

FEDERAL LEGAL FRAMEWORK: WATER QUALITY TRADING

In conjunction with a “Conservation Innovation Grant” from USDA, Idaho DEQ, Oregon DEQ, Washington Ecology, and EPA Region 10 have engaged with Willamette Partnership and The Freshwater Trust in a regional discussion meant to identify a set of regional best practices for water quality trading programs. This legal framework document reflects those discussions, and attempts to describe the legal framework (primarily federal) within which trading must fit. This document does not reflect official state or federal agency interpretations of their own laws, does not create a binding obligation on the participating agencies or third parties, and is meant to be informational only.

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 control measures, 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 describing how point and nonpoint sources can participate in market-based approaches to meeting water quality standards at a reduced cost.³ The Trading Policy reinforces point and nonpoint source obligations to comply with CWA provisions, and provides a framework for 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- or outside-of-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, and a point source is using trading to meet its compliance obligation, trading is typically incorporated into NPDES permits.

I. General Federal CWA Framework

The CWA pursues two tracks for maintaining and restoring the nation’s waterbodies: 1) controlling point sources through technology-based “limitations,”⁴ and 2) establishing ambient

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 can include schedules of compliance. *See id.* A schedules of compliance is a “schedule of remedial

water quality standards that are the basis for additional water quality-based controls that may be imposed when technologically-based controls are inadequate to assure standard attainment and maintenance.⁵ 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.⁶ The CWA regulates pollutant discharges from “point sources”⁷ and “nonpoint sources,”⁸ although in different ways. All point sources must apply some sort of effluent limitation.⁹ Such effluent limitations can be technologically-based effluent limitations (“TBELs”)—where they exist,¹⁰ or other more stringent limitations—including water quality based effluent limitations (“WQBELs”) and other “alternative effluent control strategies”¹¹—where necessary to meet water quality standards.¹²

In addition to technology-based permits, 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 Nonpoint sources regulations are typically developed in the context of water quality standard implementation.¹⁷

measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation ...” *Id.* § 1362(17).

⁵ 33 U.S.C. §§ 1312, 1313.

⁶ 33 U.S.C. § 1311(a).

⁷ 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).

⁸ 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 “includ[ing] pollution caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters, and ground water. Atmospheric deposition and hydrologic modification are also sources of nonpoint pollution.” EPA, Nonpoint Source Program and Grants Guidelines for States and Territories, at 7 n.2 (2013), *available at* <http://water.epa.gov/polwaste/nps/upload/319-guidelines-fy14.pdf>.

⁹ 33 U.S.C. § 1311(e).

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

¹¹ 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.

¹² 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).

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 standard implementation typically occurs through best management practices (“BMPs”). *See* 40 C.F.R. § 130.2(m) (defining BMPs as the “[m]ethods, measures or practices selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters.”). Implementation of nonpoint source

Attainment of water quality standards typically occurs on a reach- or watershed-wide basis, although point sources must also meet specific “near-field” discharge requirements.¹⁸ 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.¹⁹

II. Water Quality Trading under Watershed-Wide Management Plans

When a waterbody fails to meet water quality standards, despite controls on point sources and BMPs applicable to nonpoint sources, the relevant water quality agency—a state agency or EPA—must develop a watershed-wide strategy for addressing the issue.²⁰ Usually, the agency develops a TMDL for that impaired water.²¹ TMDL documents may include references to water quality trading. For the purposes of the discussion, this section assumes that water quality trading occurs under TMDLs written by state agencies.

A. Watershed-Wide Management Plan 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

controls can also be motivated by state law, where such a law exists, the Coastal Zone Act Reauthorization Amendments, and CWA section 319 grant programs.

¹⁸ 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”). With EPA approval, states may include “mixing zones” in their state water quality standards. 40 C.F.R. § 131.13. Where a state has developed mixing zone regulations, the point of compliance may be the end of the mixing zone, and not the point of discharge. 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).

¹⁹ 40 C.F.R. § 131.2.

²⁰ States list these waters, and depending on the listing category, must take a particular action. *See* 33 U.S.C. §§ 1313(d)(1)(A), 1315(b); 40 C.F.R. § 130.7(b)(1). Beginning in 2002, EPA began recommending that states use five reporting categories in their 1315(b) biennial reports on impaired waters. Memo. from Robert Wayland, Director, EPA Office of Wetlands, Oceans and Watersheds, to EPA, 2002 Integrated Water Quality Monitoring and Assessment Report Guidance (Nov. 19, 2001), *available at* <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/2002wqma.cfm>.

²¹ Typically, EPA reviews and approves TMDLs developed by the states. However, EPA may also prepare a TMDL for a waterbody if it disapproves of a state-drafted TMDL, 33 U.S.C. § 1313(d)(2), or for waterbodies that span multiple jurisdictions. The scope and implementation of TMDLs varies depending on whether a state agency or EPA is responsible. TMDLs are “primarily informational tools” that “serve as a link in an implementation chain that includes federally regulated point source controls, state or local plans for point and nonpoint source pollutant reduction, and assessment of the impact of such measures on water quality, all to the end of attaining water quality goals for the nation’s waters.” *Pronsolino v. Nastro*, 291 F.3d 1123, 1129 (9th Cir. 2002). Therefore, if EPA develops a TMDL, it cannot implement the TMDL, except to the extent EPA is responsible for issuing NPDES permits in the state. States, on the other hand, can and do write TMDL implementation plans.

unhealthy waters.²² Unhealthy waters are known as “water quality limited segments,” and are listed on “303(d) lists” for each state.²³ For these 303(d) “impaired waters,” the states or EPA must identify each assessed water as falling within a particular category. States have typically listed impaired waters as “Category 5” waters in need of a TMDL. Assuming the state pursues the TMDL course, it then establishes the absolute amount of a particular pollutant—the total maximum daily load—that the waterbody can take on while still satisfying water quality standards.²⁴ EPA typically reviews and approves TMDLs developed by the states, or, alternatively, it may also prepare a TMDL for a waterbody.²⁵

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 non-point source pollution issues to address the health of the whole waterbody.²⁶ Because the focus of a TMDL is on the health of the overall waterbody, TMDLs establish an aggregate pollutant “load”²⁷ amount for the impaired waterbody equal to “[t]he greatest amount of loading that a water can receive without violating water quality standards.”²⁸

The loading capacity is then allocated between multiple point and nonpoint sources in the impaired waterbody or waterbody segment, and natural background. 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[.]”²⁹ Nonpoint sources 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[.]”³⁰ 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.”³¹ Along with the statutorily-mandated margin of safety, the TMDL is “[t]he sum of the individual WLAs for point sources and LAs for nonpoint sources and natural background.”³² The components of a TMDL are illustrated by this equation:

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

²² 33 U.S.C. § 1313(d)(1)(A), (C).

²³ 40 C.F.R. § 130.7(b).

²⁴ 33 U.S.C. § 1313(d)(1)(C).

²⁵ 33 U.S.C. § 1313(d)(2).

²⁶ See 33 U.S.C. § 1313.

²⁷ 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).

²⁸ 40 C.F.R. § 130.2(f).

²⁹ 40 C.F.R. § 130.2(h).

³⁰ 40 C.F.R. § 130.2(g).

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

³² 40 C.F.R. § 130.2(i).

The left side of the equation is the total loading capacity of the waterbody for a particular pollutant. The allocations on the right side of the equation represent the loading components, which when summed, equal the TMDL. 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 within a TMDL basin: so long as LAs to nonpoint sources are “practicable,” such as where supported by BMPs and other reasonable assurances, more load can be allocated to point sources.³³

Once set, however, trading does not change TMDL allocations; rather it simply provides sources with the ability to more cost-effectively meet their load limits through the purchase of pollution control credits and/or offsets.

B. NPDES Permits Can Incorporate WQT in TMDL Environment

All point sources that have the potential to discharge are required to have an individual permit or be covered under a general NPDES permit.³⁴ If there is a TMDL covering a watershed, NPDES permits must be drafted (or for existing permits, renewed/reissued) to be consistent with the assumptions and requirements of any available TMDL wasteload allocations for point sources.³⁵ The states—or EPA where a state has not been authorized to issue permits³⁶—will issue a NPDES permit to all point sources with the potential to discharge 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.³⁷ To determine this load limit, regulators establish effluent limits, which cannot “cause, have the reasonable potential to cause, or contribute” to violations of water quality standards or criteria.³⁸ 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,³⁹ and those necessary to meet the applicable water quality standard(s) of the receiving water body.⁴⁰ TBELs “represent the minimum level of control that must be imposed in a permit,”⁴¹ and are “developed independently of the potential impact of a discharge on the receiving water.”⁴² Unless a specific regulatory exception applies, EPA policy provides that

³³ 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.”

³⁴ 33 U.S.C. § 1311(a); 40 C.F.R. § 122.28 (general permits).

³⁵ 40 C.F.R. § 122.44(d)(1)(vii)(B).

³⁶ The CWA authorizes states to adopt programs issuing NPDES permits. 33 U.S.C. § 1342(b). The following do not have authority to issue federal Clean Water Act permits: Idaho, Massachusetts, New Hampshire, New Mexico, and District of Columbia. 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.

³⁷ 33 U.S.C. §§ 1311(a); 1342.

³⁸ 40 C.F.R. § 122.44(d)(1).

³⁹ See 33 U.S.C. §§ 1311(b)(1)(A)-(B).

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

⁴¹ 40 C.F.R. § 125.3(a)

⁴² EPA, NPDES Permit Writers’ Manual at 5-1 (2010).

trading cannot be used to comply with an existing TBEL.⁴³ 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,⁴⁴ 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.⁴⁵ Additional considerations for effluent limits may apply where potential water quality impairment is associated with thermal discharges.⁴⁶

Where WQBELs are included in NPDES permits, these limits must be “consistent” with WLAs for point sources.⁴⁷ While the law prescribes minimum requirements for developing WQBELs consistent with the TMDL, it does not dictate how permittees meet them. This arrangement provides the permitting authority the flexibility to determine the appropriate procedures for developing WQBELs, and affords permittees the flexibility in meeting them through a number of vehicles, including water quality trading. Trading does not change TMDL WLAs for point sources; rather, it is a mechanism for ensuring that the source is only discharging its allocation. Because these allocations are the basis of the trade, permit limits are either consistent or inconsistent with WLAs, regardless of whether trading is involved.

This is consistent with the fact the permit issuer—EPA or states with CWA authority—has broad statutory discretion to choose the proper effluent limitations in a permit,⁴⁸ as well as the discretion to include in permits any “requirements as [s/]he deems appropriate,”⁴⁹ including

⁴³ “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.

⁴⁴ Technology-based requirements exist for all sources. 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. The permitting entity can also rely on ad hoc best professional judgment to set TBELs if not effluent limit guidance exists. See 33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(a)(2). While TBELs exist for all sources, they do not exist for all pollutants from all sources. 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_nrdcpetition.pdf.

⁴⁵ See 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

⁴⁶ 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 necessary.

⁴⁷ 40 C.F.R. § 122.44(d)(1)(vii)(B).

⁴⁸ 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].”).

⁴⁹ *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.”).

provisions such as compliance schedules⁵⁰ and re-opener clauses⁵¹ that assist in making trading a viable compliance alternative. Moreover, permit writers cannot issue a permit if s/he determines that the imposition of conditions cannot ensure compliance with applicable state water quality standards,⁵² and applicable requirements of the CWA and its implementing regulations.⁵³ 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.⁵⁴

As a result of this discretionary flexibility to set effluent limitations in NPDES permits, EPA details three paths to meet permit WQBELs 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 WQBEL at the point of discharge. The second option is to install treatment technology. The third option is trading[.]”⁵⁵ 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.⁵⁶ In the context of trading under TMDLs, EPA does require that water quality trades used to meet a point source’s WQBEL “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.⁵⁷ Therefore, under EPA’s Trading Policy, once a nonpoint or point source has met baseline requirements—which are discussed *infra* at length in Tier II of the JRA—it can provide a “credit” to a point source within the same watershed to help the point source meet its WQBEL.⁵⁸

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

⁵⁰ 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.

⁵¹ 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).

⁵² 40 C.F.R. § 122.4(d).

⁵³ 40 C.F.R. § 122.4(a).

⁵⁴ *See* 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.”); *see also* Trading Policy, 68 Fed. Reg. 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.”).

⁵⁵ EPA, Water Quality Trading Toolkit for Permit Writers, 20 (2009), *available at* http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.

⁵⁶ Water Quality Trading Toolkit, at 20.

⁵⁷ Trading Policy, 68 Fed. Reg. at 1610.

⁵⁸ *Id.*

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

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.⁵⁹ EPA endorses trading so long as existing uses are maintained and protected.⁶⁰ 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), water quality cannot be degraded unless it is determined necessary to accommodate important economic or social development in the area.⁶¹ Unless justified, water quality trading may not result in “lower water quality” for Tier 2 high quality waters.⁶² In state-designated “outstanding natural resources waters” (Tier 3), water quality must be maintained and protected without exception.⁶³ Additional anti-degradation considerations may apply where potential water quality impairment is associated with thermal discharges.⁶⁴ 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.⁶⁵ 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.⁶⁶

B. Compliance with “Cause or Contribute” Provisions in 40 C.F.R. § 122

Sources must also address the “cause or contribute” provisions in the federal regulations prior to engaging in trading. New sources or new dischargers cannot be issued a permit if the

⁵⁹ 40 C.F.R. § 131.12(a)(1).

⁶⁰ Trading Policy, 68 Fed. Reg. at 1611.

⁶¹ 40 C.F.R. § 131.12(a)(2).

⁶² Trading Policy, 68 Fed. Reg. at 1611 (interpreting language in 40 C.F.R. § 131.12(a)(2)).

⁶³ 40 C.F.R. § 131.12(a)(3).

⁶⁴ 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 necessary.

⁶⁵ Trading Policy, 68 Fed. Reg. at 1611. EPA’s position is consistent with the purposes underlying water quality standards (including anti-degradation, which is in subpart 131.2, titled “water quality standards”). *See* 40 C.F.R. § 131.2 (the purpose of water quality standards is to “protect public health or welfare, enhance the quality of water and serve the purposes of the [CWA].”). It is also consistent with EPA regulations describing the safeguards necessary when water quality degradation is allowed. *See* 40 C.F.R. § 131.12(a)(2) (“In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.”).

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

discharge from construction or operation will “cause or contribute” to a violation of water quality standards.⁶⁷ Where an owner or operator of a new source proposes to discharge into an impaired waterway, and there is a TMDL (or something analogous that has allocated pollutant loads), the new source/discharger must demonstrate (prior to the close of the public comment period for the permit) 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).⁶⁸ Each NPDES permit (new and existing) must set limits sufficient to control all pollutants that are or may be discharged at levels that would “cause, have the reasonable potential to cause, or contribute” to violations of water quality standards.⁶⁹ None of these regulations define “cause or contribute.” Therefore, it is unclear whether every discharge necessarily “causes or contributes” to a violation of water quality standards, and recent case law interpreting this provision has not provided clarity.⁷⁰ Water quality agencies should consider this uncertainty when developing permits, trading programs, rules, and/or guidance.

C. 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 generally may not be renewed, reissued, or modified to contain less stringent effluent limitations than those found in the previous permit.⁷¹ 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.⁷² In addition, if a point source in an impaired water has an effluent limitation based on a TMDL/WLA, the effluent limit can only be revised if the cumulative effect of all effluent limitation revisions will

⁶⁷ 40 C.F.R. § 122.4(i).

⁶⁸ 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 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).

⁶⁹ 40 C.F.R. § 122.44(d)(1).

⁷⁰ *See, e.g., Friends of Pinto Creek v. U.S. EPA*, 504 F.3d 1007 (9th Cir. 2007), *cert. denied*, 129 S. Ct. 896 (2009); *In re Cities of Annandale and Maple Lake*, 31 N.W. 2d 502 (Minn. 2007); *Assateague Coastkeeper v. Maryland Department of the Environment*, 28 A.3d 178, 180 (Md. Ct. Spec. App. 2011).

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

⁷² 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).

ensure water quality standard attainment, *or* the unattained designated use has been removed.⁷³ Additional hurdles exist if attempting to revise a point source's effluent limit, where the point source is located in waters that exceed levels necessary to meet designated uses.⁷⁴ If a facility meets its alternate WQBEL through the purchase of credits, and the facility remains responsible for the same level of pollutant reduction, the EPA Water Quality Trading Toolkit suggests that trading does not constitute a less stringent effluent limitation, even if the facility itself has a larger actual discharge.⁷⁵ Allowing a facility to meet its WQBEL via trading does not constitute a revised effluent limitation if the facility is still responsible for the same level of pollution reduction.⁷⁶ Although unclear, trading-related provisions expressly incorporated into a permit (i.e., ratios, calculation methods, etc.) may be subject to anti-backsliding, unless an exception applies.⁷⁷

D. Additional Procedural Safeguards: Oversight & Public Involvement

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 allow for trades, EPA retains an oversight role.⁷⁸ 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,⁷⁹ and to permits that authorize trades to meet WQBELs.⁸⁰ Therefore, this is robust opportunity for public input in developing appropriate water quality trading programs.

IV. Trading Outside of TMDLs

Outside-of-TMDL trades with NPDES permits could be structured similarly to trades under TMDLs, although with some differences. The EPA Trading Policy discusses three types of pre-TMDL trades in its Trading Policy. First, the Trading Policy discusses watershed-scale trading programs that reduce loadings to a specified cap, supported by baseline information on

⁷³ 33 U.S.C. § 1313(d)(4)(A). The 2003 EPA Trading Policy cites to this provision explicitly in the anti-backsliding section. 68 Fed. Reg. at 1611.

⁷⁴ *Id.* § 1313(d)(4)(B).

⁷⁵ See Water Quality Trading Toolkit, at 21.

⁷⁶ See Water Quality Trading Toolkit, at 21; Trading Policy, 68 Fed. Reg. at 1611.

⁷⁷ Revised regulations, guidance, or test methods appear to fall outside of the backsliding conversation entirely. See 33 U.S.C. § 1342(o)(2)(B)(i).

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

⁷⁹ 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).

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

pollutant sources and loadings.⁸¹ This type of trading ostensibly requires a TMDL-like watershed analysis capable of properly dividing load between sources. Second, the Trading Policy discusses individual pre-TMDL trades that result in a net reduction of the pollutant traded, thus ensuring that further impairment is avoided.⁸² Third, the Trading Policy discusses 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.⁸³ Pre-TMDL trades might ameliorate or eliminate the need for a TMDL in the watershed.⁸⁴ If pre-TMDL trading does not, however, result in attainment of applicable water quality standards, the Trading Policy notes that EPA expects a TMDL to be developed.⁸⁵

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; except there is no formal TMDL document approved by EPA. Caps for total loading are derived from baseline information on pollutant sources and loadings that is consistent with water quality standards.⁸⁶ Establishing baseline information requires quantification of current conditions (including current pollutant loads from point and nonpoint sources in the watershed, and background levels).⁸⁷ Therefore, similar TMDL-like information must be gathered and calculated in order to approve a watershed-wide trading program without a TMDL. To ensure the credibility of credits created and generated in this type of environment, baseline measurement and quantification should be consistent with the methodologies that would be utilized in that particular TMDL process. A watershed-wide, cumulative impacts analysis may be needed in order to establish WLA-like amounts that would serve as the basis of permit limits. Outside-of-TMDL examples include the Minnesota Pollution Control Agency pre-TMDL phosphorous trading program,⁸⁸ the Great Miami River Watershed trading program,⁸⁹ and the Neuse River, where a TMDL later incorporated a prior pre-TMDL cap.⁹⁰

⁸¹ Trading Policy, 68 Fed. Reg. at 1610.

⁸² Trading Policy, 68 Fed. Reg. at 1610.

⁸³ Trading Policy, 68 Fed. Reg. at 1610.

⁸⁴ Water Quality Trading Toolkit, at 21.

⁸⁵ Trading Policy, 68 Fed. Reg. at 1610.

⁸⁶ Water Quality Trading Toolkit, at 21.

⁸⁷ Water Quality Trading Toolkit, at 21.

⁸⁸ 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 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

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.⁹¹ Nonetheless, the permit limit would still need to be consistent with water quality standards.⁹² 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.⁹³ In both contexts, unless a specific regulatory exception applies, trading cannot be used to comply with an existing TBEL.⁹⁴ 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,⁹⁵ the permit will instead include more stringent WQBELs—which may include “alternative effluent control strategies” such as BMPs and other non-numeric limitations—to ensure that water quality standards are met.⁹⁶ As in the TMDL context, the EPA Water Quality Trading Toolkit suggests that 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[.]”⁹⁷

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).

⁸⁹ 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.

⁹⁰ 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.

⁹¹ See 40 C.F.R. § 130.2.

⁹² See 40 C.F.R. § 122.44(d)(i) (“Limitations must control all pollutants or pollutant parameters . . . which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard[.]”).

⁹³ 33 U.S.C. §§ 1311(a); 1342.

⁹⁴ “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.

⁹⁵ See *supra* notes 41-42 and accompanying text.

⁹⁶ See 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

⁹⁷ EPA, Water Quality Trading Toolkit for Permit Writers, 20 (2009), *available at* http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.

In pre-TMDL trading environments, both regulators and permittees may desire the inclusion of compliance schedules,⁹⁸ and re-opener clauses.⁹⁹ Moreover, in pre-TMDL trading contexts, permittees will likely only participate if the regulators include a provision in the NPDES permit guaranteeing that actions taken in the pre-TMDL environment will be deemed consistent with future TMDL WLAs. Inclusion of these trading provisions is within the permitting authority's broad discretion to insert conditions into NPDES permits.¹⁰⁰ 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.¹⁰¹

Permits issued outside of a TMDL need to conform to largely the same anti-degradation, anti-backsliding and procedural requirements as permits issued in a TMDL context. One difference between outside-of-TMDL and TMDL contexts is that a new source may have a more difficult time showing that its proposed discharge will not "cause or contribute" to a violation of water quality standards if the state agency or EPA has not "performed a pollutants load allocation" similar to a TMDL for that pollutant in the waterbody.¹⁰² In both TMDL and outside-of-TMDL contexts, however, the regulations do not define "cause or contribute," and so it is unclear whether all discharges to an impaired water necessarily "cause or contribute" to a violation, especially in light of the varying interpretations of this provision in recent case law.¹⁰³ Similarly, in both contexts, a permit writer cannot issue a permit if the imposition of conditions cannot ensure compliance with applicable state water quality standards,¹⁰⁴ and applicable requirements of the CWA and its implementing regulations.¹⁰⁵ These provisions ensure that water quality trades are protective even without a TMDL.

⁹⁸ 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.

⁹⁹ 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).

¹⁰⁰ *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.").

¹⁰¹ *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).

¹⁰² 40 C.F.R. § 122.4(i). If there is a pollutant load allocation for the relevant pollutant in an impaired waterway, a new source or discharger must also demonstrate, 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).

¹⁰³ *See supra* note 72 (citing key recent case law).

¹⁰⁴ 40 C.F.R. § 122.4(d).

¹⁰⁵ 40 C.F.R. § 122.4(a).

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Water quality trading is thus allowable under the CWA, and bracketed by sufficient safeguards to ensure compliance with water quality standards. However, actual water quality trading markets must be designed to ensure that CWA requirements are met in individual cases. Thus, Tier 2 of this Agreement provides the necessary safeguards to determine trade eligibility, verification, tracking, and monitoring so as to comply with and attain water quality standards.

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