Permit Fact Sheet

General Information

Permit Number:	WI-0056529-06-0
Permittee Name:	Babcock Genetics LLC
Address:	N6671 County Road XX, Holmen, WI 54636
City/State/Zip:	HOLMEN WI 54636-0577
Discharge Location:	Black River within the Lower Black River Watershed, and groundwaters of the state
Stream Classification or Status:	Impaired. Pollutants leading to the impaired status include; PCBs, total phosphorus, and mercury.

Animal Units

	Current AU		Proposed AU (Note: If all zeroes, expansions are not expected during permit term)		
Animal Type	**Mixed**	**Individual**	**Mixed**	**Individual**	**Date of Proposed Expansion**
Pigs (55 lbs. to market)	2170	2170	0	0	
Sows (each)	530	530	0	0	
Boars (each)	209	167	0	0	
Pigs (up to 55 lbs.)	393	393	0	0	
Total	3302	2867	0	0	

Facility Description

Babcock Genetics LLC is an existing Concentrated Animal Feeding Operation (CAFO). It currently has 3,302 animal units (3,929 pigs <55lbs, 5,424 pigs >55lbs, 1,325 sows, 418 boars). Babcock Genetics has a total of 680.67 acres available for land application of manure and process wastewater. Of this acreage, 165 acres are owned and 515.67 acres are rented or controlled through contracts, and 679 acres are spreadable. There are no planned operational changes during the next 5-year permit term. Permit construction schedules are proposed for additional groundwater monitoring and evaluation of permanent manure storage and transfer facilities.

Sample Point Designation For Animal Waste

Sample Point Number	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)	
001	WSF 001: Sample point 001 is for liquid waste storage facility 001 (WSF 001) which is the northern PVC-lined storage. The facility has a capacity of 22.5 million gallons and was modified in 1991. This storage accepts manure and process wastewater from the pull-plug underbarn storages. WSF 001 will require an	

Sample Point Designation For Animal Waste		
Sample Point Number	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**	
	engineering evaluation, see Schedules section for due dates.	
002	WSF 002: Sample point 002 is for liquid waste storage facility 002 (WSF 002) which is the southern PVC-lined storage. The facility has a capacity of 15 million gallons and was modified in 1991. This storage accepts manure and process wastewater from the pull-plug underbarn storages. WSF 002 will require an engineering evaluation, see Schedules section for due dates.	
003	Underbarn Manure Storage: Sample Point 003 is for the all underfloor concrete pull plug storage facilities located beneath the livestock barns. Manure from these facilities flows to WSF 002 where it is pumped for land application. Underbarn Manure storage requires an engineering evaluation, see Schedules section for due dates.	
004	Storm Water Runoff Control System: Sample point 004 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 monitoring program.	

Sample Point Designation For Existing Groundwater Monitoring Systems			
System	**Sample Pt Number**	**Well Name**	**Comments**
Production Area	801	MW-1	
Production Area	802	MW-2	
Production Area	803	MW-3	
Production Area	804	MW-4	Used to Calculate Preventive Action Limits (PALs)
Production Area	807	MW-7	
Production Area	808	MW-8	Used to Calculate PALs

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 (**La Crosse County -5.37**). 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 440 days of storage for liquid manure and process wastewater. The permittee must maintain at least 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 3,302 animal units, it is estimated that approximately 11,342,132 gallons of manure and process wastewater will be produced per year. Babcock Genetics has a total of 680.67 acres available for land application of manure and process wastewater. Of this acreage, 165 acres are owned and 515.67 acres are rented or controlled through contracts, and 679 acres are spreadable. 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 or 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 permitee 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 001 (North); 002- WSF 002 (South); 003- WSF 003 (underbarn)

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

None.

Sample Point Number: 004- Storm Water Runoff

1.1.2 Changes from Previous Permit

Sample Point added since previous permit issuance.

1.1.3 Explanation of Operation and Management Requirements

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 monitoring program.

2 Groundwater – Proposed Monitoring and Limitations

2.1 Groundwater Monitoring System for Manure Storage Facilities

Location of Monitoring system: At production site

Wells to be Monitored: MW-1, MW-2, MW-3, MW-4, MW-8, MW-7

Well Used To Calculate PALs: MW-4, MW-7

Enforcement Standard Wells: To be determined.

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.0	10	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
pH Lab	su	*****	N/A	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	9.2	N/A	Quarterly
Potassium Dissolved	mg/L	*****	N/A	Quarterly
Solids, Total Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

None.

Explanation of Limits and Monitoring Requirements

Grab samples shall be collected from each well to be monitored per the frequency shown in the table above. Samples shall be analyzed for the parameters specified.

3 Schedules

3.1 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.	01/31/2020
Submit Annual Report #2: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2021
Submit Annual Report #3: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2022
Submit Annual Report #4: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2023
Submit Annual Report #5: To include monitoring and inspection results from the previous 12 months, consistent with the requirements of department form 3400-025E.	01/31/2024
Ongoing Annual Reports: Continue to submit Annual Reports until permit reissuance has been completed.	

3.2 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).	
Submit NMP Update #1: To include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department for 3400-025D.	03/31/2020
Submit NMP Update #2: To include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department for 3400-025D.	03/31/2021
Submit NMP Update #3: To include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department for 3400-025D.	03/31/2022
Submit NMP Update #4: To include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department for 3400-025D.	03/31/2023
Submit NMP Update #5: To include actual cropping, tillage, and nutrient application data from the previous calendar or crop year, consistent with the requirements of department for 3400-025D.	03/31/2024
Ongoing Management Plan Annual Updates: Continue to submit Annual Updates to the Nutrient Management Plan until permit reissuance has been completed.	

3.3 Submit Permit Reissuance Application

Required Action	Due Date
Reissuance Application: Submit a complete permit reissuance application 180 days prior to permit expiration.	06/30/2022

3.4 Manure Storage Facility - Engineering Evaluation

WSF 001, WSF 002, Underbarn Manure Storage and associated transfer systems

Required Action	Due Date
Retain Expert: Retain a qualified expert to complete an engineering evaluation for the manure storage facilities and report the name of the expert to the Department.	06/01/2019
Written Report: Submit a written report evaluating the existing manure storage facility's ability to meet the conditions in the Production Area Discharge Limitations and Manure and Process Wastewater Storage subsections and s. NR 243.15, Wis. Adm. Code. (See Standard Requirements for report details.)	12/31/2019
Plans and Specifications: Submit plans and specifications for Department review and approval in accordance with Chapter 281.41, Wis. Stats., and Chapter NR 243, Wis. Adm. Code, to permanently correct any adverse manure storage conditions.	03/31/2020
Corrections and Post Construction Documentation: Complete construction on the manure storage facility that permanently corrects any adverse conditions in concurrence with and approval by the Department, by the specified Date Due. Submit post construction documentation within 60 days of completion of the project.	12/31/2020

3.5 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 update and submit a proposed monitoring and inspection program within 60 days of the effective date of this permit.	06/01/2019

3.6 Emergency Response Plan

Required Action	Due Date
Develop Emergency Response Plan: Update a written Emergency Response Plan within 30 days of permit coverage, available to the Department upon request.	05/31/2019

3.7 Groundwater Monitoring- Manure Spray Irrigation Area

Required Action	Due Date

Plans and Specifications Submittal for groundwater monitoring: Submit plans and specifications, in accordance with s. NR 243.15(7), Wis. Adm. Code, for a groundwater monitoring system to be installed around the manure spray irrigation sites. This groundwater monitoring system shall include minimum of five monitoring wells designed to meet the construction and installation requirements of ch. NR 141, Wis. Admin. Code.	12/31/2019
Monitoring Well Installation: Install manure spray irrigation groundwater monitoring system, in accordance with plans and specifications approved by the department, and commence groundwater monitoring in accordance with the requirements in this WPDES permit.	12/31/2020

3.8 Verification of Production Site Groundwater Monitoring Well Casing Elevations

Required Action	Due Date
Written Description of Well Casing Elevations: Survey the casing elevations of production site groundwater monitoring wells. Submit a written description of casing elevations to the department, and update casing elevations in future groundwater monitoring submittals required by section 2 Groundwater Requirements of the permit.	12/31/2020

3.9 Explanation of Schedules

Section 3.4 Manure Storage Facility - Engineering Evaluation

An engineering evaluation is required under s. NR 243.16(2), Wis. Adm. Code, due to the age of the facilities and systems.

Section 3.7 Groundwater Monitoring- Manure Spray Irrigation Area

See enclosed Memo dated November 19, 2018. Submittal of plans and specifications is required in accordance with s. NR 243.15(7), Wis. Adm. Code, for a groundwater monitoring system to be installed around sites used for spray irrigation of Babcock Genetics manure/process wastewater.

Section 3.8 Verification of Production Site Groundwater Monitoring Well Casing Elevations

See enclosed Memo dated November 19, 2018. Due to the age of the production site groundwater monitoring wells it is possible that well casing top reference elevations may have shifted and could be somewhat inaccurate, and therefore local groundwater flow determination using production site monitoring wells, may not be completely accurate.

Attachments:

Conditional Approval of Babcock Genetics Nutrient Management Plan – January 27, 2017

Babcock Genetics: groundwater monitoring memo – November 19, 2018

Substantial Compliance Determination – December 18, 2018

Proposed Expiration Date:

December 31, 2023

Justification Of Any Waivers From Permit Application Requirements

No waivers were provided.

Prepared By:

Ben Uvaas
CAFO Compliance/Enforcement Coordinator
920-303-5433
Benjamin.uvaas@wisconsin.gov

Date:

December 18, 2018

cc: **Enter cc Persons**

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Green Bay Service Center
2984 Shawano Avenue
Green Bay, WI 54313

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
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January 27, 2017

La Crosse County
Approval

Derek Widman
Babcock Genetics
N6647 County Road XX
Holmen, WI 54636

SUBJECT: Conditional Approval of Babcock Genetics Nutrient Management Plan, WPDES Permit No. 0056529-06-0

Dear Mr. Widman:

After completing a review of Babcock Genetics 2017-2021 Nutrient Management Plan (NMP) the Wisconsin Department of Natural Resources (Department) is providing conditional approval that it is consistent with s. NR 243.14, 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 Babcock Genetics 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 Babcock Genetics 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 Babcock Genetics maintain compliance with their WPDES permit and Ch. NR 243 requirements.

FINDINGS OF FACT

The Department confirms that:

1. A current dairy herd size of 3,302 animal units (3,929 pigs up to 55 lbs.; 5,424 pigs 55 lbs. to market; 1,325 sows; and 418 boars). Currently there are no planned expansions in the next permit term.
2. Manure generation and spreading records indicate your herd will annually generate approximately 11,342,132 gallons of manure and process wastewater.
3. The use of application restriction option 5 within surface water quality management areas.
4. The use of phosphorus delivery method P Index.
5. That Babcock Genetics currently has 680.67 acres (165 owned and 515.67 controlled through contracts, rental agreements or leases, or under manure agreements) of which 679.70 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 Black River (listed 303(d) impaired water by total phosphorus).
7. That no fields are directly adjacent to or have high potential to deliver nutrients and sediment to outstanding/exceptional waters.
8. That Babcock Genetics currently has at least 440 days of storage for liquid manure, process wastewater and rainfall and at least 59 days of storage for solid manure.

	Maximum Operating Level (MOL) Volume
Waste Storage #1	8,842,250 gallons
Waste Storage #2	4,818,415 gallons

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 2017-2021 Babcock Genetics Nutrient Management Plan subject to the following conditions and the applicable requirements of Ch. NR 243, Wis. Adm. Code:

WINTER SPREADING

1. Liquid manure applications during winter conditions, as defined by NR 243.14(7), Wis. Adm. Code, are prohibited with the exception of emergency applications.

2. The following fields are approved for winter spreading solid manure, emergency applications of liquid manure and frozen liquid manure:
   - B1
   - H4
   - H9
   - JM2

3. The following fields are approved for winter spreading of solid manure:
   - BB2
   - H6

4. 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.

5. Winter applications of liquid manure shall only occur under emergency situations, after notifying the Department and receiving verbal approval.

6. 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

7. No headland stacking sites are approved.

FIELD AND MANURE MANAGEMENT

8. 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.

9. If existing fields yield a soil test results 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.

10. All manure samples collected for analysis shall be analyzed, at a minimum, for percent dry matter, total nitrogen, percent NH_4-N, percent NO_3-N, phosphorus, potassium, and sulfur.

11. If manure sample results have a dry matter (DM) content less than 2.0% and the percent ammonium (NH_4^+) is greater than 75% of the total N, Babcock Genetics shall use the following equation to adjust the first year available nitrogen when applications are injected or incorporated within 1 hour:

$$\text{First-Year Available N} = NH_4\text{-N} + [0.25 \times (\text{Total N} - NH_4\text{-N})]$$

MANURE IRRIGATION

12. The following fields are approved for irrigation of swine manure using traveling guns and center pivot irrigation systems:
    - BB1
    - H1
    - H6
    - H8
    - H9
    - H12
    - JM1
    - JM2
    - JM3

13. Manure irrigation application rates shall not exceed a rate of 10,000 gallons per acre, per application event or manure irrigation applications shall not exceed 10,000 gallons over a 5 day period if split applications are used.

14. Babcock Genetics shall allow a rest period of 5 days or more between each application event. If Babcock Genetics can demonstrate the soils are below field capacity and can handle additional applications, the rest period may be lowered to 2 days. This demonstration(s) must be documented and submitted to the department with the NMP update.

15. Manure irrigation applications shall not occur if sustained wind speeds of 10 miles per hour or more are documented. Sustained wind shall be defined as the average wind speed over a 15 minute period.

16. Manure irrigation applications shall not occur when wind gusts exceed 20 miles per hour.

17. If Babcock Genetics receives approval from an adjacent dwelling resident to apply within 250 feet, the reduced setback does not become effective until a copy of the agreement is submitted to the Department.

18. If additional fields are selected by Babcock Genetics for manure irrigation applications, those fields shall not be used for that purpose until department review and written approval is obtained.

19. Manure irrigated fields with a soil phosphorus level over 100 ppm shall be soil sampled annually. Manure irrigated fields with a soil phosphorus level 100 ppm or less shall be soil sampled every two years.

SUBMITAL AND RECORDKEEPING REQUIREMENTS

20. 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 locate permits, zoning and regulatory requirements.

If you have any questions regarding this approval I can be reached at (920) 662-5191 or Joseph.Baeten@Wisconsin.gov.

Sincerely,

Joe Baeten
Nutrient Management Program Coordinator
Wisconsin Department of Natural Resources

cc: Bob Rohland, WDNR Agricultural Runoff Specialist (Robert.Rohland@Wisconsin.gov)
Bob Baczynski, WDNR Watershed Field Supervisor (Robert.Baczynski@Wisconsin.gov)
Mary Anne Lowndes, WDNR Runoff Management Section Chief (MaryAnne.Lowndes@Wisconsin.gov)
Aaron O'Rourke, WDNR Nutrient Management Plan Reviewer (Aaron.Orourke@Wisconsin.gov)
Clare Freix, WDNR Intake Specialist (Clare.Freix@Wisconsin.gov)
La Crosse Land Conservation Department (LandCon@lacrossecounty.org)
Abby Rotering, Dairyland Labs, Inc. (arotering@dairylandlabs.com)
File

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: November 19, 2018 **FILE REF:** Babcock Genetics

TO: Tom Bauman, Wastewater Engineer – WT/3
Ben Uvaas – Wastewater Specialist – NER/Oshkosh

FROM: Bill Phelps, Hydrogeologist - DG/5
Woody Myers, Hydrogeologist – WCR/Eau Claire

SUBJECT: Babcock Genetics – groundwater monitoring at animal waste/wastewater spray irrigation site

Tom, Ben – Woody and I have reviewed information related to the spray irrigation of Babcock Genetics swine production confined animal feeding operation (CAFO) animal waste and process wastewater at sites located in the Town of Holland, in La Crosse Co. We also reviewed the results of groundwater monitoring at the facility production site, and soils and geology information from the area around the Babcock Genetics production site and spray irrigation fields. We recommend that a groundwater monitoring system be installed around Babcock Genetics permanent spray irrigation sites to evaluate both irrigation site background groundwater quality and any impacts to groundwater from the facility spray irrigation discharge.

The results of groundwater monitoring at the Babcock Genetics production facility indicates that there is elevated nitrate nitrogen in groundwater from sources located upgradient of the production site. This area is underlain with highly permeable sand and gravel soils and is therefore very susceptible to nitrate groundwater contamination. Considering that Babcock Genetics animal manure and process wastewater is land applied and spray irrigated on fields surrounding the Babcock Genetics production site, we recommend that a groundwater monitoring system be installed to evaluate impacts to groundwater from animal manure/wastewater spray irrigation, as well as from other potential nitrate sources in the area.

Site information: The Babcock Genetics swine production facility is an agricultural facility with onsite lined storage lagoons for animal waste and process wastewater. The production facility is located at N6647 County Road XX, Holmen, WI. The site is directly north/northeast of the Brown's Marsh wetland complex, and approximately 3 miles east of the main channel of the Mississippi River (see attachment #1 – Overview Map). Spray irrigation of swine manure and process wastewater from the Babcock Genetics production facility takes place on agricultural fields surrounding the production site that are owned and operated by Dummer Family Enterprises, LLC. Fields BB1, H1, H6, H8, H9, H12, JM1, JM2 and JM3 are currently approved for irrigation of Babcock Genetics swine manure and process wastewater. These fields are located in the eastern ½ of Section 10, Section 11 and the western ½ of Section 12, T 17N, R 8W, in the Town of Holland.

Geology: Surface organic soils in the vicinity of the Babcock Genetics swine production facility and land application/spray irrigation fields are primarily classified as Dakota Silt Loam or Forkhorn Sandy Loam soils. Regolith soils above bedrock in the area are highly permeable (see attachment #2 - La Crosse Co. Soil Characteristics Map) and consist of soil material ranging from gravel to silty sand. Depth to bedrock in the area is estimated to be greater than 150 feet below ground surface (bgs). Bedrock is sandstone and carbonate rock of the Trempealeau, Tunnel City and Elk Mound Groups. The Trempealeau Group includes the Jordan and St. Lawrence geologic formations, the Tunnel City Group includes the Lone Rock formation, and the Elk Mound Group includes the Wonewoc, Eau Claire and Mount Simon formations.

Hydrogeology: Regional groundwater flow direction in the vicinity of Babcock Genetics, based on information in the United States Geologic Service (USGS) Hydro Atlas HA-474, is to the southwest. Local groundwater flow, based on groundwater elevation information collected from Babcock Genetics production site monitoring wells, appears to be from northeast to south/southwest. Due to the age of the production site groundwater monitoring wells it is possible that well casing top reference elevations may have shifted and could be somewhat inaccurate, and therefore local groundwater flow determination using production site monitoring wells, may not be completely accurate. Verification of production site groundwater monitoring well casing top elevations will help confirm the accuracy of local groundwater flow direction. Depth to groundwater in production site monitoring wells is reported to be between approximately 18 and 32 feet bgs.

Production site groundwater monitoring: The Babcock Genetics production site groundwater monitoring system currently consists of six groundwater monitoring wells: MW-801 (MW-1), MW-802 (MW-2), MW-803 (MW-3), MW-804 (MW-4), MW-807 (MW-7) and MW-808 (MW-8) (see attachment #3 - Babcock Genetics production site map). Local groundwater flow from northeast to southwest places wells MW-801, MW-804 and MW-807 up and side gradient of potential Babcock genetics production site groundwater contamination sources. Results from sampling of wells MW-801, MW-804 and MW-807 has shown elevated nitrate nitrogen levels in groundwater (see attachment #4 - Babcock Genetics production site groundwater nitrate results graph)**.** Nitrate concentrations in these wells appear to be decreasing over time, but they are still at levels above the ch. NR 140 groundwater quality enforcement standard of 10 milligrams per liter (mg/L). The source of this groundwater nitrate is likely agricultural activity, potentially including swine manure/process wastewater spray irrigation, in the area upgradient of the Babcock Genetics production site.

Potential groundwater impacts from spray irrigation: Babcock Genetics swine manure and process wastewater is spray irrigated on fields surrounding the production site in accordance with a Department approved nutrient management plan. Animal waste and CAFO facility process wastewater generally contains significant levels of nitrogen, usually in the ammonia and organic nitrogen forms. Agricultural crops, on approved spray irrigation fields, are expected to take up much of this nitrogen, however, nitrogen in spray irrigated manure and wastewater not taken up by plants may convert to the nitrate nitrogen form, which can readily leach downward through soil and pollute groundwater. Permeable soils, such as sands and gravels, are especially susceptible to nitrate leaching.

Recommendations:

1) **Require submittal of plans and specifications for a groundwater monitoring system to be installed around sites used for spray irrigation of Babcock Genetics swine manure and process wastewater**. Require submittal of plans and specifications, in accordance with s. NR 243.15(7), Wis. Adm. Code, for a groundwater monitoring system to be installed around sites used for spray irrigation of Babcock Genetics manure/process wastewater. This groundwater monitoring system should include a minimum of five monitoring wells designed to meet the construction and installation requirements of ch. NR 141, Wis. Adm. Code.

2) **Installation of spray irrigation groundwater monitoring system, in accordance with Department approved plans and specifications, and monitoring of system in accordance with requirements in Babcock Genetics Wisconsin Pollutant Discharge Elimination System (WPDES) permit.**

3) **Verification of production site groundwater monitoring well casing top elevations when new spray irrigation groundwater monitoring system well installations are surveyed.**

Attachments:

1. **Overview Map (aerial photo) showing location of Babcock Genetics production site and land application/spray irrigation fields**

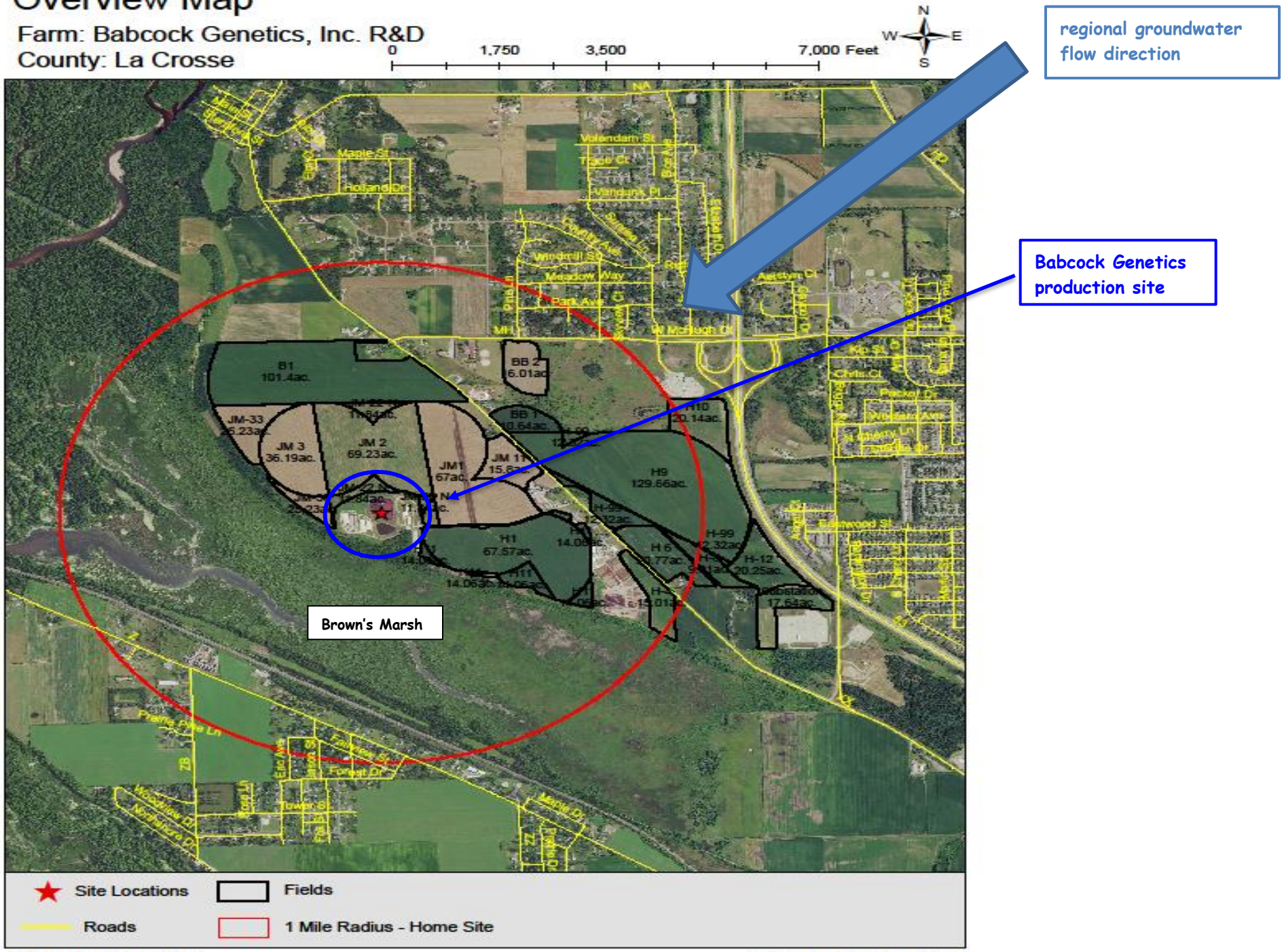
2. **La Crosse Co. Soil Characteristics Map (from 2007 United States Geological Survey (USGS) La Crosse Co. *Groundwater Contamination Susceptibility* analysis)**

3. **Babcock Genetics production site map with groundwater monitoring well locations**

4. **Babcock Genetics production site groundwater nitrate results graph**

Overview Map

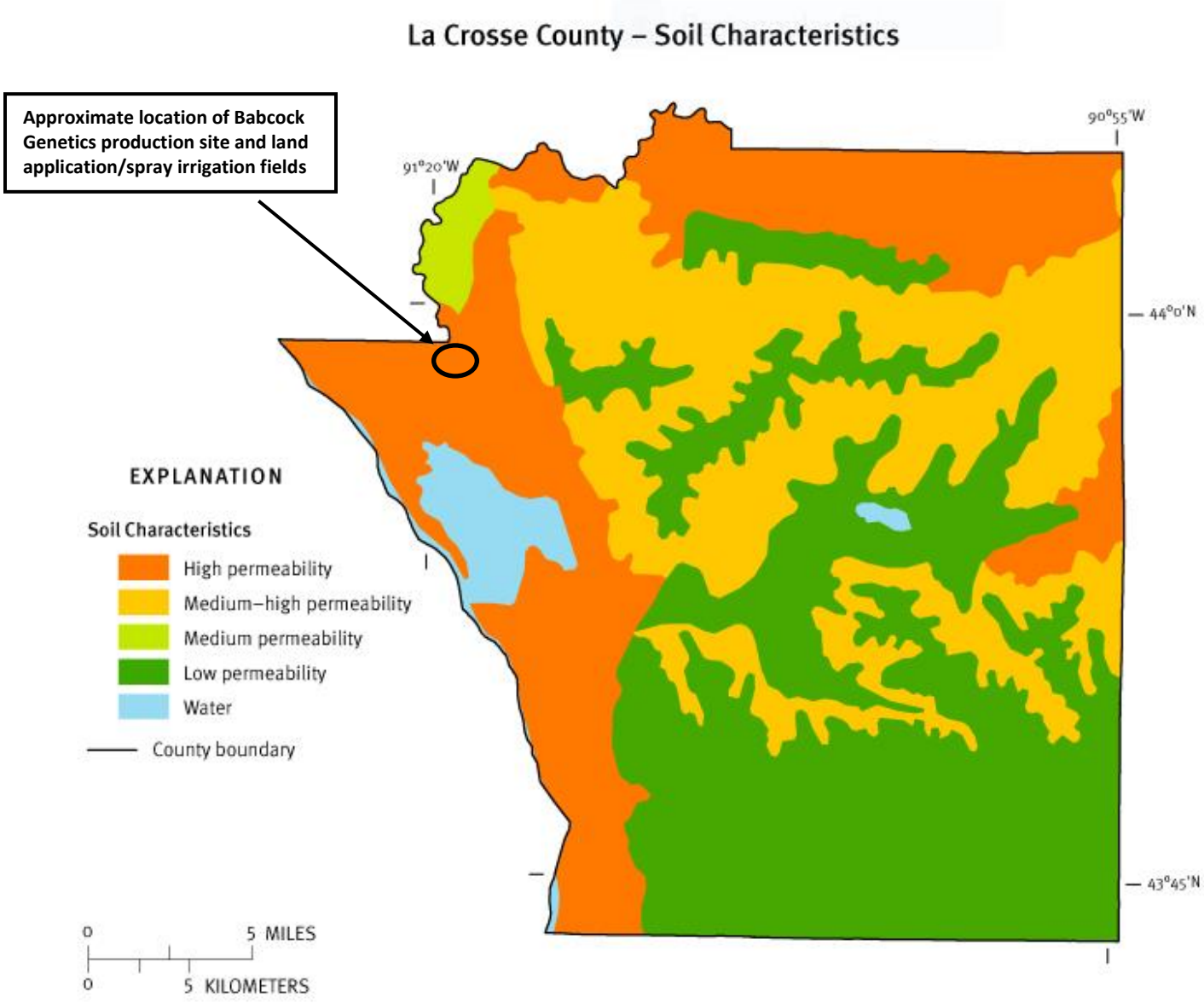
Farm: Babcock Genetics, Inc. R&D
County: La Crosse



Dairyland Laboratories Inc.

Template last revised 4/20/10

La Crosse Co. Soil Characteristics Map (from May 2007 USGS La Crosse Co. *Groundwater Contamination Susceptibility* analysis)

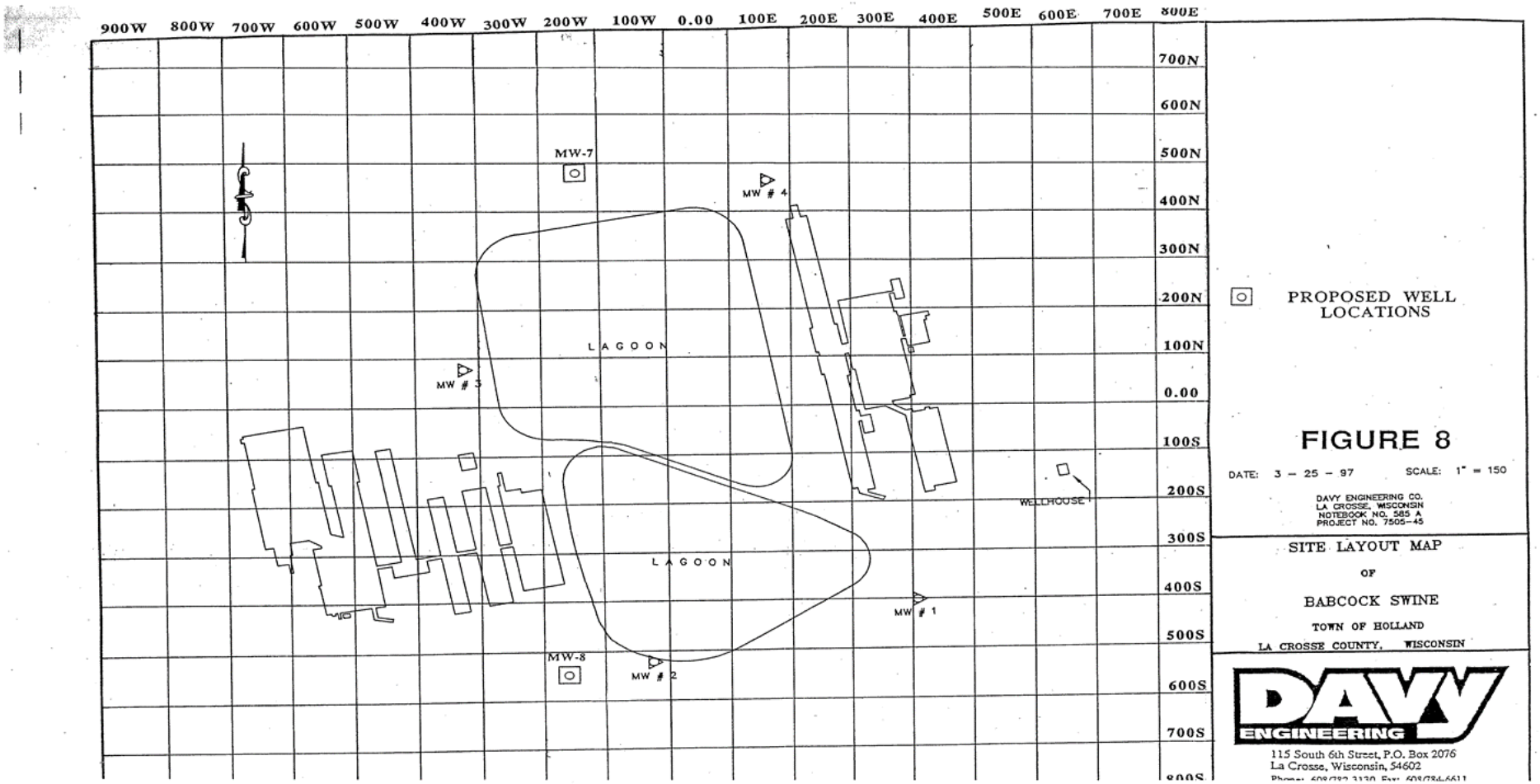


This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

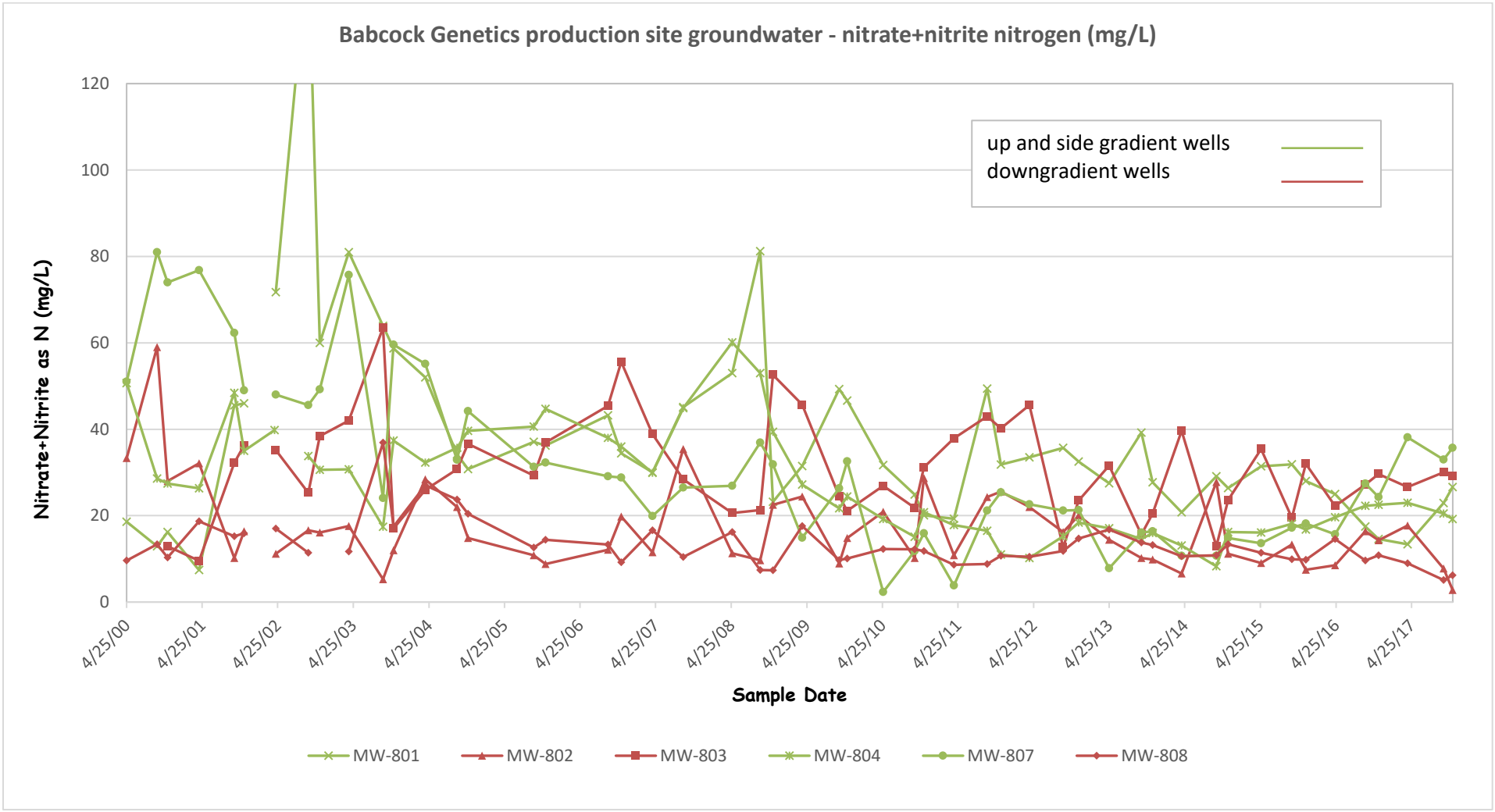
Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, *http://wi.water.usgs.gov/gwcomp/*

<u>Babcock Genetics production site map</u> with groundwater monitoring well locations (1997 Davey Engineering Babcock Swine site layout map)



Babcock Genetics production site groundwater nitrate results graph



Substantial Compliance Determination

Permittee Name: Babcock Genetics LLC		Permit Number: 0056529-06-0
	Compliance?	Comments
Discharge Limits	Yes	
Sampling/testing requirements	Yes	
Groundwater standards	Yes	
Reporting requirements	Yes	
Compliance schedules	Yes	
Management plan	Yes	
Other:	Yes	
Enforcement Considerations		
In substantial compliance?	Yes Comments: Permit construction schedules are proposed for additional groundwater monitoring and evaluation of permanent manure storage and transfer facilities. Signature: Michelle Scarpace Date: 8-15-2017 Concurrence: Benjamin Uvaas Date: 12-18-2018	