

Appendix S.
**Offsetting New or Increased Loadings of Nitrogen, Phosphorus, and Sediment to the
Chesapeake Bay Watershed**

As an assumption of the Chesapeake Bay total maximum daily load (TMDL), U.S. Environmental Protection Agency (EPA) expects Chesapeake Bay jurisdictions to account for and manage new or increased loadings of nitrogen, phosphorus, and sediment.

As explained in Section 10.1, where the TMDL does not provide a specific allocation to accommodate new or increased loadings of nitrogen, phosphorus, or sediment, a jurisdiction may accommodate such new or increased loadings only through a mechanism allowing for quantifiable and accountable offsets of the new or increased load in an amount necessary to implement the TMDL and applicable water quality standards (WQS) in the Chesapeake Bay and its tidal tributaries.

Therefore, the Chesapeake Bay TMDL assumes and EPA expects that the jurisdictions will accommodate any new or increased loadings of nitrogen, phosphorus, or sediment that lack a specific allocation in the TMDL with appropriate offsets supported by credible and transparent offset programs subject to EPA and independent oversight. This appendix provides details of common elements from which EPA expects the jurisdictions to develop and implement offset programs.

Source Documents

The common elements are based on, and consistent with, the following documents provided or made available to the jurisdictions:

National Guidance

- *Water Quality Trading Policy*, EPA, 2003 (<http://www.epa.gov/owow/watershed/trading/finalpolicy2003.pdf>).
- *Water Quality Trading Toolkit for NPDES Permit Writers*, EPA, 2007 (<http://www.epa.gov/owow/watershed/trading/WQTToolkit.html>).

Regional/Chesapeake Bay Specific Documents

- *Expectations Letter*, EPA Region 3 to Principals' Staff Committee, Nov. 4, 2009 (http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/tmdl_implementation_letter_110409.pdf).
- *Federal Actions Letter*, EPA Region 3 to Chesapeake Bay jurisdictions, Dec. 29, 2009 (http://www.epa.gov/region3/chesapeake/bay_letter_1209.pdf).
- *A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans*, EPA Region 3, Apr. 2, 2010 (http://archive.chesapeakebay.net/pubs/Guide_for_EPA_WIP_Evaluation_4-2-10.pdf).

- *Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, Federal Leadership Committee, May 12, 2010 (<http://executiveorder.chesapeakebay.net/category/Reports-Documents.aspx>).

Definitions

The terms used in this appendix are to be interpreted consistently with the above-listed source documents, unless specifically defined below.

1. *Offset*. For purposes of the Chesapeake Bay TMDL, means (n.) a reduction in the loading of a pollutant of concern from a source or sources that is used to compensate for the loading of the pollutant of concern from a different point or nonpoint source in a manner consistent with meeting WQS; or (v.) compensating for the loading of a pollutant of concern from a point or nonpoint source with a reduction in the loading from a different source or sources, in a manner consistent with meeting WQS.
2. *Credit*. For purposes of the Chesapeake Bay TMDL, means a measured unit of nitrogen, phosphorus, or sediment pollutant reduction per unit of time at a location designated and standardized by the jurisdiction that can be generated, sold, or traded as part of an offset.
3. *Offsets Baseline*. For purposes of the Chesapeake Bay TMDL, means the amount of pollutant loading allowed by wasteload allocation (WLA) or load allocation (LA) that applies to individual credit generators in the absence of offsets. Sources generating credits are expected to first achieve their applicable offset baselines before credits may be generated.
4. *New or Increased Loading* of nitrogen, phosphorus or sediment. For purposes of the Chesapeake Bay TMDL means, for a point or nonpoint sources meeting its Chesapeake Bay TMDL WLA or LA as of the date of establishment or modification of the Chesapeake Bay TMDL, any nitrogen, phosphorus, or sediment loading from the point or nonpoint source in an amount greater than reflected by WLAs or LAs in the Chesapeake Bay TMDL; for a point or nonpoint sources not meeting its Chesapeake Bay TMDL WLA or LA as of the date of establishment or modification of the Chesapeake Bay TMDL, any nitrogen, phosphorus, or sediment loading from the point or nonpoint source in an amount greater than reflected by WLAs or LAs in the Chesapeake Bay TMDL, after the point in time the source begins meeting its WLA or LA.

Common Elements

As an assumption of the Chesapeake Bay TMDL, EPA expects that offset credits will be generated under programs that are consistent with the common elements described below. Those common elements are not presented here as regulatory requirements. However, EPA believes that in the aggregate, they will help to ensure that offsets are achieved through reliable pollution controls and that the goals of the Bay TMDL are met. EPA recognizes the value that consistent offset programs will have in promoting effective regional implementation of the TMDL.

1. *Authority*. That legal authority exists to authorize the new or increased loading of nitrogen, phosphorus, and sediment on the basis of offsetting reductions from another point or nonpoint source and to implement, monitor, and enforce such offsets.

2. *Offsets Baseline (for credit generators)*. That any point or nonpoint source generating a credit has implemented practices or met any reductions necessary to be consistent with the Chesapeake Bay TMDL allocations:
 - (a) For point sources generating credits, the TMDL assumes that the offsets baseline is the water quality-based effluent limit (WQBEL) included in that discharger's permit consistent with the applicable WLA in the TMDL. For some point sources, the baseline will be a numeric limitation; for others, it will be a suite of BMPs determined to be protective of WQS.
 - (b) For nonpoint sources generating credits, baseline options should be consistent with the TMDL LA for the appropriate sector and may be further defined in terms of load, geographic scale, minimum practices, schedule of implementation and/or time needed to facilitate improved environmental compliance with WQS.
3. *Minimum Controls (for credit users)*. That any point or nonpoint source using a credit has implemented certain minimum controls:
 - (a) For point sources using credits, that the discharger using a credit will meet on-site any relevant minimum technology-based standards or secondary treatment standards.
 - (b) For nonpoint sources using credits, that the source has met all federal, state, and local requirements applicable to nonpoint sources.
4. *Eligibility*. Inclusion in the basis and record for any offset, any additional criteria the jurisdiction will use to determine when a point source or nonpoint source may generate credits. Inclusion of a statement defining the eligibility requirements for and acceptable roles of aggregators or third parties in generation, sale, and purchase of offsets on behalf of others.
5. *Credit Calculation and Verification*: Ensuring that credits are quantified using appropriate metrics and are routinely verified to ensure that they are producing expected reductions, including the following:
 - (a) Appropriately quantifying pollutant loading credits generated and ensuring that offsets acquired reflect load reductions equivalent to or greater than the new or increased loadings being offset, including the following:
 - i. Accounting for the equivalency of pollutants to compensate for changes in pollutant form, e.g., total nitrogen versus dissolved nitrogen;
 - ii. Accounting for uncertainty of source reductions due to factors such as practice efficiencies related to the use of BMPs, a lack of required monitoring or reporting compared to other sources, and/or the lack of regulation of the source by federal, state and/or local regulations;
 - iii. Accounting for any distance between the generating and acquiring sources that could affect water quality including the potential for

- water chemistry variations and other delivery factors that could cause pollutant attenuation;
- iv. Accounting rules for inclusion of practices implemented through public cost-share incentives; and
 - v. Accounting for degradation in the effectiveness of a practice over the projected term of the practice.
- (b) Validating that proposed activities to create reductions (e.g., treatment or BMP installation) are expected to generate the credits offered for offsets, including identifying the metrics and data used to quantify the offset/credit generated and the period for credits.
 - (c) Verifying that the credit was and continues to be generated, via monitoring, inspection, reporting, or some other mechanism, including articulating the frequency of on-site or other monitoring and the entity responsible for conducting monitoring or inspections.
 - (d) Articulating whether third parties may verify and certify credits and offsets within and between jurisdictions.
6. *Safeguards.* Inclusion in the basis and record for any offset, safeguards to ensure that the entire delivered load is accounted for and that water quality will be protected, such as the following:
- (a) Prohibiting the use of offsets where such use would cause or contribute to exceedances of WQS, TMDLs, WLAs or LAs in affected receiving waters, locally or elsewhere;
 - (b) Restricting the use or generation of offsets by an unpermitted point source or a source that is not in compliance with its NPDES permit or a jurisdiction equivalent, or other federal or state law or regulation;
 - (c) Protecting affected communities from disproportionate harm arising from offsets; and
 - (d) Ensuring temporal consistency between the period when a credit or offset is generated and when it is used. As provided for in EPA's *Water Quality Trading Toolkit*, "credits should not be used before the time frame in which they are generated." That includes any credits expected to be generated under a contract between a new discharger and a generating source, or credits generated under an in-lieu fee program in which the jurisdiction uses discharger paid fees to achieve loadings reductions beyond baseline. For NPDES dischargers, credits should be created and used within the periods that are used to determine compliance with effluent limitations. The permitting authority may have discretion to determine the appropriate averaging period for WQBELs, depending on the pollutants of concern and other watershed specific factors. The permitting authority should decide whether and when a credit expires.

7. *Certification and Enforceability.* Designating the process to be used and the institutional entity responsible for credit/offset program operation and certification, and ensuring the enforceability of Clean Water Act discharge permits and offset transactions, including the following:
 - (a) Requiring that any offsets, along with the enforceable WQBELs based on the applicable WLA (e.g., zero for new dischargers), will be included and recorded in the NPDES permit.
 - (b) Estimating annually the increased pollutant loading from nonpoint sources and discharges from point sources that will not be permitted, acquiring offsets needed to fully offset such increases, and recording those offsets in an appropriate instrument.
 - (c) Determining whether offsets may occur without reopening or modifying a NPDES permit to incorporate the offset transaction.
 - (d) Ensuring that transactions can be enforced by the jurisdiction. Articulating how transactions can otherwise be protected by the jurisdiction, for example through a credit reserve insurance account, if failure by the offset generator occurs.
 - (e) Determining whether a civilly enforceable agreement exists between an offset generator and an offset user.
 - (f) Ensuring that an NPDES permittee remains accountable for meeting the WQBEL(s) in its permit, for example through a standard condition in all NPDES permits within a jurisdiction.
8. *Accountability and Tracking.* Developing accountability and tracking system(s) that are holistic and focused on performance outcomes while providing maximum transparency, operational efficiency, and accessibility to all interested parties. Such system(s) should demonstrate the following:
 - (a) An appropriate offset baseline is used to generate credits.
 - (b) The offset is quantified and verified according to standards established by the jurisdiction.
 - (c) The offset or credit is sold to no more than one purchaser at a time.
 - (d) The nutrient delivery equivalency of the offset generated and the offset consumed both in terms of the equivalency of pollutants and appropriate attenuation.
 - (e) The locations(s) of the offset, including where the offset or credit is generated.
 - (f) Authentication of ownership.
 - (g) The NPDES permit number or other identification of the purchaser of the offset or credit.
 - (h) Documentation of agreements between parties to the offset transaction.

- (i) Whether sufficient offsets will be acquired over the period of the new or increased loading.
 - (j) Compliance status of NPDES parties.
 - (k) The results of monitoring and verification for each offset.
 - (l) Time frames for regular review and evaluation of the offset program.
9. *Nutrient-impaired Segments.* In addition to the safeguards in 6 above, ensuring that offsets in nutrient-impaired water segments
- (a) Result in progress toward attainment of WQS in the impaired segment;
 - (b) Do not result in exceedances of WQS in the purchaser's impaired segment; and
 - (c) Do not increase delivery loads in downstream impaired segments, do not violate WQS in any intermediary segments, and do not violate local WQS.
10. *Credit Banking.* Appropriate roles and operating practices of credit banks should be specified. It is recommended that credit banking on a basin or interstate basis be authorized subject to meeting the elements noted above. Expectations concerning necessary costs and reasonable expenses of banks that acquire and sell credits should be described.

The Chesapeake Bay jurisdictions also can consider whether to use the additional offset program features discussed in Section 10.1.3 to build their offset programs for new or increased loadings of nitrogen, phosphorus, and sediment. Those include net improvement offsets, aggregated programmatic credits, and a reserve-offset hybrid.

In developing and implementing their offset programs, EPA encourages jurisdictions to consult with EPA to facilitate alignment with the Clean Water Act and the Chesapeake Bay TMDL. EPA intends to fulfill its various oversight responsibilities of these offset programs by conducting periodic audits and evaluations as detailed in Section 10.1.4. Where questions or concerns arise, EPA will use its oversight authorities to ensure that offsets and offset programs are fully consistent with the Clean Water Act and its implementing regulations.