Wisconsin Department of Natural Resources
Bureau of Watershed Management (WT/3)
101 S. Webster Street
PO Box 7921
Madison, WI 53707-7921
dnr.wi.gov

Final Report

Agricultural Targeted Runoff Management & Notice of Discharge Grant Programs

Form 3400-189A (R 8/15)

NOTICE: This document is required under s. 281.65, Wis. Stats., and chs. NR 153 and 154, Wis. Adm. Code. A final project report must be submitted as part of the final reimbursement request. Personally identifiable information contained in this form will be used for determining reimbursement eligibility in the Targeted Runoff Management and Notice of Discharge Grant Programs and will not be used for any other purpose.

INSTRUCTIONS: Send the completed, electronic copy of this form and all attachments to the Department of Natural Resources (DNR) Region Nonpoint Source Coordinator. Please read all instructions prior to completion.

Grant Type

Select Grant Type: Small Scale Non Total Maximum Daily Load (TMDL)

Project Name & Location

Project Name		
Terry Brost Manure Storage Project		
Grant Number	**Governmental Unit Name**	
TRC-CW18-37000-15B	Marathon County Conservation Planning and Zoning	
County	**Watershed Name**	**12-Digit HUC**
Marathon	Upper Big Eau Pleine River	070700021504
Project Contact Name	**Phone Number**	**E-mail Address**
Ken Pozorski	(715) 261-6004	ken.pozorski@co.marathon.wi.us

☐ For a project with multiple site locations, an aerial photo map is attached with each site location labeled.

Site Location - 1

Name of Cost-Share Recipient					Animal Units	Nearest Receiving Waterbody	
Terry Brost					465	Raeder Creek	
Township	**Range**	**E / W**	**Section**	**Quarter**	**Quarter/Quarter**	**Latitude**	**Longitude**
27	02	E	2	SW	NE	44.8475	-90.2299

Compliance Requirements - 1

Chs. NR 151 or 243 Wis. Adm. Code Notice Type	Notice letter attached	Compliance achieved? If no, explain in site information	Compliance determination letter attached
NR 151	☒	◉ Yes ○ No	☒

☒ Attached is a copy of the written statement the County provided to the landowner and cost-share recipient of the landowner's obligation to maintain compliance with performance standards & prohibitions on cropland and livestock facilities addressed by the cost-share agreement. Compliance at these sites must be maintained in perpetuity regardless of future cost sharing. The County has also placed a copy of this written statement in the County files.

Summary of Results - 1

Best Management Practice Installed	Quantity	Unit of Measure	Performance Standard/Prohibition Addressed	Total Installation Cost	Load Reduction Phosphorus lbs/yr	Load Reduction Nitrogen lbs/yr	Load Reduction Sediment Tons/yr
Manure Storage Systems	1	No.	Code(s) 1,3,4,7,9,10,11,12	$195,832.00	571		
Waste Transfer Systems	1	No.	Code(s) 4	$23,897.00			
Milking Center Waste Control Systems	1	No.	Code(s) 7	$5,000.00	290	365	
Barnyard Runoff Control Systems	1	No.	Code(s) 12	$4,737.00	59.0		

Site Location Attachment - 1

Check the box if the required information for the site is attached: 229,462

☒ Photos of pre-and post-implementation of BMP(s)
☒ Load reduction modeling documents
☒ Aerial photo map of site with BMPs labeled
☐ Water quality monitoring results/summary, if applicable

Site Information - 1

Narrative space will expand to fit

The project was very well managed and coordinated. Landowner took special interest in making sure that project was completed correctly and met standards and specification. Due to conditions this late fall, landowner was not able to

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complete the pasture fencing to remove cattle access along adjacent stream. The fencing will be completed next year without any additional cost share monies.

☒ DNR may use this site as a success story to meet state and federal reporting needs.

Additional Project Information and/or Comments

Narrative space will expand to fit

Grantee Certification

A responsible government official (authorized signatory) must authorize and date the final report form prior to submittal to DNR.

I certify that, to the best of my knowledge, the project is complete and the information contained in this final report and attachments are correct and true.

Name of Authorized Government Official	Title of Authorized Government Official	Date
Paul Daigle:	Senior CPZ Manager	11/11/2015

For DNR Use Only

☒ Received complete reports with all attachments ☒ Practices implemented were consistent with the grant agreement

Comments about this project: Potential/estimated Nonpoint Soure reductions for installation of Manure storage and 100% collection of Barnyard runoff and Milkhouse waste with assumption of NO winter spreading and full implementation of a NMP = 930 lb/yr/f

Name of Region Nonpoint Source Coordinator Terence Kafka Date 11/13/2015

Send the Final Report and attachments to the Community Financial Assistance Grants Manager and to the Runoff Management Grant Coordinator. Keep a printed copy for the Region file.

MARATHON COUNTY

November 12, 2015

Terry and Casey Brost
B4751 Wigan Ave
Unity, WI 54488

Subject: Compliance of Performance Standards and Prohibitions

Dear Terry and Casey Brost,

Thank you for your most recent efforts to improve and protect our state's water resources. This letter is to acknowledge that you have successfully implemented nonpoint source pollution control best management practices on your farm under cost-share agreement 2015-01(TRM). Installing practices under this cost share agreement has brought you into compliance with performance standards and prohibitions as described in the table below.

Name and Citation of Standard/Prohibition	Identification of Parcel Where Compliance Was Achieved
Manure Storage Facilities: new construction & alteration. NR 151.05(2)	T27N R2E Sec.2 NE1/4 of the SW1/4 Parcel # 01027020230999
Process wastewater handling. NR 151.055	T27N R2E Sec.2 NE1/4 of the SW1/4 Parcel # 01027020230999
Manure management prohibitions. NR 151.08(3), (4), and (5)	T27N R2E Sec.2 Parcels # 01027020230999, 01027020230995, 01027020240997, and 01027020220993
Nutrient management. NR 151.07	All cropland and pasture acreage identified within 2015 Nutrient Management Plan
Sheet, rill, and wind erosion NR 151.02	All cropland and pasture acreage identified within 2015 Nutrient Management Plan
Phosphorus index. NR 151.04	All cropland and pasture acreage identified within 2015 Nutrient Management Plan

In accordance with ch. NR 151, Wis. Adm. Code, any cropland practice, pastures, or livestock facility that is brought into compliance with a state performance standard or prohibition must remain in compliance in perpetuity regardless of future cost sharing. Since you are now deemed in compliance with state standards and prohibitions as identified above, it is required that you and any future landowners or operators maintain compliance with the standards and prohibitions at the parcels identified.

Conservation, Planning and Zoning Department
210 River Drive • Wausau, Wisconsin 54403-5449
Phone 715-261-6000 • Marathon County 800-236-0153 • Fax 715-261-6016

This letter only addresses the compliance status on your farm resulting from practices installed under the cost share agreement identified above. There may be additional information on file for your farm concerning your compliance status with state performance standards and prohibitions. If you have any further questions, please contact Ken Pozorski at 715-261-6004, Ken.Pozorski@co.marathon.wi.us

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Sincerely,

Cc: Terry Kafka – DNR
Water Resource Management Specialist

EXISTING BUFFER P OUTPUT (Based on BARNY)

Farmer: Terry Brost Planner/Designer: Pozorski Date: 11/10/15

Pre-construction

	Input	Output	
			1 Madison
			2 Appleton
Closest City of similar climate:	3		3 Wausau
			4 Eau Claire
Paved lot area:	10,690		sq ft
Earth lot area:			sq ft
Animal Lot size:		10,690	sq ft
Is there a designed settling basin?	2		Yes= 1; No= 2
Animals on lot:	325 number		number
Type of animal:	1		(Dairy = 1;Beef=2)
Ave. Animal Weight:	1,400 lbs		lbs
Lot Use:	1		1= Heavy;2=Med;3= Light)

TRIBUTARY AREAS

Tributary area:		sq ft		sq ft
Runoff Curve Number:				← See RCN tab below for typical values
Roof Trib. area:	0	sq ft		

59.0 lbs P per year at downstream lot edge

Enter Existing Buffer Data:

Length:	700	ft
Width:	20	ft
Buffer area:		
Slope:	3	%
c value	0.15	For c values see table below

P Output: 27.2 lb

EXISTING BUFFER P OUTPUT (Based on BARNY)

Farmer: Terry Brost Planner/Designer: Pozorski Date: 11/10/15

~~Pre-construction~~
Post Const.

	Input	Output	
			1 Madison
			2 Appleton
Closest City of similar climate:	3		3 Wausau
			4 Eau Claire
Paved lot area:	10,690		sq ft
Earth lot area:			sq ft
Animal Lot size:		10,690	sq ft
Is there a designed settling basin?	2		Yes= 1; No= 2

Animals on lot:	325	number	number
Type of animal:	1		(Dairy = 1;Beef=2)
Ave. Animal Weight:	1,400	lbs	lbs
Lot Use:	1		1= Heavy;2=Med;3= Light)

TRIBUTARY AREAS

Tributary area:		sq ft		sq ft
Runoff Curve Number:				← See RCN tab below for typical values
Roof Trib. area:	0	sq ft		

59.0 lbs P per year at downstream lot edge

lbs - Saved.

Totally Contained System - pumped to Storage

Enter Existing Buffer Data:

Length:	700	ft
Width:	20	ft
Buffer area:		
Slope:	3	%
c value	0.15	For c values see table below

P Output: 27.2 lb

Name Terry Brost

MANURE STORAGE RATING
SURFACE WATERS

DATE: October 17, 2013
BY: kjp

Ver 1.1 4/21/97

IS THERE ENOUGH CROPLAND TO HANDLE NITROGEN IN MANURE ? NO

Total manure collected in year:	6844	tons
Acres needed to use avail. N :	236	acres
Acres available to spread on :	65	acres

IF ALL WINTER MANURE WERE SPREAD ON LOW HAZARD ACRES, WOULD THERE BE ENOUGH ACRES AVAILABLE ? NO

Acres needed to take winter manure:	176	acres
Low hazard and winter spreadable :	122	acres
ACRE DEFICIT:	54	acres

IF ALL MANURE IS STORED AND MANAGED AS A NUTRIENT, HOW MUCH PHOSPHORUS WILL BE SAVED? 571 lbs of P saved

P saved due to no winter spreading:	322	lbs P
P saved due to nutrient management:	249	lbs P

SPACE TO TRY RATING METHODS:

(Try basing 50% on P saved and 50% on high hazard acre ratio)

P saved-	50		
High Haz. Ratio-	20	Rating (0 to 100)=	70

VOLUME OF MANURE PRODUCED

A. Critical Winter Period : 180 days
% of manure collected in summer= 60 %

B. Manure produced during critical period (bedding not included):

TYPE	NUMBER	WEIGHT	1000# AU	MAN/DAY	TOT/DAY	lbs of P
Cows	350	1400	490	2.2	784	53
Heifers		700	0	1.1	0	0
Calves		300	0	0.5	0	0
Beef		1000	0	1.1	0	0
Swine		200	0	0.3	0	0
Poultry		3	0	0.0	0	0
			490 A.U.		784 cu ft	53

TOTAL FOR CRITICAL PERIOD: 141120 cu ft

C. Manure from B which is not spread on land during
critical period: (1=Dairy, 2=Beef, 3=swine, 4=poultry)

Existing storage:	0 cu. ft.	1 Type of Manure
Manure pack:	0 cu. ft.	1 Type of Manure
Dry lot:	0 cu. ft.	1 Type of Manure
___(Other)___	0 cu. ft.	1 Type of Manure
TOTAL	0 cu. ft.	

D. Totl manr spread in the winter: 141120 cu ft 4234 tons
Total manure spread in summer : 87024 cu ft
Total manure spread in year : 228144 cu ft 6844 tons

PRINTING

Alt P- First two pages Alt A- Rest of Fields Alt B- Write-up

PRECEDURE FOR FIGURING HIGH HAZARD ACRES

A. Identify and map all water bodies and discharge points
as defined in Section 1.4, Wis Tech Note 1
(Use Soil map, FSA aerial photo including fields, & USGS Quad)

B. Enter all available fields below. Group fields if desired.
Total acres entered below : 415 acres
High Haz 166 ac Low Haz.: 249 ac

INPUT TO BALANCE TOTAL MANURE TO SPREADABLE FIELDS BY NITROGEN

Typical rate of Nitrogen per acre? 120 lbs
Typical Rotation Length ? 6 years
Manure is spread how many years in rotation ? 3 years
Typical ratio (Spread ac/ Total ac) = 0.50 Ratio

Terry Brost

INDIVIDUAL FIELD ANALYSIS

Field numbers: (Include rented land if spread on)

-	-	-	-	-		

Acres in field (if accessible during critical period):

415.0	0.0	0.0	0.0	0.0	0.0	0.0

-- Excluded acres below only count once.

High pollution hazard areas: (Wisconsin Technical Note 1)

172.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Areas with excessive slope (See Standard 590 p. 5):							
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
----------Low hazard acres:----------							
243.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Years corn/Years of rotation: eg. C2OH3 = 2/6							
0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acres left assuming spreading on corn 2,3 etc. and hay 1							
122.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SPRING RUNOFF:	High Hazard-	3 lbs lost per acre
	Low Hazard-	1 lbs lost per acre

Acres at rate of 54 lbs of P per acre	176	acres
Ratio of high hazard acres to total acres	0.41	ratio
P lost per acre based on high haz. acre ratio	1.83	lb P per acre
Total lost in spring runoff	322	lbs

MASS LOAD: lbs gained per acre	High Delivery :	2 lbs per acre
	Low Delivery :	1 lbs per acre

Acres at rate of 54 lbs of P per acre	176	acres
Ratio of high delivery acres to total acres	0.41	ratio
P lost per acre based on high delivr. acre ratio	1.41	lb P per acre
Total P gained by mass load reduction	249	lbs

Total gained from both spring runoff and MASS LOAD 571 lbs

TABLE 1

Species/mgmt	% Dry Matter	N	TOTAL P2O5	K2O
		lb/ton		
Dairy,solid, fresh	12.7	10	5	10
Beef, solid, fresh	11.6	14	9	11
Swine, solid, fresh	9.2	10	6	9
Poultry, solid, fresh	25.2	25	25	12

N (Avail)		
97		Lbs of P versus P2O5:
0		If 75 lbs of available P2O5 is spread,
0		it's equivalent to 125 lbs of total P2O5
0		(5 lbs vs 3 lbs)
0		and 54 lbs of P (2.3 lbs of P2O5 = 1 lb of P).
0	180	
---	185	
97	28290	= Total N collected

0
0
0
0
0 = Total P2O5
not spread

9510 = Total P produced
0 = Total P not spread (from J49)

9510 = Total P spread during critical period
5865 = Total P spread during summer
15375 = Total P spread during year

17499 = Total N produce
0 = N not spread

17499 =Total N spread

SURFACE WATER

Low hazard acres:	243.0	acres
High hazard acres:	172.0	acres
Low hazard and spreadable during winter :	122.0	acres

section 4

SOURCE CONTROL

Sources and Characteristics of Milking Center Wastewater

Washing milking and milk cooling equipment contribute waste milk, cleaning compounds and sanitizers to the wastewater discharge. Frequently, excess colostrum and antibiotic treated milk is poured into the floor drain contributing to the wastewater discharge. Milkroom wash down can contain dirt, floor lime, feed particles, and manure. Water softener discharge can contribute chloride, calcium and magnesium to the discharge. The above is common to both milking parlors and stanchion barn pipeline milking systems. In addition to the above, wash down of milking parlors and holding areas can contain waste milk, manure, feed and soil. Management can greatly affect the quantity and level of contamination in the milking center wastewater discharge.

Table 5 provides some values for the various discharge quantities and contamination levels. By including flows from the various components of a system, one can see how the quantity and contamination level varies. One must realize how significant the management factor contributes to the degree of contamination. Source control practices can reduce the volume and quantity of contaminants discharged from the milking center.

Table 5 *Dairy waste characterization - milking center*[d]

Component	Units	Milk House Only	Milk House & Parlor	Milk House, Parlor, & Holding Area[a]	Milk House, Parlor, & Holding Area[b]
Volume	ft³/day/1000lb	0.22	0.60	1.40	1.60
Water Volume	gal/d/ay/1,400 lb cow	2.3[c]	6.3[c]	14.7[c]	16.8[c]
Moisture	%	99.72	99.40	99.70	98.50
Total Solids	% wet basis (w.b.)	0.28	0.60	0.30	1.50
Volatile Solids	lb/1,000 gal	12.90	35.00	18.30	99.96
COD (chemical oxygen demand)	lb/1,000 gal	25.30	41.70	-	-
BOD_5	lb/1,000 gal	-	8.37	-	-
N	lb/1,000 gal	0.72	1.67	1.00	7.50
P	lb/1,000 gal	0.58	0.83	0.23	0.83
K	lb/1,000 gal	1.50	2.50	0.57	3.33

Brost Farm: 4 gal/cow/day × 350 cows = 1400 gal/day

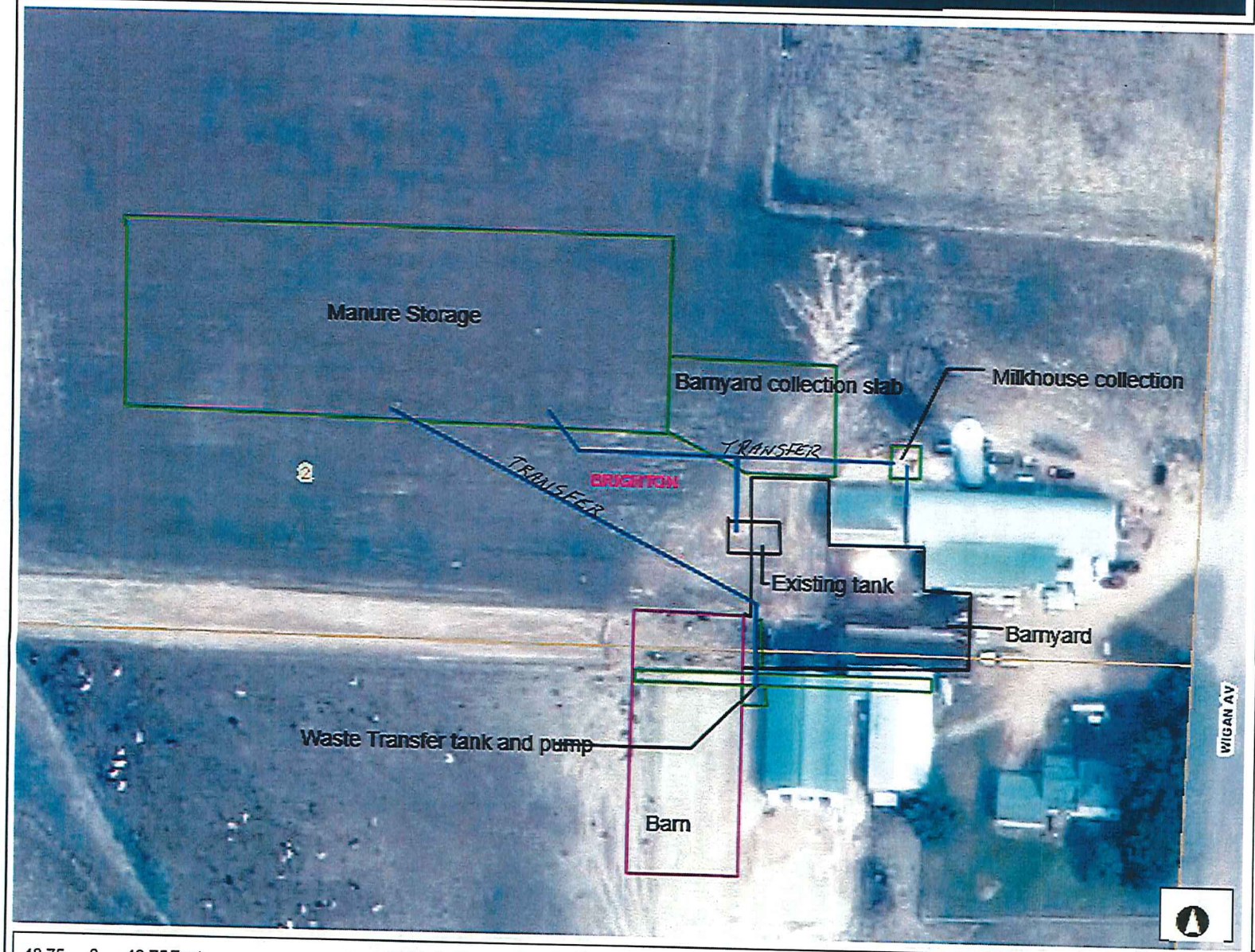
[a]Holding area scraped and flushed – manure excluded.
[b]Holding area scraped and flushed – manure included.
[c]These values may vary by up to 500%.

[d]Wright and Graves, 1992

1,400 gal/day ÷ 1000 = 1.4 × 8.3 × 365 days/yr ≅ 4,200 lbs - BOD
1,400 gal/day ÷ 1000 = 1.4 × 0.72 × 365 days/yr ≅ 365 lbs - N
1,400 gal/day ÷ 1000 = 1.4 × 0.58 × 365 days/yr ≅ 290 lbs - P

BMP MAP

Land Information Mapping System



Legend

- Parcel Annotations
- Parcels
- Land Hooks
- Section Lines/Numbers
- Right Of Ways
- Municipalities
- 2010 Orthos
  - Red: Band_1
  - Green: Band_2
  - Blue: Band_3

48.75 0 48.75 Feet

User_Defined_Lambert_Conformal_Conic

DISCLAIMER: The information and depictions herein are for informational purposes and Marathon County-City of Wausau specifically disclaims accuracy in this reproduction and specifically admonishes and advises that if specific and precise accuracy is required, the same should be determined by procurement of certified maps, surveys, plats, Flood Insurance Studies, or other official means. Marathon County-City of Wausau will not be responsible for any damages which result from third party use of the information and depictions herein or for use which ignores this warning.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

MARATHON COUNTY

February 23, 2014

Terry Brost
B4751 Wigan Ave
Unity, WI 54488

Mr. Brost,

Based on a visit to your farm made on May 29, 2013 with Terry Kafka (WI DNR), the Marathon County Conservation, Planning and Zoning (CPZ) Department recognizes the potential environmental hazards and management consequences that results from the manure handling system and the process wastewater discharge on your farm. In addition, the Department identified that the manure handling area and process wastewater contributes direct runoff and significant discharge into waters of the state. .

Because the manure loading and handling and the milking center area pose a threat to environmental resource and a possible threat to public health, Marathon County has deem the following activities to be in violation of the Marathon County Waste Storage Facility and Nutrient Management Code, as well as a violation of the State's Agricultural Performance Standards and Prohibitions found within Administrative Code NR 151:

1. A livestock operation shall have no direct runoff from a feedlot or stored manure into the waters of the state. NR 151.08(4).
2. There may be no significant discharge of process wastewater to waters of the state. NR 151.055(2).

Based upon these activities, the County believes that it is necessary for you to construct a long-term waste storage facility to properly manage the waste production and process wastewater on the farm. The installation of this Best Management Practice (BMP) would provide you the flexibility to manage manure distribution according to a nutrient management plan with minimal runoff.

Therefore, the CPZ has agreed to apply for a Targeted Resource Management Grant to the Department of Natural Resource (DNR) to provide financial and technical assistance for the installation of a long-term waste storage facility on your farm. Based upon the potential environmental issues, local ordinance requirements, and Administrative Code NR 151, the CPZ Department has prioritized the workload to pursue the installation of the BMP on your farm. Grant selection by the DNR will be announced by December of 2014.

If the CPZ Department is successful in obtaining a Targeted Resource Management Grant, I will contact you with an offer of cost-share assistance to install a long-term

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Phone 715-261-6000 • Marathon County 800-236-0153 • Fax 715-261-6016

waste storage facility on your farm. If cost sharing is made available to you and you fail to implement the approved corrective measure, enforcement action may be taken by Marathon County under local ordinance authority.

Your cooperation is greatly appreciated. Feel free to contact me if you have any questions.

Sincerely,

Ken Pozorski
Conservation Specialist II

cc: Terry Kafka, DNR Region Nonpoint Source Coordinator