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pro bono publico

VIA ELECTRONIC MAIL

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**Re: Comments on Municipal Storm Sewer Systems WPDES
Permit No. WI-S049883-2.**

Dear Ms. Baumier:

Thank you for the opportunity to comment on the Wisconsin Department of Natural Resources' Proposed Wisconsin Pollutant Discharge Permit ("WPDES") No. WI-S049883-2 ("Proposed Permit"). Midwest Environmental Advocates, Inc. is a nonprofit environmental law center that provides technical assistance and legal representation to communities and groups working to protect the public's right to clean air and water. We are submitting these comments on our own behalf and on behalf of Friends of Milwaukee's Rivers, the Sierra Club, John Muir Chapter, and the Great Waters Group of the Wisconsin Sierra Club.

A. The Proposed Permit Allows Toxic Volumes of Chloride to be Discharged into Wisconsin Waterways That Are Already on the 303(d) Impaired Waters List for Acute Toxicity, Bacteria, Dissolved Oxygen and a Fish Consumption Advisory.

COMMENT: Mandating the use of road salt in the proposed permit without requiring monitoring of chloride may result in post-storm runoff chloride levels more than three times higher than Wisconsin acute toxicity criteria.

In its proposed permit, the City of St. Francis is mandated to "continue a pollution prevention program and establish measurable goals which includes: . . . [a]pplication of road salt to the minimum amount necessary to maintain public safety." Proposed Permit, E5 at 7.



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The City of St. Francis is discharging into Lake Michigan and the Wilson Park Creek, tributary to the Kinnickinnic River and Milwaukee River Estuary Area of Concern. The Kinnickinnic River downstream of Chase Avenue and the Milwaukee River Estuary are both on the on the 303(d) pollutant list for bacteria, metals, polychlorobiphenyls (“pcbs”) and phosphorus, and impaired by aquatic toxicity, bacteria, dissolved oxygen and a fish consumption advisory—as well as being an EPA Area of Concern (AOC). The DNR has proposed to change the designated use of the Wilson Park Creek from Warm Water Sport Fishery (“WWSF”) to Limited Aquatic Life (“LAL”). DNR, Proposed Water Body Use Designations, November, 2001, attached as Exhibit A. The DNR may not set effluent limits for discharges to the Wilson Park Creek as LAL until the use designation change is complete. Until then, the DNR must treat the Wilson Park Creek as WWSF.

Under Wis. Admin. Code NR 105, chloride’s acute toxicity criteria is listed as 757 mg/l. In one of a series of twenty tests performed by Earthtech, Inc., with assistance from the United States Geologic Survey (“USGS”) and the Wisconsin Department of Natural Resources (“DNR”), under a cooperative agreement with the United States Environmental Protection Agency (“USEPA”) from 2002-2003, chloride concentrations levels were found to spike up to 2600 mg/l, exceeding Wisconsin acute toxicity criteria by a factor of three. See Environmental Technology Verification Report: Stormwater Source Area Treatment Device, July, 2004, at 26, attached as Exhibit B. (hereinafter, “ETV Report”)

The ETV Report quickly explains this jump in chloride concentration by referring to a winter storm, where all total dissolved solids (“TDS”) increased, most “likely influenced by road salting operations.” ETV Report at 22. On the same page, the report indicates “[t]he likely source of the chloride is the winter application of road salt to the highway.” Id. While the ETV Report was seeking to explain an unusual level of chloride, the facts unambiguously highlight the direct correlation between road salt and water quality degradation and emphasize the limitation in this MS4 permit which fails to monitor the rate and volume at which chloride is reaching waterways through storm water conveyance systems at higher than acute toxic levels.

According to the EPA Office of Water, road salt has led to degraded habitats in areas where salt accumulates in runoff. See Storm Water Management Fact Sheet, US EPA Office of Water, EPA 832-F-99-016, September, 1999 at 2, attached as Exhibit C.

In addition, road salt impacts the environment in five major categories: soil, vegetation, groundwater, surface water, and aquatic biota. Road salt breaks down soil structure, decreases permeability and forms complexes with heavy metals, thereby releasing them into the environment. High salinity causes osmotic stress, leaf scorch, browning, and dieback of plants up to 50 feet away from the road. In surface water, road salt can cause density stratification and can lead to anoxia in lake bottoms. See Rod Frederick, Winter Maintenance and the Environment, US EPA Office of Water, attached as Exhibit D.

The Wisconsin DNR concurs. “Road salt pollutes surface and groundwater, kills trees and grass, corrodes auto bodies and metal bridges, rots underground cables and causes pavement to disintegrate.” See DNR, The Greener Machine, attached as Exhibit E.

A landmark study performed by the USEPA evaluates the cost effective nature of road salt and concludes that the actual cost of road salt in terms of actual damage to vehicles, highways, structures, utilities and vegetation is more than fifteen times the cost of the purchase and application of road salt. The study acknowledges that increased levels of salt in groundwater and surface drinking water in particular cases have exceeded safety standards. “We can no longer afford to ignore the fact that we are depositing large quantities of salt into the water . . . upon which we are dependent every moment of our lives . . . [S]alt use for winter maintenance must be reduced . . .” See An Economic Analysis of the Environmental Impact of Highway Deicing, EPA-600/2-76-105, May 1976, at 2-3, attached as Exhibit F.

Monitoring of chloride may be performed under methods prescribed in 40 C.F.R. § 136.3 Table IA. As a result, it is both required and feasible for the DNR to require monitoring conditions for chloride in the Proposed Permit.

B. The Proposed Permit Provides No Means to Determine the Minimum Amount of Road Salt Necessary to Maintain Public Safety.

COMMENT: To ensure that the WPDES permit will meet water quality standards, the WPDES permit should indicate specific guidelines for the City of St. Francis to follow in applying road salt, including compliance with published Department of Transportation road salt application standards.

The Wisconsin Department of Transportation (“WDOT”) publishes the State Highway Maintenance Manual, which provides guidelines for application of de-icing agents. WDOT, Bureau of Highway Operations, State Highway Maintenance Manual, Guideline 35.00 et seq., attached as Exhibit G (hereinafter “WDOT Guidelines”). The WDOT Guidelines are important to “minimize any adverse environmental impacts that may result from [road salt].” Id. at 35.05. In addition, “prudent” use of road salt is important to reduce “negative impacts or effects of using de-icing agents.” Id. The absence of reference to the WDOT Guidelines in the Proposed Permit provides no evidence of requirements of BMPs or road salt mitigation practices and is to the detriment of water quality.

The WDOT Guidelines include BMPs, proper application and temperature ranges for de-icing agents and abrasives, information on liquid anti-icing and de-icing agents, including magnesium chloride based products. In addition, there are references to practice manuals and other state practices. Finally, the WDOT Guidelines provide technical support for road salt use, gradation, and application information, as well as recommended and maximum liquid de-icing and salt application limits. The wealth of information is far greater than the “minimum amount of road salt” referred to in the Proposed Permit.

The Minnesota Legislature has codified its acknowledgement of the impact of road salt in water quality standards. Minnesota Statute 160.215 restricts the use of salt and other harmful, corrosive chemicals on roadways. Salt and other chemicals may only be used on hills, intersections, or on high-speed or arterial roadways where traction is particularly critical, and only if other methods, such as blading, plowing, and sanding is impossible in a reasonable period of time. Minn. Stat. § 160.215 (2004), attached as Exhibit H.

Specific road salt guidelines as published by the WDOT should be indicated specifically in the Proposed Permit to help minimize over-application of road salt and ensure compliance with water quality standards.

C. The Proposed Permit Allows Ferric Ferrocyanide, a Road Salt Anti-Caking Agent and a 307(d) Toxic Pollutant under the Clean Water Act, to be Discharged into Wisconsin Waterways that are Already on the 303(d) List for Acute Toxicity.

COMMENT: The Proposed Permit should impose appropriate effluent limitations and require monitoring for ferric ferrocyanide, a toxic pollutant discharged into Wisconsin waterways that are already on the 303(d) impaired waters list for acute toxicity, in order to ensure compliance with water quality standards.

Ferric ferrocyanide is used in road salt as an anti-caking agent. In 2003, the USEPA determined that ferric ferrocyanide is one of the cyanides within the meaning of 307(a) of the Clean Water Act. 40 CFR § 401.15. While ferric ferrocyanide as used as an anti-caking agent is generally of low toxicity, road salt on snow banks or on highway surfaces, however, expose ferric ferrocyanide to sunlight, which can dissociate it and form cyanide. Cyanide has the potential to impact aquatic life adversely. See Environmental Canada, Existing Substances Evaluation, Assessment Report – Road Salts, attached as Exhibit I.

Because ferric ferrocyanide has been established as a toxic pollutant, it is therefore subject to effluent limitations. 33 U.S.C. § 1317(a)(2). The DNR must impose effluent limits and require monitoring in order to determine compliance with the effluent limitations, and modify the Proposed Permit to meet these effluent limitations.

Monitoring of ferrocyanide may be performed under methods prescribed in 40 C.F.R. § 136.3 Table IA. As a result, it is both required and feasible for the DNR to impose effluent limits for ferric ferrocyanide and impose monitoring requirements to ensure compliance with water quality standards.

D. Because the Fabled “Cost-Effectiveness” of Road Salt is Effective Only in Certain Temperatures and Omits Many of the Actual Costs to Highways, Vehicles, Bridges, Vegetation, Aquatic Life, and Drinking Water, the DNR Should Evaluate the True Costs of Road Salt and Consider Viable Alternatives.

COMMENT: The DNR Should Consider Viable Alternatives to Road Salt and Perform a Realistic Cost-Benefit Analysis Which Includes the Actual Costs of Applying Road Salt to Wisconsin Highways.

The DNR believes that road salt is the most cost-effective method of snow removal and winter highway maintenance. Many of the true costs of road salt, however, are not included in the equation, making the seemingly-expensive alternatives to road salt much more viable.

First, it must be acknowledged that road salt, in addition to environmental concerns, has performance limitations. The WDOT Guidelines state that road salt may be highly effective at snow and ice reduction in temperatures above 20°F, but are far less effective at lower temperatures, not uncommon in Wisconsin winters. WDOT Guidelines at 35.10.

Second, there are many alternatives to road salt, including magnesium, potassium and calcium chlorides, calcium magnesium acetate (“CMA”), and sand. See New Hampshire Department of Environmental Services, Watershed Management Bureau, Road Salt and Water Quality, 1996, attached as Exhibit J. (hereinafter “Road Salt and Water Quality”) The WDOT Guidelines recommend that salt be mixed with magnesium chloride or calcium chloride. The WDOT Guidelines also recommend using salt brine and liquid magnesium chloride solutions. Id.

Third, while CMA’s initial cost could be much higher than road salt, it is less damaging to soils, less corrosive to concrete and steel, and non-toxic to aquatic organisms. CMA is also benign to roadside vegetation and the components of CMA are not harmful to groundwater. See Road Salt and Water Quality at 2.

Wisconsin has a significant body of readily available information from which to draw in determining the best methods for winter road management. The Proposed Permit fails to acknowledge or take advantage of any of this information, instead choosing to ignore the well-documented disadvantages of applying road salt.

E. Federal and State Law Provide that Effluent Limitations Must be Sufficient to Meet Water Quality Standards. By Exempting Storm Water Runoff From Effluent Limitations for Chloride Discharges, the DNR is in Violation of Federal and State Law.

COMMENT: As a Matter of Law, by Exempting Storm Water Runoff From Effluent Limitations for Chloride Discharges, Wis. Admin. Code §106.81 and the Proposed Permit Violates 33 U.S.C. § 1311(b)(1)(c) and Wis. Stat. § 283.31(3). DNR Must Set Effluent Limits in the Proposed Permit Sufficient to Meet or Exceed Water Quality Standards.

Wis. Admin. Code § 106.81 exempts discharges of storm water run-off regulated by a storm water permit. Wis. Admin. Code § 106.81. However, the Clean Water Act specifically provides that more stringent effluent limitations must be achieved in order to

meet water quality standards. 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.4(i). The exemption of discharges of storm water run-off directly contradicts the requirements of the Clean Water Act.

Under federal and state law, the DNR must include effluent limitations in the permit sufficient to meet water quality standards. Wis. Stat. § 283.31(3). Where there are insufficient effluent limitations to meet water quality standards, the DNR must set more stringent limits. 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.4(i).

It is impossible for the DNR to meet water quality standards if effluent limitations for chloride are not established and chloride monitoring is not required in the Proposed Permit.

The process and logic of federal and state water law is clearly established. Effluent limitations must be achieved to ensure compliance with water quality standards. In order to ensure compliance with effluent limitations, the DNR must monitor discharge of effluents into Wisconsin waterways. The DNR must issue permits which require compliance with effluent limitations and water quality standards. The Proposed Permit fails to impose effluent limitations for chloride and therefore, water quality standards. The DNR must reissue the Proposed Permit with effluent limits for chloride to ensure compliance with water quality standards.

F. Construction Site Pollutant Control Provisions Should Require Compliance with Water Quality Standards and Effluent Prevention Requirements to Ensure the Protection of Impaired Waters.

COMMENT: The DNR should ensure that Wisconsin's impaired waters are protected by excluding storm water discharges to those waters from the Proposed Permit. The Proposed Permit should prohibit discharges of storm water pollutants and include requirements to ensure that the zero discharge standard will be met.

Part 2.C requires that the permittee continue a program to reduce sediment delivery from construction sites. However, there is no clear requirement to install additional measures to prevent new or increased effluent from interfering with or becoming injurious to the assigned use of this water. Wis. Admin. Code § 102.05. Specifically here, Wilson Park Creek's designated use has been proposed for a "downgrade" under Wis. Admin. Code § 104.02. Part 2.C treats all waters as the same, which is clearly not the case here.

As a result, the Proposed Permit must include additional standards to ensure no reduction of water quality on the Kinnickinnic River or Oak Creek.

G. The Proposed Permit Must Require Compliance with Water Quality Standards.

COMMENT: The WPDES permit must explicitly require compliance with water quality standards, and should require periodic ambient water quality monitoring to

coincide with wet weather events to measure compliance with water quality standards.

In addition to addressing chloride, the DNR is required to issue WPDES permits with requirements that ensure authorized pollutant discharges comply strictly with all state and federal water quality standards. Wis. Stat. § 283.31(3). The DNR may not issue a WPDES permit unless the permit contains conditions sufficient to meet water quality standards. *Id.*; 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.4(i).

However, Part 1.C of the Proposed Permit states that “compliance with water quality standards will be addressed by adherence to general narrative-type storm water discharge limitations and implementation of storm water management programs and practices.” (Proposed Permit, Part 1.C.) The Proposed Permit does not explicitly require that storm water discharges not cause or contribute to a violation of water quality standards, including designated uses, existing uses, and narrative and numeric criteria. This does not meet the requirements of Wis. Stat. § 283.31(3) – (4).

Although Part 1.D prohibits a permit holder from discharging a specified list of substances in amounts that may have unreasonable effect on receiving water quality or aquatic life, it is not clear what constitutes “an unreasonable effect.” Part 1.D appears to consist of narrative water quality criteria identified, in part, in Wis. Admin. Code § 102.04(1)(a) – (d). If so, this further suggests that the Proposed Permit should make clear that water quality standards, including narrative criteria, may not be violated.

The Proposed Permit should at a minimum, require strict compliance with water quality standards.

H. The Proposed Permit Provides No Means of Verifying that Water Quality Standards Are Being Attained.

COMMENT: To ensure that the WPDES permit will meet water quality standards, the WPDES permit should require periodic ambient water quality monitoring beneath outfalls to coincide with wet weather events. This is needed to demonstrate the BMPs identified in the WPDES permit are sufficient to meet the goals of the Clean Water Act.

The permit includes no process for DNR to determine whether water quality standards have been violated. Part 1.C simply states that if the DNR finds a violation of water quality standards, it may require that the permittee “develop an action plan to adequately address the identified water quality concern” or submit data to show that there is no water quality standards violation. Proposed Permit, Part 1.3. Part 2.F.1 requires, “to the maximum extent practicable,” a 20% reduction in the annual average mass of total suspended solids in runoff, but fails to define or provide any process for determining whether the 20% reduction will maintain water quality standards. Proposed Permit, Part 2.F.1.

The Proposed Permit must require monitoring to ensure that water quality standards are met under the Clean Water Act. Wis. Stat. § 283.55(1)(a).

I. The DNR Must Prepare a Reasonable Potential Analysis to Determine Whether Water Quality Standards will be Violated

COMMENT: The DNR must apply a Reasonable Potential Analysis to determine whether water quality standards will be violated, and whether additional WQBELs may be necessary to meet water quality standards.

The U.S. Environmental Protection Agency (“US EPA”) has provided a regulatory scheme that NPDES permitting authorities must follow to ensure that WQBELs are developed and included in WPDES permits for discharges containing pollutants at levels that will cause, or have the reasonable potential to cause, or contribute to an excursion above WQSSs.

Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the [DNR] determines, are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard . . .

40 C.F.R. § 122.44(d)(1)(i).

This “Reasonable Potential Analysis” (“RPA”) is required to determine whether the conditions of a WPDES permit are sufficient to meet water quality standards, including numeric water quality criteria. If not, then an individual permit is necessary with additional conditions to meet numeric water quality criteria. 40 C.F.R. § 122.44(d)(1)(iii) – (iv).

If the DNR has not established a numeric water quality criterion for a specific pollutant which causes, or has a reasonable potential to cause, or contribute to an excursion above the narrative water quality criteria specified in Part 1.D, the DNR must establish effluent limitations using either (1) calculated numeric water quality criteria which will attain and maintain applicable narrative water quality criteria and will fully protect the designated use; (2) establish effluent limitations on a case by case basis using US EPA water quality criteria and other relevant information, or; (3) establish effluent limitations for an indicator parameter provided the Proposed Permit identify which pollutants are intended to be controlled. 40 C.F.R. § 122.44(d)(1)(vi)(A) - (C).

J. The Storm Sewer Map Should Include Additional Information on Receiving Waters.

Part 2.G requires the creation of a storm sewer map. However, the storm sewer map should include the identification of outfalls and overlays for designated uses, impaired

waters, Total Maximum Daily Loads, wetlands, the presence of endangered or threatened species and historical use of the property.

CONCLUSION

For the following reasons, the DNR should not reissue Municipal Storm Sewer Systems WPDES Permit No. WI-S049883-2 until:

1. The Proposed Permit requires monitoring of chloride levels due to mandated application of road salt.
2. The Proposed Permit provides specific guidelines for the City of St. Francis to follow in applying road salt.
3. The Proposed Permit imposes effluent limits for and requires monitoring of ferric ferrocyanide.
4. The Proposed Permit recommends or imposes reasonable alternatives to road salt, including mitigation measures.
5. The Proposed Permit does not exempt the City of St. Francis from compliance with effluent limitations for chloride.
6. The Proposed Permit prohibits discharges of storm water pollutants and includes requirements to ensure that the zero discharge standard will be met.
7. The Proposed Permit explicitly requires compliance with water quality standards, and requires periodic ambient water quality monitoring to coincide with wet weather events to measure compliance with water quality standards.
8. The Proposed Permit requires periodic ambient water quality monitoring to demonstrate the BMPs identified in the Proposed Permit are sufficient to meet water quality standards.
9. The DNR prepares a Reasonable Potential Analysis to determine whether water quality standards will be violated by the Proposed Permit.
10. The Storm Sewer Map includes additional information on receiving waters.

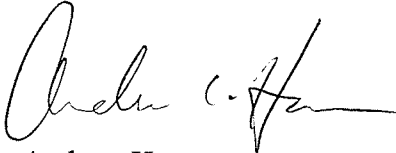
Thank you for the opportunity to comment on the Proposed WPDES Permit No. WI-S049883-2. I look forward to your written response.

Sincerely,

MIDWEST ENVIRONMENTAL ADVOCATES, INC.



Gregory Berlowitz
Law Clerk



Andrew Hanson
Supervising Attorney

On behalf of Friends of Milwaukee's Rivers, the Sierra Club, John Muir Chapter, and the Great Waters Group of the Wisconsin Sierra Club.

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