

Permit Fact Sheet

General Information

Permit Number:	WI-0021687-10-0	
Permittee Name:	BARRON-CAMERON WWTF	
Address:	PO Box 156 1456 E. LaSalle Avenue	
City/State/Zip:	Barron WI 54812	
Discharge Location:	NW ¼ of Section 35; T34N-R12W	
Receiving Water:	The groundwater of the Yellow River Watershed in the Lower Chippewa River Drainage Basin in Barron County	
Discharge Type:	Existing continuous discharger.	
Design Flow(s)	Annual Average	0.784 MGD
Significant Industrial Loading?	Sweet Additions (formerly Primera Foods) is a food processor that uses cooking and hydrolysis to convert starch-based flours into sugar sweeteners that are then spray dried into a powder or evaporated into a syrup. The loading is variable, with an average of 30,000 gallons daily volume.	
Operator at Proper Grade?	Yes	
Approved Pretreatment Program?	N/A	

Facility Description

The City of Barron owns and operates an aerated pond wastewater treatment system. This plant treats waste from homes and businesses in the community and from the neighboring Village of Cameron. It is designed to handle 784,000 gallons per day; actual flows averaged 511,000 gallons per day (2019-2023 data). The facility consists of four aerated ponds/cells that use naturally occurring aerobic (oxygen-utilizing) bacteria and organisms to metabolize organic matter in the wastewater. The effluent (treated wastewater) is discharged year-round to groundwater via three different land treatment systems used alone or in combination. Effluent is directed to three engineered seepage ponds (9 acres total) during the winter (November through April). During the spring and summer (May through October) effluent can be discharged to a wooded overland seepage area (35.8 acres), or a spray irrigation field (60 acres) that is planted with crops. Eight monitoring wells are used to monitor and identify any potential impacts the discharged effluent may have on groundwater.

Substantial Compliance Determination

Enforcement During Last Permit: All conditions and standard requirements of the permit are being met. No further action is required.

After a review of all Discharge Monitoring Reports, Groundwater Monitoring Reports, Land Application Reports, SSO forms and a site visit on 06/28/2023, by Carson Johnson, WDNR, the Barron Cameron Wastewater Treatment Facility has been found to be in substantial compliance with their current permit.

Compliance determination entered by Carson Johnson on September 6, 2023.

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 0.511 MGD (2019 – 2023 data)	Representative samples of the influent shall be taken after the bar screen in Structure S-1.
001	EFFLUENT – SEEPAGE CELLS An average of 0.505 MGD during the winter months. (2019-2023 data)	Discharge to seepage cells. Representative effluent samples shall be taken from the discharges from both secondary aeration cells at Structure S-3.
002	EFFLUENT – OVERLAND An average of 0.65 MGD during approximately 140 days of the discharge season (April – Nov.) (2019-2023 data)	Discharge to overland seepage areas. Discharges are authorized April through November to the groundwater of the Lower Chippewa River drainage basin in Barron County. Representative effluent samples shall be taken from the discharges from both secondary aeration cells at Structure S-3.
003	EFFLUENT – SPRAY FIELD An average of 0.458 MGD during approximately 29 days of the discharge season (April – Nov.) (2019-2023 data)	Discharge to spray irrigation field. Discharges are authorized April through November to the groundwater of the Lower Chippewa River drainage basin in Barron County. Representative effluent samples shall be taken from the discharges from both secondary aeration cells at Structure S-3.
005	SLUDGE An estimate of 735 dry U.S. tons Information from the application	Representative sludge samples shall be taken by compositing several samples across the bottom of each lagoon.
006	COMBINED EFFLUENT An average of 0.516 MGD (2019-2023 data)	Combined flow from all outfalls (001, 002 and 003).

Sample Point Designation For Groundwater Monitoring Systems	
Sample Pt & (Common Well Name)	Comments
804 (2SSHALLOW DEPTH)	Down gradient non-point of standard well.
812 (BC-812)	Down gradient non-point of standard well. Clustered with well 820.
816	Up gradient well used to measure background groundwater quality and to evaluate and calculate the PALs and ACLs.
817	Down gradient non-point of standard well.
818	Down gradient non-point of standard well.
819	Down gradient non-point of standard well.
820 (P820)	Down gradient non-point of standard well. A piezometer well that is clustered with well 812.
822	Up gradient well used to measure upgradient groundwater quality.

1 Influent – Monitoring Requirements

Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	Weekly	24-Hr Comp	
CBOD5		mg/L	Weekly	24-Hr Comp	
Suspended Solids, Total		mg/L	Weekly	24-Hr Comp	
Nitrogen, Total Kjeldahl		mg/L	Monthly	24-Hr Comp	
Nitrogen, Organic Total		mg/L	Monthly	Calculated	Organic Nitrogen = Total Kjeldahl Nitrogen (mg/L) - Ammonia Nitrogen (mg/L)
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	24-Hr Comp	

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and no changes were required in this permit section. Sampling requirements and frequencies are the same as the previous permit.

Explanation of Limits and Monitoring Requirements

Influent monitoring is needed to assess loading to the facility and treatment performance. The required parameters and sampling frequency are appropriate for a land treatment system per ch NR 206, Wis. Adm. Code.

2 Land Treatment – Monitoring and Limitations

Sample Point Number: 001- EFFLUENT SEEPAGE CELLS

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
CBOD5	Monthly Avg	45 mg/L	Weekly	Grab	
Suspended Solids, Total		mg/L	Weekly	Grab	
pH Field		su	Weekly	Grab	
Nitrogen, Total		mg/L	Monthly	Grab	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Kjeldahl					
Nitrogen, Organic Total		mg/L	Monthly	Calculated	Organic Nitrogen = Total Kjeldahl Nitrogen (mg/L) - Ammonia Nitrogen (mg/L)
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	Grab	
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	Grab	
Chloride	Daily Max	250 mg/L	Weekly	Grab	
Nitrogen, Total		mg/L	Monthly	Calculated	Total Nitrogen = Total Kjeldahl Nitrogen (mg/L) + (Nitrate + Nitrite) Nitrogen (mg/L)
Phosphorus, Total		mg/L	Monthly	Grab	

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

Phosphorus monitoring is required this permit term.

Explanation of Limits and Monitoring Requirements

Requirements for land treatment of municipal wastewater are determined in accordance with ch. NR 206 Wis. Adm. Code. More information on the limits for these parameters can be found in the “Barron Cameron WWTF – Land Disposal Evaluation Report, WPDES Permit # WI-0021687” memo dated February 2, 2024.

CBOD5 - The basis for the CBOD5 limit was established in Tom Gilbert’s (WDNR) letter, dated February 11, 1992 to Mr. Robert Sullentrop, P.E. (Barron’s consultant), which states: “Chapter NR 206 of the Wis. Adm. Code establishes an effluent limitation of 50 mg/L BOD for land disposal systems. This code makes no specific reference to carbonaceous BOD (CBOD) but NR 206.06 does allow for the establishment of alternative effluent limits. In response to Barron’s request for CBOD limits, the Department has considered this question as it applies to all land disposal systems in order to establish a general policy on this matter. For surface water dischargers, Chapter NR 201 allows CBOD limits if supporting information is provided to establish that the BOD results are being influenced by nitrogenous oxygen demand. If this is established, a CBOD limit can be set at a value 5 mg/L less than the normally applicable BOD limit. This procedure accords with U.S. EPA guidance. We have concluded that it is appropriate to follow this same procedure for land disposal systems. Therefore, we will consider a 45 mg/L CBOD limit to be equivalent to the 50 mg/L BOD limit. Based on past performance, and considering the proposed aeration improvements, it appears that the aerated lagoons should be able to comply with this CBOD limitation.”

Chloride - Required by NR 206.09(1). Per NR 206.05 Table 1, a chloride limit is required for a facility built after 1/1/1990, and concentrations may not exceed a daily maximum limit of 250 mg/L. The concentration of any wastewater parameter that may impact groundwater quality shall be limited at the point of discharge to a value that will minimize the concentration of the substance in the groundwater to the extent technically and economically feasible and will prevent

exceedance of the preventive action limit (PAL) in the groundwater. This is especially important for parameters, such as dissolved chloride, that do not receive significant treatment in the system.

Phosphorus - The groundwater flow direction is toward the Yellow River (to the east). Given the groundwater flow direction, groundwater elevation and proximity to the river this land disposal system is suspected to be a functional equivalent to a surface water. Monitoring for phosphorus is required this permit term to identify potential impacts to the Yellow River.

Sampling Frequency - The “[Monitoring Frequencies for Individual Wastewater Permits](#)” guidance document (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. The department has determined at this time that the facility meets the guidance and no changes in the monitoring frequency is required this permit term.

Sample Point Number: 002- EFFLUENT OVERLAND SEEPAGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
Hydraulic Application Rate	Monthly Avg	17,288 gal/ac/day	Monthly	Calculated	The limit is effective during the discharge season April through November.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Calculated	The limit is effective during the off season December through March.
CBOD5	Monthly Avg	45 mg/L	Weekly	Grab	
Suspended Solids, Total		mg/L	Weekly	Grab	
pH Field		su	Weekly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Nitrogen, Organic Total		mg/L	Monthly	Calculated	Organic Nitrogen = Total Kjeldahl Nitrogen (mg/L) - Ammonia Nitrogen (mg/L)
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	Grab	
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	Grab	
Chloride	Daily Max	250 mg/L	Weekly	Grab	
Nitrogen, Total		mg/L	Monthly	Calculated	Total Nitrogen = Total Kjeldahl Nitrogen (mg/L) + (Nitrate + Nitrite) Nitrogen

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
					(mg/L)
Phosphorus, Total		mg/L	Monthly	Grab	

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

- A **Hydraulic Application Rate** of zero has been added during the non-growing season (December – March).
- **Phosphorus** monitoring has been required this permit term.

Explanation of Limits and Monitoring Requirements

Requirements for land treatment of municipal wastewater are determined in accordance with ch. NR 206 Wis. Adm. Code. More information on the limits for these parameters can be found in the “Barron Cameron WWTF – Land Disposal Evaluation Report, WPDES Permit # WI-0021687” memo dated February 2, 2024.

Sampling and overland seepage seasons - Sampling requirements identified in the Monitoring Requirements are only required during the months with discharge to the overland seepage outfall. Discharge to the overland seepage system is expected to occur between April 1 to November 30 each year.

Seasons are regulated by NR 206.07(2)(g), which states: "Discharge to a land disposal system shall be limited so that the discharge and any precipitation which falls within the boundary of the disposal system during such discharge does not overflow the boundary of the system unless the WPDES permit authorizes collection and discharge of runoff to a surface water."

Hydraulic Application Rates (HAR) limits - The application rate is based on hydrogeologic conditions, soil texture, permeability, cation exchange capacity, topography, cover crop and wastewater characteristics. A monthly average hydraulic application rate of 17,288 gal/acre/day limit is effective **April** through **November**. A limit of zero has been added to identify the non-growing season of **December** through **March**. During months when a discharge occurs, report a zero for each day that flow is not discharged to land treatment for both flow and hydraulic application rate.

CBOD5 - The basis for the CBOD5 limit was established in Tom Gilbert’s (WDNR) letter, dated February 11, 1992 to Mr. Robert Sullentrop, P.E. (Barron’s consultant), which states: “Chapter NR 206 of the Wis. Adm. Code establishes an effluent limitation of 50 mg/L BOD for land disposal systems. This code makes no specific reference to carbonaceous BOD (CBOD) but NR 206.06 does allow for the establishment of alternative effluent limits. In response to Barron’s request for CBOD limits, the Department has considered this question as it applies to all land disposal systems in order to establish a general policy on this matter. For surface water dischargers, Chapter NR 201 allows CBOD limits if supporting information is provided to establish that the BOD results are being influenced by nitrogenous oxygen demand. If this is established, a CBOD limit can be set at a value 5 mg/L less than the normally applicable BOD limit. This procedure accords with U.S. EPA guidance. We have concluded that it is appropriate to follow this same procedure for land disposal systems. Therefore, we will consider a 45 mg/L CBOD limit to be equivalent to the 50 mg/L BOD limit. Based on past performance, and considering the proposed aeration improvements, it appears that the aerated lagoons should be able to comply with this CBOD limitation.”

Chloride - Required by NR 206.09(1). Per NR 206.05 Table 1, a chloride limit for a facility built after 1/1/1990 concentrations may not exceed a daily maximum limit of 250 mg/L. The concentration of any wastewater parameter that may impact groundwater quality shall be limited at the point of discharge to a value that will minimize the concentration of the substance in the groundwater to the extent technically and economically feasible and will prevent exceedance of the

preventive action limit (PAL) in the groundwater. This is especially important for parameters, such as dissolved chloride, that do not receive significant treatment in the system.

Phosphorus - The groundwater flow direction is toward the Yellow River (to the east). Given the groundwater flow direction, groundwater elevation and proximity to the river this land disposal system is suspected to be a functional equivalent to a surface water. Monitoring for phosphorus is required this permit term to identify potential impacts to the Yellow River.

Sampling Frequency - The “[Monitoring Frequencies for Individual Wastewater Permits](#)” guidance document (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. The department has determined at this time that the facility meets the guidance and no changes in the monitoring frequency is required this permit term.

Sample Point Number: 003- EFFLUENT SPRAY IRRIGATION

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	10,000 gal/ac/day	Monthly	Calculated	The limit is effective during the spray season April through November.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Calculated	The limit is effective during the off season December through March.
CBOD5	Monthly Avg	45 mg/L	Weekly	Grab	
Suspended Solids, Total		mg/L	Monthly	Grab	
pH Field		su	Monthly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Nitrogen, Ammonia (NH3-N) Total		mg/L	Monthly	Grab	
Nitrogen, Organic Total		mg/L	Monthly	Calculated	Organic Nitrogen = Total Kjeldahl Nitrogen (mg/L) - Ammonia Nitrogen (mg/L)
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	Grab	
Nitrogen, Total		mg/L	Monthly	Calculated	Total Nitrogen = Total Kjeldahl Nitrogen (mg/L) + (Nitrate + Nitrite) Nitrogen (mg/L)

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Chloride	Daily Max	250 mg/L	Weekly	Grab	
Solids, Total Dissolved		mg/L	Monthly	Grab	
Nitrogen, Max Applied On Any Zone		lbs/ac/yr	Annual	Total Annual	

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

- A **Hydraulic Application Rate** of zero has been added during the non-growing season (December – March).

Explanation of Limits and Monitoring Requirements

Requirements for land treatment of municipal wastewater are determined in accordance with ch. NR 206 Wis. Adm. Code. More information on the limits for these parameters can be found in the “Barron Cameron WWTF – Land Disposal Evaluation Report, WPDES Permit # WI-0021687” memo dated February 2, 2024.

Sampling and spray seasons - Sampling requirements identified in the Monitoring Requirements and Limitations Table are only required during the months with discharge to the spray irrigation outfall. Discharge to the spray irrigation system is expected to occur between April 1 to November 30 each year.

Spray seasons are regulated by NR 206.07(2)(g) which states, "Discharge to a land disposal system shall be limited so that the discharge and any precipitation which falls within the boundary of the disposal system during such discharge does not overflow the boundary of the system unless the WPDES permit authorizes collection and discharge of runoff to a surface water." And NR 110.255(2)(a)(2) “Spray irrigation onto frozen ground is prohibited. The department may restrict loadings during times of the year when the cover crop is not actively growing.”

HAR limits - The application rate is based on hydrogeologic conditions, soil texture, permeability, cation exchange capacity, topography, cover crop and wastewater characteristics. A monthly average hydraulic application rate of 17,288 gal/acre/day limit is effective **April** through **November**. A limit of zero has been added to identify the non-growing season of **December** through **March**. During months when a discharge occurs, report a zero for each day that flow is not discharged to land treatment for both flow and hydraulic application rate.

CBOD5 - The basis for the CBOD5 limit was established in Tom Gilbert’s (WDNR) letter, dated February 11, 1992 to Mr. Robert Sullentrop, P.E. (Barron’s consultant) states, “Chapter NR 206 of the Wis. Adm. Code establishes an effluent limitation of 50 mg/L BOD for land disposal systems. This code makes no specific reference to carbonaceous BOD (CBOD) but NR 206.06 does allow for the establishment of alternative effluent limits. In response to Barron’s request for CBOD limits, the Department has considered this question as it applies to all land disposal systems in order to establish a general policy on this matter. For surface water dischargers, Chapter NR 201 allows CBOD limits if supporting information is provided to establish that the BOD results are being influenced by nitrogenous oxygen demand. If this is established, a CBOD limit can be set at a value 5 mg/L less than the normally applicable BOD limit. This procedure accords with U.S. EPA guidance. We have concluded that it is appropriate to follow this same procedure for land disposal systems. Therefore, we will consider a 45 mg/L CBOD limit to be equivalent to the 50 mg/L BOD limit. Based on past performance, and considering the proposed aeration improvements, it appears that the aerated lagoons should be able to comply with this CBOD limitation.”

Chloride - Required by NR 206.09(1). Per NR 206.05 Table 1, a chloride limit for a facility built after 1/1/1990 concentrations may not exceed a daily maximum limit of 250 mg/L. The concentration of any wastewater parameter that may impact groundwater quality shall be limited at the point of discharge to a value that will minimize the concentration of the substance in the groundwater to the extent technically and economically feasible and will prevent exceedance of the preventive action limit (PAL) in the groundwater. This is especially important for parameters, such as dissolved chloride, that do not receive significant treatment in the system.

Nitrogen Max Applied on Any Zone - This parameter provides a notification of exceedances in addition to the Annual Report.

Sampling Frequency - The “[Monitoring Frequencies for Individual Wastewater Permits](#)” guidance document (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure fairness and consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. The department has determined at this time that the facility meets the guidance and no changes in the monitoring frequency is required this permit term.

Sample Point Number: 006- COMBINED TOTAL EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Calculated	

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and no changes were required in this permit section. Sampling requirements and frequencies are the same as the previous permit.

Explanation of Limits and Monitoring Requirements

This sample point is the total of all combined effluent flows for each day. This is an operational requirement that is needed to generate the annual CMAR form correctly.

3 Groundwater – Monitoring and Limitations

3.1 Groundwater Monitoring System for Groundwater Monitoring Wells

Location of Monitoring system: Around the land treatment systems

Wells to be Monitored: 804 (2SSHALLOW DEPTH), 812 (BC-812), 816, 817, 818, 819, 820 (P820), and 822

Well Used To Calculate PALs: 816

Point of Standards Application Well(s): None of the wells meet the point of standards application well criteria. the wells are within both the property boundary and the design management zone.

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet	*****	N/A	Quarterly

Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
pH Field	su	7.1	N/A	Quarterly
Nitrogen, Total Kjeldahl Dissolved	mg/L	*****	N/A	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	3.1	N/A	Quarterly
Solids, Total Dissolved	mg/L	500	N/A	Quarterly
Phosphorus, Total Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

The PALs for **Nitrite+Nitrate, Chloride, pH, Ammonia, Organic Nitrogen, and Total Dissolved Solids** have been adjusted per ch. NR 140, Wis. Adm. Code.

Explanation of Limits and Monitoring Requirements

Groundwater limits and requirements are determined in accordance with ch NR 140 Wis. Adm. Code. Indicator parameter Preventative Action Limit (PAL) values are established per ch NR 140.20 Wis. Adm. More information on the limits for these parameters can be found in the “Barron Cameron WWTF – Land Disposal Evaluation Report, WPDES Permit # WI-0021687” memo dated February 2, 2024.

Changes to Permit Issuance - 10

Parameter	Permit Issuance - 09		Permit Issuance - 10	
	Preventive Action Limit	Enforcement Standard	Preventive Action Limit	Enforcement Standard
Nitrogen, Nitrite + Nitrate (as N) Dissolved	45 mg/L	45 mg/L	<i>Exempt</i>	<i>Exempt</i>
Chloride, Dissolved	170 mg/L	250 mg/L	125 mg/L	250 mg/L
pH, field	5.4 - 7.4 s.u.	N/A	5.1 – 7.1 s.u.	N/A
Nitrogen, Ammonia Dissolved	2.3 mg/L	9.7 mg/L	0.97 mg/L	9.7 mg/L
Nitrogen, Organic Dissolved	5.0 mg/L	N/A	3.1 mg/L	N/A
Solids, Total Dissolved	600 mg/L	N/A	500 mg/L	N/A

Alternative Concentration Limit - An exemption to the published standard has been granted in accordance with ch NR 140.28 for Nitrite+Nitrate Nitrogen Preventative Action Limit and Enforcement Standard at this site.

4 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
005	B	Liquid	Fecal Coliform	Injection	Land Application	An estimate of 735 dry tons/year.
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No, During the last round of sampling for Barron (2023) the concentration was 0.922 pCi/liter and for Cameron (2020) the concentration was below the limit of detection.						
If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility.						
Is a priority pollutant scan required? No						
Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

Sample Point Number: 005- Sludge from Aerated Lagoons

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Once	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Once	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Once	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Once	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Once	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Once	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Once	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Once	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Once	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Once	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Once	Composite	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nickel Dry Wt	High Quality	420 mg/kg	Once	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Once	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Once	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Once	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Once	Composite	
Nitrogen, Total Kjeldahl		Percent	Per Application	Composite	
Nitrogen, Ammonia (NH3-N) Total		Percent	Per Application	Composite	
Phosphorus, Total		Percent	Per Application	Composite	
Phosphorus, Water Extractable		% of Tot P	Per Application	Composite	
Potassium, Total Recoverable		Percent	Per Application	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Monitoring is required during the 2025 calendar year.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Monitoring is required during the 2025 calendar year.
PFOA + PFOS		ug/kg	Once	Calculated	Monitoring is required during the 2025 calendar year.

Changes from Previous Permit:

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit. See additional explanation of limits under “Explanation of Limits and Monitoring Requirements” below.

- Monitoring for **PFAS** (PFOA + PFOS) has been added to the second year of the permit term.
- The monitoring frequency for nutrients (List 2) has changed from “annual” to “per occurrence”.

Explanation of Limits and Monitoring Requirements

Sludge may be removed this permit term. Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Radium requirements are addressed in s. NR 204.07(3)(n.)

List 2 (Nutrients) – The monitoring frequency has changed from “Annual” to “Per Application” monitoring is required during the years sludge removal occurs. If sludge is not required to be removed during the permit term it is recommended that monitoring occur during the second year of the permit term.

PFAS- The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA is currently developing a risk assessment to determine future land application rates and expects to release this risk assessment by the end of 2024. In the interim, the department has developed the “Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS”

5 Schedules

5.1 Land Treatment Management Plan

A management plan is required for the land treatment system.

Required Action	Due Date
<p>Land Treatment Management Plan Submittal: Submit an update to the management plan to optimize the land treatment system performance and demonstrate compliance with ch. NR 206, Wis. Adm. Code. The land treatment system shall be operated in accordance with the approved management plan.</p> <p>The plan shall identify the load/rest cycles. If they haven't been implemented, a plan to evaluate load/rest cycles for optimization to improve nitrogen reduction.</p>	<p>10/31/2024</p>

Explanation of Schedules

Per ss. NR 206.07(2)(h) Wis. Adm. Code, a management plan for optimizing system performance and demonstrating compliance with the requirements of ch NR 206, Wis. Adm. Code. Once approved, operations shall be conducted in accordance with the department approved management plan.

Attachments:

Water Flow Schematic created October 2018

“Barron Cameron WWTF – Land Disposal Evaluation Report, WPDES Permit # WI-0021687” memo dated February 2, 2024.

Expiration Date:

June 30, 2029

Justification Of Any Waivers From Permit Application Requirements

N/A

Prepared By: Sheri A. Snowbank **Wastewater Specialist**

Date: February 23, 2024

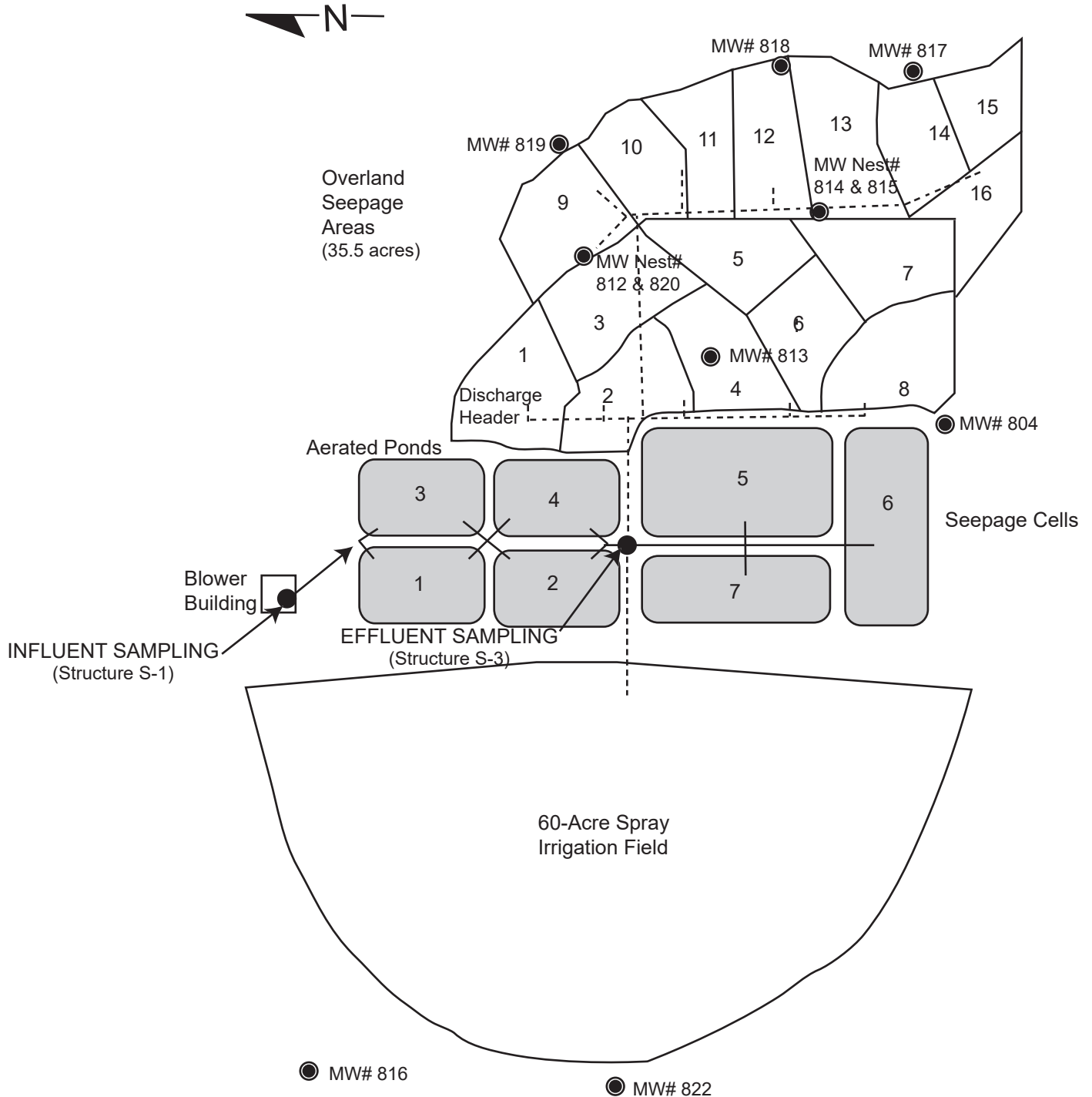
Date updated based on Factcheck comments: N/A (April 3, 2024, no comments received)

Date updated based on public notice comments:

Notice of reissuance was published in the Barron News-Shield, PO Box 100, Barron, WI 54812-0100.

City of Barron Wastewater Treatment Plant

The Barron wastewater treatment facility consists of four aerated ponds. Effluent can be discharged to three seepage cells, wooded overland seepage areas, or a spray irrigation field. There are 10 groundwater monitoring wells around the perimeter of the system. The diagram below shows the treatment units and sampling locations.



- MW # represent monitoring well locations
- Represents sample locations

NOT TO SCALE

Flow: 0.784 MGD
 BOD: 3,635 pounds/day
 Construction year: 1993

DATE: 02/02/2024

FILE REF: 5929

TO: File

FROM: Woody Myers - WCR SUBJECT: Barron-Cameron WWTF - Land Disposal System Evaluation Report,
WPDES Permit # WI-0021687**Site Information**

The Barron-Cameron Wastewater Treatment Facility, a municipal facility is located at 1295 16th Street, Barron, Barron County. Wastewater is currently treated and discharged to groundwater via infiltration by way of absorption ponds (seepage cells), spray irrigation and overland flow. These land disposal systems are located in the NW ¼ of Section 35, T34N, R12W, Town of Barron.

Land Disposal Effluent & Groundwater Evaluation Summary

**Table 1 Land Treatment Effluent Parameters and Limits
Outfall 001 Absorption Ponds**

Parameter	Current Permit WI-0021687-09		Proposed Permit WI-0021687-10	
	Limits and Units	Limit Type	Limits and Units	Limit Type
Flow Rate	- MGD		- MGD	
CBOD ₅	45 mg/l	Monthly Avg	45 mg/l	Monthly Avg
Total Suspended Solids	- mg/l		- mg/l	
pH, Field	- su		- su	
Nitrogen, Total Kjeldahl	- mg/l		- mg/l	
Nitrogen, Organic	- mg/l		- mg/l	
Nitrogen, Ammonia	- mg/l		- mg/l	
Nitrogen, Nitrite + Nitrate	- mg/l		- mg/l	
Chloride	250 mg/l	Daily Max	250 mg/l	Daily Max
Nitrogen, Total	- mg/l		- mg/l	
*Phosphorus, Total			- mg/l	

* Proposed permit changes



**Table 2 Land Treatment Effluent Parameters and Limits
Outfall 002 Overland Flow**

Parameter	Current Permit WI-0021687-09		Proposed Permit WI-0021687-10	
	Limits and Units	Limit Type	Limits and Units	Limit Type
Flow Rate	- MGD		- MGD	
Hydraulic Application Rate (Apr – Nov)	17,288 gal/ac/day	Monthly Avg	17,288 gal/ac/day	Monthly Avg
Hydraulic Application Rate (Dec – Mar)	Not Listed		*0 gal/ac/day	Monthly Avg
CBOD ₅	45 mg/l	Monthly Avg	45 mg/l	Monthly Avg
Total Suspended Solids	- mg/l		- mg/l	
pH, Field	- su		- su	
Nitrogen, Total Kjeldahl	- mg/l		- mg/l	
Nitrogen, Organic	- mg/l		- mg/l	
Nitrogen, Ammonia	- mg/l		- mg/l	
Nitrogen, Nitrite + Nitrate	- mg/l		- mg/l	
Chloride	250 mg/l	Daily Max	250 mg/l	Daily Max
Nitrogen, Total	- mg/l		- mg/l	
*Phosphorus, Total	-		- mg/l	

**Table 3 Land Treatment Effluent Parameters and Limits
Outfall 003 Spray Irrigation**

Parameter	Current Permit WI-0021687-09		Proposed Permit WI-0021687-10	
	Limits and Units	Limit Type	Limits and Units	Limit Type
Flow Rate	- MGD		- MGD	
Hydraulic Application Rate (Apr – Nov)	10,000 gal/ac/day	Monthly Avg	10,000 gal/ac/day	Monthly Avg
Hydraulic Application Rate (Dec – Mar)	Not Listed		*0 gal/ac/day	Monthly Avg
BOD ₅	45 mg/l	Monthly Avg	45 mg/l	Monthly Avg
Total Suspended Solids	- mg/l		- mg/l	
pH, Field	- su		- su	
Nitrogen, Total Kjeldahl	- mg/l		- mg/l	
Nitrogen, Ammonia	- mg/l		- mg/l	
Nitrogen, Organic	- mg/l		- mg/l	
Nitrogen, Nitrite + Nitrate	- mg/l		- mg/l	
Nitrogen, Total	- mg/l		- mg/l	
Chloride	250 mg/l	Daily Max	250 mg/l	Daily Max
Total Dissolved Solids	- mg/l		- mg/l	
Nitrogen, Max Applied to Any Zone	Not Listed		*- lbs/ac/yr	Annual Total

* Proposed permit changes

Table 4 Monitoring Wells

Well	Current Permit WI-0021687-09		Proposed Permit WI-0021687-10	
	Well Location	Well Designation	Well Location	Well Designation
804 2S	Down-gradient	Non-Point of Standard	Down-gradient	Non-Point of Standard
812 BC 812	Down-gradient	Non-Point of Standard	Down-gradient	Non-Point of Standard
816 MW 816	Up-gradient	Background	Up-gradient	Background
817 MW 817	Down-gradient	Non-Point of Standard	Down-gradient	Non-Point of Standard
818 MW 818	Down-gradient	Non-Point of Standard	Down-gradient	Non-Point of Standard
819 MW 819	Down-gradient	Non-Point of Standard	Down-gradient	Non-Point of Standard
820 P 820	Down-gradient	Non-Point of Standard	Down-gradient	Non-Point of Standard
822 MW 822	Up-gradient	Background	Up-gradient	Background

No proposed changes

Table 5 Groundwater Quality Standards

Parameter	Current Permit WI-0021687-09		Proposed WI-0021687-10	
	PAL	ES	PAL	ES
Depth to Groundwater	N/A	N/A	N/A	N/A
Groundwater Elevation	N/A	N/A	N/A	N/A
Nitrogen, Nitrite + Nitrate	45 mg/l (ACL)	10.0 mg/l	*Exempt	*Exempt
Chloride	170 mg/l (ACL)	250 mg/l	*125 mg/l	250 mg/l
pH, Field	5.4-7.4 su	N/A	*5.1-7.1 su	N/A
Nitrogen Total Kjeldahl	N/A	N/A	N/A	N/A
Nitrogen, Ammonia	2.3 mg/l (ACL)	9.7 mg/l	*0.97 mg/l	9.7 mg/l
Nitrogen, Organic	5.0 mg/l	N/A	*3.1 mg/l	N/A
Total Dissolved Solids	600 mg/l	N/A	*500 mg/l	N/A
Phosphorus, Dissolved	N/A	N/A	N/A	N/A

* Proposed permit changes

Geology

The bedrock under this facility is the Tunnel City Group. This Group includes the Mazomanie and the Lone Rock Formation. The Lone Rock Formation is comprised of the Reno, Tomah and Birkmose Members. The Tunnel City Group is comprised of interbedded sandstone and rare occurrences of a flat pebbled conglomerate (*Bedrock Geology of Wisconsin, Regional Map Series Northwest Sheet, Wisconsin Geological and Natural History Survey (WGNHS), 1987*). Bedrock is anticipated to be between 50 and 100 feet below ground surface (bgs) (*Depth to Bedrock in Barron County, Wisconsin, WGNHS, 1987*). The regolith consists of material ranging from coarse sand to silt. Surface soil primarily consists of the Anigon silt loam (USDA NRCS Web Soil Survey).

Hydrogeology

Calculated groundwater elevation ranges between 1078 and 1090 feet above mean sea level (msl). Depth to groundwater was reported to be between 21 and 55 feet bgs. Groundwater flow direction was calculated to be predominately to the east. Regional groundwater is to the east in this area of Barron County (*Mean Elevation of Water Table, Map, United States Department of Interior, 1968*). The site is bound on the east by Yellow River. There are six wells (municipal, other than municipal, private and high-capacity) within a 1,500-foot range of this facility's groundwater discharge.

Land Disposal Effluent Quality and Loading Rates

The following table is the average flow (hydraulic loading), nitrite + nitrate as nitrogen, chloride and CBOD₅ loading summations for the land disposal system.

**Table 6 Land Treatment Disposal Loading Averages
Outfall 001 Absorption Ponds**

Year	Flow (MGD)	Nitrogen (mg/l)	Chloride (mg/l)	CBOD ₅ (mg/l)
2023#	0.468	3.76	163	30.7
2022	0.418	11.53	161	24.8
2021	0.414	5.35	157	23.1
2020	0.509	6.15	149	25.7
2019	0.518	5.20	157	19.6

Indicates partial year

**Table 7 Land Treatment Disposal Loading Averages
Outfall 002 Overland Flow**

Year	Flow (MGD)	Nitrogen (mg/l)	Chloride (mg/l)	CBOD ₅ (mg/l)
2023#	0.529	13.27	148	19.2
2022	0.366	16.60	148	13.7
2021	0.429	16.26	167	11.4
2020	0.400	13.59	142	11.9
2019	0.449	13.97	132	14.9

Indicates partial year

**Table 8 Land Treatment Disposal Loading Averages
Outfall 003 Spray Irrigation**

Year	Flow (MGD)	Nitrogen (mg/l)	Chloride (mg/l)	CBOD ₅ (mg/l)
2023#	0.220	14.75	147	15.2
2022	0.166	19.30	159	11.8
2021	0.154	23.25	184	11.1
2020	0.153	13.98	141	11.5
2019	0.118	16.55	130	14.4

Indicates partial year

Groundwater Monitoring System and Sampling Frequency

All parameters are analyzed for the dissolved phase in groundwater. Established groundwater quality standards are found in Table 1 Public Health Groundwater Quality Standards s. NR 140.10 Wis. Adm. Code, and Table 2 Public Welfare Groundwater Standards s. NR 140.12 Wis. Adm. Code. The thresholds of these standards are the Preventative Action Limit (PAL) and the Enforcement Standard (ES).

Table 9 Groundwater Monitoring Well Data

Sample Point	Well Name	Elevation (feet above msl)				Length (feet)		Well Type
		Casing Top	Ground Surface	Screen Top	Screen Bottom	Screen Length	Well Depth	
804	2S	1102.09		1071.7	1069.1	2.6	33.0	WT
812	BC812	1096.35	1095.0	1079.4	1069.4	10.0	27.4	WT
816	MW816	1136.58		1083.5	1073.5	10.0	63.1	WT
817	MW817	1093.59		1077.1	1067.1	10.0	26.5	WT
818	MW818	1095.48	1093.2	1077.5	1067.5	10.0	28.0	WT
819	MW819	1109.09		1098.3	1088.3	10.0	19.0	WT
820	P820	1115.18		1075.2	1070.2	5.0	42.2	P
822	MW22	1138.57	1135.6	1095.6	1081.6	14.0	57.0	WT

All measurements in feet

WT-Water table Observation P-Piezometer O-Other

Groundwater sampling results from this facility have been analyzed for each well to evaluate trends of the regulated compounds in groundwater and to calculate PALs for s. NR 140.22 Wis. Adm. Code Indicator Parameters and to evaluate potential exemptions under s. NR 140.28 Wis. Adm. Code. The groundwater was evaluated by looking at the groundwater data from February 19, 2019 – November 29, 2023.

Background Groundwater Quality

Groundwater monitoring wells 816 and 822 are up-gradient of the land disposal systems. The sampling results indicate that both wells have s. NR 140.10 Wis. Adm. Code ES exceedances for nitrite + nitrate. These exceedances are anticipated to be from agricultural practices up-gradient and not a result of the facilities discharge. These exceedances are consistent in both frequency and magnitude. The results were slightly higher from well 816 than those in 822, therefore, well 816 was used to evaluate and calculate the PALs and ACLs.

Down-Gradient Groundwater Quality

The down-gradient groundwater quality sampling indicated that there were infrequent PAL exceedances for chloride in monitoring wells 804 and 822. The exceedances were infrequent and sporadic. Both 804 and 822 are designated as non-point of standards wells.

There were exceedances of the PAL and ES for ammonia in well 804, 812 and 820. The results for ammonia will be discussed separately by well. Groundwater monitoring well 804 has consistently been in exceedance of the ES for ammonia and the well is down-gradient of the spray irrigation and absorption pond systems. The spray irrigation field being the greater in separation from the well. Given the proximity of the well to the systems and the respective distances, the absorption ponds appear to have a great chance to be the source of the ammonia in this well.

Groundwater monitoring wells 812 and 820 have PAL exceedances for ammonia and no ES exceedances (See Figure 1). Well 812 has frequent and consistent exceedances where well 822 has regular exceedances. These two wells are nested together, officially one is a piezometer. They are down-gradient of the spray irrigation field and absorption ponds, in the middle of the overland flow area. Given the location with respect to the three systems it cannot be determined if the PAL exceedances are from any one of the systems or a combination there of.

Land Disposal System Impact to Groundwater Quality

Concentrations and trends in the groundwater monitoring data were compared to the loading data for the land treatment system. There are no correlations observed between the effluent loading levels and the groundwater monitoring results.

Proposed Groundwater Monitoring Requirements

**Table 10 Groundwater Quality Sampling Frequency and Limits
Permit WI-0021687-10**

Sample Point	Well Name	Sample Frequency	Well Designation
804	2S	Quarterly	
812	BC 812	Quarterly	
816	MW 816	Quarterly	Background
817	MW 817	Quarterly	
818	MW 818	Quarterly	
819	MW 819	Quarterly	
820	P 820	Quarterly	
822	MW 822	Quarterly	
Parameter	PAL	ES	Source
Depth to Groundwater	N/A	N/A	Measured
Groundwater Elevation	N/A	N/A	Measured
Nitrogen, Nitrite + Nitrate	*Exempt	*Exempt	
Chloride	*125 mg/l	250 mg/l	NR 140 Table 2
pH, Field	*5.1-7.1 su	N/A	Calculated
Nitrogen, Total Kjeldahl	N/A	N/A	Measured
Nitrogen, Ammonia	*0.97 mg/l	9.7 mg/l	NR 140 Table 1
Nitrogen, Organic	*3.1 mg/l	N/A	Calculated
Total Dissolved Solids	*500 mg/l	N/A	Calculated
Phosphorus	N/A	N/A	Measured

Sample Point	Well Name	Sample Frequency	Well Designation
813	BC-813	Annually	Non-Point of Standard
814	MW-814	Annually	Non-Point of Standard
815	PZ-815	Annually	Non-Point of Standard
Parameter	PAL	ES	Source
Depth to Groundwater	N/A	N/A	Measured
Groundwater Elevation	N/A	N/A	Measured

* Changes from previous permit

Indicator Parameter PALs

Indicator Parameter PALs are developed following the procedures described in s. NR 140.20(2), Wis. Adm. Code. Indicator parameters do not have Enforcement Standards. The PAL for an indicator parameter is a benchmark for evaluating site specific trends. When significant increases in the trends are observed, the facility and the department's response action under s. NR 140.24 Wis. Adm. Code should be to investigate the source of the compound. The indicator parameter PALs for use in the upcoming

permit WI-0060091-11 were calculated using results from 816 during the current permit term (February 19, 2019 – November 29, 2023) using the following equation.

- $\sum [\text{Background groundwater quality mean} + \text{Minimum Increase}^*] = \text{PAL}$

* Minimum Increase found in s. NR 140.20 Wis. Adm. Code,

Based on the background groundwater quality results the indicator parameter PALs for pH, organic nitrogen and TDS have been changed.

Alternative Concentration Limits

Alternative concentration Limits (ACLs) can be developed and provided for a groundwater monitoring system utilizing the procedures described in s. NR 140.28, Wis. Adm. Code. For example, if a high percentage of results from samples collected at the background monitoring well(s) exceed the NR 140 PAL, if there are multiple results exceeding the NR 140 ES, or if there is a pattern of PAL exceedances (i.e., seasonal variation), calculation of an ACL may be appropriate. The ACLs for use in the upcoming permit WI-0060091-11 were calculated using results from 816 during the current permit term (February 19, 2019 – November 29, 2023) using the following equation.

- $\sum [\text{Background groundwater quality mean} + (\text{Standard Deviation of results} \times 2)] = \text{ACL}$

Based on the background groundwater quality results the ACL previously established for nitrite + nitrate has been removed and in place a conditional exemption will be used. In a s. NR 140.28 Wis. Adm. Code exemption there will not be a PAL or ES under the following conditions. The exemption is for this facility for the next permit term and only for nitrite + nitrate. In addition, there can be no significant increase in effluent concentration for nitrite + nitrate where a subsequent increase in down-gradient groundwater quality sample concentration is observed.

Based on the background groundwater quality results the ACLs previously established for ammonia and chloride have been removed and replaced with the ss.NR 140.10 and NR 140.12 Wis. Adm. Code PALs (respectively).

Conclusions

The groundwater flow direction was found towards Yellow River (to the east). Given the groundwater flow direction, groundwater elevation and the proximity to the river this facility is suspected to be a functional equivalent to a surface water discharge. As a result, phosphorus sampling (without a limit) will be required for the overland flow and absorption ponds land disposal systems effluent. The spray irrigation system will not have this requirement given its distance from the river.

The reporting of the nitrogen in pounds per acre per year will be reported electronically in the future for the spray irrigation land disposal system.

The up-gradient (background) concentrations of nitrite + nitrate are over the s. NR 140.10 Wis. Adm. Code groundwater quality standards. These exceedances are not assumed to be a result of this facility's activities. However, the nitrite + nitrate concentrations are less (in magnitude) in the down-gradient wells. As a result, a numeric ACL is not practical, therefore the department is granting a conditional s. NR 140.28 Wis. Adm. Code exemption. Groundwater samples will still be required to be analyzed for nitrite + nitrate, but the limits are removed for these samples under the following conditions: This exemption is for nitrite + nitrate in this facility's wells for the length of the next permit. The exemption will be re-evaluated during the reissuance process for the next permit. An additional condition will be in

place such that there should be no significant increases in nitrite + nitrate effluent concentration with subsequent observed increases in nitrite + nitrate groundwater concentrations. Within these conditions no response actions will be required by the department for nitrite + nitrate results in groundwater.

Based on the background groundwater the ACL for ammonia and chloride were reduced, reverting back to the ss. NR 140.10 and NR 140.12 Wis. Adm. Code PAL and ES.

Based on the background groundwater the indicator parameter PAL for pH, organic nitrogen and TDS were reduced.

Sporadic PAL exceedances of chloride were observed in wells 804 and 820. Due to the frequency and magnitude of the exceedances no s. NR 140.24 Wis. Adm. Code response action is required.

Well 804 has had consistent ES exceedances for ammonia. Given the location of this well with respect to the land disposal systems and groundwater flow direction, the absorption pond is the most likely suspect of the two. In addition, the air photo used for the groundwater flow map appears to have the three absorption ponds loaded at one time. This is less than ideal for proper wastewater treatment. It cannot be determined from a single photo, but per s. NR 110.25 (4) (f) Wis. Adm. Code requires load and rest cycles. Excessive ammonia is a common symptom of improper load/rest cycles. The recommended s. NR 140.24 Wis. Adm. Code response action is to evaluate the load rest cycles and to implement them if they are not being used and to optimize them for maximum nitrogen reduction. The load rest cycles should be annotated in a land disposal management plan update.

Wells 812 and 820 have frequent PAL exceedances for ammonia. Given the location of these nested wells with respect to the land disposal systems the only s. NR 140.24 Wis. Adm. Code response action is to continue to monitor groundwater at this time.

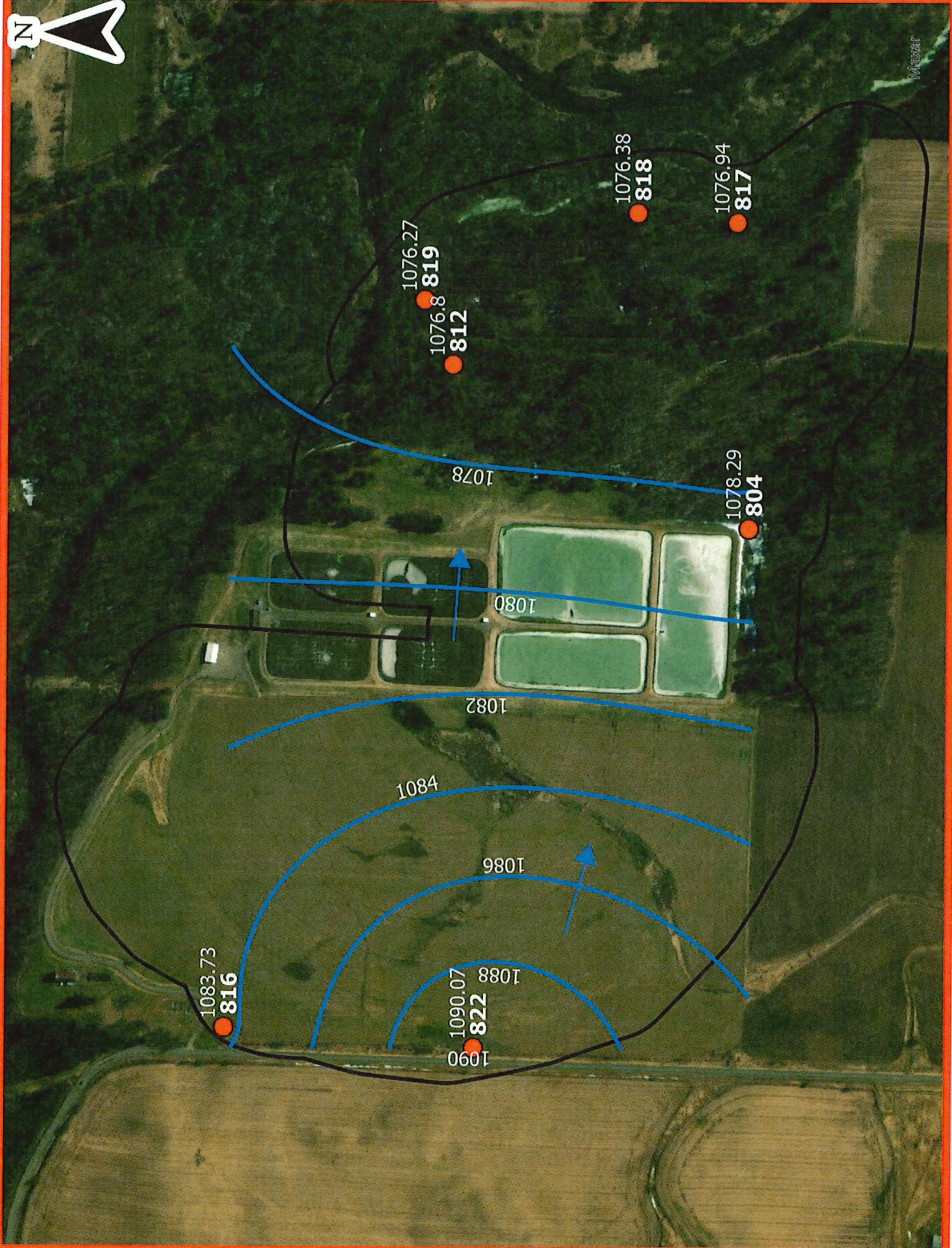
Compliance Schedule Recommendations

Implement load/rest cycles if not already implemented and evaluate optimization of the load rest cycles to improve nitrogen reduction. The facility should submit a plan for optimization within 90 days of permit reissuance.

The s. NR 206.07 (2)(h) 1. Wis. Adm. Code requires a land disposal management plan for facilities with land disposal systems. The facility should review their plan within 90 days of permit reissuance and any revisions should be submitted to the department for approval.



Water Table Elevation Map Barron Cameron Wastewater Treatment Facility September 21, 2021



Site Location
Barron Cameron
Wastewater Treatment
Facility
1295 16th Street
Barron, WI 54812

Legend

- Water Table Contour (9/21/21; - 2' FAMSLS)
- Monitoring Wells
- Groundwater Flow Direction

Notes

Water table contours generated using elevation data collected on September 21, 2021. Water table elevations and contours are presented in feet above mean sea level.

Created By: watsoz
Date: 1/29/2024



0 175 350 525 700 875 1,050 Feet
1:6,250
DISCLAIMER: This map is a user generated static output from the Wisconsin Department of Natural Resources. The contents herein are for reference purposes only and may or may not be accurate, current, or otherwise reliable. No liability is assumed for the data delineated herein either expressed or implied by the Wisconsin DNR or its employees. All land application must meet NR 113, NR 204, and NR 214 Wis. Adm. Code.

Figure 1
Ammonia

