

Virginia's Trading and Offset Programs Review Observations

I. Summary of Program Characteristics and Regulatory Status

For the common trading and offset program 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 Virginia'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. Virginia Trading and Offset Programs Summary Table

Element ¹	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 a credit generator)	●	●	○	○	○	○	○	○
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
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- 1 Storm water loads, whether addressed by the MS4 program or DCR's post development P loading requirements, are considered Nonpoint Sources in this table.

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 are 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 are classified as program recommendations 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 Section 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. Virginia Specific Observations

Tier 1 – Statutory or Regulatory conformance

1. The grandfathering provisions in the Commonwealth’s storm water regulations pose a significant challenge for managing new loads. How will these new loads be offset? See Section IV.1 and 8.

2. Appendix S of the 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. Virginia’s final Phase I WIP did not include an allocation for new growth because Virginia maintained that proposed regulations would ensure that there be no net increase and therefore no allocations for new growth were necessary for point sources. With the regulations’ grandfathering provisions, how will the assurance of no net increase be achieved in accordance with the TMDL? Also, Virginia’s final Phase I WIP did not include an allocation for new nonpoint source growth; how will Virginia accommodate new nonpoint source growth? See Section IV.1.

3. The permit coverage offset loophole (facilities expanding from 10,000 to 40,000 gallons per day) may be addressed in future legislation. Currently these facilities are not required to offset increased loads. See Section IV.7 and 8.

Tier 2 – Program recommendation

Virginia law (VA Code 10.1-603.3.8:1 (SB 1099)) requires, with exception of a few situations where an in-lieu fee program already exists, that localities allow offsets to be used for compliance. Many localities are making the determination that use of offsets is optional and that determinations not allowing the use of offsets can be made at the local level. Localities cannot override a state law. EPA suggests that the Virginia Department of Conservation and Recreation (VADCR) correct this interpretation by the localities. See Section IV.1

III. History and Overview of Virginia’s Trading and Offset Programs

Virginia’s current trading program was established in 2005 to facilitate compliance with the Chesapeake Bay Tributary Strategies and allows for point source to point source as well as certain nonpoint source to point source trades. Virginia, with active participation by EPA, is

currently evaluating specific ways to expand its existing trading program in an effort to add flexibility and cost effectiveness in its efforts to be consistent with the Chesapeake Bay TMDL. Both the existing program and potential avenues for expansion are described in Virginia's final Phase I WIP (VA DEQ 2010).

A summary of how the current program incorporates participation from different source sectors is given on page 11 of Virginia's final Phase I WIP and is summarized below:

Currently, **Wastewater** facilities discharging to the Bay watershed are covered under a Virginia watershed general permit under which each is assigned a wasteload allocation (WLA) based on Virginia's calculation of those sources' compliance with the Chesapeake Bay TMDL's loading levels. Facilities have the option of installing nutrient removal technologies sufficient to comply with their WLA or they may purchase compliance credits from other facilities that have met their WLA.

New or expanding facilities may purchase WLAs from other point sources or from certain nonpoint sources as they are required to completely offset any increase in nutrient loads.

Offsets by **Storm Water** sources is limited to new development and to securing non-point source offsets when on-site practices cannot practicably achieve sufficient pollution reductions. Existing development and MS4 permittees as well as **On-Site/Septic Systems** are not currently authorized to participate in trading.

Agriculture and Forest sources may sell offsets only to new or expanding wastewater treatment facilities or new development if the agriculture lands or newly created forest area meet established "baselines" of management practices.

The following sections provide additional details regarding Virginia's current trading and offsets program as well as plans for future enhancements.

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

1. Authority

Necessary measures are in place for point source users and being evaluated for nonpoint source users. See Section II.B.1 and 2 and Section II.A.1 and 4.

In Virginia, the authority for trading and offsets to account for new and expanded sources is provided for in Virginia Code and in two implementing regulations:

- §62.1-44.19:12 – Authorizing Legislation, findings, definitions, etc.,
- 9 VAC 25-720 - The Water Quality Management Planning Regulation and
- 9 VAC 25-820 - The General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (Virginia Watershed General Permit)
- §10.1-603.8:1. Stormwater nonpoint nutrient offsets.

In the authorizing legislation in 2005 (§62.1-44.19:12) the Virginia General Assembly determined that adoption and utilization of a watershed general permit and market-based point source nutrient credit trading program would assist in meeting Chesapeake Bay pollution reduction goals in the most cost-effective manner, accommodating continued growth and economic development, and providing a foundation for further market-based incentives to help achieve the nonpoint source reduction goals. The Virginia General Assembly further amended the Virginia Code in 2009 to allow for a stormwater nonpoint nutrient offsets program to meet nutrient control requirements for new development. The Virginia Watershed General Permit (9VAC 25-820), called for in the legislation, establishes the underlying framework for the market-based point source credit trading program under which 125 significant dischargers comply with Tributary Strategy-based load reductions. The first watershed general permit was effective on January 1, 2006 and expired on December 31, 2011. The State Water Control Board has approved a new Virginia Watershed General Permit that Virginia has determined incorporates the wasteload allocations of the Chesapeake Bay TMDL; the Virginia Watershed General Permit became effective on January 1, 2012 and will expire on December 31, 2016.

Finally, three new bills relevant to the trading and offset programs in Virginia were passed during the last session of the Virginia General Assembly. SB 1099 deals with nonpoint source nutrient offsets, SB 1100 creates a nutrient offsets sub fund of the WQIF, and SB 1102 addresses trade ratios for trades involving manure-to-energy projects. Provisions in these three bills became effective July 1, 2011.

Inspections of nonpoint source credit generating properties are authorized on the basis of the Watershed General Permit under which the trade is occurring.

Virginia's final Phase I WIP recognized a role for an expanded Nutrient Credit Exchange Program in meeting the load reduction goals of the Chesapeake Bay TMDL. In February 2011, the Virginia General Assembly (in Senate Joint Resolution 334) directed the Secretary of Natural Resources to conduct a broad based study to evaluate the impacts of expanding the existing framework to allow trading and offsets of nutrients among additional source sectors.

Additional legislative action and regulatory rulemaking will be required to implement any recommendations for expansion of Virginia's current program. According to language in the

resolution, the study was to conclude by November 30, 2011 with an executive summary and report submitted for publishing on the General Assembly's website by January 11, the first day of the 2012 Regular Session. The executive summary and report were published on the General Assembly's website on January 11, 2012.

1. Baseline (for credit generators)

Necessary measures are in place for point source users but not for nonpoint source users. See Section II.B.2 and Section II.A.5 and 6.

This section describes Virginia's policies and procedures governing generation of credits by point and nonpoint sources and baselines to be satisfied in order to generate credits.

Different Virginia policies apply to the generation of credits by point and nonpoint sources. For point sources, any significant facility that is registered under the Virginia Watershed General Permit and has performed better than its assigned WLA is eligible to generate and sell credits. Credits generated are driven by the ability of facilities to meet their WLAs. The Virginia Department of Environmental Quality (VADEQ)¹ receives annual reports of the point source loads and publishes this by April 1. In April to May, trades are finalized and a final report is published July 1.

For nonpoint sources, Virginia's policies are defined in the document, "*Trading Nutrient Reductions from Nonpoint Source Best Management Practices in the Chesapeake Bay Watershed: Guidance for Agricultural Landowners and Your Potential Trading Partners*" (Ag Guidance) (DEQ 2008). In order for an agricultural nonpoint source to generate credits in Virginia, the property must implement 5 baseline BMPs that are appropriate for that farming operation:

- Soil Conservation Plan
- Nutrient Management Plans
- Cover Crops
- Livestock Stream Exclusion w/ 35' buffer
- 35' Riparian buffer

Once the baseline is met, the following BMP enhancements (or land conversion) are available to generate credits in Virginia:

- Soil Conservation Plan – Continuous No-Till
- Nutrient Management Plans – 15% N reduction on corn

¹ EPA understands that VADEQ and VADCR have distinct roles regarding offsets and trading in Virginia. Specifically, VADEQ oversees the wastewater treatment plants, whereas VADCR oversees the stormwater activities

- Cover Crops – Early planting date
- Livestock Stream Exclusion w/ 35' buffer – Increase size
- 35' Riparian buffer – Increase size
- Land Conversion

To generate credits in Virginia, it is not necessary to implement baseline requirements on land being converted; however the baseline requirements do apply to any remaining portions of the parcel not being converted. Cost share funds can be used to achieve the baseline but not to generate credits. Point source credit purchasers must purchase two pounds of nutrient reductions from nonpoint sources to offset every one pound of nutrient (i.e., two pounds of nutrient reduction from agricultural land equals one pound of nutrient credit for a point source).

Currently, Virginia has only specified methodologies for determining baselines for point sources (WLAs in the watershed general permit) and agriculture (Ag Guidance). Virginia expects to develop methodologies to address meeting baseline requirements for other sectors but has not determined which specifically or how.

Consistency with the TMDL

Please refer to the Chesapeake Bay TMDL regarding point source allocations.

Virginia developed nonpoint source credit generating policies to be consistent with basin cap loads described for the Chesapeake Bay Tributary Strategies. EPA understands that Virginia will likely update its Ag Guidance after Phase II WIPs are completed to make it fully consistent with the Chesapeake Bay TMDL. In Virginia, practices must be in place to be certified and they must be certified to be sold. Operators must provide an annual report on condition and maintenance to DEQ. DEQ has the authority to inspect practices as a condition of the permit. Virginia only authorizes trading within the same river basin and applies different reduction factors related to a source's position in relation to fall lines. Note that Virginia's rules pertaining to stormwater credit generating sources specify a preference for those credits to be bought closer to the source. In all cases, Virginia requires offsets to occur with the same major river basin.

Documentation

Documentation related to baseline verification and calculations of amount of credits generated is required by Virginia and is publicly available. With respect to point sources, this documentation is related to implementation of the General Permit and is represented by various reports such as monthly DMRs, DEQ's annual report, and the Nutrient Credit Exchange's Annual Compliance Report. In addition, all of this information is available on DEQ's website related to the Nutrient Trading Program. <http://www.deq.virginia.gov/vpdes/nutrienttrade.html>.

Information documenting the details of a nonpoint source generated credit in Virginia can be found in the proposal for a credit generating activity which is sent to DEQ by an aggregator. Proposals include details such as deed restrictions, financial assurances, and load calculations.

Upon conditional approval, DEQ issues a certification; when practice(s) are in the ground, DEQ releases the credit(s) for sale.

2. Minimum Controls Required for Credit Purchasers

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

Dischargers purchasing credits in Virginia must comply with requirements that are standard for NPDES permittees; otherwise, as long as the discharger is registered under the Virginia General Watershed Permit, if a discharger exceeds its allocation it can purchase credits to come into compliance. There are currently no nonpoint sources in Virginia using credits. If, for example, Virginia develops a future program to allow use of credits for onsite systems, minimum requirements for buyers will need to be developed.

3. Eligibility

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

VADEQ determines which entities are eligible to buy or generate credits in Virginia. For point sources, any facility covered by the Virginia Watershed General Permit is eligible to participate in the trading program. Only individual significant facilities with an allocation included in the Water Quality Management Planning Regulation (9 VAC 25-720-10 et seq.) are eligible to generate credits. Both significant and non-significant facilities are eligible to acquire credits in Virginia.

Criteria that Virginia uses to determine when a point source or nonpoint source may generate credits differ among source type. For point sources, Virginia uses actual discharge levels as evidenced by DMRs and the forecasting process detailed in the annual Exchange Compliance Plan as the basis for determining who will buy and who will have credits to sell. Individual significant facilities that outperform their WLAs for the year generate credits.

Aggregators

There is an official role for aggregators of nonpoint source reductions in Virginia's program. For point sources, the Nutrient Credit Exchange serves as a credit clearinghouse for its member facilities as authorized by the 2005 state legislation establishing the trading program. However, Virginia does not require compliance credit trades to be handled by the Exchange. Bilateral trades of compliance credits between two dischargers are allowed. To date, the Exchange has dealt entirely with trades of compliance credits. Trades of WLAs to accommodate new and expanding facilities in Virginia have been bilateral agreements outside of the Exchange.

Nonpoint source generators are required by Virginia law to work through a third party. The credit aggregator submits a credit proposal to DEQ on behalf of the landowner to supply credits for a new or expanded facility. After DEQ verification of the proposed credits, they are then implemented, certified by DEQ and released for sale. As long as this process is followed, agricultural sources in Virginia are eligible to generate credits.

Offset ratios

New or expanding point sources are expected to acquire sufficient credits to offset any increase in nutrient load. Credits generated by other point sources are traded at a 1:1 ratio in Virginia, whereas credits generated by nonpoint source reductions are traded at a 2:1 ratio. Virginia's 2:1 nonpoint to point ratio is an uncertainty factor; it does not create a reserve or safety pool of credits.

Land Conversion

DEQ guidance on the generation of tradable nonpoint source offsets from agricultural BMPs establishes a baseline date of July 1, 2005 for land conversion projects. This is the effective date of Virginia's trading legislation. This same baseline date is in Virginia's Watershed General Permit for stormwater BMPs generating tradable offsets. This issue is also under consideration in the study of the nutrient trading program currently underway in Virginia. No other practices are tied to Virginia's baseline date.

Offset and Credit Categories

In Virginia, compliance credits are obtained or sold by point source facilities in order to maintain compliance with their WLA in the Virginia Watershed General Permit, whereas offsets are purchased by new or expanded sources in order to completely offset any new or increased load for which they are responsible. Temporally, compliance credits in Virginia are traded on an annual basis with a truing up period for point sources that occurs in the 4-6 months following closeout of the trading year. Virginia requires new and expanding facilities to provide a minimum of 5-years of offsets at the time they register under the Virginia Watershed General Permit, however permanent offsets are preferred. Virginia requires offsets to be within the same river basin. Offsets approved by DCR to meet post-construction TP loading requirements are by 8-digit HUC with preference for locally generated credits and they are permanent.

4. Credit Calculation and Verification

Necessary measures are in place for point source users but not in place for nonpoint source users. See Section II.B.2. and Section II.A.5 and 6.

Methodologies for quantifying point source compliance credits are specifically laid out in the Virginia Watershed General Permit. Nonpoint source offsets in Virginia are calculated based on the BMPs and efficiencies in the Chesapeake Bay Watershed Model version 4.3, taking into account location with respect to fall lines (i.e., credit for a given practice above the fall line will

be calculated with different factors than for one below the fall line, based on Watershed Model delivery ratios). As the Watershed Model is updated, Virginia will update methods for calculating nonpoint source offsets as well.

In Virginia, point source compliance credits are available if a facility has outperformed its WLA; verification is based on the availability of DMR data and actual loads discharged. Virginia requires nonpoint source offsets to be certified annually; they are re-certified and verified (after initial certification) on the basis of information submitted to DEQ by the aggregator.

Virginia has no requirements for contractual agreements between individual credit generators, aggregators and purchasers. For Virginia point sources, all compliance liabilities remain with the permittee. However, contracts between buyers and sellers are used for internal practices within the Nutrient Credit Exchange and address things like practical and operational requirements and include firm buy/sell commitments between the facilities. For Virginia nonpoint sources, DEQ is required to certify each offset. Once offsets are certified and released for sale, DEQ has no involvement in any agreements between buyers and sellers.

Schedule of Certification and Reporting

Point source compliance credits are certified and published by DEQ by April 1st of each year. VADEQ certifies nonpoint source offsets upon initiation of the BMP and recertifies them each year on the basis of information provided in annual maintenance reports. If Virginia's certification rules change, existing certifications are grandfathered.

Recordkeeping

For point sources in Virginia, a significant amount of information related to the trading program is compiled and recorded on an annual basis. DEQ certifies point source credits by April 1st of each year based on DMR reports and an annual report submitted by each discharger. Registrants under the Virginia Watershed General Permit are also required to submit a compliance plan update by February 1st of each year, either individually or through the Exchange. DEQ maintains a webpage with links to annual reports, the most recent Exchange Network Compliance Plan, and lists of registered facilities by basin (<http://www.deq.virginia.gov/vpdes/nutrienttrade.html>). To date Virginia is not utilizing a credit registry for tracking the certification and sale of offsets; however this is under consideration.

Records pertaining to nonpoint source certifications are housed within DEQ. Again, no credit registry is utilized to track creation, certification or sale of nonpoint source offsets but this is under consideration by Virginia.

Practice Validation and Verification

Point source practices are validated through the Exchange's annual Compliance Report and DEQ's annual report. DEQ has the authority to inspect facilities and practices as a condition of the Virginia Watershed General Permit. Nonpoint source practices are verified annually and protocols vary by sector in Virginia.

In terms of performing inspections for verification and validation, DEQ and DCR currently perform these tasks and may contract with 3rd parties in the future.

Validated credits are technically consistent with Virginia's Tributary Strategy allocations. Virginia's calculation methodologies and efficiencies will be subject to revision based on updates to the Chesapeake Bay Watershed model. Virginia expects the shift from Tributary Strategy to TMDL will be minor and involve primarily administrative changes to code language for example.

Virginia requires an annual report demonstrating that practices are in place and appropriate maintenance is conducted. All policies applicable to credit generators can be found in the Ag Guidance, in the Virginia Code and the Virginia Watershed General Permit, all of which have been previously described.

Virginia does not account for changes in pollutant form; all trades are in terms of delivered TN and TP.

Credit generators in Virginia are subject to the requirements of the Virginia Watershed General Permit.

To account for the distance between the generating and acquiring sources that could affect water quality, Virginia applies the same delivery factors that are used in the Chesapeake Bay Watershed Model and that have been approved by the Chesapeake Bay Program partnership. Calculated credits in Virginia are based on delivered loads. Uncertainties in nonpoint source reductions in Virginia are addressed by the 2:1 trading ratio for point-to-nonpoint trades. Virginia establishes BMP efficiencies based on the Chesapeake Bay Watershed Model.

Virginia allows practices implemented through public cost-share programs to be used to meet baselines; however cost-share funds cannot be used to fund credit generating practices.

Virginia accounts for potential degradation in the effectiveness of a practice through the annual certification and reporting process. If, during the review process, DEQ finds a practice is degraded to the point it no longer can produce the required load reduction, it will not be certified.

Documentation of Virginia DEQ's nonpoint source trading program is housed in DEQ and DCR; it is not available online. Documentation of point source compliance credit trades are available on DEQ's website.

5. Safeguards

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

Virginia's policies ensuring that offsets and traded loads are adequately accounted for have been previously described. They include the following:

- All trades are expressed in terms of delivered loads.
- For the Point Source exchange, total loads are tracked and summed via spreadsheet formatted so that all loads are viewable in one source.
- The Credit Exchange relies on DEQ for flagging possible discrepancies with DMRs; however the Exchange Consultant also performs QA/QC of facilities' submitted numbers throughout the year.
- DEQ maintains tracking spreadsheets.

Virginia has not developed a registry to account for Virginia's offset and trading programs, although DEQ acknowledges the need for a registry. Tracking of compliance credits will be documented in the yearly trades reports to be published by DEQ. The first trades report will be published by July 1, 2012 for the 2011 compliance year.

The use of offsets and trades is restricted where such use would cause or contribute to exceedances of WQS, TMDLs, WLAs or LAs in affected receiving waters, locally or elsewhere. For nonpoint sources generating credits, Virginia's baseline requirement is designed to ensure that local water quality is maintained. Trades in Virginia are restricted to in-basin exchanges and there is the narrative restriction in the code that local water quality is always to be protected. In the Lower James River basin, DEQ has implemented a one-way trading restriction; downstream facilities may buy from upstream facilities but upstream facilities cannot purchase credits from downstream facilities in this basin. Similarly, Virginia allows the point sources in the Eastern Shore Basin to acquire compliance credits from point sources in the Rappahannock and Potomac Basins but not the other way around.

In Virginia, nutrient trades may be undertaken by registered permittees regardless of compliance status with unrelated permit requirements.

Virginia protects affected communities from disproportionate harm arising from offsets and trades through the statutory requirement that local water quality must always be protected. Finally, Virginia requires that credits are generated and used in the same time period by requiring that all trading be based on the calendar year; parties comply with this policy through the annual certification and reporting process.

6. Certification and Enforceability

Necessary measures are partially in place for point source users but not in place for nonpoint source users. See Section II.B.2 and 3 and Section II.A.7 and 8.

The 2005 Statute and the General Watershed Permit grant DEQ the responsibility and centralized authority for certifying credits. For point sources, Virginia publishes a Permit Registration List

by basin (<http://www.deq.virginia.gov/vpdes/nutrienttrade.html>) as part of the Virginia Watershed General Permit. The Registration List includes all eligible trading participants and lists enforceable WLAs for each.

Virginia expects new or increased pollutant loadings from point sources that have not been given individual WLAs under the Chesapeake Bay TMDL to be fully offset. In practice, a new or expanding facility provides DEQ information regarding proposed discharge size and technologies to be applied. Based on this information, DEQ informs the facility how many offsets will be needed to operate. There is a current loophole in Virginia's new and expanded facilities policy, wherein an existing facility that is discharging greater than 1,000 GPD but is expanding to less than 40,000 GPD would not be covered by the total offset requirement. In its final Phase I WIP, Virginia committed to addressing this issue.

Under Virginia's credit trading program, liability for compliance always remains with the point source permittee.

Point source compliance credits are traded in Virginia without any permit action in accordance with the terms of the Watershed General Permit. Trades of credits to accommodate new and expanding facilities are public noticed prior to being included on the Watershed General Permit registration list.

Virginia's legal authority to enforce offset and trading transactions (*e.g.*, between credit generators and purchasers) is granted by state code (§ 62.1-44.19:12 through 62.1-44.19:19).

As mentioned previously, Virginia's credit trading ratio for offsetting new and expanded sources using credits generated by nonpoint source BMPs is 2:1. This is an uncertainty factor only. Virginia has no reserve or insurance pool of credits to use in the case that an offset fails to occur. Virginia's trading ratio for point source-to-point source trades is 1:1.

Virginia expects that civilly enforceable agreements will be made between offset generators and users; however, DEQ has no involvement in that aspect of the trading program.

For ensuring compliance with the CWA, Virginia relies on the information provided in its point source annual report and the Credit Exchange's Annual Compliance reports for point sources and the credit proposals for nonpoint sources. Standard permit requirements apply in relation to monitoring permit compliance. The Nutrient Credit Exchange also utilizes a 5 month reconciliation period, during which records are sent to DEQ for approval before invoices are prepared and sent to credit purchasers. DEQ maintains auditing, inspection and penalty/enforcement authority.

Operating procedures are under development in Virginia to accommodate a potentially expanded suite of activities. Virginia has standard operating procedures for making compliance determinations and compliance inspections and methods. DEQ has established guidance for

assessing violations of annual nutrient load limits. Compliance and enforcement procedures are established in existing DEQ guidance manuals.

7. Accountability and Tracking

Necessary measures are partially in place for point source users but not in place for nonpoint source users. See Section II.B.2 and 3 and Section II.A.3 and 8.

Virginia does not currently use a credit registry to track offsets and trades but is considering the establishment of a registry. Compliance credit trades are documented in an annual trades report which DEQ is required by law to publish by July 1st of each year. The first trade report will be published by July 1, 2012 for the 2011 compliance year. No nonpoint source-to-point source trades have occurred in Virginia.

Virginia accounts for point source offsets and trades through a variety of reporting requirements. The Nutrient Credit Exchange submits 5 types of reporting paperwork at various intervals, which DEQ uses to track and account for trades:

- Annual Compliance Plan (forward looking 8 –year plan)
- Monthly DMRs
- Annual Report (due February 1)
- One Page Confirmation Sheet for Traders
- Annual Reconciliation Report

DEQ publishes an annual trading report available to the public on DEQ’s nutrient trading website: <http://www.deq.virginia.gov/vpdes/nutrienttrade.html>.

Baselines used to generate offsets or credits for point sources are the WLAs given in the Watershed General Permit in the Basin Registration Lists. Required baselines used to generate offsets or credits for nonpoint sources are described in Virginia’s Ag Guidance.

Point source compliance credits are quantified and verified through the reporting process mentioned previously and available on DEQ’s website. Nonpoint source offsets are also subject to annual verification and reporting requirements in Virginia. Information related to nonpoint source offsets is housed at DEQ; however a formal database system has not yet been developed.

DEQ’s reporting system is such that no offset or credit may be sold to more than one purchaser at a time. Other information included in Virginia’s verification and annual reporting process includes NPDES permit numbers, outfall locations of permitted facilities and latitude/longitude of practices.

Credits in Virginia are calculated on a delivered load basis using Chesapeake Bay Watershed Model (4.3) efficiencies. As such, credits reported in Virginia inherently account for attenuation. DEQ authenticates ownership of nonpoint source credits through its annual accounting process and by inspection of all sites where credits are to be generated.

DEQ's tracking and accounting system does not include documentation of agreements between parties to the offset or trade transaction. The Credit Exchange's Annual Compliance Plan update addresses whether sufficient compliance credits will be available for the point sources. The Annual Compliance Plan is an eight-year forecast of projected trading activities; it includes firm trades for five years with an additional three-year forecast. The Annual Compliance Plan is updated yearly using a rolling five year period. The time period selected was designed to allow time to adjust planned trades in the event that sellers leave the market or some other unforeseen circumstances dictate changes.

The availability of sufficient offsets for new or expanding facilities is addressed through a nutrient offset plan. Virginia requires new or expanding facilities registering under the Watershed General Permit to provide offsets covering a minimum of five years at the time they register.

Results of monitoring and verification of each offset or credit are provided in DEQ's initial certification paperwork and in annual verification paperwork thereafter.

8. Nutrient Impaired Segments

Necessary measures are partially in place for point source users but not in place for nonpoint source users. See Section II.B.2.

Statutory provisions in 62.1-44.19:14b and 10.1-603.8:1 (C) prohibit violating local water quality standards. These provisions ensure that offsets and trades occurring in nutrient impaired waters do not result in exceedances of applicable local water quality standards.

9. Credit Banking

Necessary measures are in place for point source users but not in place for nonpoint source users. See Section II.B.2 and Section II.A.2.

Nonpoint source offset generators are required by Virginia law to use the services of an aggregator. The Nutrient Credit Exchange is a third party that is authorized by state statute to facilitate trades between point sources. Documents related to these entities have been described previously. DEQ is currently considering options for an offset registry for nonpoint sources. Issues under evaluation in Virginia include whether public and/or private entities may serve as a registry, geographic scope, and relationships of registries to county in-lieu of fee programs, etc.

Virginia's program has not taken any specific measures to reduce transaction costs or calculate and estimate necessary costs and reasonable expenses incurred by entities that acquire and sell credits. The Virginia Nutrient Credit Exchange Association has priced compliance credits very low to encourage nutrient trading and hopes to move to more of a market based price in the future. By acting as a compliance credit clearinghouse for its member facilities, the Exchange is minimizing transaction costs.

10. Growth

Necessary measures are in place for point source growth but not nonpoint source growth. See Section II.B.2

Virginia requires all new and expanded point source facilities to obtain offsets for 100 percent of the new load amount as described in §62.1-44.19:15 and in the Watershed General Permit (9VAC 25-820).

V. Additional Information and Programmatic Needs

Virginia's existing trading program has been instrumental in meeting the point source load reductions required by the Tributary Strategies by the end of 2010. Moving forward, the Chesapeake Bay TMDL assumes that additional point source reductions in the York and James basins will be made, which will be implemented with the option of the use of trades under the existing program. The generation of offsets to accommodate future loads is also a critical part of Virginia's nutrient trading program and the Commonwealth's final Phase I Watershed Implementation Plan. Although the point-to-nonpoint source trading provisions of the program have provided limited opportunity for point source growth in Virginia, it is proving to be a viable source of offsets for new sources of stormwater. Virginia is currently studying the expansion of the trading program to provide for offsets for new onsite systems as well as to find a more economical means of meeting urban stormwater reduction goals.

There is the potential for broader participation in Virginia's trading market by MS4s and municipalities implementing the Virginia MS4 permits as well as onsite systems.

From Virginia's perspective, federal assistance needed to support development and implementation of its trading and offset program includes funding and adequate time to fully develop the program.

The Virginia framework does not include net improvement offsets or aggregated programmatic credits. Virginia may consider the latter to address onsite septic.

The framework does allow for multiple year contracts within the point source Credit Exchange. Those procedures have been described.

Programmatic offsets are not applicable in Virginia.

VI. Virginia References

EPA 2010. *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment*. December 2010.

EPA 2011. Guide for Chesapeake Bay Jurisdictions for the Development of Phase II Watershed Implementation Plans. March 30, 2011.

VA DEQ 2010. Virginia final Phase I Watershed Implementation Plan.
<http://www.dcr.virginia.gov/vabaytmdl/baytmdlpl1arch.shtml>

VA DEQ 2008. Trading Nutrient Reductions from Nonpoint Source Best Management Practices in the Chesapeake Bay Watershed: Guidance for Agricultural Landowners and Your Potential Trading Partners. <http://www.deq.virginia.gov/vpdes/nutrienttrade.html>

Virginia Senate Joint Resolution 334. 2011.

<http://leg1.state.va.us/cgi-bin/legp504.exe?ses=111&typ=bil&val=sj334>

APPENDIX A – Virginia

1. EPA expects Virginia 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 – Statutory or Regulatory conformance

- 1. The grandfathering provisions in the Commonwealth's storm water regulations pose a significant challenge for managing new loads. How will these new loads be offset? See Section IV. 1 and 8.**

Virginia Response: In establishing the revised stormwater post development regulations, DCR utilized a Regulatory Advisory Panel (RAP) comprised of a wide array of Commonwealth stakeholders. The RAP spent many hours discussing all aspects of the revised regulations, including the grandfathering concept, prior to reaching consensus among members. In order to fully understand the grandfathering concept, certain points must be understood.

1. The revised post development water quality design criteria do not change the “number”, they change the entire concept in how stormwater management is designed and implemented on the site. This represents a serious and expensive problem for projects already in design or development.
2. Grandfathered projects are still required to implement post development stormwater management. However, rather than meet the revised requirements using the new paradigm based on runoff reduction applied site wide, they may utilize the existing post development design criteria based on average land condition or BMP design efficiency based on percent impervious cover.
3. The revised design criteria and the grandfathered design criteria are not comparable to each other as the method of calculation and the assumptions are different. However, both manage urban loads as a result of land use conversion. In Virginia, phosphorus is used as a surrogate to represent all urban loads in both design criteria.
4. Grandfathered projects must still meet required reductions in P as a result of redevelopment. Grandfathered projects must reduce P by 10% whereas the revised design criteria require either a 10% or 20% reduction based on project size.
5. Potentially grandfathered projects are limited in scope and number. To be eligible for the grandfathering provision, the project must be ‘in the hopper’ prior to July 1, 2012. In addition, all construction associated with a grandfathered project must be completed by July 1, 2019, unless the project has been public debt financed. If

not complete, the portions not yet under construction must meet the revised stormwater technical criteria.

6. The revised water quality design criteria were based on local water quality protections using the new design paradigm and not specifically for meeting the requirements of the Chesapeake Bay TMDL.
7. The design criteria were developed using statewide numbers with intention of application statewide. This was done for consistency in application. It was recognized that designs closer to the Bay may deliver higher loads than those further upstream; however, it was not felt that the overall difference would be significant.

EPA Comment: EPA needs further documentation from Virginia that supports their case as described above.

2. **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. Virginia's final Phase I WIP did not include an allocation for new growth because Virginia maintained that proposed regulations would ensure that there be no net increase and therefore no allocations for new growth were necessary for point sources. With the regulation's grandfathering provisions, how will the assurance of no net increase be achieved in accordance with the TMDL? Also, Virginia's final Phase I WIP did not include an allocation for new nonpoint source growth. How will Virginia accommodate new nonpoint source growth? See Section IV.1**

Virginia Response: The Commonwealth maintains that the revised stormwater design criteria are designed to account for growth in the nonpoint source urban sector. The stormwater criteria have been developed and designed by statute and regulation for implementation in coordination with the delegated construction stormwater permitting program. However, the stormwater design criteria address the actual changes in land use and associated nonpoint loads from pre-development to post-development, and not the loads from the actual point land disturbing activity. By implementing the state stormwater design criteria in coordination with the construction stormwater permit, the stormwater criteria are applied to the entire Bay watershed and not limited to only those areas under MS4 permit coverage.

Loads associated with stormwater discharges or land use changes cannot be looked at the same as loads from traditional point sources. Whereas construction of a new traditional point source such as a POTW may represent an actual 'new' load, stormwater loads and loads as a result of land use change are NOT new loads, instead they are changes in existing loads. [You can build a new POTW, you cannot 'build' new acres of land.] The

Commonwealth utilized this fact in developing consensus around the revised stormwater design criteria.

Based on analysis of published historic land conversion rates from forest and agriculture land uses to urban land uses and their associated phosphorus loads allocated for 2025 in the final WIP, in order to meet the 'no net increase' requirement, the *delivered* load to the Bay would range between 0.51 and 0.56 lbs./ac/year P. This is a delivered load to the Bay. Additional information on this analysis can be found at <http://www.dcr.virginia.gov/documents/lrzwatqualpres.pdf>. The stormwater design criteria are both design *discharge* loads, not delivered load. The associated state Bay watershed-wide delivered load associated with a designed 0.41 lbs./ac/year P is 0.29 lbs./ac/year P. This represents almost a 50% decrease in the existing load based on historical development trends.

Grandfathered projects must apply either the average land condition (set as a default based on 16% imperviousness) or utilize performance based BMP reductions based on the post development imperviousness. The *designed* P-load associated with 16% imperviousness is 0.45 lbs./ac/year and below the level required to insure no net increase. Similarly, the *discharge* loads associated with implantation of appropriate BMPs and efficiencies on 25% imperviousness (0.38-0.50 lbs./ac/year), 50% imperviousness (0.57 lbs./ac/year) and 75% imperviousness (0.58 lbs./ac/year) are also below or equivalent to the required *delivered* loads to insure no net increase.

Both the revised stormwater management design criteria, as well as the grandfathered design criteria, do adequately account for new growth and insure no net increase while using phosphorus as the surrogate.

EPA Comment: EPA appreciates Virginia's analysis regarding the phosphorus loading from new development. Although the discussion is generally very useful, EPA anticipates the need to conduct follow-up discussions with Virginia regarding the conversion of land to urban or impervious acres and how Virginia supports its conclusion that this does not present a new or increased load. EPA recognizes that Virginia uses phosphorus as a surrogate for nitrogen, but EPA requests that a similar demonstration be conducted for nitrogen since the dynamics can be different per sector. Furthermore, EPA requests similar quantitative demonstrations for both phosphorus and nitrogen for agriculture and septic.

- 3. Permit coverage offset loophole (facilities expanding from 10,000 to 40,000 gallons per day) may be addressed in future legislation. Under current legislation, Currently these facilities are not required to offset increased loads. See Section IV. 7 and 8.**

Virginia Response: Virginia agrees to pursue the closure of this loophole.

EPA Comment: EPA appreciates Virginia's response.

Tier 2 – Program Recommendations

1. Virginia law (VA Code 10.1-603.3.8:1 (SB 1099)) requires, with exception of a few situations where an in-lieu fee program already exists, that localities allow offsets to be used for compliance. Many localities are making the determination that use of offsets is optional and that determinations not allowing the use of offsets can be made at the local level. Localities can not override a state law. EPA suggests that VA DCR is corrects this interpretation by the localities. See section IV.1.

Virginia Response: Guidance issued by DCR clarifies that the developer has the option to use offsets with the exception from now until July 1, 2014 where there is an existing pro-rata program (only in four localities) so this recommendation is not necessary.

EPA Comment: EPA agrees with this comment.

2. **EPA expects Virginia 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 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.

EPA encourages the 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 common terminology may be necessary or appropriate should

methods or policies be developed for interstate offsets or trading. EPA expects that VA 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.

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 VA 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.8.

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 VA 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 regulations, policy, and guidance. See Section IV.1.

EPA looks forward to working with VA in reviewing the baseline loading reduction expectations for existing sources to achieve TMDL targets as identified in their draft Phase II WIP. EPA expects that VA 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 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 Section IV. 2 and 5.

EPA expects that any expansion and or development of trading and offset programs, including guidance and methodologies, will be consistent with the Chesapeake Bay TMDL, the Clean Water Act, and relevant regulations, policy, and guidance. The use of non-traditional technologies for meeting baseline for point and nonpoint source sectors needs to be consistent with the Bay model and its assumptions. The Chesapeake Bay Program does have an established process for the validation of non-traditional BMPs and inclusion of those BMPs in the Chesapeake Bay Watershed Model. EPA expects that VA will continue to work with and support the WQGIT Trading and Offset Workgroup as trading and offset programs continue to advance in the watershed.

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

EPA expects VA to develop and implement a credible offset program that addresses new and increased loads, including loads from septic systems and other on-site systems. EPA expects that VA will continue to work with and support the WQGIT Trading and Offset Workgroup as trading and offset programs continue to advance in the watershed.

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.

EPA expects that the jurisdiction develops and implements a Trading and/or Offset Compliance Monitoring Strategy and the policies/guidance necessary to implement the strategy. The strategy should provide for regular on site verification by the jurisdiction of generator requirements and conditions to ensure that credits generated are credible.

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

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. Tracking of offsets is expected regardless of whether the jurisdiction has a well-developed offset and /or trading program or is conducting offsets or trades on a case-by-case basis while it determines whether to develop a formal program.

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

EPA expects the jurisdictions to provide additional resources, as needed, to fully implement their developing trading and offset programs. EPA expects the jurisdictions to provide adequate resources regardless of whether the jurisdiction has a well-developed offset and/or trading program or is conducting offsets or trades on a case-by-case basis while it determines whether to develop a formal program.

