Program Policy for Implementing Wisconsin's Multi-Discharger Variance for Phosphorus

Wisconsin Department of Natural Resources

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APPROVED:

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Summary

Section 283.16, Wis. Stats., became effective in 2013 through the enactment of Act 378- https://docs.legis.wisconsin.gov/statutes/statutes/283/III/16. It was modified in 2015 (Act 205). As a result of this legislation, the Department of Administration (DOA) and Department of Natural Resources (DNR) investigated the impacts of costs associated with wastewater treatment to remove phosphorus on Wisconsin's economy and determined that these costs cause a substantial and widespread economic impact to the state. This determination was made with the assistance of Sycamore Advisors, ARCADIS, and University of Massachusetts Donahue Institute. DOA's and DNR's final economic determination and relevant supporting information including the consultant's analyses are available at: http://dnr.wi.gov/topic/wastewater/phosphorus/statewidevariance.html.

The economic impact analysis was a statewide analysis and clearly demonstrates that there will be substantial and widespread impacts due to compliance with the phosphorus standards. The purpose of this document is to provide information to point source dischargers, County Land and Water Conservation Departments (LWCDs), DNR staff, and other entities about how to successfully implement the phosphorus multi-discharger variance (MDV) option. For ease of navigation, this document is broken up into five main chapters, one for each target audience:

- Chapter 1: Background
- Chapter 2: WPDES Permit Holders
- Chapter 3: County Land and Water Conservation Departments
- Chapter 4: Self Directed/Third Party Watershed Projects
- Chapter 5: DNR Staff

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Abbreviations and Acronyms

This list contains the most common abbreviations used in this document.

AM	Adaptive Management
BITS	BMP Implementation Tracking System
CAFO	Concentrated Animal Feeding Operation
CPI	Consumer price index
DMR	Discharge monitoring report
DNR	Wisconsin Department of Natural Resources
DOA	Wisconsin Department of Administration
EIA	Economic Impact Analysis
EPA	United States Environmental Protection Agency
HAC	Highest attainable condition
HUC	Hydrologic Unit Code
LWCD	Land and Water Conservation Department
MDV	Multi-discharger variance
MGD	Million gallons per day
mg/L	Milligrams per liter
MHI	Median Household Income
MS4	Municipal separate storm sewer system
NOD	Notice of Discharge
NPS	Nonpoint Source
NRCS	Natural Resources Conservation Service
P_{99}	99^{th} percentile of the dataset as calculated per s. NR 106.05(5) Wis. Adm. Code.
POTW	Publicly Owned Treatment Works
PS	Point source
Qe	Effluent flow
SWAMP	System for Wastewater Applications, Monitoring and Permits
TBL	Technology-based limit
TMDL	Total Maximum Daily Load
TRM	Targeted Runoff Management
TP	Total Phosphorus
µg/L	Microgram per liter
WPDES	Wisconsin Pollutant Discharge Elimination System
WQBEL	Water quality-based effluent limit
WQT	Water quality trading
WWTF	Wastewater treatment facility

Table of Contents

Chapter 1- Phosphorus MDV Background

Chapter 1 provides a basic overview of the history and requirements for the MDV, as described in s. 283.16, Wis. Stats. The statutory language is available for download at: https://docs.legis.wisconsin.gov/statutes/statutes/283/III/16.

Additional resources are also available online, including the final economic impact analysis (EIA) determination, proposed variance package for EPA to review and approve, and a MDV factsheet, among other things: https://dnr.wi.gov/topic/wastewater/phosphorus/statewidevariance.html.

Staff, permittees, consultants, and others interested in the implementation of phosphorus water quality standards in Wisconsin and the MDV option are encouraged to submit questions or comments to the following e-mail box: DNRPhosphorus@wisconsin.gov

Questions may also be sent directly to your local adaptive management/water quality trading (AM/WQT) coordinator. A list of statewide and regional AM/WQT coordinators is available at:

https://dnr.wi.gov/topic/SurfaceWater/documents/phosphorus/coordinatorList.pdf

Chapter 1

Section 1.01: Background of the Phosphorus Regulations and MDV

Author: Amanda Minks

Last Revised: August, 2019

Wisconsin has a long history of protecting Wisconsin's surface waters from excess phosphorus pollution. Formal regulations began in 1992 for wastewater point source discharges requiring many Wisconsin Pollutant Discharge Elimination System (WPDES) permit holders to comply with technology-based effluent limits (TBLs), typically set equal to 1.0 mg/L (NR 217 Subchapter II, Wis. Adm. Code). Additionally, Wisconsin has implemented Priority Watershed/Lake Projects throughout the state to help reduce nonpoint source pollution to meet water quality goals. The state has also established agricultural performance standards and prohibitions in ch. NR 151, Wis. Adm. Code.

To further protect human health and welfare from excess phosphorus pollution, revisions to Wisconsin's Phosphorus Water Quality Standards for surface waters were adopted on December 1, 2010. These revisions:

1. Established the maximum allowable phosphorus concentration in Wisconsin's waters, also known as phosphorus criteria (see s. NR 102.06, Wis. Adm. Code and Table 1);
2. Created phosphorus standard implementation procedures for WPDES permits (see ch. NR 217, Subchapter III, Wis. Adm. Code); and,

Since December 2010, DNR has been evaluating the need for phosphorus Water Quality Based Effluent Limits (WQBELs) in WPDES permits to comply with these standards. Wisconsin's Phosphorus Implementation Guidance provides a detailed discussion of the phosphorus standards and implementation procedures in WPDES permits, and is available for download at https://dnr.wi.gov/topic/wastewater/phosphorus/.

Many point sources face restrictive phosphorus limitations as a result of these standards. In many cases, these phosphorus WQBELs are set equal to the phosphorus criteria, shown in Table 1.

Table 1. Applicable statewide P criteria pursuant to s. NR 102.06, Wis. Adm. Code.

Waterbody Type	Applicable Criteria (µg/L)
Rivers	100
Streams	75
Reservoirs:	
• **Stratified**	30
• **Not stratified**	40
Lakes:	
• **Stratified, two-story fishery**	15
• **Stratified, seepage**	20
• **Stratified, drainage**	30
• **Non-stratified, drainage**	40
• **Non-stratified, seepage**	40
Great Lakes:	
• **Lake Michigan**	7
• **Lake Superior**	5
Impoundments	Varies by inflowing waterbody type
Ephemeral streams, lakes and reservoirs of less than 5 acres in surface area, wetlands (including bogs), and limited aquatic life waters[1]	None

Compliance with these restrictive WQBELs frequently requires substantial capital investments, yet treatment may only target a small fraction of the total phosphorus loading entering many Wisconsin surface waters. Nonpoint source phosphorus loadings frequently contribute the majority of phosphorus to Wisconsin's waters. Figure 1 highlights this trend for HUC 8 watersheds within the Mississippi River Basin. However, in some effluent-dominated streams, and in many systems during dry weather conditions, point sources of phosphorus may be a larger contributor to phosphorus impairment.

[1] Limits may still be given to discharges to these receiving waters based on downstream protection, if necessary. See Section 2.03 of the Phosphorus Implementation Guidance for details.

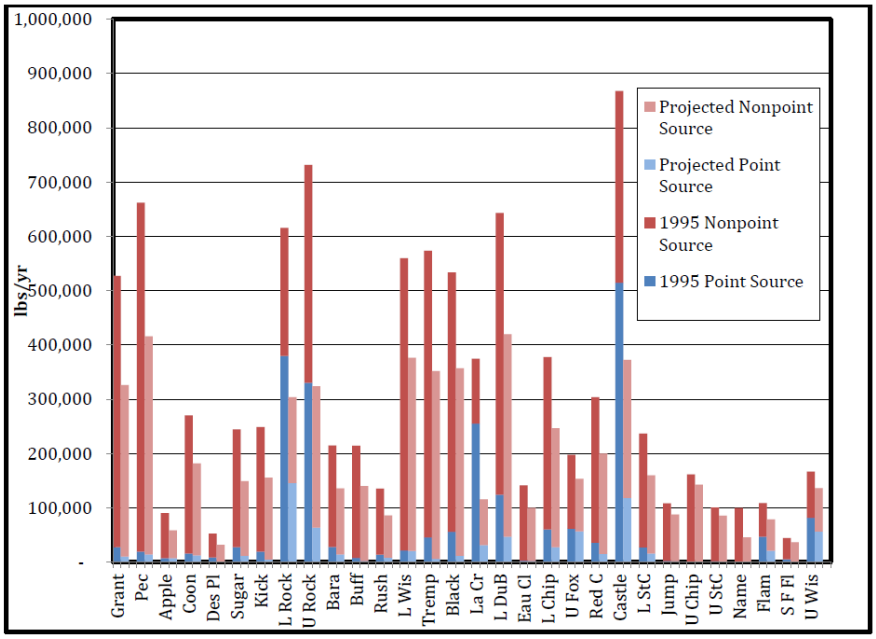

Figure 1. Estimated 1995 Baseline and Projected Future Phosphorus Loadings for Mississippi River Basin by HUC 8. Source: Wisconsin's Nutrient Reduction Strategy- http://dnr.wi.gov/topic/surfacewater/nutrientstrategy.html.

The ubiquitous nature of phosphorus has been a well-known challenge for some time. To help address this, DNR, in collaboration with stakeholders, developed innovative compliance options as part of the 2010 phosphorus rulemaking to reach water quality goals in a more economically efficient manner. This spurred the development of Wisconsin's adaptive management (AM) and water quality trading (WQT) programs. The premise behind these compliance options is that point source dischargers could invest a smaller amount of money towards nonpoint source pollution control projects, and potentially have a greater water quality benefit[2]. These compliance options have been selected by some point sources and continue to be explored by others as they work towards phosphorus compliance: https://dnr.wi.gov/topic/wastewater/amwqtmap.html. Many wastewater treatment facilities have found, however, that barriers exist that preclude participation in these programs; insufficient political support, unwilling partnerships, eligibility constraints, economic limitations, and compliance risks are some reasons cited that make trading and adaptive management infeasible for many point sources.

The concept of a MDV is established in s. 283.16, Wis. Stats., to address these challenges and potentially provide point sources, specifically municipal and industrial wastewater treatment facilities, with another avenue for minimizing the economic hardship associated with restrictive phosphorus limits. The MDV approach is different from WQT or AM. Water quality trading and adaptive management are compliance options that focus on achieving compliance with phosphorus water quality standards or limits. The MDV provides a time extension for point sources to comply with their final phosphorus limits while they

[2] For details about Wisconsin's adaptive management and water quality trading programs, visit http://dnr.wi.gov/, search keywords "adaptive management" or "water quality trading".

contribute funds towards nonpoint pollution control projects or implement specific projects in the watershed to reduce phosphorus.

Note: Section 283.16, Wis. Stats., refers to a “statewide variance for phosphorus”, meaning a variance that would apply to multiple point source dischargers around the state. EPA’s terminology for this type of variance is a “multi-discharger variance” or MDV. The term “statewide variance” may also be misinterpreted to mean that all point sources in the state would qualify for this variance, which is not the case. To avoid confusion in terminology, DNR refers to the s. 283.16 variance as a multi-discharger variance or MDV.

Note: The multi-discharger phosphorus variance is intended to provide qualifying municipal and industrial wastewater treatment facilities with temporary relief from restrictive phosphorus limitations. Concentrated Animal Feeding Operations (CAFOs) and Municipal Separate Storm Sewer Systems (MS4s) are not eligible to apply for coverage under the MDV.

Chapter 1

Section 1.02: What is a MDV?

Author: Amanda Minks

Last Revised: August, 2015

According to 40 CFR 131.13(o) and EPA's guidance[3] for MDVs, a variance is a "is a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of the WQS variance." When a variance is approved, point source dischargers can gain temporary relief from applicable permit requirements for the pollutant(s) in question. However, during this period, the permittee is responsible for making improvements that work towards compliance with water quality standards and limitations through a "pollution minimization plan".

DNR has extensive experience working with EPA to grant individual variances in accordance with s. 283.15, Wis. Stats. Compared to this approach, the MDV is a streamlined approach for requesting and granting variances as it applies to a number of WPDES permit holders. This allows the application and review process for granting coverage under the MDV to be simplified. Specifically, there is a formal EPA review and approval step for all individual variance requests before they can become effective; however, for MDVs EPA approves a variance determination covering multiple point source categories, so EPA's review of individual requests is discretionary once DNR makes a site-specific determination on MDV applications. Additionally, the pollution minimization efforts for the MDV are made clear upfront and combined across a large area, rather than limited to site-specific pollutant reductions. An economy of scale is achieved for nonpoint source pollution control projects, which indicates a MDV will result in better environmental outcomes.

In the case of the phosphorus MDV, interim limits and watershed projects are used to help reduce and offset point source phosphorus loadings during the variance term. As stated in Section 1.01, p. 5, nonpoint source phosphorus contributions tend to be the predominant source of phosphorus to many surface waters in Wisconsin. By aggregating available funds from a number of WPDES permit holders, and investing those funds strategically in nonpoint source pollution control projects, significant water quality gains may be realized. See Chapters 3 and 4 for more information about watershed projects (pp. 33 and 54, respectively).

[3] United States Environmental Protection Agency. "Discharger-Specific Variances on a Broader Scale". EPA-820-F-13-012. March 2013.

Chapter 1
Section 1.03: General MDV Requirements

Author: Andrew Craig and Amanda Minks
Last Revised: August, 2019

Implementation procedures for MDV are specified in s. 283.16, Wis. Stats., and are briefly described in the subsections below. Additional details for each implementation procedure are provided in the subsequent chapters of this document.

- Facility-specific requirements (Chapter 2, p. 15)
- Watershed project requirements (Chapter 3 and 4, pp. 33 and 53)
- Reconsidering the need for the MDV (Chapter 5, p. 60)

Facility-Specific Requirements of the MDV

Not all point sources will qualify for the MDV. WPDES permit holders will be responsible for submitting sufficient information and providing certification statements to the DNR to ensure that they meet the eligibility requirements of the MDV. A municipal and industrial MDV application has been developed to streamline these requests (Forms 3200-150 and 3200-149). As with other variances, only existing sources may apply for the MDV (s. 283.16(4)(a)(1), Wis. Stats.). Additionally, the point source must certify that a major facility upgrade would be needed to comply with their applicable phosphorus WQBELs thereby creating a financial burden for the point source discharger and community (s. 283.16(4)(a)(2), Wis. Stats.). The point source must also agree to comply with interim phosphorus effluent limits and an implementation requirement (s. 283.16(4)(a)(3), Wis. Stats.). Interim limitations are numeric limitations expressed as a monthly average designed to make incremental progress towards compliance with the final WQBEL and to prohibit backsliding during the permit term. A compliance schedule may be included in the WPDES permit if time is needed to comply with the interim limitation. However, this compliance schedule is not to exceed the permit term (5 years). The default interim limitations are provided in Table 2; however, site-specific interim limitations will be calculated and included on a case-by-case basis depending on the highest attainable condition (HAC) for a given facility.

EPA approved the MDV on February 6, 2017 and is effective until February 5, 2027. Permit terms and conditions that reflect the MDV cannot extend beyond the term of the variance expiration date. Several options are available to extend the current MDV approval to encompass the full time period allotted in s. 283.16, Wis. Stats., including seeking EPA approval on updated MDV packages and providing a compliance schedule after MDV expiration. The Department will continue to work with EPA and stakeholders to pursue these options to maximize the duration of the MDV as necessary and appropriate.

Table 2. Default interim limitations by permit term specified in s. 283.16, Wis. Stats.

Permit Term 1	•0.8 mg/L*
Permit Term 2	•0.6 mg/L*
Permit Term 3	•0.5 mg/L*
Permit Term 4	•0.5 mg/L •TP WQBEL included in WPDES permit*

*- final limit must become effective by end of permit term

Watershed Project Requirements

Similar to "pollution minimization plans" for other variances, the MDV watershed plan is designed to make economically feasible reductions to phosphorus entering surface waters of the state. There are three types of watershed projects for the MDV. The point source discharger has discretion to select the option that works best and is feasible for them:

1. County Payment Option - Make payments to counties in the same HUC 8 basin[4] of $50 per pound, plus inflation, times the amount equal to the difference between what they discharge and a target value. Payments are capped for any one point source at $640,000 per year.

> *Note: The $50/lb multiplier is adjusted annually to account for inflation pursuant to s. 283.16(8)(a)(2), Wis. Stats.*

2. Self-directed Option - Enter into an agreement with DNR to implement a plan or project designed to result in an annual reduction of phosphorus from other sources in the HUC 8 basin in an amount equal to the difference between what they discharge and a target value.

3. Third party Option - Enter into an agreement with a third party and approved by DNR to implement a plan or project designed to result in an annual reduction of phosphorus from other sources in the HUC 8 basin in an amount equal to the difference between what they discharge and a target value.

> For each of the three MDV watershed options, the target value will be either the wasteload allocation in an EPA-approved TMDL area or a 0.2 mg/L target value, depending on the type of limitation from which the point source discharger is seeking the variance (s. 283.16(1)(h), Wis. Stats.). TMDLs approved after April 25th, 2014 do not impact target values. Permittees located in

[4] Guidance is available for identifying HUC 8 watershed boundaries in Appendix B of the Guidance for Implementing Water Quality Trading in WPDES Permits, using the DNR's Surface Water Data Viewer.

recently established TMDL areas (e.g. Wisconsin River Basin, Upper Fox and Wolf River Basins, Milwaukee River Basin, Northeast Lakeshore Area) retain 0.2 mg/L as the applicable target value.

All watershed options require annual reports be submitted to DNR, to verify that the watershed plan was implemented correctly, and the minimum MDV requirements were met. Table 3 provides a general comparison of these watershed options. See Chapter 3 and Chapter 4 for additional information about these watershed project requirements.

Table 3. Comparison of the watershed project options.

Statutory Requirement (s. 283.16, Wis. Stats.)	Self-Directed/Third Party Options	County Payment Option
Project or Plan to reduce P entering waters of the state	Enter into binding written agreement with DNR or another entity to reduce P pollution Project must achieve annual P reduction in amount equal to the difference between the annual amount of P discharged by point source and target value Project **does not** have to be consistent with County LWRM plan Project **does not** have to assess land and land use practices in county and then identify watershed or project with greatest potential to reduce P per acre entering state waters Projects that involve activities tied to performance standards and prohibitions may wish to document compliance with those performance standards and prohibitions and associated technical standards Project must be reviewed and approved by DNR	No binding written agreement with DNR or another entity to reduce P pollution County payment value based on the difference between the annual amount of P discharged by point source and target value Plan for using MDV funds must be consistent with County LWRM plan Plan must assess county land and land use practices and identify watershed or project with greatest potential to reduce P per acre entering state waters Plan must describe measures to ensure P reduction projects are completed and evaluated via cost sharing and staff effort(s) Plan must be reviewed and approved by DNR
MDV funds	Project costs are not specified Permittee (or permittee's agent) works directly to reduce other sources	Payments based upon $50 per pound, plus inflation, of P discharged by point source above target value; payments cannot exceed $640,000/year

	of phosphorus pollution in the watershed Project not limited to county territory within basin point source is located No cost sharing, staff or monitoring limitations	County receives funds based upon portion of county territory within the HUC 8 basin point source is located and number of participating counties within that basin 65% of payments to counties must be used for providing cost sharing under 281.16(3) and (4) 35% of payments can be used for funding staff to implement projects that reduce P entering waters of the state or for monitoring or modeling to evaluate the amount of P within state waters for planning purposes
Reporting	Permittee responsible to submit annual report to DNR Quantify, in pounds, the associated P reductions, using accepted modeling technology P reductions must at a minimum be in an amount equal to the difference between the annual amount of P discharged by point source and target value DNR reviews annual report to determine if project is meeting annual P pounds reduction and other requirements met If DNR finds project is not effectively reducing P entering state waters, it shall terminate or modify the project.	County responsible to submit annual report to DNR. Reports will be shared with DATCP and permittee(s) that provided MDV payment Describe implemented projects/practices that county provided cost sharing, staff funded with MDV payments, and quantify, in pounds, the associated P reductions using accepted modeling technology P reductions do not have to be equal to the difference between the annual amount of P discharged by point source and target value DNR reviews annual report to ensure MDV requirements are met and MDV money is being spent appropriately If DNR finds county is not using payments to effectively reduce P entering state waters, it may

		require permittees to eliminate or reduce future payments to county

Pursuant to s. 283.16(8)(a)2. Wis. Stats., the county payment price per pound is updated annually based on the change in U.S. consumer price index that occurred over the past year. DNR obtains this information from the federal Department of Labor at the beginning of each calendar year, and the updated amount goes into effect for permits reissued starting on April 1st. The price per pound in effect at time of permit reissuance applies to all years of the permit.

County payment price per pound, by year, since MDV approval:
2017 - $51.10
2018 - $52.02
2019 - $53.01
2020 – $54.23
2021 - $54.99

Reconsidering the Need for the MDV

As part of the triennial standards review, DNR is responsible for evaluating any new information to determine if a review of the final economic impact determination is necessary and appropriate. The triennial standards review is a comprehensive evaluation of Wisconsin's water quality standards or related guidance for development or revision during the upcoming three years. If it is appropriate to re-evaluate the final EIA, DOA and DNR must review the determination in light of a number of factors including the availability and cost-effectiveness of new technology. Other reviews will also be conducted throughout the term of the MDV. Section 5.04 (p. 75) describes the triennial standard review as well as other MDV review requirements in more detail.

As part of the 2018 – 2020 triennial standards review cycle, DNR solicited technical information on the phosphorus multi-discharger variance, as required by s. 283.16(2m), Wis. Stats. DNR did not receive any information from the public indicating that a formal review under s. 283.16(3) Wis. Stats. should be undertaken. Furthermore, no there was no substantive knowledge of technology that has become reasonably available that is likely to result in any of the following:

1. Enable point sources to comply with effluent limitations for phosphorus that are more stringent than those in Wis. Stats. 283.16(6)(a).

2. Enable any category of point sources to comply with effluent limitations for phosphorus that are more stringent than those in Wis. Stats. 283.16(6)(a).

3. Enable more cost-effective compliance with effluent limitations for phosphorus that are more stringent than those in Wis. Stats. 283.16(6)(a).

Chapter 2- Instructions for Point Source Dischargers

Several documents should be completed by the point source discharger to demonstrate the need for the MDV and to successfully implement the MDV requirements. These documents include:

- Form 3200-149: Industrial MDV Application (Section 2.02)
- Form 3200-150: Municipal MDV Application (Section 2.02)
- Form 3200-151: MDV Payment Verification Form (Section 2.03)

The purpose of this chapter is to provide instructions for successfully completing these forms and to provide point sources with direction when comparing the MDV option to other permitting compliance options (Section 2.01).

Chapter 2

Section 2.01: Eligibility for the MDV and Comparison with Other Permitting Options

Author: Amanda Minks and Matt Claucherty
Last Revised: August, 2019

The MDV is an option for point source dischargers to receive temporary relief from complying with phosphorus limits where facility upgrades would have significant economic impacts. It is not a permanent compliance solution. Permanent compliance options include optimization of existing on-site treatment practices, upgrading existing on-site treatment to comply with phosphorus WQBELs, Wisconsin's adaptive management option, and water quality trading. Comparing the MDV to these compliance options is similar to deciding whether to rent an apartment or buy a house; a point source discharger may wish to evaluate the cost of the MDV to the cost of the other compliance options to ensure that the MDV is a cost-saving and economically viable alternative. This is also an important exercise to verify that a major facility upgrade is needed to comply with the phosphorus limits, which is an important eligibility factor for the MDV.

MDV Eligibility

Not all point sources are eligible for the MDV. Therefore, a facility will need to investigate their eligibility before they can compare this option to other compliance options. It is up to the permittee to submit a completed application (see Section 2.02, p. 23) to the Department to confirm their eligibility. Here are some basic questions to consider when making preliminary eligibility determinations:

1. Is the facility located in a potentially eligible MDV area? (see Appendix H, p. 99, for details)
2. Is a major facility upgrade (tertiary filtration or equivalent) needed to comply with the final phosphorus limits?
3. Do I meet the eligibility criteria provided in the "MDV economic eligibility criteria" subsection below (see p. 20)?
4. Is my facility able to reduce the amount of phosphorus entering waters of the state pursuant to s. 283.16(6)(b), Wis. Stats. through county payments or watershed project(s)?

If all of the applicable questions above are answered "yes", the facility may be eligible for the MDV and wish to evaluate the potential costs of the MDV.

MDV Implementation Costs

Determining costs for the MDV will be site-specific. Costs may be incurred from complying with more restrictive interim phosphorus limits and from implementing a watershed project. To come up with a cursory estimate of costs for the MDV, it may be beneficial to calculate the costs under the "county payment option", recognizing that these will not be the full costs of the MDV but a reasonable basis to compare against other compliance options. To calculate the annual payments under the county payment option use the calculation specified in s. 283.16(8), Wis. Stats., and shown below. This calculation varies based on the applicable target value (i.e. TMDL versus 0.2 mg/L) as illustrated in Figure 2. In either case, the phosphorus load that exceeds the target value during the calendar year is

multiplied by $50 per pound plus inflation that has occurred since 2015 (the specific value will be specified in the WPDES permit).

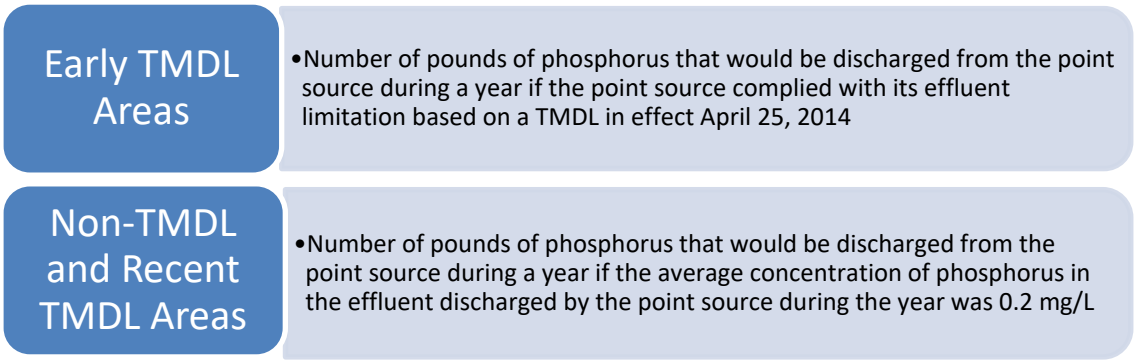

Figure 2. Target value, as defined in s. 283.16(1)(h), Wis. Stats.

Note: This calculation only applies to the months that the point source is seeking coverage under the MDV. If a point source is seeking a variance for August, for example, this calculation should only be performed using the effluent data for that month.

Calculation of Annual Payment

1. Calculate the phosphorus load in lbs discharged for each month that the MDV is in effect as follows: Monthly Avg. Flow (MG) × Monthly Avg. TP effluent conc. (mg/L) × 8.34 = TP load (lbs/month)

(Note: Monthly Avg. TP effluent conc. = Sum of all daily effluent results for the month divided by the number of results for that month.)

2. Sum the lbs/month for the months that the MDV is in effect during the calendar year to calculate the lbs of phosphorus load discharged for the calendar year.

3. Calculate the target value in lbs/month for the months that the MDV is in effect during the calendar year.
    a. TMDL scenario:
        i. Convert the monthly average TMDL-derived limit in lbs/day to lbs/month by multiplying the lbs/day limit by the number of days in the month;
        ii. Sum the lbs/month for the months that the MDV is in effect during the calendar year to calculate the target value in lbs for the calendar year;
    b. Non-TMDL scenario:
        i. Convert the target value of 0.2 mg/L to lbs/month by multiplying 0.2 mg/L x Total Monthly Flow in MG x 8.34;
        ii. Sum the lbs/month for the months that the MDV is in effect during the calendar year to calculate the target value in lbs for the calendar year;

4. Subtract the calculated target value (step 3) from the phosphorus load discharged for the calendar year (steps 1 and 2), then multiply by $50[5] lb per pound to determine the annual county payment.

Example: A facility discharges to a receiving water that is not covered by an approved TMDL. The facility is seeking a variance from a phosphorus limit set equal to 0.075 mg/L for the full calendar year. The total annual flow for this facility is 14 MG. The annual average effluent concentration of phosphorus is 0.8 mg/L. This means the projected annual payment for this facility would be $3500/yr. This means that this facility would spend $35,000 over a ten-year period to comply with the watershed requirements for the MDV. Again, these costs do not include costs to comply with interim phosphorus limits. Costs for achieving MDV interim limits (such as a minor facility upgrade) should also be evaluated when considering options.

Step 1 and 2: Calculate the phosphorus load

14 MG × 0.8 mg/L × 8.34= 93.4 lbs/yr

Step 3: Calculate the target value

(0.2 mg/L x 14 MG) x 8.34] = 23.4 lbs/yr

Step 4: Calculate the annual payment

93.4 lbs/yr – 23.4 lb/yr = 70 lbs/yr x $50 lb[7] = $3500/yr

County Payment Option When Discharging Below Target Value

The example equations shown above assume an annual average effluent phosphorus concentration of 0.8 mg/L, resulting in a calculated county payment of $3500. As phosphorus concentrations decrease, the county payment value also decreases. When phosphorus effluent concentrations are below the target value (0.2 mg/L, or TMDL limit if applicable), the calculation results in a $0 or negative payment value. While it is expected that most dischargers are unable to attain the target value through traditional phosphorus removal without a major facility upgrade, it is possible that some dischargers can reach these levels utilizing chemical or biological phosphorus removal. At the time a facility submits a MDV application, past data will be evaluated to determine if the facility has already achieved effluent concentrations below the applicable target value, which would result in $0 as the calculated payment value. If there is reason to suspect that county payments will not be made during the upcoming permit term, the variance cannot be approved with the county payment option selected as the watershed project to fulfill requirements of s. 283.16(6)(b) Wis. Stats.

[5] This value will be adjusted for inflation and specified in the WPDES permit.

The MDV relies upon nonpoint source offsets to conform to federal variance requirements. As such, nonpoint source offsets were essential for obtaining federal approval of the variance. Pursuant to s. 283.16(9) Wis. Stats., the department must conform to the provisions of 40 CFR 131.14 (federal code for variances) when approving and implementing a MDV for a facility. To provide flexibility to dischargers that have optimized phosphorus removal to below target value and still qualify for coverage under the variance, the other watershed project options (self-directed or third party) may be utilized, provided the project makes a meaningful reduction in nonpoint source phosphorus pollution. See Chapter 4 for more information on self-directed and third party watershed projects.

Comparing MDV to Other Options

To make this comparison, point sources should investigate the types of treatment that may need to be added to their facility and if these technologies can consistently provide compliance with applicable phosphorus WQBELs. It is noted that in some cases treatment technology may not be readily available to offer consistent compliance with the phosphorus WQBELs. This may be especially true for facilities that have high concentrations of soluble non-reactive phosphorus in their effluent stream and very low phosphorus limits less than 0.075 mg/L. This information should be readily available for facilities that have already gone through facility planning or a preliminary compliance alternative plan. If a facility has not gone through facility planning, they may wish to complete this planning effort or perform a preliminary analysis to estimate project compliance costs. Facilities may also consider the projected compliance costs developed by ARCADIS using a cost curve analysis when site-specific factors are consistent with the assumptions of the analysis (see Section 2 of the "Economic Impact Analysis" http://dnr.wi.gov/topic/surfaceWater/documents/phosphorus/PhosphorusEEIAreport.pdf).

Adaptive management and water quality trading are other compliance options that should also be considered when evaluating the feasibility of the MDV. If the facility has not already evaluated adaptive management/water quality trading, the first step is to determine the facility's eligibility for these programs. Typically, point sources whose receiving waters are dominated by point source phosphorus loads are not good candidates for these programs. DNR has already calculated the point to nonpoint source phosphorus loadings for many permitted municipal and industrial facilities using a GIS-based model called "Pollutant load Ratio EStimation TOol (PRESTO)". To look up the point to nonpoint source ratio at a facility, or to find more information about the PRESTO model, visit http://dnr.wi.gov/topic/surfacewater/presto.html. To be eligible for adaptive management, a permittee should be in a nonpoint source dominated watershed, in a watershed with an approved TMDL, or in a watershed where nonpoint sources must be controlled to meet water quality goals. Next, the facility may wish to estimate the phosphorus offsets that would need to be generated to comply with these options. Guidance for making these calculations is provided in the Adaptive Management Technical Handbook and the Guidance for Implementing Water Quality Trading in WPDES Permits (http://dnr.wi.gov/, keywords "adaptive management" and "water quality trading"). There are several other factors when determining if water quality trading and adaptive management are viable compliance options. These can include political viability of these options, ease of finding offsets/reductions, availability of willing partners and stakeholders, existing staff resources, risk and uncertainty associated with trading/adaptive management reductions, and other factors. If the

permittee believes that these options are viable, costs should be estimated. Trading and adaptive management costs will be site-specific and depend on the practices to be installed, the amount of administrative overhead, practice operation and maintenance costs, etc. County Land and Water Conservation Departments may have valuable insights into approximating costs for practices at the local level.

Comparing the MDV to Individual Phosphorus Variances

The WPDES variance process, prior to adoption of the MDV, relied solely upon s. 283.15 Wis. Stats. and s. NR 217.19 Wis. Adm. Code. Phosphorus variances approved under s. 283.15 Wis. Stats. are now commonly referred to as individual phosphorus variances. Individual phosphorus variances may be available to facilities that meet economic eligibility criteria and are unable to be covered under the MDV. Conditions that may result in the MDV being technically or economically infeasible for a facility include but are not limited to:

- Not being located in a MDV eligible area (see Appendix H, P.91).
- The facility is unable to attain MDV interim limits without resulting in widespread substantial adverse social/economic impacts. The maximum interim limit under s. 283.16 is 1.0 mg/L.
- The facility is unable to achieve the offset required per s. 283.16(6)(b) Wis. Stats. without resulting in widespread substantial adverse social/economic impacts.
- A major facility upgrade is not required to achieve the WQBEL for phosphorus.

Pursuant to 40 CFR 131.14(b)(ii), variances to water quality standards must meet highest attainable condition requirements. Highest attainable condition refers to the greatest pollutant reduction achievable at the facility, coupled with the greatest achievable pollutant reductions through a pollutant minimization plan. EPA's review of MDV conditions confirms that the pollutant minimization actions set forth in MDV requirements represents the highest attainable condition for a phosphorus variance. Therefore, if the MDV is technically and economically feasible for a facility, an individual phosphorus variance will not be approvable. Section 283.16(9), Wis. Stats., requires that decisions to grant coverage under the MDV be consistent with the highest attainable condition under 40 CFR 131.14.

MDV economic eligibility criteria

When requesting coverage under the MDV, a point source must provide information to the Department to document that the substantial impact determination under Wis. Stats. 283.16(2)-(3) applies to the individual point source as is required under Wis. Stats. 283.16(4)(a)1. These eligibility indicators are described in Section 5 of the Final Economic Determination and are summarized in Table 4.

For municipal permittees, phosphorus compliance costs are deemed to have a substantial impact and a permitted WWTF may be eligible for coverage under the MDV, in the following two scenarios:

1. Based on data that are available at the time that a municipal WWTF is seeking coverage under the MDV, if the estimated per-customer cost is at least 2% of Median Household Income (MHI), then phosphorus compliance costs are deemed to have a substantial impact on municipal WWTFs if at least two secondary indicator points are met (see Appendix A, p. 78).

2. Based on data that are available at the time that a municipal WWTF is seeking coverage under the MDV, if the estimated per-customer cost is at least 1% of MHI but less than 2% of MHI, then phosphorus compliance costs are deemed to have a substantial impact on municipal WWTFs if at least three secondary indicator points are met (see Appendix A, p. 78). The substantial impact is less obvious for municipal WWTFs with service areas in this MHI range, so these municipal WWTFs face a higher secondary indicator threshold.

For industrial permittees that are not included in the power sector, the phosphorus compliance costs are deemed to have a substantial impact on an industrial permittee and an industrial permittee is eligible for coverage under the MDV in the following two scenarios:

If the facility meets a secondary score of <u>two or less</u> (see Appendices B-F):

An industrial permittee is eligible for coverage under the MDV, if the permittee meets <u>two</u> primary screening conditions (see Appendix G, p. 96):

a. the permitted facility is within the top 75% of permittees incurring costs within that category; **and**
b. the permittee's discharge is located in a county that is within the top 75% of counties incurring costs for that category;

If the facility meets a secondary score <u>greater than two</u> (see Appendices B-F):

An industrial permittee is eligible for coverage under the MDV, if the permittee meets <u>one</u> of the following primary screening conditions (see Appendix G, p. 96):

a. the permitted facility is within the top 75% of permittees incurring costs within that category; **or**
b. the industrial facility's discharge is located in a county that is within the top 75% of counties incurring costs for that category;

Industrial dischargers which do not meet the substantial impact test and are not eligible for coverage under the MDV if they don't meet either primary screening condition.

Note: For discharges in the power sector, it was not possible to collect sufficient data regarding whether power plants' phosphorus compliance costs would have a substantial impact on Wisconsin's economy at this time. Therefore, the MDV is not available to this category of discharge at this time (s. 283.16(2)(a), Wis. Stats.)

If a municipality is straddling a county line, the secondary score will be a weighted average of the two counties based upon the number of users located in each county.

Table 4. Economic eligibility criteria.

Screener Type	Applicable Category	Screener	Scoring
Primary Screener	Municipal	Sewerage rates at least 1% but less than 2% of MHI[1]	A secondary score of at least 3 to qualify
	Municipal	Sewerage rates at least 2% of MHI[1]	A secondary score of at least 2 to qualify
	All Industrial Categories	Permitted facility 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; If only one met, a secondary score of at least 3 is needed to qualify
	All Industrial Categories	The industrial facility's discharge must be located in a county that is within the top 75% of counties incurring costs for that category	
Secondary Screener[2]	All Categories	County Personal Current Transfer Receipts Share to Total Income>16.7%	Score=1
	All Categories	County Jobs per Square Mile<53	Score=1
	All Categories	County Population Change<3.8%	Score=1
	All Categories	County Change in Net Earnings<37.6%	Score=2
	All Categories	County Employment Change<6.1%	Score=1
	All Industrial Categories	County MHI[1]<$57,652	Score=1
	Cheese Manufacturing, Food Processing, Aquaculture, and Paper	Capital Cost as a % of County Payroll>1%	Score=2

1- MHI= Median Household Income

2- Secondary screener thresholds will be updated when DNR makes future updates to this document.

Chapter 2
Section 2.02: Instructions for Completing MDV Applications

Author: Amy Garbe
Last Revised: August, 2019

Once the MDV has been selected, a facility can apply for the MDV by submitting the corresponding application form (municipal or industrial) and supporting documentation. Both applications are similar; however, there are specifics that uniquely pertain to municipal or industrial facilities. Applicable sections are described in the following section. Public comments will be solicited on MDV applications as part of the permit reissuance process prior to the MDV taking effect in a WPDES permit.

Variance Request Schedule

According to s. 283.16(4)(b), Wis. Stats., a facility may apply for the MDV at any of the following times:

1. As part of the application for reissuance of the permit.
2. Within 60 days after the Department reissues or modifies a permit to include a WQBEL for phosphorus.
3. During the permit term if the permit was reissued containing a WQBEL for phosphorus prior to April 25, 2014. Note: Permit modification notification also required in this case.

Municipal facilities shall apply for the MDV by filling out form 3200-150, and industrial facilities shall fill out form 3200-149. Completed forms should be submitted to the local wastewater compliance staff.

Permittees that apply for continued coverage in subsequent permits will need to apply for the MDV at the time of permit reissuance in accordance with s. 283.16(4)(am)(1), Wis. Stats.

Variance Eligibility Requirements

As part of the application, a facility must certify that pursuant to s. 283.16(2)(a), Wis. Stats., a major facility upgrade is needed to achieve compliance with the selected phosphorus WQBEL(s). A "major facility upgrade" is defined as installing new equipment and a new process such as filtration or equivalent technology. This is consistent with the assumptions made within the Economic Impact Analysis. The facility must also certify that it is an existing point source (authorized by a WPDES permit prior to December 1, 2010) and located in an eligible MDV county as specified in Appendix H.

A facility also needs to clarify which WQBEL the variance is being requested for, since the MDV can apply to a concentration-based limit pursuant to s. NR 217.13, Wis. Adm. Code, or to TMDL mass limits pursuant to s. NR 217.16, Wis. Adm. Code. If neither limit can be achieved, the more stringent of the two limits should be selected. For TMDL mass limits, a MDV can be requested only for those months when limits cannot be met through optimization or a minor facility upgrade. For example, if a facility is unable to meet limits in June through August, only those months may be selected for the MDV instead of the entire year.

Determination of Interim Limits

To assist in the determination of interim limits, a facility should submit current effluent quality based on the last three years' worth of data. A 30-day P99 calculation is considered the most representative value that a facility can consistently meet and therefore a facility should calculate a P99 value of their effluent data. Effluent data used to make this calculation should be representative of current effluent conditions, so other effluent sampling periods may be considered if necessary. Additionally, specific data points within the range of data may be excluded if they are not representative of typical effluent conditions. This may occur during periods of significant wet weather events, plant upsets, or in other situations. For the first permit term, the default interim limit is 0.8 mg/L; however, as stated earlier, interim limits will be calculated on a case-by-case basis.

It is important to consider effluent variability when considering the appropriateness of more restrictive effluent limitations when included pursuant to s. 283.16(7) Wis. Stats. If a facility has relatively consistent effluent phosphorus concentrations, a 30-day P99 may be used to establish an appropriate interim limitation for the discharge. Alternatively, the Department may use a shorter duration P99 calculation for seasonal discharges, or peaking operations. In some cases, however, setting effluent limitations equal to the current effluent quality is inappropriate given the variability of effluent phosphorus concentration over time, and the fact that treatment facilities need to operate below their effluent limitations to ensure that they maintain compliance with these limits. In these cases, it is recommended that the statistical approach specified on pages 100-106 of EPA's "Technical Support Document for Water Quality-based Toxic Controls" (EPA/505/2-90-001, March 1991) be considered when establishing these limitations or these limitations be based on a 30-day P99.

This approach can be used to determine an appropriate effluent limitation given effluent variability over time where the average monthly limits is equal to the long-term average times a multiplication factor:

$$AML = LTA * Multiplication\ Factor\ (Table\ 5)$$

Where:

AML= average monthly limit

LTA= long-term average= $Effluent\ TP\ concentration * Wasteload\ allocation\ multiplier\ (Table\ 6)$

CV= Coefficient of variation

n= Number of samples

Table 5. Multiplication factor.

CV	Wasteload allocation multiplier			
	n=1	n=2	n=4	n=30
0.1	1.25	1.18	1.12	1.04
0.2	1.55	1.37	1.25	1.09
0.3	1.90	1.59	1.40	1.13

0.4	2.27	1.83	1.55	1.18
0.5	2.68	2.09	1.72	1.23
0.6	3.11	2.37	1.90	1.28
0.7	3.56	2.66	2.08	1.33
0.8	4.01	2.96	2.27	1.39
0.9	4.6	3.28	2.48	1.44
1.0	4.90	3.59	2.68	1.50

Table 6. Wasteload allocation multipliers.

CV	Wasteload allocation multiplier
0.1	0.891
0.2	0.797
0.3	0.715
0.4	0.643
0.5	0.581
0.6	0.527
0.7	0.481
0.8	0.440
0.9	0.404
1.0	0.373

Using any of the approaches specified above, or other scientifically supportable approach approved by the facility's WQBEL calculator, interim limits can be calculated on a case-by-case basis to represent the interim limit supporting highest attainable condition for a specific facility. At each permit reissuance, if the MDV is requested, the highest attainable condition will be reevaluated.

Facility Information

General facility information is required as part of the application for both municipal and industrial facilities. This information includes additives, water supply source, and optimization actions. A flow diagram should be submitted along with the application with all chemical feed points and internal waste streams identified. A monthly average influent phosphorus result should also be submitted if available.

It is noted that all WPDES permits that contain a phosphorus compliance schedule already require the permittee to develop and implement a phosphorus discharge optimization plan. The facility should clarify as to the status of the optimization plan, whether it has been approved, is being developed, or not yet started. If an optimization plan has not been approved, a requirement for development of a plan will be included in the WPDES permit.

A summary of optimization actions, for those facilities that have performed optimization, should be attached. Facilities that have completed year 1 or year 2 phosphorus compliance schedule reports may submit the more recent of the two reports. If any additional planning or phosphorus evaluation studies

have occurred recently or are otherwise applicable to the existing facility, these reports should be noted and attached.

Projected Compliance Costs

Facilities must provide site-specific compliance costs information to the Department as part of the MDV application. It is anticipated that facilities who are submitting a MDV application during their phosphorus compliance schedule, or with a permit application for their second permit with phosphorus WQBELs, will have site-specific costs that were developed as part of the Year 3 or 4 Preliminary or Final Compliance Alternatives Plan. If this is the case, the facility should submit the cost estimates of that plan; otherwise, a facility should generate site-specific costs prior to submittal of the application. These engineered site-specific cost estimates should reflect the lowest cost treatment option that can reliably achieve compliance with the phosphorus limitations. Projected compliance costs should be based on net present value (NPV) and clearly specify the loan period and discount rates utilized. Unless clear justification is provided to support an alternative discount rate, compliance costs should be based on applicable discount rates established by the EPA in accordance with Section 80(a) P.L.93-251 (88 Stats. 34), Section 704.39(a) of the Water Resources Council's Rule and Regulations (Clean Water Fund Loan) at the time the cost evaluation was completed. Department staff will be reviewing treatment and cost information for completeness and reasonableness, and will likely utilize the "Phosphorus Checklist to Completeness: Third Year Preliminary Report" checklist to aid in this review (see Section 3.04 of the Phosphorus Implementation Guidance). Additionally, the department will evaluate estimated compliance costs on MDV applications submitted by municipal facilities by comparing the values to an estimate specific to that facility prepared as part of the Economic Impact Assessment (EIA) Addendum. This evaluation process should provide adequate review and verification of reasonable compliance cost estimates. Compliance costs should be updated for each subsequent MDV application.

In some unique situations, a facility may not have site-specific compliance costs, and generating these costs may be burdensome. In these cases, a facility may consider their projected compliance costs specified in the EIA Addendum. If the facility can certify all of the following, these projected compliance costs may be used as representative site-specific compliance costs:

- Chemical precipitation followed by filtration is the preferred technology, not biological phosphorus removal or other treatment technologies;
- Technology needed is consistent with the assumptions made to derive the cost curves;
- Design and actual flows used in EIA are accurate for current conditions; and,
- Effluent TP concentration (based on a 30-day P99 or other appropriate statistical method) is >0.6 mg/L.

Department staff have discretion to approve the use of the projected compliance costs on a case-by-case basis. If a facility cannot certify all of the above, and/or Department staff do not believe these costs are accurate, a separate analysis must be used to generate these costs.

Alternative Phosphorus Compliance Options

As stated in Section 2.01, p. 19, trading and adaptive management should also be considered when determining phosphorus compliance options and potential costs of compliance. The department understands that some facilities may be ineligible for these programs, or the programs are not viable for a variety of reasons. Political viability, ease of finding offsets/reductions, availability of willing partners and stakeholders, existing staff resources, risk and uncertainty associated with trading/adaptive management reductions, and other factors may impede a permittee's ability to utilize these options. It is up to the permittee to determine if these options are viable for the facility, and, if so, what the cost of these options would be. Permittees may wish to reach out to their regional DNR AM/WQT coordinators for assistance with this evaluation. In most cases Department staff will rely on Sections 6 and 7 of the "Phosphorus Checklist to Completeness: Third Year Preliminary Report" to aid in this review (see Section 3.04 of the Phosphorus Implementation Guidance). If a facility has already completed a Year 3 Preliminary Compliance Alternatives Plan, and Department staff have approved this plan, it is likely that sufficient information is already available to satisfy this portion of the MDV application.

Economic Information

The MDV economic eligibility criteria are specified in Section 2.01, p. 20. For municipal facilities, the projected household user charge, expressed as a percent of MHI, along with supporting information needs to be included. Supporting documentation should describe current user charges and the estimated increase due to phosphorus compliance. If the Year 3 phosphorus report has described the costs, then this report should be submitted. For industrial facilities, clarification on what impacts phosphorus compliance will have on the facility should be identified. Both municipal and industrial facilities need to provide the secondary indicator score for the county. These scores can be found in Appendices A-F, depending on sector. The following webpage contains the most recently published MHI values for municipalities of Wisconsin:

https://dnr.wi.gov/Aid/documents/EIF/Guide/hardmhi.html

The above data is derived from the federal Census Bureau's American Community Survey. Only MHI data generated from the Census Bureau data is accepted for variance economic determinations. If the value provided for a specific location does not have sufficient geographic resolution for use on the variance application, a custom tabulation of the data may be used. Custom tabulations should be accompanied by a map showing which census blocks were used in the tabulation, and how these blocks align with the applicable sewer service area.

Watershed Projects

The final piece of the MDV application is the selection of a watershed project. As mentioned in Section 1.03, one requirement of the MDV is to participate in a watershed project. Chapters 3 and 4 describe the projects in more detail. As part of the application, a facility shall select a watershed project and include the corresponding form. If the permittee chooses to implement a watershed project directly, or in collaboration with a third party, the watershed plan must also be submitted with the application

form. See Chapter 4 for details. A permittee may choose the county payment option regardless of the local county's decision to participate (or not to participate) in receiving MDV funding.

Chapter 2
Section 2.03: Overall Permit Conditions

Authors: Amanda Minks and Matt Claucherty
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A WPDES permit must be reissued, modified, or revoked/reissued prior to MDV requirements taking effect. WPDES permits with MDV requirements must include the following in accordance with s. 283.16, Wis. Stats., and DOA's final economic determination:

- Interim MDV limitations;
- Phosphorus monitoring and reporting requirements;
- Optimization; and
- Watershed project provisions.

These requirements are described in more detail below.

Interim Limitations:

The Department will use the information provided on the MDV application, discharge monitoring report (DMR) data, and other sources of information to determine the appropriate interim limit for the specific MDV application. In some cases, the interim limitations will be set equal to the values provided in Table 7. More restrictive or less stringent interim limitations will be included in a WPDES permit on a case-by-case basis. Section 2.02 describes the protocols DNR staff will use when making these determinations.

Table 7. Typical interim MDV limitations pursuant to s. 283.16(6), Wis. Stats.

Permit Term 1	• 0.8 mg/L , expressed as a monthly average*
Permit Term 2	• 0.6 mg/L , expressed as a monthly average*
Permit Term 3	• 0.5 mg/L , expressed as a monthly average*
Permit Term 4	• 0.5 mg/L, expressed as a monthly average • TP WQBEL included in WPDES permit*

*- limit must become effective by end of permit term

If a WPDES permit holder is not currently in compliance with the proposed interim limitation, a compliance schedule may be granted to provide time for the point source to achieve compliance. The

length of the compliance schedule will vary depending on the current effluent quality compared to the proposed interim limitation, and the options available to achieve compliance with these limitations. The compliance schedule will lead to compliance with the interim limitations as soon as possible, as determined by the permit drafter or other applicable DNR staff, but in no case may the compliance schedule for an interim limitation exceed 5 years. The maximum interim limitation is the technology based phosphorus limitation, 1.0 mg/L as a monthly average.

Phosphorus Monitoring and Reporting:

In many cases, the frequency of phosphorus effluent monitoring will not change from existing requirements in the WPDES permit. This is especially true for MDV applicants that are requesting coverage under the MDV as part of the second permit reissuance with phosphorus WQBELs.

Note: At the end of the calendar year, DNR staff will use the System for Wastewater Applications, Monitoring, and Permits (SWAMP) to tabulate annual phosphorus discharged for those facilities that selected the county payment option. These values will be shared in an annual billing letter prior to the county payment due date. Permittees should compare these numbers to locally stored records to ensure that all data has been entered correctly into the system.

Optimization

Pursuant to s. 283.16(6)(a) Wis. Stats., the WPDES permit will include a requirement that the permittee optimize the performance of the point source in controlling phosphorus discharges. If a facility has already optimized for phosphorus, the WPDES permit will require that they continue to implement their optimization plan. It is noted that all WPDES permits that contain a phosphorus compliance schedule already require the permittee to develop and implement a phosphorus discharge optimization plan. Optimization guidelines provided in Section 4.03 of Wisconsin's Guidance for Implementing Phosphorus Water Quality Standards for Point Source Discharges will continue to be used to review optimization plan submittals for phosphorus. Facilities are responsible for ensuring actions identified in the plan are implemented.

Watershed Project Provisions:

Point sources are required to implement a watershed project to help minimize phosphorus pollution to the receiving water during the term of the MDV. A comparison of the watershed project options is provided in Table 3 of Section 1.03, p. 10. Point sources must notify the Department of their preferred watershed project option with the MDV application (see Sections 2.01, p. 16, and 2.02, p. 23, for details). If the point source chooses to enter into a binding written agreement with the Department, or work with a partner to develop a watershed plan, the plan must also be submitted with the MDV application for the Department's review and approval. Please see Chapter 4 – Self-directed/Third Party Watershed Plans for plan requirements. It is also encouraged that the watershed plan checklist (Form 3200-148) be completed to ensure watershed plans are complete and approvable. In the "county

payment option", County Land and Water Conservation Departments are responsible to develop the watershed plans and implement projects; point sources cannot place conditions on MDV funds they provide to counties (e.g., project location, BMP types, working with specific landowners).The permit conditions will be different between these options, as discussed in subsequent subsections.

County Payment Option:

In order to comply with the county payment option, the point source discharger will be responsible for providing financial resources to participating counties no later than March 1st of every year. DNR will strive to notify point sources of necessary payments before payments are due to the county, via written and email correspondence. The WDPES permit holder must ensure that adequate financial resources went to the correct county no later than March 1st. Therefore, the schedule section of the WPDES permit will require that financial resources be sent to participating counties no later than March 1st of every year. Additionally, the WPDES permit will require that form 3200-151 be completed and submitted to DNR no later than March 1st of that year. The purpose of this form is to verify that correct payments were made.

The method for calculating payments for non-TMDL derived limitations is as follows:

(Previous Annual Phosphorus Loading – Target Annual Load) *$50/lb[6]

Where:

Previous Annual Phosphorus Load = ∑ [(Total Monthly Flow × Avg. Monthly TP Concentration × 8.34)*Number of days per month];

Monthly Avg. TP effluent conc. = Sum of all daily effluent results for the month divided by the number of results for that month;

8.34 = Conversion Factor;

Target Annual Load =0.2 mg/L*Total Annual Flow*8.34;

0.2 mg/L = Target value specified in 283.16(1)(h), Wis. Stats.

The method for calculating payments for TMDL derived limitations (with a TMDL derived target value) is as follows:

∑ (Previous Monthly Phosphorus Loading– Monthly TMDL Derived Limit *$50/lb)

Previous Monthly Phosphorus Loading = Total Monthly Flow × Avg. Monthly TP Concentration × 8.34

[6] This value is adjusted to account for inflation. See Section 5.01 for details.

Note: Only those months relevant to the variance should be used in this calculation. If point sources are in compliance with TMDL-derived limits for some months out of the year (as reflected in the WPDES permit), these months should be excluded from the calculation.

Other Watershed Project Options:

For the other two watershed project options (i.e., self-directed, third party), the WPDES permit holder will be responsible for generating an annual offset of their phosphorus load in an amount equal to the difference between the annual amount of phosphorus discharged and the target value (as calculated using the methods above). These WPDES permits will include the method for calculating the total annual offset needed in the footnote section of the limit table. In the schedule section of the WPDES permit, annual reports will be required to be submitted to the DNR no later than May 1st of every year. These annual reports will require annual tracking of projects, practice verifications, etc. See Section 3.05, p. 53, for details. In addition to these requirements, the WPDES permit will also include the following:

- A watershed plan number that will be used to generate these offsets;
- A statement that the point source must comply with the MDV interim limits regardless of the offset generated;
- A requirement that offsets must be generated under the approved watershed plan;
- A requirement that the permittee notify the Department when the necessary offsets will not be generated; and
- Other terms determined to be appropriate by the Department on a case-by-case basis.

When developing a watershed plan, it is important to note that the entire annual offset required under s. 283.16(6)(b) Wis. Stats. is required to be in place for the first year of the permit term in which MDV provisions are included. Therefore, the Department will not approve a MDV watershed plan under s. 283.16(6)(b)2. or s. 283.16(6)(b)3. Wis. Stats. unless the offsets will be in place at time of permit reissuance. Point sources are recommended to consult with county land conservation department staff to identify suitable sites/landowners for watershed projects. Permittees unable to satisfy the self-directed or third party offset requirements of statute may select the county payment option to satisfy the requirements of s. 283.16(6)(b) Wis. Stats.

Blending Watershed Options:

The expectation is that point source discharges will select one watershed project option. However, in some unique situations point sources may blend watershed project options. DNR staff should be contacted during development of a blended watershed approach. If a combination of multiple watershed options is preferable, the WPDES permit will reflect the requirements of both watershed approaches.

Pursuant to s. 283.16(6)(b) Wis. Stats., the required watershed offset is defined as an annual value. Therefore, watershed projects may only be blended on an annual basis. In other words, for a given year, the permittee may choose to satisfy variance requirements with a county payment **or** self-directed /

third party offset. The full offset quantity (difference between annual loading and target value) must be obtained through a single means for a given year (county payments or a self-directed/third party watershed plan). This option may be desirable when additional time is needed to install a self-directed or third party watershed project. In this instance, the variance may be granted and permit reissued with provisions for the county payment made annually until the first year of watershed offset is available. Permits issued with a blended watershed approach will reflect what years the county payment or the self-directed watershed plan applies (e.g., for a five-year permit, years 1 and 2 will be met with the county payment option and years 3-5 will be met with the self-directed/third party option).

Chapter 3- Instructions for County MDV Projects

The purpose of this chapter is to help counties evaluate their interest in participating in the MDV program and understand program expectations under the "county payment option". County participation in the MDV is completely voluntary. If counties participate, they agree to comply with the requirements of this program to the best of their ability. In order to participate in the MDV, counties must submit a participation request by creating a new project record in the BMP Implementation Tracking System (BITS) no later than January 1st of the year the county wishes to receive MDV funds. See Section 3.02 for details. Once a county has submitted a participation request and received MDV funding, they are also responsible to submit a watershed plan and annual report to the DNR in accordance with s. 283.16(8), Wis. Stats., see Sections 3.04 and 3.05 for details. A description of the timing of these requirements is provided in Section 3.01.

By participating in the MDV, counties will have access to additional financial resources for nonpoint source pollution control activities, including funds to supplement staff costs. Additional information about MDV funding and restrictions is provided in Section 3.03.

Chapter 3

Section 3.01: Timeline of Requirements

Author: Amanda Minks

Last Revised: January, 2020

From start to finish, the MDV program has a recurring 28-month reporting timeline as illustrated in Figure 3. As previously stated, the county participation request is due no later than January 1st of the year the County wishes to receive MDV funds (Section 3.02). By completing this request using BITS, the county will receive payments no later than March 1st. Next, a watershed plan (Sections 3.04) must be submitted to DNR no later than one year after receiving the MDV payment. An annual report must also be submitted to DNR no later than May 1st of the following year that the plan has been submitted (Section 3.05). For example, a county wishes to receive MDV funding in 2021. The County must first submit the county participation request no later than January 1st, 2021. The county then receives MDV payments from point sources no later than March 1st, 2021. The watershed plan for this county must be submitted to DNR by March 1st, 2022, and the annual report is due to DNR no later than May 1st, 2023. This timeline continues into the future as the county continues to participate and receive MDV funds.

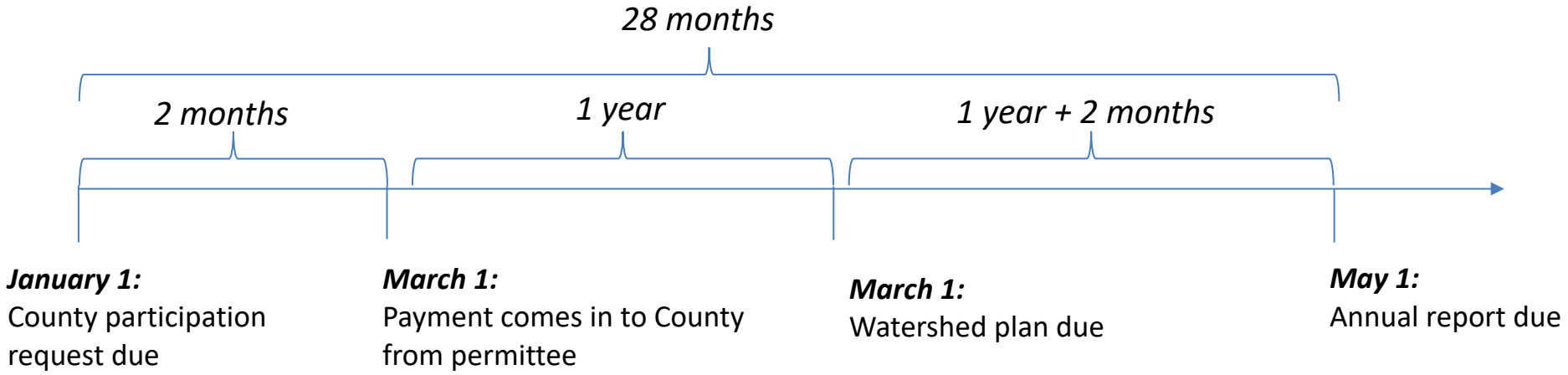


Figure 3. Timeline of county MDV submittals.

Chapter 3

Section 3.02 Instructions for Completing the County Participation Request in BITS

Author: Matt Claucherty

Last Revised: January, 2021

Counties that wish to participate in the MDV should make a request to DNR no later than January 1st. Failure to do so may terminate a county's eligibility to receive MDV funds during the upcoming year. The county participation request is made in BITS by establishing a project, selecting HUC 8 watersheds in which to participate, and certifying the request. Step-by-step directions for navigating BITS are available in the BITS User Manual: MDV Module. To prevent confusion and help identify and locate projects within BITS, counties should provide the year in which funding was received and county name for each project name submitted (e.g., 2020 Marathon County). A complete participation request is indicated by green check marks present for all steps, as shown in the BITS screenshot below.

The project established during the participation request phase will be used throughout the 28-month planning and reporting timeline for a given year's funding. Planning and reporting steps are discussed in sections 3.04 and 3.05 of this document.

A tutorial video has been created to demonstrate starting a project in BITS and completing the MDV participation request. A link to the video is found on the following webpage:

https://dnr.wi.gov/topic/wastewater/phosphorus/countyResources.html

Please note that a web access management system (WAMS) user account is required to access BITS. To create a WAMS account, use the below link and follow the prompts on the screen.

https://on.wisconsin.gov/WAMS/SelfRegController

Once a WAMS ID is created, you must get permission to access BITS. Email Anil Patel (anil.patel@wisconsin.gov) and Eric Hettler (eric.hettler@wisconsin.gov) and provide your WAMS ID.

It is strongly advised that counties discuss participating in the MDV program with their county boards and/or other applicable local governmental units. Additionally, there is no requirement that counties participate in all HUC 8 watersheds present within the county. Counties have flexibility to participate in any or all of the HUC 8 watersheds that are present within their county boundary. The expectation is that funding received for a given HUC 8 will be spent on practices within that HUC 8 watershed. Counties should take this into account when planning which watersheds funding is requested for.

Chapter 3
Section 3.03: Receiving MDV Funding

Author: Amanda Minks
Last Revised: January, 2020

Once a point source discharger selects the county payment option, and the WPDES permit is issued to incorporate this option, MDV funding will become available for participating counties to use to reduce nonpoint sources of pollution. WPDES permit holders are committed to providing these funds to counties by March 1st of every year throughout the permit term[7]. As stated in Section 2.03 (p. 29), annual payments will fluctuate depending on the phosphorus loading from the point source discharger over the previous year. Point source dischargers that implement phosphorus treatment measures may substantially reduce effluent phosphorus concentrations and therefore provide reduced payments to counties. Accordingly, counties are recommended to semi-annually contact point sources who supply MDV funds to discuss any plans for phosphorus treatment and how that may reduce future payments. Payments will also fluctuate depending on the number of participating counties in the HUC 8 watershed; point sources distribute payments proportionately amongst the participating counties based on their total land area in the HUC 8 watershed (s. 283.16(8)(a)1, Wis. Stats.)[8]. DNR will work to provide counties with revenue estimates in the fall of every year to help county staff make participation determinations. These estimates will be based on the total annual phosphorus load to-date discharged from MDV point sources.

Once a county has opted to participate in this program, the county will receive payments directly from the point source(s). Thus, counties may receive checks from multiple sources in one year. Counties may wish to work directly with the WPDES permit holders to determine the best option for making this financial exchange. It is up to the point source discharger to verify that the correct payment was made to the county and submit documentation to DNR of this exchange (as described in 2.03, p. 29). Additionally, counties will need to indicate the total funding received from each WPDES permit holder as part of their watershed plan and annual report. This information will help verify WPDES permit compliance. Counties will be responsible for ensuring that money generated in the HUC 8 watershed will be spent on phosphorus reductions within that HUC 8 watershed. Once allocated to a county for a specific HUC 8, MDV funds may only be transferred from one HUC 8 to another in extenuating circumstances. This is why separate watershed plans and annual reports must be submitted for each HUC 8 watershed the county chooses to participate in (Sections 3.04 and 3.05). Additional information about funding expectations is also found in Sections 3.04.

[7] WPDES permits are reissued on a 5-year cycle. Therefore, Counties should expect to see payments from the point source every year for the 5-year period. DNR reserves the right to modify or revoke/reissue the WPDES permit. However, if the point source has substantial compliance violations or can achieve compliance with the final TP limits such that a variance is no longer appropriate, DNR will notify the counties as these situations arise.
[8] The percentage of watershed area held by each county is adjusted every year based on county participation. Non-participating counties do not receive funding and are therefore removed from the calculation.

Chapter 3

Section 3.04: Instructions to Develop the County MDV Watershed Plan

Author: Andrew Craig and Matt Claucherty
Last Revised: March, 2020

The purpose of this section is to help county staff complete and submit MDV watershed plans via BITS. This section also provides contact information if county staff need additional technical support or input. Step-by-step directions for navigating BITS are available via the BITS User Manual: MDV Module.

What is BITS?

BITS is an application developed by the DNR to assist in tracking the implementation of Best Management Practices for NPS pollution control projects in Wisconsin.

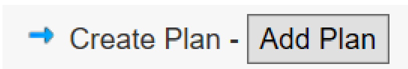
DNR NPS pollution control programs require external entities (counties, permittees, consultants, and others) to submit data regarding how they are using State and other funds to reduce NPS pollution. Given the number of different programs that need and use this type of data (including: NPS grants, such as the Targeted Runoff Management (TRM) grant program, NR 151 compliance tracking, multi-discharger phosphorus variance, total maximum daily load implementation, Wisconsin's adaptive management option, and water quality trading), it is advantageous to develop a system that efficiently facilitates data submission (including the spatial component) and analysis so DNR can provide better transparency to the public as to how funds are being used. By doing so, DNR can better track and show progress towards reaching Wisconsin's nutrient reduction goals related to TMDLs, Statewide Nutrient Reduction Strategy, phosphorus water quality standards, and other DNR and EPA reporting requirements. It is also important to track to avoid overlap of credit or funding for phosphorus reductions between various programs.

Project Goals

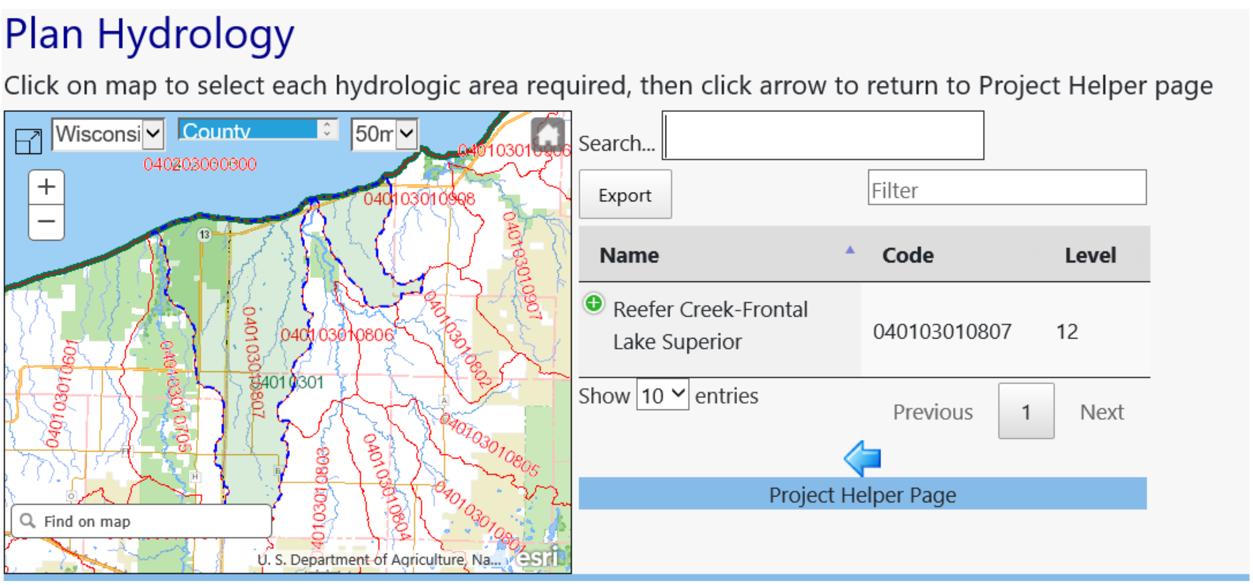
- Create a web-based portal for external users to easily and efficiently submit information required under DNR's various NPS pollution control programs.
- Include a GIS-based application for submitting and visualizing spatial data describing implemented BMPs.
- Improve transparency by DNR having the ability to quickly query and summarize the data and the public being able to view on a map where funds are being used for NPS implementation and how much money is being spent.
- Allow DNR to show and track progress toward Wisconsin's Statewide Nutrient Reduction Strategy and inform DNR's water quality monitoring strategy and watershed planning process.
- Prevents overlap of phosphorus reduction credits between regulatory compliance options for permitted facilities.

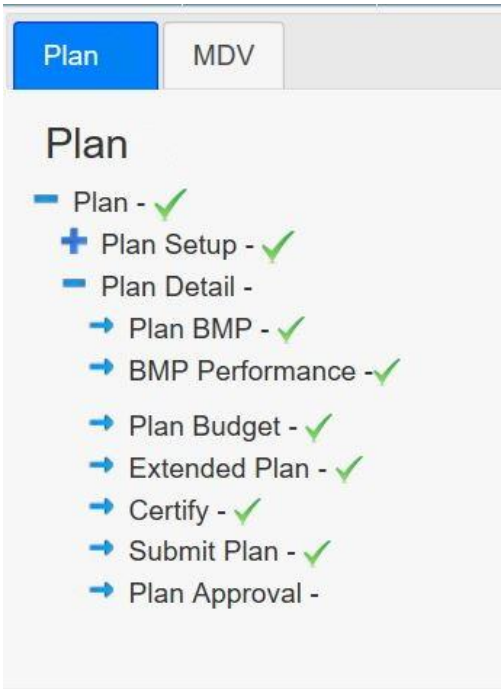
Steps for Submitting Watershed Plans in BITS

Once a project is established in BITS (as discussed in Section 3.02), a county user may move forward with adding plans to the project. One plan should be submitted for each HUC8 watershed selected during project setup. After clicking the "add plan" button, a user is prompted to enter general plan information. Each plan should be given a unique name, short narrative summary, and title (10-character max). The title will appear in the tab above the navigation pane in BITS.



Once a plan is created, it will be visible as a tab above the navigation pane. It will be necessary to select the tab to access the plan navigation pane. The navigation pane shows various steps under two headings: "plan setup" and "plan detail". Each must be expanded by clicking the "+" sign next to the heading before steps are visible. Certification, hydrology, documents, and application steps must be complete before moving on to steps under plain detail. For hydrology, counties will need to use a map in BITS to select the HUC 12 watershed(s) that correspond to the area in which practices will be installed. Counties may select more than one watershed area for a plan. Accordingly, counties should verify the correct watershed(s) are being targeted before selecting them in BITS – see discussion regarding watershed prioritization below.





As each step is completed, a green check mark is shown next to the step. Information entered into BITS can be viewed and edited in the tables to the right of the navigation pane. Once all steps are complete, and the "submit plan" step has a check mark, the plan will be locked for editing and sent to DNR for review. If additional edits need to be made, DNR will unlock the plan for further edits.

DNR will review all materials submitted in BITS for consistency with state statute and the following program policy. Counties should not commit to providing cost share payments for practices prior to receiving plan approval from DNR.

Deadline for Watershed Plan Submittals: March 1st

General Instructions: Provide all applicable information required by working through the steps outlined in BITS. Pursuant to s. 283.16(8)(b)(4), Wis. Stats., DNR may consider submittals that are incomplete as a failure to effectively meet MDV requirements, which may result in the redistribution of MDV funds. This includes applications missing required information.

General Information

County MDV Plans are subject to the following expectations:

- ✓ MDV funds received should be spent within 24 months of receipt, with a possible extension for 12 months if warranted (e.g., weather, soil conditions, contractor availability or other unforeseen factors).
- ✓ At least 65% of MDV funds received must be used for cost sharing practices to reduce phosphorus from entering waters of the state from agricultural nonpoint sources. Practices selected must meet NR 151 state agricultural performance standards and prohibitions, s. 281.16(3), Wis. Stats., and should reflect the technical standards and cost share conditions described in ATCP 50. Within approved TMDL areas, MDV funds may be used toward practices that exceed NR 151 agricultural performance standards in order to comply with TMDL goals. County plans within TMDL areas/watersheds should clearly describe how MDV funds will used to achieve these goals. Funds can also be used for engineering services such as design and construction inspection (s. 283.16(8)(b)2, Wis. Stats.).
- ✓ Up to 35% of MDV funds received can be used for staffing, monitoring or other actions that support or help lead to practice implementation.

- ✓ The plan area where funds are used must have the greatest potential to reduce the amount of phosphorus per acre entering waters of the state compared to other HUC 12(s) or fields in the County (s. 283.16(8)(b)2m.a., Wis. Stats.). See Project Information below, p. 42 – 44 for more information on making the required prioritization.
- ✓ The funds should be generated and used in the same HUC 8 (s. 283.16(8)(b)1. Wis. Stats.)
- ✓ Analyses of land use and land management practices used to determine how the plan area has the greatest potential to reduce the amount of phosphorus per acre entering waters of the state are required and must be included with the plan.
- ✓ Counties must apply separately for any DNR permits (*e. g.*, Chapter 30 or 31) that may be required to implement practices. DNR approvals issued for this plan do not automatically meet the approval requirements of other DNR programs, such as chs. 30 or 31, Wis. Stats. Permit(s).
- ✓ MDV funding cannot be used to fund activities and practices required to comply with a CAFO WPDES permit (s. 283.16(8)(b)1, Wis. Stats.).
- ✓ MDV funding cannot be used to fund practices previously funded via a local, state or federal cost-share agreements, such as the Targeted Runoff Management or Notice of Discharge grant program, to achieve compliance with the NR 151 cropland or livestock performance standards and prohibitions.
- ✓ MDV funding cannot be used to fund point source compliance projects such as those used for water quality trading or adaptive management.
- ✓ MDV funding to counties cannot be used to fund urban practices (s. 283.16(8)(b)1, Wis. Stats.).
- ✓ Counties receiving MDV funds will be required to submit Annual Reports summarizing the results of the project, including quantifying, in pounds, the associated phosphorus reductions achieved thru cost sharing of practices using accepted modeling technology and must identify staff funded with MDV payments received (s. 283.16(8)(b)3, Wis. Stats.).

  Consider coordinating with the following DNR staff to provide assistance in developing your plan:

DNR Statewide Nonpoint Source Planning Coordinator
Andrew Craig

DNR Nonpoint Source Regional Coordinators
http://dnr.wi.gov/topic/nonpoint/NPScontacts.html

DNR Water Quality Biologists
http://dnr.wi.gov/staffdir/_newsearch/contactsearchext.aspx?exptype=exact&exp=Water+Quality+Biologist

DNR Lake Biologists
http://dnr.wi.gov/staffdir/_newsearch/contactsearchext.aspx?exptype=exact&exp=Lake+Information+and+Management

DNR WQ modeling and TMDLs
http://dnr.wi.gov/staffdir/_newsearch/contactsearchext.aspx?exptype=exact&exp=Water+Quality+Modeling

DNR AM/WQT Coordinators
http://dnr.wi.gov/topic/surfacewater/phosphorus/statewidevariance.html

DNR TMDL Project Managers
Riedel, Mark – Rock River and Milwaukee River Basins
Oldenburg, Patrick – Wisconsin River Basin
Marquardt, Keith – Lower Fox, Upper Fox & Wolf Basins
Smith, Alex – Red Cedar River (Tainter Lake, Lake Menomin) and Lake St. Croix Basins

The following information is provided to help county staff submit complete plans that reflect MDV statutory requirements and/or are consistent with existing DNR programs, procedures, goals and objectives to address nonpoint sources of phosphorus pollution.

County Information

The plan must be prepared and submitted by a county government. "County Government" means any county within the state of Wisconsin, (ch. 59 Wis. Stats.)

Project Information

"Small-scale plans" means a county that collectively receives less than $200,000 per year from point source(s) who participate in the MDV.

"Large-scale plans" means a county that collectively receives $200,000 or more per year from point source(s) who participate in the MDV.

Large-scale plans should complete the "Extended Plan" portion of BITS.

Completing these two sections is appropriate and reasonable for the following reasons:

- 9 Key Element plans - http://dnr.wi.gov/topic/nonpoint/9keyelementplans.html - provide a clear framework for prioritizing watershed areas for implementation of practices to reduce phosphorus loads to phosphorus impaired waters, provide public education and outreach, and for monitoring progress and evaluating the plan over time. These plans typically cover a 10-year timeframe and focus primarily upon HUC 12 sized areas (approximately 8-39 square miles).
- 9 Key Element plans are a central focus of EPA and DNR's nonpoint source and TMDL implementation programs and will be an important factor used to target DNR's future water quality monitoring efforts.

- Several areas within Wisconsin already have a DNR-approved 9 key element plan – click on maps tab http://dnr.wi.gov/topic/nonpoint/9keyelementplans.html.
- Counties without a 9 Key Element plan may wish to use a portion of available MDV funds to develop a 9 key element plan, especially in areas where MDV funds exceed $200,000. Once developed, the county can reference/rely upon the plan to aid in MDV implementation efforts.
- The 9 Key Elements are consistent with many of the ATCP 50.12 content requirements for County Land and Water Resource Management Plans - http://dnr.wi.gov/water/egadsearch.aspx (type in County Land in search box). 9 Element plans can also be referenced within County LWRM plan updates.
- DNR staff have and will continue to assist counties with plan development and, when requested, review plans for consistency with the 9 Key Elements - http://dnr.wi.gov/topic/nonpoint/9keyelementplans.html.
- Having an approved 9 Key Element plan may provide additional opportunities for nonpoint source improvement projects.

Note: DNR and EPA are responsible for making the determination that plans are consistent with the 9 Key Elements.

Collaborating Counties: MDV funds may be used within the boundaries of one or more counties provided the project area is within a common watershed that covers multiple counties. Counties that apply for receiving MDV funds should have a common plan or separate plans that describe/reflect a common project area within multiple county boundaries.

Identifying area(s) with greatest potential to reduce the amount of phosphorus per acre entering waters of the state

MDV statutory requirements require counties that receive MDV funds identify how their proposed project area has the greatest potential to reduce the amount of phosphorus per acre entering waters of the state based on an assessment of the land and land use practices in the county pursuant to s. 283.16(8)(b)2m.a., Wis. Stats. DNR recommends using HUC 12 or smaller sized watersheds for completing this analysis, as larger areas may be more difficult to accurately assess land and land use practices. Please be advised that failure to complete this analysis and provide supporting documentation may result in the department finding that the plan does not meet MDV requirements pursuant to s. 283.16, Wis. Stats.

To help counties quickly or efficiently prioritize plan areas for using MDV funds and provide supporting documentation for selection of plan area(s), DNR recommends using the following sources of information or tools:

- EPA approved TMDLs or DNR approved 9 Key Element plans for phosphorus and sediment pollutants
    - Watershed modeling results from a TMDL project can help identify subareas within a watershed that have the highest phosphorus yield per acre.

- Analyses completed as part of a 9 key element plan that identify critical pollutant source areas within a watershed.

- EVAAL tool - http://dnr.wi.gov/topic/Nonpoint/EVAAL.html
    - Results from the EVAAL tool, along with some level of field verification of land management (as it relates to phosphorus management) would help demonstrate areas with the greatest potential for reducing loads to waters of the state.
- EPA's Spreadsheet Tool for Estimating Pollutant Loads (STEPL) tool employs simple algorithms to calculate nutrient and sediment loads from different land uses and the load reductions that would result from the implementation of various best management practices (BMPs) - http://dnr.wi.gov/topic/nonpoint/stepl.html.
    - A STEPL analysis of a watershed could be used at current conditions and proposed implementation of best management practices to determine which subareas have the greatest potential to reduce phosphorus entering waters of the state.
- Recent water quality sampling, aquatic habitat and/or TMDL modeling analysis used for DNR TMDL development or updating DNR's 303(d) list of impaired waters.
    - Monitoring data at several locations within a watershed can be used to identify areas of greater phosphorus export.
- SNAP-plus software – watershed based analysis - SNAP-plus can be used to estimate edge of field phosphorus and sediment loads from agricultural cropland and pasture lands using representative soils, soil P concentrations, crop rotation(s), tillage and nutrient management practices for a watershed - http://snapplus.wisc.edu/.
    - These generalized SNAP-plus results could be applied to a watershed to identify the subareas contributing the greatest amount of phosphorus.
    - DNR has used SNAP-plus within some TMDL areas to determine average edge of field phosphorus loads by HUC 12 watershed or sub-watersheds. DNR will share this information to counties, upon request, to help determine high phosphorus loading areas. This information may also assist counties to help quantify phosphorus reductions associated with some cropland-based practices implemented with MDV payments.

Counties may also use their Land and Water Resource Management (LWRM) plans, including annual work plans and amendments, surveys of cropland and/or animal feeding operations, edge of field monitoring results, farmer response surveys or other methods to select areas with the greatest potential to reduce the amount of phosphorus per acre entering waters of the state. Using or citing existing plans, or sections of existing plans, can help reduce effort when selecting areas with the greatest potential to reduce the amount of phosphorus per acre entering waters of the state. With this said, care should be taken when selecting existing plans to ensure the existing plan information (and land use practices the plan was written to reflect) remain accurate and are not out of date. Some existing plans will need to be revised with current information or additional analysis to confirm areas selected. Such amendments can be submitted as a companion document to an existing plan.

Identifying projects that have the greatest potential to reduce phosphorus entering surface waters of the state.

Plans with limited funding may wish to employ a more focused prioritization than HUC-12 or TMDL reach scale analysis. Section 283.16(8)(b)2m.a. Wis. Stats. references a project **or** watershed basis for prioritization of cost sharing efforts. If site-specific information exists that allows quantification of current pollutant loading at a proposed project site, the current pollutant loading value can be compared to an assumed county-wide average pollutant loading for a similar agricultural setting. If the proposed site is demonstrated to show the greatest current pollutant loading when compared to other sites, this may fulfill prioritization requirements. Field-scale modeling should be submitted to DNR as part of the watershed plan, in support of the prioritization.

Letters of support from affected landowners/land operators or survey results of landowners within the plan area are recommended, but are not a plan requirement. Such documentation helps demonstrate support for implementation of practices to reduce phosphorus loads from cropland or other sources within plan area(s). Some existing plans may contain letters or survey information and, if still applicable, can be referenced or included with the plan.

Agricultural Nonpoint Source Projects

Agricultural performance standards & prohibitions

Select the agricultural performance standards & prohibitions to be addressed in the plan area.

If the project area falls within an approved TMDL area, MDV funds may be used to implement practices that result in going beyond statewide performance standards (e.g., NR 151, NR 243) to meet the TMDL pollutant load reduction goals. Please contact DNR for details on this area-specific option.

Agricultural best management practices (BMPs) and phosphorus reductions

Specify the agricultural BMP types that may be selected and implemented within the project area that reduce phosphorus loading to waters of the state. For each practice selected, please describe what method(s) will be used to quantify the amount of phosphorus reduction expected from the practice (e.g. SNAP+, STEPL, etc.). Refer to your Land and Water Resource Management plan and/or annual work plan update to help select specific agricultural practices to reduce P loads.

Phosphorus reduction is typically expressed in terms of total mass of P reduced per year (lbs. P) or a mass per acre basis (lbs. P per acre per year). Sediment loss calculations can also be used to express P reductions, provided calculations are provided on the concentration of P within the sediment source(s) reduced. There are many tools and methods that can be used to quantify P reductions from specific practices. Some examples are described below. When describing P reduction method(s) it may be necessary to attach additional documentation to this plan explaining the methodology or calculations used.

Examples for quantifying P reductions from practices:

- Water Quality Models – SWAT, HSPF http://dnr.wi.gov/topic/surfacewater/models.html
- EPA's STEPL tool employs simple algorithms to calculate nutrient and sediment loads from different land uses and the load reductions that would result from the implementation of various best management practices (BMPs) - http://dnr.wi.gov/topic/nonpoint/stepl.html
- SNAP-Plus software –P trade Report and/or Wisconsin P Index calculations for specific fields - http://snapplus.wisc.edu/
- DNR-Approved 9 Element Watershed Plans or TMDL Implementation Plans http://dnr.wi.gov/topic/nonpoint/9keyelementplans.html
- Existing Wisconsin or upper Midwest research findings related to P reductions performance of a practice or practice
    - http://dnr.wi.gov/files/pdf/pubs/ss/rs738.pdf
    - http://www.jswconline.org/content/60/1/1.abstract
- BARNY
    - http://wi.water.usgs.gov/pubs/FS-168-98/ and http://wi.water.usgs.gov/pubs/FS-051-98/
    - http://datcp.wi.gov/uploads/Environment/xls/BARNY.xls
- APLE-Lots
    - https://www.ars.usda.gov/midwest-area/madison-wi/us-dairy-forage-research-center/docs/aple-lots/
- Best Professional Judgment (BPJ) – requires providing reasons and/or factors used to make BPJ and account for:
    - natural variability and the difficulty in precisely predicting practice performance over time (i.e., how long a practice remains implemented; how long a practice is maintained and continues to function as intended or designed)

  Prior to selecting BPJ, counties are recommended to consult with DNR staff to discuss the accuracy and level of uncertainty associated with this method(s) to estimate phosphorus reduction from various practices.

Estimating Phosphorus Reductions

Table 8 contains some common nonpoint source management practices and modeling methods counties are recommended to use when estimating phosphorus reductions from MDV funded practices. If a practice selected by a county is not included in Table 8, then counties are recommended to consult with DNR on the practice before submitting any phosphorus reduction estimates within MDV annual reports.

Table 8 – Management Practices and Associated Information

Management Practice	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Whole Field Management: Approved nutrient management plan, filter strips/buffer strips, grassed waterways, conservation or no till, and cover crops. Additional practices as deemed necessary by NRCS or County Conservationist may be required to protect against mobilization and delivery of pollutants.	NRCS 590, 393, 332, 412, 345 329, 340 and 330	SNAP-Plus or equivalent model results compared to baseline	NRCS 590 nutrient management plan (NMP) meets both the soil test-P and PI requirements. NMP has drawn down strategy for fields with soil P concentrations that are >100 ppm P. No manure or other P sources applied to fields > 100 ppm soil P concentration
Nutrient Management and supporting practices: Tillage Options Mulch Till No Till Riparian Filter Strip (edge of field) Cover Crop Contour Farming Strip Cropping	NRCS 590 NRCS 345 NRCS 393 NRCS 340 NRCS 330 NRCS 585	SNAP-Plus or equivalent model results* compared to baseline	Consider requiring all fields used by a crop or livestock producer for nutrient application be under an approved 590 NMP to avoid shifting of pollutant loads. Application of manure, biosolids or industrial wastes prohibited on snow-covered or frozen ground or on fields with tile drainage.
Grassed Waterway	NRCS 412	STEPL or NRCS recession equation results	When quantifying gully erosion, evaluate sediment delivery to surface water
Companion Crops	NRCS 340	SNAP-Plus or equivalent model results* compared to baseline	Companion crops must be established to provide continuous protection to soil surface and placed in support of Nutrient Management and supporting practices outlined below.

Management Practice	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes
Prescribed Grazing + related Pasture Management practices	NRCS 528 NRCS 382 NRCS 578 NRCS 614	SNAP-Plus or equivalent model results* compared to baseline	UWEX publications A3629, A3699 provide additional grazing practice criteria
Production Area Practices Diversion Roof Runoff Structure Roofs and Covers Vegetated Treatment System Constructed Wetland	NRCS 362 NRCS 558 NRCS 367 NRCS 635 NRCS 656	University of Wisconsin Barnyard Tool APLE or equivalent method	
Sediment Control Basin	NRCS 350	RUSLE2	For agricultural runoff control.
Streambank Stabilization and Shoreline Protection (only when required to comply with tillage set-back or limit livestock access to surface water)	NRCS 580 NRCS 382	Appropriate methods include using NRCS recession calculation or equivalent method	For livestock producers, streambank stabilization must be accompanied by riparian fencing or other controls to prevent destruction of streambanks.
Wetland Restoration	NRCS 657 NRCS 658	SNAP-Plus or equivalent model results* compared to baseline	Load Reductions are generated for land placed out of production such as the conversion of agricultural land back to wetland.
Other Practices	TBD	See notes	Please consult with DNR to determine appropriate NRCS technical standard and model

*** =** Counties using equivalent modeling results may also select Best Professional Judgement (BPJ) to estimate phosphorus reduction from MDV funded practices. It is recommended counties consult with DNR staff prior to discuss BPJ methods/assumptions prior to submitting BPJ based phosphorus reduction estimates within annual reports.

Financial Budget

The BMPs, monitoring, staff and other categories, as well as the annual cost for current and following calendar years are ESTIMATES and will help counties to meet MDV requirements (e.g., 65% MDV funds spent on agricultural practices and 35% spent on staff or other costs). DNR recognizes there will be differences between the practices, actions and costs that counties plan to do and what is actually implemented over time. This can be due to factors such as, but not limited to:

- landowner interest and participation,
- weather factors and schedules,
- funding, or
- time availability of partners who may be involved in selecting or implementing practices (e.g., state agencies, consultants, contractors, etc.).

- the need to review prior cost-share contracts and NR 151 compliance determinations associated with cropland or livestock operations

The annual reports and annual plan submittals by counties will help to more accurately describe what actions were implemented versus planned over time. Annual reports will also confirm total phosphorus reductions achieved from MDV funded practices. Planned quantities/units should be provided for cost estimates related to the installation of practices. This will provide useful information to assess how the costs in the other columns were derived. This information may also be appropriate for some monitoring components, such as the installation of stream monitoring gauges. The "planned quantities/units" is not applicable for the other categories in this section.

Describing all other funds that will compliment MDV funds received by a county is important and recognizes selected plan areas may have devoted funding from local, state, private or federal sources as part of an existing plan or program.

Budget items should also be created for non-BMP expenses. (BMP field will be left blank).

Cost Share Rates

After consulting with the Department of Agriculture, both DNR and DATCP agree upon the following cost share rate recommendations for counties who receive MDV funds from point sources:

- Counties should generally follow the provisions of ATCP 50 when making offers of cost share for implementing practices.
- Cost share rates should be set at 70% (total state & MDV funds) or 90% if economic hardship is claimed by the cost share recipient. Under voluntary cost share conditions, more flexibility exists, and higher cost share rates may be warranted in certain situations.
- When using MDV funds to mandate compliance with a NR 151 agricultural performance standard as part of a "bona fide offer of cost sharing", counties must follow the cost-share requirements in ATCP 50.08 and 50.42.
- When cost sharing to achieve a TMDL target that is more stringent than the NR 151 agricultural performance standard, a higher cost share rate may be appropriate, given that actions will likely need to go above and beyond typical NR 151 implementation protocols.
- If MDV funds are combined with state funds (such as SWRM program funding) to exceed the ATCP 50 cost-share maximums, the state-funded portion of the cost-sharing cannot exceed the rates in ATCP 50.42.
- Counties should require some landowner contribution in cost share agreements, even if using MDV funds to exceed ATCP 50 maximums. Counties with more specific or follow up cost share rate questions should contact the DATCP at: **datcpswrm@wisconsin.gov.**

Cost Share Contracts

A written agreement should be established to ensure all parties understand MDV program requirements and follow through with full implementation of project deliverables. Cost share agreements are the

most common way to ensure that each project funded is completed and evaluated, as required per s. 283.16(8)(b)2m.b. Wis. Stats. Counties may use state cost share agreements (TRM or SWRM) as templates for developing MDV cost share agreements. Counties should, however, avoid using TRM or SWRM contracts themselves, as program-specific language may not apply to MDV projects. At the time this document was written, no standardized MDV cost share agreement is available from DNR.

Transfer of funding between HUC 8 Watersheds

MDV funding is made available from dischargers to participating counties within their HUC 8 watershed. In this way, funding provided by the MDV is kept somewhat geographically relevant to the receiving water that assimilates the discharged pollutant load. While no requirement exists to use MDV funding upstream of a paying discharger, it is expected that funding will be spent to improve water quality within the same HUC 8 watershed as the discharger. Only in extenuating circumstances may counties receive approval from DNR to transfer funding from one HUC 8 watershed to another watershed that the county wishes to work in. The generally accepted logic to support a transfer is based on the prioritization required under s. 283.16(8)(b)2m.a. Wis. Stats. If a county-wide assessment of land and land use practices (see evaluation tools, p.42 – 43) indicates that no opportunities exist to effectively reduce phosphorus in one HUC 8, but opportunities do exist in a different HUC 8, the funding may be spent in the new HUC 8 at the site(s) identified in the assessment. Please consult closely with DNR if these or similar conditions exist when developing a MDV project and/or plan.

Other Plan Components

Verification

The DNR is required to evaluate how MDV funds are spent on practices that reduce P loads to waters of the state, confirm what NR 151 cropland or livestock performance standards are met by MDV funded practices and then provide reports on total phosphorus reductions to the legislature, EPA, DATCP and other stakeholders. Verification that practices funded with MDV funds are implemented or remain implemented/maintained over time will be a critical step in DNR's evaluation for approving future payments of MDV funds to counties. Verification of practices is also a crucial step of many existing state and federal programs related to reducing nutrient loads via various practices (e.g., 9 Key Element and TMDL implementation plans, Targeted Runoff Management (TRM) grant programs, Farmland Preservation Program (FPP), and Land and Water Resource Management Plans, County Ordinances, Environmental Quality Incentives Program (EQIP), and other NRCS programs). All MDV plans need to have practice verification and phosphorus reduction methods as a stand-alone milestone included within the plan schedule. DNR staff can provide assistance to counties with verification of MDV funded practices, selection of models/methods to estimate phosphorus reductions, making NR 151 compliance determinations on existing cropland or livestock operations and determining if NR 151 compliance determinations were previously completed thru the TRM or Notice of Discharge grant programs.

Monitoring

Since monitoring is a requirement of 9 Key Element plans, all large-scale plans that are developed consistent with a 9 Key Element plan need a monitoring strategy to assess water quality conditions within state waters. It is recommended that other large-scale plans also include a monitoring strategy to

help demonstrate water quality improvements over time. Please see Appendix I, p. 102 for additional guidance when developing a monitoring strategy as part of a county MDV plan. MDV monitoring strategies should be structured in a manner with clear milestones and a schedule for evaluating progress and revising the strategy over time to reflect staff, funding and other factors. It is recommended counties consult with DNR WQ biologists, TMDL and Nonpoint source staff before, during and after completing WQ monitoring for MDV plans. Monitoring protocols and milestones can be entered in BITS under the "other plan components" section when submitting the MDV plan.

Extended Plans

It is recommended that all large-scale plans develop a compliant 9 Key Element plan or already have a DNR-approved 9 Key Element plan. The reasons/rationale for this recommendation is provided in section 2 (above).

Certifications

The purpose of this section is to clearly articulate MDV funding restrictions to ensure counties use MDV funds consistent with Wisconsin statute and applicable codes.

MDV funds may not be used to implement or maintain practices that are required by a WPDES permit (e.g., CAFO, MS4, etc.) or were previously funded via another local, state, or federal program, such as the Targeted Runoff Management Grant Program.

Since MDV funds are to be used for cost sharing for agricultural practices to meet ch. NR 151 pursuant to s. 283.16(8)(b)2, Wis. Stats., it is also not appropriate to use MDV money for practices not related to cost sharing, or for operation and maintenance activities already required by previous cost-share agreements, outside of an EPA-approved TMDL area. DNR recognizes that in some cases additional reductions are needed to comply with load allocations within EPA-approved TMDL areas, so counties may use MDV funds to meet or make progress towards TMDL load allocations and also towards compliance with with TMDL-based targeted performance standards, pursuant to ch. NR 151.005, Wis. Adm. Code.

DNR recognizes county NR 151 compliance determination certifications issued as part of MDV cost-share agreements will be based upon the information or resources available at the time. There may be differences between county certifications from one year to the next for specific practices implemented with MDV funds due to factors such as, but not limited to:

- information available to the county,
- landowner interest and participation in other local, state or federal programs,
- communication with DNR staff on specific practices required by WPDES, or Adaptive Management or Water Quality Trading based permits.
- Evaluating prior history of grants and/or cost sharing contracts for cropland or a livestock operation practices to meet NR 151 performance standards and prohibitions,

- Adoption of MDV funded practices within approved TMDL areas

MDV annual reports and annual plan submittals by counties will help improve county certification accuracy over time. However, DNR may reduce or eliminate future MDV funds to a county for reasons that include, but are not limited to: failure to use funds within MDV statutory defined timelines or meet MDV plan and reporting requirements, address a known and ongoing and/or repeated funding of practices that are required by a WPDES permit, or adopt practices previously funded via another local, state, or federal program. .

Chapter 3
Section 3.05: Annual Reporting in BITS

Author: Matt Claucherty
Last Revised: March, 2021

Section 283.16(8)(b)3. of the Wisconsin Statues defines annual reporting requirements for counties that receive MDV funding. Annual reports are due by May 1st in the second year following a year in which a county receives funding. Practices may be implemented within either the first or second year after receiving funding, with the final report due on the 28th month after receiving funding. Using BITS, the MDV sign-up, planning, and reporting steps are carried out with one project record for a given year of funding. Standalone annual reports are not required when counties submit sufficient information in BITS. Customized exports from the BITS database are expected to provide quality, detailed reporting without the need for counties to author, format, and publish individual documents. Counties may choose to create standalone reports if desired. See below for more information on final report formatting and distribution.

Annual reporting requirements are intended to document which nonpoint source pollution control projects were completed in the previous year, the amount of nonpoint source pollution reduced by those projects, and the amount of MDV funding used to provide cost sharing, as well as fund staff and/or monitoring activities. Reporting of these items will be segregated by HUC 8 if work was done in more than one HUC 8 basin. Annual reports will be distributed to DNR Staff, DATCP, and WDPES permittees that provided funding. The following items will be required as part of the reporting process:

BMP Location(s) and Spatial Data

The location of implemented practices should be included in annual reports. A central capability of BITS is creation and storage of spatial data. Using the "draw" function in BITS, an interactive map is used to define practice location and geometry. A BMP may be drawn as a point, line, or polygon on the map. In general, unit type will determine the geometry of a BMP shape in BITS. Accordingly, BMPs implemented across all or a section of a field should be drawn as a polygon; BMPs that are linear/expressed in feet should be drawn as a line, and BMPs expressed as a number, should be drawn as a point. Once a BMP feature is saved, additional data is associated with the shape.

BITS also has a shapefile upload feature, which may expedite MDV annual reporting by avoiding the need to draw individual practices in BITS. Users who wish to take advantage of the shapefile upload feature must use a GIS application to produce a shapefile with data fields that conform to the BITS data format. For more information, see Appendix A of the BITS User Manual - MDV Module.

Pollution Load Reduction

Each BMP submitted in BITS is required to have a pollution load reduction specified. For practices installed with MDV funding, phosphorus is the pollutant of concern. Accepted modeling technologies should be used to calculate, as accurately as possible, the annual total phosphorus load reduction

associated with each practice. Data is entered under the "Models" function of BITS in the reporting phase. When calculating phosphorus reductions from MDV funded practices, counties should review and then employ the models and methods described in Section 3.04 of this document. Counties are recommended to discuss and/or review the models and methods they intend to use with DNR staff prior to initially completing/submitting load reduction estimates in BITS.

NR 151 Performance Standards Achieved

For each BMP that is submitted in BITS, users should identify which NR 151 performance standard(s) the BMP is meeting. A list of all possible standards is provided in checkbox form. BITS also allows users to confirm a BMP will exceed, or go beyond, the NR 151 performance standards – to meet a TMDL based phosphorus reduction goal. Counties should discuss their intent to use this option first with DNR and then provide written explanation for this within MDV projects and/or plans.

Attachments and Supporting Documentation

Each BMP may contain one or more types of attachments uploaded to BITS. These are used to convey additional information which may support implementation. Recommended supporting documentation includes:

- Photos: Photographs of the installed practice.
- Aerial Map: Aerial map or site diagram of the project area.
- Modeling: Model files used for determining pollution load reductions.
- Monitoring Results: Results from monitoring studies associated with the BMP.
- NR 151 Notice: NR 151 Compliance Letter issued to the landower.
- Other: Any other relevant documents, including cost share agreements or initial inspection results.

If a BMP has limited or vague supporting documentation in BITS, DNR may request counties to provide and/or submit more complete information on that BMP.

Finalizing and Sharing MDV Reports

After annual report information is submitted to DNR, DNR will review for completeness and consistency with program policy and statutory requirements. Once the report is deemed sufficient, DNR will produce a standardized BITS export of the MDV report as a standalone document. Standardized reports will contain, at a minimum: practice locations, pollution load reductions, and the final project expenditures. Counties will have the option to submit these reports to applicable WPDES permittees and DATCP to fulfill the requirements of s. 283.16(8)(b)3. Wis. Stats. If a county has prepared, or wishes to prepare, a detailed standalone report containing additional narrative, pictures, or other information that was not exported from BITS, that may be submitted to WPDES permittees, DATCP , and other interested parties in addition to the BITS export report. DNR will assist counties in making the reporting contacts required under statute by providing contact information for WPDES permittees and a DATCP staff contact. Additional information about DNR's review process is provided in Section 5.02, p. 68.

Chapter 4- Self-Directed/Third Party Watershed Plans

The purpose of this chapter is to provide instructions for point source dischargers and their partners to help them successfully complete a watershed plan for the phosphorus MDV pursuant to ss. 283.16(6)(b)(2) or (3), Wis. Stats. As previously discussed, point sources have the option to either enter into the "county payment option" or implement a watershed plan either directly or in collaboration with a third party[9]. With the latter case, point sources have more control of selecting project locations, landowners, etc, than under the county payment option. If a point source chooses this watershed approach, the watershed plan must, at a minimum, offset the point source load calculated in Section 2.03, p. 29, on an annual basis during each year the MDV is effective.

There is no one-size-fits-all approach to these watershed plans. Plans will be unique depending on phosphorus nonpoint source pollution control needs in the watershed, as well as local interest and opportunities and the needs of the point source and applicable partners. Guidance provided in the Adaptive Management Handbook (https://dnr.wi.gov/topic/wastewater/adaptivemanagement.html) and the Guidance for Implementing Water Quality Trading in WPDES Permits (https://dnr.wi.gov/topic/wastewater/waterqualitytrading.html) may be helpful as point sources and partners develop these watershed plans. Specifically, these guidance documents provide information regarding how to target critical source areas, how to identify appropriate management practices, and potential methods/models for calculating offsets which are applicable to MDV watershed plans. Authors of MDV watershed plans may wish to mirror the format of WQT plans to be ensure pre-project pollution loading is documented adequately to substantiate model results and inputs.

MDV watershed plans will need to provide a timeline under which work will take place and applicable nonpoint source offsets become available. The full offset should be achieved during the first year of the permit term and therefore projects should be installed and functioning prior to permit reissuance. The minimum offset for a project is the annual value (calculated in Section 2.03, p. 28). If adequate offset will not be available to fulfill the watershed project requirements during the first year, the county payment option may be required until the first full calendar year when all offsets are in place. Annual reports that document the offsets are required during the term of the permit – these will be reflected in a reporting schedule in the reissued permit.

It is recommended that point sources submit watershed plans to DNR 6 – 12 months prior to submitting a MDV application. Watershed plans must be attached to MDV applications when submitting. Point sources should also complete the MDV watershed project checklist (Form 3200-148) to ensure that plans are complete, and to streamline DNR's review and approval for these plans. Instructions for completing the checklist are provided in Section 4.02. Pursuant to ss. 283.16(6)(b)(2) and (3), Wis. Stats.,

[9] In some unique circumstances, point sources may consider blending watershed project options. This option is briefly discussed in Section 2.03, p. 28. DNR staff should be contacted whenever mixing watershed options is being considered.

point sources must also enter into a binding written agreement with either the DNR or the partner that will be implementing the plan. Section 4.01 discusses binding written agreements in more detail.

Chapter 4

Section 4.01: Binding Written Agreements

Authors: Amanda Minks and Matt Claucherty
Last Revised: August, 2019

A binding, written agreement is required for watershed projects that are implemented by WPDES permit holders, or their partners, pursuant to ss. 283.16(6)(b)2 and 283.16(6)(b)3, Wis. Stats. These binding, written agreements must be approved by DNR prior to, or in conjunction with, the MDV approval.

Binding, written agreements for MDVs should reflect key content within the MDV watershed plan but does not need to be duplicative. Additionally, the binding, written agreement does not supersede requirements in the WPDES permit. For these reasons, most MDV binding, written agreements will likely be brief and site-specific, depending on the content and timetable of the MDV plan.

Suggested content for these agreements includes:

- The MDV plan number[10];
- The minimum amount of phosphorus reduction that will occur annually;
- The start date and, if applicable, the end date of the availability of these offsets;
- The parties responsible for verification as well as the types and frequency of verification;
- Liability conditions of the offset;
- Reporting requirements for the WPDES permit holder/partner of any anticipated circumstances when the phosphorus reduction would not be available; and
- Signature and date by authorized representative(s).

If a point source chooses to work with a partner pursuant to s. 283.16(6)(b)3, Wis. Stats., the WPDES permit holder and partner should work directly with one another to develop the binding, written agreement. Once the parties agree to the content of the agreement, it should be submitted to DNR for review. If some content of the agreement is sensitive, such as the financial exchange between parties, this information may be blocked out or not included in the submittal to DNR. Note that information in the agreements is subject to Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.) For dischargers seeking an agreement with DNR, please contact your MDV point source coordinator to obtain a template agreement.

NPS reduction projects implemented for a MDV watershed project may be viable for future compliance via water quality trading. Eligible projects must continue to provide a pollution reduction for future years, be established via a binding, written agreement that complies with s. 283.84(1) Wis. Stats., and meet other requirements applicable to water quality trading. See Guidance for Implementing Water Quality Trading in WPDES Permits (https://dnr.wi.gov/topic/wastewater/waterqualitytrading.html) for more details.

[10] DNR staff will provide an MDV plan number to permittees as part of its tracking system.

Chapter 4
Section 4.02: Instructions for Other Watershed Projects

Author: Amanda Minks and Matt Claucherty
Last Revised: August, 2019

The permittee must submit a MDV watershed plan under ss. 283.16(6)(b)2 or 283.16(6)(b)3, Wis. Stats., to DNR as part of the MDV application. A completed "MDV Watershed Plan Checklist" (Form 3200-148) should accompany this submittal. The MDV watershed plan checklist provides an outline of the information that should be included in the watershed plan. The information in the checklist and plan will serve as the basis for permitting decisions. In order to obtain approval from DNR, the MDV watershed plan must contain sufficient detail to allow DNR to conclude that the requirements of the MDV program are satisfied. These requirements are inherent in the checklist, so completion of the checklist will help ensure that the watershed plan is approvable. Additional instructions are provided below to help permit holders and partners successfully complete the MDV plan checklist.

Section 2. Section 2 requests information and visuals regarding the geographic extent of the project(s) area. It is preferred that projects occur upstream of the point source discharge and/or on the same receiving water as the discharge is located. However, the project(s) may be located anywhere within the HUC 8 watershed pursuant to ss. 283.16(6)(b)2 or 283.16(6)(b)3, Wis. Stats.

Sections 3 and 4. The purpose of Sections 3 and 4 is to summarize the type of work that will be completed when implementing the plan. The watershed plan should provide justification for the estimated offsets provided in these tables. Point sources are not limited to the agricultural and urban practices identified in Sections 3 and 4. Any practice may be considered if it results in a quantifiable reduction of phosphorus to a surface water of the state. Additionally, point sources and their partners have discretion to select appropriate methods to quantify phosphorus reductions. A list of preferred models and their capabilities is provided at https://dnr.wi.gov/topic/wastewater/phosphorus/tools.html. Point sources and partners may also wish to contact the DNR water quality modeling group (dnrwaterqualitymodeling@wisconsin.gov) for input or assistance.

Section 5. To calculate the anticipated annual phosphorus offset needed, compare future expected effluent phosphorus loading to the target value loading (the value calculated section 2.03, p 28). The watershed plan should provide the specific method used for making this calculation. Pursuant to ss. 283.16(6)(b)2 or 283.16(6)(b)(3), Wis. Stats., the pollutant reductions included in the watershed plan should, at a minimum, offset the difference between the annual phosphorus load and the target value. The analysis may also consider treatment variability over the upcoming permit term and recommend additional offset to account for periods of higher phosphorus loading. If insufficient offsets are projected, the plan may not be approved by the DNR and other means for satisfying MDV offset requirements will need to be employed.

Other funds may be used to help complement point source funding to achieve the necessary MDV offsets. However, point sources should consider any restrictions specific to other funding programs prior

to use in MDV areas. The watershed plan should also include additional background and implementation information beyond the information gleaned from Sections 1-4 of the checklist. Specifically, the plan should ensure that all tracking requirements are met pursuant to Section 3.05, p. 53. The plan should also ensure that implemented practices are verified annually. Verification should be completed by entities with appropriate technical background and expertise.

Section 6. Completing the certification statements in Section 6 is an important step for ensuring that MDV funding is being used appropriately and that only eligible practices are being counted towards the annual offset needed. Additionally, it is not appropriate to count offsets used toward another point source discharger's permit compliance or offsets generated by restoring a landowner's compliance with an agricultural performance standard, per ch. NR 151, Wis. Adm. Code if the landowner was previously documented as being in compliance with that agricultural performance standard. DNR will screen landowners for prior receipt of cost share funding to meet NR 151 performance standards. If cost sharing was provided in the past, reinstalling the same or similar practices that were previously funded will not be an eligible pollutant offset.

Chapter 5- DNR Staff Roles and Responsibilities

The intent of this chapter is to provide DNR staff with direction on how to review and approve MDV plans, as well as review annual reports. Several staff may be involved with making these determinations, depending on the expertise of the staff, and the type of watershed plan selected. Therefore, this chapter will also generally discuss roles and responsibilities for these reviews. It is important for staff and supervisors to work cooperatively to ensure that appropriate work objectives and time is built into staff performance measures.

Whenever staff are making review and approval determinations on MDV applications, Form 3200-145 should be completed. This form is designed to help staff review applications and ensures statewide consistency of MDV approval/disapproval determinations. Questions regarding this form should be sent to the Statewide Phosphorus Coordinator.

Additional information including training materials and tracking tools are available to DNR staff at \\central\water\WQWT_PROJECTS\WY_CW_Phosphorus\MDV.

Chapter 5
Section 5.01: WPDES Permit Requirements

Author: Mary Ryan
Last Revised: March, 2020

To implement the MDV in WPDES permits, include the following requirements in the Surface Water section and Schedules section of the draft permit per s. 283.16(6), Wis. Stats.:

- Interim MDV limitations,
- Phosphorus monitoring and reporting requirements,
- Optimization requirements & schedule
- Watershed project provisions & schedule

Details are listed below for entering these requirements into the draft permit.

EPA approved the MDV on February 6, 2017 and is expected to remain effective until February 5, 2027. Permit terms and conditions that reflect the MDV cannot extend beyond the term of the variance expiration date. Several options are available to extend the current MDV approval to encompass the full time period allotted in s. 283.16, Wis. Stats., including seeking EPA approval on updated MDV packages and providing a compliance schedule after MDV expiration. The Department will continue to work with EPA and stakeholders to pursue these options to maximize the duration of the MDV as necessary and appropriate.

Interim MDV Limitation

A 'Phosphorus, Total' requirement in mg/L must be included in the draft permit along with the applicable interim MDV limit as a monthly average. The interim limit for the first MDV permit term is 0.8 mg/L (or as determined on a case-by-case basis pursuant to s. 283.16(6)(am) or s. 283.16(7) Wis. Stats). Section 2.02, p. 23, discusses methods for calculating site-specific interim limitations. It is recommended that regional limit calculators assist with making these calculations. The interim limit is effective immediately unless a compliance schedule is needed to achieve the limit. The interim limit must become effective by the end of the permit term.

Add a table note indicating 'This is the interim MDV limit, effective _____. See MDV and Phosphorus subsections below." (Use the checkboxes at the 'Input & footnotes' tab to include the subsections for MDV Requirements and final Phosphorus Limitations.)

Note: The typical interim MDV limits for the second permit term and third permit term are 0.6 mg/L and 0.5 mg/L, respectively (monthly average). The fourth permit term concludes with the required WQBEL for phosphorus. MDV permit terms and conditions cannot extend beyond the expiration date of the MDV approval, February 5, 2027 unless the MDV is renewed and approved by EPA. If the MDV is approved, then the maximum time period for the MDV is three permit terms because pursuant to s. 283.16(6)(a)4., the permittee must comply with the phosphorus WQBEL by the end of the fourth permit term. . DNR, EPA, and stakeholders will continue to evaluate options to maximize the duration of the MDV, as appropriate. Absent an early reapproval, permits may need to contain provisions for

reevaluation for the year 2027. These provisions may include compliance schedules, a reopener clause, or other means to address the gap in MDV coverage.

Phosphorus Requirements in lbs/month and Flow Rate

A 'Phosphorus, Total' requirement in lbs/month must be included in the draft permit to demonstrate compliance with the watershed provisions of s. 283.16(6), Wis. Stats. To do this, add a table note indicating "Report the total monthly phosphorus discharged in lbs/month on the last day of each monthly Discharge Monitoring Report form. See the Standard Requirements section for 'Appropriate Formulas' to calculate the Total Monthly Discharge in lbs/month." [Total Monthly Discharge = monthly average phosphorus concentration in mg/L x total flow for the month in MG x 8.34] Also, include a daily 'Flow Rate' monitoring requirement in the permit in MGD.

Phosphorus Requirements in lbs/yr (if MDV in Effect for all Months of the Calendar Year)

Include an annual Phosphorus requirement in lbs/yr for reporting purposes as follows:

- Parameter = Phosphorus, Total
- Units = lbs/yr
- Sample Frequency = Monthly
- Sample Type = Calculated

Add a table note that states "Report the sum of the Total Monthly Discharges for the calendar year on the annual report form."

MDV Requirements - Watershed Provisions

To include MDV requirements for optimization and implementation of watershed provisions, select the checkbox at the Input & Footnotes tab labeled 'MDV Requirements' as shown below.

MDV Requirements Checkbox – Permit Language:

1.1.1.1 MDV Requirements - Optimization and Watershed Provisions

Optimization: The permittee shall [Choose One: optimize OR continue to optimize] performance to control phosphorus discharges in accordance with s. 283.16(6), Wis. Stats. See the Schedules section for optimization requirements.

Watershed Provisions: The permittee is required to implement watershed measures to reduce the amount of phosphorus entering the receiving water. The permittee has selected the following approved watershed measure:

[Notes to Permit Drafter: 1)Choose the selected watershed measure below and delete the other measure; 2)See the MDV Evaluation Checklist (form 3200-145) for details on the facility's selected watershed measure, including applicable variance months and price per pound county payment value (if applicable).

[Watershed option 1]: Payment to County

Note: Details about this watershed option are provided in Chapter 3 (p. 34).

The permittee shall make payments for phosphorus reduction to the county or counties approved by the Department per s. 283.16(8), Wis. Stats. The permittee shall make a total payment by March 1 of each year in the amount equal to the per pound amount $[**Enter the price per pound**] times the number of pounds by which the effluent phosphorus discharged during the previous year exceeded the permittee's target value or $640,000, whichever is less. The target value is [Choose One: based on the TMDL-derived limit **OR** 0.2 mg/L] per s. 283.16(1)(h), Wis. Stats., and is applicable during the months that the MDV is in effect. The MDV is in effect [Enter the Applicable Months _____ **OR** year around]. Refer to the Schedules section for the scheduled annual requirements.

Annual Payment Calculation: The annual payment is equal to the phosphorus load that exceeds the target value multiplied by $[**Enter the price per pound**] per pound.

Determining the Price per Pound

The Statewide Phosphorus Implementation Coordinator is responsible to update the payment value each year. The payment calculator will provide the final payment value, the data and method used to calculate this value, and the date the payment value was last updated. In general, consumer price index (CPI) data provided by the Bureau of Labor Statistics will be used to make this calculation: http://www.bls.gov/regions/subjects/consumer-price-indexes.htm#WI

> Example: Let's assume that the CPI went up by 0.6% from December 2015 to December 2016. This would translate to a $0.30 increase from the $50 per pound base price ($50/lb. x 0.6% = $0.30). So the per pound calculation for the next year would be $50.30 cents. For the subsequent year, $50.30/lb would be the per pound price used in all reissued MDV permits reissued that year (the specific value is "locked in" for the duration of the permit term). A new value is used on April 1st of each year for permit reissuances.

[Watershed Option 2]: Binding Written Agreement with [Choose One: the Department OR Another Person]

Note: Details about these watershed options are provided in Chapter 4 (p. 54).

The permittee has entered into a binding written agreement with [Choose One: the Department OR another person] under which the [Choose One: permittee OR person] implements Watershed Plan # [**Enter Plan Number**] that is designed to result in a reduction of phosphorus pollution in the basin in an amount equal to the difference between the amount of phosphorus discharged by the permittee minus the target value. The target value is [Choose One: based on the TMDL-derived limit OR 0.2 mg/L] per s. 283.16(1)(h), Wis. Stats., and is applicable during the months that the MDV is in effect. The MDV is in effect [Enter the Applicable Months _____ OR year around]. Refer to the Schedules section for the scheduled reporting requirements.

Annual Reduction of Phosphorus (Offset): The permittee's discharge that exceeds the target value shall be offset by phosphorus reductions generated under the approved Watershed Plan during the months that the MDV is in effect. The permittee shall comply with the MDV interim limit regardless of the offset

generated. If the necessary offset is not generated, the permittee shall notify the Department. To determine compliance with the required offset, use the following steps.

Annual Offset Calculation:

- Calculate the effluent phosphorus load in lbs/month discharged for each month that the MDV is in effect during the calendar year as follows: Total Monthly Flow in MG × Monthly Avg. phosphorus effluent concentration in mg/L × 8.34 = lbs/month phosphorus load discharged.

  Note: Monthly Avg. phosphorus Effluent Concentration = Sum of all daily effluent results for the month divided by the number of results for that month.).
- Sum the lbs/month for the months that the MDV is in effect during the calendar year = lbs of effluent phosphorus load discharged for the calendar year.
- Calculate the target value in lbs/months for the months that the MDV is in effect during the calendar year as follows:
  - [Choose One: Target Value = TMDL Derived Limit: Convert the monthly average TMDL-derived limit in lbs/day to lbs/month by multiplying the lbs/day limit by the number of days in the month = target value in lbs/month
  - OR Target Value = 0.2 mg/L: Convert the target value of 0.2 mg/L to lbs/month by multiplying 0.2 mg/L x Total Monthly Flow in MG x 8.34 = target value in lbs/month]
- Sum the lbs/month for the months that the MDV is in effect during the calendar year = target value in lbs for the calendar year.
- Subtract the calculated target value from the calculated phosphorus load discharged:
  - [(effluent phosphorus load discharged in lbs) minus (target value in lbs)] = lbs of phosphorus that exceeds the target value for the calendar year.
- Annual Calculated Offset = lbs of phosphorus that exceeds the target value (which shall be offset by phosphorus reductions under the approved Watershed Plan).

MDV Requirements - Optimization

The permittee is required to optimize performance to control phosphorus discharges per s. 283.16(6), Wis. Stats. Use the Picklist button at the Compliance Schedule Input screen and select either the 'Phosphorus Schedule – Optimization Plan' or 'Phosphorus Schedule – Continued Optimization' as shown below. If the permittee has an approved optimization plan that remains applicable in the coming permit term, select "Continued Optimization". If a new plan is required, select "Optimization".

Phosphorus Schedule – Optimization Plan

The permittee is required to optimize performance to control phosphorus discharges per the following schedule for the first permit term.

Required Action	Due Date
Optimization Plan: The permittee shall prepare an Optimization Plan and submit it for Department approval. The plan shall include an evaluation of collected effluent data, possible source reduction measures and operational improvements to optimize performance to control phosphorus discharges. The plan shall contain a schedule for implementation of the measures and improvements. Once the plan is approved by the Department, the permittee shall take the steps called for in the Optimization Plan and follow the schedule of implementation as approved.	
Progress Report #1: Submit a progress report on optimizing removal of phosphorus.	
Progress Report #2: Submit a progress report on optimizing removal of phosphorus.	
Progress Report #3: Submit a progress report on optimizing removal of phosphorus.	
Progress Report #4: Submit a progress report on optimizing removal of phosphorus.	

Phosphorus Schedule – Continued Optimization

The permittee is required to optimize performance to control phosphorus discharges per the following schedule.

Required Action	Due Date
Optimization: The permittee shall continue to implement the Optimization Plan as previously approved to optimize performance to control phosphorus discharges.	
Progress Report #1: Submit a progress report on optimizing removal of phosphorus.	
Progress Report #2: Submit a progress report on optimizing removal of phosphorus.	
Progress Report #3: Submit a progress report on optimizing removal of phosphorus.	
Progress Report #4: Submit a progress report on optimizing removal of phosphorus.	

Schedules – Phosphorus Payment Per Pound to County

To include the county payment option requirements, use the Picklist button at the Compliance Schedule Input screen and select 'Phosphorus Payment Per Pound to County'. FYI: To see the 'Payment Calculator' document for determining the amount per pound adjusted for CPI, go to \\central\water\WQWT_Projects\WY_CW_Phosphorus\MDV\County Payments . The Statewide Phosphorus Coordinator is responsible for updating the payment value each year.

Phosphorus Payment Per Pound to County

The permittee is required to make annual payments for phosphorus reductions to the participating county or counties in accordance with s. 283.16(8), Wis. Stats, and the following schedule. The price per pound will be set at the time of permit reissuance and will apply for the entire duration of the permit.

Required Action	Due Date
Annual Verification of Phosphorus Payment to County: The permittee shall make a total payment to the participating county or counties approved by the Department by March 1 of each calendar year. The amount due is equal to the following: [(lbs of phosphorus discharged minus the permittee's target value) times ($[ENTER PRICE PER POUND] per pound)] or $640,000, whichever is less. See the payment calculation steps in the Surface Water section. The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was made. The first payment verification form is due by the specified Due Date. Note: The applicable Target Value is [CHOOSE ONE: the TMDL derived limit value OR 0.2 mg/L] as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is $50.00 adjusted for CPI.	
Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	
Continued Coverage: If the permittee intends to seek a renewed variance, an application for the MDV (Multi Discharger Variance) shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
Annual Verification of Payment After Permit Expiration: In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit Form 3200-151 to the Department indicating total amount remitted to the participating counties by March 1 each year.	

Watershed Project Requirements

To include the Watershed Project option requirements, use the Picklist button at the Compliance Schedule Input screen and select the "Watershed Project Requirements" as shown below.

Watershed Project Requirements

The permittee is required to submit annual watershed project reports in accordance with the following schedule. Note that this section may be modified as the MDV tracking tool becomes available.

Required Action	Due Date
Annual Watershed Report: Submit an annual report by May 1 of each year that documents: 1)The calculated monthly discharge of phosphorus in lbs/month and the calculated monthly target value in lbs/month for the previous calendar year. See the calculation steps in the Surface Water section of this permit. 2)The calculated Annual Offset to be generated by the approved Watershed Plan for the previous calendar year. See the calculation steps in the Surface Water section of this permit. 3)Verification that Watershed Plan # [ENTER THE WATERSHED PLAN #] was implemented as approved and practices are operated and maintained consistent with the approved plan. 4)The pounds of phosphorus reduction achieved through the approved Watershed Plan for the previous calendar year. 5)The source of the phosphorus reductions with a reference to the approved Watershed Plan used to generate the offset. 6)Identification of any non-compliance or failure to implement the approved Watershed Plan. The first report is due by the specified Due Date.	
Annual Watershed Report #2: Submit an annual report that includes the documentation listed above.	
Annual Watershed Report #3: Submit an annual report that includes the documentation listed above.	
Annual Watershed Report #4: Submit an annual report that includes the documentation listed above.	
Agreement Modification: If the required offset of phosphorus is not generated by the approved Watershed Plan in any year, the permittee shall propose a modification to the binding written agreement or seek alternative compliance or variance options allowed under state law. Note: Failure to propose a modification to achieve compliance with the offset requirements may result in termination of the binding written agreement.	
Continued Coverage: If the permittee intends to seek a renewed variance, an application for the MDV shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
Annual Verification of Payment After Permit Expiration: In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit annual reports to the Department including the information above by May 1 each year.	

Chapter 5
Section 5.02: Review of Watershed Projects and Annual Reports

Author: Amanda Minks and Corinne Billings
Last Revised: August, 2019

County Reporting for use of MDV Funding

As mentioned in Chapter 3, watershed plans developed by the counties will be submitted annually following the year that MDV money was received. These watershed plans should be reviewed for completeness, consistency with other existing watershed plans, and confirmation that MDV funding will be spent appropriately. If DNR staff determine that a county is not using MDV funds appropriately, the DNR may require the permittee to eliminate or reduce future payments to the county, pursuant to s. 283.16(8)(b)(4), Wis. Stats. DNR staff should work with the counties to revise watershed plans before considering the reduction or elimination of MDV funds. Redistribution of MDV funds is discussed in more detail on p. 69.

County MDV plans may be insufficient if:

- Plans are submitted late (after March 1st the year after MDV funds were provided, s. 283.16(8)(b)2m, Wis. Stats.);
- Improvements are not being made to a surface water of the state;
- Plans are not consistent with the DATCP-Approved County Land and Water Resource Management Plan;
- Plans do not result in compliance with ch. NR 151, Wis. Adm. Code, (Note: Plans may go above and beyond ch. NR 151 requirements in order to meet reduction goals specified in an EPA-approved TMDL area);
- MDV funds are contributing towards permit compliance for other WPDES permit holders including CAFOs;
- MDV funds are used towards urban practices; and/or
- Plans do not meet minimum phosphorus reduction estimate, tracking and verification expectations.

Information provided in the annual reports will be used to determine if MDV funds are being used appropriately and consistent with state laws. These reports are the primary mechanism for specifically identifying phosphorus reductions and work completed through the MDV program. In addition to the factors above, staff should also review annual reports to ensure that:

- Annual reports are submitted no later than May 1st of the second year after MDV funds were provided (s. 283.16(8)(b)3, Wis. Stats.);
- At least 65% of MDV funds are going towards cost share compliance with agricultural performance standards and prohibitions (s. 283.16(8)(b)2, Wis. Stats.);
- Tracking requirements are met as specified in Section 3.05, p. 53;
- Practice verification expectations have been met;
- Phosphorus reductions were completed and calculated consistent with Section 3.04; and

- MDV funds are used to implement projects within 26 months of receipt. (Note: a 12-month extension may be provided if extenuating circumstances arise, such as weather-related delays, temporary lack of materials or contractors, etc.)
- Counties have issued, or plan to issue, a NR 151 compliance determination associated with MDV funded practices.

DNR regional AM/WQT coordinators will take the lead in reviewing watershed plans and annual reports in BITS. AM/WQT coordinators should work with other staff, such as regional NPS coordinators, when reviewing these documents, especially if innovative projects or models are used. NPS staff in regions or the central office may also provide valuable insight regarding the following:

- the appropriateness of management measures selected to meet NR 151 agricultural performance standards and prohibitions;
- does cropland or livestock operation receiving MDV funds have a prior history of grants/cost share agreements or 151 compliance/enforcement;
- verifying modeling methods and accuracy of phosphorus reduction calculations,
- verifying MDV practices are implemented are maintained;
- providing assistance to counties with NR 151 compliance determinations associated with MDV funded practices.

Once a watershed plan or annual report is submitted, the lead DNR reviewer should proceed with review of the plan or report using BITS. If questions arise during the review of a plan or annual report, the DNR reviewer may need to contact county staff to get clarification on submitted information or request missing or incomplete information. When this occurs, DNR staff should communicate a timeline to submit additional or new MDV information and confirm receipt of information from counties by email or phone. A shared spreadsheet is used to track county plan and report status outside of BITS. Each project submitted will receive a unique record for tracking and reporting purposes. Watershed plans and annual reports will be posted online via a standardized export procedure from BITS. The Statewide Phosphorus Coordinator is responsible for providing a statewide summary of county projects to share with permittees and other organizations.

Redistribution of MDV Funds (County Payment Option Only)

The Statewide Phosphorus Coordinator will work to redistribute funding when no county in a given HUC 8 watershed chooses to participate. MDV funds may be redistributed in the following situations:

1. If a participating county is not using MDV payments to effectively reduce the amount of phosphorus entering waters of the state from nonpoint sources, pursuant to s. 283.16(8)(b)4, Wis. Stats.
    a. In this case, MDV funds will be distributed to other participating counties in the HUC 8 based on their proportional area in the HUC 8.
2. If more MDV funds are available to participating counties than the counties have the capacity to use in an appropriate period (preferably within 2-3 years).

a. In this case, MDV funds will be distributed to participating counties based on their capacity to use them.
b. Any remaining, unallocated MDV funds will be distributed using the methodology in #3 below.

3. If there are no participating counties in the applicable HUC 8, MDV funding would be paid to participating counties in the following geographic categories in priority order:
    1. To other participating counties upstream of the original HUC 8.
    2. To participating counties from the original HUC 8 where funds were awarded but for projects in those counties outside of the original HUC 8.
    3. To other participating counties downstream of the original HUC 8.

Third Party or Self-Directed Watershed Options (Chapter 4)

As mentioned in Chapter 4, watershed plans developed pursuant to ss. 283.16(6)(b)(2) or (3), Wis. Stats., must be approved by DNR prior to issuing a WPDES permit including either of these watershed options. Section 4 of the MDV Evaluation Checklist (Form 3200-145) is designed to help staff review and approve these watershed plans.

Situations where plans may be insufficient include:

- The project area is outside of the HUC 8 boundary;
- Form 3200-148 is not completed;
- Water quality improvements are not being made to a surface water of the state;
- Models/methods used to estimate pollutant reductions from practices are inaccurate;
- Insufficient pollutant reductions are made to offset the difference between the point source load and target value during all years of the variance term;
- MDV offsets are also contributing towards permit compliance for other WPDES permit holders including CAFO and MS4 permits or other compliance options for other permittees such as adaptive management or trading.;
- Practices are not installed and maintained in accordance with applicable NRCS technical standards; and
- The plan does not meet minimum BMP tracking and verification expectations.

Annual reports are also required for Chapter 4 watershed plans. While third parties may conduct inspections and compile annual reports, it is ultimately the permittee's responsibility to ensure these requirements are met. Annual report submittals will be very similar to water quality trading annual reports, since inspection and reporting protocols are similar for most nonpoint source pollution reduction projects, and reporting requirements are specified for each year per a schedule in the WPDES permit. In addition to the annual report considerations in the previous section, staff may also consider the following to determine if the annual report is adequate:

- Necessary annual offsets were achieved;
- Practices were installed in accordance with NRCS technical standards;

- Post-construction inspections were completed by individuals with appropriate technical expertise to confirm practices are maintained;
- Practices were verified by individuals with appropriate technical expertise; and
- Phosphorus reductions were calculated appropriately.

AM/WQT coordinators will also be the lead staff to review and approve these watershed plans and annual reports. As previously mentioned, watershed plans must be reviewed, approved, and in most cases implemented prior to WPDES permit reissuance. Staff should use the public comment procedures in the permit reissuance process to receive public comments on watershed plans prior to formal approval.

Chapter 5
Section 5.03: DNR Determinations & Public Participation Opportunities

Authors: Amanda Minks and Robin Nyffeler
Last Revised: October, 2015

The process for soliciting public comment on a Department action regarding a MDV application differs slightly depending on when the MDV application is submitted to DNR and the DNR action taken. As previously stated, DNR action must be taken within 30 days of receiving the MDV application or the MDV application is approved pursuant to s. 283.16(4)(am)(3), Wis. Stats. A DNR action within the 30 day time period may be either a tentative approval, denial, or a request for additional information. If a permittee selected a watershed option other than the county payment option, the MDV application will include the watershed project/plan. See Chapter 4, p. 54, for details.

MDV application is submitted as part of the application for reissuance:

Note: In this case applicable phosphorus limits and compliance schedule requirements are not stayed because the WPDES permit has yet to be reissued.

Process if DNR's action is a "tentative approval":

Step 1: Within 30 days of receiving the MDV application, DNR sends letter with tentative approval.

Step 2: DNR proposes a permit reissuance to incorporate the variance.

Step 3: Solicit public and EPA comments on the tentative approval of the MDV application when the draft reissuance permit is public noticed.

Step 4: After consideration of public comments, if the final determination is to grant phosphorus MDV coverage to the permittee as part of the reissued permit, a person or persons, may file for judicial review of the MDV approval. The s. 227.52, Wis. Stats, judicial review petition must be filed within 30 days of the permit reissuance or revocation and reissuance that incorporates the variance. A person may not challenge the economic finding and impact determination that was approved by EPA. A petitioner can only challenge whether the permittee actually qualifies for the statewide variance. There is no right to a contested case hearing on an approval of an MDV application – see ss. 283.63(4) and 283.16(4)(e), Wis. Stats.

Process if DNR's action is a denial:

Step 1: Notify the applicant that the application is denied. This is a final decision. Appeal rights will be provided.

Step 2: The permittee can challenge the denial through a judicial review petition filed pursuant to s. 227.52, Wis. Stats., within 30 days of the denial. Unlike the "tentative approval", the denial is considered a final decision. There is no right to a contested case hearing on a denial of an MDV application – see s. 283.63(4) and 283.16(4)(e), Wis. Stats. If a permittee does not appeal the denial decision, then DNR would reissue the permit with the phosphorus WQBEL. If,

however, the permittee challenges the denial, DNR staff may choose to refrain from reissuance until the litigation is completed.

Process if DNR's action is to request additional information:

Step 1: Within 30 days of receiving the MDV application, DNR sends letter with request for additional information.

Step 2: The permittee may take adequate time to provide this additional information. If, however, the permittee does not submit the information in a timely manner, the Department may choose to deny the application and proceed with permit reissuance.

Step 3: Within 30 days of receiving the additional information, DNR re-evaluates the MDV application and sends letter with tentative approval/denial. The procedures specified above would then be followed.

Note: Permittees that apply for MDV coverage in subsequent permits will need to apply for the MDV at the term of permit reissuance in accordance with s. 283.16(4)(am)(1), Wis. Stats.

MDV application is submitted during the permit term:

There are three ways a permittee can ask for an MDV as part of the variance: 1.) By requesting a variance in the application for reissuance; 2.) Within 60 days after the permit is reissued to include a phosphorus WQBEL*;3.) As part of a request for a modification (applies to permits with phosphorus WQBELs that were reissued prior to April 25, 2014); or 4.) As part of a permittee's compliance evaluation determination in accordance with their compliance schedule (applies to permits with phosphorus WQBELs that were reissued prior to April 25, 2014). Once an MDV application is submitted, the phosphorus water quality based limit and compliance schedule is stayed.

*Note: Federal code does not authorize approval of a variance application after permit reissuance. This approach is strongly discouraged.

Process if DNR's action is a "tentative approval":

Step 1: Within 30 days of receiving the MDV application, DNR sends letter with tentative approval.

Step 2: DNR proposes a permit modification or reissuance or revocation to incorporate the variance.

Step 3: Solicit public and EPA comments on the tentative approval of MDV application when the draft reissuance permit is public noticed.

Step 4: After consideration of public comments, if the final determination is to grant phosphorus MDV coverage to the permittee as part of the permit modification or revocation and reissuance, a person or persons, may file for judicial review of the MDV approval. The s. 227.52, Wis. Stats, judicial review petition must be filed with 30 days of the permit modification

or revocation and reissuance that incorporates the variance. A person may not challenge the economic findings and impact determination that was approved by EPA. A petitioner can only challenge whether the permittee actually qualifies for the statewide variance. There is no right to a contested case hearing on an approval of an MDV application – see ss. 283.63(4) and 283.16(4)(e), Wis. Stats.

Process if DNR's action is a denial:

Step 1: Notify the applicant that the application is denied. This is a final decision. Appeal rights will be provided.

Step 2: The permittee can challenge the denial through a judicial review petition filed pursuant to s. 227.52, Wis. Stats., within 30 days of the denial. Unlike the "tentative approval", the denial is considered a final decision. There is no right to a contested case hearing on a denial of an MDV application – see ss. 283.63(4) and 283.16(4)(e), Wis. Stats. If a permittee does not appeal the denial, then the limitation is no longer stayed. If a permittee does appeal the denial, the limit and remaining compliance schedule is stayed until the final disposition of the litigation.

Process if DNR's action is to request additional information:

Step 1: Within 30 days of receiving the MDV application, DNR sends letter with request for additional information.

Step 2: The permittee may take adequate time to provide this additional information. If, however, the permittee does not submit the information in a timely manner, the Department may choose to deny the application.

Step 3: Within 30 days of receiving the additional information, DNR re-evaluates the MDV application and sends letter with tentative approval/denial. The procedures provided above would then be followed.

Chapter 5
Section 5.04: Review of the MDV

Author: Kristi Minahan and Amanda Minks
Last Revised: September, 2020

Several reviews will occur throughout the duration of the MDV. This includes:

- Reevaluation of the substantial and widespread determination;
- Reevaluation of the highest attainable condition analysis;
- Site-specific highest attainable condition evaluations; and,
- Updates to the MDV implementation policy document.

The purpose and general process for each of these reviews is described in this Section. The Department plans to update this Section as reviews are completed and experience is gained through implementation.

Substantial and Widespread Determination Review

Pursuant to ss. 283.15(11) and 283.16(2m), Wis. Stats., the Department shall make a determination every three years on whether updates to the substantial and widespread determination are warranted, based on technological improvements or economic changes over the course of time. This will be done through the DNR's Triennial Standards Review (TSR) process for water quality standards. This review is in addition to site-specific reviews that will be done as part of the permit reissuance process to ensure that the point source continues to be eligible for the MDV and permit conditions are included in the WPDES permit to reflect the highest attainable condition for the permittee in question (discussed later on in this Section).

The TSR has two distinct phases. Phase 1 is a work planning phase in which the DNR uses public, partner, and staff input to determine which water quality standards topics the DNR will review, revise, or develop during the upcoming three year period. As part of this process, the department uses an online survey tool to solicit information related to the topics under consideration. To fulfill TSR requirements of s. 283.16(2m) Wis. Stats, the department shall determine whether formal review under s. 283.16(3) Wis. Stats. should be undertaken, considering any comments it receives on the variance. The formal review requires that the Department of Administration, in consultation with DNR, prepare a report to determine if compliance with phosphorus water quality standards continues to cause substantial and widespread adverse social and economic impacts on a statewide basis. The analysis should focus on point sources that cannot achieve compliance without a major facility upgrade.

Additional information that will help the DNR when conducting the review under s. 283.16(3)(a) Wis. Stats. include whether new technology or improvements to existing technology have become reasonably available after 2015 that is likely to result in any of the following:

- Allow point sources to comply with interim effluent limitations for phosphorus that are more stringent than those in s. 283.16(6)(a), Wis. Stat;

- Enable any category of point sources to comply with interim effluent limitations for phosphorus that are more stringent than those in sub. (6)(a);
- Enable more cost-effective compliance with interim effluent limitations for phosphorus that are more stringent than those in sub. (6)(a);

Additionally, economic information will be considered that would warrant:

- Review of, or adjustments to, the industrial primary screener thresholds specified in Appendix G, p. 96, (Appendix I (p. 95) of the Determination), or
- A revised determination that results in the phosphorus compliance no longer causing substantial and widespread adverse impacts to the state (p. 64 of the Final Determination).

In Phase 2, DNR implements the work plan by making the identified updates to the priority project areas. The priority projects are begun during the three-year cycle. If changes to the MDV are warranted, those changes will take effect immediately with no further action required.

DNR's last TSR cycle covered years 2018 to 2020. During Phase 1, DNR solicited for technical information on the phosphorus multi-discharger variance, as required by s. 283.16(2m), Wis. Stats. DNR did not receive any information from the public indicating technology advances that make compliance with the phosphorus water quality standard attainable.

DNR's next TSR cycle will cover 2021 to 2023. Phase 1 is likely to begin in late 2020 or early 2021. At that time, the determination of whether a review of the MDV is needed will be made during Phase 1. Using the online survey tool, DNR will solicit specific input on whether the public, partners, or staff have substantive knowledge of technological improvements that would warrant a review of the variance. If the DNR receives credible information regarding new/improved technologies or economic information, and determines that a review of the variance is warranted, it will direct DOA and DNR to begin a joint review of the variance during Phase 2 of the TSR, as required by statute. The review will encompass those steps outlined in ss. 283.16(3)(c) to (g), Wis. Stats. Likewise, if changes to the industrial primary screeners are necessary, DOA and DNR will work in partnership to develop these revised eligibility criteria. Visit http://dnr.wi.gov/topic/surfacewater/tsr.html for additional information about the TSR process.

Additionally, the statute specifies that a review of the substantial and widespread determination must be conducted within 10 years of the date of EPA approval for the MDV (s. 283.16(3)(a), Wis. Stats.). This review will may be conducted as part of the triennial standard review process, or through separate procedures. If DOA and the Department find that the MDV continues to be justified after this review is completed, than the Department will seek EPA approval to implement a continuance of the MDV. EPA approved the MDV on February 6, 2017 and is effective until February 5, 2027. Permit terms and conditions that reflect the MDV cannot extend beyond the term of the variance expiration date. As mentioned, several options are available to extend the current MDV approval to encompass the full time period allotted in s. 283.16, Wis. Stats., including seeking EPA approval on updated MDV packages and providing a compliance schedule after MDV expiration. The Department will continue to work with

EPA and stakeholders to pursue these options to maximize the duration of the MDV as necessary and appropriate.

Highest Attainable Condition Review

This review will help ensure that interim limitations and optimization requirements are updated, as necessary, to reflect the highest attainable condition for categories of dischargers across the state. DNR will utilize data collected during the triennial standard review process as well as other existing and readily available information to help complete this review. The Department will also hold a public hearing to receive comment and additional information for this review pursuant to s. 283.16(3m)(a), Wis. Stats. This review will occur at least every 5 years after the date EPA approves the MDV and will be submitted to EPA no later than 30 days after completion (s. 283.16(3m), Wis. Stats.).

Site-Specific Highest Attainable Condition Review

Pursuant to s. 283.16(3m)(e), Wis. Stats., the department may review whether the default interim limitations specified in Table 2 of this document and in s. 283.16(6)(a), Wis. Stats. represent the highest attainable condition for an individual WPDES permit holder at the time MDV coverage is granted or upon permit reissuance with the MDV. The procedures provided in Section 2.02 will be used to calculate site-specific interim limitations, should these limitations be necessary. Public participation opportunities about these site-specific determinations are specified in Section 5.03 of this document.

Updates to the MDV Implementation Policy Document

This document may be updated, as necessary and appropriate, to reflect new information, lessons learned, or changes to the variance procedures. The Department has an established process for involving stakeholders in the process of updating guidance documents. This process will be followed whenever the MDV Program Policy Document is updated. For convenience, key steps of this process are highlighted below:

- Updates to the MDV policy document will be available for comment for at least 21 days unless modified for cause.
- Notice will be posted on this site https://dnr.wisconsin.gov/news/input/Guidance. Stakeholders may sign up to be automatically notified when updates are posted on this site.
- All comments received will be considered prior to finalization of the document.
- The final version of the document will be posted on the applicable web page once it is completed.

Appendix A. Secondary Screeners for Municipal POTWs

Last Revised: March, 2020

The following table provides the secondary screening score for municipal POTWs as described in the Final Economic Determination. Please refer to Section 5 of that report for details on each economic metric, why it was selected, and how the scoring process worked. All shaded cells in this table indicate that the cell value exceeds the indicator threshold, and contributes to the secondary screening value. The total secondary screening value in the last column of this table provides the secondary screening total, which is the value used to determine eligibility for the MDV.

Note: This information will be updated as new information becomes available.

Table 8. Municipal WWTFs' Secondary Indicators.

	Personal Current Transfer Receipts Share of Total Income 2018 [1]	Jobs per Square Mile [2]	Population Change 2008 - 2018 [3]	Net Earnings Change 2008-2018 [4] **(2points)**	Job Growth 2008-2018 [5]	Secondary Indicator Score
Adams	33.3%	7	-3.6%	17.5%	2.6%	6
Ashland	28.8%	8	-3.4%	29.8%	- 7.7%	6
Barron	22.2%	26	-1.8%	37.0%	2.3%	6
Bayfield	25.0%	3	-0.8%	22.9%	8.2%	5
Brown	14.1%	300	7.9%	36.1%	8.6%	2
Buffalo	22.2%	6	-4.4%	10.2%	- 17.6%	6
Burnett	31.2%	6	-1.9%	25.2%	2.5%	6
Calumet	12.3%	44	4.5%	33.8%	16.1%	3
Chippewa	19.6%	24	4.2%	35.9%	11.1%	4
Clark	20.8%	9	0.2%	37.6%	7.4%	3
Columbia	16.5%	30	1.8%	26.6%	8.6%	4
Crawford	26.0%	13	-3.1%	32.9%	- 8.3%	6
Dane	11.0%	281	13.5%	47.7%	14.6%	0
Dodge	18.1%	41	-1.6%	19.9%	1.0%	6
Door	19.3%	28	-1.5%	30.5%	0.5%	6
Douglas	25.7%	12	-1.4%	22.0%	2.5%	6
Dunn	21.1%	21	4.0%	29.4%	7.2%	4
Eau Claire	17.1%	92	7.6%	36.1%	5.2%	4
Florence	23.4%	2	-5.3%	45.6%	- 0.9%	4
Fond du Lac	18.7%	66	1.9%	25.4%	2.9%	5
Forest	30.1%	3	-6.5%	38.3%	- 6.4%	4
Grant	20.2%	16	1.4%	41.4%	3.4%	4
Green	21.5%	27	0.9%	24.4%	4.5%	6
Green Lake	16.5%	17	-1.0%	10.3%	- 9.0%	5

	Personal Current Transfer Receipts Share of Total Income 2018 [1]	Jobs per Square Mile [2]	Population Change 2008 - 2018 [3]	Net Earnings Change 2008-2018 [4] **(2points)**	Job Growth 2008-2018 [5]	Secondary Indicator Score
Iowa	16.3%	13	0.3%	31.7%	- 1.6%	5
Iron	28.2%	2	-7.0%	33.5%	- 12.6%	6
Jackson	20.6%	9	0.6%	18.8%	2.9%	6
Jefferson	17.9%	60	2.4%	29.0%	- 1.2%	5
Juneau	26.7%	12	-0.8%	16.9%	- 0.1%	6
Kenosha	17.7%	245	2.8%	29.1%	18.5%	4
Kewaunee	18.1%	20	-1.2%	26.2%	- 9.0%	6
La Crosse	17.2%	155	4.9%	35.0%	6.8%	3
Lafayette	18.9%	7	-0.6%	28.1%	6.5%	5
Langlade	28.6%	8	-4.8%	16.5%	- 5.8%	6
Lincoln	23.8%	13	-4.8%	15.3%	- 4.3%	6
Manitowoc	20.4%	57	-3.2%	11.7%	- 4.4%	5
Marathon	16.0%	46	1.8%	24.4%	0.8%	5
Marinette	27.7%	13	-3.8%	21.8%	- 5.5%	6
Marquette	26.4%	9	-0.3%	34.6%	- 0.8%	6
Menominee	34.6%	6	10.5%	27.4%	5.8%	5
Milwaukee	21.5%	2023	1.4%	19.8%	1.2%	5
Monroe	20.7%	23	4.3%	35.8%	4.3%	5
Oconto	20.6%	9	0.0%	35.7%	- 1.1%	6
Oneida	25.2%	15	-2.8%	25.8%	- 3.5%	6
Outagamie	13.9%	170	7.4%	36.5%	5.5%	3
Ozaukee	9.8%	184	3.7%	29.2%	9.6%	3
Pepin	23.7%	10	-3.4%	17.7%	0.6%	6
Pierce	16.1%	18	4.4%	29.9%	4.2%	4
Polk	22.1%	17	-1.7%	31.7%	1.3%	6
Portage	18.2%	42	1.9%	37.3%	5.6%	6
Price	29.0%	4	-7.0%	8.7%	- 12.0%	6
Racine	18.7%	227	1.0%	20.6%	0.7%	5
Richland	24.3%	10	-4.5%	33.8%	- 5.5%	6
Rock	20.3%	93	1.5%	29.8%	2.3%	5
Rusk	26.6%	6	-5.0%	60.1%	- 6.3%	4
St. Croix	12.5%	41	7.8%	41.6%	16.0%	1
Sauk	17.6%	29	4.9%	44.6%	- 0.2%	3
Sawyer	28.3%	8	-1.0%	25.7%	- 3.3%	6
Shawano	22.4%	25	-2.6%	31.0%	0.3%	6
Sheboygan	15.8%	85	-0.2%	28.4%	- 0.0%	4

	Personal Current Transfer Receipts Share of Total Income 2018 [1]	Jobs per Square Mile [2]	Population Change 2008 - 2018 [3]	Net Earnings Change 2008-2018 [4] **(2points)**	Job Growth 2008-2018 [5]	Secondary Indicator Score
Taylor	21.7%	8	-0.8%	27.5%	- 2.2%	6
Trempealeau	20.9%	19	3.5%	31.6%	2.3%	6
Vernon	22.9%	11	4.6%	33.8%	2.9%	5
Vilas	24.6%	9	0.8%	29.3%	- 0.2%	6
Walworth	16.5%	76	1.8%	35.2%	7.1%	3
Washburn	29.5%	7	-0.8%	33.5%	- 1.1%	6
Washington	13.5%	131	3.7%	33.5%	7.0%	3
Waukesha	11.1%	444	4.2%	28.9%	6.2%	2
Waupaca	24.0%	26	-2.8%	19.0%	- 6.7%	6
Waushara	24.9%	10	-2.0%	23.5%	1.9%	6
Winnebago	16.3%	216	3.7%	27.2%	5.1%	4
Wood	21.5%	49	-2.0%	12.6%	- 3.9%	6
Threshold	U.S. = 16.7%	WI = 53	~1/2 U.S = 3.8%	U.S = 37.6%	~1/2 U.S = 6.1%	

[1] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[2] Jobs from WI DWD Quarterly Census of Employment and Wages; land area from U.S. Census Bureau, County Quick Facts.

[3] WI DOA Demographic Services Center; www.doa.state.wi.us/demographics.

[4] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[5] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

Appendix B. Secondary Screeners for Cheese Manufacturers

Last Revised: March 23, 2020

The following table provides the secondary screening score for cheese manufacturers as described in the Final Economic Determination. Please refer to Section 5 of that report for details on each economic metric, why it was selected, and how the scoring process worked. All shaded cells in this table indicate that the cell value exceeds the indicator threshold, and contributes to the secondary screening value. The total secondary screening value in the last column of this table provides the secondary screening total, which is the value used to determine eligibility for the MDV.

Note: This information will be updated as new information becomes available.

Table 9 Cheese Manufacturers' Secondary Indicators

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Adams	44.0	33.3%	7	-3.6%	17.5%	2.6%	--	7
Ashland	41.5	28.8%	8	-3.4%	29.8%	- 7.7%	--	7
Barron	49.3	22.2%	26	-1.8%	37.0%	2.3%	--	7
Bayfield	50.1	25.0%	3	-0.8%	22.9%	8.2%	--	6
Brown	56.8	14.1%	300	7.9%	36.1%	8.6%	--	3
Buffalo	54.8	22.2%	6	-4.4%	10.2%	- 17.6%	2.56%	9
Burnett	45.9	31.2%	6	-1.9%	25.2%	2.5%	0.82%	7
Calumet	70.7	12.3%	44	4.5%	33.8%	16.1%	0.82%	3
Chippewa	55.2	19.6%	24	4.2%	35.9%	11.1%	--	5
Clark	49.1	20.8%	9	0.2%	37.6%	7.4%	2.68%	6
Columbia	63.3	16.5%	30	1.8%	26.6%	8.6%	--	4
Crawford	47.3	26.0%	13	-3.1%	32.9%	- 8.3%	--	7
Dane	67.6	11.0%	281	13.5%	47.7%	14.6%	--	0
Dodge	56.0	18.1%	41	-1.6%	19.9%	1.0%	0.03%	7
Door	56.5	19.3%	28	-1.5%	30.5%	0.5%	--	7
Douglas	50.7	25.7%	12	-1.4%	22.0%	2.5%	--	7
Dunn	54.6	21.1%	21	4.0%	29.4%	7.2%	--	5
Eau Claire	52.2	17.1%	92	7.6%	36.1%	5.2%	--	5
Florence	47.8	23.4%	2	-5.3%	45.6%	- 0.9%	--	5
Fond du Lac	57.8	18.7%	66	1.9%	25.4%	2.9%	0.01%	5
Forest	43.4	30.1%	3	-6.5%	38.3%	- 6.4%	--	5
Grant	50.5	20.2%	16	1.4%	41.4%	3.4%	1.64%	7
Green	60.6	21.5%	27	0.9%	24.4%	4.5%	2.15%	8
Green Lake	50.3	16.5%	17	-1.0%	10.3%	- 9.0%	--	6

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Iowa	60.0	16.3%	13	0.3%	31.7%	- 1.6%	--	5
Iron	39.9	28.2%	2	-7.0%	33.5%	- 12.6%	--	7
Jackson	51.1	20.6%	9	0.6%	18.8%	2.9%	--	7
Jefferson	59.2	17.9%	60	2.4%	29.0%	- 1.2%	--	5
Juneau	48.8	26.7%	12	-0.8%	16.9%	- 0.1%	--	7
Kenosha	57.3	17.7%	245	2.8%	29.1%	18.5%	--	5
Kewaunee	60.3	18.1%	20	-1.2%	26.2%	- 9.0%	0.74%	6
La Crosse	54.1	17.2%	155	4.9%	35.0%	6.8%	--	4
Lafayette	55.9	18.9%	7	-0.6%	28.1%	6.5%	4.45%	8
Langlade	44.1	28.6%	8	-4.8%	16.5%	- 5.8%	--	7
Lincoln	54.2	23.8%	13	-4.8%	15.3%	- 4.3%	--	7
Manitowoc	51.1	20.4%	57	-3.2%	11.7%	- 4.4%	--	6
Marathon	56.5	16.0%	46	1.8%	24.4%	0.8%	0.25%	6
Marinette	45.0	27.7%	13	-3.8%	21.8%	- 5.5%	--	7
Marquette	49.1	26.4%	9	-0.3%	34.6%	- 0.8%	--	7
Menominee	38.1	34.6%	6	10.5%	27.4%	5.8%	--	6
Milwaukee	46.8	21.5%	2023	1.4%	19.8%	1.2%	--	6
Monroe	56.5	20.7%	23	4.3%	35.8%	4.3%	--	6
Oconto	55.8	20.6%	9	0.0%	35.7%	- 1.1%	1.54%	9
Oneida	52.9	25.2%	15	-2.8%	25.8%	- 3.5%	--	7
Outagamie	61.5	13.9%	170	7.4%	36.5%	5.5%	--	3
Ozaukee	80.5	9.8%	184	3.7%	29.2%	9.6%	--	3
Pepin	51.5	23.7%	10	-3.4%	17.7%	0.6%	--	7
Pierce	66.8	16.1%	18	4.4%	29.9%	4.2%	1.32%	6
Polk	53.6	22.1%	17	-1.7%	31.7%	1.3%	--	7
Portage	54.6	18.2%	42	1.9%	37.3%	5.6%	0.04%	7
Price	45.7	29.0%	4	-7.0%	8.7%	- 12.0%	--	7
Racine	58.3	18.7%	227	1.0%	20.6%	0.7%	--	5
Richland	48.2	24.3%	10	-4.5%	33.8%	- 5.5%	3.76%	9
Rock	53.4	20.3%	93	1.5%	29.8%	2.3%	--	6
Rusk	41.9	26.6%	6	-5.0%	60.1%	- 6.3%	--	5
St. Croix	77.8	12.5%	41	7.8%	41.6%	16.0%	0.29%	1
Sauk	54.4	17.6%	29	4.9%	44.6%	- 0.2%	--	4
Sawyer	43.6	28.3%	8	-1.0%	25.7%	- 3.3%	--	7
Shawano	51.8	22.4%	25	-2.6%	31.0%	0.3%	--	7
Sheboygan	56.1	15.8%	85	-0.2%	28.4%	- 0.0%	0.34%	5

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Taylor	49.8	21.7%	8	-0.8%	27.5%	- 2.2%	1.47%	9
Trempealeau	54.0	20.9%	19	3.5%	31.6%	2.3%	--	7
Vernon	50.0	22.9%	11	4.6%	33.8%	2.9%	--	6
Vilas	42.7	24.6%	9	0.8%	29.3%	- 0.2%	--	7
Walworth	58.4	16.5%	76	1.8%	35.2%	7.1%	--	3
Washburn	46.6	29.5%	7	-0.8%	33.5%	- 1.1%	--	7
Washington	73.0	13.5%	131	3.7%	33.5%	7.0%	0.19%	3
Waukesha	81.1	11.1%	444	4.2%	28.9%	6.2%	--	2
Waupaca	54.1	24.0%	26	-2.8%	19.0%	- 6.7%	--	7
Waushara	48.4	24.9%	10	-2.0%	23.5%	1.9%	--	7
Winnebago	55.1	16.3%	216	3.7%	27.2%	5.1%	--	5
Wood	51.6	21.5%	49	-2.0%	12.6%	- 3.9%	0.20%	7
Threshold	U.S. = $57.7	U.S. = 16.7%	WI = 53	~1/2 U.S = 3.8%	U.S = 37.6%	~1/2 U.S = 6.1%	1.00%	

[1] U.S. Dept. of Commerce, Census Bureau, American Community Survey 2013-2017; Table B19013 Inflation-Adjusted Median Household Income.

[2] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[3] Jobs from WI DWD Quarterly Census of Employment and Wages; land area from U.S. Census Bureau, County Quick Facts.

[4] WI DOA Demographic Services Center; www.doa.state.wi.us/demographics.

[5] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[6] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[7] Wage values from U.S. Dept. of Commerce, Census Bureau; County Business Patterns.
Thresholds provided by the University of Massachusetts Donahue Institute.

Appendix C. Secondary Screeners for Food Processors

Last Revised: March, 2020

The following table provides the secondary screening score for food processors as described in the Final Economic Determination. Please refer to Section 5 of that report for details on each economic metric, why it was selected, and how the scoring process worked. All shaded cells in this table indicate that the cell value exceeds the indicator threshold, and contributes to the secondary screening value. The total secondary screening value in the last column of this table provides the secondary screening total, which is the value used to determine eligibility for the MDV.

Note: This information will be updated as new information becomes available.

Table 10. Food Processors' Secondary Indicators

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Adams	44.0	33.3%	7	-3.6%	17.5%	2.6%	--	7
Ashland	41.5	28.8%	8	-3.4%	29.8%	- 7.7%	--	7
Barron	49.3	22.2%	26	-1.8%	37.0%	2.3%	1.57%	9
Bayfield	50.1	25.0%	3	-0.8%	22.9%	8.2%	--	6
Brown	56.8	14.1%	300	7.9%	36.1%	8.6%	--	3
Buffalo	54.8	22.2%	6	-4.4%	10.2%	- 17.6%	--	7
Burnett	45.9	31.2%	6	-1.9%	25.2%	2.5%	--	7
Calumet	70.7	12.3%	44	4.5%	33.8%	16.1%	--	3
Chippewa	55.2	19.6%	24	4.2%	35.9%	11.1%	--	5
Clark	49.1	20.8%	9	0.2%	37.6%	7.4%	--	4
Columbia	63.3	16.5%	30	1.8%	26.6%	8.6%	0.90%	4
Crawford	47.3	26.0%	13	-3.1%	32.9%	- 8.3%	--	7
Dane	67.6	11.0%	281	13.5%	47.7%	14.6%	--	0
Dodge	56.0	18.1%	41	-1.6%	19.9%	1.0%	--	7
Door	56.5	19.3%	28	-1.5%	30.5%	0.5%	--	7
Douglas	50.7	25.7%	12	-1.4%	22.0%	2.5%	--	7
Dunn	54.6	21.1%	21	4.0%	29.4%	7.2%	--	5
Eau Claire	52.2	17.1%	92	7.6%	36.1%	5.2%	--	5
Florence	47.8	23.4%	2	-5.3%	45.6%	- 0.9%	--	5
Fond du Lac	57.8	18.7%	66	1.9%	25.4%	2.9%	0.32%	5
Forest	43.4	30.1%	3	-6.5%	38.3%	- 6.4%	--	5
Grant	50.5	20.2%	16	1.4%	41.4%	3.4%	--	5
Green	60.6	21.5%	27	0.9%	24.4%	4.5%	--	6
Green Lake	50.3	16.5%	17	-1.0%	10.3%	- 9.0%	2.36%	8

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Iowa	60.0	16.3%	13	0.3%	31.7%	- 1.6%	--	5
Iron	39.9	28.2%	2	-7.0%	33.5%	- 12.6%	--	7
Jackson	51.1	20.6%	9	0.6%	18.8%	2.9%	--	7
Jefferson	59.2	17.9%	60	2.4%	29.0%	- 1.2%	--	5
Juneau	48.8	26.7%	12	-0.8%	16.9%	- 0.1%	--	7
Kenosha	57.3	17.7%	245	2.8%	29.1%	18.5%	0.14%	5
Kewaunee	60.3	18.1%	20	-1.2%	26.2%	- 9.0%	--	6
La Crosse	54.1	17.2%	155	4.9%	35.0%	6.8%	--	4
Lafayette	55.9	18.9%	7	-0.6%	28.1%	6.5%	--	6
Langlade	44.1	28.6%	8	-4.8%	16.5%	- 5.8%	--	7
Lincoln	54.2	23.8%	13	-4.8%	15.3%	- 4.3%	--	7
Manitowoc	51.1	20.4%	57	-3.2%	11.7%	- 4.4%	--	6
Marathon	56.5	16.0%	46	1.8%	24.4%	0.8%	0.09%	6
Marinette	45.0	27.7%	13	-3.8%	21.8%	- 5.5%	--	7
Marquette	49.1	26.4%	9	-0.3%	34.6%	- 0.8%	--	7
Menominee	38.1	34.6%	6	10.5%	27.4%	5.8%	--	6
Milwaukee	46.8	21.5%	2023	1.4%	19.8%	1.2%	--	6
Monroe	56.5	20.7%	23	4.3%	35.8%	4.3%	0.71%	6
Oconto	55.8	20.6%	9	0.0%	35.7%	- 1.1%	--	7
Oneida	52.9	25.2%	15	-2.8%	25.8%	- 3.5%	--	7
Outagamie	61.5	13.9%	170	7.4%	36.5%	5.5%	0.14%	3
Ozaukee	80.5	9.8%	184	3.7%	29.2%	9.6%	0.13%	3
Pepin	51.5	23.7%	10	-3.4%	17.7%	0.6%	--	7
Pierce	66.8	16.1%	18	4.4%	29.9%	4.2%	--	4
Polk	53.6	22.1%	17	-1.7%	31.7%	1.3%	--	7
Portage	54.6	18.2%	42	1.9%	37.3%	5.6%	0.07%	7
Price	45.7	29.0%	4	-7.0%	8.7%	- 12.0%	--	7
Racine	58.3	18.7%	227	1.0%	20.6%	0.7%	--	5
Richland	48.2	24.3%	10	-4.5%	33.8%	- 5.5%	--	7
Rock	53.4	20.3%	93	1.5%	29.8%	2.3%	--	6
Rusk	41.9	26.6%	6	-5.0%	60.1%	- 6.3%	--	5
St. Croix	77.8	12.5%	41	7.8%	41.6%	16.0%	--	1
Sauk	54.4	17.6%	29	4.9%	44.6%	- 0.2%	0.52%	4
Sawyer	43.6	28.3%	8	-1.0%	25.7%	- 3.3%	--	7
Shawano	51.8	22.4%	25	-2.6%	31.0%	0.3%	--	7
Sheboygan	56.1	15.8%	85	-0.2%	28.4%	- 0.0%	0.18%	5

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Taylor	49.8	21.7%	8	-0.8%	27.5%	- 2.2%	--	7
Trempealeau	54.0	20.9%	19	3.5%	31.6%	2.3%	--	7
Vernon	50.0	22.9%	11	4.6%	33.8%	2.9%	--	6
Vilas	42.7	24.6%	9	0.8%	29.3%	- 0.2%	--	7
Walworth	58.4	16.5%	76	1.8%	35.2%	7.1%	--	3
Washburn	46.6	29.5%	7	-0.8%	33.5%	- 1.1%	--	7
Washington	73.0	13.5%	131	3.7%	33.5%	7.0%	--	3
Waukesha	81.1	11.1%	444	4.2%	28.9%	6.2%	--	2
Waupaca	54.1	24.0%	26	-2.8%	19.0%	- 6.7%	--	7
Waushara	48.4	24.9%	10	-2.0%	23.5%	1.9%	--	7
Winnebago	55.1	16.3%	216	3.7%	27.2%	5.1%	--	5
Wood	51.6	21.5%	49	-2.0%	12.6%	- 3.9%	--	7
Threshold	U.S. = $57.7	U.S. = 16.7%	WI = 53	~1/2 U.S = 3.8%	U.S = 37.6%	~1/2 U.S = 6.1%	1.00%	

[1] U.S. Dept. of Commerce, Census Bureau, American Community Survey 2013-2017; Table B19013 Inflation-Adjusted Median Household Income.

[2] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[3] Jobs from WI DWD Quarterly Census of Employment and Wages; land area from U.S. Census Bureau, County Quick Facts.

[4] WI DOA Demographic Services Center; www.doa.state.wi.us/demographics.

[5] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[6] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[7] Wage values from U.S. Dept. of Commerce, Census Bureau; County Business Patterns.
Thresholds provided by the University of Massachusetts Donahue Institute.

Appendix D. Secondary Screeners for the Paper Industry

Last Revised: March, 2020

The following table provides the secondary screening score for paper industries as described in the Final Economic Determination. Please refer to Section 5 of that report for details on each economic metric, why it was selected, and how the scoring process worked. All shaded cells in this table indicate that the cell value exceeds the indicator threshold, and contributes to the secondary screening value. The total secondary screening value in the last column of this table provides the secondary screening total, which is the value used to determine eligibility for the MDV.

Note: This information will be updated as new information becomes available.

Table 11 Paper Industry Secondary Indicators

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Adams	44.0	33.3%	7	-3.6%	17.5%	2.6%	--	7
Ashland	41.5	28.8%	8	-3.4%	29.8%	- 7.7%	--	7
Barron	49.3	22.2%	26	-1.8%	37.0%	2.3%	--	7
Bayfield	50.1	25.0%	3	-0.8%	22.9%	8.2%	--	6
Brown	56.8	14.1%	300	7.9%	36.1%	8.6%	1.19%	5
Buffalo	54.8	22.2%	6	-4.4%	10.2%	- 17.6%	--	7
Burnett	45.9	31.2%	6	-1.9%	25.2%	2.5%	--	7
Calumet	70.7	12.3%	44	4.5%	33.8%	16.1%	--	3
Chippewa	55.2	19.6%	24	4.2%	35.9%	11.1%	--	5
Clark	49.1	20.8%	9	0.2%	37.6%	7.4%	--	4
Columbia	63.3	16.5%	30	1.8%	26.6%	8.6%	--	4
Crawford	47.3	26.0%	13	-3.1%	32.9%	- 8.3%	--	7
Dane	67.6	11.0%	281	13.5%	47.7%	14.6%	--	0
Dodge	56.0	18.1%	41	-1.6%	19.9%	1.0%	--	7
Door	56.5	19.3%	28	-1.5%	30.5%	0.5%	--	7
Douglas	50.7	25.7%	12	-1.4%	22.0%	2.5%	--	7
Dunn	54.6	21.1%	21	4.0%	29.4%	7.2%	--	5
Eau Claire	52.2	17.1%	92	7.6%	36.1%	5.2%	0.56%	5
Florence	47.8	23.4%	2	-5.3%	45.6%	- 0.9%	--	5
Fond du Lac	57.8	18.7%	66	1.9%	25.4%	2.9%	--	5
Forest	43.4	30.1%	3	-6.5%	38.3%	- 6.4%	--	5
Grant	50.5	20.2%	16	1.4%	41.4%	3.4%	--	5
Green	60.6	21.5%	27	0.9%	24.4%	4.5%	--	6
Green Lake	50.3	16.5%	17	-1.0%	10.3%	- 9.0%	--	6

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Iowa	60.0	16.3%	13	0.3%	31.7%	- 1.6%	--	5
Iron	39.9	28.2%	2	-7.0%	33.5%	- 12.6%	--	7
Jackson	51.1	20.6%	9	0.6%	18.8%	2.9%	--	7
Jefferson	59.2	17.9%	60	2.4%	29.0%	- 1.2%	--	5
Juneau	48.8	26.7%	12	-0.8%	16.9%	- 0.1%	--	7
Kenosha	57.3	17.7%	245	2.8%	29.1%	18.5%	--	5
Kewaunee	60.3	18.1%	20	-1.2%	26.2%	- 9.0%	--	6
La Crosse	54.1	17.2%	155	4.9%	35.0%	6.8%	--	4
Lafayette	55.9	18.9%	7	-0.6%	28.1%	- 5.8%	--	6
Langlade	44.1	28.6%	8	-4.8%	16.5%	- 4.3%	--	7
Lincoln	54.2	23.8%	13	-4.8%	15.3%	- 4.4%	--	7
Manitowoc	51.1	20.4%	57	-3.2%	11.7%	- 4.4%	--	6
Marathon	56.5	16.0%	46	1.8%	24.4%	0.8%	1.19%	8
Marinette	45.0	27.7%	13	-3.8%	21.8%	- 5.5%	--	7
Marquette	49.1	26.4%	9	-0.3%	34.6%	- 0.8%	--	7
Menominee	38.1	34.6%	6	10.5%	27.4%	5.8%	--	6
Milwaukee	46.8	21.5%	2023	1.4%	19.8%	1.2%	--	6
Monroe	56.5	20.7%	23	4.3%	35.8%	4.3%	--	6
Oconto	55.8	20.6%	9	0.0%	35.7%	- 1.1%	--	7
Oneida	52.9	25.2%	15	-2.8%	25.8%	- 3.5%	5.18%	9
Outagamie	61.5	13.9%	170	7.4%	36.5%	5.5%	1.58%	5
Ozaukee	80.5	9.8%	184	3.7%	29.2%	9.6%	--	3
Pepin	51.5	23.7%	10	-3.4%	17.7%	4.2%	--	7
Pierce	66.8	16.1%	18	4.4%	29.9%	1.3%	--	4
Polk	53.6	22.1%	17	-1.7%	31.7%	5.6%	--	7
Portage	54.6	18.2%	42	1.9%	37.3%	- 12.0%	1.76%	9
Price	45.7	29.0%	4	-7.0%	8.7%	0.7%	--	7
Racine	58.3	18.7%	227	1.0%	20.6%	- 5.5%	--	5
Richland	48.2	24.3%	10	-4.5%	33.8%	2.3%	--	7
Rock	53.4	20.3%	93	1.5%	29.8%	- 6.3%	--	6
Rusk	41.9	26.6%	6	-5.0%	60.1%	16.0%	--	5
St. Croix	77.8	12.5%	41	7.8%	41.6%	- 0.2%	--	1
Sauk	54.4	17.6%	29	4.9%	44.6%	- 3.3%	--	4
Sawyer	43.6	28.3%	8	-1.0%	25.7%	0.3%	--	7
Shawano	51.8	22.4%	25	-2.6%	31.0%	- 0.0%	3.72%	9
Sheboygan	56.1	15.8%	85	-0.2%	28.4%	- 2.2%	--	5

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Taylor	49.8	21.7%	8	-0.8%	27.5%	2.3%	--	7
Trempealeau	54.0	20.9%	19	3.5%	31.6%	2.9%	--	7
Vernon	50.0	22.9%	11	4.6%	33.8%	- 0.2%	--	6
Vilas	42.7	24.6%	9	0.8%	29.3%	7.1%	--	7
Walworth	58.4	16.5%	76	1.8%	35.2%	- 1.1%	--	3
Washburn	46.6	29.5%	7	-0.8%	33.5%	7.0%	--	7
Washington	73.0	13.5%	131	3.7%	33.5%	6.2%	--	3
Waukesha	81.1	11.1%	444	4.2%	28.9%	- 6.7%	--	2
Waupaca	54.1	24.0%	26	-2.8%	19.0%	1.9%	--	7
Waushara	48.4	24.9%	10	-2.0%	23.5%	5.1%	--	7
Winnebago	55.1	16.3%	216	3.7%	27.2%	- 3.9%	1.02%	7
Wood	51.6	21.5%	49	-2.0%	12.6%	- 5.8%	4.71%	9
Threshold	U.S. = $57.7	U.S. = 16.7%	WI = 53	~1/2 U.S = 3.8%	U.S = 37.6%	~1/2 U.S = 6.1%	1.00%	

[1] U.S. Dept. of Commerce, Census Bureau, American Community Survey 2013-2017; Table B19013 Inflation-Adjusted Median Household Income.

[2] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[3] Jobs from WI DWD Quarterly Census of Employment and Wages; land area from U.S. Census Bureau, County Quick Facts.

[4] WI DOA Demographic Services Center; www.doa.state.wi.us/demographics.

[5] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[6] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[7] Wage values from U.S. Dept. of Commerce, Census Bureau; County Business Patterns.
Thresholds provided by the University of Massachusetts Donahue Institute.

Appendix E. Secondary Screeners for Aquaculture

Last Revised: March, 2020

The following table provides the secondary screening score for aquaculture facilities as described in the Final Economic Determination. Please refer to Section 5 of that report for details on each economic metric, why it was selected, and how the scoring process worked. All shaded cells in this table indicate that the cell value exceeds the indicator threshold, and contributes to the secondary screening value. The total secondary screening value in the last column of this table provides the secondary screening total, which is the value used to determine eligibility for the MDV.

Note: This information will be updated as new information becomes available.

Table 12. Aquaculture Secondary Indicators

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Adams	44.0	33.3%	7	-3.6%	17.5%	2.6%	--	7
Ashland	41.5	28.8%	8	-3.4%	29.8%	- 7.7%	--	7
Barron	49.3	22.2%	26	-1.8%	37.0%	2.3%	--	7
Bayfield	50.1	25.0%	3	-0.8%	22.9%	8.2%	--	6
Brown	56.8	14.1%	300	7.9%	36.1%	8.6%	--	3
Buffalo	54.8	22.2%	6	-4.4%	10.2%	- 17.6%	--	7
Burnett	45.9	31.2%	6	-1.9%	25.2%	2.5%	--	7
Calumet	70.7	12.3%	44	4.5%	33.8%	16.1%	--	3
Chippewa	55.2	19.6%	24	4.2%	35.9%	11.1%	--	5
Clark	49.1	20.8%	9	0.2%	37.6%	7.4%	--	4
Columbia	63.3	16.5%	30	1.8%	26.6%	8.6%	--	4
Crawford	47.3	26.0%	13	-3.1%	32.9%	- 8.3%	--	7
Dane	67.6	11.0%	281	13.5%	47.7%	14.6%	0.06%	0
Dodge	56.0	18.1%	41	-1.6%	19.9%	1.0%	--	7
Door	56.5	19.3%	28	-1.5%	30.5%	0.5%	--	7
Douglas	50.7	25.7%	12	-1.4%	22.0%	2.5%	1.62%	9
Dunn	54.6	21.1%	21	4.0%	29.4%	7.2%	--	5
Eau Claire	52.2	17.1%	92	7.6%	36.1%	5.2%	--	5
Florence	47.8	23.4%	2	-5.3%	45.6%	- 0.9%	--	5
Fond du Lac	57.8	18.7%	66	1.9%	25.4%	2.9%	--	5
Forest	43.4	30.1%	3	-6.5%	38.3%	- 6.4%	--	5
Grant	50.5	20.2%	16	1.4%	41.4%	3.4%	--	5
Green	60.6	21.5%	27	0.9%	24.4%	4.5%	--	6
Green Lake	50.3	16.5%	17	-1.0%	10.3%	- 9.0%	--	6

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Iowa	60.0	16.3%	13	0.3%	31.7%	- 1.6%	--	5
Iron	39.9	28.2%	2	-7.0%	33.5%	- 12.6%	--	7
Jackson	51.1	20.6%	9	0.6%	18.8%	2.9%	--	7
Jefferson	59.2	17.9%	60	2.4%	29.0%	- 1.2%	0.85%	5
Juneau	48.8	26.7%	12	-0.8%	16.9%	- 0.1%	--	7
Kenosha	57.3	17.7%	245	2.8%	29.1%	18.5%	--	5
Kewaunee	60.3	18.1%	20	-1.2%	26.2%	- 9.0%	--	6
La Crosse	54.1	17.2%	155	4.9%	35.0%	6.8%	--	4
Lafayette	55.9	18.9%	7	-0.6%	28.1%	6.5%	--	6
Langlade	44.1	28.6%	8	-4.8%	16.5%	- 5.8%	--	7
Lincoln	54.2	23.8%	13	-4.8%	15.3%	- 4.3%	--	7
Manitowoc	51.1	20.4%	57	-3.2%	11.7%	- 4.4%	--	6
Marathon	56.5	16.0%	46	1.8%	24.4%	0.8%	--	6
Marinette	45.0	27.7%	13	-3.8%	21.8%	- 5.5%	1.20%	9
Marquette	49.1	26.4%	9	-0.3%	34.6%	- 0.8%	--	7
Menominee	38.1	34.6%	6	10.5%	27.4%	5.8%	--	6
Milwaukee	46.8	21.5%	2023	1.4%	19.8%	1.2%	0.01%	6
Monroe	56.5	20.7%	23	4.3%	35.8%	4.3%	--	6
Oconto	55.8	20.6%	9	0.0%	35.7%	- 1.1%	--	7
Oneida	52.9	25.2%	15	-2.8%	25.8%	- 3.5%	0.61%	7
Outagamie	61.5	13.9%	170	7.4%	36.5%	5.5%	--	3
Ozaukee	80.5	9.8%	184	3.7%	29.2%	9.6%	--	3
Pepin	51.5	23.7%	10	-3.4%	17.7%	0.6%	--	7
Pierce	66.8	16.1%	18	4.4%	29.9%	4.2%	--	4
Polk	53.6	22.1%	17	-1.7%	31.7%	1.3%	0.68%	7
Portage	54.6	18.2%	42	1.9%	37.3%	5.6%	--	7
Price	45.7	29.0%	4	-7.0%	8.7%	- 12.0%	--	7
Racine	58.3	18.7%	227	1.0%	20.6%	0.7%	--	5
Richland	48.2	24.3%	10	-4.5%	33.8%	- 5.5%	--	7
Rock	53.4	20.3%	93	1.5%	29.8%	2.3%	--	6
Rusk	41.9	26.6%	6	-5.0%	60.1%	- 6.3%	--	5
St. Croix	77.8	12.5%	41	7.8%	41.6%	16.0%	--	1
Sauk	54.4	17.6%	29	4.9%	44.6%	- 0.2%	--	4
Sawyer	43.6	28.3%	8	-1.0%	25.7%	- 3.3%	--	7
Shawano	51.8	22.4%	25	-2.6%	31.0%	0.3%	--	7
Sheboygan	56.1	15.8%	85	-0.2%	28.4%	- 0.0%	0.28%	5

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008-2018 [4]	Net Earnings Change 2008-2018 [5] **(2 points)**	Job Growth 2008-2018 [6]	Capital Costs as a % of Payroll [7] **(2 points)**	Second-ary Indicator Score
Taylor	49.8	21.7%	8	-0.8%	27.5%	- 2.2%	--	7
Trempealeau	54.0	20.9%	19	3.5%	31.6%	2.3%	--	7
Vernon	50.0	22.9%	11	4.6%	33.8%	2.9%	--	6
Vilas	42.7	24.6%	9	0.8%	29.3%	- 0.2%	--	7
Walworth	58.4	16.5%	76	1.8%	35.2%	7.1%	--	3
Washburn	46.6	29.5%	7	-0.8%	33.5%	- 1.1%	--	7
Washington	73.0	13.5%	131	3.7%	33.5%	7.0%	--	3
Waukesha	81.1	11.1%	444	4.2%	28.9%	6.2%	--	2
Waupaca	54.1	24.0%	26	-2.8%	19.0%	- 6.7%	--	7
Waushara	48.4	24.9%	10	-2.0%	23.5%	1.9%	6.31%	9
Winnebago	55.1	16.3%	216	3.7%	27.2%	5.1%	--	5
Wood	51.6	21.5%	49	-2.0%	12.6%	- 3.9%	--	7
Threshold	U.S. = $57.7	U.S. = 16.7%	WI = 53	~1/2 U.S = 3.8%	U.S = 37.6%	~1/2 U.S = 6.1%	1.00%	

[1] U.S. Dept. of Commerce, Census Bureau, American Community Survey 2013-2017; Table B19013 Inflation-Adjusted Median Household Income.

[2] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[3] Jobs from WI DWD Quarterly Census of Employment and Wages; land area from U.S. Census Bureau, County Quick Facts.

[4] WI DOA Demographic Services Center; www.doa.state.wi.us/demographics.

[5] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[6] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[7] Wage values from U.S. Dept. of Commerce, Census Bureau; County Business Patterns.
Thresholds provided by the University of Massachusetts Donahue Institute.

Appendix F. Secondary Screeners for NCCW and Industrial Discharges in the "Other" Category

Last Revised: March, 2020

The following table provides the secondary screening score for facilities considered to be NCCW or "other" as described in the Final Economic Determination. Please refer to Section 5 of that report for details on each economic metric, why it was selected, and how the scoring process worked. All shaded cells in this table indicate that the cell value exceeds the indicator threshold, and contributes to the secondary screening value. The total secondary screening value in the last column of this table provides the secondary screening total, which is the value used to determine eligibility for the MDV.

Note: This information will be updated as new information becomes available.

Table 13. Secondary Indicators for NCCW and Industrial Discharges in the "Other" Category

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008 - 2018 [4]	Net Earnings Change 2008-2018 **(2 points)** [5]	Job Growth 2008-2019 [6]	Secondary Screener Score
Adams	44.0	33.3%	7	-3.6%	17.5%	2.6%	7
Ashland	41.5	28.8%	8	-3.4%	29.8%	- 7.7%	7
Barron	49.3	22.2%	26	-1.8%	37.0%	2.3%	7
Bayfield	50.1	25.0%	3	-0.8%	22.9%	8.2%	6
Brown	56.8	14.1%	300	7.9%	36.1%	8.6%	3
Buffalo	54.8	22.2%	6	-4.4%	10.2%	- 17.6%	7
Burnett	45.9	31.2%	6	-1.9%	25.2%	2.5%	7
Calumet	70.7	12.3%	44	4.5%	33.8%	16.1%	3
Chippewa	55.2	19.6%	24	4.2%	35.9%	11.1%	5
Clark	49.1	20.8%	9	0.2%	37.6%	7.4%	4
Columbia	63.3	16.5%	30	1.8%	26.6%	8.6%	4
Crawford	47.3	26.0%	13	-3.1%	32.9%	- 8.3%	7
Dane	67.6	11.0%	281	13.5%	47.7%	14.6%	0
Dodge	56.0	18.1%	41	-1.6%	19.9%	1.0%	7
Door	56.5	19.3%	28	-1.5%	30.5%	0.5%	7
Douglas	50.7	25.7%	12	-1.4%	22.0%	2.5%	7
Dunn	54.6	21.1%	21	4.0%	29.4%	7.2%	5
Eau Claire	52.2	17.1%	92	7.6%	36.1%	5.2%	5
Florence	47.8	23.4%	2	-5.3%	45.6%	- 0.9%	5
Fond du Lac	57.8	18.7%	66	1.9%	25.4%	2.9%	5
Forest	43.4	30.1%	3	-6.5%	38.3%	- 6.4%	5
Grant	50.5	20.2%	16	1.4%	41.4%	3.4%	5
Green	60.6	21.5%	27	0.9%	24.4%	4.5%	6

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008 - 2018 [4]	Net Earnings Change 2008-2018 **(2 points)** [5]	Job Growth 2008-2019 [6]	Secondary Screener Score
Green Lake	50.3	16.5%	17	-1.0%	10.3%	- 9.0%	6
Iowa	60.0	16.3%	13	0.3%	31.7%	- 1.6%	5
Iron	39.9	28.2%	2	-7.0%	33.5%	- 12.6%	7
Jackson	51.1	20.6%	9	0.6%	18.8%	2.9%	7
Jefferson	59.2	17.9%	60	2.4%	29.0%	- 1.2%	5
Juneau	48.8	26.7%	12	-0.8%	16.9%	- 0.1%	7
Kenosha	57.3	17.7%	245	2.8%	29.1%	18.5%	5
Kewaunee	60.3	18.1%	20	-1.2%	26.2%	- 9.0%	6
La Crosse	54.1	17.2%	155	4.9%	35.0%	6.8%	4
Lafayette	55.9	18.9%	7	-0.6%	28.1%	6.5%	6
Langlade	44.1	28.6%	8	-4.8%	16.5%	- 5.8%	7
Lincoln	54.2	23.8%	13	-4.8%	15.3%	- 4.3%	7
Manitowoc	51.1	20.4%	57	-3.2%	11.7%	- 4.4%	6
Marathon	56.5	16.0%	46	1.8%	24.4%	0.8%	6
Marinette	45.0	27.7%	13	-3.8%	21.8%	- 5.5%	7
Marquette	49.1	26.4%	9	-0.3%	34.6%	- 0.8%	7
Menominee	38.1	34.6%	6	10.5%	27.4%	5.8%	6
Milwaukee	46.8	21.5%	2023	1.4%	19.8%	1.2%	6
Monroe	56.5	20.7%	23	4.3%	35.8%	4.3%	6
Oconto	55.8	20.6%	9	0.0%	35.7%	- 1.1%	7
Oneida	52.9	25.2%	15	-2.8%	25.8%	- 3.5%	7
Outagamie	61.5	13.9%	170	7.4%	36.5%	5.5%	3
Ozaukee	80.5	9.8%	184	3.7%	29.2%	9.6%	3
Pepin	51.5	23.7%	10	-3.4%	17.7%	0.6%	7
Pierce	66.8	16.1%	18	4.4%	29.9%	4.2%	4
Polk	53.6	22.1%	17	-1.7%	31.7%	1.3%	7
Portage	54.6	18.2%	42	1.9%	37.3%	5.6%	7
Price	45.7	29.0%	4	-7.0%	8.7%	- 12.0%	7
Racine	58.3	18.7%	227	1.0%	20.6%	0.7%	5
Richland	48.2	24.3%	10	-4.5%	33.8%	- 5.5%	7
Rock	53.4	20.3%	93	1.5%	29.8%	2.3%	6
Rusk	41.9	26.6%	6	-5.0%	60.1%	- 6.3%	5
St. Croix	77.8	12.5%	41	7.8%	41.6%	16.0%	1
Sauk	54.4	17.6%	29	4.9%	44.6%	- 0.2%	4
Sawyer	43.6	28.3%	8	-1.0%	25.7%	- 3.3%	7
Shawano	51.8	22.4%	25	-2.6%	31.0%	0.3%	7

	Median Household Income in Thousands of Dollars [1]	Personal Current Transfer Receipts Share of Total Income 2018 [2]	Jobs per Square Mile [3]	Population Change 2008 - 2018 [4]	Net Earnings Change 2008-2018 **(2 points)** [5]	Job Growth 2008-2019 [6]	Secondary Screener Score
Sheboygan	56.1	15.8%	85	-0.2%	28.4%	- 0.0%	5
Taylor	49.8	21.7%	8	-0.8%	27.5%	- 2.2%	7
Trempealeau	54.0	20.9%	19	3.5%	31.6%	2.3%	7
Vernon	50.0	22.9%	11	4.6%	33.8%	2.9%	6
Vilas	42.7	24.6%	9	0.8%	29.3%	- 0.2%	7
Walworth	58.4	16.5%	76	1.8%	35.2%	7.1%	3
Washburn	46.6	29.5%	7	-0.8%	33.5%	- 1.1%	7
Washington	73.0	13.5%	131	3.7%	33.5%	7.0%	3
Waukesha	81.1	11.1%	444	4.2%	28.9%	6.2%	2
Waupaca	54.1	24.0%	26	-2.8%	19.0%	- 6.7%	7
Waushara	48.4	24.9%	10	-2.0%	23.5%	1.9%	7
Winnebago	55.1	16.3%	216	3.7%	27.2%	5.1%	5
Wood	51.6	21.5%	49	-2.0%	12.6%	- 3.9%	7
Threshold	U.S. = $57.7	U.S. = 16.7%	WI = 53	~1/2 U.S = 3.8%	U.S = 37.6%	~1/2 U.S = 6.1%	Secondary Screener Score

[1] U.S. Dept. of Commerce, Census Bureau, American Community Survey 2013-2017; Table B19013 Inflation-Adjusted Median Household Income.

[2] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[3] Jobs from WI DWD Quarterly Census of Employment and Wages; land area from U.S. Census Bureau, County Quick Facts.

[4] WI DOA Demographic Services Center; www.doa.state.wi.us/demographics.

[5] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

[6] U.S. Dept. of Commerce, Bureau of Economic Analysis, Personal Income Summary Table CAINC4; http://www.bea.gov/.

Appendix G. Primary Screener Thresholds for Industrial Dischargers

Last Revised: August, 2015

Table 14 below provides the thresholds for determining if a specific industry is in the top 75% of dischargers incurring costs within their category. This is one of two primary screeners that can be used to justify the substantial impacts of individual industries to qualify for the MDV. The other primary screening metric for industries is based on the geographic distribution of compliance costs within each category. Specifically, an industry must be located in a county that is within the top 75% of counties incurring costs for that category in order to meet this primary screener. The counties that meet this threshold for each category are provided in Table 15.

These values will be re-evaluated to determine if updates are needed based on new information gathered during the triennial standards review process (see Section 5.04, p. 73, for details).

Table 14. 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	$943,000

Table 15. Industrial primary screener thresholds based on 75th percentile of counties incurring costs within each category.

	Cheese Manufacturing	Food Processing	Paper	Aquaculture	NCCW	Other Industrial Discharges
Adams						
Ashland						
Barron		X				
Bayfield						
Brown			X		X	
Buffalo						
Burnett						
Calumet	X					X
Chippewa					X	X
Clark	X					

	Cheese Manufacturing	Food Processing	Paper	Aquaculture	NCCW	Other Industrial Discharges
Columbia		X			X	
Crawford						
Dane				X	X	X
Dodge						
Door						
Douglas				X		X
Dunn						
Eau Claire						
Florence						
Fond du Lac		X			X	
Forest						
Grant	X				X	
Green	X				X	
Green Lake		X				
Iowa						
Iron						
Jackson						
Jefferson				X	X	X
Juneau						
Kenosha		X				
Kewaunee						
La Crosse					X	X
Lafayette	X					
Langlade					X	
Lincoln						
Manitowoc						
Marathon	X		X			
Marinette				X		X
Marquette						
Menominee						
Milwaukee					X	X

	Cheese Manufacturing	Food Processing	Paper	Aquaculture	NCCW	Other Industrial Discharges
Monroe		X			X	
Oconto	X				X	
Oneida			X	X		
Outagamie		X	X		X	
Ozaukee					X	
Pepin						
Pierce						
Polk					X	
Portage			X			
Price						
Racine						
Richland	X				X	
Rock						
Rusk						
St. Croix					X	
Sauk		X			X	X
Sawyer						
Shawano						
Sheboygan	X	X		X	X	
Taylor	X					
Trempealeau					X	
Vernon						
Vilas						
Walworth						
Washburn						
Washington	X					X
Waukesha						
Waupaca					X	
Waushara				X		
Winnebago			X			
Wood	X		X			

Appendix H. Categorical Eligibility by County

Last Revised: January, 2016

Table 16 provides the list of categories that may be eligible for the MDV by county in accordance with the MDV justification and demonstration. If a point source is not listed to be in an eligible area, they do not qualify for the MDV, and should consider an alternative compliance option or an individual variance request. For example, municipal WWTFs, cheese manufacturing, and NCCW are the only potentially eligible point sources for the MDV in Adams County.

In addition to being in potentially eligible MDV areas, point sources must also meet the primary and secondary indicators to demonstrate substantial impacts in accordance with the Final Economic Determination and s. 283.16(2)(b)4, Wis. Stats. See Section 2.01, p. 16, and Appendices A-G for details.

Table 16. Potentially eligible MDV areas by discharge category.

	Discharge Category						
County	**Municipal**	**Cheese**	**Food**	**Fish**	**Paper**	**NCCW**	**Other**
Adams	X	X				X	
Ashland	X						
Barron	X		X			X	
Bayfield	X			X		X	
Brown	X				X	X	
Buffalo	X	X				X	
Burnett	X	X				X	
Calumet	X	X				X	X
Chippewa	X					X	X
Clark	X	X				X	X
Columbia	X		X			X	
Crawford	X					X	
Dane							
Dodge	X	X	X			X	
Door	X						
Douglas	X			X		X	X
Dunn	X					X	
Eau Claire					X		
Florence	X						
Fond du lac	X	X	X			X	
Forest						X	
Grant	X	X				X	
Green		X					
Green Lake	X		X			X	
Iowa	X					X	X
Iron	X					X	

Jackson	X						X	
Jefferson	X				X		X	X
Juneau	X						X	
Kenosha	X			X			X	
Kewaunee	X		X				X	
La Crosse	X						X	X
Lafayette	X		X					
Langlade	X						X	
Lincoln	X					X	X	
Manitowoc	X						X	
Marathon	X		X	X		X	X	
Marinette	X				X		X	X
Marquette	X						X	
Menominee								
Milwaukee	X				X		X	X
Monroe	X			X			X	
Oconto	X		X	X	X	X	X	
Oneida	X				X	X	X	
Outagamie	X			X		X	X	
Ozaukee	X			X			X	
Pepin	X							
Pierce	X		X				X	
Polk	X				X		X	
Portage	X		X	X		X	X	
Price	X						X	X
Racine	X						X	
Richland	X		X				X	
Rock	X						X	
Rusk	X					X	X	
Sauk	X		X	X			X	X
Sawyer							X	
Shawano	X					X	X	
Sheboygan	X		X	X	X		X	X
St. Croix								
Taylor	X		X				X	
Trempealeau	X						X	
Vernon	X		X					
Vilas							X	
Walworth	X						X	
Washburn							X	
Washington	X		X				X	X
Waukesha	X						X	
Waupaca	X						X	

Waushara	X			X		X		
Winnebago	X				X	X	X	
Wood	X	X			X	X		

Appendix I. Monitoring Guidance for County MDV Watershed Plans

County Plans submitted to receive Multi-Discharger Variance (MDV) funds may wish to have an in-stream monitoring strategy. For plans that are developed consistent with 9-key element plans, this monitoring strategy is required. (large scale projects; > $200,000/yr.) County plans that employ monitoring should, at minimum, describe the location, frequency, and sampling protocols that will be used. The following guidance is provided to help develop this monitoring strategy.

Monitoring must determine:

- Who will collect TP or other data
- Who will analyze these data
- When and where will samples be collected
- The quality assurance protocols that will be followed

Funding Data Collection Efforts: MDV funding may be used to conduct water quality monitoring for any MDV project. Up to 35% of total funding received may be used to conduct monitoring for planning purposes per s. 283.16(8)(b)1. Wis. Stats. It is expected that counties will use far less than 35% of total funding for monitoring purposes, since other administrative costs of implementing phosphorus reductions will need to be funded from this same pool. Monitoring plans should be included with the watershed plan submittal and demonstrate how data collected will be used to inform planning future water quality efforts related to phosphorus reduction in surface waters of the State.

Why collect in-stream data: In-stream data is **critical** to set load reduction goals, to assess trends and improvements in water quality over time before and/or after practice implementation, to verify compliance or noncompliance with Wisconsin's phosphorus numeric criteria and, if selected, evaluate other WQ indicators (e.g., total suspended solids (TSS), temperature, or nitrogen).

What to collect: In-stream phosphorus and flow measurements are recommended as the minimum monitoring parameters for Multi-Discharge Variance (MDV) plans. Typically, these measurements will be grab samples; however, composite sampling or continuous monitoring may also be advantageous. Dischargers or their partners may wish to collect additional parameters such as total suspended solids (TSS), temperature, or nitrogen for other permitting or watershed management projects.

Where to collect samples: In-stream phosphorus data should be, at a minimum, collected at the furthest downstream point of the MDV plan area. Additional monitoring locations may also be selected within tributary streams or downstream of areas where significant implementation of practices has occurred. Additional locations can also include up and downstream monitoring of management areas, storm water monitoring, edge-of-field monitoring, and sampling location(s) in reference watersheds where no management activities are targeted. Phosphorus monitoring by TMDL reach is also recommended if the MDV plan area is within a TMDL.

It is strongly advised to collect phosphorus and flow data in tributaries/subwatersheds upstream of the MDV area pour point. These additional sampling locations are essential to prioritize management activities, determine the effectiveness of management activities, and quantify interim water quality improvements made in the watershed. Additional sampling points can also improve the accuracy of MDV watershed modeling requirements. Modeling the P reduction performance from various

management activities is a requirement of MDV plans pursuant to s. 283.16(8)(b)3. Wis. Stats. This same effort can be expanded within an MDV plan area to predict anticipated load reductions gained from future practices implemented and to set interim success towards MDV plan goals for a watershed.

Monitoring frequency: Minimum data requirements for MDV phosphorus monitoring should be the same as those used by DNR for waterbody assessments and impairment listing, unless otherwise specified by DNR. At the time this document was written, this methodology was available in Wisconsin's Consolidated Assessment and Listing Methodology ("WisCALM") guidance at http://dnr.wi.gov/topic/surfacewater/assessments.html. The WisCALM guidance for streams and rivers specifies that total phosphorus samples should be collected, during pre-selected days or dates (e.g., second Tuesday of the month), once per month (about 30 days apart) each month from May through October[11] at a minimum. In other words, monthly grab samples collected from May to October is the minimum monitoring frequency for the MDV plan. Flow data should be collected at the same time as phosphorus samples are collected. Sampling frequency for other WQ parameters may be more or less than the phosphorus samples. Please contact DNR WQ biologists or TMDL staff for recommended sampling frequency.

Counties or their partners within a MDV plan area may also want to consider collecting additional phosphorus samples and/or additional sampling parameters above the minimum requirements. Sampling at a frequency greater than the minimum requirement is advantageous for MDV and other projects, such as Adaptive Management plans. Additional sampling can minimize data variability, mitigate outliers in the dataset, and allow trends in water quality to be detected. Given these benefits, it is strongly encouraged to collect biweekly grab samples from May to October rather than monthly grab samples[12].

Collecting Samples: The MDV plan should specify the person(s) responsible for collecting in-stream samples, and identify a primary point of contact for MDV monitoring activities. There may be opportunities in your watershed to work with partners such as consultants, point sources, or citizen groups to collect these data. Partnerships can be beneficial to help reduce overhead monitoring costs, and to maximize the public's involvement and connection to the watershed project.

Phosphorus samples must meet preservation requirements in ch. NR 219, Wis. Adm. Code, Table F. The current preservation requirements specify that the sample be acidified to a pH of less than 2 with sulfuric acid and the sample be cooled to less than or equal to 6°C (but not frozen). This means having acidified sample bottles and a cooler with ice available for sample collection. Certified laboratories can supply correct bottles and preservative.

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[11] Discharges with variable effluent flow in the winter months may be required to monitor in-stream

[12] Robertson, Dale (2003). Influence of Difference Temporal Sampling Strategies on Estimating Total Phosphorus and Suspended Sediment Concentrations and Transport in Small Streams. Jrnl. Of Am. Water Resrc. Assoc. 1281-1308.

Quality assurance protocols should be created to ensure that samples are collected and handled using proper sampling techniques. The MDV plan can specify its own quality assurances, or can take advantage of DNR's citizen-based monitoring assurance protocols already established. To successfully engage citizen-based monitoring volunteers and/or the citizen monitoring quality assurance protocols, monitoring participants are strongly recommended to attend a Water Action Volunteer (WAV) Training Program. For details on the WAV program, and training opportunities in your area, visit http://watermonitoring.uwex.edu/level1/wav.html. A marginal training fee may apply for this course.

Once stream locations have been selected, phosphorus and other WQ samples should be collected as follows (Note: the following guidance is subject to change as new monitoring protocols become available):

- ***Sample in portion of stream/river with greatest or strongest flow***

  This may or may not be in the middle of the stream. In general, relatively straight reaches of the stream are preferred. However, if a meandering section of the stream is selected for sampling, the sample should be collected in the portion with greatest flow at the outside of the meander. Slow flow areas along the banks, in eddies or immediately downstream of islands should be avoided.

- ***Sample at a depth of 3 to 6 inches below surface using triple rinsed sample bottles, completely filling the sample bottle***

  Surface samples tend to have debris and other things floating on them and should be avoided. Whether a sample is collected by hand directly in a sample bottle or with a sampling device, such as a Van Dorn sampling bottle, the collection vessel needs to be rinsed three times with water from the same location as the sample. Care should be made to avoid touching the inside cap of sample bottles.

- ***Avoid disturbing the sample site***

  If the sample is collected by wading in the stream, walk upstream to the sample location and take the sample facing upstream.

- ***Don't trespass on private lands to collect sample***

  Use a public access point, such as a road right of way, or seek permission from the landowner or operator to cross land for the purpose of collecting the samples.

Analyzing samples: MDV plans need to identify who is financially responsible for the costs of collecting and analyzing samples. Samples must be analyzed by an accredited laboratory per ch. NR 149, Wis. Adm. Code, using proper sample preservation and analysis protocols (Table 17 displays currently approved methods). Those requirements can also be found in ch. NR 219, Wis. Adm. Code, Table B and F. If a facility has their own laboratory that is registered or certified to analyze phosphorus on-site, then they

can be used to analyze samples as long as other requirements are met (i.e., level of detection - LOD - is low enough).

DNR requires analysis that will achieve a level of detection (LOD) at 30 µg/L and a level of quantitation (LOQ) at 90 µg/L to ensure that meaningful results are gathered. For a list of certified laboratories in your area visit http://dnr.wi.gov/regulations/labcert/lablists.html.

MDV monitoring partners should work with the certified lab of their choosing to establish a budget code, create lab forms, and ensure that the lab has proper LODs and LOQs to meet the project needs. A map of sampling locations and the quality assurance protocols should also be submitted to DNR with the MDV plan. It is also strongly recommended that the laboratory work with DNR to submit sampling results to DNR directly via the Surface Water Integrated Monitoring System (SWIMS) database. This will simplify MDV monitoring/annual reports and ensure that the LOD, LOQ and Lab ID are reported to DNR.

Table 17. Currently approved Methods for Analysis of Total Phosphorus in Wastewater

Analytical Technology	U.S. EPA Method	Standard Methods	ASTM Method	USGS Method	Other[13]
Persulfate digestion		4500 - P B.5 18, 19, 20 or 21 edition			973.55
Followed by one of the following :					
Manual Ascorbic acid reduction	365.3 (1978)	4500 - P E[14] 18, 19, 20 or 21 edition	D515-88 (A)	I-4600-85	973.56
Automated Ascorbic acid reduction	365.1 rev 2.0 (1993)	4500 - P F[14] 18, 19, 20 or 21 edition			
Semi-automated block digester	365.4 (1974)		D515-88 (B)	I-4610-91	

Demonstrating Improvements: As previously mentioned MDV plans should be designed and implemented to evaluate and demonstrate progress towards meeting MDV plan goals throughout the duration of the project. Failure to collect samples, poor or limited sample collections or QA/QC methods will require re-evaluation of a county's MDV monitoring strategy. It may also be cause for DNR to reduce or withhold MDV funds to counties, per MDV statutory requirements. With that said, DNR recognizes the natural variability and the difficulty in completing monitoring. Progress can be demonstrated in several ways including demonstrating land use changes or changes in behavior in the project area, measuring water quality improvements through in-stream monitoring, or modeling load reductions over time.

There are several opportunities to expand the in-stream monitoring portion of the MDV plan to more accurately demonstrate water quality trends and progress over time. Because every MDV project will

[13] "Official Methods of Analysis of the Association of Official Analytical Chemists" 16th Edition 1998
[14] The letters E and F were switched in ch. NR 219, Wis. Adm. Code - this is the correct reference

have a unique watershed, stream network, and project needs, no two monitoring programs will be identical. It is strongly recommended MDV plans and their partners work with the DNR MDV contacts and water quality biologists to develop a monitoring strategy. Additionally, Table 18 is meant to highlight some potential opportunities to strengthen the monitoring strategy. As mentioned, the monitoring strategy must sufficiently meet the minimum requirements specified in the section of the document to be approved; additional monitoring, although encouraged, is not required unless specified by the Department.

Table 18. Advantages and disadvantages of monitoring opportunities for MDV projects.

Opportunities	Recommendation	Advantages	Disadvantages	Potential Data Collection Methods
Collecting data prior to MDV project starts	Collect biweekly samples 1-2 years prior to project start date	• Established baseline for project • More accurate data to help determine phosphorus reductions needed to meet water quality standards • Better detection of water quality trends, and changes in phosphorus loadings • More accurate dataset to run/calibrate watershed models	• Additional costs/time	• Collect using same methodology and protocols described in this section of guidance • Set up gauging stations/continuous monitoring stations • Install a staff gauge
Collecting additional samples	Collect samples biweekly instead of monthly	• Can be used to offset/mitigate the impacts of large storm event or abnormal weather patterns when determining final compliance with MDV • Better detection of water quality trends, and changes in phosphorus loadings • More accurate dataset to run/calibrate watershed models • Results can be used in concentration-flow-time regression approach to project changes in load over time	• Additional costs/time • Additional sampling points may still be necessary	• Collect using same methodology and protocols described in this section of guidance • Set up gauging stations/continuous monitoring stations • Install a staff gauge
Collecting data at additional sampling locations	Target samples throughout the watershed with a particular emphasis on areas of greatest land use change	• Helps detect changes in water quality resulting from management practice installation or other MDV actions • Identifies areas of potential concern where additional improvements are needed • Earlier detection of water quality improvements (headwater systems likely to respond more quickly than at the pour point) • More accurate dataset to run/calibrate watershed models	• Additional costs/time • Additional samples may still be needed at each sampling location	• Sample at upstream tributaries before they enter the direct receiving water • Target samples where management practices will be installed
Extended sampling collection period	Monitor from ice out to ice in, rather than May-Oct	• Helps capture large loading events that occur in the spring/fall of the year	• Additional costs/time • Data collected outside May-Oct cannot be used	• Collect samples using same/consistent

		• Helps detect changes in water quality resulting from management practice installation or other MDV actions • Identifies areas of potential concern where additional improvements are needed • Helps identify which management practices may be more effective	to calculate compliance with the P criteria	methodology and protocols described in this section of guidance
Targeted storm event sampling	Collect samples during runoff events (typically during/after a rain event)	• Captures large loading events • Helps detect changes in water quality resulting from management practice installation or other MDV actions • Identifies areas of potential concern where additional improvements are needed • Helps identify which management practices may be more effective	• Additional costs/time • More labor intensive • Difficult to predict when rain/runoff events will occur	• Collect grab samples • Set up gauging stations/continuous monitoring stations • Install a staff gauge
Biological data collection	Collected macro IBI data	• Quantifies the biological response/benefits of MDV and management practices	• Additional costs/time • Additional training needed to accurately collect samples	• Contact DNR WQ biologist

Table 19. Blank monitoring overview table. A map of samples points should also be submitted.

Monitoring Location					
Sample Point	**Sample Point Description**	**Latitude**	**Longitude**	**Parameters to be collected**	**Sampling Frequency**
Example: Point 1	*Point of Compliance*	*43.324946 (43° 19' 30" N)*	*-89.533045 (89° 31' 59" W)*	*Phosphorus, Total Suspended Solids*	*Biweekly, May-Oct.*

Sampling Methodology			
Who will collect samples?			
Lab Information	Name:		
	Lab ID:		
	Address:		
Phosphorus Analysis	Methodology used:		
	LOD:		
	LOQ:		
Other Lab Analyses for Adaptive Management	Pollutant 1 Name:	Pollutant 2 Name:	Pollutant 3 Name:
	Methodology used:	Methodology used:	Methodology used:
	LOD:	LOD:	LOD:
	LOQ:	LOQ:	LOQ: