

AGENCY USE ONLY

PERMIT NO.:

Date Rec'd.:

Amount Rec'd.:

Check No.:

Rec'd By:



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. CAFO operators also need to read the “Instructions For filling out Form NMP” found at the back of this form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan of the General Permit. Your Nutrient Management Plan must be kept at the operation. 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 NOI-CAFO. Attach additional pages as necessary, indicating the corresponding section number on this NMP form.

**Section A – NMP Status:**

- New - No prior NOI submitted for this facility.
- Resubmitted - Permit Number: M T G 0 1 0    \_\_\_ \_\_\_ \_\_\_
- Renewal - Permit Number: M T G 0 1 0    \_\_\_ \_\_\_ \_\_\_
- Modification - Permit Number: M T G 0 1 0    \_\_\_ \_\_\_ \_\_\_

**Section B – Facility Information**

Site Name: \_\_\_\_\_

Location (site physical address or directions): \_\_\_\_\_

Nearest City or Town \_\_\_\_\_ Zip Code: \_\_\_\_\_ County: \_\_\_\_\_

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

Facility Phone Number: \_\_\_\_\_

Date facility began operation: \_\_\_\_\_

Is this site or activity located on Tribal Lands?     No     Yes (*If yes, stop*)

**Section C – Applicant (Owner/Operator) Information**

Owner or Operator Name (Organizational Formal Name): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City, State, and Zip Code: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Title: \_\_\_\_\_

Phone Number: ( ) \_\_\_\_\_ Email Address: \_\_\_\_\_

Is the above the owner of the facility ?  No  Yes

**Section D – NMP Minimum Elements:**

Attach aerial map of the production area that shows the locations of all structures included in the following 8 items. Please name each item and show the flow direction of storm water and waste water on the map. Please see example attached.

**1. Operation and Maintenance**

**a. Livestock statistics and manure, litter and processed wastewater.**

Animal Type	Maximum Number of animals	# of Days on Site (per year)	Annual Manure litter and process wastewater production	
			Dry in Tons	Liquid in Gallons
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Method(s) used for estimating annual manure, litter and process wastewater production:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**b. Manure, litter and process wastewater handling**

i. Identify manure, litter and process wastewater handling at the facility: Mark all that apply

- Stored in pens
- Stored on stacking pad
- Composting on site
- Direct pipe to liquid impoundment
- Stored in under floor pit
- Separator
- Other \_\_\_\_\_

ii. Frequency of Manure Removal from confinement areas:

- Bi Annually
- Annually
- As needed
- Other \_\_\_\_\_

iii. Is this manure, litter or process wastewater temporarily stored in any location other than the production area?  Yes  No

If so then how and where? \_\_\_\_\_

\_\_\_\_\_

iv. Is dry manure and/or litter stored on impervious surface?  Yes  No

If yes, describe type and characteristics of this surface: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

**c. Waste control structures**

i. What is the 24hr.-25yr. storm event at your facility? Please refer to map(s) attached to application package. \_\_\_\_\_ in/hr.

ii. What is annual precipitation during critical winter storage period (180 days from mid-October to mid-April) \_\_\_\_\_ in.

iii. Area with in clean water diversions: \_\_\_\_\_ acres.

Type of surfaces within clean water diversions area:

- Dirt \_\_\_\_\_ acres or ft<sup>2</sup>
- Concrete \_\_\_\_\_ acres or ft<sup>2</sup>
- Paved \_\_\_\_\_ acres
- Under roof \_\_\_\_\_ acres or ft<sup>2</sup> (if runoff is not part of clean water BMPs)
- Gravel \_\_\_\_\_ acres or ft<sup>2</sup>
- Pasture \_\_\_\_\_ acres or ft<sup>2</sup>
- Other \_\_\_\_\_ acres or ft<sup>2</sup>

Production area Waste Control Structures (name/type)	Length (ft.)	Width (ft.)	Depth (ft.)*	Volume in gal. for liquid and ft <sup>3</sup> if dry	Number of days of storage	Winter storage depth	The 24hr.-25 yr. storm event depth
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							

\*At minimum 1 foot of free board must be maintained on liquid storage structures

**2. Mortality Management**

a. Please check the box that describe how mortalities are disposed of at this facility.

- Burial
- Composted
- Incineration
- Land fill
- Contractor removal
- Other \_\_\_\_\_

b. Describe the location where mortalities are disposed of, if part of production area.

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**3. Clean Water Diversion Practices.**

Please check all that apply for how clean water is diverted from production area.

- Ditches
- Earthen berms
- Culverts
- Site grading
- Gutters and spouts
- Other \_\_\_\_\_

**4. Prohibiting Animals and Wastes from Contact with State Waters.**

Please check all that apply for how animals and wastes are prohibited from direct contact with state waters:

- Fencing
- Wall
- Inside building
- Other \_\_\_\_\_

**5. Chemicals and Contaminates.** List all major chemicals or other contaminants handled on site as part of your CAFO operation. This would include, but not limited to, pesticides, herbicides, animal dips, disinfectants, etc. Specify the method of disposal and location stored (on map required above) for each chemical/contaminant:

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**6. Conservation Practices:**

Check all temporary, permanent and structural BMPS which will be used to control runoff of pollutants from facility's **production area** and include them on the map described above. If BMPS are not installed, include a schedule for implementation of each of these measures which may include details and specifications to supplement their description(s).

- Ditches**
- Earthen berms**
- Culverts and pipes**
- Site grading**
- Gutters and spouts**
- Covered Pens**
- Buffers**
- Other** \_\_\_\_\_

**7. Manure, Litter, Process Wastewater and Soil Sampling and Analysis Procedures:**

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

- Sample collection will occur according to CAFO General Permit Appendix D.
  - Other (describe) \_\_\_\_\_
- 
- 

**8. Land Application:**

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

- Yes.** Complete the information required for the narrative or linear approach to calculating the rate of land application of manure, litter and process wastewater (see explanation below).
  - No.** Explain how animal waste will be managed by the operation, including protocol for transfers of manure, litter and process wastewater.
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- a. **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 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 soil type(s) present and their locations within the individual land application field(s).
  - The location of any downgradient surface waters.
  - The specific manure/waste handling or nutrient management restrictions associated with each land application field i.e. setbacks.
  - The location of buffers and setbacks around state surface waters, well heads, etc.
  - The location of any downgradient open tile line intake structures
  - The location of any downgradient sinkholes
  - The location of any downgradient agricultural well heads
  - The location of all conduits to surface waters

Check here if the maps attached to the NMP for the 2013 CAFO General Permit are still applicable and the Department should attach them to this NMP. If the maps are still applicable, new maps do not need to be provided to the Department. (renewals only)

b. **Protocols to land apply manure, litter or process wastewater** Check all temporary, permanent and structural BMPs which will be used to control runoff of pollutants from facility's **land application area**. Indicate the location of these practices on the aerial photographs require. 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.

- Buffers
- Constructed Wetlands
- Infiltration Field
- Setbacks
- Conservation Tillage
- Grass Filter
- Residue Management
- Terrace
- Other \_\_\_\_\_

c. **Soil Phosphorus Sampling and Analysis:** Representative **soil** (composite) samples from the top 6 inches layer of soil for each field where manure will be applied must be analyzed for phosphorus content at least once every three 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.

- Sample collection will occur according to Appendix D.
- Other (describe) \_\_\_\_\_

d. **Soil Nitrogen Sampling and Analysis:** Representative **soil** (composite) samples must be must be collected from a depth of zero to six inches below the surface and analyzed for total nitrogen (as N) and nitrate (as N). A second composite sample must be collected at a depth of six to 24 inches and analyzed for nitrate (as N) only. Samples must be analyzed in accordance with method code 4H2a1-3 in NRCS Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42. Results must be reported as mg/kg total nitrogen and pounds per acre and will be used in determining application rates for manure, litter, and process wastewater.

- Sample collection will occur according to Appendix D
- Other (describe) \_\_\_\_\_

e. The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ.

- i. **Linear Approach.** Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the Department the following information for each crop, field, and year covered by the NMP:
  1. The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
  2. The outcome of the field-specific assessment of the potential for phosphorus transport from each field. The Department does not have an N transport risk assessment, therefore the NMP must document any basis for assuming that nitrogen will be fully used by crops. The CAFO must specify any conservation practices used in calculating the risk rating.

3. The crops to be planted or any other uses of a field such as pasture or fallow fields.
4. The realistic annual yield goal for each crop or use identified for each field.
5. The nitrogen and phosphorus recommendations from Department acceptable sources for each crop or use identified for each field.
6. Credits for all residual nitrogen in each field that will be plant-available.
7. Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
8. All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
9. The form and source of manure, litter, and process wastewater to be land-applied.
10. The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
11. The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
12. Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.
13. For the Linear Approach the permittee will complete the Nutrient Budget Worksheet, attached, for the crop grown on each field for each year to which manure or process waste water is or may be applied. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department

ii. **Narrative Approach.** Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the Department the following information for each crop, field, and year covered by the NMP:

1. The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
2. The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The Department does not have an N transport risk assessment, therefore the NMP must document any basis for assuming that nitrogen will be fully used by crops. The CAFO must specify any conservation practices used in calculating the risk rating.
3. The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
4. The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
5. The nitrogen and phosphorus recommendations from Department acceptable sources for each crop or use identified for each field, including any alternative crops identified.
6. The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests, (2) credits for all nitrogen in the field that will be plant-available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.
7. Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.
8. NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:
  - Planned crop rotations for each field for the period of permit coverage.

- Projected amount of manure, litter, or process wastewater to be applied.
- Projected credits for all nitrogen in the field that will be plant-available.
- Consideration of multi-year phosphorus application.
- Accounting for other additions of plant-available nitrogen and phosphorus to the field.
- The predicted form, source, and method of application of manure, litter, and process wastewater for each crop.

**f. 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 Method A or Method B (below) to complete the assessment, unless the receiving water is impaired for nutrients, then you must use method B below for phosphorus risk 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 onsite 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:

- i. Method A – Representative Soil Sample
- ii. Method B – Phosphorus Index

**Method A – Representative Soil Sample**

Obtain one or more representative soil sample(s) from the field.

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)

Using the results of the Olsen P test, determine application basis according to the Table below.

Soil Test

Olsen P Soil Test Results (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 allowed

**Method B – Phosphorus Index**

Complete a phosphorus Index according to the crop grown on each field. Complete table in Appendix A of this NMP form to calculate phosphorus index. For information on filling out specific sections in Appendix A of this NMP form, please refer to the method as described in NRCS Agronomy Technical Note MT-77. 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

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



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

**g. Land Application Equipment Calibration**

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

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**9. Implementation, Operation, Maintenance and Recordkeeping**

The permittee is required to develop protocols for implementation of NMP, proper operation and maintenance of the livestock waste control facilities, and recordkeeping as described in Part 2 of the permit.

- a. Have protocols been developed for the operation?       Yes    No
  
- b. The documents below are maintained:
  - i. Implementation of the NMP:       Yes    No
  - ii. Facility operation and maintenance:       Yes    No
  - iii. Recordkeeping and reporting       Yes    No
  - iv. Sample collection and analysis       Yes    No
  - v. Manure transfer       Yes    No

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

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d. Provide date and location of most recent documentation:

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**Section E - CERTIFICATION**

**Permittee Information:** This form 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.

**A. Name (Type or Print)**

**B. Title (Type or Print)**

**C. Phone No.**

**D. Signature**

**E. Date Signed**

*The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form and the applicable fee to:*

Department of Environmental Quality  
Water Protection Bureau  
PO Box 200901  
Helena, MT 59620-0901  
(406) 444-5546

# **INSTRUCTION FOR Form NMP – Nutrient Management Plan Associated With Concentrated Animal Feeding Operations**

You may need the following items in order to complete this form: A copy of your most recently submitted NOI-CAFO: NRCS No. 80.1 Nutrient Management, Agronomy Technical Note MT-11; Montana State University Extension Service Publication 161, Fertilizer Guidelines for Montana Crops; NRCS Sampling Soils for Nutrient Management – Manure Resource, MT; Montana State University Mont Guide, Interpretation of Soil Test Reports for Agriculture, MT200702AG; NRCS Conservation Practice Standard, Code 590 and Waste Utilization, Code 633.

Please type or print legibly; forms that are not legible will be considered incomplete.

## **SPECIFIC ITEM INSTRUCTIONS**

### **Section A – NMP Status:**

Check the box that applies and provide the requested information. If this is the first time applying for the CAFO General Permit, check the first box (New). If you submitted a FORM NMP and the Department found it to be incomplete, check the second box (Resubmitted);

If you were notified by the Department that the permit coverage expired and you are now submitting and updated Form NMP, check the third Box (Modification). The permit number should be noted in the letter. If the site was previously covered under CAFO General Permit, the number is given on the Authorization letter sent to you by the Department. The permit number should be included on any correspondence with the Department regarding this site.

### **Section B – Facility Information:**

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

### **Section C – Applicant (Owner/Operator) Information:**

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

### **Section D – Waste Management Minimum Elements:**

#### **1. Operation and Maintenance**

- a. Livestock Statistics and manure, litter and processed wastewater:* Identify each type of animal confined at this facility. The definition of “type” could include animals of a given species, animals of a given weight class (e.g. piglets, sows), or animals housed for a specific purpose. The Animal types should be identical to what is reported on the NOI.

Enter the Maximum number of that type on animal that the facility can hold.

Enter the “number of days on site per year” means the number of days at least one animal of a given type is held in confinement during 12-month period.

“Annual Manure Liter and Process Wastewater Production” means the volume of manure, liter or process wastewater (from a given animal type) that is stored, land applied, or transferred to another person during any given 12-month period.

“Method used for estimating annual manure production.” When describing the method used to calculate annual manure production, include all formulas, factors, references to tables, and other resources used to calculate manure production. Be sure to account for soiled bedding materials and manure-contaminated runoff water, which is also consider manure under state regulations.

**b. Manure, Litter and Process Wastewater handling.**

Identify where the manure, litter and process wastewater is handled and stored at the facility. Identify the frequency that manure, litter or wastewater is removed from the confinement area. If the manure, litter or process wastewater is temporarily stored outside of the production area, please describe how and where. If dry manure or liter is stored on an impervious surface like concrete or asphalt, please describe.

**c. Waste Control Structures.**

“25-year 24-hour rainfall event” means a precipitation event with a probable recurrence interval of once in 25 years as defined by the National Weather Service in Technical Paper Number 40, “Rainfall Frequency Atlas of the United States,” May 1961, and subsequent amendments, or the equivalent regional or state rainfall probability information.

“Critical Storage period” The minimum design volume for liquid manure storage structures is based on the expected length of time between emptying events that result in maximum production of process wastewater, including runoff from the production area. The critical storage period is considered to the 180 days starting November 1<sup>st</sup> to April 30.

List the area with in the clean water diversions. This is the area that is inside the BMP’s used for clean water diversions. This area is used to calculate the volume required to hold the 24hr.-25yr. storm event and the volume of your critical storage period. Check all the surface types within the clean water diversion area in acre or ft<sup>2</sup>.

List all waste control facilities for the production area. These may include, but are not limited to, manure lagoons, manure ponds, evaporation ponds, wastewater retention ponds, contaminated runoff retention ponds, settling basins, underground storage tanks, underfloor pits, manure solids stacking pads, vegetative treatment strips, composting facilities, and dry stack facilities. Berms, dikes, concrete curbs, ditches, and waste transfer pipelines are also waste control structures and must be listed, though some of the requested measurements may not apply.

2. **Mortality Management.** Please check the box(s) of how the facility manages their dead loss. Please describe the location where dead loss is disposed of if part of production area. The dead loss disposal area may be located offsite.

3. **Clean Water Diversion Practices.** Please check all boxes supplied and include them on the required map of the production area.
4. **Prohibiting Animals from Contact with State Waters.** Indicate what BMP's are used to prevent animals from coming into direct contact with waterbodies.
5. **Chemicals and Contaminants.** List all major chemicals or other contaminants handled onsite as part of the CAFO operation. This would include, but not limited to, pesticides, herbicides, animal dips, disinfectants, etc. Specify the method of disposal for each chemical/contaminant.
6. **Conservation Practices.** Check all Best Management Practice (BMPs) that apply. These BMPs are used to control runoff of pollutants from the production area. Please note that "production area" means that part of a CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The "animal confinement area" includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, animal walkways, and stables. The "manure storage area" includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The "raw material storage area" includes but is not limited to feed silos, silage bunkers, and bedding materials. The "waste containment area" includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities.
7. **Manure, Litter and Process Wastewater Sampling and Analysis Procedures.** Sampling and Analysis can be done according to Appendix D of the CAFO General Permit
8. **Land Application:** If all of the manure produced at your facility will be transferred to other persons for use in areas beyond your operational control, then you do not need to provide the information requested in following section.
  - a. Photos and/or maps:

Items that must be on the photo/map include buffers and setbacks around state surface waters, well heads, etc. The items required that are not already shown on published map(s) can be hand drawn on the map.
  - b. Conservation Practices for land application: Check all Best Management Practice (BMPs) that apply. These BMPs are used to control runoff of pollutants from the production area. 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 production area. Indicate the location of these practices on the field maps required above. 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; and consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground.

- c.* Soil Phosphorus Sampling and Analysis.
- d.* Soil Nitrogen Sampling and Analysis.
- e.* Linear and Narrative Rate Approaches.
- f.* Phosphorus Risk Assessment.
- g.* Land Application Equipment Calibration. Describe the type of equipment used to land apply wastes and the calibration procedures. Land application equipment calibration is essential to ensuring that nutrients are being applied at agronomic rates. Please provide specific information on how equipment will be calibrated. The CAFO shall maintain the supporting documentation on site and shall make this information available to DEQ upon request.

9. **Implementation, Operation, Maintenance and Recordkeeping:** Indicate protocols kept for implementation of the Nutrient Management Plan.

**Section E – Certification:**

If Form NMP is filled out by one person and signed by another, the person signing the document should read it thoroughly. Always retain a copy of each of the documents that you send to the Department.

If you have any questions concerning how to fill out this form, or other forms related to the Montana Pollutant Discharge Elimination System (MPDES) discharge permitting program, please contact the Department's Water Protection Bureau at:

Phone: (406) 444-5546  
Fax: (406) 444-1374  
1520 East Sixth Avenue  
P.O. Box 200901  
Helena, MT 59620-0901

## **Linear Approach Nutrient budget work Sheet.**

Enter the field identification number used on the photos/maps above, the year in which the crop will be grown, the crop that will be grown and the number of acres for that field.

Enter the expected crop yield from the Fertilizer Guidelines for Montana Crops Publication EB 161 based on expected nitrogen supplied from all sources.

Enter the results of the phosphorus field-specific assessment.

Enter Method of land application.

Enter when application will occur.

Line 1: Enter in the planned crop nutrient needs in pounds per acre from Fertilizer Guidelines for Montana Crops Publication EB 161.

Line 2: If in the previous year a Legume crop was grown, enter the max values given in Appendix D of the General Permit. Otherwise, enter the credits from soil analysis results in pounds per acre.

Line 3: Enter nutrient credits from second year manure applications pounds per acre if applicable. See Appendix D of the General Permit for mineralization rate. Multiply the previous year's nitrogen application rate from manure, litter or processed wastewater by the Second-year mineralization rate and enter it here.

Line 4: Enter nutrients supplied by commercial fertilizer in pounds per acre. This can be starter or other fertilizer that is applied prior to manure application.

Line 5: Enter nutrients supplied by any irrigation water in pounds per acre from water test.

Line 6: Subtract lines 2 through 5 from line 1 and enter in the space provided

Line 7: Enter in the nitrogen or phosphorus from sample taken of manure or process wastewater within the last year.

Line 8: Enter in the Nitrogen Availability by Application Method. Enter 1 for phosphorus.

Line 9: Multiply line 7 by line 8 and enter it here

Line 10: Enter value from line 6 here.

Line 11: Enter value from line 9 here.

Line 12: Divide line 10 by line 11 and enter it here.

Field identification:		Year:	Crop:	
Expected Crop Yield:				
Phosphorus index results or Phosphorus application from soil test:				
Method of Land Application:				
When will application occur:				
Nutrient Budget		Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre		
2	(-)	Credits from previous legume crops, or soil test lbs/ac		
3	(-)	Residuals from past manure production lbs/acre-only if no new soil test		
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre		
5	(-)	Nutrients supplied in irrigation water, lbs/acre		
6		<b>= Additional Nutrients Needed, lbs/acre</b>		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)		
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0		
9		<b>= Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>		
10		Additional Nutrients needed, lbs/acre (calculated above)		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)		
12		<b>= Manure Application Rate, tons/acre or 1000 gal/acre</b>		



**Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)**

Field:		Crop:			Year:				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk	
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils		X 1.5		
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils		X 1.5		
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes		X 1.5		
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High		X 0.5		
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm		X 0.5		
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges		X 1.0		
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0		
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges		X 1.0		
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0		
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.		X 1.0		
<b>Total Phosphorus Index Value:</b>									