Sample Forms for Manure Application Records

Purpose

The purpose of this section is to provide sample forms for meeting the record-keeping requirements of the U.S. Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) permit program for Concentrated Animal Feeding Operations (CAFOs).

Warning

Many organic and inorganic nutrient planning processes are state specific. In addition, individual state permitting authorities may require additional records beyond those required by EPA regulations. If appropriate records and planning procedures are available in your state, those records and procedures should be used instead of these sample records. If no alternative exists, the attached forms provide a starting point.

Regulations

New EPA regulations supporting the NPDES program define required record-keeping activities that must be in place no later than December 31, 2006. The EPA rules require producers to record and maintain records on file for at least five year on the following topics:

- Expected crop yields.
- Dates manure, litter, or process wastewater is applied to each field.
- Weather conditions at the time of application and 24 hours before and after application.
- Test methods used to sample and analyze soil and manure, litter, or process wastewater.
- Results from manure, litter, and process water and soil sampling.
- Explanation of the basis for determining manure application rates.
- Calculations showing the total nitrogen (N) and phosphorus (P) to be applied to each field, including sources other than manure, litter, or process water.
- Total amount of N and P actually applied to each field, including documentation of calculations for the total amount applied.
- Methods used to apply the manure, litter, or process water.
- Dates of manure application equipment inspection.

In addition, the EPA rules require that a producer maintain on-site a copy of his site-specific nutrient management plan. Finally, large CAFOs only (see *CAFO Fact Sheet #2: Am I a CAFO?*) are required to maintain records on the transfer of manure or process wastewater to other persons provide them with current nutrient analysis and document recipient information in records.

Sample Records

1. Planned Nutrient Application Rates:
   - Crop available manure nitrogen (Form 1a)
   - Annual field plan for N (Form 1b)
   - Annual field plan for P (Form 1c)
   - Field-Specific Nutrient Application Plan (Form 1d)
2. Manure application field records (Forms 2, 3, 4, and 5)
3. Additional crop, soil, and water nutrient status indicators (Form 6)
4. Continuing education summary record (Form 7)
5. Off-farm transfers of manure (Form 8)
6. Livestock waste discharge notification reports (Form 9)
7. Post-cropping season summary of crop yields, manure analysis, and application rates (Form 10)
8. Crop yield records (Form 11)

The attached records can be modified to meet individual record-keeping needs. They can be unlocked for modification by accessing "View" …, "Toolbars" …, "Forms," and then clicking on the "Lock" symbol.

Planned Nutrient Application Rate:
Instructions for Crop Available Manure Nitrogen (Form 1a)

Purpose

This worksheet will estimate a crop available nitrogen credit for a known (calibrated) manure application rate.

Steps

Col. a: This "Option #" is used to reference the selected manure application option.

Col. b: Enter description of manure source (e.g. lagoon, below barn pit, open lot), season of application, and timing of incorporation.

Col. c: Enter the planned application rate. Application equipment should be calibrated to achieve approximately the desired rate, Col. d: Enter the manure's ammonium-N from lab analysis.

Col. e: Fill in the ammonium-N availability factor based on the most applicable situation from the left box in Figure 1.

Col. f: Calculate crop available ammonium-N (Col. c x Col. d x Col. e)

Col. g: Enter the organic-N in the manure from lab analysis (Total N - Ammonium N).

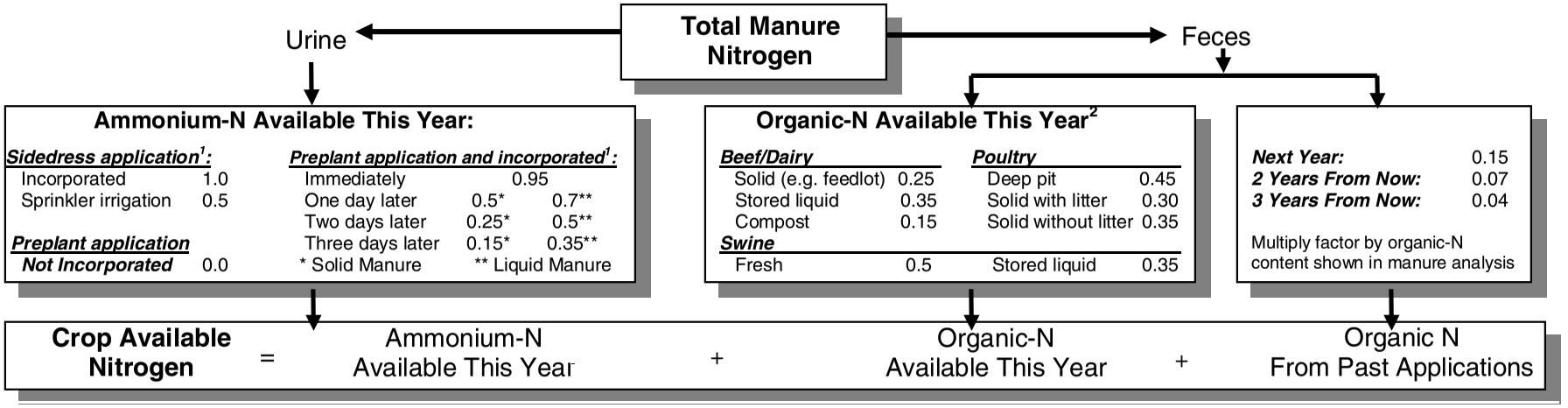
Col. h: Enter the organic-N availability factor from the middle box in Figure 1.

Col. i: Calculate the crop available organic-N (Col. f x Col. g x Col. h).

Col. k, l, and m: Organic-N available over the next three years can be estimated by multiplying the appropriate availability factor in the right hand box of Figure 1 by the value in Col. i.

This procedure should be repeated for each manure application system (or piece of equipment), each application rate, and timing of incorporation.

Figure 1. Availability factors for manure nitrogen. Values from figure should be entered into Form 1a. If available, replace values below with state specific values for crop available nitrogen.



[1]Incorporation can be accomplished by tillage or by a 0.50 inch or greater rainfall.

[2]Organic-N availability assumes spring seeded crops such as corn and soybeans. For spring seeded crops such as wheat, barley, and oats, multiply organic-N availability factor by 0.7.

Form 1a. Planned Nutrient Application Rate: Crop Available Manure Nitrogen

Manure Application Options				Ammonium-N Available This Year				Organic-N Available This Year				j. This Year's Total N Available (f + i) (lbs./ac)	Organic-N Available		
a. Option #	b. Manure Source, Season of Application, and Incorporation	c. Planned Application Rate		d. Ammonium-N Content ("as is" basis)		e. Available Factor (see *Figure 1*)	f. Available NH_4-N (c x d x e) (lbs./ac.)	g. Organic-N Content ("as is" basis)		h. Available Factor (see *Figure 1*)	i. Available Organic-N (c x g x h) (lbs./ac.)		k. Next Year (c x g x 0.15) (lbs./ac)	l. 2 Years from Now (c x g x 0.07) (lbs./ac.)	m. 3 years from Now (c x g x 0.04) (lbs./ac)
Ex.	*Feedlot manure, surface applied, incorporate in 24 hrs.*	*18*	☑ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac	*4*	☑ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in	*0.5*	*36*	*16*	☑ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in	*0.25*	*72*	*108*	*36*	*18*	*9*
1			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
2			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
3			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
4			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
5			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
6			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
7			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in				☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in						
8			☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac		☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac				☐ tons/ac ☐ 1000 gal/ac ☐ ac-in/ac						

Planned Nutrient Application Rate:
Instructions for Annual Field Plan for Nitrogen (Form 1b)

Purpose

This planning guide will determine the amount of nitrogen that will be needed (including manure nitrogen) to meet crop nitrogen requirements. All crop nitrogen annual planning documents are organized to maintain multiple years of records for a single field on one page. Make additional copies of Form 1b so that one copy is available for each field or management area receiving manure.

Instructions

At the top of each page: Identify the field or management area. Enter the soil test organic matter[1], the irrigation water nitrate concentration (if irrigated), and the acre-inches of water usually applied by mid season (e.g., end of silking in corn).

Cols. c & d: Planned crop and expected yield. Expected yield should be the average yield of the past five harvests of this crop on this field (excluding years with unusual stress), multiplied by 1.05.

Col. e: Soil test nitrate-N[1] (in ppm) is the weighted average of the pre-plant soil test nitrate-N in the root zone - a minimum of 24" deep.

Col. f: Enter the total nitrogen need for the crop to be grown. This estimate may include credits for soil organic matter nitrogen release and soil test nitrate. If a nitrogen recommendation table for a crop is not available, you may substitute crop estimate nitrogen removal. Review individual state land-grant university recommendations.

Col. g: Enter the total of values from prior manure applications from 1a, Columns k, l, and m. (Leave this column blank the first year you use this form unless you have actual values to enter.)

Col. h: Enter an irrigation credit by multiplying the nitrate-N concentration of the irrigation water by the acre-inches of water usually applied by mid season (e.g., end of silking in corn) and by the conversion factor 0.227.

Example: Irrig. credit (lbs. N/ac.) = 9 inches applied X 10 ppm Nitrate-N X 0.227 = 20.

Col. i: Enter any legume or green manure nitrogen credit.

Col. j: Enter fertilizer N applied since the last harvest (e.g., as 11-52-0) or planned in addition to manure nitrogen (e.g., starter N).

Col. k: Net nitrogen need before applying manure. Column f - Columns g, h, i, and j.

Col. l: Enter the line number from Form 1a, Column a of the manure source, rate and incorporation schedule planned to be applied to this field. If none is to be applied this year, enter zeros in Columns l, m, and n.

Col. m: Enter the planned manure application rate that will meet most or all of the nitrogen needs in Column k.

Col. n: Enter the nitrogen available at the manure application rate in Column m. If this is significantly above the nitrogen need (Column. k), then recalculate the line in Form 1a, reducing application rates or delaying incorporation if possible.

Col. o: Extra fertilizer N needed to meet crop needs (Column k – Column n). If net nitrogen is within "20 lbs., no adjustment is necessary. A larger negative number suggests the need for a lower manure or commercial fertilizer application rate. A positive number suggests the need for more manure or fertilizer.

Form 1b. Planned Nutrient Application Rate: Annual Field Plan for Nitrogen

Complete the line for the next year before applying any manure.

Field or Management Area: _____ **Soil Organic Matter:** Yr.: _____, _____%. Yr.: _____,_____.%

If irrigated: Acre-inches/year (for Col. h):_____ NO_3-N conc. of irrigation water: Yr.: _____, _____ ppm. Yr.: _____, _____ppm.

a. Year	b. Previous Crop	c. Planned Crop	d. Expect-ed Yield (E.Y.) bu./ac., Tons/ac., lb./ac. (Avg. x 1.05)	e. Soil Test Nitrate-N (average ppm)	f. Total Nitrogen Need or Removal (Ref. *Table R-4 to R-16)* (lbs./acre)	Nitrogen Credits (lbs./acre)			j. Fertilizer Nitrogen Credit (Starter, etc.) (lbs./ac.)	k. Net Nitrogen Need Before Manure Applica-tion *(Cols. f -j)* (lbs./ac.)	l. Manure Applic. Option (write line no. from *Form 1a, Col. a)*	m. Planned Manure Applica-tion Rate *(Form 1a, Col. c)* (tons/ac, gal./ac, or in./ac.)	n. Rate of Manure Nitrogen Available *(Form 1a, Col. j)* (lbs./ac.)	o. Extra Nitrogen Needed as Fertilizer *(Cols. k-n)* (lbs./ac.)
						g. Manure N from Past Years *(Form 1a, Col. k-m)* (lbs./ac.)	h. Irrigation Water N (ppm x 0.227 x Ac.-in.) (lbs./ac.)	i. Legume/ Green Man. N *(Ref. Table R-3)* (lbs./ac.)						
2001	Soybeans	Corn	170	3 ppm	167 at 2% OM	0	(10 ppm) 20 lb/ac	45	6	96	Ex	18 T./ac.	108	-12 lb/ac

Planned Nutrient Application Rate:
Instructions for Annual Field Plan for Phosphorus (Form 1c)

Purpose

This optional planning guide will determine if phosphorus (including manure nitrogen) is being applied in approximate balance with crop phosphorus requirements or removal. All phosphorus annual planning documents are organized to maintain multiple year's records for a single field on one page. Make additional copies of Form 1c so that one blank form is available for each field receiving manure.

Instructions

Fill in the field or management area name at the top of the page.

Col. a: One line will represent each crop year.

Col. b: Identify manure handling systems supplying manure.

Col. c: Enter the planned manure application rate and check the correct terms.

Col. d: Enter the phosphorus concentration from manure analysis. If manure analysis is not available, Reference Table R-2 may provide an approximate nutrient concentration.

Col. e: Enter the phosphorus availability factor. If the Bray 1 or Mehlich III phosphorus soil test is < 30 ppm, or the Olsen test is < 20 ppm (in col. i), assume phosphorus availability to the crop is 0.7 the first year (the rest is available the next year – 0.3). If soil test P levels are greater that these values, assume all the P is available the first year (1.0). Soil test level does not impact manure phosphorus availability. Higher soil P levels provide a safety factor if all manure P does not become available for crop use.

Col. f: Calculate the manure phosphorus credit (Cols. c x d x e).

<u>Crop phosphorus balance may be estimated as follows:</u>

Cols. g & h: Enter the planned crop and expected yield. Expected yield should be estimated as the average of the past five years of this crop in this field multiplied by 1.05. (Exclude years with unusual stress.)

Col. i: Enter this year's soil test results in ppm, and analysis method.

Col. j: Look up the P (P_2O_5) recommendation for Column i. If a P recommendation table is not available for this crop , then go to Column l instead.

Col. k: Enter any planned fertilizer P_2O_5 application.

Col. l: (Use Columns l and m only if there is no P recommendation table.) Enter the phosphorus removal rate.

Col. m: Multiply Column l by the Expected Yield to provide a rough estimate of crop P requirement. However, a soil test recommendation is always the preferred method of estimating crop requirements.

Col. n: Construct a phosphorus (P_2O_5) balance for this field by subtracting the Soil Test Recommendation from the planned fertilizer and manure credits (Cols. f + k - j) [or subtract the Total Phosphorus Removal if no soil test is available (Cols. f + k - m)].

Balance = All Manure and Fertilizer P (P Recommendation). <u>If the balance is negative</u>, then additional commercial fertilizer or manure is required to meet the phosphorus needs of the crop this year. <u>If the balance is positive</u> by more than 25 pounds and the P Index for this field is High or Very High, reduce the manure application rate.

Col. o: Calculate the potential soil test increase or decrease by dividing Column n by 20. If Column o is positive, the soil test will increase; if negative, the soil test will decrease. Actual changes in soil phosphorus levels may not be accurately reflected by this calculation due to the complexities of soil chemistry for phosphorus.

Form 1c. Planned Nutrient Application Rate: Annual Field Plan for Phosphorus

Field or Management Area: _____

Soil phosphorus tests above 150 ppm Bray 1 or Mehlich III, or 100 ppm Olsen tests must be reported to NDEQ.

a.	Manure Phosphorus Availability					Crop Phosphorus Balance								
Crop Year	b. Manure Handling System	c. Planned Manure Application Rate	d. Manure Phosphorus (P_2O_5) Concentration from Analysis	e. Phos. Availability Factor (0.7 or 1.0)	f. Phosphorus Manure Credit (c x d x e) (lb./ac.)	Planned Crop g. Name	Planned Crop h. Expected Yield	i. Soil Test Phosphorus (ppm) & Method	j. Phosphorus (P_2O_5) Recommendation (lb./ac.)	k. P Fertilizer Application (P_2O_5) (lbs./ac.)	Crop P (P_2O_5) Removal (use only if no soil test is available) l. Factor	Crop P (P_2O_5) Removal (use only if no soil test is available) m. Total P Removed (h x l)	n. P_2O_5 Balance (Cols. f + k - m) (lbs./ac)	o. Potential Soil P_2O_5 Increase or Decrease (n ÷ 20) (ppm)
2001	Beef, dirtlot	20 ☒ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	18 ☒ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in	0.7	250 lbs./acre	Corn	150 bu/ac.	20 Bray-1	Row 0 Bdcst 0	10 (pop-up)	0.3 lbs./bu	45 lbs./ac.	215 lbs./ac.	13 (11) ppm
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	
		☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ lbs./ton ☐ lbs./1000 gal ☐ lbs./ac-in		lbs./acre				lbs./acre			lbs./acre	lbs./acre	

Instructions for Planned Nutrient Application Rate: Field-Specific Nutrient Application Plan (Form 1d)

Purpose

The results of the nitrogen and phosphorus management plans should be summarized into an Action Plan that is carried to the field for defining:

- Which fields are to receive manure from which storage system;
- How much manure and other nutrients are to be applied;
- When manure should be applied and incorporated.

Instructions

1. Suggested manure application rate, estimated for individual fields in Form 1b (nitrogen based), should be transferred to the Action Plan. If soil P Index is High or Very High, manure application rates based on a phosphorus balance (Form 1c) or no manure application would be recommended. Assumptions relative to incorporation of manure were made in Form 1a. Recommendations for incorporation recorded in the Action Plan should be compatible with those assumptions.
2. Suggested timing of manure application is based on risk of runoff, availability of crop land, labor availability and other factors. For fields with high P Index levels, winter months would be undesirable for land application. For fields susceptible to compaction, wet months (e.g., spring months) also might be unacceptable.
3. Where manure and other nutrient credits do not meet crop nutrient requirements, additional commercial fertilizer may be needed. Check Forms 1b and 1c for commercial fertilizer recommendations.
4. For a desired application rate, identify the appropriate equipment operational settings (table at bottom of Form 1d) that will produce the desired manure application rate. If these settings are unknown, the equipment will need to be calibrated and those operational settings identified for future reference.

Form 1d. Planned Nutrient Application Rate: Field-Specific Nutrient Application Plan

This document should be photocopied and carried to the field during land application.

Crop Year: _____

Field ID	Manure System	Planned Manure Application Rate		Incorporate Into Soil?	Manure Nutrient Applic. Rate (lbs./acre)		Suggested Timing of Manure Application	Commercial Fertilizer Rate (lbs./acre)		Application Instructions
					N	P_2O_5		N	P_2O_5	
Sample North Pivot	*Beef Finish. dirt lot*	*18*	☒ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☒ Yes, ☐ No *1* days	*90*	*360*	☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☒N ☒D	*0*	*0*	*30 ft. creek setback*
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			
			☐ Ton/ac ☐ 1000 gal/ac ☐ ac-in/ac	☐ Yes, ☐ No _____days			☐J ☐F ☐M ☐A ☐M ☐J ☐J ☐A ☐S ☐O ☐N ☐D			

Application Rate	Tractor Settings		Applicator Settings		Pivot Settings		
	Gear	RPM	PTO/hydraulic	Chain sp. or orifice	% speed	psi/gpm	Dilution: ? manure/1 gal. water
							gallons manure
							gallons manure

Form 2. Solid Manure Application Field Record

Farm Owner:_____ Livestock/Poultry Facility:_____ Year:_____

Manure Spreader:_____ Net Load Capacity: _____ tons

Date/ Time	Field ID or Management Area	Number of Loads	Is Manure Incorporated into Soil?	Area Covered (acres)	Setbacks Maintained[1]	Weather Conditions 24 hrs. Prior	Today	24 hrs. After	Soil/Field Conditions	Operator Initials
Sample	Home 80	𝍸 𝍸 III	_X_ Yes, _1_ days ____No later	12 ac.	30' from Cow Creek	Sunny No Rain	Cloudy No Rain	Cloudy 0.25" Rain	___Frozen ___ Snow-covered ___ Wet ___ Moist _X_ Dry	JMK
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes, _____days ____No later						___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	

1. Permitted operations: 100-foot minimum setback is required between the edge of a stream channel, pond, or lake and the manure application. With a 35-foot buffer, manure application can be made to the edge of the buffer. Setbacks should be illustrated on an aerial map.

Form 3. Slurry or Sludge Application Field Record

Farm Owner:_____ Livestock/Poultry Facility:_____ Year:_____

Manure Applicator:_____ Net Load Capacity: _____ gallons

Date/ Time	Field ID	Number of Loads	Is Storage Agitated At Pump Out?	Is Manure Incorporated into Soil?	Area Covered (acres)	Setbacks Maintained[1]	Weather Conditions 24 hrs. Prior	Today	24 hrs. After	Soil/Field Conditions	Operator Initials
Sample	Pivot 1	IIII IIII II /	____Yes X ____No	____Yes, __1__days __X__No later	8 acre	30' from Cow Creek	Sunny No Rain	Cloudy No Rain	Cloudy 0.25" Rain	___Frozen ___ Snow-covered ___ Wet ___ Moist X___ Dry	JMK
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
			____Yes ____No	____Yes, ____days ____No later	acre					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	

1. Permitted operations: 100-foot minimum setback is required between the edge of a stream channel, pond, or lake and the manure application. With a 35-foot buffer, manure application can be made to the edge of the buffer. Setbacks should be illustrated on an aerial map

Form 4. Towed Hose or Irrigation System Field Record of Manure Application

Farm Owner:_____ Livestock/Poultry Facility:_____ Year:_____

Manure Applicator:_____ Manure Pumping Rate: _____ gpm

Date/ Time	Field ID	Operating Hours Begin / End	Rate of Clean Water Addition	Is Storage Agitated At Pump Out?	Is Manure Incorporated into Soil?	Area Covered (acres)	Setbacks Maintained[1]	Weather Conditions 24 hrs. Prior	Weather Conditions Today	Weather Conditions 24 hrs. After	Soil/Field Conditions	Operator Initials
Sample 3/30/00	Pivot 1	8:00 am _____ am _____pm _____ pm	2 to 1	X Yes ____No	X Yes, _____days ____No later	130 ac.	30' from Cow Creek	Sunny No Rain	Cloudy No Rain	Cloudy 0.25" Rain	___Frozen ___ Snow-covered ___ Wet ___ Moist X Dry	RK
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ p	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ pm	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		_____am _____ am _____pm _____ p	to 1	____Yes ____No	____Yes, _____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	

1. Permitted operations: 100-foot minimum setback is required between the edge of a stream channel, pond, or lake and the manure application. With a 35-foot buffer, manure application can be made to the edge of the buffer. Setbacks should be illustrated on an aerial map.

Form 5. Irrigation Field Record of Manure Application (If Application Rate is Known)

Farm Owner:_____ Livestock/Poultry Facility:_____ Year:_____

Manure Applicator:_____ Manure Pumping Rate: _____ gpm or _____ac-inches/hr

Date/ Time	Field ID	Depth of Irrigation Application (inches)	Rate of Clean Water Addition	Is Storage Agitated At Pump Out?	Is Manure Incorporated into Soil?	Area Covered (acres)	Setbacks Maintained[1]	Weather Conditions 24 hrs. Prior	Weather Conditions Today	Weather Conditions 24 hrs. After	Soil/Field Conditions	Operator Initials
Sample 3/30/00	Pivot 1	0.75 inch(es)	2 to 1	____Yes _X__No	____Yes, ____days _X__No later	130 ac.		Sunny No Rain	Cloudy No Rain	Cloudy 0.25" Rain	___Frozen ___ Snow-covered ___ Wet ___ Moist _X__ Dry	RK
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	
		inch(es)	to 1	____Yes ____No	____Yes, ____days ____No later	ac.					___Frozen ___ Snow-covered ___ Wet ___ Moist ___ Dry	

1. Permitted operations: 100-foot minimum setback is required between the edge of a stream channel, pond, or lake and the manure application. With a 35-foot buffer, manure application can be made to the edge of the buffer. Setbacks should be illustrated on an aerial map.

Form 6. Crop, Soil, and Water Nutrient Status Indicators

Instructions: Record any relevant information below that may provide insight as to the nitrogen status of the crop or soil.

Field ID or Management Area	Pre-Sidedress Soil Nitrate Test		Chlorophyll Meter Readings				Post-Season Stalk Tissue		Other Observations or Field Test	
	Date	Content (ppm)	Date	Growth Stage	Reading	Reading - % of Reference	Date	Nitrate Conc. (ppm)	Date	Observation
Example	*6/10*	*15*	*7/15*	*V 18*	*45*	*98*	*10/1*	*1500*	*8/15*	*Lower 3 leaves slightly yellow*

Instructions: Summarize any available water quality measurements.

Field ID	Irrigation Well[1]		Nearby Well[1]:_____		Surface Water Measurements	
	Date	Nitrate (ppm)	Date	Nitrate (ppm)	Date	Observation
Sample	*7/5*	*14*				

1. Nitrate, ammonium, or coliform bacteria can be measured to provide an indication of contamination by fertilizer and/or manure.

Form 7. Continuing Education Summary

Date	Educational Program and Location	Time Involved	Who Taught Program?	Who Organized Program?	Who Attended?
Example: 3/1/00	*Nutrient Mgmt. Planning /Kearney*	*4* hrs.	*UNL Cooperative Ext.*	*NE Cattlemen*	*John Doe*
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			
		hrs.			

Form 8. Manure Transfer to Off-Farm Users

Method of verification of manure transfer amounts:
___ Scale ___ Flow meter ___ Count of loads ___ Other:_____

Date	Off-Farm User Name/Address	Employee Making Entry	Amount of Transfer	Manure Analysis		Total Nutrient Transfer		Was Current Manure Analysis Supplied?
				N	P_2O_5	N (lbs)	P_2O_5 (lbs)	
Mar. 6-9, 2001	John Corn Grower, RR 2, Anytown NE	Jim Part Time	2,000 ☒ Tons ☐ Gals. ☐ Ac-In.	16	19 ☒ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in	32,000	38,000	X ____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
			☐ Tons ☐ Gals. ☐ Ac-In.		☐ Lbs./ton ☐ Lbs./1000 gal ☐ Lbs./ac-in			____ Yes ____No
TOTAL			☐ Tons ☐ Gals. ☐ Ac-In.					____ Yes ____No

Instructions for Livestock Waste Discharge Notification (Form 9)

Purpose

The following form may be used in reporting any discharge, either planned or accidental, from a livestock waste control facility.

Instructions

Step 1. If a discharge occurs, initiate the steps identified in your Emergency Response Plan.
Step 2. Within 24 hours, notify the permitting authority of the discharge.
Step 3. Complete the following form and deliver to the permitting authority at the address listed below within seven days of the discharge.
Step 4. If you observe dead fish that could have resulted from the discharge, contact the permitting authority immediately.

Form 9: Livestock Waste Discharge Notification

Adapted from NDEQ fact sheet "Livestock Waste Discharge Notification," September 2001.

NAME: _____
Permitted Operation Name

OWNER/MANAGER: _____

ADDRESS: _____
P.O. Box, Street Address

_____
City, State, and Zip Code

Legal Description of Operation

_____, _____, of _____, _____ N, _____ □ E or □ W, _____ County
1/4 1/4 Section Township Range

Do you have an **NPDES** Permit? _____ Yes _____ No If yes, Permit No. _____

Complete the following and submit a map or drawing of the operation, LWCF, discharge flow pattern, and stream:

1 List reason(s) for discharge (i.e., power failure, large storm or chronic wet period, leak or break in water supply system, component failure of the waste control facility; and/or releases during land application due to equipment failure, accidents, or irrigation equipment failure):

_____

_____

2. The discharge flowed into _____ and
(name of ditch, drainage way, stream)

into _____
(name of primary stream)

3. Did the discharge flow directly into surface water or did the discharge flow over cropland prior to discharging to surface water? _____

4. The approximate width and depth of the surface water (which the discharge entered):
_____ (width in feet) and _____ (depth in feet)

5. Date and time the discharge started and ended. Please indicate whether the start time was the actual time or was when the discharge was discovered. _____

_____

_____

6. The average flow of the discharge was: _____ (gallons/minute)

7. Estimated total volume of discharge (cu.-ft.): _____(L x W x D)

8. Describe any damage to the LWCF: _____

_____

_____

9. Describe actions taken, factors and conditions that helped to minimize any adverse effects to the environment from the discharge: _____

_____

_____

10. Describe any obvious or known impacts to the environment from the discharge:

_____

_____

_____

OPTIONAL INFORMATION

1. On a case-by-case basis, the Nebraska Department of Environmental Quality may require sampling. If not required by the Department, the operation may want to provide the Department with documentation that the discharge did not impact waters of the State or the discharge was conducted in a manner to reduce adverse effects to the environment. The following sampling procedure has been outlined:

   - Please include procedures taken toward quality control on handling the samples. Include information on the time when the samples were collected and when the lab received the samples. <u>You may wish to contact the lab for special sampling and handling instructions for the samples in order to eliminate contamination of the samples.</u>

   - Was sample kept cool (with ice) in the delivery/holding time? ____Yes ____No

   - The following items should be included in the analysis. Sample locations, at a minimum, must include point of discharge, 100 feet upstream of the discharge, 100 feet downstream of the discharge, and the mixing zone (where the discharge mixes with surface water). <u>Provide a map with collection sites marked</u>.

     a) 5-day Biochemical Oxygen Demand (BOD-5);
     b) total ammonia-nitrogen as nitrogen;
     c) nitrate-nitrite;
     d) Total keldahl nitrate;
     e) pH;
     f) temperature of the effluent and receiving stream;
     g) sodium;
     h) total phosphorus;
     i) chlorides;
     j) Chemical Oxygen Demand (COD);
     k) Fecal Coliform Bacteria

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HEREIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

X _____ _____

Signature of Authorized Representative Date

Instructions for Post Cropping Season Summary (Form 10 & 11)

Purpose

1. Summarize actual manure application rate and manure analysis based on field records and equipment calibration records.
2. Modify future years' nitrogen credit and modify future recommended application rates.

Instructions

Form 10

1. Enter planned manure application rate from Form 1d and actual application amounts from field records (Forms 2 - 5).
2. Enter planned manure nutrient concentrations from Form 1b (nitrogen) and Form 1c (phosphorus) and actual manure nutrient concentration from manure sample report.
3. Enter moisture content from manure sample report.
4. Is actual nitrogen and phosphorus application rate (manure application rate X nutrient concentration) within 25% of planned application rates. If a discrepancy exists, is it due to:
   - application rate? Consider recalibrating manure application equipment or adjusting application rate used in planning to reflect the most recent calibration check.
   - manure nutrient concentration and manure moisture content? Variations in manure moisture are the most common cause for changes in manure nutrient concentration. Is it possible to get a representative manure sample just prior to application so that application rates can be adjusted? Can you predict when manure may be drier (higher nutrient concentration) or wetter (lower nutrient concentration) and make last minute adjustments to planned application rates?
5. Was the check of nitrogen made in time to adjust any commercial nitrogen fertilizer application?
6. A manure nitrogen application rate significantly different from the planned application rate may require an adjustment in the estimated manure nitrogen availability for next year's crop. Review your calculations of organic-N availability for next year completed in Form 1a for changes from the original plan.

Form 11

1. Update record of crops grown and actual yields for individual fields using Form 31 or comparable records.

Form 10. Post Cropping Season Summary: Actual Nutrient Application Rate

Year: _____

Field ID or Management Area	a. Manure Application Rate			Manure Moisture Content	b. Organic-N Content of Manure		Organic N Application Rate[1] (a x b)		c. Ammonium-N Content of Manure		Ammonium–N Application Rate[1] (a x c)		d. P_2O_5 Content of Manure		P_2O_5 Application Rate (a x d)	
	Planned	Actual		(%)	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Sample	*25*	*29*	☐Ton/ac ☐1000 gal/ac ☐ac-in/ac	*75%*	*12*	*17*	25 x 12 x 0.25 = *75*	29 x 17 x 0.25 = *123*	*2*	*4*	25 x 2 x 0= *0*	29 x 2 x 0= *0*	*18*	*21*	25 x 18 = *450*	29 x 21= *609*
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													
			☐Ton/ac ☐1000 gal/ac ☐ac-in/ac													

1. To improve the accuracy of the ammonium and organic nitrogen comparison of planned and actual application rates, you may want to include the appropriate crop availability factors. Those factors can be located in *Figure 1, page 48.*

Form 11. Post Cropping Season Summary of Crop Yields

Field or Management Area: _____

Crop Year	Cropping Information			Soils Analysis Information		
	Crop	Yield	Source[1]	% OM	Soil P	Soil Nitrate and Sample Depth
20						
20						
20						
20						
20						
20						
20						
20						
20						

Field or Management Area:_____

Crop Year	Cropping Information			Soils Analysis Information		
	Crop	Yield	Source[1]	% OM	Soil P	Soil Nitrate and Sample Depth
20						
20						
20						
20						
20						
20						
20						
20						
20						

Field or Management Area:_____

Crop Year	Cropping Information			Soils Analysis Information		
	Crop	Yield	Source[1]	% OM	Soil P	Soil Nitrate and Sample Depth
20						
20						
20						
20						
20						
20						
20						
20						
20						

1. The source for crop yields. Certified or independently validated crop yields such as FSA records may be required.