



**BUREAU OF WATER QUALITY
PROGRAM GUIDANCE
WASTEWATER PROGRAM**

**DNR'S Recommendations for PMPs and SRMs
for Arsenic, Chloride, Copper, and Mercury Variances
July 25, 2014**

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Date

***DNR's Recommendations for PMPs and SRMs
for Arsenic, Chloride, Copper, and Mercury Variances***

This guidance provides the Department's recommendations for writing Pollutant Minimization Program (PMP) plans and Source Reduction Measures (SRM) which are required components of a variance from water quality standards in Wisconsin. PMPs and SRMs are implemented through conditions in Wisconsin Pollutant Discharge Elimination System (WPDES) permits which contain, or propose to contain, a variance to water quality standards to comply with the requirements of s. 283.15(5)(c)2., Wis. Stats. PMP and/or SRM plans are developed by the permittee as a plan for pollutant reductions during the permit term and are referenced or included in the permit. The Department will review these proposed PMPs or SRMs and, where necessary, will work with permittee to improve clarity of the plan. Before a permit can be reissued with a variance, the Environmental Protection Agency (EPA) reviews the Department's decision to grant the variance, which includes the PMP and/or SRMs. In addition to the PMP and/or SRM plan developed, the permittee will be expected to submit annual reports to document their progress toward meeting the WQS via their PMP/SRM plan. This guidance was developed to assist permittees in developing approvable plans and to make the review process for the variance by both the Department and the EPA as efficient as possible without duplicative efforts.

The regulatory authority for water quality standards (WQS) is derived from the requirements of section 101(a)(2) of the Clean Water Act (CWA): "it is the national goal that, wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and which provides for recreation in and on the water, be achieved by July 1, 1983." In accordance with NR 200.20, Wis. Adm. Code, and s. 283.15, Wis. Stats., variances to WQS are permissible where it is demonstrated that the applicable WQS are not presently attainable due to one of the six factors identified in s. 283.15(4)(a)1., Wis. Stats. An approved variance applies for the term established by the secretary, but not to exceed 5 years (s. 283.15(5)(b), Wis. Stats). A facility can apply for a reissued variance, but this requires reconsideration of new information, science, and/or technology that may render water quality standards attainable that were previously determined to be unattainable. Pollutant-specific variance provisions can be found in NR 106 and NR 217, Wis. Adm. Code. EPA reviews variances pursuant to 40 CFR 132 Appendix F and 40 CFR 131.21.

Because variances should incorporate some mechanism for identifying and achieving attainable water quality improvements, PMPs and SRMs are included to ensure that reasonable progress is made toward attaining the water quality standard. Accurate and thorough documentation in the permittee's PMP and annual reports, including improvement efforts over the term of the variance and documentation of the unattainability of the unvaried WQS, is vital to compiling a complete administrative record for a decision by WDNR to grant any potential future variances.

The overall goal of PMPs and SRMs is to improve effluent quality, reduce any adverse impact of the discharge on uses of the receiving waters, ensure reasonable progress towards attainment of the WQS, and, ultimately, achieve compliance with the unvaried WQS. This is accomplished through identifying sources of the variance pollutant, assessing the controllability of the sources of the variance pollutant, implementing strategies to reduce or eliminate the discharge of the variance pollutant to the extent feasible, and monitoring the results in terms of influent and effluent quality.

Short of complying with the Water Quality-Based Effluent Limit (WQBEL), PMPs and SRMs are expected to produce the greatest reduction in variance pollutant feasible. A permittee is expected to make good-faith efforts to comply in a timely manner with the variance pollutant WQBEL and, when requesting a variance, accepts responsibility for designing, implementing, and updating, as necessary, a customized strategy for feasibly minimizing the facility's discharge of the variance pollutant.

Actions taken to control the variance pollutant should be oriented toward reducing the discharged load of the variance pollutant until the WQBELs based on the unvaried WQS are attained. PMP and SRM steps should never be taken simply for action's sake. Instead, actions should be appropriately focused on generating information or producing results that improve a permittee's ability to meet the WQBEL. Actions should be iterative, building on any existing facility-specific information available, especially information generated as a result of previous variances. All actions taken in PMP and SRM implementation efforts should be based upon available data and be logical and well-documented.

In some cases, for some variances and parameters, a variance holder will get to a point where attainment of the unvaried WQS is not achieved; however, no further improvements in water treatment technologies are apparent. Where a permittee believes that no additional action can be taken to control the variance pollutant, DNR and EPA expect that the permittee will document what is known about the remaining sources, the control options considered, and the reasons that these control options are infeasible. Permittees are also expected to continue regular monitoring to demonstrate consistent effluent quality. Periodically (at least once per variance term), permittees should revisit whether it is feasible to take control actions beyond those already implemented and document that the ongoing controls already implemented (for example, dental amalgam separation programs for mercury variances) are being adequately maintained.

DNR's expectations on the development and evolution of PMPs and SRMs

Step 1 – Identify sources of variance pollutant.

Objective: Identify and quantify known and suspected sources of the variance pollutant.

Interim steps:

1. List all known industrial (including processes) and commercial customers that discharge wastewater to the facility requesting a variance (if any).
2. Where applicable, gather and review pretreatment data from industrial users and pretreatment program local limits for the variance pollutant.
3. List all possible internal sources of the variance pollutant (e.g., process chemicals) at the treatment facility.
4. Use monitoring data, information on indirect dischargers' processes, and process chemical product information to identify possible sources of the variance pollutant.
5. Conduct monitoring to verify known sources and determine levels of the variance pollutant in influent and effluent.
6. Where appropriate, monitor effluent sludge to assist in variance pollutant mass balance calculations.
7. Conduct mass-balance analysis to determine whether there may be additional unidentified pollutant sources.
 - a. For municipal dischargers: apportion influent variance pollutant load to (1) industrial customers, (2) commercial sources (broken down into classes such as dentists, dry cleaners, etc., as appropriate for the variance pollutant), (3) intake water, and (4) base domestic wastewater load.
 - b. For industrial dischargers: apportion variance pollutant load to (1) process chemicals/feedstock and (2) intake water.
8. If necessary, identify additional sources that contribute variance pollutant and conduct sampling to verify. Note: Permittees seeking variances should expect to fund monitoring to the extent necessary to develop a comprehensive list of variance pollutant sources.

Data/information to gather and consider:

Available:

- Influent and effluent monitoring data, pretreatment data from industrial users (if any), monitoring data collected in the conveyance system.
- Product information from vendors of raw materials, process chemicals, etc.
- Expertise of facility managers and DNR permit drafters with similar facilities.
- Weather (rainfall, snowmelt, temperature) (particularly for chloride).

New:

- Monitoring data collected to verify location and magnitude of current sources.
- Mass-balance analyses.

- Monitoring data collected to identify additional/previously unknown sources, including sources in the conveyance system itself. Where applicable, information regarding the monitoring schedule and location should be provided.

Outputs:

- List of all potential variance pollutant sources.
- Monitoring data demonstrating the degree to which sources contribute variance pollutant to the discharge.
- Mass-balance analyses.

Step 2 – Parse sources of variance pollutant into categories.

Objective: Target variance pollutant reduction measures by identifying technologies to remove variance pollutant.

Interim steps:

1. Identify sources that are or may be amenable to source control or minimization efforts.
2. Identify sources that appear not to be amenable to source control or minimization efforts.
3. Document which sources cannot be controlled and why. Provide supporting information (economic analyses, technical documents describing why a specific source is not amenable to control, etc.).
4. Prioritize and establish a pollutant minimization strategy for the permit term.

Data/information to gather and consider:

- Contact suppliers of raw materials and/or process chemicals to identify substitutions that may reduce variance pollutant in discharge.
- Identify treatment techniques available to reduce variance pollutant discharge by sources identified in step 1.
- Determine whether additional technologies exist to address variance pollutant sources identified in step 1. Hire a consultant if necessary.
- Monitor any significant commercial or industrial contributors to the treatment plant

Outputs:

- List of sources and treatment technologies capable of reducing variance pollutant discharged by each source.
- List of sources that appear not to be amenable to treatment.
- Documentation supporting conclusion that certain sources cannot currently be controlled.

Step 3 – Apply control strategies to variance pollutant sources.

Objective: Reduce variance pollutant in influent and effluent in hopes of meeting the water quality-based effluent limit (WQBEL). Note: This can be an iterative process and implementation of specific control strategies can be prioritized based on projected impact on effluent quality, ease of implementation, cost, and other factors. Conversely, it may be logical to implement multiple variance pollutant control strategies at once to reduce variance pollutant levels expeditiously. Keep detailed documentation of actions and results.

Interim steps:

1. Apply initial control strategy.
2. Monitor wastewater influent and effluent to determine impact of initial control strategy.
3. Apply secondary control strategy, if needed, based on results of initial control strategy.
4. Monitor wastewater influent and effluent to determine impact of secondary control strategy.
5. Maintain implementation of control strategies when effluent consistently meets the WQBEL for the variance pollutant OR all feasible control strategies have been implemented.
6. Re-do mass balance based on new information

Data/information to gather and consider:

Available

- Influent and effluent monitoring data collected prior to implementing control strategies.
- Apply continuous visual depiction (graph) of levels to demonstrate progress in both concentration and mass.

New

- Influent and effluent monitoring data collected after implementing control strategies.

Outputs:

- Control strategies applied to control sources of variance pollutant including management of facility chemical use.
- Sources of variance pollutant controlled to the degree necessary to achieve the WQBEL, or to the degree feasible.

Step 4 – Document which sources have been addressed, strategies applied, and outcomes.

Objective: Clearly articulate which variance pollutant sources have been addressed, which strategies have been applied, and the results of having implemented the strategies. Also articulate any pollutant sources or strategies proposed in Step 3 that will not be addressed and explain why the action is infeasible to complete.

Data/information to gather and consider:

Available

- List of sources and treatment technologies capable of reducing variance pollutant discharged by each source (outcome associated with Step 2).
- Control strategies applied to control sources of variance pollutant.
- Annual variance reports.
- Before- and after-implementation influent and effluent monitoring data.

Outputs:

- Comprehensive list of strategies implemented to reduce variance pollutant discharge and associated changes of variance pollutant levels in influent and effluent, and a list of proposed strategies that were not implemented along with rationale for their exclusion from the reduction strategy.

Step 5 – Maintain gains in effluent quality.

Objectives: Ensure that improvements in water quality are preserved. Implement additional strategies, if necessary, to ensure that facility can consistently meet WQBEL, or maintain the level achieved during the variance term, for the variance pollutant.

Interim steps:

1. Document levels of variance pollutant in influent and effluent after implementation of variance pollutant reduction strategies.
2. Determine whether facility is consistently meeting WQBEL for variance pollutant.
3. If facility is not consistently meeting WQBEL for variance pollutant:
 - a. Revisit steps 2 through 4 to identify additional pollutant sources that may be controlled and/or additional/new strategies to address variance pollutant discharge.

- i. Monitor technological developments and new methods for controlling variance pollutant.
 - ii. Implement methods for identifying proposed and/or new sources of variance pollutant.
 - b. Apply additional/new strategies for controlling variance pollutant discharge or discuss why this is infeasible.
- 4. If the PMP/SRM is successful, such that the facility is able to meet WQBEL during the term of the variance:
 - a. Maintain gains in effluent quality through:
 - i. Proper operation of permitted facility's treatment system.
 - ii. Continued implementation and regular maintenance of implemented variance pollutant reduction strategies.
 - iii. Implement methods for identifying proposed and/or new sources of variance pollutant.

Data/information to gather and consider:

Available

- Influent and effluent monitoring data.
- Information gathered in steps 2 through 4.

New

- Information on new technologies or methods for controlling the variance pollutant.

Outputs:

- Documentation of levels of variance pollutant in influent and effluent.
- A description of efforts to further reduce variance pollutant levels, where necessary, or maintain variance pollutant levels below WQBEL.

Required elements of an approvable variance:

- Information demonstrating that complying with the unvaried WQS is not feasible for one of the reasons outlined in 40 CFR 131.10(g) and s. 283.15(4), Wis. Stats.
- Initial limits based on the level of effluent quality currently achievable by the permittee based on permittee-specific effluent data.
- Pollutant Minimization Plan or Source Reduction Measures proposed to attain the WQBEL without needing to construct new treatment systems. Where the permittee has identified control strategies that may lead to compliance with the WQBEL and implementation of those strategies is feasible but the permittee has failed to implement them, EPA may not be able to re-approve a variance.
- A description, either in terms of achievable effluent quality or actions to be taken to improve effluent quality, of how the variance holder proposes to make reasonable progress towards attainment of the unvaried WQS. According to 40 CFR 132, Procedure 2.F.(2), EPA can disapprove a variance for a permittee in the Great Lakes basin where the permittee has not demonstrated "reasonable progress... toward attaining the water quality standards for the waterbody as a whole through appropriate conditions."

Pollutant Minimization Program/Source Reduction Annual Report

Directions: Please complete this worksheet electronically. Use of this worksheet is optional, but recommended and will expedite the review of any future variance applications. Record information in the space provided. Select checkboxes by double clicking on them. Do not delete or alter any fields. When citing specific documents, include page number and section, if applicable. Please ensure that all data requested are included and are as complete as possible. Attach additional sheets if needed. If you choose not to use this worksheet, please submit information on past and future PMP/SRM actions in your chosen format.

Section I: General Information

Name of Permittee:	Permit Number:
This is: <input type="checkbox"/> The first permit issuance requiring implementation of a PMP/SRM <input type="checkbox"/> Not the first permit issuance requiring implementation of a PMP/SRM Dates of previous PMP/SRM Plans:	
Permit Effective Date:	Date of First PMP/SRM:
This variance is for: <input type="checkbox"/> Mercury <input type="checkbox"/> Chloride <input type="checkbox"/> Copper <input type="checkbox"/> Arsenic <input type="checkbox"/> Other (please specify):	

Section II: Summary of Pollutant Reduction Work Done to Date

The following actions describe the results of pollutant source reduction efforts taken during this permit term.

- Where actions have been considered but not implemented, please describe the reason(s) that actions were not taken.
- Where actions are not ongoing, please describe why continuing those actions was not necessary.
- If you chose to complete the daily log for PMP/SRM activities, please include those pages as an attachment.

(Add/subtract lines from the lists below as necessary).

A. Pollutant Source Identification Efforts	Source Controllable? (Y/N)	Date Started – Date Ended
1.		
2.		
3.		

If any source is not controllable, please explain why.

B. Actions Identified to Minimize Pollutant Sources	Action Implemented? (Y/N)	Date Started – Date Ended
1.		
2.		

3.		
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If any action was not implemented, please explain why.

C. Actions Taken to Maintain Source Reduction	Maintenance Action Ongoing? (Y/N)	Date Initiated
1.		
2.		
3.		

If any action is not ongoing, please explain why.

Section III: Summary of Progress and Barriers to PMP Effectiveness

Average Pollutant Concentration in Previous Year _____ Average Pollutant Concentration this Year _____

Please attach a graph of variance pollutant concentration data over the last five years. (If you need assistance creating this graph, please contact your WDNR Compliance Staff.)

Have you encountered any barriers that have limited pollutant minimization program/source reduction measure effectiveness? If so, what adjustments will you make to the program during the next year to help address these barriers?

Section IV: Planned Actions

This list contains tasks that the facility plans to implement or investigate during the remainder of the permit cycle and past actions that the facility intends to continue. (Add/subtract items from the list as necessary)

A. Pollutant Source Identification Efforts	Proposed Start Date	Responsible Party
1.		
2.		
3.		
B. Actions to Minimize Pollutant Sources	Proposed	Responsible

	Start Date	Party
1.		
2.		
3.		
C. Maintenance of Source Reduction	Proposed Start Date	Responsible Party
1.		
2.		
3.		
Section V: Notes		
Please make any additional notes here. Attach additional pages if necessary.		
Section VI: Certification		
I certify that the information contained in this document and all attachments were gathered and prepared under my supervision and based on inquiry of people directly under my supervision and that, to the best of my knowledge, the information is true, accurate, and complete.		
Authorized Representative Signature:		
Date of PMP Annual Report Submittal to WDNR:		

PMP/SRM Daily Reporting Worksheet

Directions to Permittees: You may use this template to record day-to-day actions associated with implementation of your facility's pollutant minimization plan (PMP) or source reduction measures (SRM). Please record a single day's activities on each worksheet and include any subsequent follow-up actions on separate worksheets. Completed worksheets can be used to help complete PMP and SRM annual progress reports that, as a condition of your WPDES permit, must be submitted to the Wisconsin Department of Natural Resources. If these forms are completed, please submit them with the PMP/SRM annual progress reports.

Section I. General Information

Name of Permittee:

Permit Number:

Employee or Responsible Party:

Action Date:

Section II. Summary of Action(s)

Action(s) taken	Goal of action	Result(s)	Follow-up needed? (Y/N)	Follow-up date
1.				
2.				
3.				

Section III. Notes