



# STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR  
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES  
CHUCK GIPP, DIRECTOR

## Work Plan Agreement 9/11/13

Between

### **The Iowa Department of Natural Resources and the Environmental Protection Agency Region 7**

Attached to this correspondence are revised construction permit and NPDES permit application forms, and revised nutrient management plan template. The new language is indicated by yellow highlighting.

#### **Objective 3: To revise DNR application forms and templates to meet the minimum federal requirements.**

1. Within 60 days of execution of this Work Plan, DNR agrees to revise its construction permit application to include the predictive modeling requirement associated with alternative technologies and to require the additional information needed to determine whether the CAFO discharges. The revised application will include a provision stating that alternative technologies require extensive monitoring and reporting conditions in any permit; in addition, an application for a permit does not guarantee that a permit will be granted or that any permit granted will be renewed.
2. Within 60 days of execution of this Work Plan, DNR agrees to revise its nutrient management plan template to include manure application setback requirements.

Respectfully submitted to Region 7 on November 5, 2013.

A handwritten signature in blue ink that reads "William A. Ehm".

Bill Ehm, Division Administrator

Iowa Department of Natural Resources

Environment Services Division



# OPEN FEEDLOT<sup>1</sup> OR COMBINED<sup>2</sup> OPERATION Construction Permit Application Form

## INSTRUCTIONS:

Prior to construction, complete Section 1 to determine if a construction permit is required. If a construction permit is required, complete the rest of the form. Then, sign it and mail it as instructed in the submittal checklist No. 1 (pages 3 to 7). See page 7 for information regarding additional permits that may be required to your open feedlot.

## SECTION 1 - Is a construction permit required?

If any of the following criteria are met, a construction permit is required prior to constructing, expanding or modifying the manure control system at an open feedlot or a combined operation or prior to repopulating an open feedlot operation. Check all boxes that apply:

### Criteria

- A) An open feedlot or a combined operation required to be issued a National Pollutant Discharge Elimination System (NPDES)<sup>3</sup> permit. This includes (check one box):
- A large CAFO<sup>4</sup>, as defined in [567 Iowa Administrative Code \(IAC\) 65.100\(455b, 459A\)](#). You must combine same type of animals in confinement<sup>5</sup> operation buildings and open feedlot pens that are under common ownership or management. See page 8 for CAFO definitions.
  - A medium CAFO<sup>4</sup>, as defined in [567 IAC 65.100\(455B,459,459A\)](#). You must combine same type of animals in confinement<sup>5</sup> operation buildings and open feedlot pens that are under common ownership or management. See page 8 for CAFO definitions.
  - A designated CAFO<sup>4</sup>, as defined in [567 IAC 65.100\(455B,459, 459A\)](#). See page 8 for CAFO definitions.
- And any of following is planned** (check one box):
- Construction or expansion of a settled open feedlot effluent basin.
  - Construction or expansion of an Alternative Technology (AT) system<sup>6</sup>.
  - Installation of a settled open feedlot effluent transfer piping system.
- B) The animal unit capacity (AUC)<sup>7</sup> of the open feedlot operation will be increased to more than the AUC<sup>7</sup> approved by the department in a previous construction permit. To calculate the AUC<sup>7</sup>, use Table 1 (page 2.)
- C) The volume of settled open feedlot effluent, settleable solids or open feedlot effluent stored at the open feedlot operation will be increased to more than the volume approved by the department in a previous construction permit.
- D) Repopulation of an open feedlot operation if it was discontinued for 24 months or more and the AUC<sup>7</sup> would be 1,000 AU or more. To calculate the AUC<sup>7</sup>, use Table 1 (page 2.)

## SECTION 2 - General Information

- A) Name of operation: \_\_\_\_\_  
Location: \_\_\_\_\_  

(1/4 1/4)	(1/4)	(Section)	(Tier & Range)	(Name of Township)	(County)
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- B) Owner information:
- Name: \_\_\_\_\_ Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_
- C) Person to contact with questions about this application (if different than owner):
- Name: \_\_\_\_\_ Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone \_\_\_\_\_ Fax: \_\_\_\_\_ e-mail: \_\_\_\_\_

<sup>1</sup> Open Feedlot: Unroofed or partially roofed area where livestock or poultry are confined for more than 45 days out of any 12-month period.

<sup>2</sup> Combined: combined operation includes both of the other two definitions in items 1 & 5.

<sup>3</sup> NPDES permit as defined in rule [567 IAC 65.100\(455B,459,459A\)](#). See page 7 for instructions on how to download the open feedlot operation rules.

<sup>4</sup> CAFO: Concentrated Animal Feeding Operation as defined in rule [567 IAC 65.100\(455B,459,459A\)](#). You must combine same type of animals, in confinement buildings and open feedlot pens that are under common ownership or management. To calculate the animal capacity of the operation or combined operation, use Table 1 (on page 2.) If the combined animal capacity meets the large CAFO or medium CAFO definitions, your operation is a CAFO. A CAFO also includes a designated CAFO. See page 7 for instructions on how to download the open feedlot operation rules and page 8 for a CAFO description.

<sup>5</sup> Confinement: Totally roofed area where livestock or poultry are confined for more than 45 days out of any 12-month period.

<sup>6</sup> AT systems require extensive monitoring and reporting which will be required conditions in any NPDES permit. An application for a permit does not guarantee that a construction permit and NPDES permit will be granted or that any NPDES permit will be renewed.

<sup>7</sup> AUC: Animal Unit Capacity as defined in rule [567 IAC 65.100\(455B, 459,459A\)](#). You must combine animals in confinement buildings and open feedlot pens that are under common management or ownership. See page 7 for instructions on how to download the rules.) To calculate the AUC of the operation use Table 1 (on page 2.).

D) Adjacency criteria: do you own another open feedlot operation, or do you manage another open feedlot operation that is located within 1,250 feet of the open feedlot operation that is applying for a construction permit?

Yes. Include the animals from the adjacent feedlot(s) in Table 1 (below).  No.

E) This construction permit application is for:

- A new open feedlot operation
- Expansion of an existing open feedlot operation
- Modification of the manure control system at an existing open feedlot operation
- Reopening an open feedlot operation that was discontinued for 24 months or more
- An Alternative Technology (AT)<sup>6</sup> manure control system at an open feedlot operation
- An animal feeding operation that after combining the same type of animals in confinement buildings and open feedlot pens, under common ownership or management, meets the definition of large CAFO<sup>4</sup>, medium CAFO<sup>4</sup> or designated CAFO<sup>4</sup>, that is proposing to install manure and runoff controls

F) Animal capacity and AUC<sup>7</sup> of the animal feeding operation:

- If the operation has animals housed in confinement buildings and open feedlot pens that are under common ownership or management, for each animal type enter the current and proposed number of head in columns [1] and [2]. Add the number of head entered in columns [1] and [2], for each animal type. For each row, look at the Total No. of Head (combined operations) and determine if it meets or exceeds the large CAFO<sup>4</sup> or medium CAFO<sup>4</sup> definitions.
- If this is only an open feedlot operation, for each row enter the current and proposed number of head in column [2] and determine if it meets or exceeds the large CAFO<sup>4</sup> or medium CAFO<sup>4</sup> definitions. If the open feedlot maintains more than one animal type, add all animal units in open feedlots and determine if the Total AUC<sup>7</sup> is 1,000 AU or more. Also, if you answered "Yes" in SECTION 1, D) (adjacency), include the animals of the adjacent open feedlot operation(s).
- If the Total number of head for each animal type at an open feedlot or at a combined CAFO<sup>4</sup>, meets or exceeds the large CAFO<sup>4</sup> or medium CAFO<sup>4</sup> definitions, or if the Total AUC<sup>7</sup> at the open feedlot operation meets or exceeds 1,000 AU, your operation is a CAFO<sup>4</sup>. See page 8 for CAFO<sup>4</sup> definitions.

**Table 1: Animal Capacity and Animal Unit Capacity (AUC<sup>7</sup>)**

Animal Type	Confinements		Open Feedlots				Combined Total No. Head [1] + [2]
	Current No. Head	Proposed No. Head [1]	Current No. Head	Proposed No. Head [2]	x Factor	= AUC <sup>7</sup>	
Cattle (other than veal calves or mature dairy cows) which includes beef cattle, steers, cow-calf pairs, dairy heifers or immature dairy					1.0		
Veal calves					1.0		
Mature dairy cows (milked or dry)					1.4		
Swine, 55 lbs. or more					0.4		
Swine nursery, 15 to 55 lbs.					0.1		
Sheep and goats, including lambs					0.1		
Chicken broilers, 3 lbs. or more					0.01		
Chicken broilers, less than 3 lbs.					0.0025		
Chicken layers, 3 lbs. or more					0.01		
Chicken layers, less than 3 lbs.					0.0025		
Turkeys, 7lbs or more					0.018		
Turkeys, less than 7 lbs.					0.0085		
Horses					2.0		
<b>Total AUC<sup>7</sup>:</b>							

**My animal feeding operation is:**

- An open feedlot that is a large CAFO<sup>4</sup>
- An open feedlot that is a medium CAFO<sup>4</sup>
- A combined CAFO<sup>4</sup> that is also a large or medium CAFO<sup>4</sup>
- A designated CAFO<sup>4</sup>

I hereby certify that the information contained in this application is complete and accurate.

Signature of owner(s) \_\_\_\_\_ Date: \_\_\_\_\_

**CAVEAT:** This form is only a summary of Iowa Code chapter 459A and the DNR's amended administrative rules. It is a guidance document and should not be used as replacement for the statutory provisions and administrative rules (collectively, the law). While every effort has been made to assure the accuracy of this information, the law will prevail in the event of a conflict between this document and the law.

## Applicant's Submittal Checklist No. 1

### Open Feedlots<sup>1</sup> with Conventional Systems([567 IAC Chapter 65, Appendix A](#)) or AT Systems<sup>6</sup>

Submit the information requested in this checklist and include this checklist with your application. Incomplete applications will be immediately returned to applicant. If included with the construction permit application, the NPDES<sup>3</sup> permit application form and NPDES fee should be the first page of the application package.

**Mail one package containing (4) copies, unless indicated otherwise, of Items 1 through 6, and if applicable Item 7, as instructed on page 7 and in the following order:**

**Item 1 - NPDES<sup>3</sup> permit application form and NPDES fees.**

**Applicant/  
Consultant**

- NPDES<sup>3</sup> permit application and fees ([Forms 542-4001 and 542-1250](#)) are included. Include a check payable to Iowa DNR.
- One (1) copy of the Nutrient management plan (NMP) if an NPDES<sup>3</sup> permit is to be submitted.
- One (1) copy of the copy of public notice for the nutrient management plan and anti deg analysis.

**Item 2 - Construction permit application form [DNR Form 542-1427](#), completed and signed by the owner (previous pages.)**

**Item 3 - Engineering report** Must be stamped and signed (on original) by a licensed professional engineer (PE) in the state of Iowa or by an engineer of the Natural Resources Conservation Service (NRCS). The report shall describe in detail the proposed manure control system and the feedlot runoff control system ([567 IAC Chapter 65, Appendix A, Systems 1 to 5](#)) or AT System<sup>6</sup> being proposed, including calculations that show the detailed system requirements:

**Applicant/  
Consultant**

- Animal unit capacity (Table on previous page)
- Number of acres and estimated volume of runoff from the unpaved feedlot area.
- Number of acres and estimated volume of runoff from the paved feedlot area.
- Number of acres and estimated volume of runoff from cropland, pasture and woodland draining into the runoff control system; and the estimated runoff expected from the 25-yr, 24-hr storm event.
- Number of square feet or acres (whatever best describes the facility) and estimated volume of runoff from total roofs, farmstead and driveways draining into the runoff control system. If none, please enter "0."
- The volume of processed wastewater which drains into the runoff control system during a 12-month period. If none, please enter "0."
- The volume of open feedlot effluent from other sources which discharge into the control system during a 12-month period. Drainage areas must include areas for feed storage and bulk material storage. Drainage from these areas **cannot** be diverted. If none, please enter "0."
- The volume required in the settled open feedlot effluent basin to store the feedlot runoff.
- The volume provided in the settled open feedlot effluent basin.
- Volume required in the AT System or solids settling facility to contain expected open feedlot effluent as required in 567 IAC 65.110(1).
- Volume provided in the AT System or solids settling facility.

**Initials**

I have reviewed and submitted the information for engineering report (Engineer initial):	
I have reviewed the engineering report that has been submitted to the IDNR and it meets IDNR requirements (IDNR representative initial):	

**Item 4 - Engineering plans.** Must be stamped and signed (on original) by a licensed professional engineer (PE) in the state of Iowa or by an engineer of the Natural Resources Conservation Service (NRCS). The plans must include the following:

**Applicant/  
Consultant**     **Item**

- A certification that the design of the settled open feedlot effluent basin and/or AT System<sup>6</sup> complies with the construction design standards of Division II of chapter 65, as required in [567 IAC 65.105\(3\)"b."](#)
- Information (e.g. maps, drawings, aerial photos, etc.) that shows the location of your feedlot, including the name of the feedlot and legal description (¼ ¼, ¼, Section, Tier and Range, Township name, County), as required in [567 IAC 65.107\(2\)"h."](#)
- The location of any other open feedlot operation that you own or manage that is located within 1,250 feet of the open feedlot operation that is applying for a construction permit; or that is adjacent, as defined in [567 IAC 65.107\(2\)"h"\(2.\)](#)
- A plan view that shows the location of the feedlot(s), proposed solids settling basin, settled open feedlot effluent basin (effluent control structures) and AT System<sup>6</sup> components:
  - Include dimensions and available storage volume.
  - Clean water diversions.
- Identify separation distances to existing private and public wells to show that the separation distance requirements of [567 IAC 65.108\(1\) and \(2\)](#) are being met.
- Cross sectional view(s) of the proposed settled open feedlot effluent basin:
  - Indicate settled open feedlot effluent basin dimensions at inside top of berm and include maximum liquid level.
  - Indicate elevations at settled open feedlot effluent basin tops and bottoms, also the natural and final grade elevations.
  - Indicate drainage directions and effluent system flowpath.
  - Basin inlet and outlet details (manure transfer pipe.)
  - Indicate the proposed liner thickness and the berm widths.
  - Indicate the side slope of the basin.
  - If a groundwater lowering system is required [567 IAC 65.109\(3\) "c"](#), include details and calculations.
  - All elevations referenced to an identified benchmark – County benches as established by NGVD29Datum (USGS topographic map, MSL)
- Recommended** Details for Drawings:
  - Erosion control (riprap or equal) provided at basin inlets, outlets, spillways, and corners.
  - Overflow emergency spillway.
  - Maximum 3:1 berm slope (inner and outer.)

**Initials**

I have reviewed and submitted the information for engineering drawings (Engineer initial):	
I have reviewed the engineering drawings that has been submitted to the IDNR and it satisfies IDNR needs (IDNR representative initial):	

**Item 5 - Soils and Hydrogeologic Report.** The soils and hydrogeologic report shall address all of the following requirements:

**Applicant/  
Consultant**     **Item**

- The soils and hydrogeologic conditions, subsurface soil classification and the result of soils investigation at the proposed construction site must be conducted as required in [567 IAC 65.109\(2\), "a" to "c"\(1\)-\(7\)](#) and/or [567 IAC 65.110\(4\)](#):
  - The report must be prepared by a qualified person ordinarily engaged in the practice of performing soil investigations.

- A detailed description of three continuous core samples – minimum of three per Cell (Settled Open Feedlot Effluent Basin), must be included. All boring logs should provide soil profile characterization to identify both depth to seasonal high ground water table and Loess/Till interface – to a minimum of 10 feet below the proposed basin bottom.
- Carbonated bedrock depth determination: If proposed basin is in karst according to DNR siting atlas the soils investigation shall include a description of one 25 ft deep coring below bottom of proposed structure OR a well log from within 100 feet of the proposed structure (well logs may be found at the [GEOSAM](#) website). If more than 25 feet or more of unconsolidated(suitable) material exists then the site is not considered to be karst.
  - If site is in karst or drains to a known sinkhole then settled open feedlot effluent basins and all manure storage structures must be formed, pursuant to [567 IAC 65.109\(4\)](#).
  - Where bedrock is encountered, but site is not in karst, determine if the bedrock separation requirement in [567 IAC 65.109\(5\)](#) is met.
- Groundwater Hydrology, [567 IAC 65.109\(3\)](#), [567 IAC 65.110\(5\)](#):
  - Determine if the minimum groundwater separation required in [567 IAC 65.109\(3\)"b"](#) is met.
  - Determine if an artificial groundwater lowering system as required in [567 IAC 65.109\(3\)"c"](#) is needed.
  - Determination of groundwater table must be done as required in [567 IAC 65.109\(3\)"a"](#) or 567 IAC 65.110(5). The measured groundwater elevations rarely represent the seasonal groundwater table. Therefore, soils characteristics and NRCS soils data must be considered.
  - Water table map should be constructed from the water table levels observed in the soil corings and monitoring wells. This may also be included in the cross sectional view of the engineering plans.
  - Indicate in a cross sectional view, the estimated surface groundwater table. This may also be included in the cross sectional view of the engineering plans.
  - Verify that all deep soil corings and temporary monitoring wells will be plugged following sampling.
  - If known, identify location of proposed long-term monitoring (as needed by the DNR determination) and based upon the Geotechnical report submitted. This may also be included in the plan view or cross sectional view of the engineering plans.
  - Verify soil suitability for construction of the compacted liner.

	Initials
I have reviewed and submitted the information for soil & hydrogeological report (Engineer initial):	
I have reviewed the soil & hydrogeological report that has been submitted to the IDNR and it satisfies IDNR requirements (IDNR representative initial):	

- Item 6 - Technical Specifications.** Must be prepared by a licensed professional engineer (PE) in the state of Iowa or by an engineer of the Natural Resources Conservation Service (NRCS), that address the following:

**Applicant/ Consultant    Item**

- The technical specifications for the basin and/or AT System<sup>6</sup> must describe in detail, all design, construction and specifications for the basin to meet the design requirements of [567 IAC Chapter 65, Division II "Open Feedlot Operations"](#):
- Technical specifications for the basin and/or AT System<sup>6</sup> to meet drainage tile removal standards of [567 IAC 65.109\(1\)](#) and 567 IAC 65.110(3).
- The technical specifications shall also describe the liner construction standards for the basin to meet the requirements of [567 IAC 65.109\(7\), "a"\(1\)-\(2\) or "b"](#):
  - Provide minimum of one-foot thick compacted clay liner on interior berms and bottom of settled open feedlot effluent basin(s).
  - Conduct tests to show that percolation of berm and bottom do not exceed 1/16 inch per day ( $1.8 \times 10^{-6}$  cm/s) at the design depth.

Summary of predictive computer modeling results for any proposed AT System<sup>6</sup> as required by 567 IAC 65.110(6)"a" and 65.110(7)"a".



Initials

I have reviewed and submitted the technical specifications (Engineer initial):	
I have reviewed the technical specifications that has been submitted to the IDNR and it satisfies IDNR requirements (IDNR representative initial):	

**Item 7 - Well variance, if needed.** In accordance to [567 IAC 65.108\(3\)](#), the applicant may request a well variance if the proposed open feedlot effluent structures do not comply with the well separation distance requirements of [567 IAC 65.108\(1\)](#) and [65.108\(2\)](#). The well variance request shall be made in writing to the Director, at the time the construction permit application is submitted. Call (712) 262- 4177 for well variance procedure.

A. For each well that does not meet the required separation distance, the following items must be submitted:

1. Well location:

- Legal description of each well in 1/4 1/4, 1/4, Section, Tier, Range, and County.
- Image of proposed site (in the form of a site plan or drawn on an aerial photo) with well locations and distances marked to proposed new structures and other landmarks.

2. Recent water analysis for nitrate-N from a certified laboratory.

B. If gross contamination is indicated, submit as many of the following items as possible:

1. Driller's log submitted by a certified well driller. These logs may be from local drillers, the GEOSAM website, the Private Well Tracking System, county sanitarians, or other county agencies.

2. Total well depth.

3. Screen materials, length, and depth.

4. Casing diameter and depth.

5. Static water level (SWL) and pumping water level (PWL) as plumbed/measured by a certified driller, pump installer, professional engineer, or county sanitarian.

6. Description of wellhead protection such as a concrete pad around the well, runoff control, berms, and buffers.

7. Details of water use such as the livestock or human consumption and daily pumpage rates.

**Note:** Water withdrawal permits are required if the daily pumpage rate will exceed 25,000 gallons per day.

8. Additional water quality characteristics from recent analyses.

Initials

I have reviewed and submitted the well variance information, if needed (Engineer initial):	
I have reviewed the well variance information that has been submitted to the IDNR and it satisfies IDNR requirements (IDNR representative initial):	

**DO NOT MAIL THIS PAGE**

**Instructions on finding the open feedlot<sup>1</sup> operation rules – [567 IAC Chapter 65](#):**

1. Go to <http://www.iowadnr.gov/> and click on "Environment", then select "Land Stewardship", then select "Animal Feeding Operations", then select "AFO Rules and Regulations".
2. Scroll until you find "Current Rules" and click on Chapter 65.
3. Scroll until you find the open feedlot operation rules which are in "DIVISION II" (Note that "DIVISION I" applies to confinement<sup>5</sup> feeding operations.)

**Information about other permits that may be required:**

This section is for informational purposes only. The applicant is responsible for verifying any additional permit requirements, with the corresponding DNR office, and for obtaining any other local, state or federal permits that may be required to the open feedlot operation.

- Open feedlot<sup>1</sup> operation structures exceeding storage capacity or dam height thresholds or located on a flood plain or within a floodway of a river or stream may be required to obtain DNR flood plain development permits and provide protection from inundation by flood waters, as specified in the Iowa Administrative Code, 567-Chapters 71 and 72. For more information contact Kelly Stone of the Flood Plain Management Program at (515) 281-4312 or visit: <http://www.iowadnr.gov/insidednr/regulatoryland/floodplainmanagement/floodplaindevpermit>.
- A Storm water permit General permit No. 2, associated with construction activities is required, prior to disturbing any soil if the total construction site area to be disturbed equals or exceeds one (1) acre of land. This includes the clearing, grading and excavation of the animal feeding operation structures, even with phased construction. The permit must be obtained before commencement of soil disturbing activities for the project. For more information contact the Storm Water Program at (515) 281-6782 or visit: <http://www.iowadnr.gov/insidednr/regulatorywater/stormwater>.
- A water use permit is required for the withdrawal or diversion of more than 25,000 gallons per day of water. Water purchased from municipal or rural water systems is excluded. For additional information, contact the Water Supply Section at (515) 725-0336 or visit: <http://www.iowadnr.gov/insidednr/regulatorywater/watersupplyengineering/waterallocationuse>.

**Questions:**

- Questions about open feedlot<sup>1</sup> construction permit requirements or regarding this form should be directed to an engineer of the animal feeding operations (AFO) Program at (712) 262-4177 or go to <http://www.iowadnr.gov> (select link to "Environment", "Land Stewardship", "Animal Feeding Operations" and "Open Feedlots".)
- To contact the appropriate DNR Field Office, go to <http://www.iowadnr.gov/insidednr/dnrstaffandoffices/environmentalfieldoffices>.
- For questions regarding combining animals in confinements and open feedlots, contact Gene Tinker at (563) 927-2640.

**Mailing Instructions:**

If you opt to have the pre-design meeting with DNR to ensure the "Fast track" permitting process (see Open Feedlot Construction Permit Manual), mail the construction permit application and requested documents in Checklist No. 1, as instructed in the pre-design meeting with DNR.

If you choose not to have the pre-design meeting, at least 90 days before the date that construction, installation or modification is scheduled to start, mail 4 copies of the construction permit application documents, Items 1 through 6, and if applicable Item 7 to the following address:

**Iowa Department of Natural Resources  
Environmental Services Division  
Field Office 3, Gateway North  
1900 N Grand Ave, Suite E17  
Spencer, Iowa 51301**



**CAFO DEFINITIONS**

**“Large concentrated animal feeding operation” or “large CAFO.”** An AFO is defined as a large CAFO if it stables or confines as many as or more than the numbers of animals specified in any of the categories shown below. An AFO is also defined as a large CAFO, if after combining animals in confinement structures and open feedlot pens, it meets or exceeds any of the following:

1.  700 mature dairy cows, whether milked or dry;
2.  1,000 cattle, including but not limited to heifers, steers, bulls, veal calves and cow/calf pairs;
3.  2,500 swine each weighing 55 pounds or more;
4.  10,000 swine each weighing less than 55 pounds;
5.  500 horses;
6.  10,000 sheep or lambs;
7.  55,000 turkeys;
8.  30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;
9.  125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
10.  82,000 laying hens, if the AFO uses other than a liquid manure handling system;
11.  1,000 animal units, where more than one category of animals is maintained using the same type of operation.

**“Medium concentrated animal feeding operation” or “medium CAFO.”** The term medium CAFO includes any AFO with the type and number of animals that fall within any of the ranges listed in paragraph “a” of this definition and which has been defined or designated as a CAFO. An AFO is defined as a medium CAFO if :

a. The type and number of animals that it stables or confines fall within any of the ranges shown below. You must combine animals in confinement structures and open feedlot pens:

- (1)  200 to 699 mature dairy cows, whether milked or dry;
- (2)  300 to 999 cattle, including but not limited to heifers, steers, bulls, veal calves and cow/calf pairs;
- (3)  750 to 2,499 swine each weighing 55 pounds or more;
- (4)  3,000 to 9,999 swine each weighing less than 55 pounds;
- (5)  150 to 499 horses;
- (6)  3,000 to 9,999 sheep or lambs;
- (7)  16,500 to 54,999 turkeys;
- (8)  9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;
- (9)  37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
- (10)  25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;
- (11)  300 to 999 animal units, where more than one category of animals is maintained using the same type of operation; and

b. Either one of the following conditions is met:

- (1)  Manure or process wastewater is discharged into waters of the United States through a manmade ditch, flushing system, or other similar man-made device; or
- (2)  Manure or process wastewater is discharged directly into waters of the United States which originate outside of and pass over, across or through the facility or otherwise come into direct contact with animals confined in the operation.

**“Designated CAFO”** means an AFO that has been designated as a CAFO pursuant to rule 65.103(455B,459A).

**65.103(1)** The department may evaluate any animal feeding operation that is not defined as a large or medium CAFO, and designate it as a CAFO if, after an on-site inspection, it is determined to be a significant contributor of manure or process wastewater to waters of the United States. In making this determination, the department shall consider the following factors:

- a. The size of the operation and the amount of manure or process wastewater reaching waters of the United States;
- b. The location of the operation relative to waters of the United States;
- c. The means of conveyance of manure or process wastewater to waters of the United States;
- d. The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of manure or process wastewater into waters of the United States; and
- e. Other relevant factors.

**65.103(2)** No animal feeding operation with an animal capacity less than that specified for a medium CAFO shall be designated as a CAFO unless manure or process wastewater from the operation is discharged into a water of the United States:

- a. Through a man-made ditch, flushing system, or other similar man-made device; or
- b. Which originates outside of and passes over, across or through the facility or otherwise comes into direct contact with animals confined in the operation.

**65.103(3)** The owner or operator of a designated CAFO shall apply for an NPDES permit no later than 90 days after receiving written notice of the designation.

The DNR's mission:

**To conserve and enhance our natural resources in cooperation with individuals and organizations to improve the quality of life for lowans and ensure a legacy for future generations.**

# Individual NPDES<sup>1</sup> Permit Application for “Open Feedlot<sup>2</sup>”, “Confinement<sup>3</sup>” & “Combined<sup>4</sup>” CAFO<sup>5</sup> Operations required to obtain NPDES permit



## A. Facility information:

Name of operation: \_\_\_\_\_ Facility ID No. \_\_\_\_\_

Location of the operation: \_\_\_\_\_  
(911 Address)

\_\_\_\_\_  
(City) (State) (Zip Code)

\_\_\_\_\_  
Latitude (entrance to production area) Longitude (entrance to production area)

\_\_\_\_\_  
(Quarter/Quarter) (Quarter) (Section) (Tier & Range) (Township Name) (County)

## B. Owner and Contacts of the animal feeding operation:

Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

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

Email address (optional): \_\_\_\_\_ Cell (optional): \_\_\_\_\_

Contact person (if different than owner): \_\_\_\_\_

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

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email address (optional): \_\_\_\_\_ Cell (optional): \_\_\_\_\_

## C. Ownership Status: Do you own or rent the facility? If renting, please provide the name and address of the owner:

**D. If contract operation (optional):** Name of Integrator: \_\_\_\_\_

Address of Integrator: \_\_\_\_\_

## E. Briefly describe the nature of your business and the activities conducted that require an NPDES permit:

## F. List all other State and/or Federal environmental permits or construction approvals that you have received or applied for:

## G. Provide a topographic map of the geographic area in which your operation is located showing the specific location of the production area<sup>6</sup>, including distances, to scale, between open lots and confinement structures.

<sup>1</sup> NPDES: National Pollutant Discharge Elimination System

<sup>2</sup> Open Feedlot: Unroofed or partially roofed area where livestock or poultry are confined for more that 45 days out of any 12-month period.

<sup>3</sup> Confinement: Totally roofed area where livestock or poultry are confined for more than 45 days out of any 12-month period.

<sup>4</sup> Combined: combined operation includes both of the other two definitions in items 2 & 3, above.

<sup>5</sup> CAFO: Concentrated Animal Feeding Operation as defined in rule 567 IAC 65.100(455B,459,459A). You must combine same type of animals in confinement buildings and open lot pens that are under common ownership or management. If the combined animal capacity meets the large CAFO or medium CAFO definitions, your operation is a CAFO. A CAFO also includes a designated CAFO.

<sup>6</sup> Production area includes open lots, confinement buildings, barnyards, medication pens, animal walkways, stables, manure storage areas, raw material storage areas, etc.

Definitions given here in footnotes 1-6 are paraphrased. For complete definitions, see Chapter 65 in the Iowa Administrative Code. To find references to Iowa Administrative Code (IAC) 567 chapter 65, “Animal Feeding Operations”, and the Code of Federal Regulations (CFR) used in this permit go to:

<http://www.iowadnr.gov/Environment/LandStewardship/AnimalFeedingOperations.aspx> and <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=%2Findex.tpl>, respectively.

**H. This application is for** (check one that best describes):

- A new operation
  An existing operation which is only expanding number of animals  
 An existing operation not expanding
  An existing operation which is expanding number of animals and making structural changes/modifications

For (must check one):  An open feedlot  A confinement operation  A combined CAFO

**I. Type and number of animals confined in the operation:**

- Enter both current and proposed number of all animals housed in confinement buildings and open lot pens that are under common ownership or management:

Animal Type	Confinement Buildings		Open Feedlot Pens				Combined
	Current No. Head	Proposed No. Head [1]	Current No. Head	Proposed No. Head [2]	x Factor	=AUC <sup>7</sup>	Total No. Head [1]+[2]
Cattle (other than veal calves or mature dairy cows) which includes beef cattle, steers, cow-calf pairs, dairy heifers or immature dairy cows					1.0		
Veal calves					1.0		
Mature dairy cows (milked or dry)					1.4		
Swine, 55 lbs or more					0.4		
Swine nursery, 15 to 55 lbs					0.1		
Sheep and goats, including lambs					0.1		
Chicken broilers, 3 lbs or more					0.01		
Chicken broilers, less than 3 lbs					0.0025		
Chicken layers, 3 lbs or more					0.01		
Chicken layers, less than 3 lbs					0.0025		
Turkeys, 7 lbs or more					0.018		
Turkeys, less than 7 lbs					0.0085		
Horses					2.0		

**Total AUC<sup>7</sup>:** \_\_\_\_\_

**J. Type and the total capacity of manure and process wastewater structure(s):**

- Formed manure storage structure- under-building deep pits, outside concrete/steel (total capacity in gallons or cubic feet) \_\_\_\_\_  
 Unformed manure or effluent storage structure- earthen basins, lagoons (total capacity in gallons or cubic feet) \_\_\_\_\_  
 Dry manure stored in a building or hoop (total capacity in gallons or cubic feet) \_\_\_\_\_  
 Egg wash water storage structure (total capacity in gallons or cubic feet) \_\_\_\_\_  
 Alternative Technologies<sup>8</sup> [dimensions of the vegetative treatment areas (VTAs) or vegetative infiltration basins (VIBs) and the capacity of the solids settling basins in gallons or cubic feet] \_\_\_\_\_

**K. Name of the receiving watercourse:** \_\_\_\_\_

<sup>7</sup> AUC: Animal Unit Capacity as defined in rule 567 IAC 65.100(455B, 459, 459A). You must combine animals in confinement buildings and open lot pens that are under common management or ownership.

<sup>8</sup> AT Systems require extensive monitoring and reporting which will be required conditions in any NPDES permit. An application for a permit does not guarantee that a construction permit and NPDES permit will be granted or that any NPDES permit will be renewed.

**L. Area of Open Feedlot**

1. Total feedlot area: \_\_\_\_\_ (acres)

2. Total drainage area: \_\_\_\_\_ (acres)

**M. Nutrient Management Plan (NMP) for Open Feedlots or combined CAFOs, Manure Management Plan (MMP) for Confinements, Comprehensive Nutrient Management Plan (CNMP) if applying for EQIP<sup>9</sup>:**

1. Enclosed is my (check all that apply):  NMP  MMP or  CNMP

2. Date of last review or revision of the NMP or MMP? \_\_\_\_\_

3. If not land applying, describe alternative use(s) of manure, settled effluent and process wastewater: \_\_\_\_\_

4. Total number of acres under control of the applicant available for land application of manure and process wastewater: \_\_\_\_\_

5. Estimated amount of manure and process wastewater generated per year: \_\_\_\_\_

6. Estimated amount of manure and process wastewater transferred to other persons per year: \_\_\_\_\_

**N. Land Application Best Management Practices (BMPs):** Please check any of the following BMPs that are being implemented at the land application areas to control runoff and protect water quality:

Buffer strips  Terraces  Conservation tillage

Setbacks  Grass filters  Infiltration field

**O. Is your facility on Indian lands?**  Yes  No

**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 gathered and evaluated the information submitted. Based on my inquiry of the person or 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."

Name: \_\_\_\_\_ Title: \_\_\_\_\_  
(please print)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mail this completed form, along with Fee Form No. 542-1240 and a check for \$85.00 payable to the Iowa Department of Natural Resources (DNR), to the following address:

Iowa DNR  
AFO Program  
Attn: Reza Khosravi  
502 E 9<sup>th</sup> St  
Des Moines IA 50319  
Phone: 515-242-6128

<sup>9</sup> EQIP stands for Environmental Quality Incentives, a federal cost-share program administered by the USDA Natural Resources Conservation Service. [www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip](http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip)

# Nutrient Management Plan Form



Iowa law requires certain animal feeding operations to develop and obtain Department of Natural Resources (DNR) approval of a nutrient management plan (NMP) and to apply manure and feedlot effluent in accordance with the plan.

## Who Needs to Submit a Plan?

- The owner of an open feedlot<sup>1</sup> operation which has an animal unit capacity of 1000 or more animal units.
- The owner of an animal feeding operation who is required to have a national pollutant discharge elimination system (NPDES) permit.

NOTE: A comprehensive nutrient management plan or CNMP can be substituted for the NMP if the producer is applying for federal cost-share under the Environmental Quality Incentives Program (EQIP). An existing manure management plan (MMP) may be used for the confinement<sup>2</sup> operation portion of a combined<sup>3</sup> operation.

## Instructions for Use of These Forms

- Make additional copies of pages 2 and 3 as needed.
  - Submit one copy of the plan and all the attachments to your local DNR field office (listed below) when submitting updates to existing NMPs.
- In addition to the required forms, the information indicated below must be maintained as part of the nutrient management plan.

## Supporting Information to be maintained with the current NMP (in addition to required forms):

- A plat map which shows the location of the animal feeding operation and of all fields being used for manure application;
- Aerial photos (available from the county Farm Services Agency office) or similar photos of all fields being used for manure application. For each field, mark the field boundaries, areas not available or unsuitable for manure application, and areas where specific restrictions on manure application apply. For an animal feeding operation that is required to have an NPDES permit, these restrictions include setback requirements for land application of manure, litter and process wastewater as set forth in endnote "cc" on page 9 of this form.
- Information documenting the optimum yields calculated for the manure application fields (if required – see endnote "f");
- Manure and effluent sampling results, if sample results were used to determine the manure and effluent's nutrient content for this plan;
- Operations using irrigation to apply manure must provide information indicating how they will comply with applicable restrictions and requirements, and any additional methods or practices that will be used to reduce potential odors;
- Written manure application agreements for all fields identified in the plan that are not owned or rented for crop production purposes by the owner of the animal feeding operation;
- Natural Resources Conservation Service (NRCS) P index "detailed report" from the Iowa P index calculator (available at <http://www.ia.nrcs.usda.gov/>) and a document (e.g., RUSLE2 profile erosion calculation record) indicating the inputs and results of RUSLE2 for each field in the plan.

## Plan Updates & Recordkeeping

- Prior to making changes in an operation's nutrient management practices, the operation must update the plan to show the proposed changes. Updates should be maintained on site.
- Records of manure and effluent application must be maintained and be available for the DNR to inspect. For a list of record keeping requirements, see 65.112(10) "b". Records must be maintained for

<sup>1</sup> Open Feedlot: Unroofed or partially roofed area where livestock or poultry are confined for more than 45 days out of any 12-month period.

<sup>2</sup> Confinement: Totally roofed area where livestock or poultry are confined for more than 45 days out of any 12-month period.

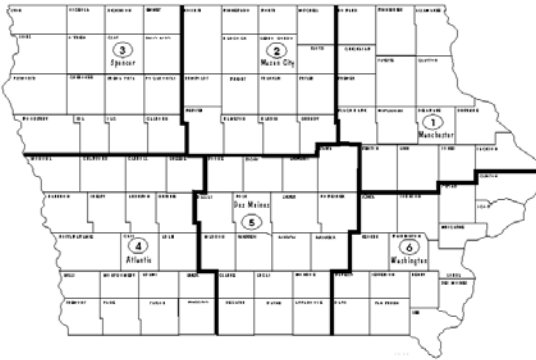
<sup>3</sup> Combined: combined operation includes both of the other two definitions in items 1 & 2, above.

five years after the year of manure application or for the length of the crop rotation, whichever is greater.

## Assistance

Assistance in developing a nutrient management plan may be available from a number of sources, including private consultants, Iowa State University Extension, and USDA's Natural Resources Conservation Service. Some of these sources will prepare a complete plan for an operation, while others will only provide general assistance. Contact your county Extension or NRCS office to determine the assistance they will provide, as well as to obtain a list of consultants who will prepare plans. If you have specific questions about the Nutrient Management Plan forms, contact your regional DNR Field Office. See attached map for contact information and to determine the appropriate office.

### IOWA DEPARTMENT OF NATURAL RESOURCES Environmental Services Division Field Office Locations



#### DNR Environmental Services Division

##### Field Office #1

909 West Main, Ste 4  
Manchester, IA 52057  
563-927-2640

##### Field Office #2

2300 15<sup>th</sup> St SW  
Mason City, IA 50401  
641-424-4073

##### Field Office #3

1900 N. Grand Ave.  
Spencer, IA 51301  
712-262-4177

##### Field Office #4

1401 Sunnyside Lane  
Atlantic, IA 50022  
712-243-1934

##### Field Office #5

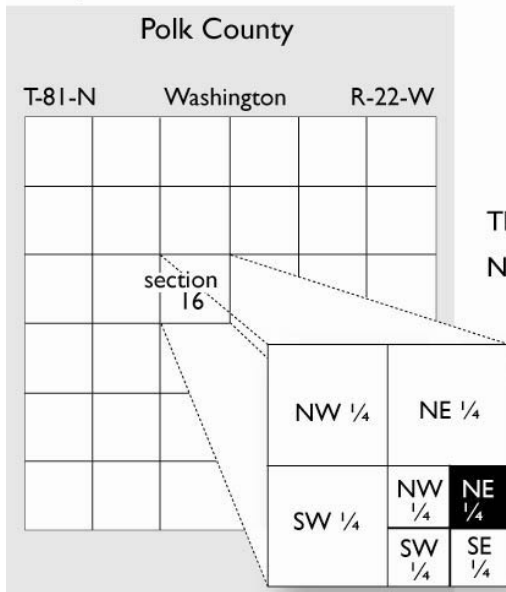
401 SW 7<sup>th</sup>, Ste I  
Des Moines, IA 50309  
515-725-0268

##### Field Office #6

1023 W. Madison  
Washington, IA 52353  
319-653-2135

## Example of Legal Description for Facility

Please refer to the example below when describing the location of your operation on Page 1. This property is located in Washington Township, Polk County.



This location would be described as follows:

NE 1/4 of the SE 1/4 of section 16 T81N-R22W

**Remember: Report all manure releases to the DNR's 24-hr. Spill Line at (515) 281-8694 within 6 hours of the onset or discovery of the spill.**



# Nutrient Management Plan Form

## Operation Information

**Instructions:** Complete this form for your animal feeding operation. Endnotes are provided on pages 8-10.

The information within this form, and the attachments, describes my animal feeding operation, my manure storage and handling system, and my planned manure management system. I (we) will manage the manure, and the nutrients it contains, as described within this nutrient management plan and any revisions of the plan, individual field information, and field summary sheet, and in accordance with current rules and regulations. Deviations permitted by Iowa law will be documented and maintained in my records.

Date: \_\_\_\_\_

\_\_\_\_\_  
 (Signature) (Print Name)

Name of operation: \_\_\_\_\_ Facility ID No. \_\_\_\_\_

Location of the operation: \_\_\_\_\_  
 (911 Address)

\_\_\_\_\_  
 (Town) (State) (Zip Code)

\_\_\_\_\_  
 (1/4 1/4) 1/4 of the (1/4) 1/4 of Sec T R \_\_\_\_\_  
 (Section) (Tier) (Range) (Township Name) (County)

**Owner and Contacts of the animal feeding operation:**

**Owner** \_\_\_\_\_ Phone \_\_\_\_\_  
 Address \_\_\_\_\_

Email (optional) \_\_\_\_\_ Cell phone (optional) \_\_\_\_\_

**Contact person** (if different than owner) \_\_\_\_\_ Phone \_\_\_\_\_  
 Address \_\_\_\_\_

Email (optional) \_\_\_\_\_ Cell phone (optional) \_\_\_\_\_

**This nutrient management plan is for:** (check one)

- existing operation, not expanding       existing operation, expanding  
 existing operation, new owner       new operation

**Construction and Expansion Dates:** \_\_\_\_\_ date of initial construction  
 \_\_\_\_\_ and date(s) of all expansion(s)

**Table 1. Information about livestock production and nutrient management system**

1	2	3	4	5	6	7
Animal Type <sup>a</sup>	Description of Manure Storage/ Manure Type (e.g. scraped solids from open lot , effluent from runoff basin, bedded barn manure , liquid manure from below building pit)	Max. Number of Animals Housed (head)	N <sup>b</sup>	P <sub>2</sub> O <sub>5</sub> <sup>b</sup>	gal/space/day or ton/space/yr <sup>c</sup>	Annual Manure Production <sup>d</sup> (gallons or tons)
			lb/1000 gal / lb/ton			
<b>Total Tons</b>						
<b>Total Gallons</b>						

**Confinement Animals Covered by MMP?**     Yes  No (if yes, application rate calculations are not required in this plan)

**Source of Nutrient Content Data** (columns 4, 5): standard tables, analysis of manure samples, other: \_\_\_\_\_

# Nutrient Management Plan Form

## Determining Maximum Allowable Manure Application Rates

**Instructions:** Complete a worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, and method of application) that occurs at this operation. Endnotes are given on pages 8, 9 and 10.

**Management Identification (Mgt ID<sup>e</sup>):** \_\_\_\_\_  
(Identify this application scenario by letter, refer to endnote e)

**Method used to determine optimum yield<sup>f</sup>:** \_\_\_\_\_ **Timing of Application:** \_\_\_\_\_

**Method of Application<sup>g</sup>:** \_\_\_\_\_ **Application Loss Factor<sup>g</sup>:** \_\_\_\_\_

**If spray irrigation is used, identify method<sup>h</sup>:** \_\_\_\_\_

**Table 2. Manure Nutrient Concentration**

Manure Nutrient Content (lbs/1000gal or lbs/ton) <sup>i</sup>				
Total N		P <sub>2</sub> O <sub>5</sub>		
% TN available 1 <sup>st</sup> year <sup>j</sup>		% 2 <sup>nd</sup> year		% 3 <sup>rd</sup> year
Available N 1 <sup>st</sup> year <sup>k</sup>		2 <sup>nd</sup> year <sup>l</sup>		3 <sup>rd</sup> year <sup>m</sup>

**Table 3. Crop Usage Rates<sup>n</sup>**

(lbs/bu or lbs/ton)	N	P <sub>2</sub> O <sub>5</sub>
Corn		0.32
Soybean	3.8	0.72
Alfalfa	50	13

\* Use blank space above to add crop not listed.

**Table 4. Calculations for rate based on nitrogen (always required)**

1	Applying Manure For <sup>o</sup> (crop to be grown)				
2	Optimum Crop Yield <sup>f</sup>	bu or ton/acre			
3	P <sub>2</sub> O <sub>5</sub> removed with crop by harvest <sup>p</sup>	lb/acre			
4	Crop N utilization <sup>q</sup>	lb/acre			
5a	Legume N credit <sup>f</sup>	lb/acre			
5b	Commercial N planned <sup>s</sup>	lb/acre			
5c	Manure N carryover credit <sup>t</sup>	lb/acre			
6	Remaining crop N need <sup>u</sup>	lb/acre			
7	Manure rate to supply remaining N <sup>v</sup>	gal/acre or ton/acre			
8	P <sub>2</sub> O <sub>5</sub> applied with N-based rate <sup>w</sup>	lb/acre			

**Table 5. Calculations for rate based on phosphorus (required if P-based rates are planned)**

9	Commercial P <sub>2</sub> O <sub>5</sub> planned <sup>x</sup>	lb/acre			
10	Manure rate to supply P removal <sup>y</sup>	gal/acre or ton/acre			
11	Manure rate for P based plan <sup>z</sup>	gal/acre or ton/acre			
12	Manure N applied with P-based plan <sup>aa</sup>	lb/acre			

**Table 6. Application rates that will be carried over to page 3.**

13	Planned Manure Application Rate <sup>bb</sup>	gal/acre or ton/acre			
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When applicable, manure application rates must be based on the P index value as follows:

(0-2) N-based manure management.

(>2-5) N-based manure management but P application rate cannot exceed two times the P removal rate of the crop schedule.

(>5-15) No manure application until practices are adopted to reduce P index to 5 or below.

(>15) No manure application.

## Nutrient Management Plan Form

### Year by Year Nutrient Management Plan Summary

**Instructions:** Complete this form for each of the next **five** growing seasons, to demonstrate sufficient land base to apply manure over multiple crop years. If this page is identical for multiple years (e.g. every other year), submit only once for the identical years, and indicate which years the form represents. Endnotes are given on pages 8, 9 and 10.

**Crop Year(s):** \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
Field Designation <sup>cc</sup>	Field Location ____ ¼ of the ____ 1/4 Sec ____ T ____ R ____ Township Name _____ County Name _____	Mgt ID <sup>dd</sup>	Planned Crop	Acres receiving manure <sup>ee</sup>	Own, rent, or agreement (include length of agreement) <sup>ff</sup>	P Index Value <sup>gg</sup>	Planned Application <sup>hh</sup>		Correct Soil Test for P <sup>ii</sup>
	Gal or ton/acre	Gal or ton/field							

**Total acres available for manure application**

**Total Gallons that could be applied**

**Total Tons that could be applied**

**ANIMAL MORTALITIES**

**NPDES requirement:**

- Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system not specifically designed to treat animal mortalities. [40 CFR 122.42(e)(1)(II)]

**ELG Requirement:**

- Mortalities must not be disposed of in any liquid manure or process wastewater system, and must be handled in such a way as to prevent the discharge of pollutants to surface water, unless alternative technologies pursuant to § 412.31(a)(2) and approved by the Director are designed to handle mortalities. [40 CFR 412.37(a)(4)]

**A. Method of Animal Mortality Handling**

1.  Composting
2.  Rendering
3.  Burial
4.  Other: \_\_\_\_\_

**B. Method of Mortality Storage Prior to Final Disposal**

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**C. Recordkeeping – Animal Mortalities**

The following records must be maintained on site at the permitted facility for at least five years from the date they are created. It is recommended that these records be kept with the NMP.

- Documentation of mortality handling practices.
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**DIVERSION OF CLEAN WATER**

**NPDES Requirements:**

- Ensure that clean water is diverted, as appropriate, from the production area. [40 CFR 122.42e)(1)(iii)]
- There must be routine visual inspections of the CAFO production area. At a minimum, the following must be visually inspected:
  - Weekly inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage structure; [40 CFR 412.37(a)(1)(i)]

**A. Diversion of Clean Water From the Production Area**

Is clean water diverted from the production area?  Yes  No

a. If Yes, describe the clean water diversion system:

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b. If No, please ensure that the attached calculations for determining total storage capacity (question II.B.3) account for all runoff, including clean water that has not been diverted from the production area.

**B. Recordkeeping – Diversion of Clean Water**

The following records must be maintained on site at the permitted facility for at least five years from the date they are created. It is recommended that these records be kept with the NMP.

- Records of weekly visual inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage structure.

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**PREVENTION OF DIRECT CONTACT OF ANIMALS WITH WATERS OF THE UNITED STATES**

**NPDES Requirement:**

- Prevent direct contact of confined animals with waters of the United States. [40 CFR 122.42(e)(1)(iv)]

**A. Prevention of Direct Contact**

Do the animals have access to waters of the United States within the production area?  Yes  No

**B. Measures to Prevent Direct Contact**

List the measures used to prevent direct contact (e.g. fencing) of animals with waters of the United States within the production area:

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**CHEMICAL HANDLING**

**NPDES requirement:**

- Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants. [40 CFR 122.42(e)(1)(v)]

**A. Measures for Chemical Handling**

Check the appropriate boxes below to indicate the measures taken to prevent pesticides, commercial fertilizers, hazardous and toxic chemicals, and petroleum by-products from contaminating process wastewater or storm water storage and treatment systems:

1.  Chemicals are stored in proper containers. Please describe:

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2.  Chemicals are properly disposed of that have expired or will not be used. Please describe:

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3.  Chemical containers are properly disposed. Please describe:

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**Nutrient Management Plan Form**  
**Chemical Handling and Storage**

4.  Chemical storage areas are self-contained (no drains or other pathways for spilled chemicals to exit the storage area). Please describe:

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5.  Chemical storage areas are covered to prevent contact with rain and snow. Please describe:

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6.  Emergency procedures and equipment are in place to contain and clean up chemical spills. Please describe:

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7.  Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and wastewater and storm water storage and treatment systems. Please describe:

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8.  Chemicals are handled according to the label. Please describe:

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**B. Recordkeeping – Chemical Handling**

The following records must be maintained on site at the permitted facility for at least five years from the date they are created. It is recommended that these records be kept with the NMP.

- Records of inspections and maintenance activities conducted to ensure that chemical and other contaminants do not enter any manure, litter, process wastewater, or storm water storage or treatment system not specifically designed to treat such chemicals **and other contaminants**.

**MANURE AND EFFLUENT STORAGE**

**NPDES requirement:**

- Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the facilities. [40 CFR 122.42(e)(1)(i)]

**ELG requirements:**

- The production area [must be] designed, constructed, operated and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event. [40 CFR 412.31(a)(1)(i)] OR the facility has requested and the DNR Director has approved Voluntary Alternative Performance Standards in accordance with 40 CFR 412.31(a)(2).
- There must be routine visual inspections of the CAFO production area. At a minimum, the following must be visually inspected:
  - Weekly inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage structure;
  - Daily inspection of water lines, including drinking water or cooling water lines;
  - Weekly inspections of the manure, litter, and process wastewater impoundments; the inspection will note the level in liquid impoundments as indicated by the depth marker in paragraph (a)(2) of this section. [40 CFR 412.37(a)(1)]
- All open surface liquid impoundments must have a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event. [40 CFR 412.37(a)(2)]



**A. Storage Structure Operation and Maintenance**

- Describe procedures to operate and maintain storage structures to hold all wastes accumulated during the storage period, the direct precipitation and runoff from a 25-year, 24-hour storm, including visual inspections, as appropriate. Attach additional sheets if needed.

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**B. Recordkeeping- Storage**

The following records must be maintained on site at the permitted facility for at least five years from the date they are created. It is recommended that these records be kept with the NMP.

1. Records of weekly visual inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage structure.
2. Records of daily inspection s of water lines, including drinking water or cooling water lines;
3. Records of weekly inspections of the manure, litter, and process wastewater impoundments
4. Weekly records of depth of manure and wastewater in all liquid impoundments as indicated by the depth marker.
5. Design documentation for all manure, litter, and wastewater storage structures.
6. Documentation of all overflows from manure

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**INSPECTION OF LAND APPLICATION EQUIPMENT**

**ELG Requirement:**

- Inspect land application equipment for leaks. The operator must periodically inspect equipment used for land application of manure, litter, and other process wastewater. [40 CFR 412.4(c)(4)]

**A. Equipment Inspection Procedures.**

Describe procedures to periodically inspect land application equipment for leaks, including the frequency and timing of inspections:

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**B. Recordkeeping- Equipment Inspection.**

The following records must be maintained on site at the permitted facility for at least five years from the date they are created. It is recommended that these records be kept with the NMP.

- Records of periodic land application equipment inspections, including date and description of each inspection.

- <sup>a</sup> For example: Mature dairy cattle, whether milked or dry are one type. Veal calves are another type. All other cattle, including finisher beef cattle, dairy heifers, feeder calves, etc... are a third type of cattle and should be added together.
- <sup>b</sup> Settled solids, scraped solids, feedlot effluent, etc...
- <sup>c</sup> From Iowa State University Extension Publication Pm 1003 Using Manure Nutrients for Crop Production, or other sources- identify source in space provided below Table 1 on page 1.
- <sup>d</sup> Column 7 = Column 3 \* Column 6. If using gal/space/day in Column 6, you must convert units to gal/space/year by multiplying by 365.
- <sup>e</sup> Use the management ID to identify each unique combination of the following factors (crop rotation, optimum crop yields, manure nutrient concentration, remaining crop N need, method of application) that occur. The idea behind the management ID is to group fields with identical management on the same page 2, to avoid the redundancy of doing the exact same calculations for multiple fields.  
For example, if 8 fields in the plan are in a corn/bean rotation with yields of 160 and 50 bu/acre and all will receive injected manure with the same nutrient concentration and availability, then page two would only need to be filled out once for the 8 fields and the management ID (e.g. "A") would represent all 8 fields. The same management ID could be used to describe these fields even if they were in different phases of the crop rotation (i.e. some are in corn and some in beans each year).
- <sup>f</sup> Yields can be used from any of the following:
- USDA Iowa Ag statistics county yield averages
  - Multi-peril insurance proven yields
  - USDA Farm Service Agency proven yields
  - Individual farm proven yields
  - Soil survey interpretation records
- Documentation of the information used to determine optimum yields must kept with the plan (DNR may require submittal of yield documentation). Documentation may include copies of historical farm yield records, soil survey maps and average yields for the soils found, FSA yield data, etc... If Iowa Ag Statistics county average yields, Appendix A8, are used, documentation is not required to determine optimum yields for corn and soybean crops. The optimum yield for each crop may be set equal to either the average of the last 5-year county yields plus 10 percent or the average of the highest 4 out of the last 5-year county average. If crops other than corn or soybeans are grown, Iowa Ag Statistics yield data for those crops will need to be obtained and optimum yield levels calculated (both the yield data and the calculations should be kept with the plan). If proven yield methods are used to determine optimum yields, the Appendix B2 Worksheet should be used to calculate the optimum yields.
- <sup>g</sup> Use list of application methods and application loss factors provided in Appendix A7. If methods other than those listed in Appendix A7 are used, identify the methods and the nitrogen loss factors for those methods.
- <sup>h</sup> Center pivot irrigation, traveling guns, low-pressure drop nozzle systems, etc...
- <sup>i</sup> From standard tables (Appendix A1), your own samples, or other sources.
- <sup>j</sup> A nutrient management plan may be developed based on the assumption that less than 100 percent of the nitrogen remaining in the manure after deducting application losses will be available for plant use in the first crop year after manure application. See Iowa State University Extension Publication PMR 1003 Using Manure Nutrients for Crop Production for suggested availability values.
- <sup>k</sup> 1<sup>st</sup> year available N = Total N x Application loss factor x Percentage of TN available in the first year (e.g. for 95% N available in first year multiply by 0.95), Appendix B3 can be used to make the calculation.
- <sup>l</sup> 2<sup>nd</sup> year available N = Total N x Application loss factor x Percentage of TN available in the second year. Appendix B3 can be used to make the calculation.
- <sup>m</sup> 3<sup>rd</sup> year available N = Total N x Application loss factor x Percentage of TN available in the third year. Appendix B3 can be used to make the calculation.
- <sup>n</sup> Appendices A5 and A6 list crop nitrogen and phosphorus requirements for various crops. These values, or crop use requirements from other credible sources, may be used to determine the crop nitrogen needs and phosphorus removal rates for the crops included in the crop schedule for the fields. For non-legume crops such as corn or grasses, the crop N need value represents the amount of nitrogen required to produce the optimum yield for that crop, and is determined by multiplying the crop nitrogen requirement (in lb/bu or lb/ton of yield) times the optimum crop yield. For legume crops such as soybeans or alfalfa, the crop utilization value represents the amount of nitrogen these legumes will utilize from the soil in producing the optimum crop yield, provided nitrogen is available at these levels in the soil. Again, this amount is determined by multiplying the crop utilization rate (in lb/bu or lb/ton of yield) times the optimum crop yield.
- <sup>o</sup> As a minimum, Table 4 should indicate the full crop rotation for the management ID (i.e., for a corn, corn, soybean rotation, Table 4 should cover a minimum of three crop years).
- <sup>p</sup> P<sub>2</sub>O<sub>5</sub> removed with crop by harvest = P<sub>2</sub>O<sub>5</sub> crop usage rate (Table 3) x Optimum crop yield (row 2)
- <sup>q</sup> Crop N utilization = N crop usage rate (Table 3) x Optimum crop yield (row 2)
- <sup>r</sup> Credit for nitrogen carryover from prior year legume crops should be determined as follows:

- last year's soybean crop: 1 lb nitrogen per bushel of yield, maximum of 50 lb nitrogen per acre credit
  - legume forage crop:
    - last year's crop with 50 to 100% alfalfa or other legume in stand: 100 to 140 lb nitrogen per acre
    - last year's crop with 20 to 50% alfalfa or other legume in legume/grass mixture: 50 to 80 lb nitrogen per acre
    - two years ago crop with 50 to 100% alfalfa or other legume in stand: 30 lb nitrogen per acre
    - last year's legume green manure crop: 100 lb nitrogen per acre
- <sup>s</sup> Amount of N applied with commercial fertilizer (e.g. starter, with herbicide carrier, etc...).
- <sup>t</sup> Manure N carryover credit represents the amount of nitrogen available for crop use due to manure applications made in prior crop years. The carryover N credit is determined by:
1. multiplying the amount of manure (in 1000 gal/acre or ton/acre) applied to the field in the previous crop by the 2<sup>nd</sup> Year Available N concentration for the applicable manure storage source and method of application;
  2. multiplying the amount of manure (in 1000 gal/acre or ton/acre) applied to the field two crop years ago by the 3<sup>rd</sup> Year Available N concentration for the applicable manure storage source and method of application; adding the resulting N carryover credit values together.
- <sup>u</sup> Remaining crop N need = Crop N utilization (row 4) minus (-) Legume N credit (row 5a) – Commercial N planned (row 5b) – Manure N carryover credit (row 5c)
- <sup>v</sup> Manure rate to supply remaining N = Remaining crop N need (row 6) divided by (/) 1<sup>st</sup> year available N (Table 2) (x 1000 for liquid manure)
- <sup>w</sup> P<sub>2</sub>O<sub>5</sub> applied with N-based rate = Manure rate to supply remaining N need (row 7) x P<sub>2</sub>O<sub>5</sub> concentration (Table 2) (Divide by 1000 for liquid manure)
- <sup>x</sup> Amount of P<sub>2</sub>O<sub>5</sub> applied with commercial fertilizers.
- <sup>y</sup> Manure rate to supply P removal = (P<sub>2</sub>O<sub>5</sub> removed with crop by harvest (row 3) – Commercial P<sub>2</sub>O<sub>5</sub> planned (row 9))/ Manure P<sub>2</sub>O<sub>5</sub> content (Table 2) (x 1000 for liquid manure).
- <sup>z</sup> Manure rates for a P based plan can apply up to the amount of P<sub>2</sub>O<sub>5</sub> removed with harvest by the next 4 anticipated crops in a single application if the application rate doesn't exceed the N-based rate (row 7) and no additional P is applied for the period covered by the application. For example, in a corn/soybean rotation if the "manure rate to supply P removal" (row 10) was 4 ton/acre for the corn crop and 3 ton/acre for the bean crop, then 7 ton/acre could be applied in a single application if the nitrogen rate was not exceeded. Phosphorus in addition to crop removal may be applied if soil tests are very low or low in phosphorus and additional phosphorus is recommended by Pm-1688 "General Guide to Crop Nutrient and Limestone Recommendations in Iowa."
- <sup>aa</sup> Manure N applied with P-based plan = Manure rate for P based plan (row 11) x 1<sup>st</sup> year available N (Table 2) (divided by 1000 for liquid manure)
- <sup>bb</sup> Manure application rate that is planned. Use these values for page 3 of the form.
- <sup>cc</sup> Field designation may be by Farm Services Agency (FSA) field number, landowner's name, or other suitable designation. A plat map showing the animal feeding operation and all application fields should be kept in the plan. In addition, aerial photos (e.g. FSA section photos) of the fields receiving manure should be in the plan with the boundaries of the individual application fields marked. Also marked on aerial photos should be areas of the fields that are unavailable or unsuitable for manure application, and areas where specific restrictions on manure application apply. DNR may require submittal of plat maps and aerial photos. Areas with specific restrictions on manure application include:
- within 200 feet of a designated area: A designated area means a known sinkhole, or a cistern, abandoned well, unplugged agricultural drainage well, agricultural drainage well surface tile inlet, drinking water well, lake, or a farm pond or a privately owned lake as defined in Iowa Code Section 462A.2. A designated area does not include a terrace tile inlet or surface tile inlet other than an agricultural drainage well surface tile inlet. Iowa law requires manure from an animal feeding operation be injected or incorporated within the same day of application if applied within 200 feet of a designated area. However, this restriction does not apply if a 50-foot buffer of permanent vegetation surrounds the designated area and no manure is applied within the 50-foot buffer.
  - Setback requirements for an animal feeding operation that is required to have an NPDES permit. As provided in 40 CFR 412.4(c)(5), "Unless the CAFO exercises one of the compliance alternatives provided for in paragraph (c)(5)(i) or (c)(5)(ii) of this section, manure, litter, and process wastewater may not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters.
    - i. Vegetated buffer compliance alternative. As a compliance alternative, the CAFO may substitute the 100-foot setback with a 35-foot wide vegetated buffer where applications of manure, litter, or process wastewater are prohibited.
    - ii. Alternative practices compliance alternative. As a compliance alternative, the CAFO may demonstrate that a setback or buffer is not necessary because implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot setback."

- areas where liquid manure is applied through spray irrigation systems: see endnote “i” for page 2.
- <sup>dd</sup> Identify how the field will be managed using management IDs from page 2.
- <sup>ee</sup> The number of acres of the field that will receive manure. Acres not available for manure application include areas where topography, soils, or other factors make manure application impossible; areas where manure will not be applied; areas where application is prohibited under a manure disposal agreement; and areas where Iowa law or DNR rules prohibit manure application. It may also include areas where Iowa law or DNR rules restrict manure application to methods different than those being used by the operation.
- <sup>ff</sup> A copy of all written manure application agreements for all fields identified in the plan that are not owned or rented for crop production purposes by the owner of the animal feeding operation must be kept with the plan (agreements must be signed by the landowner or renter). DNR requires submittal of manure application agreements. If manure is applied based on an agreement, also indicate in column 6 the length of the agreement (e.g. annual, 3-yr, 10-yr).
- <sup>gg</sup> Submit an NRCS P index detailed report containing a P index for each field in the NMP. Additionally, when the P index is required, the plan must include a document (e.g. NRCS RUSLE2 profile erosion calculation record) indicating the inputs and results of RUSLE2 for each field in the plan (These documents must be submitted to the DNR).
- <sup>hh</sup> Gallons or tons per acre from Page 2. Gallons or tons per field = gallons or tons per acre (column 8) x acres receiving manure (column 5).
- <sup>ii</sup> Soil sampling must meet minimum requirements. Refer to Rule 65.112 in the Iowa Administrative Code for minimum soil sampling requirements.