

Wisconsin's Multi-Discharger Phosphorus Variance



Wisconsin DNR Wastewater Operations Director





Photo by: Rhonda Cain Carrell (Petenwell Lake)



Protecting Wisconsin's Waters

- Water Quality Standards for Phosphorus promulgated in 2010
 - Establishes acceptable P concentration in Wisconsin's waters
- Phosphorus limits included in permits 60% of point source discharges expected to need limits equal to standards
- Compliance schedules will be given for facilities to comply with these limits
- Several compliance options exist including trading, adaptive management
- Variances available if economically infeasible





Determining Need for MDV

- ACT 378 passed in 2014
- Required DOA/DNR to determine if attaining TP water quality standards would" cause a significant and widespread adverse social and economic impact"
- If yes.....then should submit application to EPA for a multi-discharger variance (MDV)



What is a multi-discharger variance?

• Covers multiple permit holders

Same pollutant, same challenge, same/similar economics

• Historically used for mercury and chloride



Basics of the Phosphorus MDV

- Approved February 6, 2017
- Not everyone is eligible
- Site-specific applications must be completed
- Watershed projects required
- Effective until February 5, 2027
 - MDV permit terms and conditions cannot extend beyond the MDV expiration date
- Several options to extend timeline



Benefits of the MDV

- Streamlined administrative process
- Clear implementation requirements
 - <u>Aggregated</u> financial resources for NPS projects
- Provides time to mature working relationships





MDV Overview

- Reduce phosphorus discharge: reduce phosphorus load each permit term of MDV coverage AND
- Implement a watershed project that reduces nonpoint source phosphorus pollution:
 - Implement watershed project directly;
 - Work with a third party to implement a watershed project; or
 - Make payments to County LCDs to implement ag practices (cost sharing + NR 151 compliance)



Socioeconomic Determination





Analysis of Impacts

- Wisconsin DOA contracted:
- -Sycamore Advisors
- -ARCADIS
- -University of Massachusetts Donahue Institute
- Reports developed:

Economic Impact Analysis" and "Addendum to Economic Impact Analysis: Statewide Economic Impacts"



Step 1. Determine Compliance Costs

- Facility by facility site-specific costs not determined
- Compliance Cost Determination
 - Statewide, high level look
 - Technology choice that would be appropriate across all sites for a given category
 - Development of Cost Curve that can be used to estimate costs for all sites
 - Method used in several other studies



Facility Breakdown



Type of Permittee	Number of Permitted Facilities in each Category
Municipal WWTP: Mechanical	334
Municipal WWTP: Lagoon	91
Municipal Subtotal	425
Cheese	27
Aquaculture	10
Food Processing	14
NCCW/COW	59
Paper Mills	17
Power Plants	15
Other	25
TOTAL	592

A total of 592 permittees were expected to need to add phosphorus treatment technologies to meet more stringent phosphorus discharge limits, and were further evaluated in this study.



Cost Curve Example





Step 2. Determine Economic Effects of Incurring Costs

- REMI model
 - University of Mass- Donahue Institute
- Combined discharges by category
- Regulatory costs by 2025 (absent MDV):
 - at least 3,000 fewer jobs
 - \$184.1 million in wages forgone
 - \$478.9 million reduction in gross state product
 - 7,500 fewer Wisconsin residents



Potentially Eligible Categories

- Municipal WWTFs and Lagoons
- Aquaculture
- Cheese
- Food processors
- Paper
- NCCW, NCCW/COW
- Other Industrial Dischargers

Ineligible

• Power



Determine Eligibility Criteria

Facility-Specific:

Category of Discharge	Primary Screener	Secondary Score
Municipal	MHI>2%	Secondary score must be 2 or higher
Municipal	1%>MHI>2%	Secondary score must be 3 or higher
Industrial	Must be in the top 75% of dischargers incurring costs within that category	 If both are met, a secondary score of at least 2 is needed to qualify
	Must be located in a county that is within the top 75% of counties incurring costs for that category	 If only one met, a secondary score of at least 3 is needed to qualify



Figure 8. Distribution of projected MHI values among municipalities that are incurring phosphorus compliance costs





Appendix C. Municipal WWTFs' Secondary Indicators

For Details, see Section 5, part B Secondary Indicators, p. 34.

	Personal Current Transfer Receipts Share of Total Income 2013 ¹	Jobs per Square Mile ²	Population Change 2004 - 2014 ³	Net Earnings Change 2003- 2013 ⁴ (2points)	Job Growth 2003-2013 ⁵	Secondary Indicator Score
Adams	26.9%	7	0.7%	41.5%	9.3%	3
Ashland	26.3%	8	-5.3%	29.7%	-5.7%	6
Barron	23.2%	24	-1.1%	32.1%	-1.1%	6
Bayfield	25.4%	3	-3.3%	27.5%	-0.5%	6
Brown	14.3%	279	6.4%	32.7%	5.6%	2
Buffalo	18.0%	6	-3.1%	27.7%	-10.3%	6
Burnett	27.5%	6	-5.7%	26.2%	9.1%	5
Calumet	10.5%	39	12.1%	61.1%	3.1%	2
Chippewa	20.0%	23	6.0%	42.7%	14.1%	2
Clark	20.9%	8	0.9%	39.8%	4.1%	6
Columbia	15.3%	27	4.0%	37.1%	7.5%	4
Crawford	23.1%	13	-5.0%	37.8%	1.3%	6
Dane	11.0%	258	11.4%	46.3%	12.5%	0

Table. 7. Municipal. WWTEs'. Secondary. Indicators.



Industrial primary screener thresholds based on 75th percentile of discharges incurring costs within each category.

Industrial Category	75% Threshold for Discharges
Cheese Manufacturing	\$1,510,000
Food Processing	\$1,890,000
Paper	\$11,200,000
Aquaculture	\$2,600,000
NCCW	\$1,350,000
Other Industrial Discharges	\$959,000



Regional Economic Disparities

Potentially Eligible Area for MDV-Cheese Manufacturing





Secondary Screener e.g.- Jobs per Square Mile (WI = 50)



Source: WI DWD Quarterly Census of Employment and Wages http://worknet.wisconsin.gov/worknet/



•Appendix E. Cheese Manufacturers' Secondary Indicators Table 9 Cheese Manufacturers' Secondary Indicators

	Median Household Income in Thousands of Dollars ¹	Personal Current Transfer Receipts Share of Total Income 2013 ²	Jobs per Square Mile ³	Population Change 2004- 2014 ⁴	Net Earnings Change 2003- 2013 ⁵ (2 points)	Job Growth 2003-2013 6	Capital Costs as a % of Payroll ⁷ (2 points)	Second-ary Indicator Score
Adams	44.9	26.9%	7	0.7%	41.5%	9.3%		4
Ashland	38.6	26.3%	8	-5.3%	29.7%	-5.7%		7
Barron	44.1	23.2%	24	-1.1%	32.1%	-1.1%		7
Bayfield	44.9	25.4%	3	-3.3%	27.5%	-0.5%		7
Brown	53.1	14.3%	279	6.4%	32.7%	5.6%		2
Buffalo	47.4	18.0%	6	-3.1%	27.7%	-10.3%	2.56%	9
Burnett	39.6	27.5%	6	-5.7%	26.2%	9.1%	0.82%	6
Calumet	65.1	10.5%	39	12.1%	61.1%	3.1%	0.82%	2
Chippewa	50.6	20.0%	23	6.0%	42.7%	14.1%		3
Clark	43.3	20.9%	8	0.9%	39.8%	4.1%	2.68%	9
Columbia	57.9	15.3%	27	4.0%	37.1%	7.5%		4



Implementation





• Facilities submit application to DNR

-WQBEL for TP included in permit reissued prior to 2014 –when MDV becomes available

-within 60 days after re-issuance -in permit application (re-issue)



Overview of MDV application

- Point sources apply on a facilityby-facility basis
- Must meet economic eligibility requirements
- Phosphorus compliance must require the need for a "major facility upgrade"





Interim Limit Determination

DNR shall determine the appropriate interim limitations at time of permit reissuance

Less Restrictive:

 Interim limits may not go above 1 mg/L (283.16(6)(am))

More Restrictive:

 Only applicable for point sources that have consistently achieved an effluent quality below interim limits

Typical interim limits:





Overview of MDV Permit Conditions

Annual Offset = Previous Annual Phosphorus Load – Target Annual Load

Point Source

- Comply with interim limits
 - P99 or 0.8 mg/L
 - then 0.6 mg/L, 0.5 mg/L
 - WQBEL
- Optimize
- Reporting
 - Effluent data
 - Cost verification form

Watershed Project

- County payment option
 - Annual payments of \$50/lb P+ inflation
 - \$640,000 /year cap
- Direct offset
 OR
- Third-party offset



Watershed Projects





MDV..... it's not free.....

- ANNUAL payments of \$50/lb + inflation OR
- Must generate an ANNUAL phosphorus offset

Annual payment cap=\$640,000

Max payments over 1 permit term= \$3.2M Total max. payment= \$9.6M

And then you do the facility upgrade



County Payment Option

Payment= (Previous Annual Phosphorus Loading – Target Annual Load) *\$50/Ib

- Annual payments go to participating county LWCDs in HUC 8
- At least 65% of funds must be spent on agricultural performance standards in ch. NR 151
 - Must target highest contributing areas
- Up to 35% available for staffing, monitoring, and modeling expenses
- Plan and reporting requirements vary based on funding amount





Self Directed/Third Party Options

Annual Offset= Previous Annual Phosphorus Loading – Target Annual Load

- Any practice/project that produces a quantifiable reduction of phosphorus works
- Plan should specify how reductions will be met over permit term
- Watershed plan checklist helps ensure plans are suitable
- WPDES permit include annual reporting requirement





Example Timeline





EXAMPLE: Calculating Annual Offset

- 1. Determine annual TP loading
 - Facility A discharges 800 lbs in 2019
- 2. Subtract the target value
 - (0.2 mg/L or TMDL target)
 - 800 lbs/yr 200 lbs/yr = 600 lbs/yr

- 3. Multiple by \$50 lb (+inflation)
 - 600 lbs/yr *51.10 = \$30,700 in 2020



MDV Funding Distribution Hypothetical Example





County Expectations

- Participation is voluntary
- At least 65% of funding needs to be spent on nonpoint source practices
 - Remainder can be used for staffing, monitoring, and other funding needs
- Funding will be distributed to participating counties within the watershed (HUC-8)
- Documentation requirements





MDV Funds – 2019 Projection

- 30 MDV Applications received this year
- 24 Facilities have been approved for MDV
 - 1 under review
 - 3 request more info
 - 2 applications withdrawn
- 3 facilities have had permits re-issued in 2017
 - Total estimated MDV funds available in 2018 = \$33,000
- 26 facilities will have permits re-issued in 2018 with MDV requirements
- Total estimated MDV funds = \$1,080,000



MDV – 2019 Projection

(Assumes 9-12 months TP discharge in 2018)

WPDES Facility	HUC 8	Total Lbs	Total \$\$
Abbotsford	7070002	26.86009097	\$1,372.55
Appleton Co	4030204	2346.125591	\$119,887.02
Auburndale	7070002	779.1249985	\$39,813.29
Bagley	7060003	296.8572891	\$15,169.41
Barneveld	7090003	1213.60654	\$62,015.29
Benton	7060005	471.9579844	\$24,117.05
Black River Falls	7040007	887.1731091	\$45,334.55
Blue River	7070005	124.1803576	\$6,345.62
Cadott	7050005	75.03867205	\$3,834.48
Colby	7070002	53.65558143	\$2,741.80
Domtar	7070003	3708.83136	\$189,521.28
Ellsworth	7040001	424.3916415	\$21,686.41
FFUSA-Chilton	4030101	245.1265591	\$12,525.97
Fond du Lac	4030203	6800.880267	\$347,524.98
Hillshire	4030202	301.8021886	\$15,422.09
Linden	7090003	106.1612465	\$5,424.84
Livingston	7060003	190.8391257	\$9,751.88
Milan	7070002	364.7396526	\$18,638.20
Patch Grove	7060003	204.282412	\$10,438.83
Phillips City	7050003	98.0816402	\$5,011.97
Reedsburg	7070004	1893.719247	\$96,769.05
Rewey	7090003	151.3087986	\$7,731.88
Twin Lakes	7120006	271.8368065	\$13,890.86
Viroqua	7060001	124.5842986	\$6,366.26



Annual Report Requirements

- Practice information
 - Location
 - Description including performance standards addressed
 - Photo and maps
 - Pollutant(s) reduced
- Existing BMPs inspected
- Statement of overall progress towards plan goals
- Monitoring completed
- Financial breakdown (county payment option only)



Reviewing the MDV

Overall Determination

- Timeline: Triennial Standard Review Process and by 2024
- Focus: Technology or economic changes that may impact economic determination

Highest Attainable Condition

- Timeline: No later than every 5 years and at time of permit reissuance
- Focus: Permit conditions
 - Interim limits
 - Optimization
 - Watershed projects





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http://dnr.wi.gov/topic/surfaceWater/phosphorus/statewideVariance.html