

# Permit Fact Sheet

## General Information

Permit Number:	WI-0061824-04-0
Permittee Name:	Burr Oak Heifers LLC
Address:	P.O. Box 122 1812 First Dr
City/State/Zip:	Coloma WI 54930
Discharge Location:	1812 First Drive Coloma WI, 54930,
Receiving Water:	Little Roche A Cri Creek Watershed of the Lower Wisconsin River Basin and groundwaters of the state
Discharge Type:	Existing

Animal Units					
Animal Type	Current AU		Proposed AU (Note: If all zeroes, expansions are not expected during permit term)		
	Mixed	Individual	Mixed	Individual	Date of Proposed Expansion
Heifers (400 lbs. to 800 lbs.)	720	1200	0	0	
Heifers (800 lbs. to 1200 lbs.)	1843	1675	0	0	
Total	2563	2875	0	0	

## Facility Description

Burr Oak Heifers LLC is a heifer rearing facility with a single production area located in Coloma, Wisconsin. The production area includes a feed storage area with an associated runoff collection system, four heifer barns, a waste storage facility, and a groundwater monitoring system. The operation has a 45-day continuous average herd size of 2,473 mixed animal units (2,876 heifers). A herd this size will generate approximately 12,286,822 gallons of manure and process wastewater annually. 5,507 acres are available (or open) to receive manure and process wastewater from this facility on an annual basis. Burr Oak Heifers LLC has no planned expansions for the proposed permit term.

## Substantial Compliance Determination

**Enforcement During Last Permit: N/A**

After a desk top review of all compliance schedule items, and a site visit on 08/25/2023, this facility has been found to be in substantial compliance with their current permit.

**Compliance determination entered by Claire O’Connell on 4/15/2024.**

<b>Sample Point Designation For Animal Waste</b>	
<b>Sample Point Number</b>	<b>Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)</b>
001	Sample point 001 is for liquid manure and process wastewater stored within Waste Storage Facility 1. WSF 1 is a concrete-lined storage located on the east side of Burr Oak Heifers, LLC's production area. The facility has a capacity of 7.26 million gallons. The storage accepts manure and process wastewater from the freestall barns. WSF constructed with department approval in 2013.
002	Sample point 002 is for any manure solids removed from the bottom of liquid waste storage facilities. This includes manure laden sand solids, manure fiber solids, etc. Representative samples shall be taken prior to land application.
004	Sample point 004 is for visual monitoring and inspection of the feed storage area and associated runoff control system located at the north end of the production area. Proper operation and maintenance is required to ensure discharges meet permit requirements. Weekly inspections are required and shall be recorded according to monitoring program.
005	Sample point 005 is for process wastewater land applied from the feed pad runoff collection basin. The basin is a concrete lined storage located south of the feed storage pad on the north end of Burr Oak Heifers LLC's production area. The facility has a capacity of approximately 417,000 gallons. This storage accepts process wastewater from the feed storage pad and can be pumped to WSF 1. The basin was constructed with department approval in 2013. Sampling for nutrient content is required if the tank is manually pumped and the liquid is directly land applied.
006	Sample point 006 is for solid manure sources that are directly land applied and not stored in a waste storage facility. This includes solid sources such as calf hutch manure, maternity pen bedpack, heifer bedpack, steer manure, etc. Representative samples shall be taken for each manure source type.
007	Sample point 007 is for solid manure land applied from approved headland stacking sites. Stacks are defined as part of the production area and therefore subject to the production area discharge limitations section of this permit. Quarterly inspections while stacks are present are required and shall be recorded according to monitoring program.
008	Sample point 008 is for visual monitoring and inspection of all production site storm water conveyance systems. This includes roof gutter and downspout structures, drainage tile systems, grassed waterways and other diversion systems that transport uncontaminated storm water. Proper operation and maintenance is required to keep uncontaminated runoff diverted away from manure and process wastewater handling systems. Weekly inspections are required and shall be recorded according to the monitoring and inspection program.

<b>Sample Point Designation For Groundwater Monitoring Systems</b>			
<b>System</b>	<b>Sample Pt Number</b>	<b>Well Name</b>	<b>Comments</b>
Burr Oak Heifers Groundwater Monitoring	801	MW-1	

Sample Point Designation For Groundwater Monitoring Systems			
System	Sample Pt Number	Well Name	Comments
	802	MW-2	
	803	MW-3	
	813	MW-13	
	814	MW-14	

# 1 Livestock Operations - Proposed Operation and Management

## Production Area Discharge Limitations

Beginning on the effective date of the permit, the permittee may not discharge pollutants from the operation’s production area (e.g., manure storage areas, outdoor animal lots, composting and leachate containment systems, milking center wastewater treatment/containment systems, raw material storage areas) to navigable waters, except in the event a 25-year, 24-hour rainfall event (or greater) causes the discharge from a structure which is properly designed and maintained to contain a 25-year, 24-hour rainfall event for this location as determined under s. NR 243.04. If an allowable discharge occurs from the production area, state water quality standards may not be exceeded.

## Runoff Control

The permit requires control of contaminated runoff from all elements of the production area to prevent a discharge of pollutants to navigable waters in accordance with the Production Area Discharge Limitations and to comply with surface water quality standards and groundwater standards. Beginning on the effective date of this permit, (if needed) interim measures shall be implemented to prevent discharges of pollutants to navigable waters. In addition, permanent runoff control system(s) shall be designed, operated and maintained in accordance with the requirements found in USDA Natural Resources Conservation Service standards and ch. NR 243, Wis. Adm. Code. If any upgrading or modifications to runoff controls are necessary, formal engineering plans and specifications must submitted to the Department for approval.

## Manure and Process Wastewater Storage

The permit requires the operation to have adequate storage for manure and process wastewater and that storage or containment facilities are designed, operated and maintained to prevent overflows and discharges to waters of the state. In order to prevent overflows, the permittee must maintain levels of materials in liquid storage or containment facilities at or below certain levels including a one foot margin of safety that can never be exceeded. If any upgrading or modifications to the storage facilities are necessary, formal engineering plans and specifications must submitted to the Department for approval.

The permittee currently has approximately 216 days of storage for liquid manure. The permittee must maintain 180 days of storage, unless temporary reductions in required storage are approved by the Department.

## Solid Manure Stacking

The operation has proposed to stack solid manure. All stacking of solid manure shall be done in accordance ch. NR 243, Wis. Adm. Code, which includes restrictions from NRCS Standard 313. Stacking of manure is considered to be part of the production area and is subject to the Production Area Discharge Limitations.

## Ancillary Service and Storage Areas

The permittee shall take preventative maintenance actions and conduct visual inspections to minimize pollutant discharges from areas of the operation that are not part of the production area or land application areas. These areas are called ancillary service and storage areas and include access roads, shipping and receiving areas, maintenance areas, refuse piles and CAFO outdoor vegetated areas.

### **Nutrient Management**

With 2,473 animal units (2,876 heifers), it is estimated that approximately 12,286,822 gallons of manure and process wastewater will be produced per year. The permittee owns *approximately* 63 acres of cropland and rents about 5,629 acres. Given the rotation commonly used by the permittee, 5,507 acres are available (or open) to receive manure and process wastewater on an annual basis. The permit requires all landspreading of manure and process wastewater be completed in accordance with an approved nutrient management plan. The permit will require sampling and analysis of manure and process wastewater that will be landspread. Landspreading rates must be adjusted based on sample analysis. The permit requires the permittee to maintain a daily log that documents landspreading activities. The permit also requires the submittal of an annual report that summarizes all landspreading activities. Plans must be updated annually to reflect cropping plans and other operational changes. Among the requirements, the plans must include detailed landspreading information including field by field nutrient budgets.

The permittee is required to implement a number of practices to address potential water quality impacts associated with the land application of manure and process wastewater. Among the permit conditions are restrictions on manure ponding, restrictions on runoff of manure and process wastewater from cropped fields, and setbacks from wells and direct conduits to groundwater (e.g., sinkholes, fractured bedrock at the surface). In addition, the permittee must implement a phosphorus based nutrient management plan that addresses phosphorus delivery to surface waters by basing manure and process wastewater applications on soil test phosphorus levels or the Wisconsin Phosphorus index. Additional phosphorus application restrictions apply to fields that are high in soil test phosphorus (>100 ppm).

The permittee must also implement conservation practices when applying manure near navigable waters and their conduits, referred to as the Surface Water Quality Management Area (SWQMA). These practices include a 100-foot setback from navigable waters and their conduits, a 35-foot vegetated buffer adjacent to the navigable water or conduit, or a practice that provides equivalent pollutant reductions equivalent to or better than the 100-foot setback.

In addition, the permittee must comply with restrictions on land application of manure and process wastewater on frozen or snow-covered ground. Included in these restrictions is a prohibition on surface applications of solid manure ( $\geq 12\%$  solids) on frozen or snow-covered ground during February and March.

### **Monitoring and Sampling Requirements**

The permittee must submit a monitoring and inspection program that outlines how the permittee will conduct self-inspections to determine compliance with permit conditions. These self-inspections include visual inspections of water lines, diversion devices, storage and containment structures and other parts of the production area. The permit requires periodic inspections and calibrations of landspreading equipment. The permittee must take corrective actions to problems identified inspections or otherwise notify the Department. Samples of manure, process wastewater and soils receiving land applied materials from the operation must also be collected and analyzed.

### **Sampling Points**

The permit identifies the different sources of land applied materials (e.g., manure storage facilities, milking centers, egg-washing facilities) as "Sampling Points." For these Sampling Points, the permittee is required to sample and analyze the different sources for nutrients and other parameters which serve as the basis for determining rates of application for these materials. Other areas are also identified as Sampling Points as a means of identifying them as areas requiring action by the permittee, such as an upgrade or evaluation of a certain system or structure (e.g., runoff control systems), even though sampling is not actually required.

### Sample Point Number: 001- WSF 1; 005- Feed Pad Collection Basin

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total		lb/1000gal	2/Month	Grab	
Nitrogen, Available		lb/1000gal	2/Month	Calculated	
Phosphorus, Total		lb/1000gal	2/Month	Grab	
Phosphorus, Available		lb/1000gal	2/Month	Calculated	
Solids, Total		Percent	2/Month	Grab	

#### 1.1.1 Changes from Previous Permit

Sample Point 001: Updated to include updated information about the facility.

Sample Point 005: Updated to include updated information about the facility.

Sample Point 003: Removed and consolidated with sample point 005.

#### 1.1.2 Explanation of Operation and Management Requirements

Wastes shall be stored, and land applied according to permit and nutrient management requirements.

### Sample Point Number: 002- Settled Solids (WSF 1); 006- Miscellaneous Solid Manure; 007- Headland Stacking Solids

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total		lbs/ton	Quarterly	Grab	
Nitrogen, Available		lbs/ton	Quarterly	Calculated	
Phosphorus, Total		lbs/ton	Quarterly	Grab	
Phosphorus, Available		lbs/ton	Quarterly	Calculated	
Solids, Total		Percent	Quarterly	Grab	

#### 1.1.3 Changes from Previous Permit

Sample Point 002: Updated to include standard language.

Sample Point 006: Updated to include standard language.

Sample Point 007: Added to account for headland stacking sites.

### 1.1.4 Explanation of Operation and Management Requirements

Wastes shall be stored, and land applied according to permit and nutrient management requirements.

## Sample Point Number: 004- Feed Storage & Runoff Controls and 008- Storm Water Runoff

### 1.1.5 Changes from Previous Permit

Sample Point 004: Updated to include visual monitoring and inspection.

Sample Point 008: Added to account for storm water conveyance systems.

### 1.1.6 Explanation of Operation and Management Requirements

There is no required sampling for the runoff controls. Rather, there is required inspection and routine maintenance that should be recorded on a monitoring and inspection form or calendar. A copy of the inspection records shall be submitted with the Annual Report.

## 2 Groundwater – Monitoring and Limitations

### 2.1 Groundwater Monitoring System for Burr Oak Heifers Groundwater Monitoring

**Location of Monitoring system:** Immediate vicinity of the Burr Oak Heifers production area.

**Wells to be Monitored:** MW-2, MW-1, MW-3, MW-13, MW-14

**Well Used To Calculate PALs:**

**Point of Standards Application Well(s):**

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Solids, Total Dissolved	mg/L	*****	N/A	Quarterly
COD, Filtered	mg/L	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	*****	N/A	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.0	10	Quarterly

pH Field	su	*****	N/A	Quarterly
Total Coliform General	#/100 ml	0	0	Quarterly
E. coli	#/100 ml	0	0	Quarterly

**Changes from Previous Permit:**

E. Coli was added as a parameter

**Explanation of Limits and Monitoring Requirements**

See attachments for information on groundwater monitoring requirements at the site.

**3 Schedules**

**3.1 Emergency Response Plan**

Required Action	Due Date
Develop Emergency Response Plan: Develop a written Emergency Response Plan within 30 days of permit coverage, available to the Department upon request.	08/01/2024

**3.2 Monitoring & Inspection Program**

Use of the department’s monitoring and inspection program template is encouraged, but optional.

Required Action	Due Date
Proposed Monitoring and Inspection Program: Consistent with the Monitoring and Sampling Requirements subsection, the permittee shall submit a proposed monitoring and inspection program within 60 days of the effective date of this permit.	08/31/2024

**3.3 Annual Reports**

Submit Annual Reports by January 31st of each year in accordance with the Annual Reports subsection in Standard Requirements.

Required Action	Due Date
Submit Annual Report #1: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2025
Submit Annual Report #2: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2026
Submit Annual Report #3: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2027
Submit Annual Report #4: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2028
Submit Annual Report #5: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2029

Ongoing Annual Reports: Continue to submit Annual Reports until permit reissuance has been completed.	
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### 3.4 Nutrient Management Plan

Submit annual nutrient management plan (NMP) updates by March 31 of each year. Note, in addition to annual NMP updates, submit NMP amendments and substantial revisions to the department for written approval prior to implementation of any changes to the NMP.

Required Action	Due Date
Management Plan Submittal: Submit any necessary updates to the Nutrient Management Plan to meet the conditions outlined in this permit (see conditions in the Livestock Operational and Sampling Requirements section).	
Management Plan Annual Update #1: Submit any necessary updates to the Nutrient Management Plan to meet the conditions outlined in this permit (see conditions in the Livestock Operational and Sampling Requirements section) to include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department form 3400-025D.	03/31/2025
Management Plan Annual Update #2: Submit any necessary updates to the Nutrient Management Plan to meet the conditions outlined in this permit (see conditions in the Livestock Operational and Sampling Requirements section) to include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department form 3400-025D.	03/31/2026
Management Plan Annual Update #3: Submit any necessary updates to the Nutrient Management Plan to meet the conditions outlined in this permit (see conditions in the Livestock Operational and Sampling Requirements section) to include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department form 3400-025D.	03/31/2027
Management Plan Annual Update #4: Submit any necessary updates to the Nutrient Management Plan to meet the conditions outlined in this permit (see conditions in the Livestock Operational and Sampling Requirements section) to include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department form 3400-025D.	03/31/2028
Management Plan Annual Update #5: Submit any necessary updates to the Nutrient Management Plan to meet the conditions outlined in this permit (see conditions in the Livestock Operational and Sampling Requirements section) to include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department form 3400-025D.	03/31/2029
Ongoing Management Plan Annual Updates: Continue to submit Annual Updates to the Nutrient Management Plan until permit reissuance has been completed.	

### 3.5 Submit Permit Reissuance Application

Required Action	Due Date
Reissuance Application: Submit a complete permit reissuance application 180 days prior to permit expiration.	01/02/2029



### **3.6 Explanation of Schedules**

Sections 3.1-3.5 are standard requirements for WPDES permits for agricultural operations.

#### **Attachments:**

Map

Plan Approval Letters

Groundwater Monitoring Review Memo

#### **Expiration Date:**

**June 30<sup>th</sup>, 2029**

**Prepared By: Claire O'Connell**

**Agricultural Runoff Management Specialist**

**Date: 4/15/2024**





July 25, 2023

Adams County  
Approval

Bob Zahn  
Burr Oak Heifers LLC  
P.O. Box 122  
Coloma, WI 54930

SUBJECT: Conditional Approval of Burr Oak Heifers LLC Nutrient Management Plan, WPDES Permit No. 0061824-04-0

Dear Mr. Zahn:

After completing a review of Burr Oak Heifers LLC 2023-2027 Nutrient Management Plan (NMP) the Wisconsin Department of Natural Resources (Department) is providing conditional approval that it is consistent with Nutrient Management Requirements in s. NR 243, Wis. Adm. Code. This part of your WPDES permit application is now ready for the public notice and comment process as required by Ch. 283 Stats.

Before applying manure onto approved fields each season, the Department recommends Burr Oak Heifers LLC review the NMP with those individuals involved with manure applications to ensure all remain familiar with the approved manure spreading protocol, spreading maps, field and map verification, record keeping requirements, and all the conditions of this approval. Specifically, some fields in Burr Oak Heifers LLC may have:

- Soils that may have bedrock or groundwater within 24 inches of surface,
- Multiple setback areas due to streams, conduits to streams, grassed waterways, wetlands or wells, and
- Evidence of possible soil erosion/flow channels. Note: road ditches or other man made channels may be considered flow channels or conduits to navigable water and may be subject to a SWQMA and setback.

Reviewing the NMP and checking fields for these features and soil conditions prior to manure applications will help Burr Oak Heifers LLC maintain compliance with their WPDES permit and Ch. NR 243 requirements.

**Please note that the 2023 Nutrient Management Update was used to make the following determination.**

#### FINDINGS OF FACT

The Department confirms that:

1. A current heifer herd size of 2,473 animal units (2,876 heifers). Currently there are no planned expansions in the next permit term.
2. Manure generation and spreading records indicate your herd will annually generate approximately 12,286,822 gallons of manure and process wastewater and 0 tons of solid manure in the first year of the permit term. This facility may transfer liquid manure and process wastewater to New Chester Dairy who currently holds a WPDES permit.
3. The use of application restriction options 1 and 5 within surface water quality management areas.

4. The use of phosphorus delivery method P Index.
5. That Burr Oak Heifers LLC currently has 5,678 acres (63 owned and 5,629 controlled through contracts, rental agreements or leases, or under manure agreements) of which 5,507 are spreadable acres.
6. That some fields included in the NMP are directly adjacent to or have high potential to deliver nutrients and sediment to Chaffee Creek (listed 303(d) impaired water by ‘unknown pollutant’), Caves Creek (listed 303(d) impaired water by ‘unknown pollutant’), Little Roche A Cri Creek (listed 303(d) impaired water by ‘unknown pollutant’).
7. That some fields included in the NMP are directly adjacent to or have high potential to deliver nutrients and sediment to outstanding/exceptional waters including Fordham Creek, Little Roche A Cri Creek, Chaffee Creek, Caves Creek, South Branch Wedde Creek, North Branch Wedde Creek, Mecan River, Carter Creek, Lunch Creek.
8. That the following fields included in the NMP are located within the well head protection area for the Village of Coloma: Doornick 15, Doornick 11, Kemnetz
9. That no fields are tiled.
10. That all fields will be checked for the following features prior to/during manure or process wastewater applications: soil areas with possible shallow groundwater (i.e., within 24 inches of surface) at the time of manure application; required setbacks associated with wells, navigable waters, conduits to navigable waters, grassed waterways, wetlands, possible soil erosion/flow channels.
11. That surface applications of manure will not be completed when precipitation capable of producing runoff is forecasted within 24 hours of the time of planned application.

### **CONDITIONAL NUTRIENT MANAGEMENT PLAN APPROVAL**

The Department hereby approves the 2023-2027 Burr Oak Heifers LLC Nutrient Management Plan subject to the following conditions and the applicable requirements of Ch. NR 243, Wis. Adm. Code:

#### FIELD AND MANURE MANAGEMENT

1. Fields not included in the NMP and new fields shall not receive manure or process wastewater applications until they have been properly soil sampled, entered into Snap Plus, evaluated for their nutrient needs, and approved by the Department.
2. The following fields are prohibited from receiving applications of manure or process wastewater:
 

- BOH H3(>200ppm P)	- CF 260 (>200ppm P)	- FLY Organic 4 (>200ppm P)
- CF 251 (soil test old)	- CF 271 (soil test old)	- COL Coloma 1 (soil test old)
- WAG Johnson (soil test old)	- WAG Parks (soil test old)	- FLY Potter South (not enough soil tests)
- FLY Prince 1 (not enough soil tests)	- FLY Prince 2 (not enough soil tests)	- FLY Prince 3 (not enough soil tests)
- FLY Prince 4 (not enough soil tests)	- FLY SHATTUCK (not enough soil test)	

If Burr Oak Heifers LLC wishes to use these fields for applications of manure or process wastewater all necessary information shall be submitted to the Department prior to application to demonstrate compliance with NR 243 and other applicable codes. Written Department approval amending this condition approval must be received prior to application.

3. If existing fields yield a soil test results equal to or greater than 200 ppm P, those fields would be prohibited from receiving manure or process wastewater applications, unless you obtain Department approval in accordance with NR 243.14(5)(b)2., Wis. Adm. Code.
4. All liquid manure samples collected may be analyzed, at a minimum, for percent dry matter, total nitrogen, percent NH<sub>4</sub>-N, percent NO<sub>3</sub>-N, phosphorus, potassium, and sulfur.
5. If manure sample results have a dry matter (DM) content less than 2.0% and the percent ammonium (NH<sub>4</sub><sup>+</sup>) is greater than 75% of the total N, Burr Oak Heifers LLC may use the following equation to adjust the first year available nitrogen when applications are injected or incorporated within 1 hour:

$$\text{First-Year Available N} = \text{NH}_4\text{-N} + [0.25 \times (\text{Total N} - \text{NH}_4\text{-N})]$$

6. Burr Oak Heifers LLC shall record daily manure applications by using form “Manure Application Report”. These forms shall be retained at the farm and provided to the department upon request.
7. Burr Oak Heifers LLC shall annually submit a spreading report that summarizes the land application activities listed under NR 243.19(3)(c)5., Wis. Adm. Code by using SNAP+ form “Annual Spreading Report”.

#### WINTER SPREADING

8. Liquid manure applications during winter conditions, as defined by NR 243.14(7), Wis. Adm. Code, are prohibited with the exception of emergency applications.
9. The following field(s) are approved for winter spreading solid manure, emergency applications of liquid manure and frozen liquid manure:

- Kolpin	- Patties	- J1
- J2	- J3	- West 3
- West 4	- 260	- 261
- Leatherberry	- Shop 1	- Top of Hill
- Doornick 1	- Doornick 11	- Doornick 15
- Doornick 4	- F Airport	- F E Ely
- F Northmost Runway	- F V55	- F W Ely
- Humphrey N	- Humphrey S	- Organic 1N
- Organic 1S	- Organic 2	- Organic 3
- Organic 4	- Organic 5	- Organic 6N
- Organic 6S	- Organic 7	- Organic 8
- Peterson 1	- Peterson 6	- Potter North
- Potter South	- Schliepp 4and7	- Schliepp North
- F7	- D1	- D2
- E2	- Z3	- 400
- 401	- 402	- 403
- 404	- 405	- 406
- 407	- Johnson	- NEW

10. Winter spreading of solid and liquid manure may not occur during the “high risk runoff period” pursuant to s. NR 243.14(6)(c) and NR 243.14(7)(c), respectively.
11. Winter applications of liquid manure shall only occur under emergency situations, after notifying the Department and receiving verbal approval.

12. Liquid applications shall be limited to 3,500 gallons per acre or 30 lbs. P per acre, whichever is less, on slopes 2-6% and 7,000 gallons per acre or 60 lbs. P per acre, whichever is less, on slopes 0-2%. Winter applications of solid manure shall be limited to 60 lbs. P per acre.

#### HEADLAND STACKING

13. No headland stacking sites are approved.

#### MANURE & PROCESS WASTEWATER IRRIGATION

14. Irrigation of manure or process wastewater is prohibited.

#### SUBMITAL AND RECORDKEEPING REQUIREMENTS

15. A copy of this conditional approval shall be included in all future annual Nutrient Management Plan Updates in addition to the NR 243 and NRCS 590 checklists.

This conditional approval does not limit the Department's regulatory authority to require NMP revisions (based upon new information or manure irrigation research findings) or request additional information in order to confirm or ensure your farm operation remains in compliance with NR 243 and your WPDES permit conditions. If additional information, project changes or other circumstances indicate a possible need to modify this approval, the Department may ask you to provide further information relating to this activity.

Please keep in mind that approval by the Department of Natural Resources – Runoff Management Program does not relieve you of obligations to meet all other applicable federal, state or local permits, zoning and regulatory requirements.

If you have any questions regarding this approval I can be reached at 715-839-3775 or [Aaron.Orourke@Wisconsin.gov](mailto:Aaron.Orourke@Wisconsin.gov).

Sincerely,



Aaron O'Rourke  
WDNR Nutrient Management Program Coordinator  
Wisconsin Department of Natural Resources

cc: Tabby Davis, WDNR Agricultural Runoff Specialist ([Tabatha.Davis@Wisconsin.gov](mailto:Tabatha.Davis@Wisconsin.gov))  
Laura Bub, WDNR Watershed Field Supervisor ([Laura.Bub@Wisconsin.gov](mailto:Laura.Bub@Wisconsin.gov))  
Chris Clayton, WDNR Ag Runoff Section Chief ([Christopherr.Clayton@Wisconsin.gov](mailto:Christopherr.Clayton@Wisconsin.gov))  
Ashley Scheel, WDNR CAFO NMP Reviewer ([Ashley.Scheel@Wisconsin.gov](mailto:Ashley.Scheel@Wisconsin.gov))

Tony Salituro, WDNR Intake Specialist ([Anthony.Salituro@Wisconsin.gov](mailto:Anthony.Salituro@Wisconsin.gov))  
Dustin Grant, Adams County ([dustin.grant@co.adams.wi.us](mailto:dustin.grant@co.adams.wi.us))  
Paul Sturgis, Crop IMS ([psturgis@cropims.com](mailto:psturgis@cropims.com))  
Brenda Walker, Village of Coloma ([Brenda.walker@colomawi.org](mailto:Brenda.walker@colomawi.org))  
File



August 25, 2020

FILE REF: R-2020-0059  
 WPDES Permit #: WI-0061824

Brooks Buchholz  
 Burr Oak Heifers LLC  
 1812 First Drive  
 Coloma, WI 54930

Subject: Evaluation Review for Days of Storage for Burr Oak Heifers LLC, NW¼ Sec 36, T18N, R07E, Richfield Township, Adams County – NO ADDITIONAL ACTION REQUIRED

Dear Mr. Buchholz:

This letter is to inform you that the Wisconsin Department of Natural Resources (Department) has completed its review of the calculation of days of storage submitted under certification by John Roach, Roach and Associates, LLC on March 26, 2020 with revisions received on August 24, 2020 on behalf of Burr Oak Heifers LLC.

The Department reviewed the submitted calculations in accordance with s. NR 243.16(1)(c), Wis. Adm. Code. Under s. NR 243.16(3), Wis. Adm. Code, the Department may require additional practices, conditions, or permittee actions based on Department review of the submitted evaluation. For the following liquid manure storage calculations, the Department has determined **no additional actions** on your part are required.

**Days of Available Liquid Waste Storage:** The submitted information states that Burr Oak Heifers LLC has 216 days of liquid waste storage based on the volumes listed in the table below with respect to s. NR 243.15(3)(i) to (k), Wis. Adm. Code. The current number of animal units provided for the calculation is 2,473. The liquid waste volumes are based on manure hauling logs and a collection period of 365 days. All runoff, up to the 25yr, 24hr storm, is collected from the feed storage area, concrete apron, and waste transfer facility.

Total Liquid Waste Storage:	8,414,618 gallons
Total Solids Storage	0 gallons
Total 25-yr, 24-hr Precip. on Storage	310,239 gallons
Total 25-yr, 24-hr Collected Runoff	75,292 gallons
Total Freeboard Vol.	773,132 gallons
<b>Total MOL Liquid Waste Storage:</b>	<b>7,255,955 gallons</b>

Based on hauling log data:

2016	11,286,822 gallons	2,473 AUs	4,968 Gallons/AU
2017	14,344,430 gallons	2,473 AUs	5,800 Gallons/AU
2018	12,578,542 gallons	2,473 AUs	5,086 Gallons/AU
2019	11,150,101 gallons	2,473 AUs	4,509 Gallons/AU
Average Volume/AU			4,968 Gallons/AU
<b>Average Annual Volume for Current AUs</b>		<b>2,473 AUs</b>	<b>12,286,822 Gallons</b>

Should you have any questions, please contact Tony Salituro, DNR Madison office or your regional CAFO Specialist.



**NOTICE OF APPEAL RIGHTS**

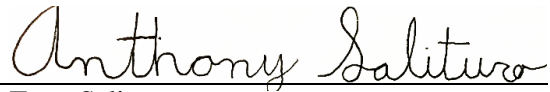
If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to WIS. STAT. §§ 227.52 and 227.53, you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to WIS. STAT. § 227.42, you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. All requests for contested case hearings must be made in accordance with WIS. ADMIN. CODE § NR 2.05(5), and served on the Secretary in accordance with WIS. ADMIN. CODE § NR 2.03. The filing of a request for a contested case hearing does not extend the 30-day period for filing a petition for judicial review.

STATE OF WISCONSIN  
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DATE: November 2, 2022 WPDES Permit #0063959-03-0

TO: Claire O'Connell – Wastewater Specialist, Dodgeville

FROM: Ian Anderson – CAFO Hydrogeologist, Madison

SUBJECT: Burr Oak Heifers – Groundwater Monitoring Review

**Background:**

The Burr Oak Heifers production area is located in Section 36, T18N R7E, Town of Richfield, Adams County. The facility has had production area groundwater monitoring since 2004 and has historically had exceedances of nitrate ( $\text{NO}_2^- + \text{NO}_3^-$ ), and occasional detects of *E. coli*. Prior to the farm being permitted, Burr Oak Heifers was an open feedlot with no runoff controls. Despite what the department believes are significant operational upgrades, these issues persist today, as indicated by recent monitoring data.

An Alternative Concentration Limit (ACL) was calculated for Burr Oak Heifers in 2013, based on the concentrations of nitrate in BOH-2 (MW-2), which is an upgradient well located on the southwest end of the facility. The ACL was removed from the final permit, due to questions about background concentrations and the proximity of a regional groundwater divide. As stated in the Permit Fact sheet amended December 2, 2014, the department at that time deferred a decision on the proposed nitrate water quality exemption and ACL. The WPDES permit for Burr Oak Heifers (Permit #061824-03-0) has been expired since 2019. This memo summarizes recent and historical groundwater monitoring data at Burr Oak Heifers and provides recommendations for further actions to be included in the next permit, including whether an ACL is appropriate at this location.

**Site Geology/hydrogeology:**

Bedrock geology in the area around Burr Oak Heifers is mapped as undifferentiated Cambrian sandstone (Mudrey et al., 1982), meaning that the specific sandstone formations have not been distinctly identified. This is largely due to the depth to bedrock which is about 100 feet on average in the Central Sands outwash plain, on which Burr Oak Heifers sits. There are bedrock knobs that form topographic highs (Horseshoe Bluff, Spring Bluff and Pilot Knob Bluff) to the south and west of the Burr Oak production area.

Pleistocene geology is mapped as uncollapsed meltwater-stream sediment of the Mapleview Member of the Horicon Formation. It is described as “primarily sand and slightly pebbly sand, but includes gravelly sand and sandy gravel; deposited during the Johnstown Phase and later phases of the Wisconsin Glaciation” (Clayton, 1987). The Johnstown Moraine and associated tills are found east of the Burr Oak Heifers production area. The hummocky terrain of the morainal tills, dotted with kettle lakes and pierced by tunnel channels, form a striking contrast to the very flat (except the bedrock knobs mentioned above), uniform outwash plain (See Figure 2).

There are two water supply wells on the Burr Oak Heifers production area site (SC016 and SC025). Both wells were drilled to a total depth of 101 feet, encountered only sand and gravel and had static water levels of 54 and 46 feet, respectively. This is consistent with other nearby well construction reports that show sand and gravel to depths of 85-139 feet. It is also consistent

with the Pleistocene Map and mapped depth to bedrock.

One interesting and important fact about the Burr Oak Heifers production area is that it is very near a regional groundwater divide. Groundwater west of the divide flows west to the Wisconsin River and groundwater east of the divide flows east toward the Fox River system and eventually into Green Bay. The Wisconsin Geologic and Natural History Survey (WGNHS) produced a water table elevation map of Adams County in 1981 (Lippelt, 1981), that placed the regional divide immediately northwest of Burr Oak Heifers production area (See Figure 4). While it is true that the location of groundwater divides can change over time, recent groundwater level measurements and other information strongly suggest that the location of the regional groundwater divide is similar to where it was mapped in 1981. Groundwater level measurements taken from the production area monitoring wells on the Burr Oak Heifers site match the expected flow direction if the regional divide is northwest of the site. Furthermore, there is a transect of four monitoring wells that collect daily groundwater level measurements located very close to the Burr Oak Heifers production area. These wells are maintained largely for the express purpose of tracking the location of this groundwater divide, and were used to provide data to the Central Sands Lake Study and associated MODFLOW groundwater flow model. Data from these four wells also places the divide very near to the Burr Oak Heifers production area, most likely near the northwest corner of the site.

Additional information supporting the presence of a regional groundwater divide immediately northwest of the Burr Oak Heifers production area is provided by the Central Sands Lakes Study (CSLS) groundwater flow model. The CSLS model is a MODFLOW model designed to quantify the effects of water withdrawals on three specific lakes in western Waushara County, including Pleasant Lake. It is important to note that the CSLS model was designed to answer different questions than I am addressing here, but since the Burr Oak Heifers production area is only about 2.5 miles from Pleasant Lake, one of the three lakes designated for the CSLS, the area is within the model domain near-field, meaning it is well calibrated and well constrained by calibration data. Since multiple information sources all agree, we have a high degree of confidence that the regional groundwater divide is located where we think it is: just west of Burr Oak Heifers production area.

#### **Potential production area contaminant sources:**

Animal waste is known to contain nitrogen in various forms, and pathogens such as total coliform bacteria including *E. coli*. These contaminants can readily enter an aquifer system with coarse unconsolidated deposits such as glacial outwash. Potential sources of the contamination in groundwater in this area include Burr Oak Heifers production area and manure landspreading sites. Several potential contaminant sources can be found at the Burr Oak Heifers production area, including raw material storage facilities, runoff control systems, waste storage and transfer systems, and animal housing areas. Manure and process wastewater from dairy operations are known to contain significant levels of potential nitrogen groundwater contaminants, including nitrate and ammonia.

#### **Groundwater Monitoring Results**

Early monitoring data from Burr Oak Heifers production area showed exceedances of nitrate. This is not surprising for a facility located on outwash sand operating open feedlots with no runoff controls. Nitrate concentrations in all three monitoring wells in place starting in 2004 regularly exceeded the NR 140 enforcement standard of 10mg/L, and frequently exceeded 20mg/L. Nitrate concentrations in MW-1 and MW-3 exceeded 50mg/L on multiple occasions, and the sample taken in June 2012 from MW-1 was measured at 120mg/L nitrate. What is surprising is that although the facility has made several operational upgrades (e.g.

adding a feed pad with runoff controls, waste storage facility, covered animal housing), these improvements have not manifest themselves in groundwater quality data improvements. Since 2015, there have been fewer spikes of nitrate concentrations over 50mg/L, but nitrate values rarely registered under the ES of 10mg/L. Trends in concentrations for all onsite monitoring wells have flattened, and there have been no concentrations over 30mg/L measured since June of 2020, suggesting recent operational management improvements are helping, but this is a far cry from the anticipated water quality improvements after numerous infrastructure upgrades. There have also been few samples that tested below the ES for nitrate since 2014. See Figure 6 and Table 1 for details.

These data are perplexing given what we know about the facility and its history. Perhaps none more so than MW-1, located on the northwest portion of the Burr Oak Heifers production area, near the intersection of CTH CC and CTH G. MW-1 is an upgradient well, and should represent background groundwater quality. This is what is vexing about MW-1, it represents background conditions and it is very close to regional divide, thus it has limited land area that contributes to its water quality. Logically, such a well should have relatively low nitrate concentrations. MW-1, however, most recently had nitrate at 17mg/L during the May 2022 sampling event. This is difficult to explain, given what we know about the site.

#### **Need to investigate and required response action:**

Chapter NR 140, Wis. Adm. Code, establishes state groundwater quality standards that apply to all facilities, practices and activities which may affect groundwater quality, and which are regulated by the department under chs. 281 and 283, Stats. In accordance with s. NR 243.13(5), Wis. Adm. Code, all permitted large CAFOs are required to comply with state groundwater quality standards. Sampling of monitoring wells at the Burr Oak Heifers production area has identified that groundwater is contaminated with recent nitrate at concentrations as high as 25 mg/L. These results exceed ch. NR 140 groundwater standards. Ch. NR 140 directs the department to assess the cause and significance of contaminants in groundwater above state groundwater quality standards, and to determine appropriate response actions to minimize the concentration of contaminants in groundwater and prevent exceedances of ch. NR 140 enforcement standards.

#### **Recommendations:**

Analytical data from the groundwater monitoring system at Burr Oak Heifers production area show persistent exceedances of NR 140 groundwater standards. As described above, an ACL for nitrate was proposed in 2013, but ultimately removed from the current permit issued in 2015. Despite the NR 140 exceedances for nitrate at MW-1 and MW-2 (both upgradient wells), my opinion is that an ACL is not appropriate due to the proximity of the wells to a regional groundwater divide, as described above. I recommend continued monitoring of the existing groundwater monitoring system following the same parameter list and sampling schedule in the current permit.

Beyond continued monitoring, I recommend working with the farm, their nutrient management planner and/or their consultant to determine which management activities have helped to improve groundwater quality onsite, and which activities need to be improved because they may be causing or contributing to continued NR 140 nitrate exceedances. For example, spreading restriction maps for fields H1, H2 and H3 should be updated to include the 100-foot restriction for the monitoring wells, as these are direct conduits to groundwater. Until we determine which activities are causing nitrate exceedances, we will not be able to rectify this situation.

## **References**

Bedrock Geologic Map of Wisconsin. WGNHS M078. Mudrey et al., 1982.  
<https://wgnhs.wisc.edu/catalog/publication/000390/resource/m078paper>

Pleistocene Geology of Adams County, Wisconsin. WGNHS Information Circular 59, Plate 1 (Map 87-1a). Clayton, L., 1987.  
<https://wgnhs.wisc.edu/catalog/dataset/000309/resource/ic59plate01/view/d1c99268-abe3-4828-9276-00a2962b413c>

Irrigable Lands Inventory – Phase I Groundwater and Related Information. WGNHS MP 81-1, Plate 1. Lippelt, I., 1981. <https://wgnhs.wisc.edu/catalog/publication/000467/resource/mp811plate01>

## **Attachments**

- Figure 1- Aerial Photo of Burr Oak Heifers and surrounding area
  - Figure 2 – Topographic Map of Burr Oak Heifers and surrounding area
  - Figure 3 – Aerial Photo of Burr Oak Heifers production area
  - Figure 4 – Groundwater Elevations of Adams County near Burr Oak Heifers
  - Figure 5 – Locations of Burr Oak Heifers monitoring wells
  - Figure 6 – Time series of nitrate concentrations at Burr Oak Heifers
- Table 1 – Nitrate Data from Burr Oak Heifer monitoring wells



Figure 1 – Aerial Photo of Burr Oak Heifers production area and surroundings.



Figure 2 – Topographic Map of Burr Oak Heifers production area and surroundings. Note the contrast of the flat outwash plain where the farm sits compared to the hummocky moraine and till to the east.



Figure 3 – Aerial Photo of Burr Oak Heifers production area, outlined in red.



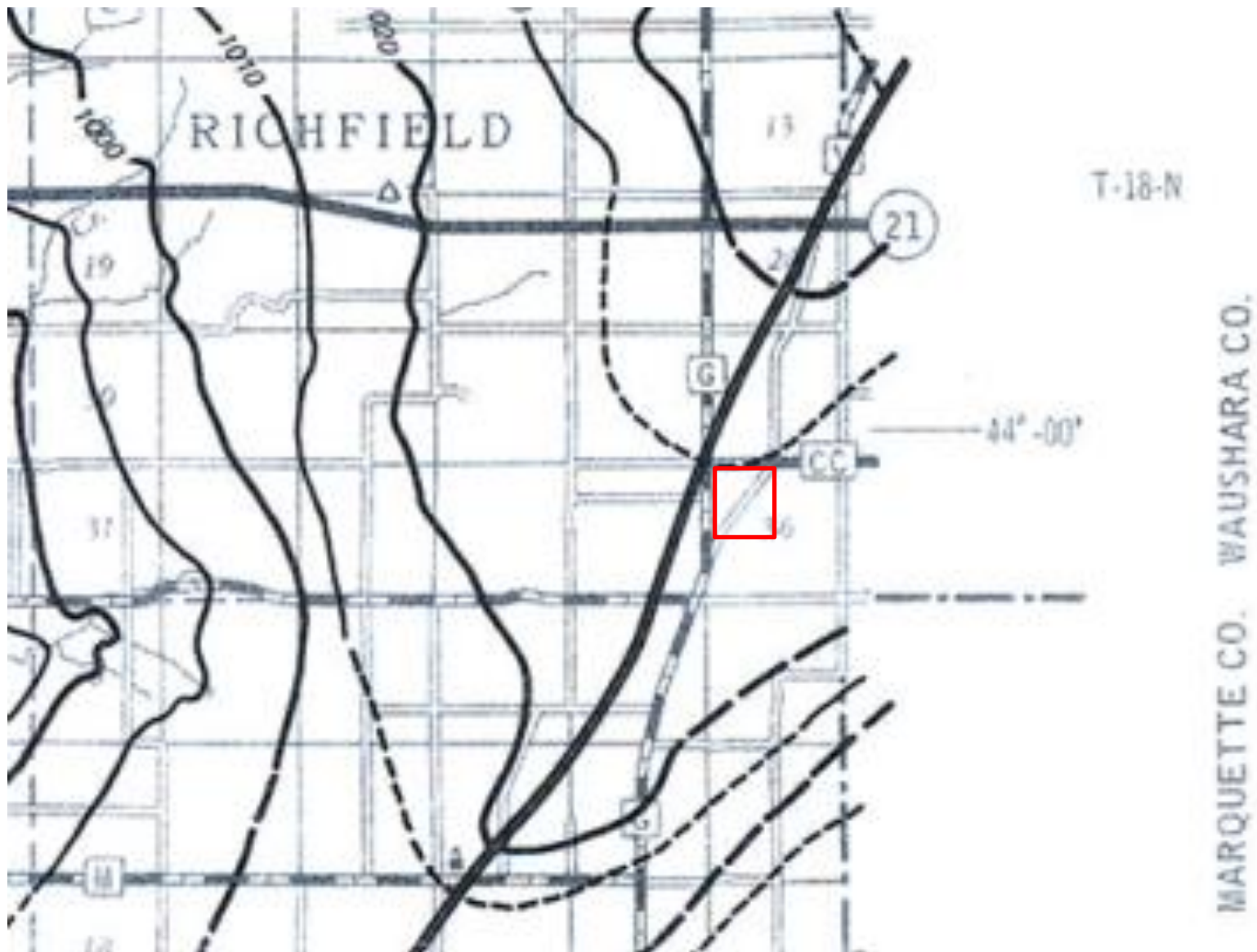


Figure 4 – Excerpt from Groundwater Elevations of Adams County (Lippelt, 1981), focused on area surrounding Burr Oak Heifers production area, outlined in red. Note the thick black line west of the farm, which represents the regional groundwater divide.

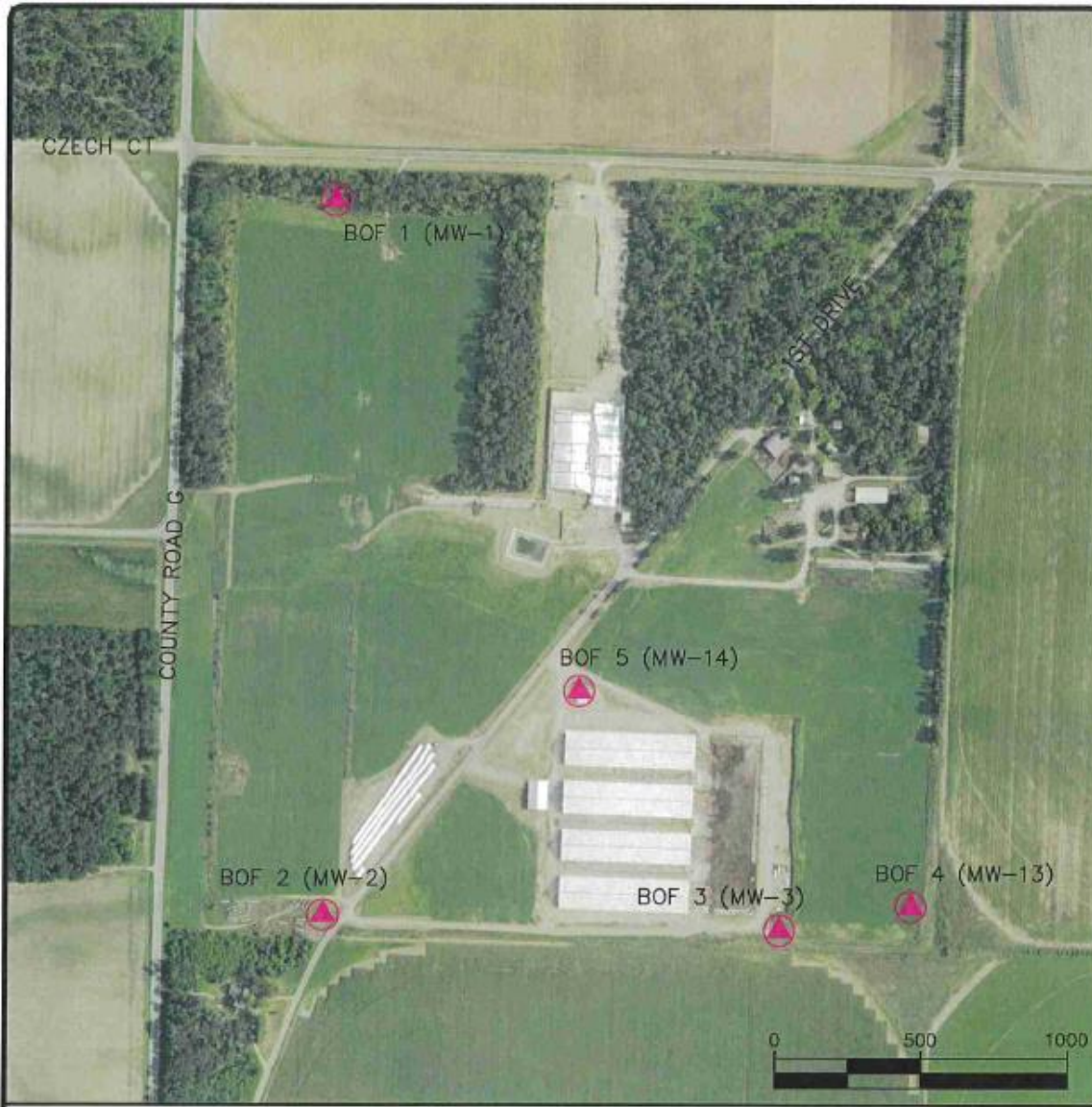


Figure 5 – Aerial photo of Burr Oak Heifers production area with locations of monitoring wells. Modified from Figure 2 of Groundwater Sampling Results Report dated July 15, 2020, produced by REA, Inc.

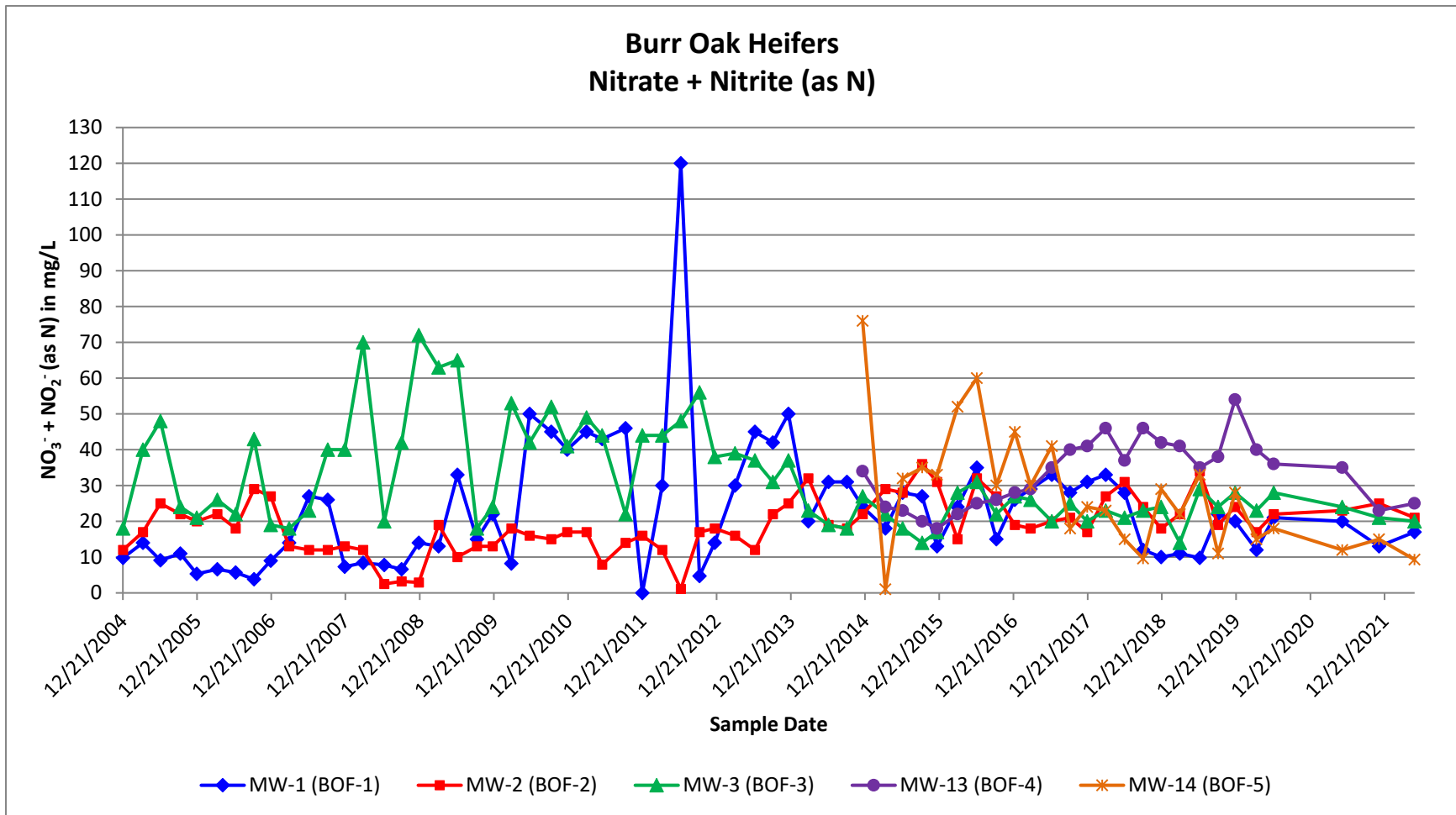


Figure 6 – Time series of nitrate concentrations from groundwater monitoring wells at Burr Oak Heifers production area. See Table 1 for details.

<b>Nitrate+Nitrite (as N) (mg/L)</b>					
<b>Sample Date</b>	<b>MW-1 (BOF-1)</b>	<b>MW-2 (BOF-2)</b>	<b>MW-3 (BOF-3)</b>	<b>MW-13 (BOF-4)</b>	<b>MW-14 (BOF-5)</b>
12/21/2004	9.8	12	18		
3/29/2005	14	17	40		
6/23/2005	9.1	25	48		
9/29/2005	11	22	24		
12/19/2005	5.3	20	21		
3/30/2006	6.6	22	26		
6/28/2006	5.7	18	22		
9/27/2006	3.8	29	43		
12/18/2006	9	27	19		
3/19/2007	14	13	18		
6/25/2007	27	12	23		
9/25/2007	26	12	40		
12/17/2007	7.3	13	40		
3/17/2008	8.4	12	70		
6/29/2008	7.8	2.5	20		
9/22/2008	6.6	3.2	42		
12/16/2008	14	2.9	72		
3/23/2009	13	19	63		
6/24/2009	33	10	65		
9/28/2009	15	13	18		
12/14/2009	22	13	24		
3/16/2010	8.2	18	53		
6/14/2010	50	16	42		
9/29/2010	45	15	52		
12/16/2010	40	17	41		
3/21/2011	45	17	49		
6/6/2011	43	7.9	44		
9/29/2011	46	14	22		

<b>Nitrate+Nitrite (as N) (mg/L)</b>					
<b>Sample Date</b>	<b>MW-1 (BOF-1)</b>	<b>MW-2 (BOF-2)</b>	<b>MW-3 (BOF-3)</b>	<b>MW-13 (BOF-4)</b>	<b>MW-14 (BOF-5)</b>
12/21/2011	<0.24	16	44		
3/28/2012	30	12	44		
6/27/2012	120	1.1	48		
9/27/2012	4.7	17	56		
12/11/2012	14	18	38		
3/21/2013	30	16	39		
6/27/2013	45	12	37		
9/23/2013	42	22	31		
12/9/2013	50	25	37		
3/17/2014	20	32	23		
6/24/2014	31	19	19		
9/23/2014	31	18	18		
12/9/2014	24	22	27	34	76
3/31/2015	18	29	22	24	1
6/24/2015	28	28	18	23	32
9/28/2015	27	36	14	20	35
12/10/2015	13	31	17	18	33
3/20/2016	24	15	28	22	52
6/23/2016	35	32	31	25	60
9/27/2016	15	27	22	26	30
12/27/2016	26	19	27	28	45
3/14/2017	29	18	26	29	30
6/27/2017	33	20	20	35	41
9/25/2017	28	21	25	40	18
12/18/2017	31	17	20	41	24
3/19/2018	33	27	23	46	23
6/20/2018	28	31	21	37	15
9/19/2018	12	24	23	46	9.6

<b>Nitrate+Nitrite (as N) (mg/L)</b>					
<b>Sample Date</b>	<b>MW-1 (BOF-1)</b>	<b>MW-2 (BOF-2)</b>	<b>MW-3 (BOF-3)</b>	<b>MW-13 (BOF-4)</b>	<b>MW-14 (BOF-5)</b>
12/17/2018	10	<b>18</b>	<b>24</b>	<b>42</b>	<b>29</b>
3/19/2019	<b>11</b>	<b>22</b>	<b>14</b>	<b>41</b>	<b>22</b>
6/25/2019	9.8	<b>34</b>	<b>29</b>	<b>35</b>	<b>33</b>
9/23/2019	<b>22</b>	<b>19</b>	<b>24</b>	<b>38</b>	<b>11</b>
12/16/2019	<b>20</b>	<b>24</b>	<b>28</b>	<b>54</b>	<b>28</b>
3/30/2020	<b>12</b>	<b>17</b>	<b>23</b>	<b>40</b>	<b>15</b>
6/23/2020	<b>21</b>	<b>22</b>	<b>28</b>	<b>36</b>	<b>18</b>
5/26/2021	<b>20</b>	<b>23</b>	<b>24</b>	<b>35</b>	<b>12</b>
11/23/2021	<b>13</b>	<b>25</b>	<b>21</b>	<b>23</b>	<b>15</b>
5/17/2022	<b>17</b>	<b>21</b>	<b>20</b>	<b>25</b>	9

Table 1 – Nitrate analytical data from Burr Oak Heifers groundwater monitoring wells 12/21/2004 through 5/17/2022. All values are in mg/L. Bold values indicate concentrations that exceed the NR 140 enforcement standard of 10mg/L