report some history for Nutrient Application Management Rate Nitrogen = BPJ. Even though this is an "annual" practice, Manure Management Plans did not begin in the state 2018. The history isn't necessary for 2018 Progress but needs to be included with 2019 Progress submissions.

- Low Residue Tillage

  This BMP was approved for use only 2 to 3 years ago. It is expected that additional tillage data back to 2013 (as available from the Tillage Residue Transect Survey) may be submitted to report this new tillage category. Section B10.3.4 Conservation Tillage, page 59.

  DEP needs to report some history for both High- and Low-Residue Tillage where there is data + BPJ. Even though this is an "annual" practice, these tillage types did not begin in the state in the past few years. More history isn't necessary for 2018 Progress but needs to be included with 2019 Progress submissions.

- Cover Crop with Fall Nutrients

  This is a new BMP title which has not been previously reported. Data for reporting these acres are taken from the Capital RC&D Cover Crop Transect Survey with reporting back to 2016. Section B10.3.5 Cover Crops, page 62.

  DEP needs to report some history for Cover Crop with Fall Nutrients where there is data + BPJ. Even though this is an "annual" practice, this type of cover crop did not begin in the state in the past few years. More history isn't necessary for 2018 Progress but needs to be included with 2019 Progress submissions.

- Forest Buffers on Fenced Pasture Corridor

  Fencing data from NRCS/FSA was incorrectly coded as "Exclusion Fence with Narrow Forest Buffer" instead of "Exclusion Fence with Narrow Grass Buffer". This has been corrected and re-submitted for the 2018 Progress run.

  OK

- Filtering Practices

  These practice instances were reported in previously unsubmitted data provided by the Department of Defense (16 records).

  OK

- BioSwale

  These practice instances were reported in previously unsubmitted data provided by the Department of Defense (8 records).

  OK

- Impervious Surface Reduction

  These practice instances were reported in previously unsubmitted data provided by the Department of Defense (Infiltration Basin, 27 records).

  OK

- Street Sweeping

  These practice instances were reported in previously unsubmitted data provided by the Department of Defense (3 records).

OK

BMPs where the 2017-2018 rate of implementation is more than double the 2009-2017 annual rate:

- For each of the BMPs below, please explain the significant increase in the rate of implementation between 7/1/17 and 6/30/18 compared to the longer-term (2009–2017) annualized implementation rate. For example, does the new implementation represent stronger programs and, if so, highlight the program – or a new source of data – or both? See the BMP charts below for each of the highlighted practices.

  - Manure Transport Out Of Area (6 X increase in rate) New Practice Keeper Data
  - Manure Transport Into Area (16 X increase in rate) New Practice Keeper Data
    OK

    The following Urban Practices include transition into the performance standard (infiltration) and out of the older "acres treated" reporting methods. Historical data are weak, and the numbers are small, so any improvement in reporting makes a noticeable impact. Most of these increases are due to most of the historical data being re-formatted to the "Performance Standard" format. Therefore, any new urban stormwater acres reported using the older "BMP acres treated" format are bound to increase the reporting rate when comparing 2018 data with older urban BMP data. In this case, a number of urban stormwater practices were reported by the Department of Defense for the 2018 submission that were not reported previously; and these data did not have the required information that would have allowed them to be reported as "Performance Standard" practices. Hence, it is expected that there would be an increase in the older types of practices listed below:

  - Wet Ponds & Wetlands (34 X increase in rate)
  - **Latest BMP submission shows logical implementation rate changes through time**

  - Dry Ponds (3 X increase in rate)
  - **Latest BMP submission shows more logical implementation rate changes through time**

  - Extended Dry Ponds (8 X increase in rate)
  - **Latest BMP submission shows logical implementation rate changes through time**

  - Infiltration Practices (54 X increase in rate)
  - **Latest BMP submission shows logical implementation rate changes through time**

  - BioRetention (3 X increase in rate)
  - **Latest BMP submission shows logical implementation rate changes through time**

  - Urban Tree Planting (2.5 X increase in rate)
  - **Latest BMP submission shows more logical implementation rate changes through time**

In addition to the BMPs above, there are others with concerns about significant swings in the reported rates of implementation – that showed up in later submissions. Each of these need to be investigated and explained in PA's BMP Verification Program Plan along with PA's submission for 2019 Progress:

- **Cover Crop, along with Cover Crop with Fall Nutrients**
- **Soil and Water Conservation Plans**
- **Manure Transport Out of Area**
- **Urban Stream Restoration**
- **Septic Connections**

<u>For the BMP records within the period 7/1/17 – 6/30/18, the following implementation dates and/or inspection dates are repeated a significant number of times:</u>

Are these accurate implementation and/or inspection dates and, if not, why are dates not being tracked and reported for the associated BMPs? 78% of the BMP records over the reporting period are in 4 groups of the same date (see below). Where in PA's BMP Verification Program Plan (QAPP) is this explained, e.g. what sections and page numbers?

- 9/30/2017 109/7630 = 1.4% of all records
- 12/30/2017 430/7630 = 6% of all records
- 3/31/2018 174/7630 = 2.3% of all records
- 6/30/2018 5221/7630 = 68% of all records

These dates are associated with the quarterly and/or yearly reporting used to gather the data. These are mostly associated with annual practices (e.g., nutrient management, cover crop, tillage, and manure transport).

In addition, many records are related to the practices connected to a nutrient management, manure management plan or tillage activity that can creates several reporting records.

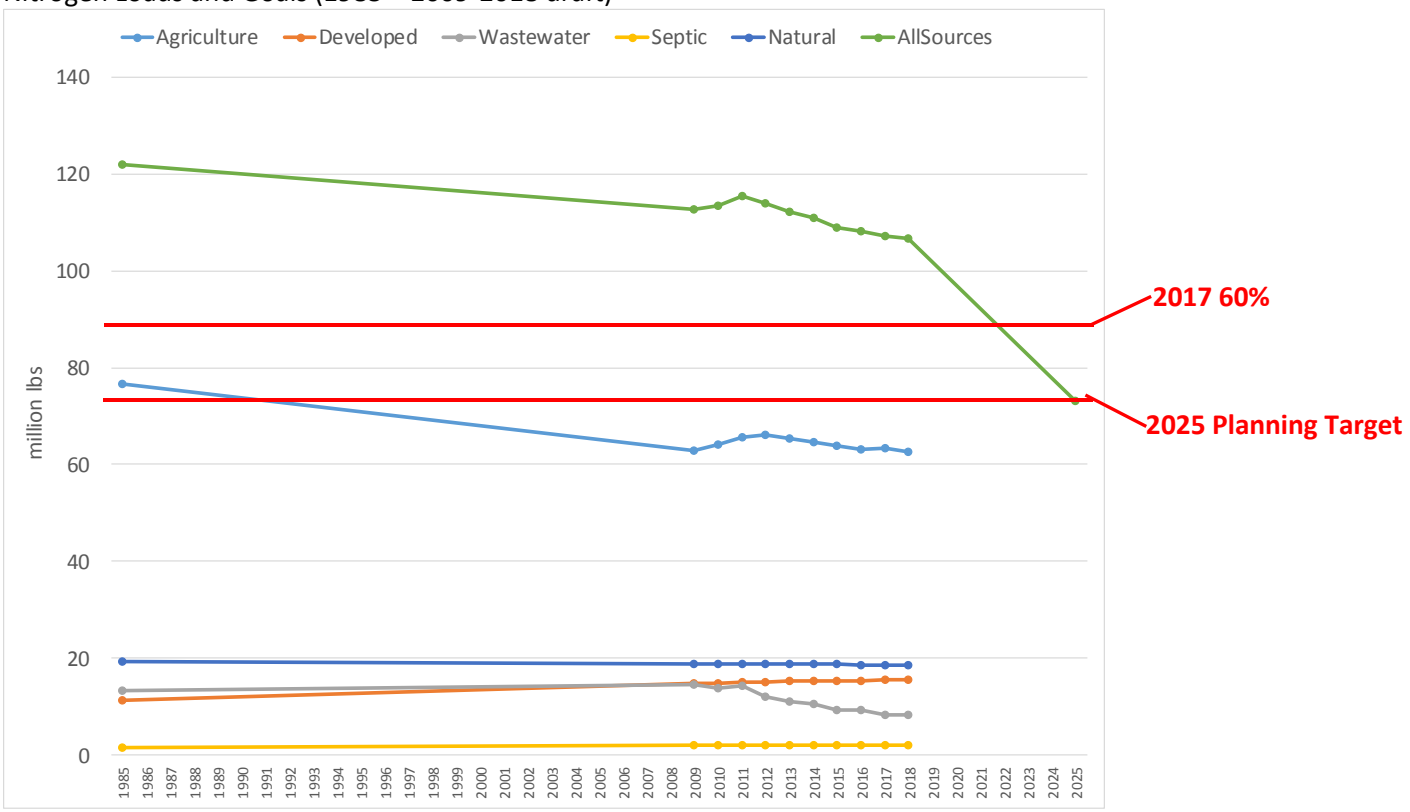
There are also cases where records are reported from a program on an annual basis and installations dates are not reported with the data. Some examples of annual data without implementation dates include: 1) nutrient management and manure management plans collected from various sources (primarily now from Practice Keeper)
There should be inspection dates for on-farm visits and/or dates for when the plans were written. If there are no dates for these practices, what are the assurances that plans are active and are being followed?

and 2) cover crop and tillage data collected via annual transect surveys.
If the data are from surveys, there needs to be an inspection date for when the survey was conducted.

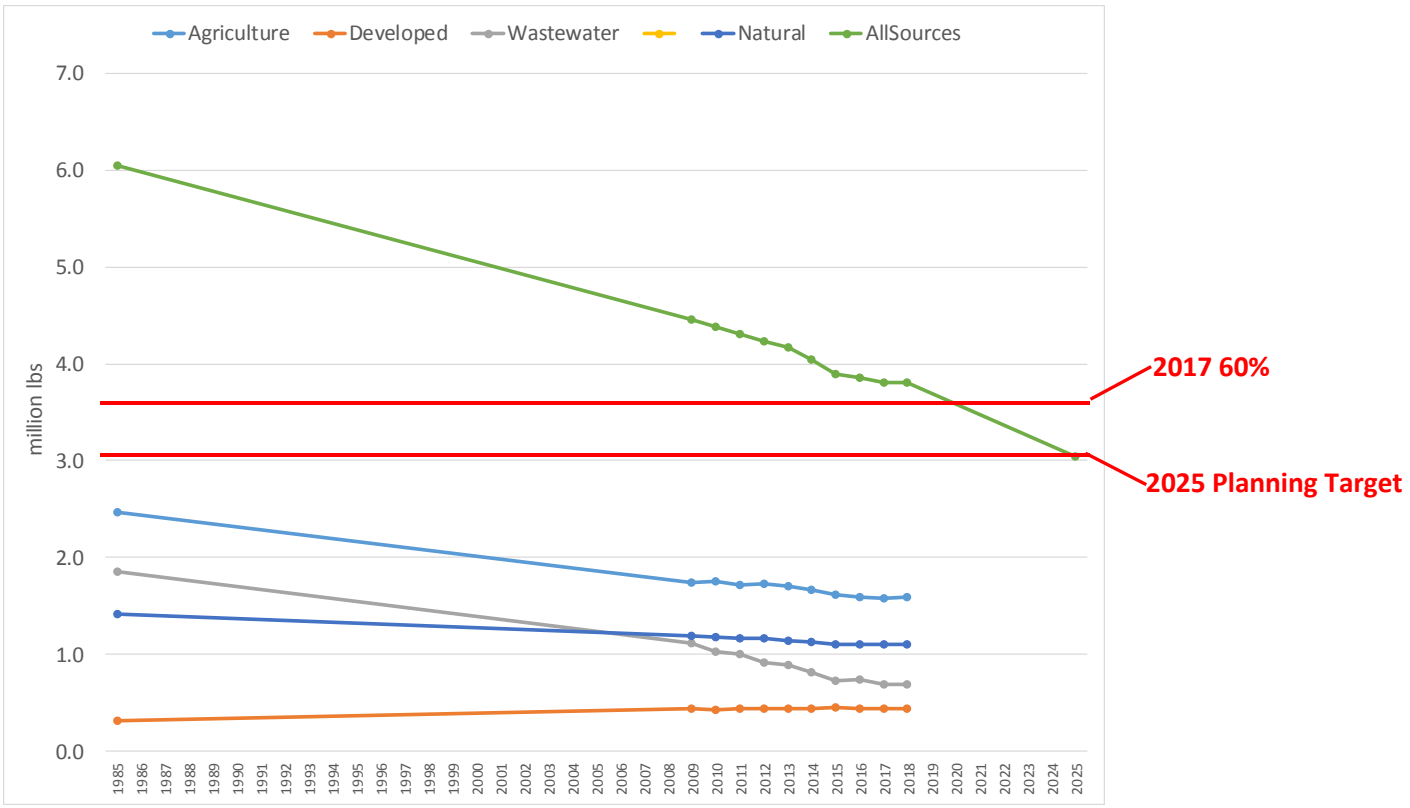
Additionally, none of the data from NRCS/FSA provided to DEP by Olivia Devereux under a sub-contract have implementation dates associated with them. This data only has a single calendar year date. Additionally, records provided by the Dirt and Gravel Road Program only has a "year implemented" date associated with them.

OK

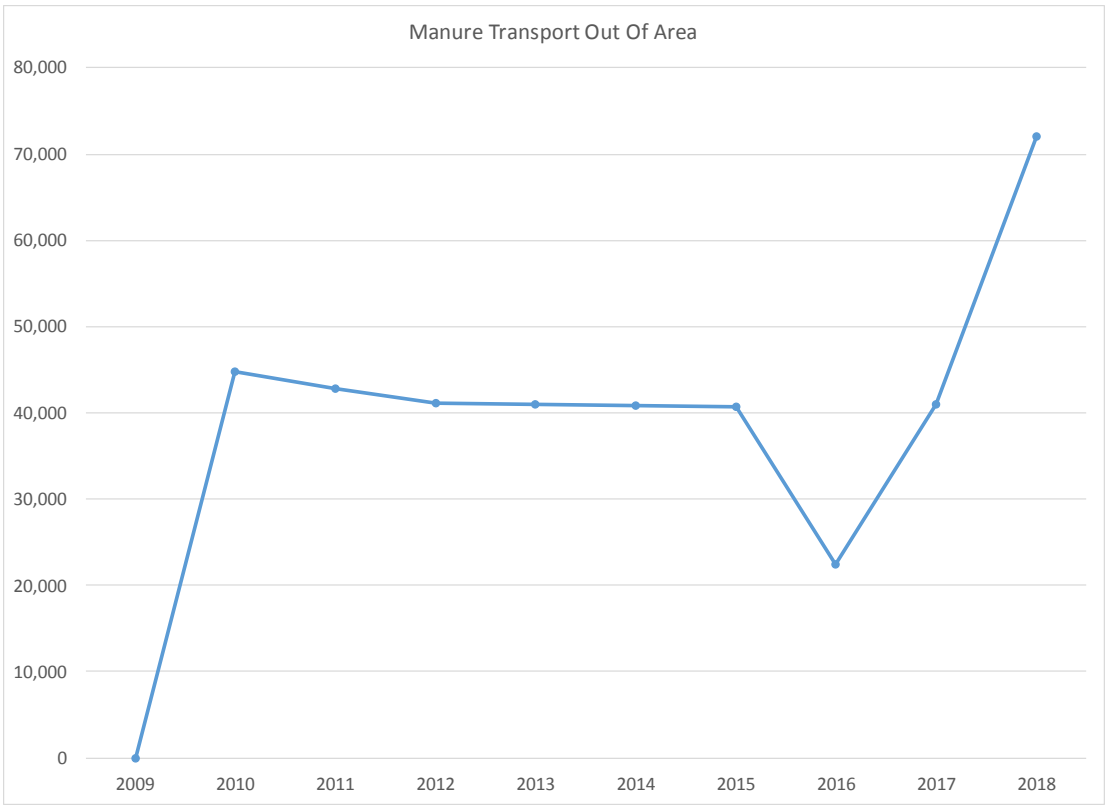
Nitrogen Loads and Goals (1985 + 2009-2018 draft)

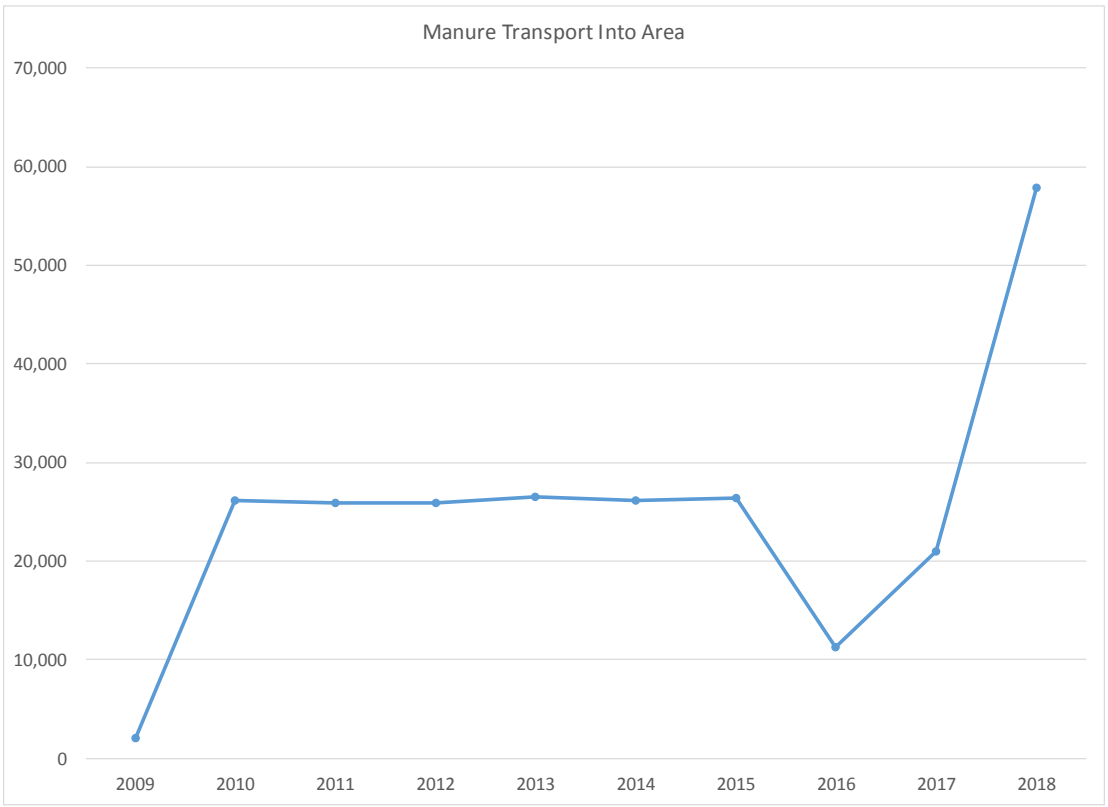


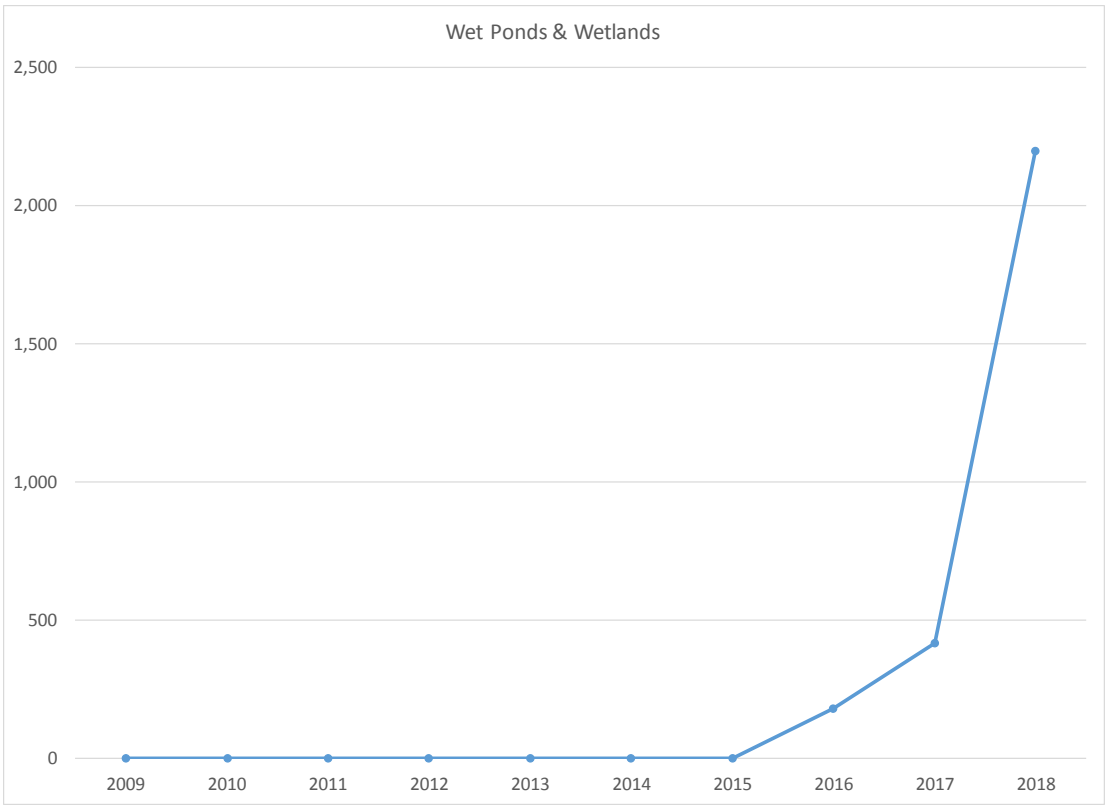
Phosphorus Loads and Goals (1985 + 2009-2018 draft)

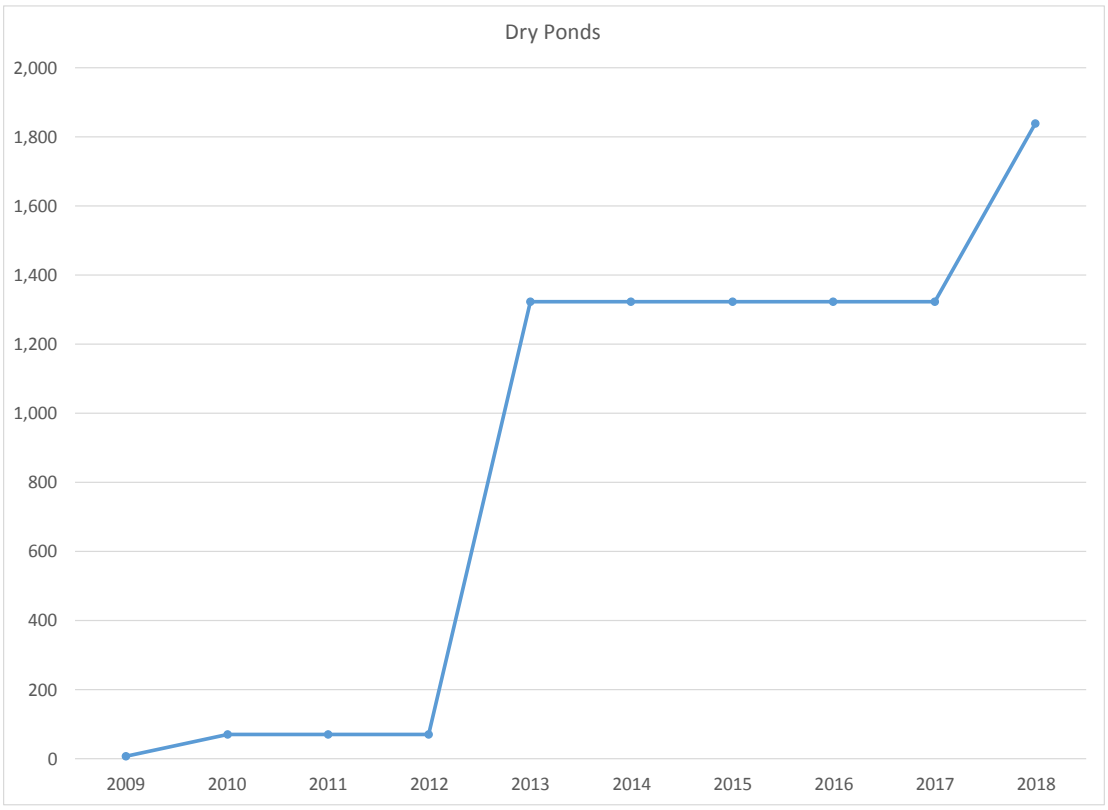


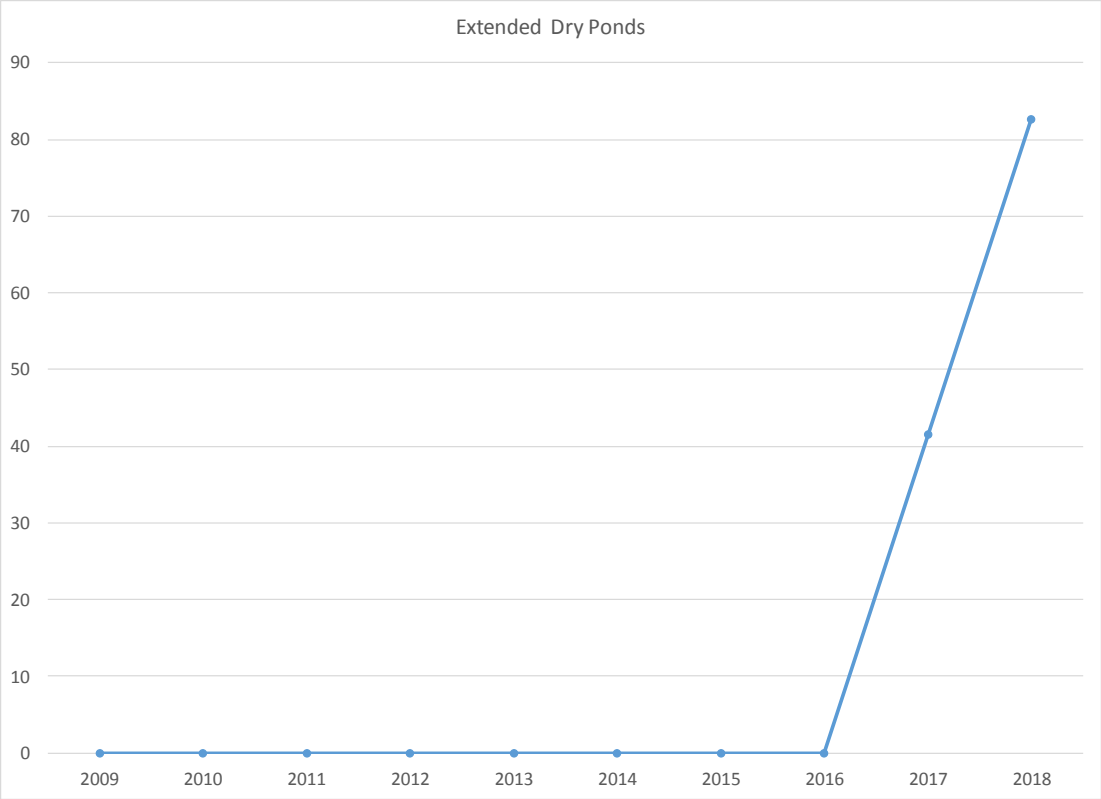
BMPs with Reported 2017-2018 Implementation Rates More than Double the Historic Rate

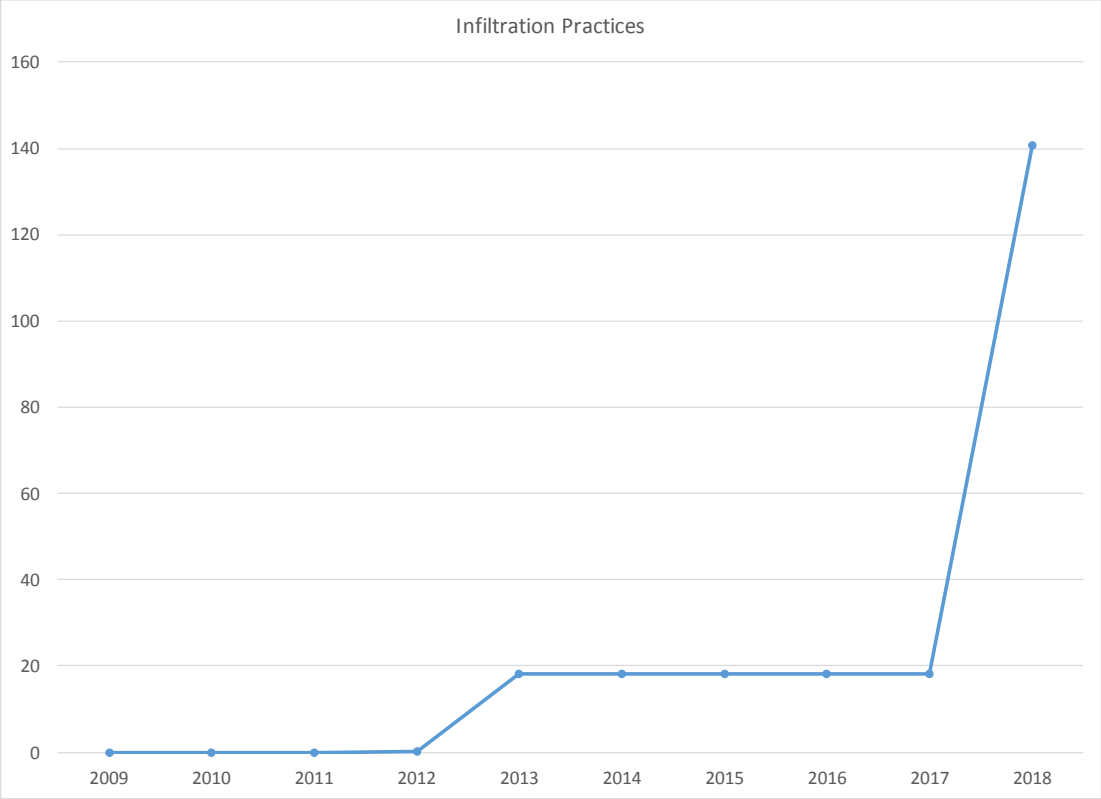

Manure Transport Out Of Area
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

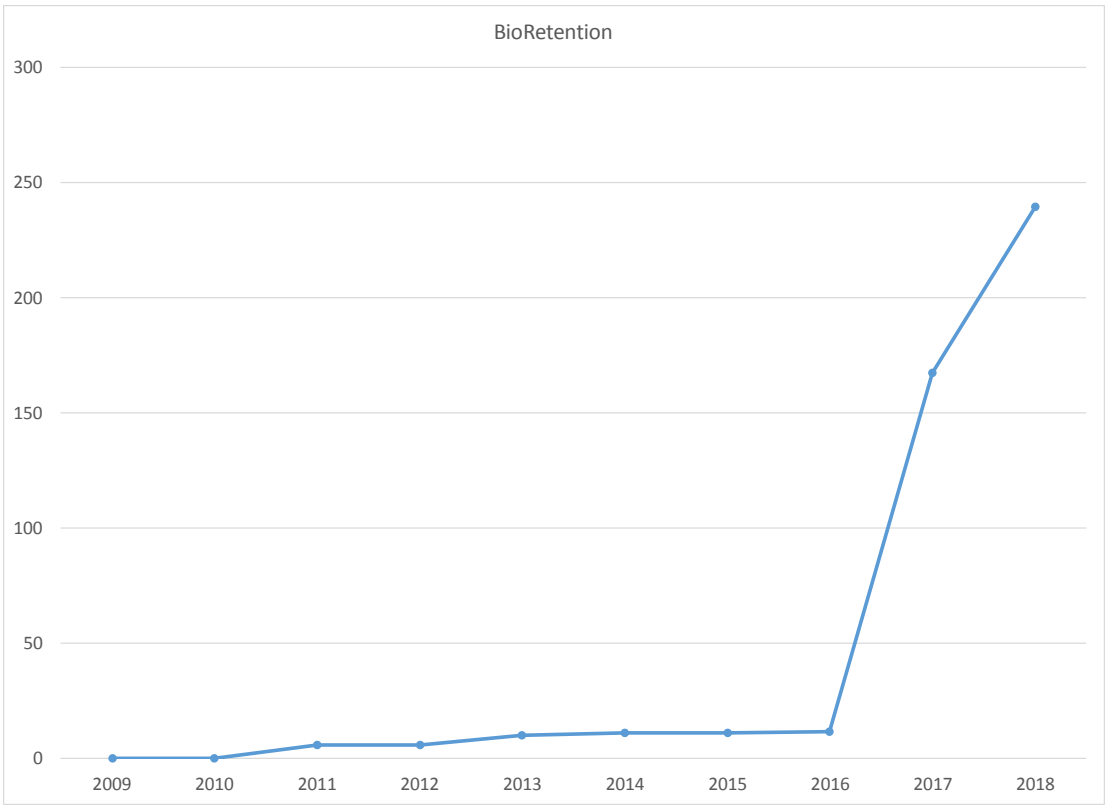

Manure Transport Into Area
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

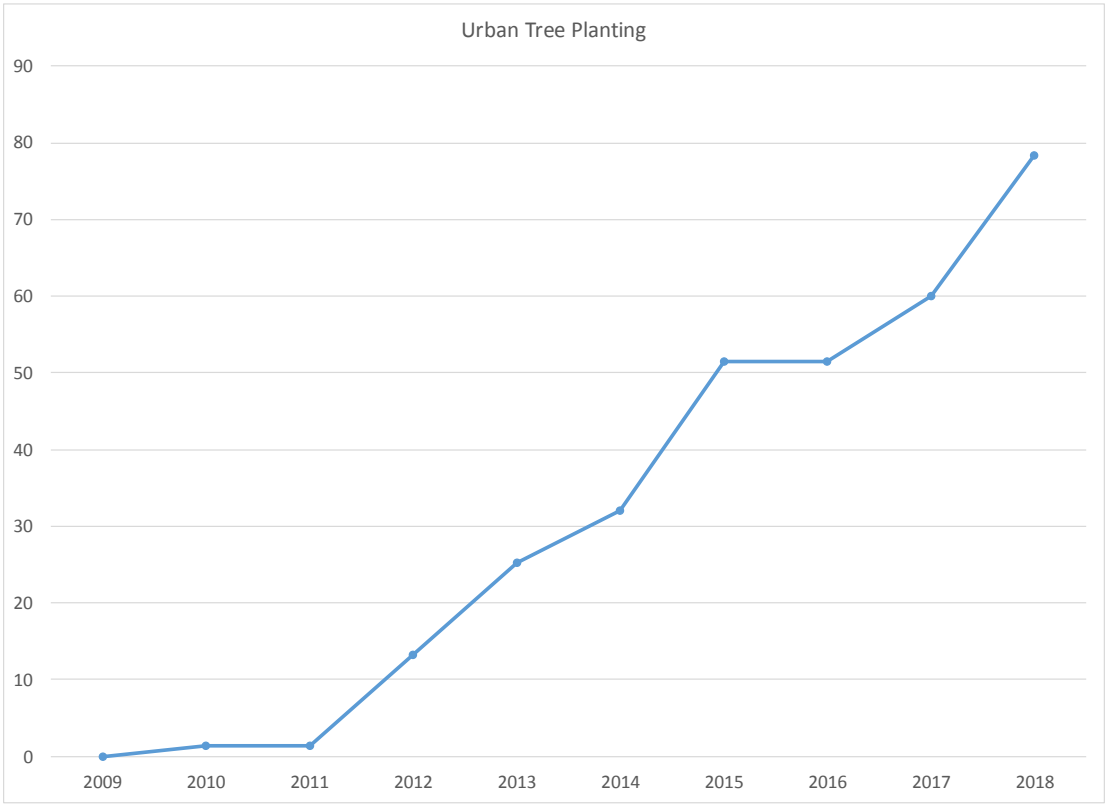

Wet Ponds & Wetlands
2,500
2,000
1,500
1,000
500
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


Dry Ponds
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


Extended Dry Ponds
90
80
70
60
50
40
30
20
10
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


Infiltration Practices
160
140
120
100
80
60
40
20
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


BioRetention
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


Urban Tree Planting
90
80
70
60
50
40
30
20
10
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

10/5/18
Response 10/25/2018

Issues that remain are listed below and are mostly related to PA's and EPA's discussions about the Pennsylvania Ag Compliance Initiative – and the resolution of that exchange. In addition, the chain of exchanges between EPA and PA DEP to resolve outstanding issues is documented. Several of the items below in PA's responses and EPA's suggestions simply need to be documented in PA's BMP Verification Program Plan by Oct. 31, 2018, not in the email exchanges and attachments.

The following BMPs and programs will not be credited for the 2018 progress run and assessment unless, by October 31, 2018, there are specific verification protocols written in Pennsylvania's BMP Verification Program Plan QAPP for what is reported as new implementation or inspected and maintained:

- EPA comment: Reported BMPs that are tracked through the Penn State University Farmer Survey and NRCS's remote sensing survey will not receive credit until DEP includes documentation of these surveys' BMP verification procedures in PA's QAPP. This was noted in our action-item bullets you received May 21.

  PA DEP Response: These protocols were approved by the Bay Program Partnership. The documentation produced for that approval will be referenced in the final plan. I see no reason to remove all these practices from our progress, nor do I see a need to repeat that documentation in detail in our plan. We put a lot of time, effort and resources into collecting that data. We can't afford to lose that progress a year later

  EPA response, 10/5/18: Referencing the QA plans for data from your sources in DEP's Verification Plan is absolutely fine (links with active URLs) and it seems the "CBP Technical Support: Producer Survey Evaluations" document is publicly available. It's important that the public understand where the BMP data comes from and how its quality is assured.

  DEP RESPONSE: Please refer to section B10.3.6 in the revised PA QAPP

- EPA comment: Reported components of Agricultural and Erosion Sedimentation Control Plans – including BMPs on Animal Heavy Use Areas – will not be credited until PA's QAPP lays out the approach to compliance and the level of verified compliance with regulatory requirements. Include PA's strategy and timeline for sharing the SOP with conservation districts which, according to the PA's current QAPP, was to take effect July 1, 2018 in time for Conservation District contract agreements.

PA DEP Response: All this was addressed with folks from Region 3 and your office last March and April and documented. Folks in the meeting included Suzanne Trevena, Rich Batiuk and Mark Dubin, among others. The SOP was revised as requested and shared with EPA staff in your office and Region 3. The SOP is final and in the hands of the conservation districts, effective July 1. The Technician Agreements, along with the Scope of Works attached to those agreements all have the necessary language that was agreed upon. In addition, the workplan objective that covers the funding for these agreements in our CBRAP grant was also modified accordingly. I believe this concern has been addressed.

EPA response, 10/5/18: We understand. All we're asking for is that these documents be included in your Verification Plan, where legal. An active URL link to the documents is fine, with an explanation of the information behind the link. Why are you referencing the information? The jurisdictions' BMP Verification Program Plans are not just for EPA. One of the points is transparency. For example, when a significant increase in the implementation rate of a reported BMP occurs in a single year – that far exceeds historically-reported rates for that BMP – the PA Bay Program needs to be in a position to explain how the quality of that particular BMP is assured – that the increase represents active management on the ground. It's important that the public have confidence in the numbers, particularly since significant increases in implementation mean significant investments that need to be maintained.

DEP RESPONSE: Please refer to section B10.3.8 in the revised PA QAPP

- EPA comment: Resource Improvement BMPs approved by the CBP partnership – or practices do not meet USDA-NRCS conservation practice definitions and requirements – will not be credited until the CBP-defined verification protocols are built into Pennsylvania's QAPP.

PA DEP Response: Information on some of these BMPs is collected as part of the Inspections described in the bullet above. Protocols for the collection of this information was addressed within the SOP for these inspections and addressed as part of the process I described in the bullet above. We will also collect information on these BMPs through the Agriculture Recognition Program, once we get that program underway, as described in your list of actions as agreed upon last March and April. This is also documented in the Technician Agreements and Scope of Works, as well as the workplan objective. This program will be included in the revisions for our Verification Plan as described.

EPA response, 10/5/18: Noted. Thank you. These documents are part of the explanation of how BMP data is tracked and reported and how the quality of the data is assured. They should be available to the public (where legal) and a URL link in PA QAPP is fine.

DEP RESPONSE: Please refer to section A5.1 in the revised PA QAPP

- EPA comment: On page 7 of Pennsylvania's March 4, 2016 BMP verification QAPP, it is stated that "Verification protocols for other BMPs with lower anticipated contributions to the overall load reductions will be developed but at a slower pace, given the reduced reliance on these practices to Pennsylvania's reduction strategy." Please provide a list of those BMPs for which verification protocols have not been developed and documented within the existing PA's BMP Verification Program Plan and the anticipated dates by which those verification protocols will be developed and documented. Please let EPA know what technical assistance we can provide to help in the development of these missing protocols.

  PA DEP Response: DEP is currently in the process of revising our BMP Verification Program and how BMP verification protocols will be implemented for high-priority BMPs. Verification priority will be based on the Phase 3 WIP priorities. We do not intend to address low priority practices at this time.

  EPA response, 10/5/18: Understood. This is not a make-or-break issue for the BMPs submitted for the 2018 Progress model assessment since the QAPP will be checked for descriptions of assurances of quality of the data for each of the BMP types submitted, regardless of their priority on PA's forthcoming list. However, this commitment from PA will need to be in the next version of the state's BMP Verification Program Plan well before next year's BMP submission.

  DEP RESPONSE: The PA QAPP will cover data that we collect. We do not, at this time, have the resources to plan for verification of low priority practices. We are aware that this may mean some practices drop out of the model at the end of their lifespan.

- EPA comment: There are a number of verification protocols which the March 4, 2016 BMP verification QAPP included commitments to develop and incorporate documentation of verification protocols during the next two years. For example, text on page 17 states:

  > *There are currently no procedures in place to verify RIs or practices meeting NRCS standards and specifications that were installed voluntarily without cost-share funds. The Department has a goal of developing procedures for verifying RIs and non-cost shared practices by July, 2017 and implementing those procedures by January, 2018. The Department will plan to utilize the guidance found in the CBP Resource Improvement Practice Definitions and Verification Indicators Report (July 2015, v. 5) to inform our procedures for verifying RI practices. Verification of BMPs implemented under the Growing Greener Program, CBIG, and the section 319 program needs to be coordinated with Act 38 and NRCS verification efforts.*

  EPA comment: There are similar examples of commitments to further develop BMP verification protocols and procedures on pages 27, 82 and 122. Please let EPA know what are PA's revised dates for including these BMP verification procedures into PA's BMP Verification Program Plan.

PA DEP Response: Please see comment above. Pennsylvania's BMP Verification Program Plan is undergoing revision and we are focused on addressing high-priority practices at this time. This plan will be based on input received from the BMP Verification Workshop held August 30, 2018.

EPA response, 10/5/18: PA's commitment to implementation by January, 2018 is no longer relevant so this schedule in your QAPP needs to be updated. New implementation of RI BMPs submitted for the 2018 Progress model assessment cannot be "credited" without the documentation of verification protocols that follow the Partnership's guidance. RI BMPs associated with the farmer surveys through Penn State or other surveys are acceptable as long their verification mechanisms are documented and follow the guidance. QA protocols of the data in the Penn State survey, NRCS imaging, etc. don't have to be part of PA's BMP Verification Program Plan directly. They can be referenced through an active URL.

DEP RESPONSE: Please refer to sections A5.1, B10.3.6, and B10.3.7 in the revised PA QAPP

- EPA comment: PA worked closely with the Chesapeake Bay Program Partnership's Agriculture Workgroup on securing Partnership approval of additional BMP verification protocols—e.g., Penn State University Farmer Survey, NRCS's remote sensing survey. Please include documentation of these surveys' BMP verification procedures in PA's BMP Verification Program Plan so PA can be assured of continued credit for those reported practices which were verified following these procedures.

  PA DEP Response: DEP plans to reference the "CBP Technical Support: Producer Survey Evaluations" document in the revised BMP Verification Program regarding these efforts. Each project contained inherent QA/QC procedures applied at the time of reporting which will be revisited to allow for verification of expiring practices in the revised BMP Verification Program Plan.

  EPA response, 10/5/18: Referencing in your QAPP is fine and it seems the "CBP Technical Support: Producer Survey Evaluations" document is publicly available. It's important that the public understand where the BMP data comes from and how its quality is assured.

  DEP RESPONSE: Please refer to sections B10.3.6 and B10.3.7 in the revised PA QAPP

- EPA comment: The verification plan for Nutrient Application Management in PA's documentation should be updated to reflect current definitions and protocols for all components of the BMP used with the Phase 6 suite of accounting tools. As you are aware, the section of the PA's QA Plan currently references the 3-tier system for Nutrient Application Management for the Phase 5.3.2 models which is dated.

  PA DEP Response: Nutrient Application Management will be modified in the revised BMP Verification Program Plan to reflect the current terminology and measures associated with

reporting these practices in the Phase 6 model. This will also include the EPA approval for Manure Management Plan implementation to be reported as meeting the Nutrient Management BMP criteria.

EPA response, 10/5/18: It's important that the current version of PA's QAPP be updated with Phase 6 BMP names as soon as possible – by Oct.31, 2018. This is what was required of all jurisdictions. Nutrient Management compliance programs don't have to be fully functioning this year, along with the detailed documentation of Nutrient Management verification. These BMPs were given an additional year regarding verification. At a minimum, PA's current QAPP needs to align with Phase 6 BMP names and definitions in order to get "credit" for BMPs submitted through the exchange for Phase 6 modeling, Specifically for PA's Nutrient Management programs, there should be no cross-walks to Bay Program "tiers" of Nutrient Management, "precision agriculture", etc. as these are no longer valid BMP names for Bay Program purposes.

DEP RESPONSE: This has been completed. Please see the revised PA QAPP.

- EPA comment: Please add descriptions and the schedule of ongoing meetings in PA related to enactment of PA's verification program. These include stakeholder meetings in the stormwater and forestry sectors and subsequent meetings devoted to agriculture. These are important outreach efforts to relevant stakeholders that are part of the state's verification program.

  PA DEP Response: DEP will add the descriptions of completed and scheduled meetings as part of the revised BMP Verification Program Plan.

  EPA response, 10/5/18: Noted.

- EPA comment: To address the implementation of Manure Management (MMPs) and Ag Erosion and Sediment Control Plans, add a section to the QAPP noting PA's recently written SOP (Version 1.2) specifically describing the approach to compliance and the level of verified compliance with regulatory requirements. Note that PA is initially looking at plan completeness but will expand to plan implementation in the future. Include PA's strategy and timeline for sharing the SOP with conservation districts which is proposed to take effect in time for the July 1, 2018 Conservation District contract agreements.

  PA DEP Response: DEP does not believe that the revised BMP Verification Program Plan is the appropriate place for detailing regulatory compliance. DEP will reference the SOP in the revised BMP Verification Program Plan.

  EPA response, 10/5/18: It's fine to reference the SOP through a functioning URL.

  DEP RESPONSE: Please refer to section B10.3.8 in the revised PA QAPP

- EPA comment: Document the specifics of PA's modification to the SOP (Version 1.2) for Chesapeake Bay Agriculture Inspection Program (SOP No BCW-INSP-018) – that clearly address the Chesapeake Bay Program Partnership's Nutrient Management Best Management Practice (BMP) panel report for the 5 elements to address core nitrogen requirements. Please include a schedule to complete the modifications, including the revisions to the forms for Agricultural Operation Supplemental Information.

  PA DEP Response: To limit redundancy and duplication of efforts, DEP finds it unnecessary to document the specifics of the SOP in the revised BMP Verification Program Plan. We want to avoid having to revise the BMP Verification Program Plan every time the SOP is revised. DEP will cite the SOP document in the revised BMP Verification Program Plan.

  EPA response, 10/5/18: As noted earlier, it's fine to reference the SOP through a functioning URL.

  DEP RESPONSE: Please refer to section B10.3.8 in the revised PA QAPP

- EPA comment: Please document the following information in your BMP Verification Program Plan from PA's Agriculture Operation Supplemental Checklist:

  - Acres for MMPs where inspectors check box 1.A for verified core nitrogen nutrient management credit – to be reported for the annual progress assessment
  - Data for PracticeKeeper for cover crops, conservation tillage and no-till. This information will not be used for annual progress reporting. Pennsylvania will continue to use the CTIC-based transect surveys to report these data for annual progress.
  - Data for rotational grazing, barnyard runoff control, stream fencing, and forest buffers to be reported for the annual progress assessment if verified. Where verified practices do not meet USDA-NRCS conservation practice definitions and requirements, the CBP partnership approved Resource Improvement (RI) definitions and requirements will be used for progress reporting and crediting.

  PA DEP Response: The purpose of the BMP Verification Plan is to document the methodologies for the collection of this data, not the data collected itself. The actual data collected through the implementation of the approved protocols will be reported to the Bay Program Office through the appropriate procedures as part of the annual progress run.

  EPA response, 10/5/18: The purpose of the jurisdictions' BMP Verification Program Plan is to document assurances of the quality of the data. The bullet above is not asking for the data. The bullet is asking PA to document its responses to EPA's reviews – where clarity has been provided by the state – in the appropriate place in the QAPP.

  DEP RESPONSE: This appears to be confusion between the PA QAPP and the PA QAPP Addendum Verification Program. As far as DEP is concerned, this issue has been addressed.

- EPA comment: Please modify the SOP by July 1, 2018 to link to the Chesapeake Bay Program partnership 1-page BMP reference sheets to ensure that inspectors are appropriately crediting BMPs under 5-8 of PA's Supplemental Checklist.

  PA DEP Response: This was done and the link to the BMP reference sheets on the Chesapeake Bay Program website inserted. A copy of the SOP was shared with the EPA Chesapeake Bay Program Office and EPA Region 3 on July 29, 2018.

  EPA response, 10/5/18: Noted.

- EPA comment: By July 2019, develop a new SOP for the process of how to document the information from the Supplemental Checklist into PracticeKeeper to provide additional technical guidance for the reporting of verified BMP implementation data based on CBP partnership definitions and requirements. These procedures will need to be part of PA's QAPP.

  PA DEP Response: A SOP for documenting information in PracticeKeeper is being developed. However, to limit redundancy and duplication of efforts, DEP finds it unnecessary to document the specifics of the SOP in the revised BMP Verification Program Plan. DEP will cite the SOP document number in the BMP Verification Program Plan once it is finalized.

  EPA response, 10/5/18: It's fine not to document the specifics of the SOP directly in the QAPP. However, an active URL link to the SOP is needed. Please identify where these URL links are located.

  DEP RESPONSE: Ok. Once the SOP is finalized we will include a link to the SOP in the appropriate section of the PA QAPP.

- EPA comment: By October 31, 2018, add to the Verification Plan that a box will be added to the Supplemental Checklist to confirm the inspector is Act 38 or Nutrient Plan certified.

  - Include a list of trainings taken by the DEP and Conservation District inspectors to address the training and certification requirements for inspectors.
  - Include the minimum training requirements language in the July 2018 PA DEP contracts with the conservation districts.

  PA DEP Response: Chapter 91 Manure Management Plans do not require the review and approval from Act 38 certified Nutrient Management Specialists, therefore it was agreed between DEP and EPA that this additional confirmation was unnecessary. DEP addressed this comment in the Chesapeake Bay Technician Agreement contracts, wherein it includes that the technicians must attend the relevant agriculture related trainings, which may include Act 38 Nutrient Management trainings.

EPA response, 10/5/18: Noted. PA's response to this request – and all responses – need to be part of PA's QAPP in the appropriate place or in its entirety, perhaps as an appendix. It's important that outside readers are given the clarity DEP is providing to EPA as well as getting questions answered.

DEP RESPONSE: This document is included as Appendix B to PA's revised QAPP

- EPA comment: Document the following in PA's QAPP regarding Ag E&S plans for accounting credit as a conservation plans – by July 1, 2018:

  - The modification of the SOP to include the expectation of how inspectors are assessing farms to determine if an Ag E&S plan is administratively complete.
  - The modification of the SOP to reflect verification of how the implementation of the agriculture erosion and sedimentation plan can be accomplished by an on-farm visit, filling out the Agriculture Erosion and Sedimentation Plan Administrative Completeness Review Guide, and reviewing aerial imagery of the farm and fields in advance of the visit or through field-scale observations of a subset of all the fields listed in the agriculture erosion and sedimentation plan which, in combination, confirm that plan is being implemented as described within the plan.
  - Include additional guidance that inspectors should review current aerial imagery and/or visual observations of the operation to determine if the plan is consistent with the current land use and management, and the operation is on schedule for implementing all practices outlined in the plan.

PA DEP Response: To limit redundancy and duplication of efforts, DEP finds it unnecessary to document the specifics of the SOP in the revised BMP Verification Program Plan. DEP will cite the SOP document number in the revised BMP Verification Program Plan. This revised plan is under development now, based on input received from the BMP Verification Workshop held August 30, 2018.

EPA response, 10/5/18: It's fine not to document the specifics of the SOP directly in the QAPP. However, an active URL link to the most recent version of the SOP is needed. For example, a reader should be able to go to the SOP to see language about expectations of how inspectors are assessing farms to determine if an Ag E&S plan is administratively complete.

DEP RESPONSE: Please refer to section B10.3.8 in the revised PA QAPP

- EPA comment: By October 31, 2017, modify PA's BMP Verification Program Plan to include insurances that the person reviewing the Ag E&S plans has proper certifications:

  - Include the list of trainings taken by the DEP and Conservation District inspectors to address the training and certification requirements for inspectors.
  - This should be part of the scope of work for the conservation district technicians as part of the contract agreements.

Document that MMP data for nutrient management and Ag E&S plans for Conservation Plans will not be extrapolated for reporting through NEIEN to the CBP office. It should be noted that there is not sufficient information to extrapolate the reported numbers for PA's portion of the CB watershed.

PA DEP Response: We understand it would not be appropriate to extrapolate the data currently available for these practices. A scientifically valid study designed specifically to allow for extrapolation may be considered for reporting or validating these practices in the future, which may include compliance rate assessment or other means to document continued implementation these practices. The revised BMP Verification Program Plan will discuss the collection and verification processes anticipated for these practices. This revised plan is under development now, based on input received from the BMP Verification Workshop held August 30, 2018.

EPA response, 10/5/18: Noted, but is the explanation above somewhere in your QAPP?

DEP RESPONSE: Please refer to sections B10.3.3 and B10.3.8 in the revised PA QAPP

- EPA comment: In your QAPP, note that the above agreed-to additions and refinement to the Manure Management Plans and Ag Erosion and Sediment Control Plan Inspection SOPs are applied to PA's Agriculture Recognition Program – as well as the following:

  - PA will use third-party verifiers to determine if farm operations are complying, including implementation, with state regulations for nutrient management and Ag E&S plans and certified to inspect the BMPs on the operation.
  - All third-party verifiers will be required to be nutrient management (Act 38) certified.
  - The third-party verifiers will use a separate set of farm assessment forms currently being created for the Pa Agriculture Conservation Stewardship program. The farm assessment forms will, at a minimum, collect the same information outlined in the CBAIP inspection reports.
  - The QAPP should include information about the changes in the workplan for the Chesapeake Bay Regulatory and Accountability Program Grant – that makes the connection between the role of the conservation districts and the Ag Recognition Program, allowing for time spent by conservation district technicians to be charged against the Chesapeake Bay Technician Agreements.
  - The Scope of Work for the contract agreements for the Chesapeake Bay Technician agreements now states:
    - Conservation Districts will verify 10 percent of the third-party inspections for the Ag Recognition Program. There is a process to remove third-party verifiers, if found to provide insufficient recommendations to the Ag Recognition Program.
    - The 10 percent of the inspections of the third-party verifiers of the farms applying for the Pennsylvania Agriculture Recognition program can be reported by Pennsylvania for annual progress reporting credit.

- Findings from the conservation district verification of the third-party verifiers' findings from their farm visits can be applied to the entire total population of Pennsylvania Agriculture Recognition applicants for crediting.
- Conservations Districts will only be able to count up to 25 of the third-party verification reviews toward the expectation of performing at least 50 inspections per year, per the Chesapeake Bay District Technician contracts.

PA DEP Response: Agreed. This is an accurate summary of our meeting and what was agreed upon. The scope of work for the technician agreements started July 1, 2018 and did include the elements described above.

EPA response, 10/5/18: Is the scope of work linked through your QAPP, or provided (in an appropriate way) as an appendix?

DEP RESPONSE: Please refer to section B10.3.9 in the revised PA QAPP

- EPA comment: Regarding the PA Agriculture Conservation Stewardship (PACS) Program, the state's Verification Program Plan should include the following:

  - For conservation districts that choose to support the implementation of this program, the conservation district will provide on-farm inspections on at least 10% of the farms submitting PACS program applications to the conservation district for consideration.
  - These inspections will be considered as counting towards the county's Chesapeake Bay agriculture initial inspection goal if the farm has not been previously accounted for in the inspection program, the farm is not a prior identified Confined Animal Operation (CAO) or Confined Animal Feeding Operation (CAFO) with an approved nutrient management plan, and the inspection is performed consistent with the with Standard Operating Procedure No. BCW-INSP-018, *Chesapeake Bay Agricultural Inspection Program (CBAIP).*, including the completion of the required inspection report, any additional reports developed for the PACS Program and the record keeping and compliance follow up.
  - For every 10 applications received by participating conservation districts, there will be a minimum of one on-farm inspection completed.

PA DEP Response: Agreed. This is an accurate summary of what was agreed upon. These elements were included in the SOP, as well as the Chesapeake Bay Regulatory and Accountability Program Grant workplan and the Scope of Works for the Chesapeake Bay Technician Agreements starting July 1, 2018.

EPA response, 10/5/18: Are URL links now provided in your QAPP for the SOP, workplan and SOW – in appropriate ways and places?

DEP RESPONSE: Please refer to section B10.3.9 in the revised PA QAPP

Appendix C: Description of the Conservation Tillage Survey

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

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.

Agricultural Workgroup Approval:

https://www.chesapeakebay.net/channel_files/24633/agwg_draft_call_summary_121516_2.pdf

Agriculture Workgroup (AgWG)

December 15th, 2016

10:00 AM – 3:30 PM

Face-to-Face Meeting Summary

Meeting materials: http://www.chesapeakebay.net/calendar/event/24633/

Actions & Decisions:

DECISION: The AgWG reached consensus to officially close the work of the Phase 6 Nutrient Management Panel.

DECISION: The AgWG approved the Turkey Characterization Pilot Project report.

DECISION: The AgWG approved the Manure Incorporation/Injection panel report as-presented, with the understanding that the AgWG requests to re-evaluate the interaction of this BMP with other BMPs after Phase 6 model runs, and that the AgWG is still open to considering additional addendum proposals after the approval as-written.

DECISION: The AgWG approved a motion to charge the Manure Incorporation/Injection expert panel to re-evaluate the proposal put forward by NY relating to immediate high disturbance incorporation for P, and to use best available science and professional judgement to determine a resolution.

DECISION: The WTWG approved the Manure Incorporation/Injection Panel's report and Appendix A pending revisions to land use eligibility for the practices and an explanation of how the BMPs are combined.

DECISION: The AgWG approved the Conservation Tillage Panel report as-written.

DECISION: The WTWG approved the Conservation Tillage Panel report Appendix A, as-written, with edits to be made on which BMPs can and cannot be combined.

DECISION: The AgWG approved the Animal Waste Management Systems report.

DECISION: The WTWG approved the Animal Waste Management Systems report Appendix A.

DECISION: The AgWG approved the Pennsylvania Conservation Survey methodology for use in reporting and crediting verified practices in the model. Ag conservation practices that have been proven to be statistically defensible will be reported as RIs with the RI designated lifespans.

DECISION: The AgWG approved of the PA NRCS remote sensing methodology as a proof of concept and tasks the AgWG with defining the minimum observation level and the acceptable levels of the metrics provided in the Tetra tech evaluation report (CSI, HR, FAR), as well as any other statistical metrics, for use in future reporting to the Bay Program. The AgWG also recommends this methodology align itself with a CBP verification protocol.

Appendix D: Description of the Cover Crop Survey

Below is a description of the cover crop survey conducted by the Capital Area RC&D for DEP.

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

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

BMP Collected – A transect survey of cover cropping following an agronomic season will provide a statistically valid county-wide assessment. The survey is completed in two parts; in the fall, cover crop species, estimated establishment date, establishment density, planting method and manure application are recorded. In late spring confirmation of cover crop species (if possible) and termination method - either harvest or burn down, are recorded for the same points.

Method
Cover crop transect survey procedures were developed with the technical expertise of a project team consisting of four former NRCS technical staff and reviewed by Mark Dubin, the Chesapeake Bay Program *Cover Crop Expert Panel* Coordinator. The project team considered important variables identified in the Chesapeake Bay Program's "Cover Crop Expert Panel Draft Report" to determine observable cover crop attributes that impact nitrogen reduction. The first survey was implemented in five counties to test if these attributes could be reliably collected using a transect survey method. These attributes included cover crop species, estimated date of planting, density of the planted crop, planting method and occurrence of fall application of manure.

The transect survey route for each county was created using procedures adapted from a method developed and tested by the Conservation Technology Information Center (CTIC) and detailed as the National Crop Residue Management Survey on their website, http://www.crmsurvey.org/. The cover crop transect survey route and observation points were determined and used by a transect survey of crop residue carried out during 2012 and 2013. Routes were developed for each county using the CTIC procedures adapted to the regional road layout in Pennsylvania

Information collected by the 2015 cover crop survey teams included attributes required to characterize cover cropping for the Chesapeake Bay Model and provide data useful for ag agency understanding of current practices. They include, harvested crop, cover crop species, planting method, cover crop density, estimated days from planting (based on cover crop height), and manure application.

Survey Team Duties and Qualifications – County survey teams are staffed by three individuals, two of whom survey multiple counties in order to achieve greater consistency between counties. Each team includes:

1. County Agriculture Agency Staffer to drive the team along the survey route. This person is selected for their knowledge of agriculture in the surveyed county.
2. The Consulting Technician surveys multiple counties each year and provides the description of each observation (harvested crop, cover crop, planting method, cover crop density, estimated days from planting and manure application). The primary qualification for this position is extensive experience as an agricultural professional working with agronomic crops.

3. The Data Entry Technician also works in multiple counties each year. The technician guides the team along the survey route, identifies each pre-determined observation point and enters the cover crop data determined by the consulting technician. Qualification required for this position includes experience with mapping and GIS data.

Training – Training was developed by the survey organizer, Capital RC&D, in collaboration with a technical consultant, Joel Myers**.** A half-day training was required for the consulting technicians and data entry technicians and a hour-long training was provided to the county agency staff. Training included an overview of the entire survey process and review of multiple in-field cover crop examples. The training is supported by photos and written survey procedures. Training may be modified and expanded depending upon the experience of the consulting technicians.

Data Collection and Entry – Survey data is entered electronically during the survey using an Excel-based data entry sheet with drop-down data options. Data entry techs use a laptop computer with county-specific data sheets and ArcGIS maps with the survey route and points identified. The data entry technicians are responsible for locating and confirming each pre-established data point, using ArcGIS and a GPS device. At each observation point, observation information is entered into the Excel-based data entry sheet. The GPS waypoints are pre-loaded and appear on screen in a map of the survey route. The location of the survey vehicle is tracked on the GPS and shown on the map. With this system, the data points can be found easily and entered with minimal data entry error.

Following the five county survey effort, a post-survey discussion including all participants did not identify areas of significant concern regarding field identification of cover crop establishment date and estimation of cover crop density however, distinguishing between annual rye and small winter grains – particularly when the plants are very small is difficult. The group discussed the cost/benefit of taking the time to make a determination between those crops using a magnifying glass or other method that would result in significantly increasing the time needed to complete the survey. The consensus of the group was that sacrificing the determination of exact species (of winter grain/rye) to a default species grouping was a necessary sacrifice. The default crop species or group will be the species that has a lower

nutrient impact on the model. When exact species of winter grain or rye is easily identified it will be recorded.

Internal Independent Verification of Data – Independent verification of the data collected by each survey technician is performed in the spring when the cover crop points are revisited to determine if the cover was harvested or burned down. Ten-percent of the crop observations of each technician are visited by an independent quality control technician and documented. Review of the verification documents are performed by Capital RC&D and results of that review reported to the technical consultant and the survey technician team. Any concerns are appropriately addressed to ensure data reliability.

Agricultural Workgroup Approval:

https://www.chesapeakebay.net/channel_files/24633/agwg_draft_call_summary_112116.pdf

Agriculture Workgroup (AgWG)

November 21st, 2016

10:00 AM – 3:30 PM

Face-to-Face Meeting Summary

Meeting materials: http://www.chesapeakebay.net/calendar/event/23305/

Actions and Decisions:

Decision: The AgWG approved the AMS draft responses to comments on the STAC Review of Nutrient Inputs to Phase 6 Scenario Builder.

Decision: The AgWG approved AMS recommended changes to Scenario Builder, including: the proposed ammonium/nitrate split for fertilizer, the proposed weighting factors for forecasting, and the delivery of nutrients from riparian pasture. The AgWG also requested the AMS examine the sources informing the values for delivery of nutrients from riparian pasture.

Action: The AMS will hold a conference call in early December to review the Phase 6 model input data hosted on the Mid-Point Assessment Tableau site. Participation from interested parties and jurisdictions is encouraged. Contact Lindsey Gordon (Gordon.lindsey@epa.gov) if you would like to participate.

Decision: The AgWG approved the BMP verification methodology used in Delaware and Pennsylvania's Cover Crop Transect Survey Pilot Projects for Cover Crop BMP annual progress reporting.

Appendix E: Historic BMP Information

Attachment 6 of the 2015 CBPO Grant Guidance states that grant recipients are expected to submit draft historical BMP data by June 30, 2015 and final historical BMP data by September 30, 2015. This data will be used to inform the initial calibration of the Partnership's Phase 6 Watershed Model. Towards this end, Pennsylvania has decided to focus on a select number of key BMP types and sources with respect to primary data collection and update efforts (including nutrient management, conservation tillage, cover crops, urban stormwater BMPs, NRCS pasture fencing and other USDA-related measures). An attempt will be made to re-construct the historic implementation of other BMPs as well, but information associated with these will likely be less precise given the amount of available data. Descriptions of these historic BMP data collection/update efforts follow.

Cover Crops

A new approach has recently been developed that PaDEP believes to be a more reasonable way of estimating cover crop acres than was previously done. Consequently, all previous estimates of cover crop acres dating back to 1985 will be replaced with new estimates based on the most recent CEAP report prepared by USDA/NRCS (2013). In the CEAP report, it is estimated that cover crop implementation levels for the Susquehanna River and Potomac River Basins were 13% and 26%, respectively, for the years 2011-2014; and 5% and 10%, respectively, for the years 2003-2006. For the purpose of estimating historic county-level cover crop implementation levels for the Pennsylvania portion of the Chesapeake Bay watershed, percentages based on the CEAP estimates were derived for each county for the years 1985-2014. For the counties that are partially within the Potomac River Basin (Adams, Bedford, Franklin, Fulton and Somerset), the percent implementation levels for the periods 2003-2006 and 2011-2014 were assumed to be 8% and 20%, respectively. For those counties within the Susquehanna River Basin, the percentage estimates cited in the CEAP report were used. The years before and after these periods were either increased or decreased linearly as shown in Table E1. In estimating cover crop levels from year to year, the above percentages were applied to "Harvested Acres" for each county as reflected in the 2007 summary for Pennsylvania as prepared by the USDA National Agricultural Statistics Service (www.nass.usda.gov).

Table E1. Estimated cover crop implementation levels (%) for Pennsylvania counties falling within the Susquehanna River Basin (SRB) or Potomac River Basin (PRB) for the periods 2003-2006 and 2011-2014.

Year	SRB	PRB	Year	SRB	PRB
1985	0	2	2000	4	6
1986	1	2	2001	4	6
1987	1	2	2002	4	6
1988	1	2	2003	5	8
1989	1	2	2004	5	8
1990	1	2	2005	5	8
1991	2	4	2006	5	8
1992	2	4	2007	6	10
1993	2	4	2008	8	12
1994	2	4	2009	10	14
1995	3	4	2010	12	17
1996	3	4	2011	13	20
1997	3	6	2012	13	20
1998	3	6	2013	13	20
1999	4	6	2014	13	20

Pasture Fencing

With regard to historic increases in pasture fencing (i.e., Stream Access Control with Fencing in Scenario Builder), it has recently been discovered that an unusually large jump in fencing implementation occurred between 2009 and 2010 (the year in which the NEIEN protocol was initiated). This has since been attributed to the fact that estimates of streambank fencing based on NRCS data were inflated (i.e., the total values for the NRCS measure "Fence" were used to represent streambank fencing rather than some percentage of the total). To rectify this situation, a call was made to NRCS staff in Pennsylvania to ascertain if any data were available that indicated how much of the total value of this measure was actually used for streambank fencing. In response, NRCS staff indicated that while figures were not available that gave the actual breakdown, it was their opinion that "no more than 30%" should be assumed for this purpose. Consequently, historic fencing values from NRCS for the years 2010-2013 were reduced by 70% and re-submitted to EPA for the purpose of updating this particular data set. After further investigation and discussion with state NRCS personnel it was determined that 10% of the reported fencing value was a more representative value to reflect the streamside (exclusion) portion of their fencing projects. This 10% correction factor was used for reporting NRCS fencing data in the 2016 progress run going forward.

State Streambank fencing data submitted prior to 2010 are not available on a county basis; rather, they have been submitted as "statewide" totals. Also, since neither the width of the buffer between the fences and the stream nor the type of vegetation could be determined from the NRCS data, the new BMP "Exclusion Fence with Narrow Grass Buffer" was used for these particular activities.

Nutrient Management

It has recently been determined that historic reporting on this particular BMP has a fair degree of inaccuracy associated with it because of the imprecise way in which it was estimated in years past. For this reason, it is believed that nutrient management acres have been significantly over-reported since about 2000. Basically, all acreage estimates for nutrient management dating back to 1998 that are currently stored in Scenario Builder need to be deleted and subsequently replaced with new acreage estimates based on a much more precise approach. This more precise approach is the one that that was used for the 2013 and 2014 Progress Runs. These past two estimates, however, also have to be updated since the DEP databases from which they were derived have been corrected, which has resulted in new acreage values for each county.

This new approach involves estimating nutrient management acres from three primary sources, which for the purposes of this description are referred to as "NRCS", "CAO/VAO", and "Imported Acres". NRCS data, in this case, refers to implemented nutrient management (590) acres as reported in a recent NRCS/FSA data extract provided to PaDEP by Olivia Deveraux. In this data extract, nutrient management acres are given for the years 2007-2014. Consequently, the NRCS portion of the total nutrient management acres have been revised for this period as well.

CAO/VAO data refers to nutrient management acres reported to PaDEP as required by Pennsylvania's Nutrient Management Law (initiated as Act 6 in 1993 and revised as Act 38 in 2005). Within PaDEP, staff associated with the Conservation Program maintain an ACCESS database that contains information on both regulated Concentrated Animal Operations (CAOs) and Voluntary Animal Operations (VAOs) dating back to 1998. Included in this database is information on the location of confined animal operations where animal manures are used for crop fertilization. In addition to the number of nutrient management acres implemented at each location (which may be either owned or rented), information on permit start and end dates is also recorded. Using this database, estimates have been developed for the years 1998-2014.

The "Imported Acres" data is somewhat similar to the "CAO/VAO" data, except that rather than using manures from animals located on the property, the farms represented in this data source import manures from CAOs for use as a crop fertilizer. These farms, however, are subject to the same permit regulations as the CAOs from which manures are imported. Unlike the "CAO/VAO" data, the records in this data set do not include permit start and end dates. Rather, on the recommendation of DEP's nutrient management experts, it is assumed that all new acres added to the data set on a yearly basis only have an expected lifetime of three (3) years. Consequently, with this particular source, new acres are constantly being added and "retired" on a year-to-year basis.

Consequently, for each year (starting in 1998), the nutrient management acres reported to EPA are the sum total of "NRCS" acres, "CAO/VAO" acres, and "Imported Acres", with this yearly total being adjusted for new "added" acres and expired "deleted" acres. For the time being, these acres are being reported as "Core N" acres. When appropriate, these acres will be subject to conversion to "Core N&P" acres as new nutrient management protocols are approved.

Conservation Tillage

From 1985-2010, the extent of conservation tillage for Pennsylvania counties within the Chesapeake Bay Basin was based on county-level estimates available from the Conservation Technology Innovation Center (CTIC) located at Purdue University. Starting in 2011, these estimates have been replaced on a county-specific basis with estimates based on the results of the tillage survey conducted annually by the Capital Area RC&D with funding from PaDEP (see Appendix C). Table E2 shows the CTIC estimates for a select number of years from 1985-2010.

Pasture Alternative Watering

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, the first non-zero Scenario Builder estimate for Pasture Alternative Watering starts in 2002, with the value for the year 1997 being "0". Consequently, historic estimates are submitted via NEIEN on a "statewide" basis for the years 1998-2009, with the values for "missing" years (i.e., 1998, 1999, 2000, etc.) being interpolated using values for years in which they are available (i.e., 2002, 2005, 2007 and 2009). Table D3 gives the acreage values (i.e., "acres served") for "Watering Facilities" that have been estimated using this approach.

Table E2. CTIC conservation tillage estimates for selected years from 1985-2010.

County	1985	1990	1995	2000	2005	2010
Adams	72.9	50.1	38.0	51.9	64.7	69.8
Bedford	57.4	63.1	45.6	15.5	36.8	45.3
Berks	46.4	52.0	51.0	35.3	42.4	45.3
Blair	24.2	10.3	41.9	15.9	36.9	45.3
Bradford	2.2	6.6	2.4	12.1	35.8	45.3
Cambria	7.1	23.9	31.6	34.1	42.1	45.3
Cameron	0.1	0.1	0.1	0.1	32.3	45.3
Carbon	0.1	0.1	0.1	0.1	0.1	0.1
Centre	49.3	39.8	48.1	42.6	44.5	45.3
Chester	68.3	75.0	67.7	70.4	52.4	45.3
Clearfield	18.9	30.7	10.7	9.6	35.1	45.3
Clinton	36.2	38.4	58.8	65.6	51.1	45.3
Columbia	25.0	44.3	37.2	35.8	42.6	45.3
Cumberland	65.9	71.5	62.0	52.7	40.7	35.9
Dauphin	20.1	40.0	49.2	27.7	50.0	59.0
Elk	0.4	1.8	2.2	5.2	33.8	45.3
Franklin	56.7	56.1	63.7	67.5	45.6	36.8
Fulton	52.7	61.9	23.9	17.8	37.4	45.3
Huntingdon	44.3	49.7	52.5	30.1	40.9	45.3
Indiana	26.4	38.1	38.4	27.4	40.1	45.3
Jefferson	75.0	75.0	75.0	17.8	37.4	45.3
Juniata	29.5	36.1	30.8	30.3	41.0	45.3
Lackawanna	37.2	34.5	45.0	46.2	45.5	45.3
Lancaster	43.0	43.3	20.3	12.7	32.7	40.7
Lebanon	25.5	34.3	35.6	33.4	30.1	28.7
Luzerne	21.1	16.4	26.4	29.8	40.8	45.3
Lycoming	62.6	73.4	19.9	6.1	34.1	45.3
Mckean	0.7	0.1	1.7	6.2	34.1	45.3
Mifflin	45.9	47.8	35.3	39.6	43.6	45.3
Montour	31.1	31.9	47.5	47.2	45.8	45.3
Northumberland	43.8	45.1	50.1	59.5	49.3	45.3
Perry	63.4	72.9	61.0	22.7	38.8	45.3
Potter	1.2	0.1	1.7	4.9	33.7	45.3
Schuylkill	41.0	37.5	30.7	30.3	41.0	45.3
Snyder	46.3	50.8	59.9	51.0	46.9	45.3
Somerset	42.3	36.0	27.0	5.3	33.8	45.3
Sullivan	10.8	10.3	16.1	18.5	37.6	45.3
Susquehanna	28.7	34.0	15.1	18.3	37.6	45.3
Tioga	27.3	46.1	14.0	42.2	44.4	45.3
Union	37.4	37.6	25.6	36.0	42.6	45.3
Wayne	47.6	49.5	40.1	44.3	45.0	45.3
Wyoming	29.1	35.1	37.8	39.4	43.6	45.3
York	65.5	66.1	40.6	55.2	64.7	68.4

Table E3. Estimated Pasture Alternative Watering acres for the years 1998-2009

Year	Acres Implemented	Accumulated Total
1998	426	426
1999	426	852
2000	426	1270
2001	426	1704
2002	426	2130*
2003	1468	3598
2004	1468	5066
2005	1469	6535*
2006	405	6940
2007	405	7345*
2008	145	7490
2009	145	7635*

* Value recorded in Scenario Builder for year indicated

Prescribed Grazing

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, the first non-zero Scenario Builder estimate for Prescribed Grazing starts in 2002, with the value for the year 1997 being "0". Consequently, similar to the approach used for Pasture Alternative Watering described above, historic estimates are submitted via NEIEN on a "statewide" basis for the years 1998-2009, with the values for "missing" years (i.e., 1998, 1999, 2000, etc.) being interpolated using values for years in which they are available (i.e., 2002, 2005, 2007 and 2009).

Forest Buffers

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, the first non-zero Scenario Builder estimate for Forest Buffers starts in 2002, with the value for the year 1997 being "0". Consequently, similar to the approach for Pasture Alternative Watering described above, historic estimates are submitted via NEIEN on a "statewide" basis for the years 1998-2009, with the values for "missing" years (i.e., 1998, 1999, 2000, etc.) being interpolated using values for years in which they are available (i.e., 2002, 2005, 2007 and 2009).

Wetland Restoration

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, Scenario Builder estimates for Wetland Restoration go all the way back to 1985. Consequently, similar to the approach used for Pasture Alternative Watering described above, historic estimates are submitted via NEIEN on a "statewide" basis for the years 1985-2009, with the values for "missing" years (i.e., 1986, 1988, 1989, 1990, 1991, 1993, 1994, 1995, 1996, etc.) being interpolated using values for years in which they are available (i.e., 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009).

Land Retirement

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, Scenario Builder estimates for Land Retirement only start in the year 2007. Because the acreage value for that year was relatively high (110,515), it was decided to interpolate values all the way back to 1985 to lessen the effect of going from 0 acres in 2006 to 110,515 acres in 2007. Consequently, interpolated values of 4420 acres per year are used for the period 1985-2008, with a final value of 4435 used for 2009 in order to arrive at the accumulated Scenario Builder value of 147,376 acres for the year 2009.

Grass Buffers

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, the first non-zero Scenario Builder estimate for Grass Buffers starts in 2002, with the value for the year 1997 being "0". Consequently, similar to the approach used for Pasture Alternative Watering described above, historic estimates are submitted via NEIEN on a "statewide" basis for the years 1998-2009, with the values for "missing" years (i.e., 1998, 1999, 2000, etc.) being interpolated using values for years in which they are available (i.e., 2002, 2005, 2007 and 2009).

Conservation Plans

Estimates of historic acres implemented prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, Scenario Builder estimates for Conservation Plans go all the way back to 1985. Consequently, similar to the approach used for Pasture Alternative Watering described above, historic estimates are submitted via NEIEN on a "statewide" basis for the years 1985-2009, with the values for "missing" years (i.e., 1986, 1988, 1989, 1990, 1991, 1993, 1994, 1995, 1996, etc.) being interpolated using values for years in which they are available (i.e., 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009).

Non-Urban Stream Restoration

Estimates of historic BMP implementation prior to 2010 are based on the summary Scenario Builder data provided by EPA for the years 1985, 1987, 1992, 1997, 2002, 2005, 2007 and 2009 (Excel file "PA_V4_01162015"). In this case, the first non-zero Scenario Builder estimate for Non-Urban Stream Restoration starts in 2007, with the value for the year 2005 being "0". Consequently, similar to the approach used for Pasture Alternative Watering described above, historic estimates are submitted via NEIEN on a "statewide" basis for the years 2006-2009, with the values for "missing" years (i.e., 2006 and 2008) being interpolated using values for years in which they are available (i.e., 2007 and 2009). In this particular instance, the BMP "Streambank and Shoreline Protection" is used to represent Non-Urban Stream Restoration.

Urban/Suburban Practices

For the 2014 Progress Run, data on urban BMPs were submitted differently than they had been up to that point. Specifically, much of the data for that cycle were submitted using the new "performance standard" option as described in Section B10.2.8. After that particular submission, it was noticed that some of the data elements required by NEIEN were not calculated quite correctly. Therefore, it was arranged to have an EPA sub-contractor (Tetra Tech) come in to develop a software program to calculate all of the "Stormwater Treatment" and "Runoff Reduction" elements required by the new performance standard (e.g., Volume, Site Area, Impervious Acres, etc.) directly from the ACCESS database maintained by the group within DEP responsible for tracking urban stormwater permits. For historic reporting purposes, urban stormwater BMP data for the period 2003-2014 were extracted from that database and submitted to CBPO. In this case, data were submitted using the "performance standard" format specific to Phase 6 of the Bay watershed model.

Appendix F: Description of the Penn State Survey

https://www.chesapeakebay.net/channel_files/23301/agwg_draft_call_summary_071416_final.pdf

Agriculture Workgroup (AgWG)

July 14th, 2016

1:00 PM – 4:00 PM

Conference Call Summary

Meeting materials: http://www.chesapeakebay.net/calendar/event/24157/

Actions and Decision:

DECISION: The AgWG approved the motion put forth by Bill Angstadt to approve PA DEP's proposal for verification as an alternative acceptance mechanism, with the understanding that in October 2016, the AgWG will be able to review their statistical methodologies used in the final process, and consider appropriate modifications to the BMP verification guidance document if requested and determined necessary.

Appendix G: Description of NRCS Potomac Pilot Remote Sensing Project

Description of PA DEP Agricultural Workgroup Approvals: **Inspection Program**

https://www.chesapeakebay.net/channel_files/23301/agwg_call_summary_07202116.pdf

https://www.chesapeakebay.net/channel_files/24633/agwg_draft_call_summary_121516_2.pdf

Agriculture Workgroup (AgWG)

July 20 - 21, 2016

Face-to-Face Meeting Summary

U.S. Geological Survey
5522 Research Park Drive
Catonsville, MD 21228

Meeting materials: http://www.chesapeakebay.net/calendar/event/23301/

Action and Decision Items:

DECISION: The AgWG reached consensus to approve the Manure Treatment Technologies Panel Report recommendations for submission to the WTWG, with the understanding that the policy group process and the Modeling Workgroup decision will clarify the panel's recommendations in the context of the overall Phase 6 Modeling Suite and for water quality trading programs, but that the outcome of the policy group and the decision of the Modeling Workgroup do not change the panel's technical assessment of the total N and P that leaves the 'black box', and remains available for field application or transport in the modeling tools.

DECISION: The AgWG reached consensus to approve the Cover Crops BMP Expert Panel's preliminary report.

DECISION: The AgWG agreed to hold their upcoming meetings on Wednesday, August 24th, Wednesday, September 7th, and Thursday September 22nd. By Thursday, September 22nd, the AgWG expects to have the 5 priority panel reports to approve for inclusion in the Phase 6 model. The September 15th meeting date will be held tentatively in case a conference call is needed.

ACTION: The AgWG should provide comments to the AMS on the Beta 3 documentation in advance of Friday August 19th to prepare for the AgWG August 23rd meeting. Comments should be sent to Matt Johnston (mjohnston@chesapeakebay.net) and Lindsey Gordon (Gordon.lindsey@epa.gov).

DECISION: The AgWG reached consensus on making a formal recommendation to use the Beta 3a(1) approach to represent nutrient spread for N and P in the Beta 4 version of the Phase 6 model.

ACTION: The Nutrient Management Panel will work on developing explanatory materials that may be used to help communicate the panel recommendations to stakeholders.

DECISION: The AgWG agreed to move forward with PA Agricultural Remote Sensing Pilot Project's data collected for the Potomac River Basin. EPA will provide statistical support to examine the validity of the methodology and verification of a subset of the project data. EPA will also provide additional technical

support to PA DEP to analyze data in terms of how it will be submitted for historical calibration in the Phase 6 model. The statistical workup and historical dataset will be presented back to the AgWG during the September meeting, where the AgWG will decide whether to approve the methodology for input into the model.

Agriculture Workgroup (AgWG)

December 15th, 2016

10:00 AM – 3:30 PM

Face-to-Face Meeting Summary

Meeting materials: http://www.chesapeakebay.net/calendar/event/24633/

Actions & Decisions:

DECISION: The AgWG reached consensus to officially close the work of the Phase 6 Nutrient Management Panel.

DECISION: The AgWG approved the Turkey Characterization Pilot Project report.

DECISION: The AgWG approved the Manure Incorporation/Injection panel report as-presented, with the understanding that the AgWG requests to re-evaluate the interaction of this BMP with other BMPs after Phase 6 model runs, and that the AgWG is still open to considering additional addendum proposals after the approval as-written.

DECISION: The AgWG approved a motion to charge the Manure Incorporation/Injection expert panel to re-evaluate the proposal put forward by NY relating to immediate high disturbance incorporation for P, and to use best available science and professional judgement to determine a resolution.

DECISION: The WTWG approved the Manure Incorporation/Injection Panel's report and Appendix A pending revisions to land use eligibility for the practices and an explanation of how the BMPs are combined.

DECISION: The AgWG approved the Conservation Tillage Panel report as-written.

DECISION: The WTWG approved the Conservation Tillage Panel report Appendix A, as-written, with edits to be made on which BMPs can and cannot be combined.

DECISION: The AgWG approved the Animal Waste Management Systems report.

DECISION: The WTWG approved the Animal Waste Management Systems report Appendix A.

DECISION: The AgWG approved the Pennsylvania Conservation Survey methodology for use in reporting and crediting verified practices in the model. Ag conservation practices that have been proven to be statistically defensible will be reported as RIs with the RI designated lifespans.

DECISION: The AgWG approved of the PA NRCS remote sensing methodology as a proof of concept and tasks the AgWG with defining the minimum observation level and the acceptable levels of the metrics provided in the Tetra tech evaluation report (CSI, HR, FAR), as well as any other statistical metrics, for use in future reporting to the Bay Program. The AgWG also recommends this methodology align itself with a CBP verification protocol.

http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/Final_SOP_Chesapeake_Bay_Agricultural_Inspection_Program.pdf

Appendix H: QAPP Addendum BMP Verification Program Plan 8.23.2019

Link to the BMP Verification Program Plan on Pennsylvania DEP's website for the Phase 3 WIP:

http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/WIPIII/FinalPlan/The%20Best%20Management%20Practice%20Verification%20Plan.pdf