

Wisconsin Pollutant Discharge Elimination System Program

PHOSPHORUS OPERATIONAL EVALUATION & OPTIMIZATION REPORT WORKSHEET

Please use this suggested format when developing the Operational Evaluation Report that may be contained in a Phosphorus Water Quality Based Effluent Limit compliance schedule of a Wisconsin Pollutant Discharge Elimination System (WPDES) Discharge Permit. We suggest that you follow this format to enable the Department to provide a quick review.

To streamline the evaluation and approval process, we have developed a 3-part document. This document asks for some basic information regarding the wastewater treatment plant's (WWTP) current "Baseline" phosphorus levels, a Worksheet for each proposed action to be taken, and a schedule for each item. It also includes a summary page which is used for approval of the submittal. The submittal may be prepared by a consultant or qualified individuals associated with the facility.

Optimization is a very important step in achieving the final total phosphorus (TP) limit. A reduction in the discharge levels that can be achieved through minimization and minor additions or optimization of the existing WWTP can greatly reduce the costs of construction or other means of achieving limits. Considering the potential cost savings that can be realized by going through this process, we are turning much of the responsibility for performing a comprehensive evaluation over to you.

Department staff will review the report to determine whether key elements have been addressed and to ensure that the schedule which you propose conforms to the deadlines established in the permit compliance schedule. If the submittal meets these criteria, the Department reviewer will sign and return a copy of the summary sheet. Once the report is approved, the permittee shall proceed with implementation of the optimization plan in accordance with the approved schedule that is consistent with chapter NR 217, Wisconsin Administrative Code.

Each facility is unique, but we are providing a listing of the items that should be considered to reduce the amount of TP that is discharged. Please review the list and determine which items may be applicable to your plant. Then determine a schedule for evaluating these items or others that may be appropriate. When developing the schedule, keep in mind that many of the items should be available when developing the Facility Planning Status Report that is due 2 years after permit issuance. The results of addressing the appropriate items will need to be included in the Preliminary Facilities Plan that is due 3 years after permit issuance.

ITEMS TO CONSIDER IN THE OPTIMIZATION REPORT

- Determine additional data needs.
- Identify monitoring needs of individual sources.
 - Industrial or commercial contribution.
 - Hauled in wastes, such as septage or holding tank wastes.
 - Industrial process lines.
 - WWTP process contribution, such as sludge decant.
 - WWTP unit effluent concentrations.
- Municipalities: work on P minimization with contributing sources; such as
 - Industrial: metal phosphatizing, dairy processing, meat packing, poultry processing, etc.
 - Commercial/institutional: vehicle washing, industrial cleaning & sanitizing, nursing homes, education facilities.
- Industry: explore reducing use of P chemicals, substitution for P chemicals, or alternate means of handling higher P loads.
- Work with water supplier to optimize P addition to the water supply used for corrosion control or iron and manganese sequestration.
- Optimize/increase chemical addition to increase P removal without impacting micro-organisms in WWTP.
- Evaluate multiple points of chemical addition.
- Optimize sludge decant.
 - Low rates
 - During low flow/loading periods.
 - Use side stream chemical addition to remove P from decant.
 - Increase chemical dosage during decant.
- Increase use of chemical polishing at Bio-P systems, particularly during sludge decant.
- Adjust sludge age/wasting at bio-P plants.
- Chemical addition to lagoons.
- For Pulp Mills (and other P deficient WW) optimize P addition thru use of on-line measurement of organic load to trigger nutrient addition.
- Identify minor construction (e.g., piping for additional chemical addition points) that may be necessary to further enhance P removal.
- Identify changes that may be necessary to the solids handling system due to the additional sludge that may be generated.

PHOSPHORUS OPTIMIZATION REPORT WORKSHEET

Facility Name: _____

WPDES Permit #: _____

PART 1—BACKGROUND INFORMATION

(A) Briefly describe wastewater treatment facility processes and operations and the means of treating phosphorus, including any chemicals used. Attach a flow schematic which shows the point(s) of chemical addition for TP control. Include both liquid and solids treatment trains.

(B) Baseline Year:

Month	Influent Avg. Flow (MGD)	Influent Avg. TP Concentration (mg/l)	Influent TP Mass (lb/day)	Effluent Avg. Flow (MGD)	Effluent Avg. TP Concentration (mg/l)	Effluent TP Mass (lb/day)
Jan						
Feb						
Mar						
Apr						
May						
Jun						
Jul						
Aug						
Sep						
Oct						
Nov						
Dec						
Avg						

(C) Possible Contributors: For municipalities, list all possible industries, other commercial buildings and hauled in wastes that could be introducing phosphorus into the collection system

Name Source	Type of Process	Already Contacted?	If so, possible contributor?

Possible Contributors: For industrials list processes that could be introducing phosphorus into the collection system

Type of Process	Chemicals used?	Product containing P?

Water supply: What are the phosphorus levels within your water supply? Does the water utility add phosphorus for corrosion control or iron and manganese sequestration?

PART 2—OPTIMIZATION ACTION PLANS

List the items that will be addressed to reduce the phosphorus in the effluent and provide a schedule for accomplishing each item. Note that all items must be completed by no later than 3 years after the date of permit reissuance. For each optimization action fill out a separate plan sheet.

Optimization Action: (example: Address Phosphorus from Industries)

Briefly describe optimization action plan: (example: determine contributors of phosphorus throughout the sewer area and work with them to reduce the incoming phosphorus. Parts of the plan include meeting with the industries, etc.)

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Example: contact all industries		

Overall Optimization Action Plan Time Frame: _____

Overall Completion Date: _____

Outcome hoping for:

Anticipated reduction and/or comments:

PART 3—OPTIMIZATION APPROVAL

Facility Name: _____ WPDES Permit #: _____

Name and Contact Information of Person Preparing Report:

Name: _____ E-mail Address: _____

Telephone #: _____

OPTIMIZATION ACTION PLANS

Please provide a summary of the proposed action items and projected completion dates. The completion dates should be developed to enable the incorporation of the action items into the Preliminary Facilities Plan that is required in the WPDES Permit Phosphorus Compliance Schedule.

[INSERT OPTIMIZATION ITEMS (TITLE FROM EACH SHEET)]

Action Item **Proposed Date of Completion**

For DNR use only
<input type="checkbox"/> Complete <input type="checkbox"/> Not Complete <input type="checkbox"/> Requesting more information? Comments:

Submitted for Approval by: _____ (signed) Date of Submittal: _____

(printed)
Authorized Permit Representative

Approved by: _____
DNR Wastewater Engineer or Designee

Date of Approval: _____