

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 Haas Manure Storage Project							
Grant Number TRC-CW18-37000-14				Governmental Unit Name Marathon County			
County Marathon		Watershed Name Upper Big Eau Pleine		12-Digit HUC 070700021505			
Project Contact Name Ken Pozorski			Phone Number (715) 261-6004		E-mail Address Ken.Pozorski@co.marathon.wi.us		
<input type="checkbox"/> 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 Jeremy Haas				Animal Units 160		Nearest Receiving Waterbody Unnamed: WBIC-5011654	
Township 28	Range 02	E / W E	Section 14	Quarter SW	Quarter/Quarter NW	Latitude 44.906002	Longitude -90.236917
Compliance Requirements - 1							
Chs. NR 151 or 243 Wis. Adm. Code Notice Type NR 151		Notice letter attached <input checked="" type="checkbox"/>	Compliance achieved? If no, explain in site information <input checked="" type="radio"/> Yes <input type="radio"/> No			Compliance determination letter attached <input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> 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	Phosphorus lbs/yr	Nitrogen lbs/yr	Sediment Tons/yr
Manure Storage Systems	1	No.	Code(s) 4,6,9,10,12	\$34,643.32	133	?	N/A
Manure Storage System Closure	1	No.	Code(s) 5,6,10,12	\$3,090.00	39.8	N/A	N/A
Waste Transfer Systems	1	No.	Code(s) 4	\$23,000.00	N/A	N/A	N/A
Access Road	350	Feet	Code(s) 4	\$5,850.00	N/A	N/A	N/A
Livestock Fencing	550	Feet	Code(s) 4	\$1,349.00	N/A	N/A	N/A
Critical Area Stabilization	2	Acres	Code(s) 4	\$813.75	N/A	N/A	4.1
Milking Center Waste Control Systems	1	No.	Code(s) 7	\$7,277.50	27.5	34	N/A
Heavy Use Area Protection	0.1	Acres	Code(s) 4	\$1,707.50	N/A	N/A	N/A

Site Location Attachment - 1

Check the box if the required information for the site is attached:

- 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

Sediment rates for Critical Area Seeding was determined using the USLE soil loss calculations. The only factor that was change in the equation was the "C" factor. 0.22 (Alfalfa/grass) VS 0.50 (Bare tilled cropland).

- 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

Project was well organized, and landowner took pride into making sure all components were installed correctly.

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	12/14/2015

For DNR Use Only

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

Comments about this project:

Completed project provides 240-days of manure storage that is based upon a projected 20% increase in AUs, which translates to approximately 190 AUs.

Total annual P reduction from Spring runoff, Mass Load, Milkhouse Waste and BARNY estimate from leaking manure storage was estimated at 200.0 lbs/P/Yr. BOD and N loading reductions resulting from capture of milkhouse waste and spring manure runoff as a result of winter spreading should also be considered in overall project success.

Name of Region Nonpoint Source Coordinator	Date
Terence M. Kafka	12/09/2015

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.



December 7, 2015
 Jeremy Haas
 H4355 Elm Rd
 Colby, WI 54421

Subject: Compliance of Performance Standards and Prohibitions

Dear Jeremy Haas,

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 2014-01(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), and 151.05(4)	T28N R2E Sec.14 NW1/4 of the SW1/4 Parcel # 04428021430998
Process wastewater handling: NR 151.055	T27N R2E Sec.2 NW1/4 of the SW1/4 Parcel # 04428021430998
Manure management prohibitions: NR 151.08(2), and (4)	T27N R2E Sec.2 NW1/4 of the SW1/4 Parcel # 04428021430998
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
Tillage setback: NR 151.03	All cropland and pasture acreage identified within 2015 Nutrient Management P

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.



COUNTY OF MARATHON

CONSERVATION, PLANNING AND ZONING DEPARTMENT

210 River Drive
Wausau, Wisconsin 54403-5449

Conservation: (715) 261-6000 Fax: 261-6016
Planning: (715) 261-6040 Fax: 261-6016
Zoning: (715) 261-6020 or 6021 Fax: 261-4116

January 17, 2013

Jeremy Hass
H4355 Elm Road
Colby, WI 54421

Mr. Haas,

Based on a visit to your farm made on December 3, 2012, the Marathon County Conservation, Planning and Zoning (CPZ) Department recognizes the potential environmental hazards and management consequences that results from a failing and leaking manure storage facility on your farm. In addition, the Department identified that your existing short-term manure storage facility at times exceeds the maximum operating level (MOL), to a point where you may have an overflow of manure. The short-term, failing and leaking manure storage facility on your farm has resulted in direct runoff of stored manure into waters of the state.

Because the storage facility 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 States Agricultural Performance Standards and Prohibitions found within Administrative Code NR 151:

1. Failing and leaking manure storage facility resulting in a direct discharge of stored manure into waters of the state.
2. Overflow of manure or non-compliance of exceeding a margin of safety level for the waste storage facilities.

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 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



Land Information Mapping System



Legend

- Parcel Annotations
- Parcels
- Land Hooks
- Section Lines/Numbers
- ▬ Right Of Ways
- ▭ Municipalities
- 2015 Orthos
- Red: Band_1
- Green: Band_2
- Blue: Band_3

72.38 0 72.38 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



Name Jeremy Haas

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: 2216 tons
Acres needed to use avail. N : 76 acres
Acres available to spread on : 65 acres

IF ALL WINTER MANURE WERE SPREAD ON LOW HAZARD ACRES,
WOULD THERE BE ENOUGH ACRES AVAILABLE ? YES

Acres needed to take winter manure: 55 acres
Low hazard and winter spreadable : 122 acres
ACRE DEFICIT: -67 acres

IF ALL MANURE IS STORED AND MANAGED AS A NUTRIENT,
HOW MUCH PHOSPHORUS WILL BE SAVED? 133 lbs of P

P saved due to no winter spreading: 70 lbs P saved
P saved due to nutrient management: 63 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- 7 Rating (0 to 100)= 57

VOLUME OF MANURE PRODUCED

A. Critical Winter Period : 180 days
% of manure collected in summer= 65 %

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

TYPE	NUMBER	WEIGHT	1000#	AU	MAN/DAY	TOT/DAY	lbs of P
Cows	85	1400		119	2.2	190	13
Heifers	35	700		25	1.1	39	3
Calves	35	300		11	0.5	17	1
Beef		1000		0	1.1	0	0
Swine		200		0	0.3	0	0
Poultry		3		0	0.0	0	0

155 A.U. 246 cu ft 17

TOTAL FOR CRITICAL PERIOD: 44280 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. Total manure spread in the winter: 44280 cu ft 1328 tons
Total manure spread in summer : 29582 cu ft
Total manure spread in year : 73861.5 cu ft 2216 tons

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PRINTING

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

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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 :	187 acres
High Haz	25 ac	Low Haz.: 162 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

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Jeremy Haas

INDIVIDUAL FIELD ANALYSIS

Field numbers: (Include rented land if spread on)

Acres in field (if accessible during critical period):

187.0	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)

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		55 acres
Ratio of high hazard acres to total acres		0.13 ratio
P lost per acre based on high haz. acre ratio		1.27 lb P per acre
Total lost in spring runoff		70 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		55 acres
Ratio of high delivery acres to total acres		0.13 ratio
P lost per acre based on high delivr. acre ratio		1.13 lb P per acre
Total P gained by mass load reduction		63 lbs

Total gained from both spring runoff and MASS LOAD 133 lbs

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TABLE 1

Species/mgmt	% Dry Matter	TOTAL		
		N	P205	K20
		-----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)	
24	Lbs of P versus P205:
5	If 75 lbs of available P205 is spread,
2	it's equivalent to 125 lbs of total P205
0	(5 lbs vs 3 lbs)
0	and 54 lbs of P (2.3 lbs of P205 = 1 lb of P).
0	180
-----	185
31	9159 = Total N collected

0		
0		
0		
0		
0	= Total P2O5	5491 = Total N produce
	not spread	0 = N not spread
		5491 =Total N spread
2984	= Total P produced	
0	= Total P not spread (from J49)	
2984	= Total P spread during critical period	
1994	= Total P spread during summer	
4978	= Total P spread during year	

SURFACE WATER

Low hazard acres:	162.0	acres
High hazard acres:	25.0	acres
Low hazard and	:	122.0 acres
spreadable during winter		

BARNY utilized to evaluate leaking (now abandoned) manure storage facility.
 All liquids were allowed to drain out of the facility.
EXISTING BUFFER P OUTPUT (Based on BARNY)

Farmer: Jeremy Haas

Planner/Designer: Pozorski

Date: 12/7/15

	Input	Output	1 Madison 2 Appleton 3 Wausau 4 Eau Claire
Closest City of similar climate:	<input type="text" value="3"/>		
Paved lot area:	<input type="text" value="8,480"/>	sq ft	
Earth lot area:	<input type="text"/>	sq ft	
Animal Lot size:		8,480 sq ft	
Is there a designed settling basin?	<input type="text" value="2"/>	Yes= 1; No= 2	
Animals on lot:	<input type="text" value="85"/>	number	
Type of animal:	<input type="text" value="1"/>		(Dairy = 1; Beef=2)
Ave. Animal Weight:	<input type="text" value="1,400"/>	lbs	
Lot Use:	<input type="text" value="1"/>		1= Heavy;2=Med;3= Light)

TRIBUTARY AREAS

Tributary area:	<input type="text"/>	sq ft	<input type="text"/>	sq ft
Runoff Curve Number:	<input type="text"/>		<input type="text"/>	← See RCN tab below for typical values
Roof Trib. area:	<input type="text"/>	sq ft		

46.8 lbs P per year at downstream lot edge

Enter Existing Buffer Data:

Length:	<input type="text" value="650"/>	ft
Width:	<input type="text" value="4"/>	ft
Buffer area:		
Slope:	<input type="text" value="4.5"/>	%
c value	<input type="text" value="0.15"/>	For c values see table below

P Output: lb

Table 3 *Milkhouse wastewater characteristics from nine southwestern Ontario, Canada dairy farms (Hayman, 1988)*

Herd size (cows)	Washwater Volume (gallons/day)	Total Phosphorous (lb/year)	Soluble Phosphorous (lb/year)	Suspended Solids (lb/year)
35	98	42	7	110
28	89	72	26	22
48	144	100	44	122
53	164	43	19	131
50	78	107	52	26
60	141	90	30	211
35	67	11	1.3	15
35	146	74	58	208
50	433	104	71	676
43	151	79	39	168

Ave: 130

Wastewater Contaminants

Each contaminant affects water quality and the effectiveness of the treatment system. The main contaminants are discussed below.

Solids

Solids in milking center wastewater come from waste milk, cleaning agents, waste feed, manure, and hoof dirt. Total solids content of milking center wastewater ranges from 1,600 milligrams per liter (mg/L) to 7,000 mg/L (Lindley, 1979; Weil, 1991; Finlayson, C., 1995). Estimates of annual total solids contributions from milking center wastewater on a per-farm basis vary from less than 660 lb. (Hayman, 1988) to as much as 30,000 lb. (Zall, 1972).

Organic solids are a source of particular concern. In aerobic environments bacteria break down organic solids in a process requiring oxygen. The amount of oxygen required is called the biochemical oxygen demand (BOD₅), usually expressed as milligrams (mg) of oxygen consumed per liter (L) of solution. The BOD₅ of milking center wastewater is highly variable, ranging from 3.00 mg/L to nearly 10,000 mg/L (Zall, 1972; Lindley, 1979; Sherman, 1981; Finlayson, C., 1995).

The greatest contributor to the BOD₅ of milking center wastewater is waste milk. Raw milk has a BOD₅ of about 100,000 mg/L (Loehr, 1974), and bacteria consume 1.2 lb. of dissolved oxygen (DO) for every pound of milk solids (Atherton, 1971).

Contamination of milking center wastewater with milk creates an anaerobic (without oxygen) environment unless steps are taken to prevent this result. An anaerobic environment is less efficient than an aerobic (with oxygen) one; breakdown of the organic matter is slower and odors are produced.

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	ft ³ /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

$$130 \text{ gal/day} \times 365 \div 1000 = 47.45$$

^aHolding area scraped and flushed - manure excluded.

^bHolding area scraped and flushed - manure included.

^cThese values may vary by up to 500%.

^dWright and Graves, 1992

$$\text{BOD} \quad 47.45 \times 8.37 = 397.165$$

$$\text{N} \quad 47.45 \times 0.72 = 34.164$$

$$\text{P} \quad 47.45 \times 0.58 = 27.519$$