

Pennsylvania's Trading and Offset Programs Review Observations

I. Summary of Program Characteristics and Regulatory Status

For the common trading and offset programs elements discussed in Appendix S of the Chesapeake Bay TMDL, Table 1 distinguishes between trading (T) and offset (O) provisions, categorizes the degree to which Pennsylvania's program addresses each element, and illustrates whether the program is designed to support Point to Point source transactions, Nonpoint to Point source transactions, Nonpoint to Nonpoint source transactions and/or Point source to Nonpoint source transactions.

Table 1. Pennsylvania Trading and Offset Programs Summary Table

Element	Types of Transactions							
	Point Source to Point Source		Nonpoint Source to Point Source		Nonpoint Source to Nonpoint Source		Point Source to Nonpoint Source	
Trading (T) /Offset(O)	T	O	T	O	T	O	T	O
1. Authority	●	●	●	●	●	●	●	●
2. Baselines (for credit generators)	●	●	●	●	○	○	○	○
3. Minimum Controls	●	●	●	●	○	○	○	○
4. Eligibility	●	●	●	●	○	○	○	○
5. Credit Calculation and Verification	●	●	●	●	○	○	○	○
6. Safeguards	●	●	●	●	○	○	○	○
7. Certification and Enforceability	●	●	●	●	○	○	○	○
8. Accountability and Tracking	●	●	●	●	○	○	○	○
9. Nutrient Impaired Segments	●	●	●	●	○	○	○	○
10. Credit Banking	●	●	●	●	○	○	○	○
11. Growth	×	●	×	●	×	○	×	○

○	Necessary measures not in place
●	Partial (e.g., Legislation drafted or steps have been taken to implement but not fully in place, some details still to be determined but framework is largely established)
●	Jurisdiction has measures in place and in effect
●	Jurisdiction is evaluating the issue but has taken no formal measures to implement anything specifically
×	Not Applicable

II. Summary of Review Observations

On the basis of interviews and review of statutes, regulations, policies and program documents related to the jurisdictions' trading and offset programs, EPA has drafted the following observations. Tier 1 is classified as statutory or regulatory conformance that EPA expects to be addressed by the jurisdiction in order to maintain consistency with the policies, definitions and elements described in Section 10 and Appendix S of the Chesapeake Bay TMDL. Tier 2 is classified as a program recommendation that EPA finds should be addressed in order to strengthen the jurisdictions' trading and offset programs.

A. Programs Recommendations Common to All Jurisdictions

1. Jurisdictions' definitions of trading ratios, offsets, credit, trading, etc. should be consistent with federal definitions. Some jurisdictions use the terms "trading" and "offsetting" interchangeably. See Section IV.1.

2. Interstate and intrabasin trades and offsets should be evaluated by the jurisdictions for potential inclusion in their trading and offset programs. See Section IV.10.

3. Local governments' data and information should continue to be integrated into state tracking and accounting systems. See Section IV.8.

4. Stormwater offsets programs are being evaluated and developed in many jurisdictions. These programs should be consistent with the Chesapeake Bay TMDL and EPA regulations, policy, and guidance. See Section IV.1.

5. Several jurisdictions are considering developing or expanding their current programs. The jurisdictions should continue to develop guidance and methodologies to address meeting baseline for point and nonpoint source sectors including consideration of the use of non-traditional Best Management Practices (BMPs) such as algal scrubbers, oyster aquaculture, etc. EPA suggests that the jurisdictions consider incorporating the retirement of credits and use of net improvement offsets in this guidance and methodology. See Sections IV.2 and 5.

6. Jurisdictions expressed interest in finding a good way to use stormwater BMPs to offset nonpoint sources such as new septic and nonregulated agriculture. The jurisdictions should continue to explore the potential use of that type of offset. See Section IV.2 and 5.

7. Updating enforcement policies and procedures should continue and include, but not be limited to, items such as inspectors' access to off-site areas where credits or offsets are generated and compliance determination methodology. See Section IV.7.

8. Jurisdictions should continue to develop tracking and accounting systems for new and increased loads and offsets for those loads. These systems should be transparent and accessible to the public. See Section IV. 8.

9. Jurisdictions should ensure that adequate resources are available to fully implement the developing trading and offset programs. See Section V.

B. Pennsylvania Specific Observations

Tier 1 – Statutory or Regulatory Conformance

1. Does the nonpoint source baseline established by Pennsylvania in 2006 need to be updated to meet the common elements in Appendix S of the Chesapeake Bay TMDL for a baseline?

The Pennsylvania Department of Environmental Protection (PADEP) developed the Pennsylvania Nutrient Credit Trading Program (NCT) prior to the issuance of the Chesapeake Bay TMDL. As the NCT and the TMDL were developed independently, it appears that the NCT baseline for credit generation does not conform to the TMDL baseline trading requirements. EPA expects Pennsylvania to make a quantitative demonstration that the NCT baseline for agricultural sources is consistent with the TMDL load allocation for Pennsylvania agricultural nonpoint sources. In the event that the NCT baseline is not consistent with these allocations, then it will have to be modified so that it can be used for NPDES compliance purposes. See Sections IV.2 and 5.

2. Does PADEP need to update its nonpoint source baseline and credit calculations as well as ratios to adjust for not only the location of where the credits are being generated but where the credits are being used?

Pennsylvania's NCT program was developed prior to the TMDL. EPA expects PADEP to make a quantitative demonstration that its methodologies for credit generation from nonpoint source BMPs are consistent with the common elements of Appendix S of the Chesapeake Bay TMDL. Placement in the watershed, delivered load and pollution reduction coefficients need to be taken into account. Detailed information about these methodologies should be made available to the public. See Sections IV.2 and 5.

3. The Chesapeake Bay TMDL expects pollutant loads from new or increased discharges to be offset in the event that the jurisdiction did not set aside allocations for new growth. Pennsylvania's final Phase I WIP did not include an allocation for new growth. How will Pennsylvania accommodate new growth for nonpoint sources? See Section IV.1.

Tier 2 – Program recommendation

1. Offset approvals are administered in the Regional offices of PADEP, whereas activities related to credits are administered at PADEP Headquarters Central Office. How do these programs integrate? See Section IV.8.

III. History and Overview of Pennsylvania's Trading and Offset Programs

The Pennsylvania NCT Program began in 2004 with the identification of nutrient trading and other market-based incentives as an option to meet water quality goals in the Pennsylvania Chesapeake Bay Tributary Strategy. In 2005, PADEP established an Interim Final Trading of Nutrient and Sediment Reduction Credits - Policy and Guidelines, which it finalized in 2006. Since 2007, the Commonwealth has been focused on program implementation, stakeholder outreach, and education and program enhancements. On October 9, 2010, the nutrient trading regulation, "Use of offsets and tradable credits from pollution reduction activities in the Chesapeake Bay Watershed" (25 Pa. Code § 96.8) became effective. That regulation codified, with some revisions, the 2006 Final Trading of Nutrient and Sediment Reduction Credits - Policy and Guidelines. The NCT Program is only open to participants within the Susquehanna and Potomac basins.

Eligible participants in the NCT Program include municipal and industrial wastewater treatment plants (WWTPs), nonpoint sources and third party aggregators. Trades may be made between municipal and industrial WWTPs or between a municipal or industrial WWTP and a nonpoint source or between a municipal or industrial WWTP and an aggregator. Currently, agricultural operations are only eligible to act as credit generators, but municipal and industrial WWTPs can act as credit generators or credit purchasers. To be eligible to trade as a credit generator, an agricultural operation must first meet baseline and threshold requirements, the reductions above and beyond what is required minus a credit reserve reduction, and after adjusting for the location, can be used to generate nutrient credits. To be eligible to use credits or offsets towards compliance, a municipal or industrial WWTP must have authorizing language in its NPDES permit to allow for the use and sale of credits and the application of offsets.

Pennsylvania defines a credit as a tradable unit of compliance corresponding to a unit of reduction of a pollutant as recognized by the PADEP which, when certified, verified and registered, may be used to comply with NPDES permit effluent limitations incorporating the assumptions and requirements of applicable Chesapeake Bay TMDL wasteload allocations (WLAs). An offset is defined as the pollutant load reduction measured in pounds that is created by an action, activity or technology which, when approved by the PADEP, may be used to comply with NPDES permit effluent limitations, conditions and stipulations under Chapter 92a (relating to NPDES permitting, monitoring and compliance). The offset may only be used by the NPDES municipal or industrial WWTP that the PADEP determines is associated with the load reduction achieved by the action, activity or technology.

The compilation of information represented here is based on interviews that EPA staff completed with PADEP and Pennsylvania Infrastructure Investment Authority (PENNVEST) staff as well as EPA's review of provided documentation. As an assumption of the final Chesapeake Bay TMDL released on December 29, 2010, EPA expects Chesapeake Bay jurisdictions to account for and manage new or increased loadings as well as reducing existing loadings of nitrogen, phosphorus, and sediment. To promote the success of trading and offset programs in the jurisdictions, EPA will maintain regular oversight of the jurisdictions' programs through periodic programmatic reviews and evaluations, beginning with EPA's 2011 review of the Bay jurisdictions' offset and trading programs.

IV. Detailed Evaluation of Pennsylvania's Trading and Offset Programs Conformance with the 2010 Chesapeake Bay TMDL

1. Authority

Measures are in place for point source trading and offsets but only partially in place for new nonpoint sources. See Section II. B. Tier 1-2 and Sections II.A.1 and 4.

On October 9, 2010, Pennsylvania codified its trading and offsets program in 25 Pa. Code § 96.8 – Use of offsets and tradable credits from pollution reduction activities in the Chesapeake Bay Watershed. Section 96.8(b)(1) authorizes credits and offsets to be used to meet the legal requirements for restoration, protection and maintenance of the water quality of the Chesapeake Bay. Section 96.8(b)(3) allows credits and offsets to be used by municipal and industrial WWTPs, for both new or increased sources and existing sources, to meet effluent limits for nitrogen, phosphorus and sediment expressed as annual loads in pounds contained in NPDES permits that are based on compliance with water quality standards established under the Federal Water Pollution Control Act (otherwise known as the Clean Water Act) for restoration, protection and maintenance of the water quality of the Chesapeake Bay. Section 96.8(b)(6) states that credits and offsets may not be used to comply with technology-based effluent limits, except as expressly authorized under federal regulations administered by the EPA.

PADEP's certification letter, which certifies a pollutant reduction activity, contains language that PADEP has the right to "enter upon the premises where the activities regulated by this certification is located or conducted or where records are kept; have access to and copy at reasonable times any records that must be kept in accordance with this certification; and sample and monitor, at reasonable times, any substances or parameters at any location."

In addition, the Pennsylvania Clean Streams Law (35 P.S. §691.1 et seq.) gives the state authority to investigate "any alleged source of pollution of the waters of the Commonwealth, and to institute appropriate proceedings under the provisions of this act to discontinue any such

pollution if the offense complained of constitutes a violation of the provisions of this act.” (35 P.S. §691.604)

In addition, PADEP has broad authority for access to farms under section 5(b)(8) of the Pennsylvania Clean Streams Law, which authorizes PADEP to “make such inspections of public or private property as are necessary to determine compliance with the provisions of this act, and the rules, regulations, orders or permits issued” under the act. 35 P.S. §691.5(b)(8). PADEP provided a copy of this section, along with copies of the regulatory manure management, nutrient management and erosion and sedimentation requirements, and a sample agreement delegating authority to a conservation district under the Conservation District Law, 3 P.S. §859(2) and 25 Pa. Code §102.41.

Sufficient legal authority exists within 25 Pa. Code §96.8 to operate the current offset and credit trading program. EPA believes that additional legal authorities would be needed to expand the offset and credit trading programs for nonpoint sources to be credit and offset users.

The terminology “offsets” and “credits” cannot be used interchangeably within PA’s established nutrient credit trading program given that the terms have distinct meanings.

2. Baseline (for credit generators)

Measures are fully in place for point source trading and offsetting but only partially in place for nonpoint sources. Measures may not be in place to ensure that the load allocation cap is maintained. See Section II. B. Tier 1-1 and Sections II. A.5 and 6.

Pennsylvania’s NCT Program is one of several compliance alternatives provided to NPDES municipal and industrial WWTPs required to reduce their effluent discharges. The key to the program is that participation is voluntary. Point source growth may be addressed by the purchase of nutrient credits, by the use of offsets from the elimination of less efficient municipal and industrial WWTPs, or by another no-discharge alternative such as employing recycle and re-use technology or land application.

Trades may be made between municipal and industrial WWTPs, or between a municipal or industrial WWTP and a nonpoint source, or between a municipal or industrial WWTP and an aggregator; however only municipal and industrial WWTPs are eligible to purchase credits to meet water quality based effluent limits.

Pennsylvania explained on page 60 of the final Phase I Pennsylvania Watershed Implementation Plan (PA WIP), “New needs for sewage discharges from industry as well as domestic sources will be assigned a zero nutrient load for the Chesapeake Bay and therefore will be expected to find credits and/or offsets to address the nutrient needs. Point source growth may be addressed

by the purchase of nutrient credits, by the use of offsets from the elimination of less efficient sewage treatment municipal and industrial wastewater treatment plants, or by another no-discharge alternative such as employing recycle and re-use technology or land application.” Additional information related to these options is also outlined in the PADEP’s 2007 “Pennsylvania’s Chesapeake Bay Tributary Strategy Implementation Plan for Sewage Facilities Planning” guidelines.

For a municipal or industrial WWTP to be eligible to generate credits, 25 Pa. Code §96.8(d)(2)(ii) requires that the point source meet the baseline requirements. The baseline is “the pollutant effluent load associated with effluent limitations contained in the NPDES permit based on the applicable technology-based requirements, or the load in a TMDL or similar allocation, whichever is more stringent.” 25 Pa. Code §96.8(d)(2)(ii). Additional reductions beyond the baseline may generate credits.

For a nonpoint source to be eligible to generate credits, 25 Pa. Code §96.8 (d)(2)(i) requires the source to meet the set of requirements in regulations applicable to the source at the location where the credits or offsets are generated, and the pollutant load associated with that location as of January 1, 2005. If since that date new requirements or operation changes have occurred that necessitate a revised set of requirements, those establish the baseline. For an agricultural operation, the baseline includes compliance with the erosion and sedimentation requirements for agricultural operations in Chapter 102 (relating to erosion and sediment control), the requirements for agricultural operations under § 91.36 (relating to pollution control and prevention at agricultural operations), § 92a.29 (relating to CAFOs) and the requirements for agricultural operations under Chapter 83, Subchapter D (relating to nutrient management), as applicable. Additionally, 25 Pa. Code § 96.8 (d)(3) requires an agricultural operation to meet one of three threshold options prior to generating credits.

Consistency with the TMDL

The final Phase I PA WIP lists the individual significant municipal and industrial WWTPs subject to the Chesapeake Bay TMDL and describes the allocations to those WWTPs.

25 Pa. Code §96.8(d)(3) outlines the threshold requirements for an agricultural operation baseline. These threshold requirements include meeting one of the following:

- “Manure is not mechanically applied within 100 feet of a perennial or intermittent stream with a defined bed or bank, a lake or pond. This threshold can be met through one of the following:
 - There is not a perennial or intermittent stream with a defined bed or bank, a lake or a pond on or within 100 feet of the agricultural operation

- The agricultural operation does not mechanically apply manure, and applies commercial fertilizer at or below agronomic rates contained in the current *Penn State University Agronomy Guide* published by Pennsylvania State University.
- A minimum of 35 feet of permanent vegetation is established and maintained between the field and any perennial or intermittent stream with a defined bed or bank, a lake or a pond. The area may be grazed or cropped under a specific management plan provided that permanent vegetation is maintained at all times and there is no mechanical application of manure within the buffer area.
- The applicant applies an adjustment of at least 20% to the overall amount of the pollutant reduction generated by the pollutant reduction activity the person is submitting for certification.”

Pennsylvania’s baseline and threshold requirements must be met prior to seeking certification to generate credits. If a Pennsylvania agricultural operation meets the baseline and threshold requirements, it may generate nutrient reduction credits for use by a municipal or industrial WWTP. The nutrient reductions will be reduced by 10% for the credit reserve, and delivery and edge of segment factors will be applied to the credit calculation. Total agricultural based credit generation cannot exceed the annual tradable load that Pennsylvania has calculated to protect the Chesapeake Bay. EPA has questions regarding PADEP’s calculation of this tradable load.

Regulatory requirements and baseline determinations change by sector and as outlined in 25 Pa. Code § 96.8(d), to generate credits or offsets, a person shall demonstrate a reduction in the pollutant load beyond the pollutant load allowed under applicable baseline requirements, and beyond any applicable threshold.

For point sources (municipal and industrial WWTPs) and nonpoint sources, Pennsylvania has set the parameters for participation in trading at the level that it has calculated to be sufficient for the restoration, protection and maintenance of the water quality of the Chesapeake Bay. Specifically, Pennsylvania has set baseline and threshold obligations for the participating entity and the amount of credits that can be traded annually has been capped. The quantification of credits and the process related to certification and registration are important components of the program.

Nonpoint source regulatory compliance requirements are not set to achieve a specific numeric limit or load allocation (unless it is a CAFO that has a non-discharge requirement) but are set at what needs to be met for the operation from a planning and BMP implementation standard based on the specific operation. For example, the erosion and sedimentation control plan must meet “T over the rotation” which can be done through tillage practices or installed BMPs. The baseline regulatory compliance requirements must be met and maintained prior to credits being calculated

and generated. The baseline requirements are defined in more detail in 25 Pa. Code § 96.8(d)(2)(ii).

The NCT Program does not calculate a mass loading for baseline activities. The nutrient reductions from credit generators are calculated after the baseline and threshold requirements are met. Baseline activities are legally required and are documented for agricultural generators in the credit calculation spreadsheet. The nutrient reductions will be reduced by 10% for the credit reserve, and delivery and edge of segment factors will be applied to the credit calculation. Total agricultural based credit generation cannot exceed the annual tradable load that Pennsylvania has calculated to protect the Chesapeake Bay. The tradable load is assumed to be the generated only by BMPs that increase activities beyond the baseline and threshold requirements. Again, EPA has questions regarding PADEP's calculation of this tradable load.

The baseline activities are consistent with the assumptions and requirements in the Chesapeake Bay TMDL for the agricultural sector, according to PADEP. This statement has not been demonstrated yet to EPA's satisfaction. Baseline activities are linked to the Chesapeake Bay TMDL allocations by virtue of their inclusion in Pennsylvania's final Phase I WIP. Baseline activities, within Pennsylvania's NCT Program, are enhancing compliance with legal requirements for the agricultural sector, and enhanced compliance is a primary strategy by which the agricultural sector will meet its load allocation. Specifically, Pennsylvania's final Phase I WIP was built on three core concepts: Milestone and Tracking; Advance technologies and Nutrient Trading; and Enhancing Compliance.

Implementation of the regulatory compliance requirements (i.e., baseline) and threshold requirements results in significantly fewer pollutants being discharged to Pennsylvania waters and ultimately the Bay.

Pennsylvania's starting point for quantifying reductions is applicable regulatory compliance requirements and the threshold. Specifically, Pennsylvania bases the calculation of agricultural reductions on the amount of manure and commercial fertilizer that is applied on the operation based on the crop yields and nutrient management plan and/or manure management requirements. This is an important element of Pennsylvania's NCT Program. Additionally, total agricultural based credit generation cannot exceed the annual tradable load that Pennsylvania has calculated to protect the Chesapeake Bay. Pennsylvania assumes the tradable load to be generated only by BMPs that increase activities beyond the baseline and threshold requirements. EPA believes that the current tradable load in-use by Pennsylvania needs to be recalculated based on the Chesapeake Bay TMDL.

The credit certification process is another important component to the Pennsylvania's NCT Program. The first step in the certification process is that the PADEP certifies a pollutant

reduction activity, after providing notice and a comment period, for generation of credits. During this step, PADEP reviews regulatory compliance requirements and calculation components. The second step is verification, which occurs when a demonstration is made that the pollution reduction activity was implemented as described in the certification. The third and final step is registration. This is PADEP's accounting mechanism to track verified credits before the credits are used to comply with the NPDES permit effluent limits for the Chesapeake Bay.

3. Minimum Controls Required for Credit Purchasers

Necessary measures are in place for point source credit and offset users. Measures are not in place for nonpoint source users. Section II.B, Tier 1 -2.

Pennsylvania's determination of minimum technology-based standards or secondary treatment standards is addressed when an NPDES permit is issued and is set regardless of the potential use of credits or offsets. As outlined in 25 Pa. Code §96.8(b)(3) and (b)(6), a permittee may only use credits to meet the water quality-based effluent limits, and any technology-based effluent limits must be met on-site.

To be eligible in Pennsylvania to purchase credits to meet water quality based effluent limits, the municipal or industrial WWTP must have authorizing language in its NPDES permit that allows for the use of credits and offsets and for the sale of credits. 25 Pa. Code §96.8(h) also references the use of credits and offsets to meet NPDES permit requirements related to the Chesapeake Bay; specifically, "A permittee will only be authorized to use credits and offsets through the provisions of its NPDES permit. The permit conditions will require appropriate terms, such as recordkeeping, monitoring and tracking, and reporting in DMRs. Only credits and offsets generated from activities located within the Chesapeake Bay watershed may be used to meet NPDES permit requirements related to the Chesapeake Bay." 25 Pa. Code §96.8(h)(1) and (2).

According to 25 Pa. Code §96.8(g), credits must be registered by PADEP in order to be applied to a permit to meet effluent limitations. The following credit registration requirements apply:

- Credits must be certified under the provisions of subsection (e).
- Credits must be addressed in a valid contract that ensures that the requirement of this section will be met.
- Credits must be verified prior to registration, under subsection (f).
- PADEP will assign a registration number to each registered credit for reporting and tracking purposes.

At this time, Pennsylvania does not allow nonpoint sources to act as credit users or apply offsets to meet regulatory requirements.

4. Eligibility

Necessary measures are in place for point source users but not in place for nonpoint source users. See Section II.B, Tier 1-2.

PADEP is responsible for determining and approving eligibility, which it does through the certification and registration of credits and the approval of offsets. Only municipal and industrial WWTPs and aggregators are eligible credit purchasers under Pennsylvania's program. Credit generators and purchasers must be located in the Potomac or Susquehanna basin. Potential credit generators must meet the requirements outlined in 25 Pa. Code §96.8(d) and (e).

As part of eligibility, PADEP considers past or current noncompliance status. "A person who by past or current noncompliance has demonstrated a lack of ability or intention to comply with any of the following is not eligible for certification or offset approval or to use credits or offsets to meet permit effluent limits:

- A Department regulation, permit, schedule of compliance, order or certification.
- A law or regulation that addresses pollution of waters of this Commonwealth.
- A contract for the exchange of credits." 25 Pa. Code §96.8(d)(4)

If an applicant no longer meets eligibility requirements prior to registration of a credit, PADEP may prohibit the applicant from participating in any trading under the program, or deny a request for certification, registration of credits or approval of offsets (25 Pa. Code §96.8(d)(6)). Potential credit generators must meet the requirements outlined in 25 Pa. Code §96.8(d) and (e).

In addition to the items outlined in 25 Pa. Code §96.8(e), as part of a certification request a municipal or industrial WWTP would provide PADEP information pertaining to permit limits, DMRs, and projected growth analysis. PADEP will certify the pollutant reduction activity if the municipal or industrial WWTP is below or projected to be below its required cap load and if its permit authorizes the sale of credits.

Actual trading activities are not detailed in Pennsylvania's NPDES permits, but language authorizing the use credits or offsets to meet the effluent limitations must exist in the permit. The municipal or industrial WWTP will track the sale of credits or use of credits and/or application of approved offsets in the annual documentation submitted to PADEP. The annual documentation includes:

- Discharge Monitoring Report (DMR) (form 3800-FM-WSFR0462);
- Chesapeake Bay Supplemental Report Nutrient Monitoring (form 3800-FM-WSFR0444);

- Chesapeake Bay Supplemental Report Monthly Nitrogen Budget and Chesapeake Bay Supplemental Report Monthly Phosphorus Budget (forms 3800-FM-WSFR0445 and 446); and,
- Chesapeake Bay Supplemental Annual Nutrient Summary (form 3800-FM-WSFR0447).

If a municipal or industrial WWTP has purchased and is using credits towards meeting the effluent limitations then the registration numbers provided by PADEP will be reported on the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget and Chesapeake Bay Supplemental Report Monthly Phosphorus Budget. The application of credits will also be reported as part of the Chesapeake Bay Supplemental Annual Nutrient Summary. The approval and application of offsets will also be recorded on the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and the Chesapeake Bay Supplemental Annual Nutrient Summary.

If PADEP authorizes the use of credits and offsets toward effluent limitations, then language is generally provided in Part C of the NPDES permit for municipal and industrial WWTPs.

Pennsylvania believes that credit generating practices can be assured to have been installed subsequent to the issuance of the TMDL based on the certification, verification and registration process. A Pennsylvania credit generator is required to indicate in the certification request details on the timing of credits, such as the timing of credit generation and delivery, timing of a phase-in period and the time frame for sale and use of credits toward permit effluent limits (25 Pa. Code §96.8(e)(2)). If a structural pollutant reduction activity is submitted for certification then the pollutant reduction activity must be installed post-2005 in order to be considered for credit generation. Pennsylvania requires pollutant reduction activities to be verified annually if the credits will be used towards a municipal or industrial WWTP's effluent limitation. Should a pollutant reduction activity no longer be found to be generating credits, as indicated during the certification process, PADEP will not verify the credits, and PADEP may revoke the certification (25 Pa. Code §96.8(e)(10)). Any person with a pollutant reduction activity certified prior to October 9, 2010, must submit to PADEP a request for renewal of the certification by April 13, 2015, unless an expiration date is already included in the certification. 25 Pa. Code §96.8(e)(9)(iv).

Either PADEP, or the applicant, will highlight changes in land use when a certification request is reviewed. If the pollutant reduction activity were implemented then the resulting change would be reported as part of Pennsylvania's yearly progress to achieve reductions.

Aggregators

Pennsylvania allows aggregators to sell and purchase credits on behalf of others. While PADEP has not yet developed specific criteria to determine eligibility and roles for aggregators and other third parties, the generation and use of credits must fall under 25 Pa. Code §96.8.

Offset ratios

The Pennsylvania NCT does not require point sources to reduce their load through credits or offsets at any greater rate than a 1:1 ratio. When calculating credits however, Pennsylvania reduces the certified amount by 10% in addition to the delivery and edge of segment ratios. Thus the effective ratio is in effect greater than 1:1.

Offset and Credit Categories

Credits are categorized and defined in the Pennsylvania NCT by the pollutant reduction activity in use, based on the list of peer-reviewed and Chesapeake Bay Program-approved BMPs or those that can be quantified using the methodology outlined in 25 Pa. Code §96.8(c). Pennsylvania measures the pollutant reduction activities on agricultural lands are measured at the farm field and watershed segment level.

Offsets are approved for use by PADEP and reflected in the issued permit documentation and/or reported as part of the annual permit reporting requirements. As mentioned previously, either PADEP, or the applicant, will highlight changes in land use when a certification request is reviewed. If the pollutant reduction activity were implemented then the resulting change would be reported as part of Pennsylvania's yearly progress to achieve reductions.

5. Credit Calculation and Verification

Necessary measures are in place for point sources but only partially in place for nonpoint sources for maintenance of WLAs. No measures are in place for LA maintenance. See Section II B, Tier 1- 1 and 1-2 and Section II.A.5 and 6.

Pennsylvania's credit calculation methodology is described in 25 Pa. Code §96.8(c): "Credits may be calculated by use of pollutant removal efficiencies for BMPs, and edge of segment and delivery ratios addressing fate and transport of pollutants, consistent with the most up-to-date version of the Chesapeake Bay watershed model. The pollutant removal efficiencies and edge of segment and delivery ratios will be available on the Department's Nutrient Trading web site." 25 Pa. Code §96.8(c)(1). PADEP also may rely on results from numerous modeling tools to approve other pollutant removal efficiencies for BMPs. These modeling tools are detailed in 25 Pa. Code §96.8(c)(3). Other methods, data sources and conclusions from various EPA documents may also be relied upon (25 Pa. Code §96.8(c)(4)). PADEP may also rely on

methods, data sources and conclusions contained in the Pennsylvania Agronomy Guide published by Pennsylvania State University, the Pennsylvania Technical Guide published by the Natural Resources Conservation Service, as well as other published or peer-reviewed scientific sources to certify a pollutant reduction activity to generate credits (25 Pa. Code §96.8(c)(6)).

Calculation

PADEP believes that implementation of the regulatory compliance requirements (i.e., baseline) and threshold requirements results in significantly fewer pollutants being discharged to Pennsylvania waters and ultimately the Bay. The starting point of the PA NCT Program for quantifying agricultural reductions is a source's meeting applicable regulatory compliance requirements and the threshold. Specifically, Pennsylvania bases its calculation of reductions on the amount of manure and commercial fertilizer that is applied on the operation based on the crop yields and nutrient management plan and/or manure management requirements.

The calculation is an important element of the PA NCT Program. Credits in Pennsylvania may be calculated by use of pollutant removal efficiencies for BMPs, and edge of segment and delivery ratios addressing fate and transport of pollutants, consistent with the most up-to-date version of the Chesapeake Bay watershed model. The pollutant removal efficiencies and edge of segment and delivery ratios will be available on PADEP's Nutrient Trading web site. 25 Pa. Code §96.8(c)(1).

Additionally, Pennsylvania requires that the total agricultural based credit generation cannot exceed the annual tradable load that has been calculated to protect the Chesapeake Bay. Pennsylvania assumes the tradable load to be the generated only by BMPs that increase activities beyond the baseline and threshold requirements. As outlined in 25 Pa. Code §96.8(e)(3), the following credit calculation requirements apply:

“The calculations must demonstrate how the pollutant reductions will be achieved from the proposed pollutant reduction activity to generate credits for the applicable period of time.

- (i) The pollutant reductions must be expressed in pounds per year.
- (ii) The calculations used must be based on methodologies that the PADEP determines are appropriate under subsection (c).
- (iii) The calculation for a point source may include excess load capacity attributable to activities such as effluent controls or the use of offsets.
- (iv) The calculation must include a 10% set aside for the PADEP's credit reserve.
- (v) The PADEP may establish other calculation requirements necessary to ensure that the use of credits is effective in meeting water quality requirements, and to address uncertainty for reasons such as unforeseen events that may disrupt pollutant reduction activities. The calculation requirements may include the need to use trading ratios, risk-spreading mechanisms and credit reserves. These

calculation requirements may reduce the amount of credits the PADEP may certify for a pollutant reduction activity.”

PADEP provides a calculation spreadsheet to assist with the calculation of pollutant reductions that may be generated through the implementation of BMPs. These spreadsheets were developed by World Resources Institute (WRI), Pennsylvania Environmental Council (PEC) and the PADEP with input from the Chesapeake Bay Tributary Strategy Steering Committee Agricultural workgroup and others in 2006-2007. The spreadsheets incorporate the Chesapeake Bay Watershed Model BMP efficiencies as well as an edge of segment ratio and delivery ratio also derived from the suite of Chesapeake Bay models. Pennsylvania subtracts a 10% reserve ratio from the quantification of credits.

Certification Process

The credit certification process is another important component to the PA NCT Program. The first step in the certification process is that PADEP certifies a pollutant reduction activity, after providing notice and a comment period, for generation of credits. During this step, PADEP reviews regulatory compliance requirements and calculation components. The second step is verification, which occurs when a demonstration is made that the pollution reduction activity was implemented as described in the certification. The third and final step is registration; this is PADEP’s accounting mechanism to track verified credits before they are used to comply with the NPDES permit effluent limits. This last step of registration assists a Pennsylvania compliance inspector in knowing that an activity was completed to generate the credits applied to an NPDES permit.

Contracts between the credit seller and the credit purchaser are not under the purview of the PADEP. Determinations that credits meet state requirements are established through the certification and verification process, not the contracting process. PADEP will not register credits until it receives a valid contract.

Regardless of contracting language, only PADEP certified and registered credits are eligible to be applied towards meeting a permit effluent limit. Once a contract is agreed upon by the credit seller and purchaser, the contract is submitted to PADEP’s Interstate Waters Office for entry into a contracts tracking spreadsheet. The trade contract information, including buyer, seller, contract date, length of contract, number of credits and price are entered into a contracts tracking spreadsheet and provided on PADEP’s Nutrient Credit Trading website <http://www.dep.state.pa.us/river/nutrienttrading/contract/index.htm>.

For a point source (a municipal or industrial WWTP) the request for certification includes relevant permit limits, DMRs, and growth projections, to ensure that sufficient pollutant

reductions exist. Point source certification requests calculate credits based on the annual discharged load (reported or projected) being subtracted from the cap load, multiplied by the appropriate delivery ratios and then further reduced by 10% (reserve ratio).

To receive certification of the pollutant reduction activity, the certification request is reviewed by the PADEP Central Office and Regional Office staff, including either nonpoint source program staff or the NPDES Permit Chief and permit writers. The NCT Program attorney and regional attorney are notified of the certification request.

Certification Schedule and Reporting

PADEP only certifies pollutant reduction activities for 5 years, unless the certification expressly states otherwise. To obtain a certification term longer than 5 years, a person requesting certification must demonstrate to the PADEP's satisfaction that a longer term is warranted based on technological or economic factors, taking into consideration the requirements for restoration, protection and maintenance of the water quality of the Chesapeake Bay. 25 Pa. Code §96.8(e)(8).

In Pennsylvania, monitoring and reporting requirements for credit purchasers are outlined in the NPDES permit. Per 25 Pa. Code §96.8(h), the permit conditions will require appropriate terms, such as recordkeeping, monitoring and tracking, and reporting in DMRs. Municipal and industrial WWTPs in Pennsylvania are responsible for ensuring the credits and offsets used to comply with the NPDES permit are certified, verified and registered, or approved, for the compliance period during which the credits or offsets are to be used. Municipal and industrial WWTPs in Pennsylvania also are required to document the use of credits and offsets in reporting documentation, which is to be submitted at the end of each compliance year or as otherwise required in the permit. The location of these records is at PAPADEP Central Office in Harrisburg, PA.

Practice Verification

During the certification process, a verification plan must be submitted and approved by PADEP (25 Pa. Code §96.8(e)(5)). A verification plan must also demonstrate that baseline and threshold requirements will be met. Pennsylvania allows verification to be performed by the entity responsible for implementing the pollution reduction activity, by a third party or by PADEP as appropriate. PADEP may also conduct verification activities such as monitoring, inspecting sites and performing compliance audits.

Pennsylvania law requires the certification request to include the professional qualifications of the persons who completed the calculations, conducted baseline and threshold determinations or otherwise contributed to the technical merits for the request and who will verify the credits. 25

Pa. Code §96.8(e)(2)(J). According to 25 Pa. Code §96.8(f), verification must be conducted as described in the approved verification plan and demonstrate that the pollutant reduction activity was implemented as described in the certification and that other requirements, as applicable, are met. Verification protocols in Pennsylvania can vary by pollutant reduction activity but verification must occur annually if the credits are to be used for the compliance year, which is October through September and aligns with the NPDES permit cycle for Chesapeake Bay municipal and industrial WWTPs in Pennsylvania.

Pennsylvania verifies the pollutant reduction activities annually if the credits are to be used by a municipal or industrial WWTP. If certification rules change during the certification period, the certified project will be valid through the end of the term specified in the certification letter. At the end of the term, the applicant must reapply for renewal of its certification under the new requirements.

As long as the practice remains certified and verified, Pennsylvania assumes no degradation or increase in the effectiveness of the practice. Effectiveness is based on the pollutant removal efficiencies used in the Chesapeake Bay Watershed Model, which does not account for changes in effectiveness over time. If the PADEP becomes aware of degradation, it may adjust or revoke the certification as necessary under 25 Pa. Code §96.8(e)(7) and (10) and (g)(3).

Cost Share

According to 25 Pa. Code §96.8(e)(4)(ii), “If State or Federal funds are used to cost-share any portion of the pollutant reduction activity contained in the request for certification, the Department may allow the portion of the credits or offsets paid for by State and Federal funds to be available for certification, unless to restrict trading of that portion of the credits restrictions have been placed on the funds by the provider of the funds.”

Documentation

Pennsylvania trading documentation is maintained by the Interstate Waters Office, PADEP in Harrisburg, PA. The NPDES permits are available at PADEP’s regional offices. The NPDES permit outlines when the reporting documentation is to be submitted to PADEP. Information on certified projects, trades and registered credits is available on the PADEP NCT Program website, which is publicly accessible. Information pertaining to certification requests, certification approvals and registration of credits is also published in the *Pennsylvania Bulletin*.

Bay TMDL Requirements

Pennsylvania did not identify in its final Phase I WIP that specific reductions would be achieved through the NCT Program. However, Pennsylvania's NCT Program is one of several compliance alternatives provided to NPDES municipal and industrial WWTPs that are required to reduce their effluent discharges. The key to Pennsylvania's NCT Program is that participation is voluntary.

New or Increased Loadings

Pennsylvania explained on page 60 of its final Phase I WIP that "New needs for sewage discharges from industry as well as domestic sources will be assigned a zero nutrient load for the Chesapeake Bay and therefore will be expected to find credits and/or offsets to address the nutrient needs. Point source growth may be addressed by the purchase of nutrient credits, by the use of offsets from the elimination of less efficient sewage treatment municipal and industrial wastewater treatment plants, or by another no-discharge alternative such as employing recycle and re-use technology or land application." Of the 10 trading contracts in place currently, seven are for credits to be used by a new WWTP. As explained, registration numbers, provided by PADEP, will be reported on the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget and the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget. The application of credits will also be reported as part of the Chesapeake Bay Supplemental Annual Nutrient Summary. Through comparison of the reporting documentation, PADEP can verify that the municipal or industrial WWTP sufficiently compensated for new or increased loadings.

Pollutant Forms

At this time, trades in Pennsylvania can only occur between the same pollutant forms (i.e. nitrogen for nitrogen or phosphorous for phosphorus).

Applicable Policies

Credit generators must comply with the regulations for the NCT Program in 25 Pa. Code § 96.8 (Use of offsets and tradable credits from pollution reduction activities in the Chesapeake Bay Watershed) and all other applicable laws and policies including the following:

- Act 38 Nutrient Management -Supporting regulations in Chapter 83, Subchapter D, relating to nutrient management - § 83.261, § 83.271, § 83.272, and § 83.281 through § 83.381;
- Chapter 102 Erosion and Sediment Control – compliance with erosion and sedimentation requirements for agricultural operations;
- Chapter 91.36 relating to pollution control and prevention at agricultural operations;
- Chapter 92a.29 for CAFO operations;
- Chapter 92a for NPDES permitted sources; and

- Chapter 96.4 and 96.5 (Water Quality Standards Implementation - TMDLs and WQBELs and Nutrient Discharges).

If authorization to use credits and offsets towards effluent limitations is provided by PADEP then language would appear in part c of the NPDES permit for municipal and industrial WWTPs. The credit purchaser will follow that language when purchasing credits.

Accounting for Fate and Transport

Credits are calculated using an edge of segment ratio and the delivery ratio to the Chesapeake Bay to account for fate and transport of pollutants as they move from the source to the Bay (25 Pa. Code §96.8(c)(2)). A 10 percent reserve ratio is also subtracted from the quantification.

6. Safeguards

Measures are in place for point source users. See Section II.B, Tier 1-1 and Tier 2-1.

Measures are not in place for nonpoint source users. See Section II.B, Tier 1-2.

Often multiple farm locations operate under the same farm names and management. To ensure there is no double counting of pollutant reduction activities and to prevent applicants from applying to receive credits for the same project multiple times, PADEP records the location of the pollutant reduction activities. Additionally, to ensure a full accounting of the pollutant reductions, PADEP certifies a pollutant reduction activity and credits based on what is delivered to the Chesapeake Bay, using edge of segment and delivery ratios provided by or derived from the Chesapeake Bay Program/Chesapeake Bay Model.

Credits and offsets may only be used where surface water quality will be protected and maintained as required by applicable regulations, including Chapter 96.8, Chapter 92a (NPDES Permitting, Monitoring and Compliance), and Chapter 93 (Water Quality Standards), and as required by PADEP permits, schedules of compliance and orders (25 Pa. Code §96.8(i)(1)). The use of credits and offsets must be consistent with the assumptions and requirements upon which an applicable TMDL in the watershed is based. 25 Pa. Code §96.8(i)(3). Use of credits and offsets must comply with the antidegradation requirements in Chapter 93. 25 Pa. Code §96.8(i)(4).

To be eligible to generate or use credits in Pennsylvania, authorization must be provided in the permit and a municipal or industrial WWTP must be in compliance with any applicable PADEP regulations, permits, schedules of compliance, orders or certifications; laws or regulations that address pollution of the waters of Pennsylvania; and the contract for the exchange of credits (25 Pa. Code §96.8(d)(4)). In addition, if the municipal or industrial WWTP has a demonstrated lack

of ability to comply with any of the aforementioned requirements, the request to generate credits would not be certified. Ineligible sources would not receive certification of a pollutant reduction activity from PADEP. PADEP will only register a credit when there is a contract in place with a municipal or industrial WWTP that has been authorized to use credits.

The Pennsylvania NCT Program requires public notification in the credit certification and use process. The nutrient trading regulation requires public notice in the Pennsylvania Bulletin when PADEP receives a request for certification, when PADEP certifies a pollutant reduction activity to generate credits and when PADEP registers credits. 25 Pa. Code §96.8(j).

25 Pa. Code §92a.82 (relating to public notice of permit applications and draft permits) requires public notice in the *Pennsylvania Bulletin* for draft and final permit actions made by PADEP. PADEP issues permits to meet water quality standards pursuant to a public process. If, through the public process, an environmental justice issue is raised then PADEP staff works with the PADEP Office of Environmental Advocate to address it.

To ensure credits are generated and used within the same time period, the PA NCT Program operates on an annual cycle from October through September (compliance year). As authorized in the NPDES permit, a municipal or industrial WWTP must document the use of credits and offsets in the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and the Chesapeake Bay Supplemental Annual Nutrient Summary. 25 Pa. Code §96.8(h)(3) provides that credits may only be used to meet permit effluent limits for the compliance period for which they are certified, verified and registered by PADEP, and offsets may only be used to meet permit effluent limits for the compliance period for which they are approved by PADEP. Additionally, PADEP includes credit use language in the certification letter.

7. Certification and Enforceability

Measures are in place for point source users. See Section II.A.7. Measures are not in place for nonpoint source users. See Section II.B, Tier 1-2.

25 Pa. Code §96.8 specifies that PADEP runs the PA NCT Program and within PADEP the Interstate Waters Office is responsible for administration of the program.

Certification requests and verification plans are reviewed by the PADEP Central Office and Regional Office staff, including nonpoint source program staff or the NPDES Permit Chief, permit writers and compliance specialists. Upon completion of the review, the Interstate Waters Office certifies a pollutant reduction activity to generate credits, makes credit verification

determinations, and assigns a unique credit registration numbers to ensure the credits are traceable through their purchase and reporting.

If PADEP provides authorization to use credits and offsets towards effluent limitations, then language would generally appear in Part C of a municipal or industrial WWTP's NPDES permit. The actual use of credits and offsets is not recorded in the permit. Rather, it is recorded as part of the reporting documentation. Specifically, it is reported on the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and on the Chesapeake Bay Supplemental Annual Nutrient Summary.

The Pennsylvania NCT Program website contains a tracking list of all certified pollutant reduction activities, the watershed location, when a certification expires and the potential number of nitrogen and phosphorus credits. (<http://www.dep.state.pa.us/river/Nutrient%20Trading.htm>).

New sources have a WLA of net zero discharge and are expected to offset their entire load. If the new source will offset the new load through the purchase of credits then it must have a contract for sufficient credits to maintain a net zero load in place when it submits the WQM Part II permit for approval to PADEP. Similarly, existing sources are expected to offset any increased load beyond the cap loads established in the permit.

Pennsylvania assesses compliance through comparing the Annual DMR's Net Total Annual Load values for total nitrogen and total phosphorus with the cap loads in the permit. The Chesapeake Bay Supplemental Annual Nutrient Summary provides details of how compliance was achieved. Pennsylvania believes that NPDES permits do not need to be reopened or modified to incorporate an offset or trade because language authorizing the use of credits and offsets towards effluent limitations is generally provided by PADEP in Part C of the permit. The municipal or industrial WWTP would report the credits and offsets in the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and the Chesapeake Bay Supplemental Annual Nutrient Summary, not in the permit itself.

PADEP is responsible for certifying the pollutant reduction activity and registering credits by the credit generators; however, PADEP does not have legal authority to enforce the actual contract between the credit generators and the credit purchasers. "A permittee relying on credits to demonstrate compliance with its permit effluent limitations, conditions and stipulations under Chapter 92a shall attain and maintain compliance with its permit. A permittee is responsible for enforcing the terms of its trade contract, when needed to ensure compliance with its permit" (25 Pa. Code §96.8 (h)(5)). PADEP has NPDES permit compliance enforcement authority and the authority to revoke the credit certification for failure to comply with the conditions of the certification under 25 Pa. Code §96.8 (e)(10).

To date, PADEP has not had to take enforcement action against a person for a violation involving an offset or trade.

Pennsylvania's nutrient trading regulation mandates that the state withhold a 10% credit reserve. The 10% reserve requirement applies to both point source and nonpoint source credit generators. To provide additional credits to the reserve, all credits generated by the Commonwealth's portion of applicable projects funded through the state's Growing Green Program are applied to the reserve pool. Pennsylvania verifies and tracks reserve credits through the trading program tracking spreadsheet. PENNVEST also plans to hold a separate and additional reserve of credits that will be generated by PENNVEST funded projects.

Unless PADEP sees a deficiency in a contract between a credit purchaser and a credit generator, PADEP considers it to be a legally binding and civilly enforceable document.

PADEP is responsible for certifying the pollutant reduction activity and registering credits by the credit generators; however, PADEP does not have legal authority to enforce the actual contract between the credit generators and the credit purchasers. "A permittee relying on credits to demonstrate compliance with its permit effluent limitations, conditions and stipulations under Chapter 92a shall attain and maintain compliance with its permit. A permittee is responsible for enforcing the terms of its trade contract, when needed to ensure compliance with its permit" (25 Pa. Code §96.8 (h)(5)).

PADEP maintains a publicly available listing of all the contracts and trades, documenting the buyer and seller, the contract date, the length of the contract and the number of credits and their selling price (<http://www.dep.state.pa.us/river/nutrienttrading/contract/index.htm>).

The underlying certification and verification materials are available for inspector review. PADEP stores the NPDES permit file in the appropriate regional office for each municipal and industrial WWTP and the NPDES permit file contains the Annual Nutrient Summary report, including DMRs for the municipal or industrial WWTP in question. The Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and the Chesapeake Bay Supplemental Annual Nutrient Summary will reference any credits that were used to meet the effluent limitations; the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget and Chesapeake Bay Supplemental Report Monthly Phosphorus Budget will identify the registration numbers. Using the registration number, the inspector would be able to contact PADEP's Interstate Waters Office to review the underlying certification and verification materials that were used to register the credits.

Related to a “truing” period, under 25 Pa. Code §96.8(h)(4), “The Department may authorize a period of 60 days or less following the completion of the annual compliance period in an NPDES permit, for a permittee to come into compliance through the application of credits and offsets to the permit provided that the credits were registered and offsets were approved for use during that compliance period.” Further, “A permittee relying on credits to demonstrate compliance with its permit effluent limitations, conditions and stipulations under Chapter 92a shall attain and maintain compliance with its permit.” (25 Pa. Code §96.8 (h)(5)).

PADEP inspects NPDES-permitted municipal and industrial WWTPs and reviews DMRs as part of the annual compliance and inspection process. Municipal and industrial WWTPs in Pennsylvania may only use registered credits and must report all credits they use to meet the effluent limitations on the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and the Chesapeake Bay Supplemental Annual Nutrient Summary.

8. Accountability and Tracking

Measures are in place for point source users but not in place for nonpoint source users. See Section II.B, Tier 2-1 and Section II.A.3 and 8.

PADEP’s Interstate Waters Office tracks the activities (certification and registration) related to credits. Credits must receive a PADEP-assigned registration number in order to be used to comply with NPDES permit effluent limitations. Registration requirements in Pennsylvania include: credits must be certified and verified under the provisions of 25 Pa. Code §96.8 (e) and (f); credits must be addressed in a valid contract; and the PADEP will assign a registration number to each registered credit for reporting and tracking purposes (25 Pa. Code §96.8 (g)).

The Pennsylvania Nutrient Credit Trading Program website (<http://www.dep.state.pa.us/river/Nutrient%20Trading.htm>) contains a tracking list of all certified pollutant reduction activities, the watershed location, when a certification expires and the potential number of nitrogen and phosphorus credits, as well as information pertaining to trades and the registration of credits.

The Pennsylvania NCT Program requires public notification in the credit certification and use process. It requires public notice in the *Pennsylvania Bulletin* when PADEP receives a request for certification, when PADEP certifies a pollutant reduction activity to generate credits, and when PADEP registers credits. 25 Pa. Code §96.8(j).

PADEP also uses NutrientNet, an on-line nutrient trading platform developed to support the Pennsylvania NCT Program. NutrientNet is an online tool composed of tools, that estimate the amount of credits needed or the amount of credits potentially generated by a pollutant reduction activity, and provides a marketplace where a person can buy or sell credits. Currently this platform is not being utilized.

Through the certification and registration process, PADEP ensures that the pollutant reduction activity is beyond baseline and threshold requirements but does not track the specific baseline and threshold requirements for each pollutant reduction activity. PADEP maintains multiple tracking spreadsheets that record information pertaining to certified pollutant reduction activities, contracts and trades, and registered credits.

For certifications in Pennsylvania this information includes: Entity submitting the certification request, date received, description, date receipt of the project was published in the Pennsylvania Bulletin, region, status, date comments sent, date responses received, date of certification, timeframe for certification, practice, acres, county, segment number, funding source, nitrogen credits, nitrogen reserve, phosphorus credits, phosphorus reserve, sediment reductions, and date that the notice of action was published in the *Pennsylvania Bulletin*.

For contracts and trades in Pennsylvania this information includes: the buyer and seller, the contract date, the length of the contract and the number of credits and their selling price.

For registrations and tracking of verifications in Pennsylvania the data recorded includes: Entity submitting, date received, description, date comments sent, date responses received, verified nitrogen credits, verified nitrogen reserve, verified phosphorus credits, verified phosphorus reserve, registered nitrogen credits, registered nitrogen reserve, registered phosphorus credits, registered phosphorous reserve, date of registration, permit number, registration number and date published in *Pennsylvania Bulletin*.

Registration numbers in Pennsylvania are assigned to each credit and once a registered credit is assigned to a purchaser, the registration number is retired and cannot be used again. By Pennsylvania's definition, an offset can only be applied to permit effluent limitations by the municipal or industrial WWTP.

PADEP's tracking spreadsheet records the number of credits to be generated based on the delivered load to the Chesapeake Bay and subtracts the credit reserve. To be eligible to receive credit registration numbers in Pennsylvania, the pollutant reduction practices must be verified and a valid contract must be in place. Registration is the PADEP's accounting method of tracking verified credits.

According to 25 Pa. Code §96.8 (c)(2), “credits may be calculated by use of pollutant removal efficiencies for BMPs, and edge of segment and delivery ratios addressing fate and transport of pollutants, consistent with the most up-to-date version of the Chesapeake Bay watershed model. The pollutant removal efficiencies and edge of segment and delivery ratios will be available on the Department's Nutrient Trading web site.”

The Commonwealth requires that a credit generator disclose any cost-share provisions during the certification process. 25 Pa. Code §96.8(e)(2)(E)).

For trades made through PENNVEST, sellers must demonstrate “sufficient evidence of title to the Credits, including if applicable, legal signatures of the aggregator and farmers or land owners from which the Credits may be generated.” (PENNVEST Nutrient Credit Clearinghouse Rulebook, Version 3

http://www.pennvest.state.pa.us/portal/server.pt/community/nutrient_credit_trading/19518).

Pennsylvania requires that a contract between the seller and purchaser must be in place prior the issuance of credit registration numbers.

The PADEP inspects NPDES permitted municipal and industrial WWTPs and reviews DMRs as part of the annual compliance and inspection process. Municipal and industrial WWTPs may only use registered credits and must report all credits they use to meet the effluent limitations on the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget, the Chesapeake Bay Supplemental Report Monthly Phosphorus Budget, and the Chesapeake Bay Supplemental Annual Nutrient Summary.

Under 25 Pa. Code §96.8(h)(4), “The Department may authorize a period of 60 days or less following the completion of the annual compliance period in an NPDES permit, for a permittee to come into compliance through the application of credits and offsets to the permit provided that the credits were registered and offsets were approved for use during that compliance period.” Further, “A permittee relying on credits to demonstrate compliance with its permit effluent limitations, conditions and stipulations under Chapter 92a shall attain and maintain compliance with its permit.” (25 Pa. Code §96.8 (h)(5)).

PADEP maintains the expiration date of the credit certification, the date of registration, and the terms (buyer, seller, contract length, etc.) of each trading contract in a tracking spreadsheet.

9. Nutrient Impaired Segments

Necessary measures in place for point source users but not in place for nonpoint source users. See Section II.A, Tier 1-2.

The use of trading and offsets to make progress towards attaining water quality standards and prevent exceedances of water quality standards in the impaired segment and downstream segments is addressed in 25 Pa Code§ 96.8(i)(1-4):

Per 25 Pa Code§96.8(i)(1), use of credits and offsets will be allowed only where surface water quality will be protected and maintained as required by applicable regulations, including Chapters 92a and 93, and 96 as well as Department permits, schedules of compliance and orders.

Per 25 Pa Code§ 96.8(i)(2), use of credits and offsets must ensure that there is no net increase in discharge of pollutants to the compliance point used for purposes of determining compliance with the water quality standards established by the states of Maryland and Virginia for restoration, protection and maintenance of water quality of the Chesapeake Bay.

Per 25 Pa Code§ 96.8(i)(4), use of credits and offsets must comply with the antidegradation requirements contained in Department regulations.

Per 25 Pa Code§ 96.8(i)(3), where a TMDL has been established for the watershed where the permitted activity is located, the use of credits and offsets must be consistent with the assumptions and requirements upon which the TMDL is based.

10. Credit Banking, Exchanges, Insurance, Aggregators and other Third parties

Measures are in place for point source users but not for nonpoint source users. See Section II.B, Tier 1-2 and Section II.A.2.

Currently, PADEP allows aggregators to participate in the NCT Program. Additionally, a Nutrient Credit Clearinghouse has also been established by PENNVEST and is just one option available for the sale and purchase of credits. PENNVEST is a third party aggregator for the NCT Program, running the Nutrient Credit Clearinghouse. PENNVEST is able to remove some of the risk of participating in the trading program by providing guaranteed credits at known prices over multiple years. PENNVEST will provide the credits to purchasers even if the original credit generator is unable to produce credits, or sufficient credits.

PENNVEST also plans to hold a separate and additional reserve of credits that will be generated by PENNVEST funded projects. This credit reserve would be created from the credits generated through projects funded by the Clean Water State Revolving Fund. Entities looking to purchase credits contract directly with PENNVEST rather than an individual credit seller. To participate in PENNVEST credit auctions, a buyer must be pre-approved to purchase credits. Depending on the auction, credit sellers must come to PENNVEST with their credits already certified or verified by the PADEP. PENNVEST does not certify or verify pollutant reduction activities or handle the certification or verification process for sellers.

PENNVEST holds forward auctions throughout the year, depending on market demand, for buyers to purchase certified credits for multiple years. This provides point source (municipal or industrial WWTP) purchasers in Pennsylvania with price certainty and compliance assurance over the longer term. Forward auctions in Pennsylvania can be conducted for either Single-Year Contracts or Strip Contracts, which cover multiple years.

Spot auctions are held at the end of the compliance year to sell credits that are certified and verified. Credits must be registered upon completion of the auction in order to be used by the municipal or industrial WWTP. These auctions allow regulated point sources (municipal or industrial WWTPs) in Pennsylvania to acquire any additional credits necessary to comply with permit requirements for the current compliance year.

For both forward auctions and spot auctions in Pennsylvania, the price and quantity of credits is determined through a competitive auction. The auction results are posted on the NCT Program website, the PENNVEST website and soon the Market Environmental Registry.

PADEP allows aggregators, in addition to PENNVEST, to sell and purchase credits on behalf of others. While Pennsylvania has not yet developed specific criteria to determine eligibility and roles for aggregators and other third parties, the generation and use of credits must fall under 25 Pa. Code §96.8.

PENNVEST has developed its own PENNVEST Nutrient Credit Clearinghouse Rulebook that outlines the rules and policies PENNVEST has established for participation in the Clearinghouse program. PENNVEST plans to act as an aggregator in both the Susquehanna and Potomac basins.

Although Pennsylvania has not conducted a formal cost-savings analysis, the PENNVEST Nutrient Credit Clearinghouse is expected to reduce market costs and risks.

Potential credit sellers working with PENNVEST must prove that their pollutant reduction activity is certified, and for spot auctions verified, by PADEP prior to being eligible to participate in the auction. PENNVEST reports the credit registration numbers to the buyer once acquired from PADEP and the seller.

If a seller is unable to produce the number of credits that were sold to PENNVEST, PENNVEST will attempt to acquire replacement credits for the purchaser through, in order of priority: replacement credits by the non-performing seller, use of PENNVEST-owned credits, transfer of credits to PENNVEST from the PADEP reserve pool, procure credits from other sellers, use of the Option pool, or through a bilateral negotiation with willing sellers. (PENNVEST Nutrient

Credit Clearinghouse Rulebook, Version 3

http://www.pennvest.state.pa.us/portal/server.pt/community/nutrient_credit_trading/19518).

11. Growth

*Measures are in place for point sources users but not for nonpoint source users.
See Section II.B, Tier 1-2.*

Pennsylvania provided details on accounting for growth in Section 6 of the final Phase I Pennsylvania WIP. Based on data from the USDA National Agricultural Statistics Service (NASS), PADEP does not expect growth in either agricultural operations or agricultural acreage in the future.

Pennsylvania does not expect an increase in stormwater loading either. As a first step in considering the potential or expected stormwater effect from growth associated with new land development, PADEP explains in the Stormwater section of Pennsylvania's final Phase I WIP that Pennsylvania's approach to stormwater is to eliminate or reduce any new, additional or increased discharge from development projects in an environmentally sound and cost effective manner. "No net increase" in nutrients or sediment from stormwater sources will be achieved when the volume of stormwater discharges matches predevelopment volume of discharge at the 2-year 24-hour storm event, and the rate of stormwater discharge for all storms up to and including the 100-year storm matches the predevelopment rate. In addition, Pennsylvania expects to achieve a reduction in nutrients and sediment from redevelopment activities. Under this scenario, 20 percent of the existing impervious surface conditions that will be disturbed must be considered as meadow in good condition or better.

V. Additional Information and Programmatic Needs

Pennsylvania's NCT Program is one of several compliance alternatives provided to NPDES municipal and industrial WWTPs required to reduce their effluent discharges. The key to Pennsylvania's program is that participation is voluntary. Point source growth may be addressed by the purchase of nutrient credits, by the use of offsets from the elimination of less efficient municipal and industrial WWTPs, or by another no-discharge alternative such as employing recycle and re-use technology or land application.

While localities (counties, municipalities, etc.) may be involved in trading (i.e., establish a local program), all pollutant reduction activities are certified by PADEP and only PADEP may register credits and approve offsets.

Pennsylvania would be interested in assistance in exploring the possibilities for cross-basin trades and extending the credit life beyond one year.

PADEP believes the NCT Program most closely resembles an aggregated programmatic program.

Contracts can be for any length of time; however, PADEP certifies credits for 5 years unless the certification expressly states otherwise. Before the certification period ends, the person holding the certification must seek re-certification in order to continue to generate credits beyond the certification term.

VI. Pennsylvania References

Pennsylvania Code Title 25, Chapter 96.8, Use of offsets and tradable credits from pollution reduction activities in the Chesapeake Bay Watershed.

Pennsylvania Department of Environmental Protection (DEP), 2010. Pennsylvania final Phase I Chesapeake Watershed Implementation Plan. Harrisburg, PA.

Pennsylvania Infrastructure Investment Authority (PENNVEST), 2010. PENNVEST Nutrient Credit Clearinghouse Rulebook, Version 3. Harrisburg, PA.

Appendix A – Pennsylvania

PaDEP Overall Response: The Pennsylvania Department of Environmental Protection's (Department) overall comment on the draft report is that the United States Environmental Protection Agency (EPA) should provide additional clarity to each subsection of "Section IV. Detailed Evaluation of Pennsylvania's Trading and Offset Programs Conformance with the 2010 Chesapeake Bay TMDL". It appears that in some sections EPA has only removed the questions that were asked during the program review interview which leads the summary provided to be unconnected. The Department would suggest that the interview questions be added back in, or added as an appendix to the report or that each subsection, as necessary, describe the interview questions that led to the summary provided.

- A. EPA expects Pennsylvania to develop a plan of action to address all unresolved, jurisdiction-specific Tier 1 and Tier 2 recommendations from EPA's final offsets and trading program assessment by the end of 2012. These recommendations are as follows:**

Tier 1

- 1. Does the nonpoint source baseline established by PA in 2006 need to be updated to meet the Chesapeake Bay TMDL requirements for a baseline?**

PADEP' Nutrient Credit Trading Program (NCT) was developed prior to the issuance of the Chesapeake Bay TMDL (TMDL). As the NCT and TMDL were developed independently, it is unclear whether the NCT baseline for credit generation conforms to the TMDL baseline trading requirements. EPA expects that Pennsylvania makes a quantitative demonstration that the NCT baseline for agricultural sources meets the TMDL Load Allocation for Pennsylvania agricultural non-point sources. In the event that the NCT baseline does not meet these requirements, then it will have to be modified so that it can be used for NPDES compliance purposes.

PaDEP Response: The Department acknowledges this recommendation but would like to reiterate, as it is written in the report, the parameters for participation in Pennsylvania's NCTP are set at the level that is sufficient for the restoration, protection and maintenance of the water quality of the Chesapeake Bay. Specifically baseline is set at legal compliance and threshold obligations must be met before generating credits and the amount of credits that can be traded annually is capped. The quantification of credits and the process related to certification and registration are important components of the program. Implementation of the regulatory compliance requirements (i.e., baseline) and threshold requirements results in significantly fewer pollutants being discharged to Pennsylvania waters and ultimately the Bay. In addition, trading, in and of itself, inspires higher levels of compliance by the nonpoint source sector due to the possibility of financial reward for selling credits.

Nonpoint source regulatory compliance requirements are not set to achieve a specific numeric limit or load allocation (unless it is a CAFO that has a non-discharge requirement) but are set at

what needs to be met for the operation from a planning and BMP implementation standard based on the specific operation. For example, the erosion and sedimentation control plan must meet "T over the rotation" which can be done through tillage practices or installed BMPs. The baseline regulatory compliance requirements must be met and maintained prior to credits being calculated and generated. The baseline requirements are defined in more detail in 25 Pa. Code § 96.8(d)(2)(i).

The NCTP does not calculate a mass loading for baseline activities. The nutrient reductions from credit generators are calculated after the baseline and threshold requirements are met. Baseline activities are legally required and are documented for agricultural generators in the credit calculation spreadsheet. The nutrient reductions will be reduced by 10% for the credit reserve, and delivery and edge of segment factors will be applied to the credit calculation. Total agricultural based credit generation cannot exceed the annual tradable load that has been calculated to protect the Chesapeake Bay. The tradable load is assumed to be generated only by BMPs that increase activities beyond the baseline and threshold requirements.

The baseline activities are consistent with the assumptions and requirements in TMDL for the agricultural sector. Baseline activities are linked to the TMDL by inclusion in the PA WIP. Baseline activities, within PA's nutrient credit trading program, are enhancing compliance with legal requirements for the agricultural sector, and enhanced compliance is a primary strategy by which the agricultural sector will meet its load allocation. As mentioned earlier, the P A WIP was built on three core concepts: Milestone and Tracking; Advance technologies and Nutrient Trading; and Enhancing Compliance. The Department would like clarification from EP A on the suggested revised baseline. Specifically, what is meant by a "whole-farm nutrient management plan" and how this type of nutrient management plan is different than what may already be needed by an operation?

EPA Comment: EPA appreciates PADEP's explanation of its baseline, but remains concerned about the NCTP's lack of a numerical baseline for agricultural sources. EPA is not convinced that Pennsylvania's baseline activities already are consistent with the assumptions and requirements of the Chesapeake Bay TMDL. EPA expects Pennsylvania to make a numerical demonstration that the NPS agricultural trading baseline, when applied to all applicable agricultural sources, is consistent with the relevant agricultural load allocation in the Chesapeake Bay TMDL. This demonstration must be consistent with the suite of Chesapeake Bay models and their underlying assumptions. If Pennsylvania cannot make this demonstration, EPA expects PaDEP to commit to make necessary modifications to their regulatory baseline. "Whole Farm Nutrient Management Plan" refers to a certified NMP that meet the requirements of the NRCS 590 standard. EPA does not consider E&S Plans and Manure Management Plans to meet that standard.

- 2. Does PADEP need to update nonpoint source baseline and credit calculations as well as ratios to adjust for not only the location of where the credits are being generated but where the credits are being used? PADEP needs to examine its methodologies when credits from nonpoint source BMPs are calculated. Placement in the watershed, delivered load and pollution reduction coefficients need to be taken into account. Detailed information about these methodologies needs to be made available to the public. See Section IV.2 and 5.**

PADEP Response: Within the PA NCTP, generated credits are based on what is delivered to the Chesapeake Bay using an edge of segment and delivery factor; and, when a municipal or

industrial wastewater treatment plants purchases credits, the plant purchases the amount of load from the plant that is delivered to the Chesapeake Bay using the delivery factor. The credit calculation methodology is described in 25 Pa. Code §96.8(c): "Credits may be calculated by use of pollutant removal efficiencies for BMPs, and edge of segment and delivery ratios addressing fate and transport of pollutants, consistent with the most up-to-date version of the Chesapeake Bay watershed model. The pollutant removal efficiencies and edge of segment and delivery ratios will be available on the Department's Nutrient Trading web site." 25 Pa. Code §96.8(c)(1). PADEP also may rely on results from numerous modeling tools to approve other pollutant removal efficiencies for BMPs. These modeling tools are detailed in 25 Pa. Code §96.8(c)(3). Other methods, data sources and conclusions from various EPA documents may also be relied upon (25 Pa. Code §96.8(c)(4)). PADEP may also rely on methods, data sources and conclusions contained in the Pennsylvania Agronomy Guide published by Pennsylvania State University, and the Pennsylvania Technical Guide published by the Natural Resources Conservation Service as well as other published or peer-reviewed scientific sources to certify a pollutant reduction activity to generate credits (25 Pa. Code §96.8(c)(6)). Related to calculation requirements, as outlined in 25 Pa. Code §96.8(e)(3), the following credit calculation requirements apply:

"The calculations must demonstrate how the pollutant reductions will be achieved from the proposed pollutant reduction activity to generate credits for the applicable period of time.

- (i) The pollutant reductions must be expressed in pounds per year.
- (ii) The calculations used must be based on methodologies that the PADEP determines are appropriate under subsection (c).
- (iii) The calculation for a point source may include excess load capacity attributable to activities such as effluent controls or the use of offsets.
- (iv) The calculation must include a 10% set aside for the PADEP's credit reserve.
- (v) The PADEP may establish other calculation requirements necessary to ensure that the use of credits is effective in meeting water quality requirements, and to address uncertainty for reasons such as unforeseen events that may disrupt pollutant reduction activities. The calculation requirements may include the need to use trading ratios, risk-spreading mechanisms and credit reserves.

These calculation requirements may reduce the amount of credits the PADEP may certify for a pollutant reduction activity." The Department also provides a calculation spreadsheet to assist with the calculation of pollutant reductions that may be generated through the implementation of BMPs. These spreadsheets were developed by World Resources Institute (WRI), Pennsylvania Environmental Council (PEC) and the Department with input from the Chesapeake Bay Tributary Strategy Steering Committee Agricultural workgroup and others in 2006-2007. The spreadsheets incorporate the Chesapeake Bay Model BMP efficiencies as well as an edge of segment ratio and delivery ratio also derived from the Chesapeake Bay Model. A 10% reserve ratio is also subtracted from the quantification. These spreadsheets can be found on the Department's Nutrient Trading web site:

<http://www.dep.state.pa.us/river/nutrienttrading/calculations/index.htm>.

EPA Comment: EPA understands that Pennsylvania's NCT program was developed prior to EPA's establishment of the Chesapeake Bay TMDL. EPA expects PADEP to quantitatively demonstrate that its methodologies for credit generation from nonpoint source BMPs meet TMDL expectations, including taking into account placement in the watershed, delivered load,

and pollution reduction coefficients and making detailed information about these methodologies available to the public. See Section IV.2 and 5. EPA expects PADEP to make a demonstration of this, and in the event that there are deficiencies commit to their correction.

3. Appendix S of the TMDL requires that pollutant loads from new discharges or increased discharges be offset in the event that the jurisdiction did not set aside allocations for new growth. Pennsylvania's final Phase I WIP did not include all allocation for new growth. How will Pennsylvania accommodate new growth for nonpoint sources? See Section IV. 1.

PADEP Response: While the PA WIP did not include an allocation for new growth it did contain details on how growth would be handled. Specifically, the PA WIP included "Section 6. Accounting for Growth," which demonstrates that Pennsylvania is taking a sensible and proactive approach to accounting for growth, as set forth in the various WIP sections. The Department anticipates that the program elements described on page 48 and in other sections of the PA WIP will be sufficient to address growth while achieving Pennsylvania's nutrient reduction goals. The Department does not anticipate that other potential growth will result in increased nutrient or sediment loadings significant enough to require that growth to be addressed by new program elements or resources. If this assumption is proven incorrect when milestones are evaluated, the Commonwealth will reconsider this approach.

EPA Comment: If offset programs are not put in place to manage new sector growth, EPA expects a numerical demonstration as to why those sectors either are not growing or are not contributing new or increased loads even though they are growing. This demonstration should be based on recent historical trends and be consistent with the suite of Bay models and their underlying assumptions. EPA expects PADEP's demonstration to address septic, agriculture and development. PADEP should provide a schedule detailing design and completion of the demonstration and, in the event that the demonstration fails, what actions will be taken for the development of an offset program. In addition, in the event that modifications are necessary, PADEP should develop interim measures to ensure that permittees hold valid credits for compliance purposes.

Tier 2 - Program recommendation

1. Offset approvals are administered in the Regional offices whereas activities related to credits are administered at DEP Headquarters Central Office. How do these programs integrate? See Section IV.8 .

PADEP Response: The program integrates the use of credits and offsets to meet water quality based effluent limits by the municipal or industrial wastewater treatment plants by placing authorizing language in the NPDES permit that allows for the use of credits and offsets and for the sale of credits. Additionally, 25 Pa. Code §96.8(h) references the use of credits and offsets to meet NPDES permit requirements related to the Chesapeake Bay. Specifically, "(1) A permittee will only be authorized to use credits and offsets through the provisions of its NPDES permit. The permit conditions will require appropriate terms, such as recordkeeping, monitoring and

tracking, and reporting in DMRs. (2) Only credits and offsets generated from activities located within the Chesapeake Bay Watershed may be used to meet NPDES permit requirements related to the Chesapeake Bay." 25 Pa. Code §96.8(h(1) and (2). The Department stores the NPDES permit file in the appropriate regional office for each municipal and industrial wastewater treatment plant and the NPDES permit file contains the Annual Nutrient Summary report, including DMRs, for the municipal and industrial wastewater treatment plant in question. The "Chesapeake Bay Supplemental Report Monthly Nitrogen Budget" and "Chesapeake Bay Supplemental Report Monthly Phosphorus Budget" and the "Chesapeake Bay Supplemental Annual Nutrient Summary" reference any credits and offsets that were used to meet the effluent limitations and the "Chesapeake Bay Supplemental Report Monthly Nitrogen Budget" and "Chesapeake Bay Supplemental Report Monthly Phosphorus Budget" identify the registration numbers.

EPA Comment: EPA remains concerned that the decentralization of the program may lead to a lack of consistency in the program's implementation and in the program's accounting. EPA would appreciate the opportunity to meet with PaDEP to better understand program operations and roles/responsibilities of the various components of the program.

B. EPA expects Pennsylvania to address all unresolved recommendations common to all jurisdictions from EPA's final offsets and trading program assessment by the end of 2013. These recommendations are as follows:

- 1. Jurisdictions' definitions (trading ratios, offsets, credit, trading, etc.) should be consistent with federal definitions; some jurisdictions use the terms "trading" and "offsetting" interchangeably. See Section IV.1.**

PaDEP Response: No. The Department has expressed concerns with the terms and definitions since our August 27, 2010 comments on EPA's August 6, 2010 Discussion Draft "Common Performance Standards for and Elements of Offset and Trading Provisions in the Chesapeake Bay Watershed". The concerns were carried through in the Department's comments on the Draft Chesapeake Bay Total Maximum Daily Load (TMDL) and again in the program interview held in May 2011 and referenced in the revisions to the "interview draft" that were provided on October 24, 2011. To reiterate the terminology "offsets" and "credits" cannot be used interchangeably within PA's established nutrient credit trading program given that the terms have distinct meanings. It would be counterproductive for EPA to try to transform the various states' programs, which are already in operation and working, into EPA's ideal of a program. Similar to the flexibility that is provided in the delegation of the NPDES program, the Department suggests that EPA keep its list of common performance standards and elements as guidance leaving states broad flexibility for program development and implementation.

EPA Comment: Although EPA agrees that substantively functioning offset and trading programs are more important at this time than whether the jurisdictions use the same terminology in those programs, EPA expects the Bay jurisdictions to implement their programs in a manner that is consistent with the Clean Water Act, the Chesapeake Bay TMDL, and relevant regulations, policy, and guidance. EPA encourages Pennsylvania and the other Chesapeake Bay watershed jurisdictions to provide clear and comprehensive definitions for the terms and concepts

incorporated in their nutrient credit offset and trading programs. EPA notes that development of methods for interstate nutrient credit trading may necessitate common terminology. EPA expects that PA will continue to work with and support the WQGIT Trading and Offset Workgroup as trading and offset programs continue to advance in the watershed.

2. Interstate and intrabasin trades and offsets should be evaluated by the jurisdictions for potential inclusion in their trading and offset programs. See Section IV. 10.

PADEP Response: The Department agrees with this recommendation. In Pennsylvania, and perhaps other Chesapeake Bay Watershed jurisdictions, nutrient credits generated by credit suppliers in one basin of the Chesapeake Bay cannot be bought and used by credit buyers in a different basin unless expressly authorized. Several external entities have expressed concern that this limits the ability of the credit trading market to serve as a mechanism for addressing the nutrient problem in the Chesapeake Bay. For example, it is very likely that there could be mismatches of credit supplies or demands in individual basins that could be remedied by countervailing mismatches in other basins. However, without cross basin or interstate trading, these mismatches may persist, with the result of market clearing credit prices and quantities not being optimal. The cross basin and interstate trading of credits may allow nutrient credit markets to work more efficiently and effectively. However, advancing this concept will take some agreement and perhaps program modifications (such as creation of a central exchange of credits) across basins and jurisdictions. EPA, and other Federal partners, could assist in the facilitation/development of an interstate trading program by providing flexibility in balancing loads between basins and by continuing their participation in early stage discussions.

EPA Comment: In Section 10 of the Chesapeake Bay TMDL, EPA identified interstate trading as a potential stage in the expansion of the trading concept. EPA will continue to work with the Chesapeake Bay jurisdictions to support efficient and appropriate means of expanding nutrient credit trading to meet the goals of the TMDL. EPA expects that PA will continue to work with and support the WQGIT Trading and Offset Workgroup as trading and offset programs continue to advance in the watershed.

3. Local governments' data and information should continue to be integrated into state tracking and accounting systems. See Section IV.5.

PaDEP Response: The Department acknowledges this recommendation but does not understand how the recommendation is applicable to trading and offset programs. To more fully understand this recommendation the Department requests that EPA provide an example of the type of local government data and information that should be integrated into state tracking and accounting systems.

EPA Comment: Conversion of land uses as the result of development and the redevelopment of land are two examples of important types of information that should be tracked and integrated into the state tracking and accounting systems. EPA expects that PA will continue to work with and support the WQGIT Trading and Offset Workgroup as trading and offset programs continue to advance in the watershed.

- 4. Stormwater offsets programs are being evaluated and developed in many jurisdictions. These programs should be consistent with the Chesapeake Bay TMDL and EPA guidance. See Section IV. 1.**

PaDEP Response: The Department agrees that for stormwater offset and trading programs developed to achieve compliance with the Chesapeake Bay TMDL the common elements outlined in "Appendix S. Offsetting New or Increased Loadings of Nitrogen, Phosphorous, and Sediment to the Chesapeake Bay Watershed" could be used as guidance, leaving states broad flexibility for program development and implementation to develop a program framework that achieves the jurisdictions goals. Any stormwater offsetting program that is developed by Pennsylvania would be established for statewide implementation and not limited to the Chesapeake Bay Watershed.

EPA Comment: EPA looks forward to working with PaDEP in the development of an offset program for such discharges. EPA expects that PA will continue to work with and support the WQGIT Trading and Offset Workgroup as trading and offset programs continue to advance in the watershed.

- 5. Several jurisdictions are considering developing or expanding their current programs. The jurisdictions should continue to develop guidance and methodologies to address meeting baseline for point and nonpoint source sectors including consideration of the use of non-traditional BMPs such as algal scrubbers, oyster aquaculture, etc. EPA suggests that this guidance and methodology include the retirement of credits and use of net improvement offsets. See Section IV. 2 and 5.**

PADEP Response: The Department acknowledges this recommendation and appreciates EPA's suggestions. The Pennsylvania Watershed Implementation Plan (PA WIP) was built on three core concepts: Milestone and Tracking; Advance technologies and Nutrient Trading; and Enhancing Compliance which incorporate this recommendation.

EPA Comment: EPA is concerned that PaDEP's efforts to address new technologies in its nutrient credit trading program, as described in Pennsylvania's Phase I WIP, may be delayed. EPA recommends that PaDEP reinvigorate this effort as quickly as possible to ensure that the trading program is as robust as possible.

- 6. Jurisdictions expressed interest in finding a good way to use storm water BMPs to offset nonpoint sources such as new septics and nonregulated agriculture. How are these being pursued by the jurisdictions? See Section IV.2 and 5.**

PADEP Response: Stormwater BMPs to offset nonpoint sources such as new septics and nonregulated agriculture are not being pursued by Pennsylvania at this time. Please note, in Pennsylvania, agriculture is a regulated activity. Pennsylvania regulates agricultural erosion and sediment control under Chapter 102 and manure management under Chapter 91.

EPA Comment: As noted above, EPA expects Pennsylvania to develop and implement an offset program that addresses new and expanded discharges, including discharges from septic systems and other on-site systems. EPA requests that PaDEP provide a schedule detailing a plan for developing a statewide offset program to deal with septic and non-federally regulated agriculture.

7. Updating enforcement policies and procedures should continue and include, but not be limited to, items such as the ability of inspectors to access off-site areas where credits or offsets are generated and compliance determination methodology. See Section IV. 7.

PADEP Response: The Department acknowledges this recommendation and appreciates EPA's suggestion. As noted in the report, the Pennsylvania Clean Streams Law (35 P.S. §691.1 et seq.) gives the state authority to investigate "any alleged source of pollution of the waters of the Commonwealth, and to institute appropriate proceedings under the provisions of this act to discontinue any such pollution if the offense complained of constitutes a violation of the provisions of this act." (35 P.S. §691.604) In addition, PADEP has broad authority for access to farms under section 5(b)(8) of the Pennsylvania Clean Streams Law, which authorizes PADEP to "make such inspections of public or private property as are necessary to determine compliance with the provisions of this act, and the rules, regulations, orders or permits issued" under the act. 35 P.S. §691.5(b)(8). The Department provided EPA with a copy of this section, along with copies of the regulatory manure management, nutrient management and erosion and sedimentation requirements, and a sample agreement delegating authority to a conservation district under the Conservation District Law, 3 P.S. §859(2) and 25 Pa. Code §102.41. Additionally, the Department inspects NPDES permitted municipal and industrial wastewater treatment plants and reviews DMRs as part of the annual compliance and inspection process. The underlying certification and verification materials are available for inspector review. The Department stores the NPDES permit file in the appropriate regional office for each municipal and industrial wastewater treatment plant and the NPDES permit file contains the Annual Nutrient Summary report, including DMRs for the municipal and industrial wastewater treatment plant in question. The Chesapeake Bay Supplemental Report Monthly Nitrogen Budget and Chesapeake Bay Supplemental Report Monthly Phosphorus Budget and the Chesapeake Bay Supplemental Annual Nutrient Summary reference any credits that were used to meet the effluent limitations and the Chesapeake Bay Supplemental Report Monthly Nitrogen Budget and Chesapeake Bay Supplemental Report Monthly Phosphorus Budget identify the registration numbers. Using the registration number, the inspector can contact PADEP's Interstate Waters Office (formerly known as the Water Planning Office) to review the underlying certification and verification materials that were used to register the credits.

EPA Comment: EPA appreciates PaDEP explaining its authority for access to conduct compliance monitoring and inspections. EPA is concerned, however, that such authority has not been incorporated into a clear and comprehensive strategy for ensuring the validity of nutrient credits being generated within the Commonwealth. EPA expects PADEP to develop and implement a Nutrient Credit Generator Compliance Monitoring Strategy and the policies and/or guidance necessary to provide for regular on-site verification by PaDEP of generator requirements, practices, management, and conditions to ensure the validity of nutrient credits generated. PaDEP should provide a schedule for the development and implementation of the strategy. The strategy

should identify the resources necessary for its implementation and how such resources will be obtained and allocated.

8. Tracking and accounting systems for new loads and offsets should continue developing. These systems should be transparent and accessible to the public. See Section IV. 8.

PaDEP Response: The Department acknowledges this recommendation but questions why additional tracking and accounting systems should be developed when the Chesapeake Bay TMDL Tracking and Accounting System (Bay TAS) was developed to inform EPA, the Bay Jurisdictions, and the public on progress in implementing the TMDL. It would seem as though EPA should work with the jurisdictions to ensure that Bay TAS adequately reflects offsets and trades that occur.

EPA Comment: EPA expects the jurisdictions to develop and implement a tracking and accounting system for new or increased loads and offsets of those loads to ensure that progress is maintained in achieving Bay goals.

9. New resources are needed to fully implement the developing trading and offset programs. See Section V.

PaDEP Response: The Department acknowledges and agrees with this recommendation. Specifically, the Department would like to enhance the certification request review process while at the same time ensuring program credibility by establishing an Independent Technical Review Team (Review Team). The Review Team would be comprised of individuals that have an understanding and expertise in areas such as: agricultural operations and needs, groundwater, modeling, nutrient applications and utilization, biology and ecology, air deposition and emission quantification. This Review Team would review the technical feasibility of a proposed technology or best management practice that is considered non-traditional. The Review Team could also be tasked with the review on technical issues or additional items that include additional details needed for certification requests, ways to improve the current calculation spreadsheets, providing the review of edge of segment factor values and performing other tasks related to quantification of results. The Review Team would not be an entity that makes the final credit determination or policy determinations for the Pennsylvania's Nutrient Credit Trading Program (NCTP), as that role would still reside with the Department. Additionally, given that Pennsylvania was the first jurisdiction to develop NutrientNet the system needs to be revised and it becomes a question how to do so technically, financially and contractually. Perhaps EPA could consider assisting the jurisdictions with having the most up to date trading platform(s) that can regularly be updated with new BMP efficiencies, ratios and calculation methods, etc.

EPA Comment: EPA believes the creation of an Independent Technical Review Team would be a useful improvement to PaDEPs program. EPA remains concerned, however, that resources are insufficient to provide the necessary compliance assurance for a credible offset and trading program. EPA expects that as part of its development of a Nutrient Credit Compliance Monitoring Strategy, that the state would provide the necessary resources to implement the Strategy.