State of Wisconsin
Department of Natural Resources

dnr.wi.gov

Final Report

Targeted Runoff Management Grant Program and Urban Nonpoint Source and Storm Water Management Grant Program

Form 3400-189 (R 11/05)

Notice: This final report is authorized by ss. 281.65 and 281.66, Wis. Stats., and chs. NR 153 and NR 155, Wis. Adm. Code. Personally identifiable information collected will be used for program administration and may be made available to requesters as required under Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Instructions: The grant agreement requires grantees to submit a Final Report 60 days after the end date listed in the grant agreement. This Final Report form must be used in conjunction with the "FINAL REPORT INSTRUCTIONS." The instructions detail how to complete and submit the report to DNR.

1. Grant Type

☒ Agricultural - Targeted Runoff Management Grant

☐ Urban - Targeted Runoff Management Grant

☐ Construction - Urban Nonpoint Source & Storm Water Management Grant

☐ Planning - Urban Nonpoint Source & Storm Water Management Grant

2. Grantee & Project Information

Project Name	Grant Number
Meyer Groundwater Improvement and Protection	**TRC-~~MA-08000-04~~** MA05-08000-04
Governmental Unit Name	Governmental Unit Type (city, village, town, etc.)
Calumet County Land and Water Conservation Department	**County**
Watershed Name	Watershed Code
South Branch Manitowoc River	**MA05**
DNR Water Management Unit (River System) Name	Water Body Identification Code (WBIC) (if applicable)
Manitowoc	

s. 303(d) Waterbody? ☐ Yes ☒ No

What pollutant(s) were addressed by the project?

animal waste

For <u>each</u> project site location provide the following: (attach additional sheets if necessary)

Location:		A	B	C	D	E
Minor Civil Division Name		**Stockbridge**	**Chilton**			
PLSS	Town	**18**	**18**			
	Range	**19**	**19**			
	Section	**18**	**14**			
	Quarter	**2**	**4**			
	Quarter-Quarter	**2**	**3**			
Latitude		**88°16'59"W**	**88°11'31"W**			
Longitude		**44°2'7"N**	**44°1'23.7"N**			
Property Owner(s)	Name	**Gerald A. & Antoinette Meyer**	**Gerald Meyer Sr. ETUX**			
	Mailing address	**W3069 Quinney Rd., Chilton, WI 53014**	**W3069 Quinney Rd., Chilton, WI 53014**			
Site address *(if different than mailing address)*		**W4898 County Hwy F**				

3. Summary of Results

A. Performance Standards and Prohibitions and Other Water Resources Management Priorities

For grants issued in calendar year 2006 or later, complete Tables A and B (following) consistent with the entries on your grant application. For grants issued prior to calendar year 2006, complete Tables A and B, *to the best of your knowledge*, consistent with the entries on your grant application.

Table A. Performance Standards and Prohibitions (per ch. NR 151, Wis. Adm. Code, effective October 1, 2002)

Performance Standard or Prohibition	Units of Measure	Quantity	Measurement Method Used
Sheet, rill and wind erosion	Acres meeting T		
Manure Storage Facilities: New Construction/Alterations	Number of facilities	1	Number
	Number of animal units		
Manure Storage Facilities: Closure	Number of facilities	1	Number
Manure Storage Facilities: Failing/Leaking Facilities	Number of facilities		
	Number of animal units		
Clean Water Diversions in WQMA	Pollutant load reduction		
	Number of farms with diversions		
	Number animal units		
Nutrient Management on Agricultural Land	Acres planned		
Prohibition: Manure Storage Overflow	Number of facilities		
	Number of animal units		
Prohibition: Unconfined Manure Pile in WQMA	Number of farms		
Prohibition: Direct Runoff From Feedlot/Stored Manure	Pollutant load reduction		
	Number of facilities	1	Number
	Number of animal units		
Prohibition: Unlimited Livestock Access	Feet of bank protected		
	Number of farms		
Urban: 20-40% Reduction in Total Suspended Solids (TSS)	Pounds TSS reduced		
	% TSS reduction		

Table B. Other Water Resources Management Priorities

I. Agricultural Areas	Units of Measure	Quantity	Measurement Method Used
Buffers	Feet of bank protected		
	Number of farms		
Streambank	Tons of bank erosion reduced		
	Feet of bank protected		
Other (specify)			
II. Developed Urban Areas	**Units of Measure**	**Quantity**	**Measurement Method Used**
Urban: 20-40% Reduction in TSS	Pounds TSS reduced		
	% TSS reduction		
Infiltration	% Pre-development stay-on volume		
	Cubic feet stay-on volume		
Peak flow discharge	Change in cubic feet per second		
Protective areas	Feet of bank protected		
Fueling & maintenance areas	Oily sheen presence		
Streambank	Tons of bank erosion reduced		
	Feet of bank protected		
Other (specify)			
III. Planning	**Units of Measure**	**Quantity**	**Measurement Method Used**
Quantify how implementation of the planning project decreased storm water impacts on state waters (*i.e.*, storm water plan, I & E plan, *etc.*)	Municipalities planned for		
	Acres planned for		
Document/track progress made in implementing the planning product (*i.e.*, ordinance, utility district evaluation/formation, storm water management plan information & education, *etc.*)	Municipalities planned for		
	Acres planned for		
Other (specify)			

B. Project Results Narrative

The purpose of this project was to reduce groundwater contamination from animal waste. Private wells at and down slope of the project site had unsafe levels of nitrates and/or bacteria. An old earthern manure storage and a barnyard/feed lot for 300 heifers on the project site were thought to be a major contributing source to the groundwater constamination. The project site is located on shallow and exposed bedrock. Original plans for the project were to install a barnyard runoff control system (including a liquid tight feedlot), to properly fill in the old earthern manure storage, and to install a new manure storage system. After further site investigations, a decision was made with concurrence from DNR to implement a more cost effective solution. The animals were relocated to a more environmentally "safe" site (animal lot abandonment with relocation) and a new animal building, an animal waste storage system, and a barnyard runoff system were installed at the new site for a lower cost than that estimated for the original project site. The earthen storage at the original project site was properly abandoned. A land use restriction was also recorded on the original site and surrounding land parcels (105 acres) to permanently restrict livestock from using or being kept on the site and adjacent parcels. The owner of the project site and land area was also required to develop and implement a nutrient management plan for all of his owned and rented land.

Pre-project evaluations included direct observations of bedrock depth on the project site and of the soil beneath the earthen storage and water testing of private wells on-site and downslope of the site. Exposed bedrock was observed in at least 2 areas of the pasture/feedlot. Rocks on the surface in other areas indicated that bedrock was within 1 - 2 feet of the surface. Discussions with the landowner affirmed this. A shelf of bedrock was observed directly underneath the barn, about 20 feet south of the earthen manure storage. The bedrock extended above the surface of the manure storage. When the earthen manure storage was emptied, an observation pit was dug in the bottom of it. Large pieces of what appeared to be fractured bedrock were found 5 - 7 feet below the storage bottom. The soil in the side embankments and bottom of the storage was light textured and saturated with manure to a width/depth of up to 5 feet. Based on these observations, it is very likely that animal waste from the barnyard and manure storage were entering the bedrock. Since livestock were permanently relocated off of the site and the manure storage was properly abandoned, the pollutant loads from these sources to groundwater were eliminated at this site.

The condition of the groundwater at and downslope of the site has been and continues to be monitored. Prior to the project, well water from a private well on-site and wells within 3 miles downslope of the site was tested for nitrates and bacteria. Results indicated that the well water on site and in at least 19 other wells was unsafe due to high nitrate levels and/or bacteria. In cooperation with DNR, the well on the project site and four wells downslope were chosen for further and more detailed testing at 1 -3 month intervals for one year. Testing will include nitrate levels and concentrations of coliform bacteria and Ecoli bacteria, to track and analyze groundwater quality trends. The well owners will be asked to test continue testing for nitrate levels and bacteria presence at 12 month intervals for two more years. Testing results will be mapped and analyzed to see if groundwater quality on site and downslope improves. These five wells were tested just prior to project completion and one month after project completion. Nitrate levels remained the about the same in all of them and coliform bacteria concentrations decreased in all of them. Three of the wells tested positive for Ecoli prior to project completion and negative afterward. More time and testing results are needed to determine trends in groundwater quality and whether long term improvements in area groundwater quality will occur as a result of the project. Calumet County Land and Water Conservation Department will continue monitoring activities for the next 3 years and will make these determinations.

The previous condition of this project site and the impacts of it on the groundwater resource have been used in at least five educational presentations to farmers and rural landowners and in two nutrient management workshops for farmers.

The project site landowner will be issued a notice that the site complies with NR151.09 performance standards related to manure storage, closure of manure storage, and runoff, once standard procedures and form are developed for Calumet County. It is anticipated that the procedures and forms will be developed as part of the update of the Calumet County Land and Water Resource Management Plan in 2006. A process to track, evaluate, and report statue of compliance with NR151 will also be developed at that time.

4. Satisfaction of Notice Requirements (if applicable)

If cost sharing for this project was offered under a formal notice to achieve compliance with performance standards or prohibitions, provide information for each notice in the table below.

Notice Information				Notice Satisfaction Information		
				Satisfied?		
Notice Type	Issue Date	From (Name)	To (Name)	Yes	No	Date Letter Sent
				☐	☐	
				☐	☐	
				☐	☐	
				☐	☐	

5. Summary of Project Challenges

One of the intial challenges of this project was to design the best management practices listed in the grant application for the project site. Further field investigations of the site and discussions with the owners indicated that bedrock was shallower in some areas than originally estimated. This was especially true under the footprint of the barn. It added complexity to the design of best management practices, such as the manure storage and transfer system, and increased the potential cost of them. After a cost analysis and concurrence from DNR staff, it was decided that a cheaper alternative was to relocate the operation to a more environmentally friendly site.

Many DNR forms for projects like this require listing land descriptions in sections and quarter/ quarter of sections. Two of our townships in Calumet County are described in government lots instead of sections. We were asked to convert them to sections for some forms and did this by looking at other maps which wrongfully show section lines in these townships. We recommend that DNR and other state agencies convert their forms and maps to allow the location of projects in government lot land description.

6. Additional Information about the Project (optional)

See attached photos of project site.

7. Planning Product (UNPS&SW - Planning Projects only)

☐ Check here if a printed copy of the planning product (e.g., plans, ordinances, analyses) was sent to your DNR Regional Nonpoint Source Coordinator.

Name of Document	Date(s) effective	Date Submitted to NPS Coordinator

8. Grantee Certification:

☒ Check here to certify that, to the best of your knowledge, the information contained in this report is correct and true.

Type or print Name and Title of Authorized Representative certifying here.

William P. Craig, County Administrator

Signature of Authorized Representative	Date

BARNYARD AND OLD EARTHEN STORAGE - MEYER GROUNDWATER PROJECT – TRC-MA05-08000-04

OLD EARTHEN STORAGE – MEYER GROUNDWATER PROJECT – TRC-MA05-08000-04

MANURE SOAKED BOTTOM AND SIDEWALLS AND STORAGE CLOSURE
MEYER GROUNDWATER PROJECT – TRC-MA05-08000-04