Institute *for* Policy Integrity

new york university school of law

October 1, 2012

Amelia Letnes and Michelle Schutz
U.S. Environmental Protection Agency

Subject: Water Quality Trading under the Clean Water Act

Dear Ms. Letnes and Ms. Schutz,

The Institute for Policy Integrity at New York University School of Law respectfully submits this letter in advance of the Environmental Protection Agency's forthcoming rulemaking on 40 C.F.R. § 122.4(i), listed at RIN 2040-AF17 in the Regulatory Agenda for Fall 2011. The comments below make recommendations that will advance the efficient implementation of the Clean Water Act.

Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Environmental quality and market-based regulatory tools are areas of particular focus for Policy Integrity.

EPA has long embraced water quality trading as a tool to lower the cost of enforcing water quality standards under the Clean Water Act. Where available, water quality trading allows regulated entities to transfer abatement obligations to polluters with lower abatement costs. This minimizes compliance costs, resulting in a more efficient regulatory scheme.

These principles should inform EPA's approach to its upcoming rulemaking on § 122.4(i). With respect to the National Pollution Discharge Elimination System and permitting of proposed new sources or new dischargers ("new sources") on impaired waterbodies, EPA should:

- Clarify § 122.4(i) to explicitly allow the use of offsets to meet new source permitting requirements. Draft language for an amendment to the regulation is contained in the Appendix to this comment letter.
- Structure any new requirement that new sources affirmatively improve water quality in a manner that equalizes marginal abatement costs.

Additionally, the rulemaking under RIN 2040-AF17 represents an opportunity for EPA to improve the effectiveness or broaden the scope of water quality trading under the Clean Water Act. In order to optimize efficiency in trading, EPA should:

- Allow for efficient trading to meet technology-based effluent limits.
- Reevaluate any remaining legal barriers to existing trading programs.
- Encourage auctioning as an option for state regulators to help them build trading programs.
- Facilitate access to information relevant to trading, monitoring, and enforcement.

I. 40 C.F.R. § 122.4(i) should be amended to explicitly provide for the use of offsets.

Under current EPA policy, a proposed new source may meet the permitting requirements of 40 C.F.R. § 122.4(i) by offsetting its discharge through off-site reductions. A decision by the Ninth Circuit Court of Appeals, however, leaves the continued viability of this practice uncertain. As allowing the use of offsets maximizes the efficiency of EPA's policy scheme for impaired waterbodies, EPA should propose amending § 122.4(i) to explicitly provide for the use of offsets. Draft language for an amendment to the regulation is contained in the Appendix to these comments.

40 C.F.R. § 122.4(i) protects water quality through strict new source permitting requirements.

To ensure the safe use of America's waterways, Clean Water Act § 303 requires states to establish water quality standards for waterbodies within their borders.[1] To secure the attainment of water quality standards, § 303 requires states to designate waterbodies falling short of the relevant standard as impaired, and for each impaired waterbody to develop and implement a Total Maximum Daily Load ("TMDL").[2] TMDL development consists of an assessment of the maximum daily amount of a pollutant that a waterbody can absorb and still meet its water quality standard.[3] A TMDL is implemented by imposing sustainable pollutant load allocations for each source on the waterbody, as well as compliance schedules for attaining the water quality standard.[4] Because of variation between the costs of reductions for point sources and the possibility of low-cost reductions from unregulated nonpoint sources,[5] water quality trading may reduce the cost of attaining water quality standards.[6]

Clean Water Act § 301(b)(1)(C), meanwhile, mandates the issuance of "any more stringent limitation . . . required to implement any applicable water quality standard."[7] No such additional limitation is needed where a TMDL has been implemented, but TMDL development has historically lagged.[8] Despite a marked increase recently in the number of TMDLs, thousands of impaired waterbodies still lack TMDLs,[9] and implementation of TMDLs has lagged, even where they exist. As a result, the mandate of § 301(b)(1)(C)—to impose "any more stringent limitation . . . required to implement any applicable water quality standard"—is currently applicable to many bodies of water.

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[1] Clean Water Act § 303, 33 U.S.C. § 1313; Clean Water Act § 101(a)(2), 33 U.S.C. § 1251(a)(2). *See also* EPA.gov, *Overview of Impaired Waters and Total Maximum Daily Load Program*, http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/intro.cfm (last visited April 25, 2012) ("Water quality standards define the goals for a waterbody by designating its uses, setting criteria to protect those uses, and establishing provisions to protect water quality from pollutants.").

[2] Clean Water Act § 303(d)–(e). *See also* EPA.gov, *Impaired Waters and Total Maximum Daily Loads*, *supra* note 1.

[3] Clean Water Act § 303(d).

[4] Claudia Copeland, Cong. Research Serv., RL97-831, Clean Water Act and Total Maximum Daily Loads (TMDLs) of Pollutants 2 (2008).

[5] *See* Richard N. Boisvert, Gregory L. Poe, & Yukako Sado, SELECTED ECONOMIC ASPECTS OF WATER QUALITY TRADING: A PRIMER AND INTERPRETIVE LITERATURE REVIEW 5 (2007) ("[F]or a fixed level of capital investment, marginal abatement costs tend to rise with successive levels of abatement.").

[6] *See* Water Quality Trading Policy, Issuance of Final Policy, 68 Fed. Reg. 1608, 1609–10 (Jan. 13, 2003) ("EPA supports implementation of water quality trading . . . where trading reduces the cost of implementing TMDLs through greater efficiency and flexible approaches.").

[7] Clean Water Act § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C).

[8] *See* COPELAND, *supra* note 4, at 2 ("Most states have lacked the resources to do TMDL analyses, which involve complex assessment in order to ascribe and quantify environmental effects for particular discharge sources.").

[9] *See* EPA.gov, *National Summary of Impaired Waters and TMDL Information*, http://iaspub.epa.gov/waters10/attains_nation_cy.control?p_report_type=T (last visited Apr. 4, 2012).

In the permitting context, Clean Water Act § 301(b)(1)(C) is implemented through requirements for new sources located at 40 C.F.R. § 122.4(i).[10] Section 122.4(i) consists of two sentences. The first sentence, known as the "cause or contribute" requirement, states:[11]

> No permit may be issued to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards.

The second sentence sets forth additional conditions for permitting:[12]

> The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of Clean Water Act, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:
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> (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and
>
> (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards . . . .

Section 122.4(i) thus prevents a new source from further impairing an impaired waterbody in the period prior to TMDL implementation.

***EPA presently allows the 40 C.F.R. § 122.4(i) requirements to be satisfied through offsets, but this position may have been challenged by* Friends of Pinto Creek.**

According to EPA, if a proposed new source demonstrates that off-site pollutant reductions will offset its discharge, such that there is no net increase in the impairment-causing loadings, it does not "cause or contribute to the violation of water quality standards" under the first sentence of § 122.4(i).[13] As for the second sentence of § 122.4(i), EPA has occasionally posited that it is not operable when the "cause or contribute" language has been satisfied, such that § 122.4(i) is never a bar to new source permitting when an offset is in place.[14] In the alternative, EPA has argued that the second sentence operates regardless of the "cause or contribute" clause, but only after TMDL development.[15] In practice, EPA has issued permits to a range of new sources utilizing offsets, including on impaired waterbodies for which a TMDL had not yet been developed and implemented.[16]

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[10] *See* Fall 2010 Unified Agenda, RIN 2040-AF17 (2010) ("Clean Water Act section 301(b)(1)(C) requires permits to include limitation as stringent as necessary to meet water quality standards. The Federal regulations at 40 CFR 122.4(i) implements that requirement for new dischargers.").

[11] 40 C.F.R. § 122.4(i).

[12] *Id*.

[13] EPA, Decision on Petition for Rulemaking to Address Nutrient Pollution from Significant Point Sources in the Chesapeake Bay Watershed, at 40 (June 13, 2005). *See also* EPA, WATER QUALITY TRADING TOOLKIT FOR PERMIT WRITERS (2009) ("EPA interprets 40 CFR 122.4(i) to allow for a new source or new discharger to compensate for its entire increased load through trading.").

[14] *See* Friends of Pinto Creek v. EPA, 504 F.3d 1007, 1013 (9th Cir. 2007) ("Initially . . . EPA contended that the first and second sentences of § 122.4(i) could be construed to apply independently, thus not requiring compliance with clauses (1) and (2) when an offset would result in a substantial net reduction of pollution to the impaired waters.").

[15] EPA, Decision on Petition for Rulemaking to Address Nutrient Pollution from Significant Point Sources in the Chesapeake Bay Watershed, at 40.

[16] *See, e.g.* ENVIRONOMICS, A SUMMARY OF U.S. EFFLUENT TRADING AND OFFSET PROJECTS 17 (1999) (chronicling permit issued for new discharge from wastewater treatment plant on impaired river in Massachusetts); In re Cities of Annandale & Maple

EPA's ability to issue permits to new sources utilizing offsets, however, is complicated by the position taken in dicta by the Ninth Circuit Court of Appeals.[17] *Friends of Pinto Creek v. EPA* considered a permit issued to a new source that had offset its discharge subsequent to TMDL development.[18] The Court stated that the only exception to the prohibition against discharges by a new source on an impaired waterbody is "whe[n] a TMDL has been performed . . . and the new source can demonstrate that, under the TMDL, the [implementation] plan is designed to bring the waters into compliance with the applicable water standards."[19] Explaining its view, the Court noted "there is nothing in the Clean Water Act or the regulation that provides an exception for an offset when the waters remain impaired and the new source is discharging pollution into that impaired water."[20]

Friends of Pinto Creek may constitute a bar to new source permitting prior to TMDL implementation within the jurisdiction of the Ninth Circuit.[21] At the very least, its language generates uncertainty about whether offsets may be used to satisfy § 122.4(i) requirements. This uncertainty has filtered down to regulated entities, with participants in EPA's 2008 Water Quality Trading Evaluation expressing concerns about the continued availability of the offset market to meet obligations under § 122.4(i).[22]

40 C.F.R. § 122.4(i) should broadly allow offsets, to secure the efficiency advantages of trading.

EPA should use the upcoming rulemaking to settle the issue of offset availability under 40 C.F.R. § 122.4(i). In doing so, EPA should seek to enforce water quality standards under Clean Water Act § 301(b)(1)(C) in the most efficient way possible. Efficiency is the maximization of net benefits,[23] and EPA is required to maximize net benefits in its rulemakings, according to active executive orders,[24] as well as responsive EPA directives and policy statements.[25]

Lake NPDES/SDS Permit Issuance for the Discharge of Treated Wastewater, 731 N.W.2d 502 (Minn. 2007) (reviewing permit issued to new wastewater treatment plant on impaired river in Minnesota); Assateague Coastkeeper v. Md. Dept. of Env't, 200 Md. App. 665 (2011) (reviewing general permit issued to Animal Feeding Operations on impaired waters in Maryland). *See also* EPA.gov, *NPDES Frequently Asked Questions*, http://cfpub1.epa.gov/npdes/allfaqs.cfm (last visited April 25, 2012) ("When a TMDL has yet to be developed, the new source or new discharger can obtain a permit when . . . other pollutant source reductions will offset the new discharge.").

[17] In *Friends of Pinto Creek*, EPA had granted a permit to a copper mine in Arizona on a copper-impaired waterbody, where compliance with § 122.4(i) was to have been satisfied by the partial remediation of an existing copper mine on the same waterbody. Reviewing the validity of the permit solely under the second sentence of § 122.4(i), as per the parties' joint request to the Environmental Appeals Board, the Court invalidated the permit, finding that the TMDL had not been sufficiently implemented to issue a new source permit. *See* 504 F.3d at 1010–15.

[18] *Id.* at 1012.

[19] *Id*.

[20] *Id*.

[21] This is the view of at least some analysts. *See* Stephanie Showalter & Sarah Spigener, Nat'l Sea Grant L. Ctr., Pennsylvania's Nutrient Trading Program: Legal Issues and Challenges 9 (2007) ("The [Pinto Creek] ruling prohibits EPA from issuing any new permits in the Western states . . . for discharges into impaired waterbodies unless it has established compliance schedules for all existing point sources in the area.").

[22] *See* EPA, Water Quality Trading Evaluation—Final Report 3-23 (2008).

[23] *See* Richard L. Revesz & Michael A. Livermore, Retaking Rationality 10, 12 (2008).

[24] *See* Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Sep. 30, 1993); Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 18, 2011).

[25] *See*, *e.g.*, EPA, GUIDELINES FOR PERFORMING ECONOMIC ANALYSES (2010); Water Quality Trading Policy, Issuance of Final Policy, 68 Fed. Reg. 1608 (Jan. 13, 2003). The Supreme Court has referred positively to EPA considering economic factors alongside environmental ones when implementing the Clean Water Act. *See* Arkansas v. Oklahoma, 503 U.S. 91, 114 (1992) ("[I]t was surely not arbitrary for the EPA to conclude—given the benefits to the river from the increased flow of relatively clean water and the benefits achieved in Arkansas by allowing the new plant to operate as designed—that allowing the discharge would be . . . wiser.").

To increase net benefits under 40 C.F.R. § 122.4(i), EPA should issue two small additions to the current regulatory text.[26] First, EPA should clarify that *a new source or new discharger does not cause or contribute to the violation of water quality standards if its discharge is offset by other pollutant reductions*. This position will allow pollution reductions to occur in the most efficient manner: either on-site or off-site reductions, depending on where the lowest-cost abatement opportunities lie. Second, EPA should clarify that compliance with the "cause or contribute" requirement satisfies § 122.4(i). This ensures that the second sentence of § 122.4(i) applies only to new sources that do not offset their discharge. The Appendix to these comments contains draft revisions to § 122.4(i) with these proposed additions.

That it is more efficient to allow § 122.4(i) requirements to be met through offsets follows from a simple observation: when a new source is developed with no net increase of the impairing load, it generates economic value but causes no detriment to the waterbody, just as if none of the impairing pollutant were emitted. Disallowing permitting under this scenario would mean foregoing economic benefits without any advantage to the environment. Allowing the use of offsets to meet new source permitting requirements thus increases net benefits to society.[27]

The efficiency advantages of allowing offset use can also be illustrated through a consideration of marginal abatement costs. Section 122.4(i) requires a proposed new source to achieve zero negative impact on the waterbody, regardless of whether its marginal costs of abatement are greater or less than another polluter's.[28] Indeed, the marginal costs associated with achieving zero impact on-site are often substantially greater than equivalent marginal abatement by nonpoint sources, which are unregulated and thus tend to have cheap abatement costs.[29] As in any situation where regulatory burdens are borne by parties with comparatively high compliance costs, the ability of regulated entities under § 122.4(i) to transfer those obligations is likely to result in lower net compliance costs than if trading were not available.

These outcomes flow from more general principles about water quality trading, which can be a valuable tool to minimize costs in multiple contexts. As stated in the announcement of EPA's 2003 Water Quality Trading Policy, "within a watershed, the most effective and economical way to reduce pollution is to provide incentives to encourage action by those who can achieve reductions easily and cost-effectively."[30] Thus, the availability of trading "achieves equal or greater reduction of pollution for the same or less cost."[31] EPA has reiterated or affirmed these principles time and again since, including in the 2004 Water Quality Trading Assessment Handbook,[32] and the 2009 Water Quality Trading Toolkit for Permit Writers.[33] While it is well-documented that water quality

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[26] *See infra* Appendix.

[27] *See* REVESZ & LIVERMORE, *supra* note 23, at 18 ("In those cases in which protecting the environment is justified by cost-benefit analysis, there is no tragic choice between environmental and economic values, only the tragedy of failed democracy.").

[28] Section 122.4(i) allows no exception to the "cause or contribute" requirement, including for high value projects for which it is impracticable or impossible to achieve zero impact on-site. *See* 40 C.F.R. § 122.4(i).

[29] *See* BOISVERT, POE, & SADO, *supra* note 5, at 5 ("[F]or a fixed level of capital investment, marginal abatement costs tend to rise with successive levels of abatement.").

[30] Christine Todd Whitman, EPA, Remarks on the Water Quality Trading Policy (Jan. 13, 2003).

[31] Effluent Trading in Watersheds Policy Statement, 61 Fed. Reg. 4994 (Feb. 9, 1996). The 1996 policy statement followed President Clinton and Vice President Gore's "Reinventing Environmental Regulation" white paper in 1995, which listed effluent trading in watersheds as one of 25 high priority action items for EPA. *See* BILL CLINTON & AL GORE, REINVENTING ENVIRONMENTAL REGULATION 19 (1995).

[32] *See* EPA, WATER QUALITY TRADING ASSESSMENT HANDBOOK (2004).

[33] *See* EPA, WATER QUALITY TRADING TOOLKIT FOR PERMIT WRITERS (2009).

trading has been somewhat limited in practice,[34] those trades that have taken place nonetheless represent efficiency gains.[35] At least 13 states have joined EPA and issued formal water quality trading guidance,[36] and the view that trading can play a role in lowering the cost of water pollution controls is broadly reflected in the academic literature.[37]

EPA's approach to crediting off-site reductions is appropriately cautious and risk-sensitive.

An effective trading program must ensure that off-site abatement is accurately credited. If off-site reductions are credited but not actually achieved, pollution abatement targets go unmet. On the other hand, if off-site reductions are achieved but credited at less than full value, proposed trades that could meet abatement targets cheaply are likely to be blocked.

These considerations are particularly acute in the context of water quality trading, where it is difficult to assess during the permit application stage how to properly credit an off-site reduction. As EPA notes, there is greater uncertainty associated with estimates of nonpoint source reductions "due to several factors including but not limited to variability in precipitation, variable performance of land management practices, time lag between implementation of some practices and full performance, and the effect of soils, cover and slope on pollutant load delivery to receiving waters."[38] Adding to the uncertainty, each waterbody is hydrologically unique,[39] making it difficult to abstract from previous experience in comparing off-site reductions to foregone on-site reductions. Finally, it can be difficult to determine whether nonpoint reductions are indeed the product of a credited trade, or would have occurred without the trade, for example through changes in industry-wide land management practices.[40] It is thus difficult to determine whether a proposed offset will actually be sufficient to negate the pollutant load increase from the new source.

These are potentially serious concerns, but EPA's Water Quality Trading Policy addresses them well. In considering whether a permit proposal or state permitting program is consistent with the Clean Water Act, EPA accounts for attendant uncertainty of nonpoint reductions, advising that "where trading involves nonpoint sources, states and tribes should adopt methods to account for the greater uncertainty in estimates of nonpoint source loads and reductions."[41] EPA recommends a number of particular methods for accounting for uncertainty,[42] and most states have responded by requiring trading ratios greater than one-to-one in the case of point-nonpoint trades, to provide

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[34] *See* EPA, WATER QUALITY TRADING EVALUATION, ES-1 (2008) ("Despite the theoretical promise of water quality trading . . . WQT to date has met with limited practical success. Only 100 facilities have participated in trading, and 80 percent of trades have occurred within a single trading program.").

[35] As a general matter, all trades satisfy Pareto efficiency—meaning value accrues to all parties, creating value overall. *See* BARRY FIELD, ENVIRONMENTAL ECONOMICS: AN INTRODUCTION 249-50 (1994).

[36] MINDY SELMAN, ET. AL., WORLD RESOURCES INSTITUTE, WATER QUALITY TRADING PROGRAMS: AN INTERNATIONAL OVERVIEW 3 (2009).

[37] A recent dissertation surveying the academic literature on water quality trading concludes that "no one is . . . calling for a move away from market principles." *See* MATTHEW J. MARIOLA, ARE MARKETS THE SOLUTION TO WATER POLLUTION? A SOCIOLOGICAL INVESTIGATION OF WATER QUALITY TRADING 96 (2009).

[38] Water Quality Trading Policy, Issuance of Final Policy, 68 Fed. Reg. at 1612.

[39] *See* FENG FANG & K. WILLIAM EASTER, POLLUTION TRADING TO OFFSET NEW POLLUTANT LOADINGS—A CASE STUDY ON THE MINNESOTA RIVER BASIN 5–7 (2003).

[40] *See id*.

[41] Water Quality Trading Policy, Issuance of Final Policy, 68 Fed. Reg. at 1612.

[42] *Id*. ("EPA supports a number of approaches to compensate for nonpoint source uncertainty. These include monitoring to verify load reductions, the use of greater than 1:1 trading ratios between nonpoint and point sources, using demonstrated performance values or conservative assumptions in estimating the effectiveness of nonpoint source management practices, using site- or trade-specific discount factors, and retiring a percentage of nonpoint source reductions for each transaction or a predetermined number of credits. Where appropriate, states and tribes may elect to establish a reserve pool of credits that would be available to compensate for unanticipated shortfalls in the quantity of credits that are actually generated.").

a safety buffer in case any projected nonpoint abatement is not actually achieved.[43] Those states without sufficient safety buffers risk EPA denial of issued permits as contrary to the "cause or contribute" requirement of 40 C.F.R. § 122.4(i).[44] EPA's approach to uncertainty thus places a high premium on ensuring that credited trades generate equivalent or greater water quality improvement than the on-site abatement they displace.

Ensuring compliance with the terms of a trade is critical, too, and verification of promised reductions by unregulated, nonpoint entities poses unique challenges.[45] But EPA addresses compliance challenges well, too. Ex ante, EPA requires "mechanisms for determining and ensuring compliance"—such as record keeping, monitoring, reporting, inspections, audits, legal enforcement mechanisms, and nonpoint control verification measures—for all trades and trading programs.[46] Ex post, any permitted source that does not achieve credited reductions will have caused further impairment in violation of the Clean Water Act,[47] and be subject to both EPA enforcement actions and citizen lawsuits.[48]

EPA policies on these issues might well be improved, but the current regime addresses in a serious manner the challenges associated with calculating abatement and enforcing compliance in the trading context.

II. If EPA requires water quality improvement as a condition of new source permitting on impaired waterbodies, the requirement should equalize marginal abatement costs.

If EPA adheres to its support of pre-TMDL new source offsets, an issue likely to arise is whether new sources should be required to attain an affirmative improvement in the water quality of an impaired waterbody. While the Clean Water Act does not require that new sources attain such an improvement, the ambit of the Clean Water Act § 303(c) is sufficiently broad that EPA may choose to impose a water quality improvement requirement on dischargers as part of the federal anti-degradation policy.[49]

In 1999, EPA proposed such a requirement, located as part of the anti-degradation policy at 40 C.F.R. § 131.12(a)(1)(ii) and incorporated into the new source permitting process,[50] to be applied to "large new and significantly expanding dischargers proposing to add new pollutant loads to an impaired waterbody."[51] The proposed requirement was structured as a trading ratio functionally

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[43] Trading ratios in the states for point-nonpoint trades are ordinarily 2:1, and sometimes rise as high as 3:1. Cynthia Morgan & Ann Wolverton, *Water Quality Trading in the United States* 15-16 (National Center for Environmental Economic Working Paper Series, Working Paper # 05-07, 2005). Those states that do not require trading ratios utilize alternative methods for accounting for uncertainty. Pennsylvania, for example, does not require a greater than 1:1 trading ratio, instead addressing uncertainty through conservative assumptions about reductions and a credit bank. SHOWALTER & SPIGENER, *supra* note 21, at 12–13.

[44] *See* SHOWALTER & SPIGENER, *supra* note 21, at 14 (cautioning that insufficient uncertainty controls make it difficult to argue a proposed trade does not violate the "cause or contribute" requirement of 40 C.F.R. § 122.4(i)).

[45] *See* FANG & EASTER, supra note 39, at 5–7 (2003).

[46] Water Quality Trading Policy, Issuance of Final Policy, 68 Fed. Reg. at 1612.

[47] *See* Clean Water Act § 301(b)(1)(C); *see also* Water Quality Trading Policy, Issuance of Final Policy, 68 Fed. Reg. at 1612 ("In the event of default by another source generating credits, an NPDES permittee using those credits is responsible for complying with the effluent limitations that would apply if the trade had not occurred.").

[48] *See* Clean Water Act § 505, 33 U.S.C. § 1365.

[49] *See* CWA § 303(c); 40 C.F.R. § 131. *See also* Revisions to the National Pollutant Discharge Elimination System Program and Federal Antidegradation Policy in Support of Revisions to the Water Quality Planning and Management Regulation, 64 Fed. Reg. 46,058, 46,063 (Aug. 23, 1999) [hereinafter 1999 Offset Proposal] (describing possibility of expanding federal antidegradation policy to include a water quality improvement as a condition of permitting for certain new sources).

[50] *See* 1999 Offset Proposal, *supra* note 49, at 46,087.

[51] *See id*. at 46,059.

similar to the elevated trading ratios described in the above section, but designed to secure an affirmative improvement of water quality rather than to buffer against uncertainty and guarantee parity with foregone on-site reductions. New sources of an impairing pollutant would need to achieve "reasonable further progress" towards the relevant water quality standard,[52] which ordinarily meant "these dischargers would need to obtain and maintain an offset of least of one and a half times the amount of the new or additional pollutant loadings they are proposing to discharge."[53] The proposed rule retained discretion for the Director to depart upward or downward from the 1.5:1 ratio, consistent with "ensur[ing] reasonable further progress toward restoring water quality standards."[54] Finally, the requirement was to apply only on an interim basis, "until the TMDL is approved or established by EPA, and the TMDL is implemented with respect to the discharger subject to these requirements."[55]

EPA withdrew this proposed rule in 2000, explaining that "the offset requirement, as proposed, is not the best mechanism to achieve progress in impaired waters in the absence of a TMDL."[56] But EPA reiterated its view that "progress toward the section 101(a) goals of the CWA should occur even in the interim period between the initial listing of a waterbody [as impaired] and the actual completion, approval and implementation of a TMDL."[57] If EPA continues to hold this view, the present rulemaking provides a natural occasion to again consider whether to require new sources to attain affirmative water quality improvements, and if so, how it should be structured.

EPA should weigh the gains of short-term water quality improvement against efficiency and distributional concerns related to grandfathering.

On an impaired waterbody, incremental improvement in water quality prior to TMDL implementation has several benefits. First, incremental water quality improvement may expand potential uses of the waterbody or increase the safety of existing uses of the waterbody on an accelerated timetable. This provides benefits to all potential recreational, commercial, and agricultural users of the waterbody. Second, pre-implementation water quality improvement has consequences for the TMDL program. Sufficient water quality improvement may result in the water quality standard being attained, mooting the need to devote extensive resources to TMDL development or implementation.[58]

Such a requirement may also have efficiency advantages in terms of marginal abatement costs. In withdrawing the 1999 proposal, EPA concluded "existing regulations, implemented consistently at the time of permit issuance, would provide greater progress toward the attainment of water quality standards in impaired waters than through the proposed offset requirement."[59] However, existing technology-based regulations or anti-degradation requirements do not take advantage of low-cost abatement opportunities at nonpoint sources. Given that unregulated nonpoint sources are likely to have lower marginal abatement costs than regulated point sources,[60] an affirmative improvement

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[52] See *id*.

[53] *See id*. at 46,065.

[54] *See id*. at 46,065–66.

[55] *See id*. at 46,063.

[56] *See* Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 65 Fed. Reg. 43,586, 43,640 (July 13, 2000) [hereinafter 1999 Offset Withdrawal].

[57] *See id*. at 43,639.

[58] While EPA concluded the incremental environmental benefits of the 1999 proposal were likely to be small, *see id*. at 43,641, this speaks principally to the design and coverage of that particular requirement. It is also possible that EPA did not fully value the benefits from the 1999 proposal.

[59] *Id*. at 43,640.

[60] BOISVERT, POE, & SADO, *supra* note 5, at 5.

requirement would likely improve water quality at lower cost than EPA's existing regulations. While EPA expressed concern in its withdrawal of the 1999 proposal that recourse to offset markets would be unworkable or impracticable in many instances,[61] a requirement to attain water quality improvement avoids this problem insofar as it only applies to sources already in the offset market.

There are downsides, however, to any requirement that is imposed exclusively on new sources. Insofar as it establishes a new regulatory regime from which existing sources are exempt, such a requirement contains a grandfathering element.[62] The problems with grandfathering are well known: "stringent standards for new sources of pollution, coupled with grandfathering, create undesirable incentives for existing sources to remain in place."[63] Specifically, grandfathering can lead to economic inefficiency by providing dischargers with an incentive to continue operating existing sites rather than replace them and trigger the new source regime.[64] As a result of this phenomenon, existing sites are maintained in operation longer than is economically efficient.[65] Environmental quality may in fact be worsened because the regulations discourage the redevelopment that would subject sites to more stringent environmental regulations.[66] A well-designed TMDL implementation program avoids grandfathering by imposing water quality improvement obligations on old and new sources alike.

If EPA chooses to require new sources to attain water quality improvement, it should structure the requirement to equalize marginal abatement costs.

If EPA decides to propose a water quality improvement requirement for new sources, the proposed requirement should be structured to avoid marginal abatement cost problems. Such a problem characterized the 1999 proposal.[67]

As previously discussed, a pollution reduction scheme is efficient when it utilizes the lowest-cost abatement opportunities available.[68] But by imposing water quality improvement obligations exclusively on parties in the offset market, the 1999 proposal would have incentivized higher cost abatement in certain instances. Unlike trading ratios used to manage uncertainty about equivalence, a 1.5:1 offset ratio imposes an artificial 50% premium on the cost of off-site reductions compared to on-site reductions. In certain cases presenting high on-site marginal abatement costs and low off-site marginal abatement costs, this might not lead to deadweight loss. But in cases presenting on-site marginal abatement costs more expensive than off-site marginal abatement costs, but by less than 50%, the artificial inflation of the price of offsets would result in the purchase of more costly on-site abatement. The 1999 proposal would have led to overutilization of high-cost

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[61] 1999 Offset Withdrawal, *supra* note 56, at 43,640 ("[T]he proposed offset requirement, a one-size fits all method for specifying reasonable further progress, is simply unworkable.").

[62] Richard L. Revesz, Environmental Law and Policy 416 (2008).

[63] Richard L. Revesz & Allison L. Westfahl Kong, *Regulatory Change and Optimal Transition Relief*, 105 NW. U. L. REV. 1581, 1615 (2011).

[64] *Id*. at 1629 ("The existence of pollution regulations applying to new sources, however, may give the plant an incentive to bear these inefficiencies for longer than would otherwise be the case because they are less costly than complying with the standards applicable to new sources."). *See also* Jonathan Remy Nash & Richard L. Revesz, *Grandfathering and Environmental Regulation: The Law and Economics of New Source Review*, 101 NW. U. L. REV. 1677, 1707–10 (2007) (describing how "differential environmental regulations delay plant retirement" in the Clean Air Act New Source Review context).

[65] Revesz & Nash, *supra* note 64, at 1707–10.

[66] *Id*.

[67] See *id*.

[68] *See supra* text accompanying notes 26–37.

abatement opportunities and underutilization of lower-cost abatement opportunities.[69] This problem is not particular to the 1.5:1 ratio, as the same analysis applies under any scheme where off-site reductions are made artificially more expensive than on-site reductions.

To capture the efficiencies of water quality trading, EPA should develop policies that equalize marginal abatement costs: namely, policies that do not discriminate between on-site reductions and off-site reductions, but instead allow sources to choose the lowest cost opportunities for compliance. Accordingly, any new water quality improvement requirement that EPA proposes should be structured so that no additional burden is placed on a new source for mitigating its emissions via offsets rather than exclusively through on-site reductions. For example, where a new source is subject to technology-based effluent limitations for the relevant pollutant, EPA could impose an additional percentage of that limitation as the required water quality improvement. Or, in the case of a general permit, where the new source is regulated principally according to best management practices, EPA might develop a proxy based on expected pollutant load allocations. Such approaches may require some additional analysis by the agency, but they avoid the marginal abatement cost problems that plagued the 1999 proposal.[70]

III. Beyond the offset clarification, EPA should look for opportunities to promote trading.

EPA should take advantage of the upcoming rulemaking on 40 C.F.R. § 122.4(i) to more broadly promote trading as a means to efficiently further the objectives of the Clean Water Act.[71] By eliminating barriers to cost-benefit justified trades, EPA's Clean Water Act regulations can achieve the same or better water quality at equal or lower costs. In particular, EPA should allow for efficient trading to meet technology-based effluent limits; reevaluate any remaining legal barriers to existing trading programs; encourage auctioning as an option for state regulators to help build trading programs; and facilitate access to information relevant to trading, monitoring, and enforcement.

EPA should allow for efficient trading to meet technology-based effluent limits.

National technology-based effluent limits ("TBELs") for point sources come in several varieties, depending on the source and pollutant in question.[72] For existing sources, three standards apply: the Best Practicable Control Technology Currently Available ("BPT") sets a baseline for all pollutants;[73] the Best Conventional Pollutant Control Technology ("BCT") applies to conventional pollutants;[74] and the Best Available Technology Economically Achievable ("BAT") applies to toxic

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[69] *See* Morgan & Wolverton, *supra* note 43, at 15-16.

[70] *Cf.* 1999 Offset Withdrawal, *supra* note 56, at 43,640 ("As proposed, it would have been difficult or infeasible to implement the offset requirement with respect to dischargers that seek NPDES permit coverage under a general permit. . . . It would have been difficult or infeasible to quantify, and thereafter implement, a one and one half to one offset from a source whose water quality impacts are controlled solely by BMPs.").

[71] Clean Water Act § 101(a), 33 U.S.C. § 1251(a) ("to restore and maintain the chemical, physical, and biological integrity of the Nation's waters").

[72] These limits apply to direct dischargers, i.e., facilities that discharge wastewaters directly into waters of the United States, instead of into a publicly owned treatment works. For indirect dischargers, Pretreatment Standards apply, defined at Clean Water Act §§ 307(b)-(c).

[73] BPT is defined at § 304(b)(1). Under § 301, the effluent limitations on existing sources were set to impose progressively higher levels of pollution control over time: after July 1, 1977, existing sources were to meet the standard representing the best practicable technology, § 301(b)(1)(A), and after July 1, 1983, the standard representing best available technology, § 301(b)(2)(B).

[74] BCT is defined at § 304(b)(4) of the Clean Water Act. Section 304(a)(4) requires that EPA publish information identifying conventional pollutants, "including but not limited to, pollutants classified as biological oxygen demanding, suspended solids, fecal coliform and pH." In turn, § 301(b)(2)(E) requires, with respect to these pollutants, that point

and nonconventional pollutants.[75] For new sources, the New Source Performance Standards ("NSPS") reflect effluent reductions attainable through the application of the best available demonstrated control technology for all pollutants.[76] None of these standards currently take into account the ability of a point source to trade, and EPA does not currently support trading to meet TBELs.[77] This restriction on potentially efficient trades could obstruct more cost-effective opportunities for dischargers to comply with TBELs.

Two elements of the statutory language suggest that EPA may, in fact, have the flexibility to interpret these technology-based standards to allow for trading. First, several of the relevant provisions mention "alternatives" to traditional, technology-based means of compliance:

- For new sources, the statute defines "standard of performance" as "a standard . . . which reflects the greatest degree of effluent reduction . . . achievable through application of the best available demonstrated control technology, processes, operating methods, *or other alternatives*."[78]
- To set BAT effluent limitations, the statute instructs EPA to adopt regulations that "identify . . . the degree of effluent reduction attainable through the application of the best control *measures and practices* achievable *including* treatment techniques, process and procedure innovations, operating methods, *and other alternatives*."[79]
- For BCT, EPA regulations are to "identify . . . the degree of effluent reduction attainable through the application of the best conventional pollutant control technology (*including measures and practices*)."[80] By stretching the expected definition of "technology" to specifically include "measures and practices," the statute grants EPA some flexibility in interpreting the requirement.
- Similarly, for BPT, though the statute does specify "the application of the best practicable control technology currently available" without defining technology to include a flexible list of alternatives, it also refers to "determining the control *measures and practices* to be applicable."[81]

The statute does not define "alternatives" or "measures and practices."[82] But because the terms are contrasted with such traditional on-site compliance methods as treatment techniques and operating methods, the phrases could be interpreted to contemplate off-site compliance options, like trading. Under *Chevron*, any ambiguity in the statutory phrases gives EPA the discretion to interpret the terms at issue.[83] Assuming a negative inference against trading from statutory

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sources comply with "effluent limitations for categories and classes of point sources . . . [which] require application of the best conventional pollutant control technology."

[75] BAT is defined at Clean Water Act § 304(b)(2).

[76] Clean Water Act § 306.

[77] EPA, WATER QUALITY TRADING POLICY STATEMENT 6 (2003) ("EPA does not support trading to comply with existing technology-based effluent limitations except as expressly authorized by federal regulations.").

[78] Clean Water Act § 306(a)(1) (emphasis added); *see also* § 306(b)(1)(B) ("technology and alternatives").

[79] Clean Water Act § 304(b)(2)(A) (emphasis added).

[80] Clean Water Act § 304(b)(4)(A) (emphasis added).

[81] *Compare* Clean Water Act § 304(b)(1)(A) *with* (b)(1)(B) (emphasis added).

[82] Though it does refer to "alternatives" in several other provisions. For example, § 302(a) mentions "effluent limitations (including alternative effluent control strategies)." Section 201(g)(1), on grants for waste treatment, refers to "any innovative and alternative approaches for the control of nonpoint sources of pollution." And § 221(i)(1) defines "alternative water source project" as "a project designed to provide municipal, industrial, and agricultural water supplies in an environmentally sustainable manner by conserving, managing, reclaiming, or reusing water or wastewater or by treating wastewater. Such term does not include water treatment or distribution facilities."

[83] *See* Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837, 843 (1984).

ambiguity is not a proper reading of the text in this administrative law setting.[84] Courts should not assume a negative inference unless it is clear that Congress intended to preclude the option.[85] No clear signal exists here, and the complex economic considerations involved may imply that courts should be particularly deferential to EPA's statutory interpretations that permit the use of market-based mechanisms in its regulations.[86]

Second, those same key provisions require adoption of the "best" controls taking into consideration costs. For example, BAT regulations are to identify the "*best* control measures and practices," factoring in "the cost of achieving such effluent reduction."[87] The Supreme Court has interpreted that, elsewhere in the Clean Water Act, the term "best" can describe the emissions control system "that most efficiently produces some good."[88] Together with the references to cost considerations, the statute permits EPA to determine which control strategy can achieve effluent reductions with the lowest marginal abatement cost.

Combined, these two factors clearly open the door to trading under TBELs. As explained above, offsets and trading takes advantage of the lowest-cost opportunities for abatement, thereby efficiently achieving a given level of environmental quality. EPA has discretion to determine that trading is the "best . . . alternative" means of emissions control, taking into consideration "the cost of achieving such effluent reduction." Given that the executive orders on rulemaking instruct agencies to select the most "cost-effective," "best, most innovative" regulatory tool, after assessing the availability of "economic incentives . . . [including] marketable permits,"[89] EPA should use its discretion to permit trading to meet TBELs.

In fact, EPA has previously contemplated changing its regulations to allow for trading to meet TBELs: in its 2003 Water Quality Trading Policy, the agency acknowledged the potential benefits of trading to meet technology-based standards.[90] EPA should consider adopting such a regulation in conjunction with its RIN 2040-AF17 rulemaking. (Alternatively, EPA might be able to accomplish this change through a guidance document that clarifies trading is permissible for TBELs.[91])

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[84] *Cf.* Fin. Planning Assoc. v. SEC, 482 F.3d 481 (D.C. Cir. 2007) (noting "this court has repeatedly held that *expressio unius* is 'an especially feeble helper in an administrative setting, where Congress is presumed to have left to reasonable agency discretion questions that it has not directly resolved'").

[85] *See* Texas Rural Legal Aid Inc. v. Legal Serv. Corp., 940 F.2d 685, 694 (D.C. Cir. 1991) (explaining that the *expressio unius est exclusio alterius* canon "has little force in the administrative setting. Under *Chevron*, we normally withhold deference from an agency's interpretation of a statute only when Congress has 'directly spoken to the precise question at issue,' and the *expressio* canon is simply too thin a reed to support the conclusion that Congress has clearly resolved this issue").

[86] *See* Mark E. LeBel, *Lack of Judicial CAIR: Chevron Deference and Market-Based Environmental Regulations*, 20 N.Y.U. ENVTL. L.J. (forthcoming 2012).

[87] Clean Water Act § 304(b)(2). *See also* § 304 (b)(1) (for BPT, "best . . . technology," factoring in "the total cost of application of technology in relation to the effluent reduction benefits to be achieved . . . and such other [appropriate] factors"); § 304(b)(4) (for BCT, "best . . . technology (including measures and practices)," factoring in "the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived"); § 306(b)(1)(B) (for NSPS, "best available . . . control," factoring in "the cost of achieving such effluent reduction").

[88] See Entergy Corp. v. Riverkeeper, Inc., 129 S.Ct. 1498, 1506 (2009) ("'[B]est technology' may [] describe the technology that most efficiently produces some good. In common parlance one could certainly use the phrase 'best technology' to refer to that which produces a good at the lowest per-unit cost.").

[89] Exec. Order 12,866, § 1(b)(3), (5); Exec. Order 13,563, § 1(a); *see also id.* at § 4 ("Where relevant, feasible, and consistent with regulatory objectives, and to the extent permitted by law, each agency shall identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public.").

[90] EPA, WATER QUALITY TRADING POLICY STATEMENT 6 ("EPA will consider including provisions for trading in the development of new and revised technology-based effluent guidelines and other regulations to achieve technology-based requirements, reduce implementation costs and increase environmental benefits.").

[91] While TBELs are required by regulation to be the "minimum level of control that must be imposed" in an NPDES permit, 40 CFR § 125.3, this rule is not a textual bar to trading because it does not state how the TBELs should be met.

If EPA revises its regulations to allow trading to meet TBELs, the costs of compliance could decrease for certain dischargers on waterbodies that offer low-cost opportunities for valid trades. As the marginal cost of abatement decreases, the overall efficient level of effluent reduction may change, and more stringent limitations may be cost-benefit justified for those dischargers able to take advantage of trading. To adjust the stringency for those dischargers able to take advantage of trading, EPA could distinguish between "classes and categories of point sources," as permitted by the statute.[92]

EPA should reevaluate which impediments to current trading programs still exist.

Though EPA may not yet allow trading under TBELs, it does encourage trading under other portions of its Clean Water Act regulations—notable, TMDLs. Nevertheless, to date water quality trading has been somewhat limited.[93] Some of the impediments to trading may be practical and hydrological (such as the idiosyncratic nature of waterbodies or the limited number of dischargers on a given waterbody), and as such beyond the agency's control. However, other obstacles to trading relate to legal interpretations, resource allocation, and agency culture—and so can be overcome to encourage efficient trades.

In 2008, EPA commissioned a study of its Water Quality Trading Program. The study surveyed a few dozen individuals involved in the handful of existing water quality trading initiatives, as well as some EPA staff, stakeholders, and outside experts, and from their responses identified a number of complications that inhibit trading.[94] Though the evaluation remains a useful resource, EPA needs to update it to adequately assess the current impediments to trading. First, the evaluation is a few years old now, and pre-dates some important developments like publication of EPA's Water Quality Trading Toolkit in 2009. Second, expanding the survey to solicit opinions from local regulators who are *not* involved in an existing trading initiative could provide extra insight into the impediments to trading; including such staff in a dialogue about trading could even help educate these regulators on EPA policy and give them a stake in the outcome, which could itself overcome some of the impediments to trading.[95]

The 2008 evaluation identified anti-degradation policies as a potential barrier to trades. States are required to protect existing water uses and prevent water degradation.[96] The 2008 evaluation noted that "confusion remains over whether trading is a valid justification for an increased load

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[92] *See* Clean Water Act § 304(b)(1)(A), (2)(A), (4)(A) ("for classes and categories of point sources"); § 306(a)(2) ("may distinguish among classes, types, and sizes within categories of new sources"). The standards could scale with potential cost-savings from trading, so that dischargers on water bodies with more options for trading at lower cost can be held to a higher standard.

[93] *See* EPA, WATER QUALITY TRADING EVALUATION, ES-1 (2008) ("Despite the theoretical promise of water quality trading . . . WQT to date has met with limited practical success. Only 100 facilities have participated in trading, and 80 percent of trades have occurred within a single trading program.").

[94] 2008 Evaluation, *supra* note 22, at ES-2, 2-3.

[95] Some EPA regional and permitting staff are reluctant to issue permits for trading. *See id*. at 3-18 ("an attorney involved with several trading programs as well as a point source in the Neuse River program concurred that state permitting authorities can be inflexible in the types of trades that they allow under WQT programs."); *id*. ("Two affiliates of the Middle Snake River program noted EPA Region 10 was reluctant to issue permits incorporating trading until Idaho's state trading policy was finalized, a contingency that EPA ultimately dropped.") Overburdened permitting staff may need incentive structures geared toward encouraging them to take the extra time and effort to issue trading permits. *See id*. at 4-5 ("Change the 'beans' counted in work-sharing agreements between EPA Headquarters and States (i.e., commitments recorded in the Annual Commitment System) as well as in work-sharing agreements between regions and states (i.e., PPAs/PPGs and block grants) to support trading. Currently, IEc understands that all permits issued are counted equally within these arrangements, providing a disincentive for permit writers to incorporate trading because permits that do so are more complex and take longer to develop. If EPA gave additional credit for writing a trading permit, commensurate with the level of effort needed to develop one, it would remove a key resources barrier.").

[96] Clean Water Act § 303(c), 33 U.S.C. § 1313(c).

where an anti-degradation policy is in place."[97] Yet EPA's 2003 Water Quality Trading Policy explained that "EPA does not believe . . . that antidegradation review would be required under EPA's regulations when the trades or trading programs achieve a no net increase of the pollutant traded and do not result in any impairment of designated uses," and the 2009 Toolkit clarifies that "Nothing in the Trading Policy per se changes how states apply their antidegradation policies."[98] EPA should reassess whether anti-degradation policies are still creating confusion vis-à-vis trading, and if so should provide regional regulators with further clarification.

Similarly, the 2008 Evaluation indicated some confusion as to how trading interacts with anti-backsliding policies.[99] Anti-backsliding regulations prohibit reissuing permits with less stringent effluent limitations than the final limits established in the previous permit. Again, both the 2003 Policy and, more recently, the 2009 Toolkit explain that incorporating trading provisions into a permit do not inherently make the applicable standard any less stringent, since the net amount of effluent discharged into the waterbody does not increase with trading.[100] EPA should reassess whether anti-backsliding policies are still creating confusion vis-à-vis trading, and if so should provide regional regulators with further clarification.

Finally, EPA should examine whether its permitting forms, procedures, and timeframe need to be more flexible to encourage trading. If more flexibility is needed, EPA should consider altering its permit to take trading into account and building into the permit-writing process form language or standardization that would help facilitate writing such permits.[101] EPA should also consider altering its permitting schedule and procedure to accommodate the extra time and effort needed to set up and obtain permits for trades,[102] or to adjust for more efficient opportunities mid-course so that permittees are not locked into inefficiently high or low levels of trading for the duration of the permit.[103]

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[97] *Id*. at 3-22 ("Several interviewees with legal expertise called attention to the ways in which trading interacts with anti-degradation and antibacksliding policies. In general, interviewees did not present specific suggestions for how these policies could be changed or clarified. Instead, they called attention to the confusion surrounding the issues.").

[98] "[This guidance] identifies a trade-related situation where a jurisdiction could authorize a new or increased discharge without a[n anti-degradation] review because the increased load would be compensated for through trading." Toolkit at 22.

[99] EPA, Water Quality Trading Evaluation – Final Report 3-22 (2008) ("Several interviewees with legal expertise called attention to the ways in which trading interacts with anti-degradation and anti-backsliding policies. In general, interviewees did not present specific suggestions for how these policies could be changed or clarified. Instead, they called attention to the confusion surrounding the issues, particularly in the context of NPDES permitting.").

[100] EPA, Water Quality Trading Toolkit for Permit Writers at 90–91 ("EPA's Trading Policy states: 'EPA believes that the anti-backsliding provisions of Section 303(d)(4) of the CWA will generally be satisfied where a point source increases its discharge through the use of credits in accordance with alternate or variable water quality based effluent limitations contained in an NPDES permit, in a manner consistent with provisions for trading under a TMDL, or consistent with the provisions for pre-TMDL trading included in a watershed plan.' A permit writer should simply explain in the fact sheet of the permit how the limitations in the permit, after accounting for any trading provisions, are at least as stringent as the limits in the previous permit or, alternatively, how anti-backsliding provisions of the CWA are satisfied.")

[101] See Water Quality Trading Programs: An International Overview, World Resources Institute Working Brief, 14-15 (2009).

[102] EPA, Water Quality Trading Evaluation – Final Report 3-22 (2008) ("strict NPDES permit schedules can squelch interest in trading . . . it takes time to secure trading partners, navigate legal questions, and otherwise develop a trading program").

[103] Matthew Mariola, Are Markets the Solution to Water Pollution? A Sociological Investigation of Water Quality Trading, Ph.D. dissertation, Ohio State University at 77 ("the right to trade is typically written into a discharger's NPDES permit, the level of effluent allowed is fixed for five years at a time. For example, the discharger in the previous example would not be allowed to fluctuate its level of achieved reduction between 3 ppm and 5 ppm depending on the season; it would always be expected to meet 3 ppm and would face the possibility of a punitive fine if it exceeded 3 ppm – even were it able to locate sufficient credits to offset the difference. Similarly, once the ink has dried on a NPDES permit that contains a trading provision, even if a technology more cost-effective than trading comes along the discharger is obligated to

Auctioning may provide incentives to overcome barriers to trading.

As discussed above, many obstacles to trading relate to existing regulatory provisions and the existing culture within state environmental agencies and EPA itself. However, the 2008 evaluation also identified financial obstacles to trading, notably start-up costs and ongoing administrative costs.[104] Interviewees mentioned numerous ways that increased funding could promote trading either directly or indirectly.[105] Auctioning[106]—an option not mentioned in the Evaluation—would be another way to finance the costs of trading programs and even incentivize their implementation. Auctioning also has independent economic benefits that make it worth pursuing.

It should be permissible under the Clean Water Act for EPA to allow or encourage auctioning. While, in most cases, EPA may not be able to implement auctioning directly, EPA can make it clear via regulation or other explicit guidance that auctioning would be permitted in certain contexts. In particular, EPA should encourage auctioning in the implementation of TMDLs. States have broad authority under the Clean Water Act to design and implement TMDLs.[107] This broad authority should cover auctioning to sources, just as it provides for trading among sources. Other statutory provisions which allow for trading may provide similar authority for auctioning as well.

Most obviously, auctioning can help overcome financial hurdles to implementation of trading programs. Depending on the prices of the winning bids, even a partial auction may be sufficient to cover the upfront costs of establishing a trading program and the ongoing costs of administration. More broadly, auctioning can help overcome regulatory and cultural barriers to effective trading programs. The prospect of another source of revenue may incentivize trading programs and may even incentivize the development of TMDLs.

The revenue generating potential of auctioning may garner the support of state officials, which could help overcome resistance within agencies.

Auctioning in water quality trading programs would have additional societal benefits. First, because of transaction costs, auctioning can achieve a more cost-effective outcome than providing rights to dischargers for free. Second, additional revenues, after being used to cover the costs of the program, may be used to reduce distortionary taxes or to avoid tax increases. Third, auctions may provide additional incentives for firms to develop substitutes by requiring payments rather than distributing rents. Finally, the revenue from the program may provide additional incentives for government entities to monitor compliance.[108]

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purchase a certain quantity of credits for the duration of that permit cycle."). The duration of state-administered permits has an upper limit of five years, as specified by Clean Water Act § 402(b). But nothing in that provision limits the ability of a permit writer to modify the permit for the purposes of trading, and EPA could clarify the the conditions under which permits may be altered.

[104] EPA, Water Quality Trading Evaluation – Final Report 3-21 (2008).

[105] *Id*. at 3-24 to 3-26.

[106] In existing water quality trading programs, permission to discharge a pollutant is initially allocated for free to individual sources. This is easiest to see in the context of TMDLs. In these programs, the regulatory entity establishes an overall amount of a pollutant that may be discharged by all sources in order to reach the relevant water quality standard. This overall amount is then divided between sources. If a TMDL program allows trading, sources with a low cost of reduction will typically sell some portion of their initial discharge limit to sources with a high cost of reduction. If an auction is incorporated as part of a TMDL trading program, the initial rights to discharge would not be freely distributed to individual sources. Sources would instead purchase these rights from the government. Further trades between sources could still occur after the auction. An agency could also choose to only auction a portion of the overall amount of allowable discharge.

[107] EPA is required to approve any state program where the limits established are "at least as stringent" as required to meet a water quality standard. Clean Water Act § 303(e)(3).

[108] *See* Nathaniel O. Keohane, Richard L. Revesz & Robert N. Stavins, *The Choice of Regulatory Instruments in Environmental Policy*, 22 HARV. ENVTL. L. REV. 313, 316 n.19 (1998).

For all of these reasons, EPA should explore ways to allow and promote auctioning as another tool to achieve water quality obligations under the Clean Water Act.

EPA should gather and disclose information relevant to trading, monitoring, and enforcement.

The Clean Water Act makes clear that permit applications and issued permits are public information.[109] This applies to permits with trades as well. But currently, trading-related information is not easy to access. EPA has a computerized system to track general water quality permit data, compliance, and enforcement status,[110] but it is not "structured to actually track trades."[111] EPA should update the database to track and publish information on trades online.

Greater transparency and access to information facilitates monitoring and enforcement by citizens.[112] Citizen efforts can increase the probability of enforcement at low cost to governments. Further, the threat of citizen suits, political pressure from citizens, and the firms' interest in maintaining respectable public relations will all heighten the incentive to comply with the conditions of a trade as information becomes more easily accessible.[113] Indeed, citizen involvement has been an integral part of the permitting process, and the trading program should preserve this feature.[114]

Information can also help dischargers assess their own risks and benefits involved in trading. Uncertainty in trading reduces the number of efficient trades.[115] While parties can contract among themselves to ascertain who bears the risk of un-materialized reductions, uncertainty associated with the probability of enforcement actions is more difficult to assess.[116] EPA could help by

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[109] "A copy of each permit application and each permit issued under this section shall be available to the public. Such permit application or permit, or portion thereof, shall further be available on request for the purpose of reproduction." CWA § 402(j).

[110] EPA publishes permit data and makes it searchable on the web at http://www.epa.gov/enviro/facts/pcs-icis/search.html.

[111] EPA, Water Quality Trading Toolkit for Permit Writers 17 (2009).

[112] *Cf.* EPA, Water Quality Trading Evaluation – Final Report 3-17 (2008) ("Several interviewees noted that EPA officials' concerns about enforceability slow the diffusion of trading.").

[113] Mark Greenwood, White Paper from Industry Coalition to EPA on Concerns Over Information Program, reprinted in Bureau of Nat'l Affairs, Daily Envt. Rep., May 4, 1999, at E-1, E-3; Lori S. Brennar & Sheila M. Olmstead, *The Impacts of "Right to Know": Information Disclosure and the Violation of Drinking Water Standards*, 56 J. ENVTL. ECON. & MGMT. 117, 129 (2008).

[114] EPA, NPDES Permit Writers' Manual 11-26 (2010) ("Under the Freedom of Information Act, citizens have the right to request certain facility-specific compliance information from EPA's ICIS-NPDES database. In addition, under NPDES regulations, interested citizens can intervene in any federal civil judicial action to enjoin any threatened or continuing violation of program requirements or permit conditions, and to recover civil penalties in court. Citizens also have the opportunity to review and comment on any proposed consent decree to resolve a state or federal civil judicial enforcement action. CWA section 505 allows any citizen to begin a civil judicial enforcement action on his or her own behalf.").

[115] Water Quality Trading Programs: An International Overview, World Resources Institute Working Brief 13 (2009) ("Frequently, when faced with regulatory limits, point source entities express a preference for costly upgrades that they can control, rather than being exposed to risks associated with purchasing credits from other parties, either point or nonpoint source, in a trading market. Under the CWA, a regulated point source purchasing credits from another regulated point source can transfer regulatory compliance liability to the seller. However, a regulated point source purchasing credits from an unregulated nonpoint source cannot transfer legal liability. This creates the risk that a regulated point source buyer would be held in violation of his permit should the contract with the unregulated entity default. While the contract between the buyer and seller could protect the buyer financially in this event, it does not preclude enforcement action from the regulatory agency, nor the public disapprobation that goes with it. This legal reality makes the purchase of nonpoint-source credits too risky for some regulated sources.").

[116] Put differently, while the contract between the buyer and seller may provide some financial protection in the event of default by the non-point source, the risk of an enforcement action compounds the uncertainty in the financial liability of the point source (which is generally held liable for trades with non-point sources). This uncertainty would make the

collecting and disseminating information, for example, on the likelihood of different types of non-point sources of defaulting or which entities in particular have a record of defaulting. EPA might also help by clarifying the circumstances under which it would pursue an enforcement action.

Finally, EPA should collect and disseminate information on best practices and innovative solutions to trading problems developed by local regulators. For example, the monitoring of non-point source controls varies among existing trading programs.[117] Parties interested in trading with non-point sources will benefit from learning what other watersheds are doing to ensure the effectiveness of non-point source controls, and EPA could organize information on a website that reports on how trading programs are tackling a given issue, what characteristics of that watershed or trading program make it amenable to a given solution, and the effectiveness of the solution.

Conclusion

The rulemaking under consideration presents an opportunity to improve the efficiency of EPA's enforcement of water quality standards. To maximize net benefits of the new source permitting regime, EPA should propose pro-offsets amendments to 40 C.F.R. § 122.4(i). EPA should consider proposing new requirements to improve water quality of impaired waterbodies, but should be careful to structure any such requirement to avoid marginal abatement cost problems.

Additionally, EPA can use the rulemaking as an occasion to broaden the scope of water quality trading under the Clean Water Act. In order to optimize efficiency in trading, EPA should allow for efficient trading to meet technology-based effluent limits; reevaluate any remaining legal barriers to existing trading programs; encourage auctioning as an option for state regulators to help build trading programs; and facilitate access to information relevant to trading, monitoring, and enforcement.

Sincerely,

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contract difficult to price correctly. While the firm could make a decision on imperfect information, uncertainty would deter risk averse firms from making potentially efficient trades; such a firm may decide to incur the predictable, controllable cost of abating its own effluents.

[117] Cynthia Morgan & Ann Wolverton, *Water Quality Trading in the United States* 15 (National Center for Environmental Economic Working Paper Series, Working Paper # 05-07, 2005) ("The monitoring of non-point source controls among programs range from no monitoring to verification of all BMPs used to generate credits. Only two programs – Lower Boise and Red Cedar- verify and monitor all BMPs that generate non-point source credits. The Tar-Pamlico and Great Miami programs inspect between 5% and 10% of BMP credits. The Grassland program verifies non-point source credits by monitoring selenium loads as opposed to BMPs. Approval of a trade in the New York and Truckee programs is contingent on having a plan for monitoring and enforcement of non-point source controls. The Chatfield, Cherry Creek, and Kalamazoo programs monitor water-quality to determine the effectiveness of non-point source controls. In the Kalamazoo River Water Quality Demonstration Project, for instance, a Steering Committee administers a fund for the installation of non-point source controls for phosphorus. Credits generated by non-point source controls are verified and then banked with the Steering Committee, and point sources receive credits in proportion to their contribution to the cost of these non-point source controls. Where possible, the Steering Committee follows up with water quality monitoring.").

APPENDIX: Proposal for Amended 40 C.F.R. § 122.4(i)
Recommended additions are underlined; recommended deletions are crossed out.

No permit may be issued:

(i) To a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards.

1. A new source or new discharger does not cause or contribute to the violation of water quality standards if its discharge is offset by other pollutant reductions.

2. The owner or operator of a new source or new discharger that does not offset its discharge but is proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:

   ~~1.~~ A. There are sufficient remaining pollutant load allocations to allow for the discharge; and

   ~~2.~~ B. The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. The Director may waive the submission of information by the new source or new discharger required by paragraph (i) of this section if the Director determines that the Director already has adequate information to evaluate the request. An explanation of the development of limitations to meet the criteria of this paragraph (i)(2)(B) is to be included in the fact sheet to the permit under § 124.56(b)(1) of this chapter.