LEGAL AND POLICY OPTIONS FOR WATERSHED RESTORATION IN SOUTHEASTERN WISCONSIN

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EXECUTIVE SUMMARY

This memorandum presents five distinct management options as useful models to address water quality impairments at the watershed level. Recognizing that the traditional Clean Water Act (CWA) regulatory approach does not readily allow for a holistic analysis of watershed-scale pollution trends or sufficiently address nonpoint sources of pollution, the United States Environmental Protection Agency and State and local water quality authorities around the country have crafted new approaches that have played an important role in watershed restoration.

The five models discussed in this memorandum are Environmental Accountability Projects (EAPs), Watershed-based permits, Total Maximum Daily Loads (TMDLs), water quality trading programs, and private contracts. Two of these models, watershed-based permits and TMDLs, fit very cleanly into the traditional CWA structure and would require little, if any, additional Department of Natural Resources (DNR) authority to implement. Watershed-based permits could be created by DNR as part of the existing Wisconsin Pollutant Discharge Elimination System (WPDES), and permit terms and conditions could be established collaboratively to address broad watershed goals. TMDLs are already required under the CWA for all waters that do not meet water quality standards; they provide the means of apportioning the pollutant load among point and nonpoint sources. Though TMDLs can be complex and expensive, third-party TMDLs could be used to increase stakeholder involvement and accelerate the implementation process.

Water quality trading programs can be created and enforced in the WPDES permitting context, but would likely require additional statutory authority to implement state wide. The DNR's existing authority limits pilot trading programs to watersheds with a mixture of point and nonpoint sources, and a combination of agricultural and municipal sources. Trading programs are inherently complex, and success depends on a variety of social and economic factors that have yet to be identified in the Menomonee River watershed.

Both EAPs and private contracts exist outside of the CWA framework. EAPs are simple, voluntary, DNR-supported restoration projects that typically address only a single contaminant source where the cause of the impairment is well understood. Private contracts create new agreements that bind only the parties to the contract although contracts could involve the DNR as a party if it is deemed necessary. Enforcement of private contracts is usually left to the parties themselves.

The selection of a restoration framework in any watershed will depend on how a number of variables can practically be addressed. The restoration framework will be developed by key stakeholders at the local level who will seek to identify and address those variables based on sound science. The management options that are selected will be designed to achieve the greatest improvement in water quality in the most cost effective manner. Depending on the specific characteristics of the watershed or sub-watershed it is possible that several of the management options presented in this memorandum may be used in conjunction with one another and the framework created for the overall Menomonee River watershed may ultimately involve more than one mechanism.

MEMORANDUM

I. BACKGROUND

This memorandum provides an assessment of several watershed management tools that may be appropriate for implementation in the Menomonee River watershed. The tools addressed share several characteristics. First, they are each designed to address water quality using a holistic, watershed approach that involves the consideration of multiple sources of pollution. Second, they are capable of providing water quality improvements above and beyond those typically achieved through the Clean Water Act's typical source-by-source permitting process. Third, they are all well suited for the involvement of a diverse group of watershed stakeholders and the public.

Effort has been made to avoid assumptions so that information may be presented as objectively as possible. This memorandum only assumes that the project will take place on all or a portion of the Menomonee River and will need to address both point sources and nonpoint sources of pollution. Section II of this memorandum examines four management options: environmental accountability projects, watershed-based permits, total maximum daily loads (TMDLs), and water quality trading programs. Section III assesses several "variables" that will most likely affect the final management choice; the final recommendation will depend on the outcome of these variables.

Although the policy and regulatory options discussed in this memorandum are given separate treatment, they do not exist in a vacuum. In practice two or more watershed-based tools are often implemented concurrently, and watershed managers must coordinate the various tools into a consistent and holistic management framework. For instance, the implementation plan for a TMDL may involve the creation of a watershed-based permit, which may then serve as the regulatory vehicle for a water quality trading regime. The ultimate solution for any watershed impairment is likely to include a variety of tools.

In order to fully grasp the legal and regulatory authorities, requirements, and challenges involved with each of the watershed management options discussed in this memorandum, an overview of current water quality law is needed. Legal requirements or challenges specific to a particular management option are discussed in greater detail in that option's discussion section.

The Clean Water Act[1] expresses a national goal to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[2] The core of the CWA's regulatory programs are the development and implementation of water quality standards (WQS)[3] and the issuance of permits to point sources that discharge pollutants to waters of the United States.[4] There are two important dichotomies in CWA implementation: the distinction between point sources and nonpoint sources, and the different but overlapping roles of state and federal government.

[1] Federal Water Pollution Control Act of 1972, 33 U.S.C. §§ 1251 *et seq*.
[2] *Id*. at § 1251(a).
[3] *Id*. at §§ 1311-1317; 40 C.F.R. §§ 131.3; 131.6.
[4] *Id*. at § 1342.

Most of the CWA's regulatory structure is applicable only to point sources; the CWA defines a point source as "any discernible, confined and discrete conveyance" of water.[5] Point sources may not lawfully discharge pollutants without a National Pollutant Discharge Elimination System (NPDES) permit, issued by the EPA or a state agency, that ensures compliance with any applicable national and state performance standards as well as existing water quality standards.[6] Nonpoint sources, by contrast, are generally unregulated by the CWA, though nonpoint source discharges may be limited through mechanisms of state law. Nonpoint sources are addressed indirectly through two CWA programs: the TMDL program, which is described in detail below; and the State management programs and EPA-funded grant programs established under section 319 of the Act.[7]

Under the CWA, States play an important role in carrying out the Act's objectives. Most importantly, States develop water quality standards that are designed to achieve the Act's goals;[8] while the content and form of these standards differ from State to State, they are typically established on a pollutant-by-pollutant and water-by-water basis. The minimum components of WQS are: (1) designated uses of the particular water body; (2) numeric and narrative criteria designed to achieve those uses; and (3) an antidegradation policy that maintains water quality.[9] Water quality standards must be approved by EPA to be enforceable,[10] and they must be reviewed by the State every three years.[11]

Waters that are meeting applicable WQS are known as "high-quality waters;" dischargers to these waters are required to meet all applicable technology-based effluent limitations.[12] Waters that do not meet WQS are known as "impaired waters" and must be identified by each State in its biannual 303(d) list.[13] Dischargers to these waters must meet water quality-based effluent limitations that are generally more stringent than the technology-based limitations, and are designed to ultimately bring the receiving water into compliance with existing WQS.[14] In addition, the States are required to establish a TMDL for each impaired water that (1) identifies the total pollutant load the water can assimilate and still meet WQS, and (2) divides that load among the various pollutant sources.[15]

States also have the option of assuming NPDES permitting authority under the Act.[16] States that have created a permit program that is deemed by EPA to be consistent with the requirements of the CWA may become "delegated" to issue permits themselves; in these States the federal permitting program is suspended, but EPA retains the authority to veto State-issued permits,[17]

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[5] *Id*. at § 1362(14).
[6] *Id*. at § 1342(a).
[7] 33 U.S.C. § 1329.
[8] 33 U.S.C. § 1313.
[9] *Id*. at § 1313(c)(2)(A); 40 C.F.R. § 131.6.
[10] 40 C.F.R. §§ 131.5; 131.21
[11] *Id*. at § 131.20(a).
[12] 40 C.F.R. §§ 121.3; 122.44(a)(1).
[13] Named for section 303(d) of the CWA, which requires each State to "identify those waters within its boundaries for which [technology-based] effluent limitations . . . are not stringent enough to implement any water quality standard applicable to such waters." 33 U.S.C. § 1313(d).
[14] 33 U.S.C. § 301(b)(1)(C); 40 C.F.R. § 122.44(d)(1).
[15] 33 U.S.C. § 303(d)(1)(C). TMDLs are discussed in detail below.
[16] 33 U.S.C. § 1342(b).
[17] *Id*. at § 1342(d).

enforce against individuals for statutory and permit violations,[18] and to "de-delegate" State permitting programs found to be inconsistent with federal law.[19]

Working in tandem with the Clean Water Act are various State statutory and regulatory programs designed to reduce or prevent water pollution. The Wisconsin Department of Natural Resources (DNR) runs an EPA-authorized permit program called the Wisconsin Pollutant Discharge Elimination System (WPDES) pursuant to State law,[20] and has promulgated implementing regulations determining when and how WPDES permits are issued.[21] DNR has also promulgated numerous water quality standards intended to protect Wisconsin waters.[22]

In addition to these basic elements, Wisconsin has in place regulations controlling stormwater runoff from municipalities, industrial facilities, and construction sites,[23] and discharges from concentrated animal feeding operations,[24] all within the CWA's permitting scheme. Outside of the CWA's permitting scheme but addressing water quality are Wisconsin's regulations designed to reduce nonpoint runoff,[25] which are largely voluntary, as well as rules designed to protect wetlands from degradation.[26]

II. SPECIFIC WATERSHED MANAGEMENT OPTIONS

This section addresses four different watershed management options: Environmental Accountability Projects, watershed-based permits, TMDLs, and water quality trading programs. Each option is described in detail, and following the description is a legal and policy analysis of the feasibility of implementation in Wisconsin and the legal and regulatory hurdles that would need to be addressed.

A. Environmental Accountability Projects

(1) Introduction

Environmental Accountability Projects (EAPs) provide a relatively unstructured framework for addressing water quality concerns where the cause of the underlying impairment is simple and well-understood.[27] EAPs are viewed by both the DNR and EPA Region 5 as pre-TMDL tools designed to remove an impairment before a TMDL is developed.[28] EAPs implemented in

[18] *Id*. at § 1342(i).
[19] *Id*. at § 1342(c)(3).
[20] *See generally* Wis. Stat. § 283.
[21] Wis. Admin. Code NR §§ 200-298.
[22] *Id*. at §§ 102-106.
[23] *Id*. at § 216.
[24] *Id*. at § 243.
[25] *Id*. at § 151.
[26] *Id*. at § 103.
[27] Wisconsin Department of Natural Resources, EAP Fact Sheet, *available at* http://www.dnr.state.wi.us/org/water/wm/wqs/303d/pdf/EAPFactSheet.pdf.
[28] *Id*.; U.S. Environmental Protection Agency, Region 5, The Integrated Water Quality Monitoring and Assessment Accountability Framework (Environmental Accountability Projects), included as Appendix 1 (hereinafter, "Region 5 Accountability Framework").

Wisconsin generally must follow Region 5's "Accountability Framework," which ensures that the water quality benefits of EAPs are tracked and measured correctly.[29]

The underlying goal of any EAP is to restore water quality so that the impaired water may be removed from the state § 303(d) list before a TMDL is required. The use of EAPs that fit with EPA's Accountability Framework may allow the DNR increased flexibility in addressing the water quality goals of the impaired water while negotiating approval from Region 5 such that pressure to create a TMDL will be lessened.

In order to fit within EPA's Accountability Framework, EAPs must identify goals, set milestones, and track environmental progress.[30] Key components of an EAP include:

- *Management Actions*: Planned remedial actions that will "result in the elimination or significant reduction of pollutant loading to an impaired water body."[31] There is great flexibility and room for initiative in selecting management actions, so long as progress towards compliance with water quality standards can be shown.

- *Critical milestones*: observable, time-sensitive conditions that indicate that acceptable progress is being made. Failure to meet a critical milestone should trigger the revision of a certain management action to meet the EAP's goals.

- *Monitoring components*: details on how meeting critical milestones, and ultimate compliance with water quality standards, will be demonstrated.

- *Funding Sources and Participating Parties*: administrative details on how the Management Actions will be funded and who will carry them out.

- *Target Date for § 303(d) delisting*: the future date by which water quality standards are expected to be attained, including any necessary lag time for the water quality benefits to become apparent.

EAPs have been used by state and local management authorities within Wisconsin to address a number of small-scale impairments, and while § 303(d) delisting has not yet occurred for any of the waters for which an EAP has been developed, the DNR reports that valuable progress is being made. For instance, Jordan Creek, Pine Creek, and Hayton Millpond, small connected watersheds located in Calumet County, have seen significant water quality improvements thanks to an EAP that engages private parties to clean up historic PCB-contaminated sediment. With DNR oversight, PCB levels have been reduced from up to 2,300 parts per million (ppm) to 1-5 ppm post removal.[32]

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[29] Region 5 Accountability Framework.
[30] U.S. Environmental Protection Agency, Region 5, Integrated Water Quality Monitoring and Assessment: Accountability Framework for Water Quality Implementation Projects, included as Appendix 2.
[31] *Id.*
[32] Wisconsin Department of Natural Resources, Jordan Creek, Pine Creek and Hayton Millpond: A Wisconsin Environmental Accountability Project, *at* http://dnr.wi.gov/org/water/wm/wqs/303d/EAP/JORDANCREEK.html.

(2) Existing Legal Authority

DNR is authorized to develop and implement EAPs. This authority derives from the "general supervision and control" powers the agency maintains over waters of the state.[33] EAPs are non-regulatory, and typically operate by means of cooperative planning and voluntary implementation among stakeholders. Additional statutory or regulatory changes are not needed. EAPs do not impact existing regulations; all applicable CWA requirements, including permit requirements, would continue to apply.

B. Watershed-based Permitting

(1) Introduction

Watershed-based permitting is the integration of a watershed-based water quality analysis into the NPDES permitting process so that the range of NPDES implementation options (and possibly other non-traditional program options) are tailored to meet broader watershed objectives.[34] Watershed-based permitting allows the permitting authority to consider broad watershed goals and the varied impact of multiple pollutant sources, including nonpoint sources.[35] The result of this integration is an NPDES permit (or series of permits) that goes beyond the typical "end of pipe" limitations to include limitations and conditions that consider the multiple pollutant sources in the watershed.[36]

In many ways, the watershed-based permitting process is similar to the creation of a TMDL for a particular water body, as many of the actions necessary for TMDL development are necessary for a successful watershed-based permit. EPA supports a "watershed permitting analytical approach" as part of the permit development process;[37] this approach, like the analysis that supports a TMDL, includes comprehensive data gathering, considering multiple pollutant sources and stressors throughout the watershed, with an eye towards achieving watershed goals.[38]

However, EPA recognizes that a watershed-based permitting program can be successful with or without a TMDL in place.[39] If a TMDL has already been developed, a watershed-based permitting structure can be a useful tool to implement the TMDL if the geographic scope of each is the same, and if the permit addresses all of the sources for which waste load allocations have been developed.[40] Conversely, without a TMDL in place, a watershed-based permit can still address

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[33] Wis. Stat. § 281.12 ("The department shall have general supervision and control over the waters of the state. It shall carry out the planning, management and regulatory programs necessary for implementing the policy and purpose of this chapter. The department also shall formulate plans and programs for the prevention and abatement of water pollution and for the maintenance and improvement of water quality.")

[34] U.S. EPA, Watershed-based National Pollutant Discharge Elimination System (NPDES) Permitting Technical Guidance 5 (August 2007) (hereinafter "Watershed Permit Technical Guidance").

[35] U.S. EPA, Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Implementation Guidance (2003) at 1-2 (hereinafter "Watershed Permit Implementation Guidance").

[36] *See id*. at 2-11.

[37] Watershed Permit Technical Guidance at 5

[38] *Id*.

[39] *Id*. at 7.

[40] *Id*.

watershed needs and may either provide valuable data for TMDL development, or obviate the need for a TMDL altogether.[41]

EPA has identified a host of benefits of watershed-based permitting:[42]

- *Enhanced opportunity for environmental results* – by considering all watershed impacts, watershed-based permitting expands upon the typical "end-of-pipe" approach for NPDES permits. This leads to a more holistic and coordinated approach to watershed restoration and more effective permits.

- *Integration of water-related programs* – An effective watershed-based permitting program requires data similar to those used in developing TMDLs, watershed management plans, and even source water assessment plans under the federal Safe Water Drinking Act. The collection of these data may facilitate water program integration on the watershed level.

- *Targeted and maximized use of resources* – with the gathering of data at the watershed level, resources can be carefully targeted to achieve the maximum results for improved water quality.

- *Facilitates opportunities for trading and other market-based strategies* – the process of developing a watershed-based permit, including gathering basin-wide loading data and developing a broad stakeholder base, may facilitate the creation of a water quality trading program.

EPA has also identified several potential challenges to implementing a watershed-based permitting scheme:[43]

- *Expanded stakeholder involvement* – Because the development of a watershed-based permit involves not just a single point source but potentially all point sources (as well as nonpoint sources and other stakeholders) in the watershed, the process is inherently more complex. Where there is a watershed restoration plan or a watershed association or other stakeholder group already in place, this additional burden can be alleviated.

- *Integration of nonpoint sources* – Nonpoint sources will need to play a role in watershed-based permitting efforts, both in terms of contributing to the development of watershed goals and in reducing load contributions. In most cases, participation of nonpoint will be voluntary; the use of outreach, facilitated participation, and technical and financial assistance can help bring nonpoint sources into the fold.

- *Need for more flexible program infrastructure* – The development of watershed-based permits will require more flexibility on the part of the permitting authority. New strategies for generating stakeholder involvement, developing and implementing permit conditions, and tracking compliance may challenge permitting staff.

[41] *Id*.
[42] *Id*. at 3-1–3-2.
[43] *Id*. at 3-2 – 3-3.

- *Conflicting jurisdictional requirements* – It is likely that conflicting and overlapping jurisdictional requirements will need to be resolved. In the NPDES context, point sources within the watershed likely have differing permit requirements, compliance schedules, and permit renewal timelines. Beyond the NPDES context, other program requirements at the federal, state, and local level will need to be identified and reconciled. EPA recommends conducting a thorough analysis of these various requirements to identify conflicts and opportunities for coordination.

- *Regulatory Structure* – Permitting authorities will need to think creatively in the context of the existing regulatory structure, and identify needed implementation tools that may not yet exist. A key challenge here is crafting enforceable permit requirements in a way that meets watershed goals – and thus includes nonpoint source reductions – while recognizing the typically voluntary contributions of those nonpoint sources.

Table 1: Factors leading to the consideration of a watershed-based permit[44]

Factor leading to watershed-based permits	Explanation
Waterbody impairment and TMDL development and implementation	Permit is developed either as a means to implement a TMDL that already exists or is being developed, or as a means to improve water quality before resources are devoted to TMDL development
Upstream pollutant contributions	Permit is developed as a means to address upstream pollutant contributions; typical NPDES permits are largely ineffective to reduce upstream loads
Nonpoint source contributions	While not directly regulating nonpoint sources, a watershed-based permit can account for nonpoint source pollutant contributions and serve as a means to coordinate basin strategies and provide incentives to reduce the loads from nonpoint sources
Local support for water quality improvements	Where local stakeholders are already invested in water quality improvements, perhaps expressed through a watershed restoration plan, the NPDES framework can provide structure to those public efforts
Large financial investments required	A watershed-based permitting approach can lead to economic efficiencies as water quality projects are considered and prioritized based on effectiveness
Multiple regulatory challenges	Where competing and overlapping regulatory requirements exist, the NPDES watershed framework can streamline these requirements and alleviate regulatory burden

Several different types of watershed-based permits currently exist throughout the United States, and the type selected for any particular watershed will likely depend on specific watershed conditions, water quality objectives, and the types of dischargers involved.[45] Some types are quite similar to traditional NPDES permits, while other types are radically different:[46]

[44] *See* Watershed Permit Technical Guidance at 6-8.
[45] *Id*. at 24.
[46] *See id*. at 24-26; Watershed Permit Implementation Guidance at 2-13 – 2-16.

- *Watershed-based Individual Permits* – the most similar to traditional NPDES permits. An individual permit is issued to all point source dischargers, but permit conditions and limitations focus on defined watershed goals and work collectively to achieve those goals.

- *Integrated Municipal Permits* – allows the bundling of multiple NPDES requirements for a municipality (i.e., POTWs, CSOs, municipality-owned industrial discharges, etc.) into a single permit, leading to administrative efficiencies for both the permitting authority and the municipality

- *Watershed-based Multisource Permits* – a single permit that covers multiple sources in the watershed, for instance those sources affiliated through a compliance association. Effective for addressing a specific pollutant of concern; this type of permit might facilitate water quality trading or implement a TMDL.

- *Watershed General Permits* – works like other NPDES general permits, but with location in the watershed as the primary criterion for permit eligibility. Could be further refined by category or type of discharge.

(2) Existing Legal Authority

DNR currently has legal authority to issue watershed-based individual WPDES permits. As already discussed, the DNR operates an EPA-approved permitting program under chapter 283 of the Wisconsin Statutes, which requires permittees to comply with applicable technology-based effluent limitations as well as any additional limitations necessary to comply with water quality standards.[47] Watershed-based permits would not vary from these procedures, and would have to meet the same legal and regulatory requirements as other permits.

DNR also has authority to issue general permits, defined by State law as permits "applicable to a designated area of the state authorizing discharges from specified categories or classes of point sources."[48] This provision allows DNR to issue watershed-based general permits where permit eligibility is geographically limited to dischargers in the watershed, and to further limit the applicability of that permit to particular classes of dischargers within the watershed (for instance, POTWs in the watershed). DNR regulations further define designated areas of the state to include "any surface water drainage basin, stream or stream segment,"[49] clearly encompassing watersheds.

DNR regulations, however, limit the applicability of general permits to point sources that: "1. Perform the same or substantially similar operations; 2. Produce the same types of wastewater streams; 3. Employ the same or substantially similar wastewater treatment operations to control specific pollutants; [and] 4. Are subject to the same effluent limitations and monitoring requirements . . . ."[50] Thus, to develop a watershed-based permit applicable to a broad range of dischargers, DNR regulations would likely need to be revised to clearly indicate that more than one type of point source may be covered under a general permit.

[47] Wis. Stat. §§ 283.31; 283.13(2) and (5).
[48] Wis. Stat. § 283.35(1).
[49] Wis. Admin. Code NR § 205.08(1)(a).
[50] *Id*. at § 205.08(1)(b).

C. Total Maximum Daily Loads (TMDLs)

A. Introduction

Total Maximum Daily Loads, or TMDLs, are not new to CWA implementation but have received additional attention in recent years as creation of TMDLs accelerates nationwide. The CWA explicitly requires States to prepare TMDLs for all waters found by the State to be impaired for one or more pollutants.[51] TMDL development follows a State's priority ranking of impaired waters, taking into account the severity of the pollution and the water's designated and existing uses.[52]

A TMDL is essentially the total load of a given pollutant that the receiving water can assimilate while still meeting water quality standards, after factoring in seasonal variations and a margin of safety needed to account for scientific uncertainty.[53] A TMDL includes waste load allocations (WLAs) assigned to individual point sources, load allocations (LAs) assigned to nonpoint sources, plus an allocation for the margin of safety.[54] TMDLs must be approved by EPA[55] and, once approved, become the written framework for restoring impaired waters.

DNR has developed 31 TMDLs to date, with an additional five in the draft stage or pending approval.[56] The vast majority of these TMDLs address a single pollutant; only three have addressed more than one pollutant. Every TMDL in Wisconsin to date has addressed sediment, phosphorus, or both. DNR and stakeholder groups are also currently working on two basin-wide TMDLs; one for the Rock River basin, and one for the Lower Fox River and Green Bay; both of these pending TMDLs will address sediment and phosphorus.[57]

Although TMDLs are ultimately the responsibility of the State water pollution agencies, and must be adopted by the State and submitted to EPA for approval, some States have embraced the concept of third-party TMDLs. A third-party TMDL is identical to a State-developed TMDL except that a non-governmental entity, such as a nonprofit organization or watershed association, undertakes the majority of the work. Third-party TMDLs are a natural extension of the extensive stakeholder participation already encouraged by most State authorities, and may be appropriate where the authority lacks the resources to devote to TMDL development.[58] Though EPA has taken no formal stance on third-party TMDLs, assuming they are adopted by the necessary State authority

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[51] 33 U.S.C. § 1313(d)(1)(C).
[52] *Id*; 40 C.F.R. § 130.7(b)(4).
[53] *See* 33 U.S.C. § 1313(d)(1)(C); 40 C.F.R. § 130.7(c)(1).
[54] 40 C.F.R. § 130.2(g)-(i).
[55] 33 U.S.C. § 1313(d)(2).
[56] DNR TMDL Website: http://www.dnr.wi.gov/org/water/wm/wqs/303d/index.html.
[57] DNR Fact Sheet: Rock River TMDL, *available at* http://www.dnr.wi.gov/org/water/wm/wqs/303d/RockRiverTMDL/RockRiverTMDL%20-%20TMDL%20Development%20Factsheet%20-%20Dec2006.pdf; DNR Fact Sheet: Restoring our Water Heritage (Lower Fox River and Green Bay TMDL*), available at* http://www.dnr.wi.gov/org/water/wm/wqs/303d/FoxRiverTMDL/Green_Bay_TMDL_Factsheet_8-16-2007.pdf.
[58] Water Environment Federation, Third-Party TMDL Development Toolkit 7 (2007), *available at* http://www.wef.org/NR/rdonlyres/030A0B07-6449-4451-909B-B7529E7D4214/0/ToolKitWebVersion.pdf

and meet State and Federal CWA requirements for TMDLs, they can be successfully developed and approved.[59]

EPA has identified the following minimum components of a TMDL:[60]

- *Identification of necessary information* – the TMDL must identify the water body, pollutant of concern, all pollutant sources, and the priority ranking for the water body.

- *Applicable water quality standards and numeric targets* – the water quality standards, including designated uses, water quality criterion, and antidegradation policy applicable to the water body and the numeric target for the pollutant of concern

- *Loading capacity* – defined as the "greatest amount of a pollutant that a water can receive without violating water quality standards."[61]

- *Load Allocations* – the portion of the loading capacity attributed to nonpoint sources and background levels.

- *Waste Load Allocations* – the portion of the loading capacity attributed to existing and future individual point source dischargers.
- *Margin of Safety* – accounting for lack of certainty or insufficient data, the margin of safety can be either implicit (i.e., incorporated into LAs and WLAs through conservative assumptions) or explicit (i.e., expressed in the TMDL as a separate allocation)

- *Seasonal Variation* – the method used for incorporating the seasonal variation must be explained in the TMDL

- *Reasonable Assurances* – for TMDLs developed for waters impaired by both point and nonpoint sources, the TMDL must include reasonable assurances that the nonpoint source control measures will actually meet the LAs attributed to them.

- *Monitoring Plan* – a plan to monitor water quality and gather additional data as necessary to determine that the load reductions are achieved and water quality standards are attained

- *Implementation* – a mechanism to put the components of the TMDL into place and reach the TMDLs water quality objectives. EPA is not required to, nor does it, approve specific TMDL Implementation Plans, though they are encouraged.

- *Public Participation* – documentation showing that minimum public participation requirements have been met, such as a summary of comments received and responses to those comments.

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[59] *Id*. 5-6.
[60] U.S. Environmental Protection Agency, Guidelines for Reviewing TMDLs under Existing Regulations Issued in 1992 (May 20, 2002), *available at* http://www.epa.gov/owow/tmdl/guidance/final52002.pdf.
[61] 40 C.F.R. § 130.2(f).

- *Submittal Letter* – A letter expressing the State's intent to seek EPA approval and whether the TMDL is submitted for technical review or for final review and approval.

- *Administrative Record* – while not a necessary component of the TMDL, EPA recommends that States prepare a record containing the documents used to justify the load allocations as well as other pertinent information

An important benefit of TMDLs is the creation of additional flexibility under the CWA to adjust individual effluent limitations for point sources. Once a TMDL is in place, it becomes the basis for creating effluent limitations incorporated into NPDES permits, and all effluent limitations must be consistent with the waste load allocations contained in the TMDL.[62] However, the CWA explicitly allows for the revision of effluent limitations derived from TMDLs if the *cumulative effect* of those revisions will still allow water quality standards to be met.[63] Thus multiple effluent limitations can be adjusted up or down throughout the TMDL area if WQS can still be attained. In this case, the CWA's anti-backsliding provision would not be triggered even if the effluent limitation is less stringent for a particular discharger.[64]

B. Legal Authority

A TMDL is the only watershed restoration option addressed in this memorandum that is legally required by the CWA. TMDLs have been used by DNR and are authorized under State law. DNR is required to establish a continuing planning process which includes plans for the development of TMDLs for impaired waters,[65] and, where TMDLs exist, must include in all permits those effluent limitations necessary to comply with the TMDL and, therefore, water quality standards.[66] DNR regulations state that TMDLs will be developed "whenever categorical [technology-based] effluent limits . . . are less stringent than necessary to achieve the designated water quality standard."[67] No changes to state law or DNR regulations would be required to develop or implement additional TMDLs.

D. Water Quality Trading

A. Introduction

In its most simplistic sense, water quality trading is a market-based mechanism that allows one pollution source to meet its regulatory obligations by using pollutant reductions generated by another source.[68] In a typical trading scheme, "sellers" generate pollution credits by

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[62] 40 CFR § 122.44(d)(l)(vii).
[63] 33 U.S.C. § 1313(d)(4)(A).
[64] 33 U.S.C. § 1342(o)(1) (excepting from the anti-backliding provision effluent limitation revisions that are in accordance with the TMDL provisions of section 303(d)(4)).
[65] Wis. Stat. § 283.83(3).
[66] Wis. Stat. § 283.13(5); *see also* 40 CFR § 122.44(d)(l)(vii) ("When developing water quality-based effluent limits . . . the permitting authority shall ensure that . . . [e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA.").
[67] Wis. Admin. Code NR § 212.05(1).
[68] U.S. Environmental Protection Agency, Water Quality Trading Policy 1 (January 13, 2003) (hereinafter "EPA Trading Policy").

overcontrolling[69] a particular pollutant; these credits are then purchased by "buyers" who realize a cost savings as compared to reducing their own contributions of that pollutant. The goal of a water quality trading program is to achieve water quality goals on a watershed basis with greater efficiency and flexibility than are available in a traditional regulatory model.[70]

While water quality trading is still a relatively new concept, EPA has supported pilot trading projects around the country and believes trading programs can generate many water quality benefits, including:[71]

- Cost-effective TMDL implementation through increased flexibility and the use of efficient market-based incentives

- Progress towards meeting broad watershed goals through the incorporation of point and nonpoint source reductions within the watershed

- Potential to create secondary environmental benefits such as the restoration of wetland, wildlife habitat, and floodplains

- Reduces overall compliance costs

EPA's 2003 Water Quality Trading Policy Statement lays out the conditions under which trading programs or particular trades are likely to be approved.[72] Of overarching importance to EPA is consistency with fundamental CWA requirements,[73] such as the need for point sources to obtain an NPDES permit, protection of designated uses, and compliance with anti-backsliding and antidegradation requirements.[74] EPA also notes that, although TMDLs tend to be the most common economic "driver" for trading schemes, it will support water quality trading prior to TMDL development where progress towards attainment of water quality standards and the restoration of designated uses is demonstrated.[75]

Water quality trading is perhaps the most complex watershed restoration management tool available to watershed stakeholders. A host of watershed conditions, technical factors, and economic variables must be assessed before a trading program can be successfully implemented. EPA advises watershed stakeholders to address the following factors when contemplating a trading program:

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[69] Achieving a greater reduction in source-specific pollutant loading than is otherwise required or specified in a TMDL or watershed plan. *See* U.S. Environmental Protection Agency, Water Quality Trading Assessment Handbook (November 2004) at 28 (hereinafter, "EPA Trading Handbook").
[70] EPA Trading Policy at 1.
[71] *See id*. at 3.
[72] While individual trades may not need EPA approval, EPA retains authority to approve or reject NPDES permits, TMDLs, revisions to water quality standards, or watershed restoration plans that may serve as implementation tools for a state trading program.
[73] *See* EPA Trading Policy at 4.
[74] *Id*. at 4-7.
[75] *Id*. at 5.

- *Pollutant Suitability* – EPA generally supports trading programs for nutrients and sediment, but discourages trading of persistent, biaccumulative or toxic pollutants;[76] other pollutants would be considered by EPA after further scrutiny.[77] EPA recommends analysis of four pollutant suitability factors to determine whether a particular pollutant is suitable for trading; where pollutants of concern are not suitable for trading, the program is not likely to be successful.

Table 2: EPA's Suggested Pollutant Suitability Analysis

Pollutant Characteristic	What the analysis entails	Why the analysis is needed
Type/Form	Determination of the various types and forms of pollutants currently discharged by sources likely to participate in the trading program (e.g., soluble vs. non-soluble phosphorus)	Trading is only supportive of watershed goals where the *same pollutant* is traded, or there exists scientifically-defensible means to *translate* between reductions of one pollutant and reductions in another. EPA supports cross-pollutant trading in some circumstances (i.e., oxygen-related pollutants such as nutrients and dissolve oxygen)
Equivalence	Determination of the location of potentially tradable reductions and the equivalence between the two locations in terms of water quality improvement	Unique watershed conditions and pollutant characteristics affect the fate and transport of pollutants as they travel through the watershed; equivalence ratios will likely be needed to ensure that reductions upstream have the same water quality benefits as reductions downstream, and that harmful localized hotspots are not created
Timing	Determination of anticipated temporal aspects of the trade and required reductions	Seasonal load variability (e.g., fluctuations between winter and summer loading), compliance determination variability (the time at which permit compliance is assessed), and compliance deadline variability (deadlines to reach permit compliance) should align as much as possible
Quantity	Determination of the supply of and demand for available load reductions between potential trade partners	Economics dictates that the supply of pollutant reductions must meet or exceed the quantity or reductions needed for compliance.

- *Financial Attractiveness* – Because water quality trading is a market-based approach to watershed restoration, there must be sufficient economic incentive to induce trades between sources. Only where there is sufficient costs savings generated by the trade will a source choose to trade rather than implement its own reductions on site.

[76] EPA Trading Policy at 4. So-called PBT pollutants are "pollutants that are toxic, persist in the environment, and bioaccumulate in food chains, and thus pose risks to human health and ecosystems." Bioaccumlation is the "[p]rogressive increase in the amount of a substance in an organism or part of an organism which occurs because the rate of intake exceeds the organism's ability to remove the substance from the body." U.S. National Institutes of Health, Environmental Health and Toxicology Specialized Information Services, Toxicology Glossary, *available at* http://sis.nlm.nih.gov/enviro/glossaryb.html.

[77] EPA Trading Handbook at 5.

- *Market Infrastructure* – In order to make trading efficient and cost-effective, the market must be structured to minimize friction, reduce uncertainty, and minimize risk. Most importantly, the market must have a "driver" – some device, such as a TMDL or similar framework, that creates the need for dischargers to alter their current behavior. EPA has identified eight essential market functions:

  (1) Assuring compliance with the Clean Water Act and relevant state and local requirements
  (2) Defining and executing the trading process
  (3) Defining marketable reductions
  (4) Ensuring water quality equivalence of trades and avoiding hotspots
  (5) Communicating between buyers and sellers
  (6) Tracking trades
  (7) Managing risk among parties to a trade
  (8) Providing information to the public and other stakeholders

These essential market functions may be facilitated by the market participants, regulatory authorities, or other stakeholders; regulators should play a key role in numbers (1) and (4) (compliance assurance and equivalence determination).

Table 3: Current Water Quality Trading Market Models[78]

Example Watershed / Project	Market Structure	Market Driver	Market Function and Analysis
Lower Boise River Water Quality Trading Project, ID	Nonprofit Cooperative with "Dynamic" Trading	Phosphorus TMDL	To reduce market friction, the cooperative received approval from regulators to include language in the TMDL, NPDES permits, and the State Trading Document that pre-approves certain trades. Individual effluent limits are variable, and based on trading ratios.
Cherry Creek Reservoir, CO	Quasi-governmental Water Quality Authority with credit banking	Phosphorus TMDL	The multi-jurisdictional Water Quality Authority manages a Phosphorus Bank and Reserve Pool. The Authority sells credits generated by four nonpoint source reduction projects; NPDES permits must be modified to reflect credit purchases.
Long Island Sound, CT	Nitrogen Credit Exchange managed by a citizen board	Nitrogen TMDL	The nitrogen exchange program was established by a specific trading statute, which created the Nitrogen Credit Exchange Board to manage trades and set credit process annually. Trading occurs between 79 POTWs in the basin, all regulated by a Nitrogen General Permit.

[78] *See* EPA Trading Handbook at 58-72.

B) Legal Authority for Water Quality Trading

In 1997, the Wisconsin Legislature enacted a statute, Wis. Stat. § 283.84, instructing the DNR to "administer at least one pilot project to evaluate the trading of water pollution credits."[79] The statute allows pilot trading projects to establish trades between point sources, from point sources to nonpoint sources, or by purchasing credits from DNR or local governments that then must use the proceeds to improve water quality in the project area.[80] WPDES permittees are allowed to increase the discharge of a pollutant above the level otherwise allowable only if there is an improvement in water quality; the same pollutant or water quality standard is traded; and the trade agreement is valid for a maximum of five years.[81] The legislature explicitly limited the scope of the Wisconsin trading statute to impaired waters that include a combination of point and nonpoint sources as well as agricultural and municipal dischargers.[82]

Wis. Stat. § 283.84 is the only provision in state law that provides explicit authorization for water quality trading programs in Wisconsin. Though the authority to implement additional trading programs could be inferred from DNR's inherent water quality regulatory authority, trading programs that are inconsistent with the Wisconsin trading statute would likely not be permissible. Thus, trading programs in watersheds that do not include both agricultural and municipal dischargers, and both point and nonpoint sources, would require separate authorization by statute. Legislative enactment of a new water quality trading statute is likely necessary for trading to expand beyond the specific watershed conditions authorized by Wis. Stat. § 283.84.

Furthermore, to facilitate the most effective trading schemes possible, it may be helpful for the DNR to implement a state-wide Water Quality Trading Policy, which would provide guidance to watershed stakeholders exploring the possibility of trading. EPA recommends that states interested in trading programs "establish clear, enforceable mechanisms consistent with NPDES regulations that ensure legal accountability for the generation of pollutant reductions that are traded."[83]

Additional state regulations or policies that may need revision in order to implement a comprehensive trading scheme include:

(1) Antidegradation policy

Wisconsin, as is required by the CWA, has an antidegradation policy that is designed to prevent the unnecessary lowering of existing water quality.[84] Whether antidegradation review would be triggered under current Wisconsin law in a typical trade is not clear. It is possible that a

[79] Wis. Stat. § 283.84 (hereinafter, "Wisconsin trading statute").
[80] *Id*. at § 283.84(1)(a)-(c).
[81] *Id*. at § 283.84(1m)(a)-(c).
[82] *Id*. at § 283.84(2)(a)-(b).
[83] EPA Trading Handbook at 53.
[84] Wisconsin's antidegradation policy states that "[n]o waters of the state shall be lowered in quality unless it has been affirmatively demonstrated to the department that such a change is justified as a result of necessary economic and social development, provided that no new or increased effluent interferes with or becomes injurious to any assigned uses made of or presently possible in such waters." Wis. Admin. Code NR § 102.05(1)(a).

trade could result in an "increased discharge,"[85] defined in the antidegradation policy as "any change in concentration, level or loading of a substance which would exceed an effluent limitation specified in a current WPDES permit."[86] For instance, if an expanding POTW proposed to increase its discharge of phosphorus, antidegradation review would ordinarily be required even if the POTW purchased sufficient pollution credits to offset the lowering of water quality caused by its increased discharge.

EPA's Trading Policy advises states to include in their antidegradation policies provisions that allow trading to occur without antidegradation review.[87] It is EPA's position that where trades result in no net increase of the pollutant being traded and do not result in the impairment of a designated use, antidegradation review would not be required.[88] So long as Wisconsin's antidegradation policy is consistent with EPA rules[89] and with EPA's Trading Policy, the State enjoys some flexibility to define what constitutes a "lowering of water quality."

DNR could, by amending NR 207, define the "lowering of water quality" to explicitly exclude trades that result in no net increase in pollutant loading and protect designated uses, thereby removing beneficial trades from the context of antidegradation review.

(2) WPDES permitting process

Wisconsin law mirrors the CWA's requirement that permits incorporate source-specific effluent limitations as needed to meet water quality standards.[90]

Current law requires DNR to include certain permit provisions that may potentially conflict with a water quality trading scheme. The following permit requirements will need to be addressed to avoid legal ramifications:

- *"[T]he discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by the permit shall constitute a violation of the terms and conditions of the permit."*[91] All permittees are restricted to the effluent limits contained in their permits, and thus any trade cannot allow a permittee to violate its own effluent limitations. The permit issued to a trade partner, whether individual or general, must therefore include language that explicitly authorizes trades and, if necessary, increased discharges of the pollutant being traded, so long as the trade is approved.

[85] A "new or increased discharge" is the initial trigger for antidegradation review. *See, e.g.*, Wis. Admin. Code NR §§ 207.01(1); 207.02(6)(a).
[86] Wis. Admin. Code NR § 207.02(6)(a).
[87] EPA Trading Policy at 8. Antidegradation review is the process by which the DNR determines whether (in those waters where the antidegradation policy applies) a new or increased discharge will result in the lowering of water quality, and if so whether that lowering of water quality is necessary to accommodate important social or economic development. *See generally* Wis. Admin. Code NR § 207.
[88] EPA Trading Policy at 8.
[89] Federal law requires states to have an antidegradation policy that is consistent with the EPA's antidegradation policy. 40 C.F.R. § 131.12(a).
[90] 33 U.S.C. § 1311(b)(1)(c); Wis. Stat. § 283.13(5) ("The department shall establish more stringent effluent limitations than required [to comply with various technology-based standards] and shall require compliance with such water quality based effluent limitations in any permit . . . if these limitation are necessary to meet applicable water quality standards . . . .")
[91] Wis. Stat. § 283.31(4)(a).

- *"Each permit . . . [must] specify maximum levels of discharges."*[92] Permits issued to potential trade partners may need to include provisions that grant sufficient flexibility to those seeking to expand or increase their discharge while meeting effluent limitations through the use of pollution credits.

- *Permits must include limitations "[n]ecessary to avoid exceeding total maximum daily loads established pursuant to a continuing planning process . . . ."*[93] If a TMDL is established and assigns a waste load allocation to a point source that is anticipated to be a trade partner, language must be included in either the permit issued to that point source or in the TMDL itself that allows for pollutant credits to be counted towards meeting the allocation.

A review of existing models suggests that trading programs may either be disconnected completely from the NPDES permitting process or tied closely to permit issuance.

Minimal changes would be needed to WPDES permitting regulations if Wisconsin chose to implement a trading program independent of permit issuance. In this scenario, individual permit holders would remain independently bound to the effluent limitations and other conditions contained in the permit issued to them, and would be required to seek permit modification and DNR approval for any trades.[94] That permit modification would have to comply with the existing DNR permitting regulations.

Alternatively, a trading program may be closely linked with WPDES permit issuance so that certain pre-approved trades are automatically reflected in the permit; this may require additional action by DNR. DNR may develop a watershed-based permit (or craft common permit language to be used within the watershed) allowing a permittee to receive credit towards meeting its effluent limitation requirements so long as the trade meets established watershed and trading program objectives. Similar provisions could be included in a rule that authorized trades and provided guidance for how such trades would affect permit requirements.

E. Contracts

(1) Introduction

In watershed planning efforts in the eastern parts of the United States, contracts are being used between entities for implementation of watershed plans. A contract can be an attractive component of watershed protection because it doesn't depend on certain regulations being in place, and can address the causes of water pollution on a case-by-case basis. Parties to a contract may also employ letters of agreement or memorandums of understanding to document the terms of agreement in detail, all of which can be binding or non-binding. Furthermore, contracts can be

[92] Wis. Stat. § 283.31(5).
[93] Wis. Stat. § 283.31(3)(d)(3).
[94] *See* EPA Trading Handbook at 63-67; Hannah L. Breetz et al, Water Quality Trading and Offset Initiatives in the U.S.: A Comprehensive Survey 44-54 (Dartmouth College 2004) (both describing the Cherry Creek, CO trading program in which an independent authority manages the trades which are then reflected, upon permitting authority approval, in separately modified NPDES permits).

enforced, if necessary, in courts of law. Contracts essentially create new law that is binding only upon the parties to the contract. Enforcement of private contracts is left to the parties themselves, typically through arbitration or civil litigation.

Contracts, as multi-lateral, voluntary agreements, may be a preferred route for achieving the clean-up of nonpoint source pollution in watersheds given their flexibility over some of the more "traditional" regulatory legal vehicles for implementation of watershed plans.

(2) Existing Legal Authority

Unlike many of the options discussed above, contracts can be used to protect watersheds independent of governmental agencies. In basic form, a contract is a voluntary agreement between two parties to do or not do something. Contracts can have a variety of terms: agreement to perform or refrain from performing certain actions, exchange of money, providing of services, and more. Different people and entities can contract with each other: individuals, corporations, government or governmental subdivisions or agencies, trusts, partnerships, and associations. Contracts can be large or small in scale: a memorandum of understanding can unite a variety of parties around a single mission, and a contract can bring together a party and individual to combine resources to complete a single project.

Currently, Wisconsin DNR is using contracts in some circumstances to regulate runoff. Through the Green Tier program, the DNR has entered into contracts with private parties, and retains enforcement authority over those contract terms, as well as the option to rescind the Green Tier contract or charter. The following examples highlight usage of contracts as tools to manage watershed plans.

Southwest Florida Water Management District F.A.R.M.S. Program[95]

The Southwest Florida Water Management District (SWFWMD) is a creation of the Florida state legislature intended to protect and preserve water resources. One of the main producers of pollution in Florida is nonpoint pollution from agricultural sources. SWFWMD has many agricultural components, but works directly with agricultural producers through its Facilitated Agriculture Resource Management System (FARMS) Program. Through the FARMS Program, SWFWMD enters into contracts with agricultural entities to share the cost of implementing BMPs to reduce agricultural runoff. Contracts last from five to twenty years, depending on the type of project and other relevant factors. These contracts include terms that allow the monitoring and documentation of BMP performance, water quality discharge, and water flowage, if applicable. Under the contract, FARMS staff coordinate all administrative and financial aspects of cost-share reimbursement to producers.

The Catskill Watershed Corporation Watershed Protection Plan[96]

The Catskill Watershed Corporation uses a Memorandum of Agreement (MOA) between many entities to protect its drinking water supply, and uses individual contracts to install BMPs on

[95] Southwest Florida Water Management District website, http://www.watermatters.org.
[96] Watershed Agricultural Council website, http://www.nycwatershed.org.

farms to implement the watershed plan.[97] In the 1990's, the New York City Department of Environmental Protection (NYCDEP) developed a watershed protection plan to prevent drinking water problems for the city. NYCDEP was compelled to create this plan because of the looming cost of a water filtration plant under the Safe Water Treatment Rule of 1989. Instead of building a $4-8 billion dollar filtration plant, NYCDEP opted to focus on protecting water quality upstream. Protecting the watershed involved the authority of many agencies' jurisdictions: federal, state, New York City, eight upstate counties, and over 60 upstate towns and villages.

After assessing water quality threats and designing a management plan, the NYCDEP created a Memorandum of Agreement (MOA) in 1997 between city and state governments, other regulators, environmental groups, and residents within the watershed. This MOA allowed NYC to create regulations in the watershed, acquire land, and create partnerships, contingent on NYC funding the programs. NYCDEP contracted with local public, private and non-profit entities, including the Agricultural Council and county agencies. This MOA created the Catskill Watershed Corporation (CWC), and was funded through water and sewer rates.

The CWC had two main programs to protect the watershed:

- *Watershed Protection Program* – which was designed to prevent future water quality degradation, and which are large in scope and evaluated over the long term. The Protection Program includes watershed rules and regulations, land acquisitions, agricultural programs, and forestry management programs.

- *Watershed Remediation Program* – which was designed to address specific contamination problems and is expected to result in measurable decreases in pollutants; this program is small in scale and evaluated over the short-term. The Remediation Program includes stormwater controls, wastewater treatment plant upgrades, sewer extensions, septic system rehabilitation, salt and sand storage, and stream corridor protection.

One component of the CWC's Watershed Protection Program is the Watershed Agricultural Council (WAC), which has created a Whole Farm Planning program that contracts with individual farmers to address water quality problems from farms.[98] Through the Whole Farm Planning program, the Watershed Agricultural Council combines resources from the CWC, the U.S. Department of Agriculture conservation programs, and local foundations to help cover the cost of installing and maintaining best management practices on farms.[99] By January of 2006, less than 10 years from the date of the MOA, around 95% of the commercial farms, along with dozens of smaller farms, in the watershed were enrolled in the Whole Farm Planning program.[100] WAC also

[97] New York City Department of Environmental Protection Watershed Protection webpage: http://www.nyc.gov/html/dep/html/watershed_protection/html/partners.html, *and* United Nations Economic Commission on Europe, presentation "Management of NYC's Watershed," http://www.unece.org/env/water/meetings/payment_ecosystems/Presentations. Accessed September 2, 2008. *Additional information can be obtained at:* http://www.epa.gov/region02/water/nycshed/protprs.htm, *and* http://cwconline.org.

[98] Watershed Agricultural Council website: http://www.nycwatershed.org/clw_wholefarmplanning.html. Accessed September 2, 2008.

[99] *Id.*

[100] EPA Region 2 Watershed Protection Programs on NYC Watershed Memorandum of Agreement: http://www.epa.gov/region02/water/nycshed/protprs.htm.

has an Economic Initiatives program that helps with the marketing and sustainability of farms who are working with WAC.[101]

These two examples of contracts being used as watershed management tools highlight the flexibility of contracts in scale and substance. In planning to use contracts as a watershed management tool, questions of scale, parties, enforceability, and financial incentives must be considered carefully. While an agreement to cover part of the cost of BMPs while monitoring runoff may bring in nonpoint source pollution sources in one setting, it may take a much more significant economic incentives in another setting. Either way, whether addressing the fundamental agreement between all watershed parties or a specific clean up plan within the watershed, or whether the main component of the plan or a patch to connect other tools in a plan, contracts can be useful tools in watershed management plans.

III. WATERSHED VARIABLES – CHOOSING A WATERSHED MANAGEMENT OPTION

Choosing to use one or more of the watershed management options described above will depend on the overall watershed goals and the resolution of a variety of variables that have yet to be fully addressed in the Menomonee River watershed. This section of the memorandum identifies a number of variables that research and experience show to be relevant, and gives an assessment of how each variable might dictate the outcome of the management option decisisionmaking process. For purposes of this assessment, each variable is considered independently of the others; the appropriateness of each watershed management option based on each variable is expressed as "high," "medium" or "low".

A. The Number of Pollutants to be Addressed

Addressing two or more pollutants as part of the restoration process is likely to add significant complexity in terms of process development, data collection, and implementation.

Only watershed-based permitting is highly appropriate for multiple-pollutant scenarios. Because there is flexibility in crafting permit language to meet holistic watershed goals, and because WPDES permits must already address (and, where necessary to meet water quality standards, place limits on) all of the pollutants of concern in a particular water body, watershed-based permits are well suited to address multiple pollutants. Few if any changes would need to be made to existing WPDES regulations, and watershed-based permits could be designed to include restrictions or limitations on numerous pollutants causing watershed impairments.

TMDLs are appropriate for multiple pollutants. While most TMDLs address only a single pollutant, there are successful examples of more than one pollutant being addressed in a single TMDL document. In Wisconsin, there have been several TMDLs developed to address both phosphorus and sediment impairments, and while separate load allocations and waste load allocations would need to be assigned for each pollutant, the TMDL process could effectively handle more than one pollutant at a time.

[101] Watershed Agricultural Council webpage on Economic Initiatives program: http://www.nycwatershed.org/index_economic_init.html. Accessed September 2, 2008.

Both Environmental Accountability Projects and Water Quality Trading programs are inappropriate for multiple pollutant scenarios. EAPs, as designed by DNR, are highly simplistic and lack the scientific and regulatory complexity to address multiple pollutant impairments. DNR has to date chosen to address only simple, single pollutant impairments with EAPs, leaving more complex impairments to other mechanisms. Water Quality Trading programs are limited by the challenges involved in creating trading ratios and ensuring equvalence between various load reductions. Due to these complexities, EPA does not support cross-pollutant trades (with the exception of trades involving oxygen-related pollutants, such as phosphorus and dissolved oxygen).

Variable 1: Single vs. Multiple Pollutants

	Single Pollutant	**Multiple Pollutants**
Environmental Accountability Project	High	Low
Watershed-based Permit	High	High
TMDL	High	Medium
Water Quality Trading	High	Low

B. "Hot Spot" Potential of the Pollutant

The extent to which the pollutant to be addressed may lead to "hot spots" plays an important role in the choice of management option. Pollutants that are toxic or tend to be bioaccumulative are not well suited for management options that depend on a broad degree of flexibility and fluidity at the watershed level because of the possibility of hot spot development or other localized effects of pollutant loading. All of the watershed management options are well suited for "conventional" pollutants – meaning in this case pollutants that are not toxic or bioaccumulative, such as nutrients or sediment.

TMDLs are highly appropriate for pollutants that have a tendency to bioaccumulate or create hot spots because they not only address the total pollutant loading at the watershed level, but also assign allocations to specific point sources in the watershed. Those point sources will have permit-specific effluent limitations designed to ensure that their particular waste load allocation will be met. As part of the TMDL process, the regulatory authority and stakeholders will be able to apportion the allocations in a manner that reduces the potential to create hot spots at various points on the receiving water.

EAPs and watershed-based permits may be appropriate for bioaccumulative pollutants. EAPs, because they are typically quite limited in scope, geographic range and applicability, should be able to avoid hot spots; they do not tend to involve multiple pollutant sources and so would not likely result in a shift in the apportionment of allowable discharge of pollutants. Watershed-based permits could likewise address bioaccumulative pollutants fairly well, and avoid hot spots, so long as the permit contained provisions and limitations specific to the point source(s) that run the risk of contributing to hot spots.

Water quality trading is poorly suited for bioaccumulative pollutants. Market-based trades conducted freely between market participants will not be able to capture and address the public health risks of hot spots or other site-specific impacts of excess pollutant concentration. EPA

currently discourages trading programs that involve bioaccumulative pollutants,[102] and a recent survey of national water quality trading programs shows that only a handful of programs involve such pollutants, and those that do allow trades between pretreatment facilities only.[103] In addition, Oregon has taken the position that trades involving bacteria are inappropriate and will not be pursued.[104]

Variable #2: Hot Spot / Bioaccumulative Nature of the Polutant

	Bioaccumulative or Hot Spot Pollutant	**Conventional Pollutant**
Environmental Accountability Project	Medium	High
Watershed-based Permit	Medium	High
TMDL	High	High
Water Quality Trading	Low	High

C. Size of the Watershed

The size of the watershed, including the distinction between a full watershed and a subwatershed, may also influence the choice of watershed management option. In general, the larger the watershed, the more complex the management process becomes: the impacts of the pollutants become more difficult to model or monitor; and the logistics grow more challenging as more stakeholders and governmental jurisdictions become involved.

Watershed-based permits and TMDLs are both appropriate for use in large watersheds. Watershed-based permits may be established for large geographic areas, and can include conditions and requirements addressing factors common to the entire watershed while also including conditions applicable to particular point sources. TMDLs become more complex, and perhaps will need to allow for a greater margin of safety, in large watersheds, but they are still appropriate. Load and waste load allocations in large watersheds can be readily calculated and assigned as needed, and the implementation plan can address the logistical challenges that may come into play in a large watershed.

Water quality trading is only moderately suited for large watersheds. The complexity of trading schemes in large geographic areas increases exponentially, because as distance between trading partners grows, the ability to properly calculate trading ratios and equivalency factors decreases. Pollutant fate and transport, unique watershed characteristics, and a host of known and unknown intervening factors all run the risk of affecting the reliability of trades conducted over long distances.

Environmental Accountability Projects are not intended for large watersheds. EAPs lack the structure necessary to account for impacts far removed from the pollutant source, and because they

[102] California is developing a mercury discharge offset policy for the San Francisco Bay watershed;
[103] See Breetz et al. at 7-8.
[104] Oregon states that "[b]acteria levels in water quality are measured because bacteria are a surrogate for disease-causing organisms that could threaten public health. DEQ does not consider it reasonable to encourage trades involving such surrogates." Oregon Department of Environmental Quality, Water Quality Credit Trading: Frequently Asked Questions, at http://www.deq.state.or.us/WQ/trading/faqs.htm#5.

are typically only used for single or small-scale impairments, they would be difficult to adapt to more complex scenarios.

Variable #3: Size of the Watershed

	Large Watershed	**Small or Subwatershed**
Environmental Accountability Project	Low	High
Watershed-based Permit	High	High
TMDL	High	High
Water Quality Trading	Medium	High

D. Whether a TMDL is Developed

Because the Clean Water Act requires a TMDL to be developed for all waters for which water quality standards have not been met, it is appropriate to treat the creation of a TMDL as a "variable" in this analysis, even though a TMDL is itself considered as a watershed management option. TMDLs are closely linked to several of the other options discussed, and are commonly used in conjunction with them or other strategies as a comprehensive and multifaceted restoration plan.

Watershed-based permits and water quality trading programs are well suited for watersheds for which a TMDL has been developed. Watershed-based permits are an excellent vehicle for implementing a TMDL; they are able to include generic conditions applicable to the entire watershed that reflect the broad watershed goals established in the TMDL while also translating individual waste load allocations to numeric effluent limitations. Water quality trading programs are also appropriate where there is a TMDL in place. The vast majority of trading programs occur in watersheds where TMDLs have been developed and the waste load allocations provide the driver to induce trades. Developing a TMDL is likely to involve the collection of water quality data of the same degree of detail and complexity as are required for a trading program, and will likely activate a similar degree of stakeholder involvement as would be needed to establish trading protocols.

EAPs are not likely to be relevant or effective once a TMDL has been developed and approved for a given watershed. The TMDL must address all sources of the pollutant of concern, from both point and nonpoint sources, and will include allocations to those sources so that water quality standards will be attained. The TMDL is likely to be far more comprehensive than an EAP would be, removing the benefit of a small scale restoration project in the EAP mold.

Variable #4: Whether a TMDL is Developed

	TMDL is Developed	**TMDL not Developed**
Environmental Accountability Project	Low	High
Watershed-based Permit	High	High
TMDL	-	-
Water Quality Trading	High	Medium

IV. CONCLUSION

This memorandum has discussed several watershed management options that may be appropriate for use in the Menomonee River watershed. Before selecting an option or options, it will be necessary to address the variables described above; secure preliminary support from the DNR, local governments and watershed stakeholders; and address outstanding legal or regulatory challenges that may affect viability.

APPDENDIX 1

The Integrated Water Quality Monitoring and Assessment Accountability Framework (Environmental Accountability Projects) U.S. EPA, Region 5

Recently National Water Quality Management efforts have focused primarily on the use of TMDLs to improve water quality, but State Water Quality Management Programs consist of more than just this single tool. The purpose of the Accountability Framework is to capture the impact and benefits associated with non-TMDL activities. To accurately measure these environmental achievements, the Region and States have developed a framework that tracks management actions against environmental results. This approach strengthens the States' overall emphasis on managing for environmental results by broadening the scope of what information is tracked and how that information is reported. The Accountability Framework allows Region 5 States to account for all efforts being undertaken to that result in restoring impaired water quality.

The ability to report on the environmental benefits of State Water Quality Programs hinges not only on these implementation efforts, but also on the ability to collect and assess data and share information between agencies and with the public. The additional programs and tools covered by the accountability framework helps EPA and the States identify the types of data and information needed to support water quality decision making and effectively target limited resources. This framework helps focus State Programs on collecting the right information to account for improvements to water quality.

States are actively pursuing a variety of watershed management actions where they and others are attempting to restore water quality without having to develop a TMDL. These include, but not limited to:

- Watershed plans where implementation has begun or is scheduled to begin and is expected to result in attainment of water quality standards (post-2002 watershed plans meeting the required nine elements).
- State or local regulations that restrict animal access to water bodies with pathogen problems.
- Superfund supported clean ups, phase-out of pollutants of concern, and hazardous waste collection programs.
- Dam removal and flow alteration.

The Accountability Framework is a mechanism to ensure that these management actions can be given equal weight with TMDL development commitments as negotiated between the States and Region 5. It allows the States and Region 5 to account for overall water quality program commitments and identify how overall performance from these commitments is assessed.

The approach of utilizing a combination of administrative and biannual environmental commitments provides the Framework for the Region and States to make tradeoffs between annual administrative commitments as long as the environmental commitments are achieved. This provides the State Programs flexibility in how they target resources and allows them to take advantage of opportunities to shift resource to obtain greater environmental gains.

APPENDIX 2

Integrated Water Quality Monitoring and Assessment
Accountability Framework for Water Quality Implementation Projects.
U.S. EPA, Region 5

Tracking elements:
1): Management Action: Name of management action by waterbody (definition section below)

2) Summary: 1 or 2 sentences describing the overall management approach or action being implemented.

2a) Summary Website: Management Action Information: For watershed plans developed consistent with section 319 FY 2004 guidance's nine elements provide the link to the appropriate web sites/pages. For other management actions just provide a web address where the details can be found.

3) State: (Drop-down box)

4) Waterbody Name: The name of the waterbody being addressed.

5) 303(d)list (segment ID): Impaired segments addressed by action (in a drop-down box of all impaired segment IDs in the State specified by #3). Multiple selection allowed. By entering segment IDs, State will not need to enter # of segments or 8/10/12 digit HUCs, because they are calculated by a database.

6) Impairments Addressed: Specifically which impairments will be addressed by this management action.. For multiple segment projects identify which impairments will be addressed for each segment.

7) 303(d) list web address:

8) Critical milestones: Critical milestones are observable, measurable characteristics that represent the project is on course for achievement of an outcome. It is a date-sensitive quantitative measure which is related to achievement of a performance level, that is, a threshold for successfully addressing pollutant sources and improving water quality. This is the project threshold that serves as a trigger for the adaptive management process. Failure to achieve this critical milestone would result in the management action being modified to increase the probability of meeting the action's overall water quality goal

9) Critical Milestone Date: The date at which achievement of the critical milestone will be evaluated.

10) Monitoring Component: This section must cover two items: How will the critical milestone be measured; and how (and when) will attainment of water quality standards be measured as it relates to the management action.

11) Estimated Completion Date: This is the estimated date (Month/Year) management action(s) will be completed.

12) Estimated Date of Delisting: Defined as the lag time (defined below) plus the time estimated to have implemented at least 70% of the pollution control practices or measures (Month/Year).

13) Estimated Implementation Cost: There is a need to document implementation - what costs (administrative, monitoring, financial assistance, information and education, etc.) are included in the implementation estimate is a State decision. However, it is important that the State provide consistent cost estimates. (The Region will work with each State to document what their estimated cost guidelines would be.)

14) Funding Source: The major funding source supporting the management action.

Definitions and clarifications:
Management Action: Basically any planned action that will result in the elimination or significant reduction of pollutant loading to an impaired water body that results in the water body meeting standards. Examples of these types of actions are nonpoint source projects/activities, remedial actions under superfund, and dam removal. Implementation of watershed management plans is limited to those plans that meet the 9 minimum elements prescribed for water quality-based plans in the FY2004 Section 319 guidance:

Lag Time: The time that elapses before any benefits become apparent after the management action has been completed. The lag times (below) are estimated based upon the studies completed under the Model Implementation Program, National Urban Runoff Program, ACP Special Water Quality Project, National Nonpoint Source Monitoring Program and the Rural Clean Water Program. The lag time guidelines for nutrients and sediment related impairments are defined as:
headwater streams (stream order 1 & 2): 1 - 3 years
larger streams (stream order 3 & 4): 3 - 6 years
rivers (greater then order 4): 5 years
lakes: more than 10 years (will attempt to further refine the lakes category based upon residence time, shape, type, etc.)
wetlands arel not be covered with a lag time due to the lack of data.

Critical milestones: This is a project threshold that serves as a trigger for the adaptive management process. Critical milestones are observable, measurable characteristics that represent the project is on course for achievement of an outcome. A theoretical example for a 10 year project would be: after 5 years the amount of the pollutant of concern projected to be reduced was to be equal to or greater than 60%, of the goal, measured against cost-share agreements. Failure to meet this milestone would result in expanding the critical area where technical and financial assistance is offered.

APPENDIX 3

A Snapshot of EPA-supported, Watershed-based Permitting Programs

Watershed	Permitting Authority	Type of Permit	Pollutant(s) of concern	TMDL in place?	Water Quality Trading?	Sources permitted
Long Island Sound, NY	Connecticut Departemnt of Environmental Protection	General Permit	Nitrogen, DO	Yes	Yes	79 POTWs in Connecticut
Sand Creek, CO	Colorado Department of Health and Environment	Individual permits with watershed-based selenium limits	Selenium	No	No	Two industrial dischargers, one municipality, and one wastewater district
Rouge River, MI	Michigan Department of Environmental Quality	General Permit	Urban stormwater (TSS, DO, and toxics)	No	No	45 municipalities in the Rouge River watershed, on a voluntary basis; permit now used state wide
Tualatin River, OR	Oregon Department of Environmental Quality	Integrated individual permit	Temperature, DO, bacteria, ammonia, and phosphorus	Yes	No	A special utility district that previously held seven separate permits: four municipal wastewater treatment permits, two industrial stormwater permits, and an MS4 permit
Minnesota River, MN	Minnesota Pollution Control Agency	Individual permit	BOD, phosphorus	Yes	Yes	One – Rahr Malting Company. Permit allows for water quality trading to offset new BOD discharge where no WLA was available under the TMDL
Lake Tahoe, CA	State Water Resources Control Board and Lahontan Regional Water Quality Control Board	General Permit	Stormwater runoff, various marina maintance and dredging wastes	No	No	12 California-side marinas on Lake Tahoe
		General Permit	Sediment	No	No	All construction activities within the Lake Tahoe Basin (California side)
		General Permit	Nitrogen, phosphorus, iron, turbidity, grease and oil	No	No	All stormwater discharges from all residential, municipal, industrial, commercial, and construction areas within the City of South Lake Tahoe
Ohio River, KY	Kentucky Division of Water	Integrated Individual Permit	unidentified	No	No	Louisville and Jefferson County Metropolitan Sewerage District (1 major POTW, 5 regional POTWs, 22 small

						treatment plants, and 12 major pump stations)
Neuse River, NC	North Carolina Division of Water Quality	Individual Permit for Association Members	Nitrogen	Yes	Yes	25 dischargers that are members of the Neuse River Compliance Association
Big Darby Creek, OH	Ohio Environmental Protection Agency	General Permit	Phosphorus, sediment, bacteria, DO, ammonia	Yes	No	Construction sites
Chesapeake Bay, VA	Virginia Department of Environmental Quality	General Permit	Phosphorus and nitrogen	No	Yes	All significant dischargers, new and expanding facilities
Lake Lewisville, TX	Texas Commission on Environmental Quality	General and Individual Permits	Nutrients, ammonia pesticides, TSS	No	No	Individual POTWs as well as industrial, municipal, and construction site stormwater dischargers
Major basins in North Carolina	North Carolina Division of Water Quality	General and Individual Permits	Varies	Varies	Varies	NCDWQ has implemented a watershed approach to water quality, allowing it to synchronize permits, integrate CWA and state requirements, improve administrative efficiency and increase public participation

For more information and a detailed fact sheet on each program, see EPA's Watershed-Based Permitting website at http://cfpub.epa.gov/npdes/wqbasedpermitting/wspermitting.cfm

APPENDIX 4

An Overview of Three Water Quality Trading Pilot Programs in Wisconsin

A. Introduction

Of the three pilot trading projects administered in Wisconsin pursuant to Wis. Stat. § 283.84, only one resulted in actual trading. The pilots were driven by the State's 1 mg/L technology-based phosphorous limit. The majority of potential trading failed to materialize due to a lack of economic or regulatory incentive where the costs and benefits of trading were initially miscalculated or where most regulated sources were already in compliance with permit limits. Successful pollutant trading took place where a third-party broker implemented the trades and handled the administrative costs.

The DNR administered three water quality trading pilot projects between 1998 and 2003, in the Red Cedar watershed, the Rock River watershed, and Fox-Wolf River basin. Although all three projects provided practical experience in implementing pollutant trading, only the Red Cedar watershed pilot resulted in actual trades. In all three programs Wisconsin's technology-based 1 mg/L phosphorous limit was the motivation for permitted sources to invest in trading. The presence and effectiveness of incentives for non-point source involvement varied between the pilots.

B. Rock River Basin

The Rock River pilot trading program was unsuccessful largely due to economic misconceptions at the outset of the project.[105] Initially, the cost of removing phosphorous at publicly owned treatment works (POTWs) was overestimated and the cost of nonpoint best management practices (BMPs) was underestimated. In addition, the administrative costs and complexity of installing nonpoint BMPs was significantly greater than anticipated.[106] The trading program lacked an effective broker to manage it, and consequently, despite ten permitted sources originally interested in trading, no trades ever took place.[107]

One major challenge to the Rock River pilot was establishing a trade ratio of phosphorous removed through BMPs to credits received by the point source. The DNR established a trade ratio ranging between 1.75:1 and 2.25:1 (depending on geographical factors) in order to ensure that the trades resulted in water quality improvement.[108] However, because of the high costs of administering BMPs and the high level of phosphorous in the POTW discharges, the interested point sources needed a 1:1 ratio in order to make trading a realistic option. Furthermore, DNR was hoping that the various County Land Conservation Departments

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[105] Wisconsin Department of Natural Resources, Predicting Sediment and Phosphorous Loads in the Rock River Basin Using SWAT 23 (Dec. 12, 2006), *available at* http://dnr.wi.gov/org/water/wm/wqs/303d/RockRiverTMDL/Rock%20River_History%20(2).pdf.

[106] Wisconsin Department of Natural Resources, *Fourth Progress Report on the Trading of Water Pollution Credits* (October 2002), *available at* http://dnr.wi.gov/runoff/pt/PT2002.htm (hereinafter, "Fourth Progress Report).

[107] *Id*.

[108] *Id.*

("LCDs") might act as brokers, bridging the divide between the permitted sources and the agricultural community, but in this instance the LCDs were unwilling to do so.[109]

Other barriers to trading included unavailability of sufficient land for conservation, point source concern with the permanency of the trading program, inaccurate data regarding the phosphorous concentration in the soil, and a preference to develop rather than restore wetlands in fast-growing communities.[110] All of these factors reduced the economic incentive for point sources to engage in trading. In sum, the cost incentives and the stakeholder commitment were not in place for successful pollutant trading in the Rock River basin.

C. Fox-Wolf River Basin

Water quality trading in the Fox-Wolf basin failed to materialize despite the commitment and planning of a nonprofit watershed alliance, Fox-Wolf Basin 2000 (now the Fox-Wolf Watershed Alliance). The largest hurdle to trading in the Fox-Wolf watershed was the significant number of point sources that had already achieved compliance with the 1 mg/L phosphorous limit.[111] Despite the high levels of phosphorous remaining in the rivers and the demonstrated community interest in improving water quality, there was no further incentive for point sources to invest in trading and there was no tool for pulling non-point sources into the process.

DNR believes that the potential for trading in the Fox-Wolf basin may increase with the development of a TMDL for phosphorus, because it would include waste load allocations more stringent than the 1 mg/L requirement, providing additional incentive to trade. Until that occurs, additional trades are unlikely.[112]

D. Red Cedar River

The City of Cumberland, in the Red Cedar watershed, implemented the only successful pilot trading program to come from Wis. Stat. § 283.84. Cumberland traded phosphorous credits with area farmers rather than investing in chemical treatment for phosphorous loading from its POTW.

To implement the trading program, the City of Cumberland established a trade agreement with area farmers that was administered through the Baron County LCD. Acting as a broker between Cumberland and the farmers, the LCD implemented the trade program alongside an existing incentive program for soil conservation practices.[113] The City agreed to pay landowners, at the same incentive rate as the soil conservation program, to install BMPs that offset the City's phosphorous loading from its POTW. From a landowner's perspective, participation in pollutant trading entailed the same process as participation in the County program they were already familiar with.[114]

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[109] *Id.*
[110] *Id.*
[111] *Id.*
[112] *Id.*
[113] *Id.*
[114] *Id.* The payments were set up so that a landowner could only receive an incentive payment from one program.

Cumberland traded with landowners at a 2:1 ratio (nonpoint source phosphorous pounds reduced to credits received). In 2004, the fourth year of the program, 21 farmers installed BMPs on over 890 acres of agricultural land.[115] The City purchased credits equaling 9,584 pounds of phosphorous at a cost of about $17,659.[116]

Because the City was only required to purchase 4,400 pounds of phosphorous annually, the trading has been successful despite the lack of a TMDL. A large factor in Cumberland's trading success was the contribution of the LCD in funding the administrative processes of finding the landowners, designing the conservation practices, and inspecting the installations.[117] In addition, the County's ability to administer the trading program alongside its established conservation incentive program reduced the perceived risk for landowners.

Each incentive agreement for BMP installation expired after three years. The City and the DNR anticipated that the practices would remain in effect after the incentive expired, creating a lasting improvement for the watershed and a greater overall water quality improvement than required by the City's permit.[118] As individual trades expired, the City was required to find new landowners to replace the lost credits or to invest in its POTW to meet its phosphorous permit limit. This time limit ensured improvement of water quality through trading and not mere maintenance of status quo pollution levels.

D. Conclusion

Wisconsin's pilot trading projects show that the 1 mg/L technology-based phosphorous limit is an insufficient driver for successful trading, and that a TMDL will usually be needed to provide the necessary incentive. The DNR also found a broker that assumes administrative costs to be a required element and that trading is more likely to be economical when the pollutant load to be traded is relatively small.[119] It is clear from the three pilots in Wisconsin that local variables in geography, soil composition, POTW technology, and stakeholder interest will each play a role in developing trading programs.

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[115] Letter from Dale Hanson, , Baron County Conservationist, to Jeff Streeter, Director of Public Works, City of Cumberland 1 (Jan. 19, 2005), *available at* http://dnr.wi.gov/runoff/pt/cumberland_pt_report.pdf.
[116] *Id.*
[117] Fourth Progress Report.
[118] *Id.*
[119] *Id.*

Information Memo

February, 11, 2009

Subject: Establishing the Policy Advisory Committee

The Policy and Procedures of the Trust authorize the ESC to establish a Policy Advisory Committee. The purpose of the Policy Advisory Committee is to advise the ESC on important public policy and legal issues pertaining to its activities. In fulfilling its roles, the committee will:

- Ensure that wide ranges of interests are considered in all public policy and legal discussions.
- Focus on issues that cut across existing lines of authority to achieve watershed objectives.
- Identify and make recommendations on public policy and legal issues.
- Record Policy Advisory Committee meeting notes and report out to the Executive Steering Council