

Making the Most of Your Reissued WPDES Permit

Wisconsin Wastewater Operators Association

49th Annual Conference

Dan Greve, PE

Oct. 7, 2015



PROFESSIONAL SERVICES



WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE
ELIMINATION SYSTEM

VILLAGE OF LUCK

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility
located at
260th Avenue, Luck, Wisconsin
to

**AN UNNAMED WETLAND ASSOCIATED WITH NORTH STAR CREEK A TRIBUTARY TO THE
SOUTH FORK OF THE TRADE RIVER AND THE GROUNDWATER OF POLK COUNTY IN THE
TRADE RIVER WATERSHED WITHIN THE ST. CROIX RIVER DRAINAGE BASIN**

in accordance with the effluent limitations, monitoring requirements and other conditions set
forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after
this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis.
Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By *Kathy Bartilson*
Kathy Bartilson
St. Croix Watershed Program Supervisor

March 27, 2015
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - April 01, 2015

EXPIRATION DATE - March 31, 2020

Your WPDES Permit

- Governs Everything at Your WWTF
- Determines Expenditures
- Only Changes Every 5 Years (Usually)
- After It's Issued, It's Hard to Change

No Standard Process

- For Calculating WQBELs
- For Permit Reissue Protocol
- Differences Between DNR Regions
- Differences Between Individuals
- DNR is Working to Address Disparities
 - “WQBEL Lean Project – Voice of the Customer”

'Typical' Schedule for Permit Reissue

	Months Prior to Reissue
WDNR Requires Additional Sampling	18
On-Line Permit Application for Reissue	12
WDNR Calculates Effluent Limits	6
WDNR Provides Draft Permit to Owner	2 -3
▪ Permit Fact Sheet and Effluent Limits Memo	
▪ Review for "Factual Errors" Only?	
Public Notice and 30-Day Comment Period	1

Permit Requirements

- Boilerplate
- Sampling
- Effluent Limits
- Compliance Schedules

Sampling Requirements

- Frequency is a Function of Parameter, Plant Type & Size
- Precedent Set at Similar Facilities
- Reduced Sampling – Just Ask?

Compliance Schedules

- None?
- Dates are a Function of the Requirement and Complexity
- Are the Times Provided Reasonable?
 - Facility Planning
 - Design
 - Construction
 - Startup and Compliance
 - Funding?

6 Schedules

6.1 CMOM (Capacity, Management, Operation and Maintenance) Program Development

Required Action	Due Date
Complete Program Development: Complete development of CMOM Program by August 1, 2016. See CMOM requirements in the Standard Requirements section.	08/01/2016

6.2 Facility Upgrade

Required Action	Due Date
Construction Contracts: Award construction contracts	12/31/2015
Begin Construction: Begin construction	06/01/2016
Construction: Complete construction.	12/31/2017

6.3 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 30 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
<p>Operational Evaluation Report: The permittee shall prepare and submit to the Department for approval an operational evaluation report. The report shall include an evaluation of collected effluent data, possible source reduction measures, operational improvements or other minor facility modifications that will optimize reductions in phosphorus discharges from the treatment plant during the period prior to complying with final phosphorus WQBELs and, where possible, enable compliance with final phosphorus WQBELs by April 1, 2018. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than April 1, 2018 and state whether the measures, improvements, and modifications will enable compliance with final phosphorus WQBELs. Regardless of whether they are expected to result in compliance, the permittee shall implement the measures, improvements, and modifications in accordance with the plan and schedule specified in the operational evaluation report.</p> <p>If the operational evaluation report concludes that the facility can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the permittee shall comply with the final phosphorus WQBEL by April 1, 2018 and is not required to comply with the milestones identified below for years 3 through 9 of this compliance schedule ('Preliminary Compliance Alternatives Plan', 'Final Compliance Alternatives Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet WQBELs', 'Complete Construction', 'Achieve Compliance').</p> <p>STUDY OF FEASIBLE ALTERNATIVES - If the Operational Evaluation Report concludes that the permittee cannot achieve final phosphorus WQBELs with source reduction measures, operational improvements and other minor facility modifications, the permittee shall initiate a study of feasible</p>	03/31/2016

Compliance Schedules

- Precedent Set for Similar Upgrades at Similar Facilities
- Longer Compliance Schedule – Just Ask?

Permit Fact Sheet

- Summarizes Current Permit
- Summarizes Proposed Changes
- Provides Compliance Schedules
- Effluent Limits Memo Contains Supporting Information
- Get Copy as Early as Possible

Permit Fact Sheet

1 General Information

Permit Number:	WI-0021482-09-0	
Permittee Name:	Village of Luck	
Address:	P.O. Box 315 401 Main Street	
City/State/Zip:	LUCK WI 54853	
Discharge Location:	NE¼, SW ¼ of section 21; T36N-R17W	
Receiving Water:	The groundwater of the St. Croix River drainage basin and an unnamed wetland in Polk County	
StreamFlow (Q _{7,10}):	0.0 cfs for the wetland complex	
Stream Classification:	The wetland complex meets the classified variance water description in NR 104 of limited aquatic life, marginal surface water, but the discharge location is not currently identified as a variance water in NR 104.10 table 8.	
Design Flow(s)	Annual Average	0.284 MGD
Significant Industrial Loading?	No	
Operator at Proper Grade?	Yes	

2 Facility Description

The Village of Luck owns and operates a domestic wastewater treatment system. The aerated pond system has an annual design flow of 284,000 gallons per day. The system consists of two aerated ponds. In each pond naturally occurring bacteria already in the wastewater treat the waste stream by breaking down the organic matter. The treated water (called effluent) is discharged to an adjacent wetland complex or three seepage cells. The wetland is approximately 34 acres in size and flows to North Star Creek tributary to the South Fork of the Trade River. The Village discharges primarily to the wetland, discharging to the seepage cells only when the effluent cannot meet the surface water limits specified. The discharge to the seepage cells usually occurs from January to late spring. The sandy soil in the bottom of the seepage cells help filter the water further, as it percolates through the soil eventually reaching groundwater. There are five monitoring wells located around the seepage cells to assess any groundwater impacts of the discharge.

A facility upgrade is scheduled to occur during the permit term. Improvements will include a new bar screen, an upgraded aeration system in the ponds, chemical feed system for phosphorus removal and floating covers and flow baffle curtains in the aerated ponds.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)
701	INFLUENT An average of 0.142 MGD (2009-2013 data)	Representative influent samples shall be collected at the influent parshall flume in the control building.
001	TO GROUNDWATER	Representative samples shall be collected at the overflow to the

Effluent Limits Memo

- Not User Friendly
- Content Varies by Writer
- Shows Assumptions Made in Calculations
- Does Not Show Actual Calculations
- Does Not Reference Wis. Admin Code for Source of Calculations
- Does Not Provide Methodology Used to Determine Background Stream Flow or Other Assumptions

WOBEL Calculations Summary for the Village of Luck

Flows:		7Q10	7Q2	90Q10	H. Mean
(wetland w/o dilution & no mixing)		-	-	-	-
RW Hardness	=	224 mg/L	(use effluent hardness)		
RW pH	=	7.7 s. u.	(use effluent pH)		
Effluent Information:		Daily Flow			
Outfall 002 - LAL (Wetland Discharge)		0.17 MGD (0.263 cfs)			
Effluent Hardness	=	224 mg/L	(ave. of 47 samples)		
Effluent pH	=	7.7 s. u.	(99 th percentile)		

Calculation of Effluent Limitations Based on ATC (ug/L)

Substance*	Hard.	ATC	Daily Limit	1/5 of Limit	Ave. Eff. Conc.	
Copper	224	33	66.4	13.3	19.6	56.3 (1-d p99)
Zinc	224	244	488	97	23	
Chloride (mg/L)		757	1514	303	129	

Calculation of Effluent Limitations Based on CTC (ug/L) - RW Flow = 0 cfs (LAL - wetland discharge)

Substance*	Hard.	CTC	Weekly Limit	1/5 of Limit	Ave. Eff. Conc.	
Copper - Limit Required	224	20.5	20.6	4.1	19.6	35.2 (4-d p99)
Zinc	224	244	244	48.8	23	
Chloride (mg/L)		395	395		129	179 (4-d p99)

Calculation of Effluent Limits Based on HTC (ug/L) - no listed substances were detected or reported

Calculation of Effluent Limits Based on WC (ug/L) - no listed substances were detected or reported

Calculation of Effluent Limits Based on HCC (ug/L) - no listed substances were detected or reported

Calculation of Cumulative Cancer Risk - no listed substances were detected or reported.

*Results of "not detected" were reported for arsenic, cadmium, chromium, lead and nickel and monitoring for other toxic substances was not required so no results were reported.

A weekly average effluent limitation of 21 ug/L for total recoverable copper (TR-Cu) is recommended

Note: NR 105.06 (8) also allows for limits to be expressed using chronic toxicity expressed in dissolved form and if this method is used the recommended weekly average limit is 29 ug/L (Dis-Cu).

Effluent Limit Calculations

- Was the Calculation Performed Correctly?
- Are the Assumptions Correct?
- Are the Assumptions Questionable?
 - Based on Sufficient Data?
 - Based on Representative Data?

Assumptions and Data Used in Various WQBEL Calculations

- What Surface Water Applies?
- Stream hardness, pH, and temperature
- Effluent hardness, pH, and temperature
- Percent Mixing
- Effluent Quality
 - Still Valid?

Steam Flow

- Zero Base Flow in Stream?
- How Was Stream Flow Determined
- USGS Can Calculate Stream Flows
 - More Representative of Contributing Watershed
 - Newer Data, Often Results in Higher Flow
 - Different Conditions (e.g., dam removal)
 - Not Free, Not Instantaneous

Steam Flow

- USGS can calculate seasonal or monthly stream flows
- Opportunity for More Favorable Effluent Limits?
 - Seasonal instead of annual?
 - Monthly instead of seasonal or annual?

Interim Limits

- Could be the Highest Future Final Limit
- Example: Interim Phosphorus Limit
 - Usually Based on 30-day p99
 - Can be Based on 1-day p99 when Historic Data is Limited

Need for Phosphorus Limits

- Based on Receiving Stream Background P Levels
- Background P Data Often Extremely Limited
 - Number? Locations (U/S or D/S)? Dates?
- Sample Stream Before Permit is Issued
- Are Limits Based on Receiving Stream or Downstream?

Opportunity to Request CBOD Limits

- Obtain Sufficient Data to Determine Benefit

Copper Limits

- Total Recoverable or Dissolved Based?
- DNR Doesn't Always Offer the Option –
Need to Request
- Total Recoverable Copper Limit May Require
Stream Sampling or Add't WET Testing

Summary - Your WPDES Permit Reissue

- Don't Be Intimidated by the Language or the Numbers
- Don't Assume Things Can't be Changed
- This is Your Opportunity
- Get Involved Early in the Process
 - Get Help from a Consultant Early
 - Don't Wait for the Public Notice
 - Definitely Don't Wait for the Permit