

MS4 TMDL Implementation Guidance

Approved October 2014

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Drafting of MS4 TMDL Guidance

- Has been a long process. The final guidance differs substantially from the originally envisioned approach of using the mass allocation directly from the TMDL.
- DNR formed a team of stakeholders to provide input and assistance in drafting the guidance.
- DNR worked with EPA to create an approach that met Clean Water Act requirements but still provided a flexible implementation approach.

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City tree champions from all over lauded for outstanding service to their neighbors

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Lake Winnebago sturgeon spearkers share

0:00 / 1:43

Opening weekends of the 2014 Winnebago System was fast and furious, with 65 fish over 100 pounds harvested and the Upriver Season closing after the close of spearing hours Feb. 10. [The 400 Winnebago spearing remains open](#), providing more opportunities to land the fish of a lifetime.

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Storm water permits, forms, and other information



Urban storm water runoff contains pollutants from roads, parking lots, construction sites, industrial storage yards and lawns. The Storm Water Program regulates storm water discharges from construction sites, industrial facilities and municipalities. These web pages provide program news, permit forms, permit data and technical assistance.

Learn more



- [What is storm water](#)
- [Problems](#)
- [Regulations](#)
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Technical standards



- [Construction standards](#)
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Construction permits



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- [Erosion control and storm water management plans](#)
- [Permit forms](#)
- [Permit data](#)
- [Practices and information](#)

Industrial permits



- [Permit overview](#)
- [Permit forms](#)
- [Permit data](#)
- [No Exposure certification](#)
- [SIC codes in NR 218](#)

Municipal permits



- [Permit overview](#)
- [Municipal permittees](#)
- [Presentations and fact sheets](#)
- [Whose pond is it anyway?](#)

MS4 General Permits

Important information concerning the DNR's MS4 General Permits

The DNR is in the process of issuing WPDES MS4 general permits WI-S09075-2 and WI-S090181-1. The public notice, proposed general permits and fact sheets are available. The municipalities potentially affected by each general permit are listed in the fact sheet available in the column labeled "Supporting Documents".

- [View the public notice and supporting documents](#)

The DNR will hold a public informational webinar for each proposed general permit.

- WPDES Permit WI-S09075-2: Tuesday, February 25, 2014, 1:00 – 3:00 p.m. [Registration Text \(DNR\)](#)
- WPDES Permit WI-S090181-1: Thursday, February 27, 2014, 1:00 – 3:00 p.m. [Registration Text \(DNR\)](#)



Grant programs

- [Trusted Runoff Management](#)
- [Urban Nonpoint Source & Storm Water Management](#)

Contact information

For information on this page, contact:

[Jim Bertolacini](#)
Storm Water Program Coordinator

What are TMDLs?

EPA requires that waters listed as impaired on Wisconsin's 303-d list have TMDLs developed.

TMDLs determine the amount of a pollutant a waterbody can receive and still meet water quality standards.

Total Maximum Daily Load =

Load Allocation



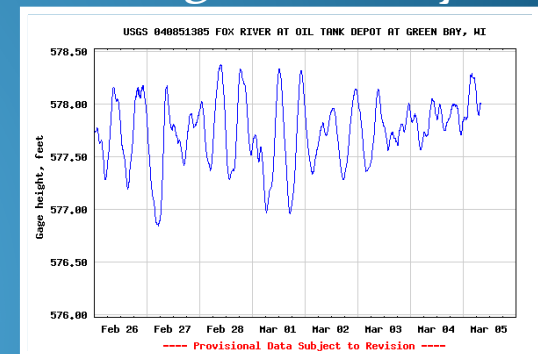
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Waste Load Allocation



+

Margin of Safety



TMDL Allocations

Waste Load Allocation

- WWTPs / POTWs
- Industries
- **MS₄s**
- Non-Metallic Mines
- Construction Sites
- CAFOs

Load Allocation

- Agricultural
- Non-permitted Urban
- Background

- MS₄ = **M**unicipal **S**eparate **S**torm **S**ewer **S**ystem
- A conveyance system including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, constructed channels or storm drains
 - Owned or operated by a municipality
 - Designed or used for collecting or conveying storm water
 - Not a combined sewer system
 - Not part of a publicly owned wastewater treatment works

TMDL WLAs for Storm Water Sources

- A portion of the allocation is set aside to cover general permits
 - Storm water construction sites
 - Storm water industrial facilities
 - Wastewater general permittees (some exceptions)
- Individual WLAs given for permitted MS4s

TMDL Permit Requirements

Once EPA has approved a TMDL that contains permitted MS4s, the next permit issued must contain **an expression of the WLAs** consistent with the assumptions and requirements contained in the TMDL.

EPA approves the WLAs and generally these WLAs are mirrored directly in the permit.

The direct application of the WLA presents certain challenges in implementation due to assumptions required during the development of the TMDL.

Challenges with Expression of TMDL as Mass

1. The aerial extent of the MS₄ and its boundary may not match that of the TMDL due to incorporation of new areas, expansion of the municipal boundary and non-traditional MS₄s (i.e. WisDOT & county highways).
2. TMDLs are rarely able to account for watersheds modified by storm sewers.
3. Difference between the tools used to create the TMDL versus the compliance tools used by the MS₄ – will not calculate the same mass.

Challenges with Expression of TMDL as Mass

- Even if the TMDL used SLAMM or P-8 the rainfall record used in the TMDL will not match that required by NR 151.
- Some of the TMDLs developed in Wisconsin used SWAT or HSPF to calculate the urban loads



Percent Reduction Framework

- Builds on the existing MS4 modeling already required under NR 151 and the municipal wide analysis already conducted to comply with requirements stipulated in NR 151.13.
- EPA will allow a percent reduction approach because DNR has a defined no controls scenario and defined climate files used in NR 151.13.
- The use of a percent reduction framework allows both the MS4 and DNR the ability to implement the reductions without having to reallocate and track WLAs across reachsheds, MS4s, and other land uses.

Percent Reduction Framework

- Will minimize the need to continually update the TMDL as municipal boundaries evolve.
- Will ease reporting and tracking requirements.
- During the development of the TMDLs, the percent reduction is calculated using the following equation:

$$\text{Percent Reduction} = 100 * (1 - (\text{WLA Loading Condition} / \text{Baseline Loading Condition}))$$

Percent Reduction Framework

- Percent reduction expressed based on regulatory requirements.
- For a TMDL that uses 20% reduction as the baseline loading condition (TMDLs approved after January 1, 2012) the conversion to the NR 151.13 no-controls modeling condition is:

$$\text{TSS Percent Reduction} = 20 + (0.80 * \% \text{ control in TMDL})$$

$$\text{TP Percent Reduction} = 15 + (0.85 * \% \text{ control in TMDL})$$

- For a TMDL that uses 40% reduction as the baseline loading condition (TMDLs approved prior to January 1, 2012) the conversion to the no-controls modeling condition is:

$$\text{TSS Percent Reduction} = 40 + (0.60 * \% \text{ control in TMDL})$$

$$\text{TP Percent Reduction} = 27 + (0.73 * \% \text{ control in TMDL})$$

Attachment C: Rock River TMDL MS4 Annual Average Percent Reductions

Reach	Appendix H TP reduction from baseline of 27%	Appendix I TSS reduction from baseline of 40%	Calculated TP reduction from no-controls	Calculated TSS reduction from no-controls
2	29%	1%	48%	41%
3	82%	26%	87%	56%
20	14%	0%	37%	40%
21	10%	0%	34%	40%
23	12%	11%	36%	47%
24	11%	12%	35%	47%
25	64%	32%	74%	59%
26	35%	29%	53%	57%
27	0%	0%	27%	40%
28	1%	0%	28%	40%
29	51%	7%	64%	44%
30	0%	0%	27%	40%
33	29%	9%	48%	45%
34	81%	31%	86%	59%
37	66%	54%	75%	72%
39	0%	0%	27%	40%
45	13%	8%	36%	45%
51	14%	0%	37%	40%
54	61%	6%	72%	44%
55	68%	43%	77%	66%
56	19%	0%	41%	40%
59	54%	15%	66%	49%
60	29%	1%	48%	41%
61	6%	2%	31%	41%
62	70%	70%	78%	82%
63	14%	11%	37%	47%
64	47%	55%	61%	73%
65	49%	46%	63%	68%
66	37%	37%	54%	62%
67	0%	0%	27%	40%
68	52%	18%	65%	51%
69	72%	21%	80%	53%
70	1%	1%	28%	41%
71	29%	31%	48%	59%
72	0%	0%	27%	40%
73	51%	49%	64%	69%
74	17%	20%	39%	52%
75	15%	19%	38%	51%
76	75%	29%	82%	57%
78	4%	0%	30%	40%
79	54%	37%	66%	62%
81	20%	7%	42%	44%
83	37%	25%	54%	55%

Baseline reductions of TP = 27% & TSS = 40% were identified in the RR TMDL report on pages 25 & 27.

% TP reduction from no-controls = $27 + [0.73 \times (\% \text{ TP control in Appendix H})]$

% TSS reduction from no-controls = $40 + [0.60 \times (\% \text{ TSS control in Appendix I})]$

Reaches that are not listed above did not have a permitted MS4 within the reach.

Table developed by: Eric Rortvedt, DNR Stormwater Engineer

Dated: 9/16/2014

Tables for Rock and Lower Fox River TMDLs are already contained in the guidance document.

Reductions given from both baseline and no-controls condition.

Implementation of Percent Reduction Framework

- For the MS4 area contained in each reachshed, the no controls load is calculated using SLAMM, P-8, or equivalent.
- The MS4 area includes the entire acreage that the MS4 is responsible for; subtract areas not under the jurisdiction of the permittee.
- As new MS4 area is added or subtracted, the same TMDL percent reduction is applied to these new areas.

Implementation of Percent Reduction Framework

- The percent reduction calculated to meet the TMDL is applied to the no controls load, which provides the mass that needs to be controlled by the MS4. This mass will be different from that stipulated by the TMDL WLA.
- The corresponding mass calculated using that percent reduction should be used in any accounting required through water quality trading and or adaptive management.

Compliance Points

- Unlike the requirements contained in NR 151.13, individual MS4s may be divided in multiple reachsheds.
- Compliance with TMDL requirements will need to be achieved on a reach by reach basis. Ultimately water quality standards must be met in-stream at the compliance point for each reachshed which is the farthest most downstream point of each reachshed.
- Compliance is with water quality standards. The TMDL reductions are the best estimate for meeting water quality standards and are modeled or simulated predictions. Ambient stream monitoring will ultimately be required to de-list impaired waters and show compliance with the TMDL.

Anticipated Compliance Schedule

- MS4 permittees will have the primary role in establishing their own benchmarks for each 5-year permit term. Benchmarks are to be identified prior to each 5-year permit reissuance.
- It is possible that certain benchmarks will not be easily quantifiable but there needs to be documentation that such achieving benchmarks will reduce the discharge of pollutants of concern.
- Under a TMDL, EPA does not acknowledge the concept of maximum extent practicable as defined in s. NR 151.006, Wis. Adm. Code, but rather compliance schedules can be structured in SWMPs and permits to allow MS4s time to meet TMDL goals.

Anticipated Compliance Schedule

- Once a TMDL is approved, affected MS4 permittees will receive a TMDL implementation planning requirement in their next (or potentially initial) permit term.
- It is expected that the 2nd reissuance of an MS4 permit after the TMDL is approved, that a compliance schedule to meet identified benchmarks will be included in the MS4 permit.
- The compliance schedule will require that the permittee show continual progress by meeting 'benchmarks' of performance within each permit term.

Major Public Comment Issues

- Channel stabilization within MS4 service area
 - No credit toward percent reduction
 - Benchmark credit
- LFR TMDL – MS4 Baseline Condition of 20% TSS (not zero)
- Stormwater Treatment Credit in Wetland Mitigations => NO
- Pumped Stormwater Monitoring Data
 - Substantial internally- drained watershed pumping - Stricter Pond (Middleton) & Paradise Pond (Stoughton)
 - Not construction sites

MS4 Permit Issuance/Reissuance

- MS4 General Permits issued in May 2014
 - Initial issuance of MS4 GP No. WI-So50181-1:
For new MS4 permittees
 - Reissuance of MS4 GP No. WI-So50075-2:
For existing MS4 permittees
- MS4 Individual Permits will follow the same TMDL implementation approach and compliance schedule as General Permits when reissued

MS4 Permittee Numbers

- About 30 more MS4s receiving initial permit coverage this year due to:
 - 2010 Urbanized Area has expanded
 - More municipalities with population of 10,000+
- By the end of 2015 about 265 municipalities will have MS4 permit coverage under either an individual or general permit

MS4 GP Section 1.5.4

Approved TMDL Implementation

- Sections 1.5.4.1 and 1.5.4.2 – Compliance schedule for meeting TMDL implementation provisions based on when TMDL approved
- Section 1.5.4.3 – Update storm sewer system map, identify areas to exclude (given 18 – 24 months)
- Section 1.5.4.4 – Tabular summary of modeling analysis, existing storm water controls (given 42 - 48 months)
- Section 1.5.4.5 – Written plan to show progress toward meeting TMDL pollutant reductions (42 – 48 months)



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Questions

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SC: Eric Rortvedt
Dan Bekta

SE: Pete Wood
Bryan Hartsook

NE: Amy Minser

WC: Erik Henningsgard

NO: Bruce Moore