

Local Water Quality Protection when Using Credits for NPDES Permit Issuance and Compliance

EPA Technical Memorandum

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CONTENTS

Abbreviations and Acronyms	3
Scope	4
Executive Summary.....	4
Introduction	5
Principles for NPDES Permitting Agencies to Consider	6
Location	6
Nutrient and Sediment Transport	7
Timing of Credit Generation and Use	7
Cumulative Impact on an Aggregate Load.....	8
Application to NPDES Permitting.....	8
Technology Based Effluent Limitations (TBELs)	9
Examples	10
Documentation in Permits	Error! Bookmark not defined.
Summary of Expectations	11

ABBREVIATIONS AND ACRONYMS

EPA	United States Environmental Protection Agency
LA.....	Load Allocation
NPDES.....	National Pollutant Discharge Elimination System
TBEL.....	Technology-Based Effluent Limitations
TMDL.....	Total Maximum Daily Load
WLA.....	Waste Load Allocation
WQBEL	Water Quality-Based Effluent Limit
WQS	Water Quality Standards

SCOPE

This technical memorandum addresses EPA's expectations for information the Chesapeake Bay jurisdictions¹ should incorporate when addressing protection of local water quality when using credits for compliance with NPDES permit requirements in trading programs and for offsetting of new or increased loads as described in the 2010 Chesapeake Bay Total Maximum Daily Load² (Bay TMDL).

This technical memorandum is not official agency guidance and does not replace the EPA 2003 Trading Policy³. Its purpose is to elaborate on EPA's expectations, set out in Appendix S and Section 10 of the Chesapeake Bay Total Maximum Daily Load (Bay TMDL), for the Bay jurisdictions' offset and/or trading programs. As stated in the Bay TMDL, the Bay jurisdictions' offset and/or trading programs are expected to be consistent with and supportive of the water quality goals of the Bay TMDL, including its allocations and assumptions and the common elements of Appendix S. This technical memorandum is applicable only in the Chesapeake Bay watershed and may be revised in the future.

For the purposes of this technical memorandum, "local waters" means the receiving waters adjacent to where the credit is being generated as well as the receiving waters adjacent to where the credit is being used, namely, at the point of discharge. "Historic discharge" means the actual discharged load to the local waters based on the most recent monitoring data available prior to the effective date of the Clean Water Act (CWA)⁴ section 303(d) listing or section 305(b) report.

EXECUTIVE SUMMARY

The Bay TMDL expects the Bay jurisdictions to offset all new or increased loads and identifies trading as a tool that can be used to implement the Bay TMDL. The CWA provides a strong framework to protect water quality, including water quality standards adopted by each state and approved by EPA, TMDLs established or approved by EPA, the NPDES program and regulations. The Bay jurisdictions' water quality offset and trading programs are expected to meet the common elements of Appendix S of the Bay TMDL and to be consistent with the Clean Water Act, its implementing regulations, EPA's 2003 Water Quality Trading Policy, and EPA's

¹ The Bay jurisdictions are: Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia.

² Text of the Chesapeake Bay TMDL:

<http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>, last accessed 1/13/2013.

³ United States Environmental Protection Agency, 2003 Water Quality Trading Policy. Available online at: <http://www.epa.gov/owow/watershed/trading/finalpolicy2003.pdf>

⁴ Clean Water Act, 33 U.S.C. §§ 1251 et seq.

2007 Water Quality Trading Toolkit for National Pollutant Discharge Elimination System (NPDES) Permit Writers.⁵ Multiple mechanisms under the Clean Water Act protect local water quality, including water quality standards, TMDLs (including the Bay TMDL), and NPDES programs.

This technical memorandum specifies considerations for the protection of local water quality in the context of conducting trades or offsets of nitrogen, phosphorus, and sediment loads that involve an NPDES point source, consistent with the Bay TMDL.

There are multiple considerations for protection of local water quality regarding the physical location of where the credits are generated and used, including the location of entities using and generating the credits. Timing of any pollutant release also should be considered and adequately documented. Some credits may be generated in one time period during the annual compliance period but used during a different time period within the same annual compliance period. In addition, while any one trade or offset may not necessarily impact local water quality, multiple trades or offsets could have a cumulative positive or negative impact on local water quality. Thus, EPA also expects the cumulative result of all offsets or trades to be considered in the issuance of and/or compliance with each permit within the context of the local receiving water.

EPA expects these circumstances, identified in this technical memorandum, to be considered by the NPDES permitting agency and adequately documented in issued NPDES permits. The permit, its administrative record and associated fact sheet should include documentation of the factors addressed in this technical memorandum. NPDES permits that include trades or offsets are expected to include documentation that describes these trades or offsets as they relate to permit compliance. Specific situations involving NPDES permits are addressed in this technical memorandum. EPA intends to review all permits for significant dischargers in the Chesapeake Bay and permits for any new or increased dischargers that include the generation or use of trades or offsets.

INTRODUCTION

The Bay TMDL explicitly assumes that the Bay jurisdictions⁶ will account for and manage all new or increased loads of nutrients and sediment by means of either a TMDL allocation for growth or by offsetting that new or increased load.

⁵ United States Environmental Protection Agency, "Water Quality Trading Toolkit for Permit Writers," Updated June 2009. Available online at <http://water.epa.gov/type/watersheds/trading/WQTToolkit.cfm>

⁶ The Bay jurisdictions are: Delaware, Maryland, Pennsylvania, New York, Virginia, West Virginia, and the District of Columbia.

For every NPDES permit that uses credits, special attention should be paid to the impact of trading or offsetting activities on local water quality. For example: whether these activities are in the same or different watersheds, the distance between partners engaged in these activities, the relative location (up or downstream) of partners engaged in these activities, and whether the activities generating a credit impact other watersheds. Local water quality is typically most vulnerable in the case where the credit purchaser is upstream of the credit generator, specifically the stretch of water between the upstream purchaser and downstream generator. In addition, consideration should be given to factors such as nutrient and sediment fate and transport, coordinating the timing of credit creation and credit use, and the impact of trades and offsets on aggregate loads. These factors should be considered in each individual permit issued. In all cases, permit effluent limits (including those related to offsets) are required to achieve all applicable water quality standards.

The complexity of protecting local water quality increases where numerical criteria for nitrogen, phosphorus or sediment applicable to local waters do not currently exist. In those cases, the Bay jurisdictions may need to interpret the applicable narrative water quality criteria to protect the designated and existing beneficial uses. This technical memorandum provides a number of principles that should be adequately addressed and documented when credits are used in an NPDES permit.

PRINCIPLES FOR NPDES PERMITTING AGENCIES TO CONSIDER

The Bay jurisdictions should take into account the principles articulated in the following sections in determining whether the generation or use of a credit would be appropriate in the context of the established NPDES permit limit developed to be protective of water quality. EPA expects that each of these principles will be explicitly addressed in the permit, its administrative record and associated fact sheet regarding the protection of local water quality. If protective constraints on the use or generation of any particular credit (in addition to any protective constraints established in a jurisdiction's offset and/or trading program) are necessary for the protection of local water quality, then these constraints should be established in the permit and documented in the administrative record and associated fact sheet. The purpose of these principles is to ensure that local water quality is protected.

LOCATION

EPA expects regulatory authorities to consider and adequately document the following in regard to the location of where the credit is generated relative to where the credit is used:

- The location of the credit buyer relative to that of the credit seller. The credit may be bought and sold by sources along a shared receiving stream or different streams. If

along different streams, consideration should be made of the waters upstream and downstream of the receiving streams. Also, along a shared receiving stream consider which aspect of the transaction is occurring upstream of the other, and what impact that might have on the receiving waters. In general, the generator of the credit should be upstream of the buyer or user of the credit, as a way to minimize the risk of water quality impairment in the water between the two sources. Similarly, a credit generated in one watershed should not be used to offset a load, either existing or proposed, in another watershed unless there is a clear demonstration that the resulting discharges will not cause or contribute to a failure to comply with any applicable water quality standard. The section “Principles for NPDES Permitting Agencies to Consider” in this technical memorandum as well as the “Examples” section provide further information for permit writers to use when developing protective NPDES permits.

- Location where the credit seller’s pollutant load is released, if not on site. In such a case, consideration should be given to where the release is occurring and whether that release generates potential water quality concerns.
- Consider all current or planned diversions, tributaries, impoundments, drinking water intakes, or other water withdrawals between the credit seller’s and buyer’s loads.
- Consider the cumulative impact by all other point and nonpoint sources of the pollutant for which a credit is proposed to be bought or sold on the receiving water.
- Consider whether any additional pollutants (besides the ones for which a credit is being generated and purchased in the buyer and seller’s transaction) are likely to be added to the receiving waters as a result of this transaction.

NUTRIENT AND SEDIMENT TRANSPORT

EPA expects the Bay jurisdictions to determine the water quality impacts in part by considering and adequately documenting the fate and transport characteristics of the pollutant(s) for which credits are proposed to be bought and sold. For example, regulatory authorities should account for cumulative loads from all sources in the watershed as well as the in-stream processes that attenuate nutrients. The Bay jurisdictions can consider use of location or delivery factors to account for the distance between the loads.

TIMING OF CREDIT GENERATION AND USE

EPA expects the Bay jurisdictions to consider the impact to local water quality between the time of credit generation and the time of credit use. For example, the timing of the actual

reduction is expected to coincide with the permit compliance period. Three separate technical memoranda on credit calculation, credit permanence and accounting for uncertainty are expected to help to address timing issues. Where the permit compliance period is annual, then the load reduction should also be calculated on an annual basis. Likewise, where a permit compliance period is for a shorter duration than a year, then the load reduction should occur during the time of the permit compliance period.

CUMULATIVE IMPACT ON AN AGGREGATE LOAD

EPA expects the Bay jurisdictions to consider and adequately document the impact on water quality of all of the trades or offsets conducted in a local water segment and the impact these trades or offsets may have on a cumulative scale. The cumulative impact on the aggregate load should be assessed and documented in the permit's administrative record and associated fact sheet when establishing any permit trading or offset limitations.

APPLICATION TO NPDES PERMITTING

The following examples may help illustrate the general principles described in this technical memorandum and thus help guide the permit writer in drafting an effective NPDES permit. The following definitions apply to these examples:

- “Local TMDL” refers to a TMDL developed to address the impairment of the local waterbody for nitrogen, phosphorus and/or sediment (or equivalent pollutants), and local waters is defined on page 4 of this technical memorandum.
- “Local WQBEL” refers to either the WQBEL consistent with the assumptions and requirements of the applicable local TMDL WLA or, if there is no local TMDL, the WQBEL sufficient to protect applicable local water quality standards.
- “Bay WQBEL” refers to the WQBEL that is consistent with the assumptions and requirements of the applicable Bay TMDL WLA.

Federal regulations require NPDES permits to have effluent limits that are protective of applicable local WQS, as well as to be consistent with the assumptions and requirements of all applicable WLAs, including those in a local TMDL and the Bay TMDL. 40 C.F.R. § 122.44(d) (2013). Federal regulations also require the permit writer to make a reasonable potential analysis to determine whether a WQBEL is necessary. 40 C.F.R. § 122.44(d)(1)(i) (2013). For pollutants such as nitrogen, phosphorus, or sediment, where the state may not have applicable numeric water quality criteria, the permitting authority should perform the reasonable potential analysis in a manner that articulates the conditions adequate to prevent the exceedance of the state narrative criteria and associated beneficial uses. The NPDES permit

should contain the conditions and/or effluent limits, as determined in the reasonable potential analysis, to prevent the exceedance of applicable water quality standards.

Where the local WQS, the local TMDL WLA, and/or the Bay TMDL WLA have different assumptions and requirements, the permit must, under the Clean Water Act, have a limit implementing the most stringent requirement. To determine which TMDL requires a more stringent effluent limit, each TMDL should be reviewed in its entirety, including not just the allocation(s) for the source but the underlying assumptions and requirements of each TMDL. (See 40 C.F.R. § 122.44(d)(1)(vii) (2013)).

TECHNOLOGY BASED EFFLUENT LIMITATIONS (TBELS)

Pursuant to the EPA 2003 Water Quality Trading Policy, no trades should occur in order to comply with technology-based effluent limitations (TBELs). TBELs are the minimum level of protection required by the CWA⁷ and purchased credits should not be used to comply with TBELs. EPA expects compliance with TBELs to be established prior to, and independent of, any trades or offsets.

DOCUMENTATION FOR PERMIT ISSUANCE

The permit, its administrative record and associated fact sheet should include documentation of the factors addressed in this technical memorandum. The administrative record supporting the NPDES permit held by or to be held by the user of the credit(s) should contain all documents generated or relied on by the permitting agency which support or relate to the determination to allow the use of credits, including all numerical calculations, source data and assumptions, including but not limited to the credit generator, the location of credits, the type of credits, calculation, certification, and verification documentation.. The permit reporting requirements are expected to specify gross discharges, rather than the net discharges, which are the gross discharges less any pounds offset by purchased credits.

If protective constraints on the use or generation of any particular credit (in addition to any protective constraints established in a jurisdiction's offset and/or trading program) are necessary for the protection of local water quality, then these constraints should be established

⁷ 40 C.F.R. §122.44 (“[E]ach NPDES permit shall include conditions meeting the following requirements...Technology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of the CWA, on [sic] case-by-case effluent limitations determined under section 402 (a)(1) of CWA, or a combination of the three, in accordance with §125.3 of this chapter”); 40 C.F.R. §125.3 (“Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act”).

in the permit and documented in the administrative record and associated fact sheet. The administrative record should include documentation sufficient to show appropriate consideration of all relevant factors set forth in this technical memorandum.

In the case of offsets for new sources, as discussed in the Credit Permanence technical memorandum, EPA expects the offset to be assured for the duration of the authorization. Additional documentation regarding these assurances is discussed in that technical memorandum.

EXAMPLES

Case 1: Local Waters Not Listed as Impaired; No local TMDL

- a. **Existing Source, no increase in load:** In this case credits can be generated outside of local waters.
- b. **New Source with no applicable WLA (i.e. WLA = 0) in Bay TMDL:** A new source without a WLA should be treated as having a WLA of zero, and the entire load is expected to be offset. Credits used should be generated in local waters. In this case the permitting authority can take one of two approaches:
 - o Establish a local WQBEL that would serve to restrict credit generation and use to local waters for loads to be offset, *or*
 - o Restrict all credit generation and use to local waters.

Existing Source with applicable Bay TMDL WLA, proposed increase in load: A source may use credits that were generated outside of local waters, provided that the load to be offset is below historical discharge levels at the time of the Bay jurisdiction's water quality assessment ("the assessment"). Loads to be offset above the historical discharge level should be addressed as in Case 1.b above.

Case 2: Local Waters Listed as Impaired but No Local TMDL

- a. **Existing Source with applicable Bay TMDL WLA, no increase in load:** A source may use credits that were generated outside of local waters, provided that the load to be offset is below historical discharge levels at the time of the assessment. Loads to be offset above the historical discharge level should be offset using credits that were generated in local waters.
- b. **New Source with no applicable WLA (i.e. WLA = 0) in Bay TMDL:** Same as 1.b above

- c. **Existing Source with applicable Bay TMDL WLA, proposed increase in load:** Credits used may be generated outside of local waters, provided that the load to be offset is below historical discharge levels at the time of the assessment. Loads to be offset above the historical discharge level should be offset using credits that were generated in local waters.

Case 3: Local TMDL in place

- a. **Existing Source with applicable WLAs in both local and Bay TMDLs**
 - o If the local WLA is more stringent than the Bay WLA, the local WLA should serve as the basis for NPDES effluent limit. Permitting authorities should restrict credit use to credits generated in local waters.
 - o If the Bay WLA is more stringent, the Bay WLA should serve as the basis for NPDES effluent limit. Credit use should be restricted to credits generated in local waters to meet the local WLA. Below the local WLA, credits can be used that were generated outside of local waters.
- b. **New Source with applicable WLA in either the local or Bay TMDL:** In this case, the new source without a WLA should be treated as having a WLA of zero, and the entire load is expected to be offset. Conditions for Case 3.a apply.
- c. **New Source with no applicable WLA (i.e. WLA = 0) in either the local or Bay TMDL:** All loads are expected to be completely offset and credits used should be generated in local waters.

SUMMARY OF EXPECTATIONS

To ensure that local water quality is protected, EPA intends to review all permits for significant dischargers in the Chesapeake Bay and for any new or increased dischargers, as well as any permit involving an offset or trade. As part of its review, EPA will review the permit, the administrative record and associated fact sheet, and supporting documentation to ensure that the permit contains the requisite analysis of reasonable potential of a discharge to cause or contribute to an exceedance of applicable water quality standards. EPA's review would include the jurisdiction's analysis of whether the WQBEL, as well as any trades or offsets that allow for additional loading, is protective of local water quality. The permit writer should provide clear documentation in the administrative record and associated fact sheet regarding the basis of these limitations and any trades or offsets.

