Montana Department of
ENVIRONMENTAL QUALITY
WATER PROTECTION BUREAU

Agency Use	
Permit No.:	MTG010192
Date Rec'd	2/3/9
Amount Rec'd	–
Check No.	
Rec'd By	CB

FORM
NMP

Nutrient Management Plan

READ THIS BEFORE COMPLETING FORM: Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For Filling Out Form NMP," found at the back of the Form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your Form 2B. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. For additional help in filling out this form please read the attached instructions. The 2008 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp

Section A - NMP Status *(Check one):*

New — No prior NMP submitted for this site.

X Modification — Change or update to existing NMP.

Permit Number: MT G010192 (Specify the permit number that was previously assigned to your facility.)

Section B - Facility or Site Information:

Site Name Vermilion Ranch DBA: Diamond Ring Ranch

Site Location 203 Diamond Ring Rd

Nearest City or Town Terry County Custer

Section C - Applicant (Owner/Operator) Information:

Owner or Operator Name Pat Goggins

Mailing Address PO Box 30758

City, State, and Zip Code Billings MT 59107

Phone Number 406-259-4589

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Section D - NMP Minimum Elements:

1. Livestock Statistics

Animal Type and number of animals	*# of Days on Site (per year)*	*Annual Manure Production (tons, cu. yds.or gal)*
1. Steer Calves aprx 7000	aprx 120 days	19,688 tons
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Method used for estimating annual manure production:

7,000 steers at 750# avg weight for 120 days (x .75 cu Ft/Day / 32 cu. Ft./ton) Calculated using USDA/NRCS guidelines.

2. Manure Handling

Describe manure handling at the facility:

Manure is hauled by truckload from the pen to the field and is spread by manure truck spreader. Then manure is tilled into the soil by tractor.

Frequency of Manure Removal from confinement areas:

Either in the spring or fall, depending on time available and availability of manure truck.

Is this manure temporarily stored in any location other than the confinement area? ☐ Yes ☒ No

If so then how and where?

Is manure stored on impervious surface? ☐ Yes ☒ No

If yes, describe type and characteristics of this surface:

3. Waste Control Structures

Waste Control Structure (name/type)	Length (ft)	Width (ft)	Depth (ft)	Volume (cubic ft or gallons)
1. Settling Pond	300	150	3	13,500 cu ft.
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

4. Disposal of Dead Animals

Describe how dead animals are disposed of at this facility:

The dead animals are buried at a site aprx 1/4 of a mile east of the fieldlot. The site is east of the main shop building, through the gate at the northeast corner of the fence line. The dead animals are removed w/in a day or two and put into the pit. They are covered w/ dirt once ground is thawed.

5. Clean Water Diversion Practices

Describe how clean water is diverted from production area:

Ditches are used for water diversion.

6. Prohibiting Animals and Wastes from Contact with State Waters

Describe how animals and wastes are prohibited from direct contact with state waters:

Animals are kept from contact w/ State waters by fence. Wastes are kept from contact by ditches, a settling pond and distance.

Describe how chemicals and other contaminants are handled on-site:

"Pour-on", to prevent lice & worms, is put on steers when arriving in feedlot. Containers are stored in vet shack. Contents is used up - no contents are disposed of.

8. Best Management Practice (BMPS)

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's **production area**. Indicate the location of these measures. Include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces, and waterways above an open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area; decreasing open lot surface area; repairing or adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.

Ditches are used for water diversion along the east side of the feedlot. The water is diverted toward the settling pond north of the feedlot. The settling (holding) pond is aprx 300' in length, 150' wide and a depth of 3'

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's **land application area**. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites; never spray irrigating wastes onto frozen ground; consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

Plant sampling/tissue analysis	yes/no	Rotational grazing	yes/no
Conservation or reduced tillage	yes/no	Manure injection or incorporation	yes/no
Terraces or other water control structures	yes/no	Contour plantings	yes/no
Riparian buffers or vegetative filter strips	yes/no	Winter "scavenger" or cover crops	yes/no

Other examples _____

9. Implementation, Operation, Maintenance and Record Keeping – Guidance

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part II of the permit.

Has a guidance document been developed for the facility? Yes No

Certify the document addresses the following requirements:

Implementation of the NMP:	Yes	No
Facility operation and maintenance:	Yes	No
Record keeping and reporting:	Yes	No
Sample collection and analysis:	Yes	No
Manure transfer:	Yes	No

Provide name, date and location of most recent documentation:

The yearly "Retention of Records" is kept in the file in manager's office at Diamond Ring Ranch.

If your answer to any of the above question is no, provide explanation

Sample collection & analysis has not been done specifically for the feedlot. Cenex has sampled the soil for their fertilizer application.

Section E – Land Application

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

No If no, then provide an explanation of how animal waste at this site are managed.

(Yes) If yes, then the information requested in Section E must be provided.

Photos and/or Maps

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"x17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any down-gradient surface waters
- The location of any down-gradient open tile line intake structures
- The location of any down-gradient sinkholes
- The location of any down-gradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field.
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibrating procedures:

A manure truck w/ spreader attached is used to apply the manure on the field. A tractor is used to till manure into soil.

Manure Sampling and Analysis Procedures

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining application rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to the following method:

The recommended method(s) found in Section 5 of Department Circular DEQ 9

X Other (describe) estimator using NRCS guidelines

Soil Sampling and Analysis Procedures

A representative soil sample from the top 6 inch layer of soil in each field will be analyzed for phosphorus content at least once every five years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater.

Soil sample collection will occur according to the following method:

X The recommended method(s) found in Section 5 of Department Circular DEQ 9

Other (describe) _____

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure

Field Name and spreadable acres for each (for fields with identical crops and soils type):

Pivot #4 - 316 acres

Pivot #5 - 180 acres

Crop 1 (year 1 or ?) plant species Pivot #4	corn
Irrigated (Y/N)	yes
Yield Goal (ton/ac or bushel/ac)	28 ton
N Content of soil as nitrate (lbs/acre or ppm)	85 lbs/acre
P Content of soil as P_2O_5 (lbs/acre or ppm)	14.0 ppm
Time of Year When Application will Occur (month)	Spring
Application frequency (per year by month)	once per year
Form of manure (liquid/solid)	solid
Method of Application	manure truck spreader
Is manure incorporated or broadcast?	broadcast then tilled in
Frequency of Application (yearly, biannual, etc.?)	yearly
Crop 2 Pivot #5	corn
Irrigated (Y/N)	yes
Yield Goal (ton/ac or bushel/ac)	28 ton
N Content of soil as Nitrate (lbs/acre or ppm)	58 lbs/acre
P Content of soil as P_2O_5 (lbs/acre or ppm)	10.0 ppm
Time of Year When Application will Occur (month)	Spring
Application frequency (per year, by month)	once per year
Form of manure (liquid/solid)	solid
Method of Application	manure truck spreader
Is manure broadcast, injected or incorporated?	broadcast, then tilled in
Frequency of Application (Annual, Biannual, ,etc?)	yearly

Phosphorus Risk Assessment

The permittee shall assess the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using either Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

Method Used

Indicate which method will be used to determine phosphorus application:

Method A – Representative Soil Sample
Method B – Phosphorus Index

Method A – Representative Soil Sample

a) Obtain one or more representative soil sample(s) from the field.
b) Have the sample analyzed for Phosphorus by a qualified lab. The "Olsen P test" must be used for the analysis, and the result must be reported in parts per million (ppm).
c) Using the results of the Olsen P test, determine the application basis according to the Table below

Soil Test	
Olsen P Soil Test Result (ppm)	***Application Basis***
<25.0	Nitrogen Needs Of Crop
25.1 - 100.0	Phosphorus Needs Of Crop
100.0 - 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application

Method B – Phosphorus Index

a) Complete a Phosphorus Index according to for each crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections Appendix A, please refer to Attachment 2 of Department Circular DEQ 9.
b) Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

Total Phosphorus	
Total Phosphorus Index Value	***Site Vulnerability to Phosphorus Loss***
<11	Low
11-21	Medium
22-43	High
>43	Very High

c) Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	
Site Vulnerability to Phosphorus Loss	***Application Basis***
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

d) The permittee will complete the *Nutrient Budget Worksheet*, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Site/Field: Field 4 (Pivot 4)

	Nutrient Budget	***Nitrogen-based Application***	***Phosphorus-based Application***
	Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9	252.0	30.0
(-)	Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable	85*	0
(-)	Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9)	0	0
(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	122	0
(-)	Nutrients supplied in irrigation water, lbs/acre	0	0
	= Additional Nutrients Needed, lbs/acre	45	30
	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test)	8.9	14.6
(x)	Nutrient Avalability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0)	.5	1
	= Available Nutrients in Manure, lbs/ton or lbs/1,000 gal	4.5	14.6
	Additional Nutrients needed, lbs/acre (calculated above)	45	30
(/)	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above)	4.5	14.6
	= Manure Application Rate, tons/acre or 1,000 gal/acre	10	10

Comments:

* This is from soil test results - not previous legume crops.

Olsen P Test < 25 application rate is nitrogen based, supplying 3 years of phosphorous.

d) The permittee will complete the *Nutrient Budget Worksheet*, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Site/Field: Field 5 (Pivot 5)

	Nutrient Budget	***Nitrogen-based Application***	***Phosphorus-based Application***
	Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9	252.0	30.0
(-)	Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable	58*	0
(-)	Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9)	0	0
(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	149	0
(-)	Nutrients supplied in irrigation water, lbs/acre	0	0
	= Additional Nutrients Needed, lbs/acre	45	30
	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test)	8.9	14.6
(x)	Nutrient Avalability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0)	.5	1
	= Available Nutrients in Manure, lbs/ton or lbs/1,000 gal	4.5	14.6
	Additional Nutrients needed, lbs/acre (calculated above)	45	30
(/)	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above)	4.5	14.6
	= Manure Application Rate, tons/acre or 1,000 gal/acre	10	10

Comments:

* This is from soil test results - NOT from previous legume crops.

Olsen P test < 25 application rate is nitrogen based, supplying three years of phosphorous.

Section F - CERTIFICATION

Permittee Information:

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print) Patrick K Goggins	
B. Title (Type or Print) Patrick K Goggins	**C. Phone No.** 406-259-4584
D. Signature Patrick K Goggins 1/29/09	**E. Date Signed** 1-29-2009

Return the Form NMP, Nutrient Management Plan to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

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T 639
T 637
F 1
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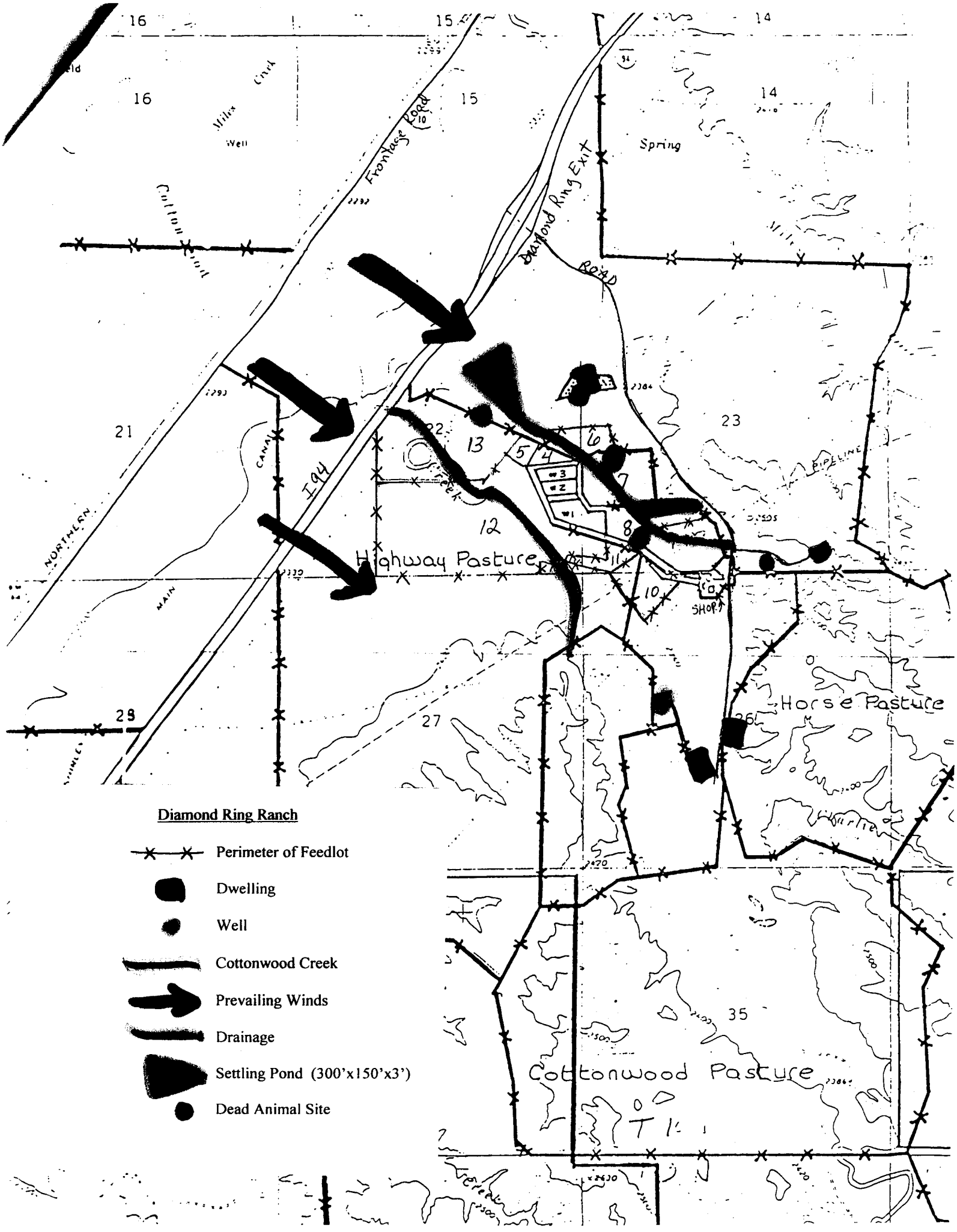
64C
Pivot #4
93B
T 654
F 2
Pivot #5
93B
T 661
F 9
T 661
F 7
T 660
F 1
T 666
F 4
T 679
F 6
T 15185
F 1



Diamond Ring Ranch
Perimeter of Feedlot
Dwelling
Well
Cottonwood Creek
Prevailing Winds
Drainage
Settling Pond (300'x150'x3')
Dead Animal Site
Highway Pasture
Horse Pasture
Cottonwood Pasture
Frontage Road
Diamond Ring Exit
ROAD
I94
Spring
Well
Miles Creek
Cotton Road
NORTHERN
MAIN
CANAL
PIPELINE
SHOP
16
15
14
21
22
23
27
28
35

January 30, 2009

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901

RE: NUTRIENT MANAGEMENT PLAN

Dept. of Environmental Quality:

Enclosed please find the completed Nutrient Management Plan for the CAFO at the Diamond Ring Ranch.

I completed the plan to the best of my ability and with help from NRCS in Miles City. The land application section of the plan was confusing, especially the Nutrient Budget Worksheet involving the nitrogen and phosphorus applications.

Sincerely,

Mary Jo Roberts

Mary Jo Roberts
203 Diamond Ring Rd
Terry, MT 59349
406-232-5107

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