

ARKANSAW SANITARY DISTRICT FACT SHEET – MODIFICATION

GENERAL INFORMATION	
Permit Number: WI-0060232-10-01	FID: 647006580
Permittee Name and Address: Arkansaw Sanitary District, PO Box 302, Arkansaw, WI 54721	
Discharge Location: Arkansaw Wastewater Treatment Facility, County Trunk Hwy O, Arkansaw, WI 54721	
Receiving Waters: the Eau Galle River in the Eau Galle River Watershed of the Lower Chippewa River Basin in Pepin County	
Annual Average Design Flow: 0.033 MGD	Discharge type: Fill-and-Draw, Seasonal, Existing
Stream Classification: Warmwater Sportfish, Non-public water supply	
Q(7,10): 36 cfs	Application Waivers? None
Sample Points/Outfalls	
Sample Point 701, Influent	0.0105 MGD influent from the Arkansaw SD (2023)
Outfall 001, Effluent to Surface Water	0.051 MGD treated effluent discharged to the Eau Galle River in the months of June and November (2023)
Outfall 002, Lagoon Sludge	Sludge hasn't been removed from the lagoon and landspread since 2005. Sludge removal is not anticipated in the upcoming permit term.

FACILITY DESCRIPTION

<p>Facility Description: The Arkansaw Wastewater Treatment Facility, with an annual average design flow of 0.033 million gallons per day (MGD), treats domestic waste from the Arkansaw Sanitary District. The actual annual average influent flow in 2023 was 0.0105 MGD and effluent flow was 0.051 MGD in the months of June and November. Wastewater is treated via primary and secondary stabilization ponds prior to seasonal discharge on a fill and draw basis to the Eau Galle River. No significant operational changes occurred during the last permit term.</p>
<p>Reason for permit modification: This permit modification extends the due date of an interim action item of the phosphorus compliance schedule. The due date for submittal of the Final Compliance Alternatives Plan has been extended from 05/31/2024 to 12/31/2024.</p>
<p>Publishing Newspaper: The Durand Courier-Wedge, 103 W Main St., PO Box 190, Durand, WI 54736-0190 See associated public notice document for additional contact and procedural information.</p>
<p>Significant Industrial Loading? No</p>

SUBSTANTIAL COMPLIANCE DETERMINATION

	Compliance	Comments
Discharge Limits	Yes	
Sampling/testing requirements	Yes	
Groundwater standards	N/A	
Reporting requirements	Yes	
Compliance schedules	Yes	
Operator at Proper Grade?	Yes	
Other:	N/A	
Enforcement considerations	N/A	
In substantial compliance? Yes	Name: Adebowale Adesanwo	Date: 02/28/2020

PERMIT MONITORING – INFLUENT

Sample Number: 701	Sample Location: Representative influent samples shall be collected at the wet well prior to the final lift station.		
PARAMETER	UNIT	SAMPLE FREQ.	SAMPLE TYPE
Flow Rate	MGD	Continuous	
BOD₅ Total	mg/L	2/Month	Grab
CBOD₅	mg/L	2/Month	Grab
Total Suspended Solids	mg/L	2/Month	Grab
Explanation of influent changes from previous permit: Because CBOD effluent limits are included in the permit, influent CBOD monitoring has been included to determine compliance with the 85% removal requirement of NR 210.05, Wis. Adm. Code.			

PERMIT MONITORING AND LIMITATIONS – EFFLUENT

Outfall Location: NE ¼ of the SE ¼, Section 24, T25N, R14W, Town of Waterville, Pepin County			
Outfall No: 001	Sample Description: Representative effluent samples shall be collected at the control manhole prior to discharge to the Eau Galle River.		
PARAMETER	LIMITATION	SAMPLE FREQ	SAMPLE TYPE
Flow Rate ¹	0.100 MGD Daily Max	Daily	Total Daily
CBOD ₅	40 mg/L Weekly Avg, 25 mg/L Monthly Avg	2/Month	Grab
Total Suspended Solids	60 mg/L Monthly Avg	2/Month	Grab
pH Field	9.0 su Daily Max, 6.0 su Daily Min	Weekly	Grab
Nitrogen, Ammonia Total ²	mg/L, Daily Max varies with effluent pH	Monthly	Grab
Nitrogen, Total ³	mg/L	Annual	Calculated
Nitrogen, Nitrite + Nitrate Total ³	mg/L	Annual	Grab
Total Kjeldahl Nitrogen ³	mg/L	Annual	Grab
Phosphorus, Total (interim limit effective throughout this permit term) ⁴	3.1 mg/L Monthly Avg	2/Month	Grab
Phosphorus, Total (final limit effective next permit term) ⁴	0.075 mg/L and 0.063 lbs/day Monthly Avg	2/Month	Grab
<p>¹ The permittee shall install an effluent flow meter per the associated compliance schedule.</p> <p>²Daily maximum ammonia limits vary with effluent pH. See the table below titled “Variable Daily Maximum Ammonia Limits”.</p> <p>³ Monitoring for total nitrogen, nitrite + nitrate nitrogen and TKN is required in the following quarters: 4th quarter (Oct-Dec) 2020, 2nd quarter (April-June) 2021, 4th quarter (Oct-Dec) 2022, 2nd quarter (April-June) 2023, 4th quarter (Oct-Dec) 2024 and 2nd quarter (April-June) 2025.</p> <p>⁴See associated compliance schedule for more information.</p>			
<p>Explanation of Limits: Limits were determined for the Arkansaw Sanitary District’s existing discharge to the Mississippi River using chs. NR 102, 104, 105, 106, 207, 210, 212 and 217 of the Wisconsin Administrative Code (where applicable). The effluent limits for CBOD₅, TSS and pH are based on NR 210. For more information see the February 13, 2020 memo from Wade Strickland to Holly Heldstab titled “Water Quality-Based Effluent Limitations for the Arkansaw Wastewater Treatment Facility WPDES Permit No. WI-0060232”.</p>			
<p>Changes from last permit: 1) the addition of annual monitoring for total nitrogen, nitrite + nitrate nitrogen and TKN per the October 2019, “Guidance for Total Nitrogen Monitoring in Wastewater Permits”, 2) the variable daily maximum ammonia limit table has been expanded to include applicable limits at an expanded effluent pH range, 3) addition of an interim phosphorus limit and a compliance schedule to meet lower, final phosphorus limits, and 4) an increase in the phosphorus monitoring frequency from monthly to twice monthly. See the limits memo referenced above for more information. See the compliance schedule section for information on the requirement that the permittee install an effluent flow meter.</p>			
<p>CBOD₅: In accordance with s. NR 210.05(1) Wis. Adm. Code, a monthly average CBOD limit of 25 mg/L and a weekly average CBOD limit of 40 mg/L has been substituted for the monthly average BOD limit of 30 mg/L and the weekly average limit of 45 mg/L because of nitrification interference in the BOD test.</p>			
<p>Total Suspended Solids: In accordance with s. NR 210.07(2), Wis. Adm. Code, the Arkansaw Sanitary District has been approved for a 60 mg/L total suspended solids variance for its stabilization pond system.</p>			
<p>Ammonia: Monthly monitoring and daily max limits that vary with effluent pH. See table below for limits. Additional limits to meet the expression of limits requirements in ss. NR 106.07 are not required due to the seasonal nature of the discharge. When possible total ammonia (NH₃-N) sampling shall occur on the same day pH levels are monitored.</p>			

VARIABLE DAILY MAXIMUM AMMONIA LIMITS

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

Total Nitrogen Monitoring (NO₂+NO₃, TKN and Total N): The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under §§ 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the “Guidance for Total Nitrogen Monitoring in Wastewater Permits” dated October 1, 2019. Test are scheduled in the following quarters: 4th quarter (Oct-Dec) 2020, 2nd quarter (April-June) 2021, 4th quarter (Oct-Dec) 2022, 2nd quarter (April-June) 2023, 4th quarter (Oct-Dec) 2024 and 2nd quarter (April-June) 2025.

Phosphorus: Monitoring is required twice monthly at the permit effective date. A monthly average interim limit of 3.1 mg/L is effective throughout this permit term. As a result of changes to NR 217, progress must be made to achieve the calculated monthly average water quality based limits of 0.075 mg/L & 0.063 lbs/day that become effective per a compliance schedule. Due to the seasonal nature of this discharge, a six-month average is not needed and the calculated WQBEL are expressed as a monthly averages. The permit contains a compliance schedule to meet the water quality-based effluent limit (WQBEL) for phosphorus in accordance with s. NR 217.17, Wis. Adm. Code.

The proposed concentration limit for phosphorus of 0.075 mg/L represents a very challenging level for wastewater facilities to meet with current technology and operation. Even with treatment optimization, for facilities like Arkansaw with stabilization ponds, the Department believes these processes are insufficient to meet either the proposed monthly average limits. Therefore, the Department believes that a compliance schedule is necessary for Arkansaw to comply with the proposed limitations. It is also probable that, in order to consistently comply with the 0.075 mg/L limit, Arkansaw will need to evaluate and implement any number of the following approaches:

- Plant optimization;
- Phosphorus source reduction;
- Additional treatment processes, or replacement or retrofitting of the current phosphorus removal process;
- Potential for adaptive management and/or pollutant trading with upstream contributors, and implementation of such trades.

Temperature: Changes to chs. NR 102 and 106 include new temperature criteria and related procedures for calculating water quality based effluent limitations for temperature. The lowest calculated limitation is 120° F, daily maximum. There is no reasonable potential for the calculated limitation to be exceeded, therefore no limit or monitoring is required in the permit.

BIOMONITORING REQUIREMENTS

Is biomonitoring required at this outfall? No	Primary Control Water Location: Eau Galle River
Q_s:Q_e: 244.9:1	Discussion: Since this discharge is a minor municipal (< 1.0 MGD), according to Chapter 1.11 WET Testing of Minor Municipal Discharges in the WET Guidance Document (2019) no WET testing is required because Arkansaw Sanitary District's discharge is comprised solely of domestic wastewater, with no history of WET failures and no toxic compounds detected at levels of concern.
If the stream class at the discharge point is other than Fish and Aquatic Life, how far down stream is the next Fish and Aquatic Life stream? Stream is fish and aquatic life	

DISINFECTION

Is disinfection required for this discharge? No
Discussion: Per NR 210.06(3), no disinfection is required because the detention time of the lagoon system (more than 180 days) is protective.

LAGOON SLUDGE REQUIREMENTS

All sludge management requirements were determined by ch. NR 204 Wis Adm. Code

Will sludge be removed from the ponds in this permit term? No, therefore representative sludge samples shall be collected once in 2021 and monitored for List 1. (No PCB monitoring is required because Arkansaw is a small community and it only receives domestic wastewater.)

Changes since last permit term: None

PROPOSED COMPLIANCE SCHEDULES

Effluent Flow Meter Installation

Required Action	Due Date
Submit Plans and Specifications: Submit plans and specifications (if needed) for installation of an effluent flow meter.	12/31/2020
Complete Installation: Complete installation of the effluent flow meter.	04/01/2021

Explanation of Compliance Schedule: The permittee has been estimating the effluent flow due to the lack of an effluent flow meter. This compliance schedule requires the permittee to install an effluent flow meter so that more accurate flow data can be collected.

Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 14 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 06/01/2023. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than 06/01/2023 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 06/01/2023 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 alternatives for meeting final phosphorus WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the Department may reopen and modify the permit to include an implementation schedule for achieving the final phosphorus WQBELs sooner than 06/01/2029.</p>	06/01/2021
<p>Compliance Alternatives, Source Reduction, Improvements and Modifications Status: The permittee shall submit a 'Compliance Alternatives, Source Reduction, Operational Improvements and Minor Facility Modification' status report to the Department. The report shall provide an update on the permittee's: (1) progress implementing source reduction measures, operational improvements, and minor facility modifications to optimize reductions in phosphorus discharges and, to the extent</p>	06/01/2022

that such measures, improvements, and modifications will not enable compliance with the WQBELs, (2) status evaluating feasible alternatives for meeting phosphorus WQBELs.	
<p>Preliminary Compliance Alternatives Plan: The permittee shall submit a preliminary compliance alternatives plan to the Department.</p> <p>If the plan concludes upgrading of the permittee’s wastewater treatment facility is necessary to achieve final phosphorus WQBELs, the submittal shall include a preliminary engineering design report.</p> <p>If the plan concludes Adaptive Management will be used, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 without the Adaptive Management Plan.</p> <p>If water quality trading will be undertaken, the plan must state that trading will be pursued.</p>	06/01/2023
<p>Progress Report: Permittee shall submit a progress report regarding the progress of preparing the final compliance alternatives plan.</p>	10/31/2024
<p>Final Compliance Alternatives Plan: The permittee shall submit a final compliance alternatives plan to the Department.</p> <p>If the plan concludes upgrading of the permittee’s wastewater treatment is necessary to meet final phosphorus WQBELs, the submittal shall include a final engineering design report addressing the treatment plant upgrades, and a facility plan if required pursuant to ch. NR 110, Wis. Adm. Code.</p> <p>If the plan concludes Adaptive Management will be implemented, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 and an engineering report addressing any treatment system upgrades necessary to meet interim limits pursuant to s. NR 217.18, Wis. Adm. Code.</p> <p>If the plan concludes water quality trading will be used, the submittal shall identify potential trading partners.</p> <p>Note: See ‘Alternative Approaches to Phosphorus WQBEL Compliance’ in the Surface Water section of this permit.</p>	12/31/2024
<p>Progress Report on Plans & Specifications: Submit progress report regarding the progress of preparing final plans and specifications. Note: See ‘Alternative Approaches to Phosphorus WQBEL Compliance’ in the Surface Water section of this permit.</p>	06/01/2025
<p>Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.)</p> <p>Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	06/01/2026
<p>Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	09/01/2026
<p>Construction Upgrade Progress Report #1: The permittee shall submit a progress report on</p>	06/01/2027

construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	06/01/2028
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	05/01/2029
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	06/01/2029

Explanation of compliance schedule: Subchapter NR 217.17, Wis. Adm. Code, allows the department to provide a schedule of compliance for water quality-based phosphorus limits where the permittee cannot immediately achieve compliance. In the 2024 permit modification, the due date for submittal of the Final Compliance Alternatives Plan has been extended from 05/31/2024 to 12/31/2024. Due to the requirements in 40 CFR 122.47(3), an action item has been added to the schedule that requires the permittee submit a progress report by 10/31/2024.

SPECIAL REPORTING REQUIREMENTS

None

OTHER COMMENTS

None

Proposed expiration date: June 30, 2025

Prepared by: Holly Heldstab

Date: June 15, 2020

Modified by: Holly Heldstab

Date: June 21, 2024