

LEGAL BASIS FOR WATER QUALITY TRADING UNDER FEDERAL LAW

In 1972, Congress amended the Clean Water Act (“CWA”) and declared a national goal “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters”, with the elimination of pollutant discharges to occur by 1985.¹ To attain these goals, the CWA addresses point source and nonpoint source pollution through effluent limitations, and requires states to establish water quality standards. Though significant recovery has occurred, nearly thirty years have passed since the 1985 “pollution elimination” deadline and a considerable percentage of the nation’s waterways remain impaired.²

In 2003, the United States Environmental Protection Agency (“EPA”) published a final Water Quality Trading Policy to enable point and nonpoint sources to participate in voluntary, market-based approaches to meeting water quality compliance obligations at a reduced cost.³ The Trading Policy reinforces point and nonpoint source obligations to comply with CWA provisions, and provides a framework for approved pollutant credit trading consistent with the anti-backsliding policy, compliance and enforcement provisions, and public notice and comment, as required by law. Though the Trading Policy discusses several contexts in which trading may occur—to maintain high water quality, pre-total maximum daily load (“TMDL”) trading in impaired waters, TMDL trading, technology-based trading, pre-treatment trading, and intra-plant trading—to date, trading has most commonly been used by point sources with National Pollutant Discharge Elimination System (“NPDES”) permit obligations. Where TMDLs exist for impaired waters, trading has typically been incorporated into NPDES permits.

I. General CWA Framework

The CWA pursues two tracks for maintaining and restoring the nation’s waterbodies: 1) controlling discharges through “effluent limitations,”⁴ and 2) setting water quality standards to protect designated uses. The CWA makes the discharge of a pollutant into a waterbody illegal unless done so in compliance with one of the section 302, 306, 307, 318, 402 or 404 programs.⁵ The CWA regulates pollutant discharges from “point sources”⁶ and “nonpoint sources,”⁷

¹ 33 U.S.C. § 1251(a).

² EPA, Water Trading Policy, 68 Fed. Reg. 1608, 1609 (Jan. 13, 2003) (hereafter “Trading Policy”).

³ Trading Policy, 68 Fed. Reg. at 1610.

⁴ Effluent limitations include “*any restriction* established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters” 33 U.S.C. § 1362(11) (emphasis added). Effluent limitations therefore, need not be numeric. Moreover, they include schedules of compliance. *See id.* A schedule of compliance is a “schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation ...” *Id.* § 1362(17).

⁵ 33 U.S.C. § 1311(a).

⁶ 33 U.S.C. § 1362(14) (A point source is “any discernible, confined and discrete conveyance... from which pollutants are or may be discharged” into a waterbody, including releases from pipes or ditches).

⁷ Nonpoint sources are diffuse sources of water pollution, such as stormwater and nutrient runoff from agricultural or forest lands. *See* 40 C.F.R. § 35.1605-4. EPA guidance describes a “nonpoint source” as non-localized runoff “caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made

although in different ways. All point sources must apply some sort of effluent limitation.⁸ Such effluent limitations can be technologically-based effluent limitations (“TBELs”)—where they exist,⁹ or other more stringent limitations—including water quality based effluent limitations (“WQBELs”) and other “alternative effluent control strategies”¹⁰—where necessary to meet water quality standards.¹¹ Nonpoint sources are typically addressed by best management practices (“BMPs”),¹² which vary by state and level of enforcement.

The CWA also requires States to develop water quality standards that establish, and then protect, the desired conditions of each water body.¹³ State water quality standards consist of “designated uses”¹⁴ for a waterbody, and establish water quality criteria designed to protect those uses.¹⁵ State water quality standards must also be sufficient to maintain existing beneficial uses (i.e. prevent degradation).¹⁶ Attainment of water quality standards occurs on a watershed-wide basis, although point sources must also meet specific “near-field” discharge regulations.¹⁷ In addition to establishing water quality goals for a waterbody, water quality standards also serve as the basis for establishing effluent limitations in NPDES permits.¹⁸

II. Water Quality Trading under TMDLs

pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters, and ground water.” EPA, Nonpoint Source Program and Grants Guidelines for States and Territories, 68 Fed. Reg. 60,653, 60,654 (Oct. 23, 2003).

⁸ 33 U.S.C. § 1311(e).

⁹ 33 U.S.C. § 1311(b)(1)(A)-(B). Permits must include TBELs, when applicable. 40 C.F.R. § 122.44(a).

¹⁰ 33 U.S.C. § 1312(a). “Alternative effluent control strategies” is not defined in the statute or regulations. Such strategies could include BMPs, other non-numeric limitations, or water quality trading.

¹¹ 33 U.S.C. § 1311(b)(1)(A)-(B) (“In order to carry out the objective of this chapter[,] there shall be achieved— ... effluent limitations for point sources, other than publicly owned treatment works, (i) which shall require the application of the best practicable control technology currently available ... or, ... *any more stringent limitation*, including those necessary to meet water quality standards...” (emphasis added).

¹² 40 C.F.R. § 130.2(m).

¹³ *Id.* § 1313(a).

¹⁴ Designated uses in a waterbody include, but are not limited to, public water supply, fish and wildlife protection and propagation, recreation, agriculture, industry, and navigation. *See id.* § 1313(c)(2)(A); 40 C.F.R. § 131.10(a).

¹⁵ 33 U.S.C. § 1313(c)(2)(A). Water quality standards can be either numeric (a quantitative discharge limit) or narrative (prohibiting discharges in harmful amounts). 40 C.F.R. § 131.3(b).

¹⁶ 33 U.S.C. § 1313(d)(4)(B); 40 C.F.R. § 131.12.

¹⁷ Water quality standards set goals for an overall waterbody. 40 C.F.R. § 131.2 (“A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses.”); *see* 40 C.F.R. § 131.3(h) (defining water quality non-attainment in terms of “water quality limited segments”). It is not necessary to meet water quality standards at the point of discharge because states retain the authority to establish mixing zones. 40 C.F.R. § 131.13. Although water quality standards are meant to attain designated uses in a waterbody as a whole, individual point sources must satisfy pollutant-specific “near-field” mixing zone regulations created by states. *See, e.g.,* *Id.* Admin. C. 58.01.02.060; Or. Admin. R. 340-041-0053; Wash. Admin. C. 173-201A-400. In the temperature context, even if an overall river is satisfies a “fishable” designated use, an individual point source cannot discharge heat at levels that would cause fish lethality, impair spawning, or create thermal shock or a migration barrier at a particular outfall point. *See, e.g.,* Or. Admin. R. 340-041-0053(2)(d); *see also* *Id.* Admin. C. 58.01.02.060.01(b); Wash. Admin. C. 173-201A-400(4).

¹⁸ 40 C.F.R. § 131.2.

When a waterbody fails to meet water quality standards, despite controls on point sources and BMPs applicable to nonpoint sources, states develop TMDLs for impaired waters. TMDLs, as implemented through NPDES permits, can include water quality trading.

A. TMDL Development

When technological controls (set as TBELs in permits) do not bring a particular water body into attainment with applicable water quality standards, a state must identify and rank these unhealthy waters.¹⁹ Unhealthy waters are known as “water quality limited segments,” and are listed on “303(d) lists” for each state.²⁰ For these 303(d) “impaired waters,” the states must establish the absolute amount of a particular pollutant—the total maximum daily load—that a waterbody can take on while still satisfying water quality standards.²¹ EPA reviews and approves TMDLs developed by the states, or, alternatively, may also prepare a TMDL for a waterbody.²²

The CWA employs different approaches to control point and nonpoint sources to achieve water quality, but when a water body is impaired TMDLs tie together point and nonpoint source pollution issues to address the health of the whole waterbody.²³ Because the focus of a TMDL is on the health of the overall waterbody, TMDLs establish an aggregate pollutant “load”²⁴ amount for the impaired waterbody equal to “[t]he greatest amount of loading that a water can receive without violating water quality standards.”²⁵

The loading capacity is then allocated between multiple point and nonpoint sources in the impaired waterbody or waterbody segment. If each source discharges at or below its TMDL allocation, the water body should achieve its water quality standards. Point sources receive a wasteload allocation (“WLA”) that represents “[t]he portion of a receiving water’s loading capacity that is allocated to one of its existing or future point sources of pollution[.]”²⁶ Nonpoint sources, in turn, receive a load allocation (“LA”) that represents “[t]he portion of a receiving water’s loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources[.]”²⁷ The TMDL must also account for seasonal variations and include a “margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.”²⁸ Along with the statutorily-mandated margin of safety, the TMDL is “[t]he sum of the individual WLAs for point

¹⁹ 33 U.S.C. § 1313(d)(1)(A), (C).

²⁰ 40 C.F.R. § 130.7(b).

²¹ 33 U.S.C. § 1313(d)(1)(C).

²² 33 U.S.C. § 1313(d)(2).

²³ See 33 U.S.C. § 1313.

²⁴ Load is “an amount of matter or thermal energy that is introduced into a receiving water.” 40 C.F.R. § 130.2(e) (emphasis added).

²⁵ 40 C.F.R. § 130.2(f).

²⁶ 40 C.F.R. § 130.2(h).

²⁷ 40 C.F.R. § 130.2(g).

²⁸ 33 U.S.C. § 1313(d)(1)(C); *see also* 1313(d)(1)(D).

sources and LAs for nonpoint sources and natural background.”²⁹ The components of a TMDL are illustrated by this equation:

$$TMDL = \Sigma (WLAs [Point] + LAs [Nonpoint]) + Margin\ of\ Safety + Natural\ Background$$

The left side of the equation is the total loading capacity of the waterbody for a particular pollutant, such as temperature. The allocations on the right side of the equation represent the loading components, which when summed, equal the TMDL. These allocations are not made to achieve water quality standards at the source; rather, when taken as a whole these allocations are meant to meet the TMDL limit (which is designed to achieve water quality standards in a watershed). Recognizing that the water quality drivers in each waterbody are unique, the CWA allows regulators to make tradeoffs in how to meet the left side of the equation: so long as LAs to nonpoint sources are “practicable,” such as where supported by BMPs, more load can be allocated to point sources.³⁰ As an outgrowth of this discretion, trading allows point sources with high WLA-compliance costs the ability to more cost-effectively meet their load allocations through the purchase of pollution control credits and/or offsets, while still ensuring that the left side of the equation is not exceeded. Trading does not, however, change TMDL allocations.

B. NPDES Permits Can Incorporate WQT in TMDL Environment

Once a TMDL is approved, all future permits issued to point sources must be consistent with the TMDL’s wasteload allocations for point sources.³¹ The states—or EPA where a state has not been delegated authority to issue permits³²—will issue a NPDES permit to all point sources within the geographic scope of the TMDL. NPDES permits limit the amount of pollutants that can be discharged by a point source into a waterbody.³³ To meet these limits, NPDES permits include controls that reflect the stricter of two different kinds of effluent limitations: those based on the technology available to treat a pollutant,³⁴ and those necessary to protect the designated uses of the receiving water body.³⁵ TBELs “represent the minimum level of control that must be imposed in a permit,”³⁶ and are “developed independently of the potential

²⁹ 40 C.F.R. § 130.2(i).

³⁰ 40 C.F.R. § 130.2(i) states in pertinent part: “If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.”

³¹ 40 C.F.R. § 130.2.

³² The CWA authorizes states to adopt programs issuing NPDES permits. 33 U.S.C. § 1342(b). Five states have not been delegated authority to issue federal Clean Water Act permits: Alaska, Idaho, Massachusetts, New Hampshire, and New Mexico. EPA, Clean Water Act Action Plan: Shaping EPA’s Future Direction on Water Enforcement, <http://www.epa.gov/oecaerth/civil/cwa/cwaenfplan.html>. States may enforce more stringent effluent limitations than required by the federal CWA. 33 U.S.C. § 1370.

³³ 33 U.S.C. §§ 1311(a); 1342.

³⁴ See 33 U.S.C. §§ 1311(b)(1)(A)-(B).

³⁵ See 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

³⁶ 40 C.F.R. § 125.3(a)

impact of a discharge on the receiving water.”³⁷ Unless a specific regulatory exception applies, trading cannot be used to comply with an existing TBEL.³⁸ But where a point source’s TBEL is insufficient to meet the water quality standards that apply in a waterbody, or where no TBEL exists for a particular pollutant from a particular type of source,³⁹ the permit will instead include more stringent WQBELs—including “alternative effluent control strategies” such as BMPs and other non-numeric limitations—to ensure that water quality standards are met.⁴⁰

Where WQBELs are included in NPDES permits, these limits must be “consistent” with WLAs for point sources.⁴¹ Therefore, trading does not change TMDL allocations because these allocations are the basis of the trade and must remain the same for trading to work. While the law prescribes minimum requirements for developing WQBELs, it does not dictate how permittees meet them. This was intended to give the permitting authority the flexibility to determine the appropriate procedures for developing WQBELs. Thus, just as the CWA grants EPA the ability to authorize point source permittees to meet WLAs through TBELs that allow for trading credits or offsets generated from another point source,⁴² the CWA also affords EPA the flexibility to derive WQBELs that allow for trading so long as the WQBEL is consistent with the WLA established under the TMDL.⁴³

This is consistent with the fact the permit issuer—EPA or states with delegated authority—has broad statutory discretion to choose the proper effluent limitations in a permit,⁴⁴ as well as the discretion to condition permits on any “requirements as [s/]he deems

³⁷ EPA, NPDES Permit Writers’ Manual at 5-1 (2010).

³⁸ “EPA does not support trading to comply with existing [TBELs] except as expressly authorized by federal regulations. Existing technology-based effluent guidelines for the iron and steel industry allow intraplant trading of conventional, nonconventional and toxic pollutants between outfalls under certain circumstances (40 C.F.R. § 420.03).” Trading Policy, 68 Fed. Reg. at 1610-11.

³⁹ TBELs are derived by using national effluent limitation guidelines by industry. Industry-specific technology-based effluent guidelines have been promulgated for over fifty different industrial categories. *See* 40 C.F.R. pts. 405 - 499. Where TBELs have not yet been promulgated, EPA can also rely on ad hoc best professional judgment. *See* 33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(a)(2). In the case of publicly owned treatment works (POTWs), TBELs are secondary treatment standards as defined in CWA section 1314(d)(1). 33 U.S.C. § 1311(b)(1)(B). POTW facilities have TBELs for five-day biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. 40 C.F.R. § 133.02. POTWs do not have secondary treatment TBELs for temperature or nutrient discharges. *See id.* In late 2012, EPA rejected a rulemaking petition to include nitrogen and phosphorous removal standards within the national secondary treatment standards for POTWs. Letter from Michael Shapiro, EPA Deputy Asst. Administrator, to Ann Alexander, NRDC (Dec. 12, 2012), *available at* http://www.epa.gov/npdes/pubs/ow_shapiro_nrdepetition.pdf.

⁴⁰ *See* 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

⁴¹ 40 C.F.R. § 122.44(d)(1)(vii)(B).

⁴² One long-standing example of successful point-to-point source trades occurs under the watershed permit held by Clean Water Services, which operates four different municipal wastewater treatment facilities that discharge to Oregon’s Tualatin River under the same permit. Under the permit issued in 2005, Clean Water Services has traded oxygen-demanding parameters (CBOD and ammonia) between two of these facilities, affording operators greater flexibility in plant operations to meet water quality objectives at lower cost. Clean Water Services, Briefing Paper: Water Quality Trading (Aug. 2011). Clean Water Services’ watershed permit is available at Oregon DEQ’s website: <http://www.deq.state.or.us/wq/wqpermit/cwsp permit.htm>.

⁴³ *See* 40 C.F.R. § 122.44(d)(1)(vii)(B).

⁴⁴ *See* 33 U.S.C. § 1342(a)(1) (permits can be issued if a discharge will meet all applicable technological requirements, *or* if based on “such conditions as the Administrator determines are necessary to carry out the provisions of [the CWA].”).

appropriate,”⁴⁵ including trading-related provisions such as compliance schedules,⁴⁶ and re-opener clauses.⁴⁷ Thus, trading can be incorporated into NPDES permits so long as it will not result in a violation of water quality standards, or other provisions of the CWA and its implementing regulations.⁴⁸

As a result of this discretionary flexibility to set effluent limitations in NPDES permits, EPA details three paths to meet permit QWBELs in its Trading Policy, but leaves it up to the permittee to select the path. As EPA provided, “[o]ne option is to implement pollution prevention, reuse, or recycling measures adequate to meet the QWBEL at the point of discharge. The second option is to install treatment technology. The third option is trading[.]”⁴⁹ A facility could also implement treatment/pollution reduction measures to address a portion of its reduction requirement, and purchase its remaining reductions via water quality trading.⁵⁰ In the context of trading under TMDLs, EPA does require that water quality trades used to meet a point source’s QWBEL “should be consistent with the assumptions and requirements upon which the TMDL is established,” and that trades cannot delay implementation of a TMDL nor cause the combined point and nonpoint source loading to exceed the TMDL.⁵¹ Therefore, under EPA’s Trading Policy, a nonpoint source can provide a compliance “credit” to a point source within the same watershed with a TMDL-imposed WLA (translated into an enforceable permit QWBEL) when it undertakes a project to reduce its load below its respective LA.⁵²

III. Requirements Applicable to TMDL-based NPDES Permits that Include WQT

In addition to meeting QWBELs, point sources that rely on trading in areas covered by a TMDL must also comply with anti-degradation, anti-backsliding, and other substantive and procedural permit issuance conditions in order to participate in water quality trading.

⁴⁵ *Id.* § 1342(a)(2); 40 C.F.R. 122.43(a) (“In addition to conditions required in all permits (§§ 122.41 and 122.42), the Director shall establish conditions, as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of CWA and regulations.”).

⁴⁶ Compliance schedules can be included in NPDES permits, where appropriate. 40 C.F.R. § 122.47(a). Where a schedule of compliance exceeds one year, the permit must include interim requirements and dates for their achievement. *Id.* § 122.47(a)(3). In the case of water quality trading, such interim achievements might include minimum credit/year purchase milestones, minimum project/year implementation milestones, and requirements as to when the regulated entity must secure a trading partner.

⁴⁷ Reopener clauses can be included in NPDES permits, where necessary to achieve water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(vi)(C)(4).

⁴⁸ *See id.* at 1611 (“EPA does not support any use of credits or trading activity that would cause an impairment of existing or designated uses, adversely affect water quality at an intake for drinking water supply or that would exceed a cap established under a TMDL.”); 40 C.F.R. § 122.4(a) (“No permit may be issued ... [w]hen the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA.”); 40 C.F.R. § 122.4(d) (“No permit may be issued ... [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.”).

⁴⁹ EPA, Water Quality Trading Toolkit for Permit Writers, 20 (2009), http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.

⁵⁰ Water Quality Trading Toolkit, at 20.

⁵¹ Trading Policy, 68 Fed. Reg. at 1610.

⁵² *Id.*

A. Anti-Degradation Policy Compliance

Water quality trades and trading programs must comply with anti-degradation policies. In water-quality limited waters (Tier 1), states must maintain and protect existing designated uses.⁵³ EPA endorses trading so long as existing uses are maintained and protected.⁵⁴ In high quality waters where water quality exceeds levels necessary to sustain propagation of fish, shellfish, and wildlife and recreation in and on the water (Tier 2), states cannot further degrade water quality unless EPA finds it necessary to accommodate important economic or social development in the area.⁵⁵ EPA asserts that water quality trading will not result in “lower water quality” for Tier 2 high quality waters.⁵⁶ In state-designated “outstanding natural resources waters” (Tier 3), water quality must be maintained and protected without exception.⁵⁷ Additional limitations apply where potential water quality impairment is associated with thermal discharges.⁵⁸ EPA does not believe that anti-degradation review should be triggered under its regulations when trades or the trading program overall achieves a “no net increase” of the pollutant traded, and designated uses are not impaired.⁵⁹ Therefore, the scope of anti-degradation requirements and review will vary depending on the type/quality of the water into which a discharge will occur.⁶⁰

The level of anti-degradation review will also vary depending on whether the discharge is from a new source or discharge point, and whether the discharge will occur in a waterbody covered by a TMDL. In areas covered by TMDLs, *new* sources or new dischargers cannot be issued a permit if the discharge from construction or operation will “cause or contribute” to a violation of water quality standards, unless, before the close of the public comment period on the permit, the discharger demonstrates that 1) there is sufficient remaining pollutant load to allocate to it, and 2) that existing dischargers in that waterbody segment are subject to compliance schedules meant to bring the segment into compliance with water quality standards (not necessarily before the new discharger begins discharging).⁶¹ The regulations do not define

⁵³ 40 C.F.R. § 131.12(a)(1).

⁵⁴ Trading Policy, 68 Fed. Reg. at 1611.

⁵⁵ 40 C.F.R. § 131.12(a)(2).

⁵⁶ Trading Policy, 68 Fed. Reg. at 1611 (interpreting language in 40 C.F.R. § 131.12(a)(2)).

⁵⁷ 40 C.F.R. § 131.12(a)(3).

⁵⁸ 40 C.F.R. § 131.12(a)(4) (where potential water quality impairment is associated with a thermal discharge, the anti-degradation policy and implementing method must be consistent with 33 U.S.C. § 1326). Section 1326(a) allows for adjustment of effluent limitations associated with thermal discharges where a point source can demonstrate, after public hearing, that a less stringent limitation will still assure protection of fish and wildlife.

⁵⁹ Trading Policy, 68 Fed. Reg. at 1611.

⁶⁰ 40 C.F.R. § 131.12(a); *see* 33 U.S.C. § 1313(d)(4)(B).

⁶¹ 40 C.F.R. § 122.4(i)(1)-(2). A “schedule of compliance” is a “schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition or standard.” 33 U.S.C. § 1362(17). Schedules of compliance that last beyond one year must set interim requirements on at least an annual basis, or if impracticable to divide into increments, interim progress reports. 40 C.F.R. § 122.47(3). Compliance schedules can be modified after floods, acts of God, or other events that the

“cause or contribute.” Therefore, not every new discharge to an impaired water necessarily “causes or contributes” to a violation, especially if *de minimis*, or where net improvements to a waterbody occur as a result of a water quality trading program (assuming compliance with near-field regulations).

For existing dischargers, permit renewals at the same or lower effluent limitations do not usually “cause or contribute” to violations of water quality standards. Moreover, when establishing permit limits, effluent limits set by the permit writer cannot “cause, have the reasonable potential to cause, or contribute” to violations of water quality standards or criteria.⁶² As further protection, a permit writer cannot issue a permit if the imposition of conditions cannot ensure compliance with applicable state water quality standards,⁶³ and applicable requirements of the CWA and its implementing regulations.⁶⁴ These provisions ensure that water quality trades do not violate state anti-degradation policies.

B. Anti-Backsliding Compliance

Point sources wishing to participate in water quality trading must comply with the “anti-backsliding” provisions of the CWA. Under these provisions, NPDES permits may not be renewed, reissued, or modified to contain less stringent effluent limitations than those found in the previous permit.⁶⁵ This means that once an entity has achieved a particular effluent limitation—technological or water quality based—future permit iterations cannot be renewed, reissued or modified to contain less stringent limits, unless an exception applies.⁶⁶ If a facility meets its alternate WQBEL through the purchase of trading credits, and the facility is responsible for the same level of pollutant reduction, trading does not constitute a less stringent effluent limitation, even if the facility itself has a larger actual discharge.⁶⁷ Similarly, effluent limitations, wasteload allocations, and/or water quality standards cannot be revised to be less stringent.⁶⁸ Allowing a facility to meet its WQBEL via trading does not constitute a revised

permittee has little control over. 40 C.F.R. § 122.62(a)(4). Compliance schedules are not limited to the life of the permit, but require compliance “as soon as possible.” 40 C.F.R. § 122.47(a)(1).

⁶² 40 C.F.R. § 122.44(d)(1).

⁶³ 40 C.F.R. § 122.4(d).

⁶⁴ 40 C.F.R. § 122.4(a).

⁶⁵ 33 U.S.C. § 1342(o)(1); 40 C.F.R. § 122.44(l).

⁶⁶ 33 U.S.C. § 1342(o)(2). The relevant exceptions are 1) material and substantial alterations occurred after permit issuance and a less stringent limitation is appropriate; 2) new information arose that was not available at the time of the permit, or there was a mistake in the permit, and this different information would have justified less stringent limitations; 3) occurrence of an un-remediable event outside the permittee’s control; 4) the permittee received a permit modification; and 5) the permittee installed the controls necessary to meet effluent limitations, and properly operated/maintained the facility, but was unable to achieve the previous effluent limitation, thus making the new effluent limitation the level of pollutant control actually achieved. *Id.* § 1342(o)(2)(A)-(E); 40 C.F.R. § 122.44(l).

⁶⁷ See Water Quality Trading Toolkit, at 21.

⁶⁸ 33 U.S.C. § 1313(d)(4). In impaired waterbodies, wasteload allocations and effluent limitations cannot be revised unless attainment of the water quality is assured, or the designated use is removed. *Id.* § 1313(d)(4)(A). In high quality waterbodies, wasteload allocations, effluent limitations, and water quality standards cannot be revised unless the revision is consistent with anti-degradation policies. *Id.* § 1313(d)(4)(B).

effluent limitation if the facility is still responsible for the same level of pollution reduction.⁶⁹ Thus, once restoration actions required by a WQBEL or other appropriate trading conditions (such as trading ratios) are successfully installed—and thus attained by the point source—subsequent permits cannot be renewed, reissued, modified, or revised to contain less stringent trading limits, unless an exception applies.

C. Additional Procedural Safeguards

Lastly, the ability to use water quality trading as a NPDES permit compliance alternative in a region covered by a TMDL is limited by two other important procedural safeguards. First, for all permit decisions, including those that authorize trades, EPA retains an oversight role.⁷⁰ Therefore, EPA has authority to review trading provisions included in these permits to determine whether a permit is outside the guidelines and requirements of the CWA. To the extent EPA foresees the need to restrict trades, it may do so. Second, the public has the right to notice and comment on TMDLs that authorize water quality trading,⁷¹ and to permits that authorize trades to meet WQBELs.⁷² Therefore, this is robust opportunity for public input in developing appropriate water quality trading programs.

IV. Trading in the Absence of TMDLs

Pre-TMDL trades with NPDES permits would be structured similarly to trades under TMDLs, although with some differences. EPA endorses three types of pre-TMDL trades in its Trading Policy. First, EPA endorses watershed-scale trading programs that reduce loadings to a specified cap, supported by baseline information on pollutant sources and loadings.⁷³ Second, EPA endorses individual pre-TMDL trades that result in a net reduction of the pollutant traded, thus ensuring that further impairment is avoided.⁷⁴ Third, EPA endorses pre-TMDL trading that achieves a direct environmental benefit relevant to the conditions or causes of impairment to achieve progress toward restoring designated uses where reducing pollutant loads alone is not sufficient or as cost-effective.⁷⁵ Pre-TMDL trades might ameliorate or eliminate the need for a TMDL in the watershed.⁷⁶ If pre-TMDL trading does not, however, result in attainment of applicable water quality standards, EPA expects a TMDL to be developed.⁷⁷

⁶⁹ See Water Quality Trading Toolkit, at 21; Trading Policy, 68 Fed. Reg. at 1611.

⁷⁰ 33 U.S.C. § 1342(d); see also 68 Fed. Reg. at 1613.

⁷¹ See 40 C.F.R. § 130.7(d)(2) (EPA must publish a notice seeking public comment on the TMDL); 40 C.F.R. § 130.7(c)(1)(ii) (calculations used to establish a TMDL must be subject to public review as defined in a state's Continuing Planning Process).

⁷² 40 C.F.R. § 124.10; Trading Policy, 68 Fed. Reg. at 1611.

⁷³ Trading Policy, 68 Fed. Reg. at 1610.

⁷⁴ Trading Policy, 68 Fed. Reg. at 1610.

⁷⁵ Trading Policy, 68 Fed. Reg. at 1610.

⁷⁶ Water Quality Trading Toolkit, at 21.

⁷⁷ Trading Policy, 68 Fed. Reg. at 1610.

With respect to the first type of pre-TMDL trade—watershed wide trading that reduces loadings to a specified cap based on baseline information—the process is not significantly different than under TMDLs. Caps for total loading are derived from baseline information on pollutant sources and loadings that is consistent with water quality standards.⁷⁸ Establishing baseline information requires quantification of current conditions (including current pollutant loads from point and nonpoint sources in the watershed, and background levels).⁷⁹ Therefore, similar information must be gathered and quantified in order to approve a watershed-wide pre-TMDL trading program. To ensure the credibility of credits created and generated in the pre-TMDL environment, baseline measurement and quantification should be consistent with the methodologies that would be utilized in that particular TMDL process.

The permit issuer would issue NPDES permits allowing for trading to point sources that are largely the same, although without a TMDL, permits need not be consistent with TMDL wasteload allocations.⁸⁰ In both pre-TMDL and TMDL contexts, NPDES permits limit the amount of pollutants that can be discharged by a point source into a waterbody.⁸¹ In both contexts, unless a specific regulatory exception applies, trading cannot be used to comply with an existing TBEL.⁸² Like in the TMDL context, where a point source's TBEL is insufficient to meet the water quality standards that apply in a waterbody, or where no TBEL exists for a particular pollutant from a particular type of source,⁸³ the permit will instead include more stringent WQBELs—including “alternative effluent control strategies” such as BMPs and other non-numeric limitations—to ensure that water quality standards are met.⁸⁴ As in the TMDL context, permittees can meet WQBELs in the pre-TMDL context by “implement[ing] pollution prevention, reuse, or recycling measures adequate to meet the WQBEL at the point of discharge[, or by] install[ing] treatment technology[, or by] trading[.]”⁸⁵

In pre-TMDL trading environments, both regulators and permittees will likely desire the inclusion of compliance schedules,⁸⁶ and re-opener clauses.⁸⁷ Moreover, in pre-TMDL trading contexts, permittees will likely only participate if the regulators include a provision in the

⁷⁸ Water Quality Trading Toolkit, at 21.

⁷⁹ Water Quality Trading Toolkit, at 21.

⁸⁰ See 40 C.F.R. § 130.2.

⁸¹ 33 U.S.C. §§ 1311(a); 1342.

⁸² “EPA does not support trading to comply with existing [TBELs] except as expressly authorized by federal regulations. Existing technology-based effluent guidelines for the iron and steel industry allow intraplant trading of conventional, nonconventional and toxic pollutants between outfalls under certain circumstances (40 C.F.R. § 420.03).” Trading Policy, 68 Fed. Reg. at 1610-11.

⁸³ See *supra* notes 38-39 and accompanying text.

⁸⁴ See 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

⁸⁵ EPA, Water Quality Trading Toolkit for Permit Writers, 20 (2009), http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.

⁸⁶ Compliance schedules can be included in NPDES permits, where appropriate. 40 C.F.R. § 122.47(a). Where a schedule of compliance exceeds one year, the permit must include interim requirements and dates for their achievement. *Id.* § 122.47(a)(3). In the case of water quality trading, such interim achievements might include minimum credit/year purchase milestones, minimum project/year implementation milestones, and requirements as to when the regulated entity must secure a trading partner.

⁸⁷ Reopener clauses can be included in NPDES permits, where necessary to achieve water quality standards. See 40 C.F.R. § 122.44(d)(1)(vi)(C)(4).

NPDES permit guaranteeing that actions taken in the pre-TMDL environment will count toward compliance obligations imposed by the future TMDL. Permittees will also likely require more favorable trading ratios in order to participate. Inclusion of these trading provisions is within the permitting authority's broad discretion to insert conditions into NPDES permits.⁸⁸ Similar to permits issued in a TMDL context, however, pre-TMDL permits can only include trading so long as trading will not result in a violation of water quality standards, or the CWA or its implementing regulations.⁸⁹

Permits issued in a pre-TMDL context need to conform to largely the same anti-degradation, anti-backsliding and procedural requirements as permits issued in a TMDL context. The one notable difference between pre-TMDL and TMDL trading is that for pre-TMDL trades there is no regulatory exception if a new source or discharge will “cause or contribute to the violation of water quality standards.”⁹⁰ In both contexts, however, the regulations do not define “cause or contribute,” and so each discharge to an impaired water does not necessarily “cause or contribute” to a violation, especially if it is a *de minimis* discharge, or where net improvements to a waterbody may occur as a result of a water quality trade or trading program. As further protection, a permit writer cannot issue a permit if the imposition of conditions cannot ensure compliance with applicable state water quality standards,⁹¹ and applicable requirements of the CWA and its implementing regulations.⁹² These provisions ensure that water quality trades do not violate state anti-degradation policies.

Examples of pre-TMDL trading programs include the Minnesota Pollution Control Agency pre-TMDL phosphorous trading program,⁹³ the Great Miami River Watershed trading program,⁹⁴ and the Neuse River, where a TMDL later incorporated a pre-TMDL cap.⁹⁵

⁸⁸ See 33 U.S.C. § 1342(a) (permits can be issued based on “such conditions as the Administrator determines are necessary to carry out the provisions of [the CWA].”); 40 C.F.R. 122.43(a) (“In addition to conditions required in all permits (§§ 122.41 and 122.42), the Director shall establish conditions, as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of CWA and regulations.”).

⁸⁹ See *id.* at 1611 (“EPA does not support any use of credits or trading activity that would cause an impairment of existing or designated uses, adversely affect water quality at an intake for drinking water supply or that would exceed a cap established under a TMDL.”); 40 C.F.R. § 122.4(a), (d) 40 C.F.R. § 122.4(d).

⁹⁰ 40 C.F.R. § 122.4(i). In TMDL environments, a new source or discharger may cause or contribute to a violation of water quality standards if it demonstrates, prior to the close of public commenting, that 1) there is sufficient remaining pollutant load to allocate to it, and 2) that existing dischargers in that waterbody segment are subject to compliance schedules meant to bring the segment into compliance with water quality standards (not necessarily before the new discharger begins discharging). *Id.* § 122.4(i)(1)-(2).

⁹¹ 40 C.F.R. § 122.4(d).

⁹² 40 C.F.R. § 122.4(a).

⁹³ Pre-TMDL phosphorous trading (PTPT) allows new and expanding wastewater treatment facilities that discharge to a nutrient-impaired water to receive a discharge permit prior to completion of the applicable TMDL. Through PTPT, a new or expanding facility may increase its phosphorus discharge by purchasing a phosphorus reduction at another permitted facility (only facilities with effluent phosphorous limits in their permits can sell credits). Trades must be upstream of the impaired water; trades can be between entities within the same major watershed (trade ratio of trade ratio of 1.2 to 1 for new facilities and 1.1 to 1 for expanding facilities); 2) between buyers and sellers in different major watersheds, but within the same basin, and the seller is closer to the impaired water than the buyer (trade ratio of 1.2 to 1 for new facilities and 1.1 to 1 for expanding facilities); or 3) between buyers and sellers in different major watersheds, but within the same basin, and the buyer is closer to the impaired water than the seller (trade ratio of 1.4 to 1). PTPT cannot exacerbate violations of water quality standards. The buyer's phosphorus

mass limit will be adjusted upwards and the seller's phosphorus mass limit will be adjusted downwards in proportion to the extent of the trade. The trade is not effective until the permits have been changed. Once the period of the trade ends, each facility's phosphorus permit limit reverts to its original value. Minn. Pollution Control Agency, Pre-TMDL Phosphorous Trading Permitting Strategy, <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/special-projects/pre-tmdl-phosphorus-trading.html>. The Minnesota Supreme Court upheld the MPCA's interpretation of the CWA, and upheld a WWTP permit that allowed for pre-TMDL phosphorous trading. *In the Matter of the Cities of Annandale and Maple Lakes NPDES/SDS Permit Issuance*, 731 N.W.2d 502 (Minn. 2007).

⁹⁴ Soil and water conservation districts work with local farmers who agree to change their practices. Together, they submit projects that reduce nitrogen and phosphorous run-off. An advisory committee (WWTPs, agricultural producers, Ohio Farm Bureau Ass'n, Ohio Water Env'tl. Ass'n, community watershed organizations, county SWCDs, ODNR and USDA) review the proposals. The Waste Conservation Subdistrict manages an Insurance Pool of credits to be used as a "guarantee" for credits being generated for eligible buyers. Credits are used by WWTPs to meet their NPDES permit requirements. Those who participate in advance of regulatory requirements must produce credits at 1:1 ratio (for discharges to fully attaining waters) and at a 2:1 ratio (into impaired waters). Permittees who participate after the imposition of regulatory requirements must contribute at 2:1 and 3:1, respectively. SWCDs do the project implementation. Miami Conservancy District, Great Miami River Watershed Water Quality Credit Trading Program, http://www.miamiconservancy.org/water/quality_credit.asp.

⁹⁵ In 1999, North Carolina completed a TMDL for the Neuse River. The Neuse River Compliance Association established a pre-TMDL cap for the watershed in 1997. Water Quality Trading Toolkit, at 21, n. 7.