

**North Dakota Department of Environmental Quality Public Notice
Reissue of an AFO Permit**

Public Notice Date: 3/10/2021

Public Notice Number: ND-2021-008

Purpose of Public Notice

The Department intends to take public comment to ensure the following Animal Feeding Operations AFO Permit follows the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Application Date: 1/3/2017

Application Number: NDAFO0386

Applicant Name: Thorsgard Cattle Company

Mailing Address: 660 28th NE, Northwood, ND 58267

Telephone Number: 701.587.5433

Proposed Permit Expiration Date: 4/30/2026

Facility Description

The application is for an existing beef facility that is located 4 miles west and 3/4 mile south of Northwood, ND. The facility is located in parts of the sections. The areas include SE ¼ of the SE ¼ of Section 15, NE ¼ of section 22, and the NW ¼ of section 23 in Township 149N, Range 55W, in Grand Forks County. The application indicates the facility is decreasing from a maximum of 6,500 beef cattle to a maximum of 6,000 beef cattle with an average weight of 1,150 lbs.

Tentative Determinations

The submitted application and supporting documentation have been reviewed by the Department. They assure that State Water Quality Standards will be protected and the system will be constructed and can be operated in compliance with the North Dakota state requirements for storage and handling of manure and wastewater for an Animal Feeding Operation.

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. For further information on making public comments/public comment tips please visit: <https://deq.nd.gov/PublicCommentTips.aspx>. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by April 12, 2021 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

**FACT SHEET FOR STATE AFO PERMIT
NDAFO-0386**

**Thorsgard Cattle Company
Northwood, ND**

DATE OF THIS FACT SHEET – February 16, 2021

INTRODUCTION

The North Dakota Department of Environmental Quality (department) has been designated the state water pollution control agency for all purposes of the Federal Water Pollution Control Act, as amended [33 U.S.C. 1251, et seq.], and is hereby authorized to take all action necessary or appropriate to secure to this state the benefits of the act and similar federal acts. The department's authority and obligations for the control of pollution from animal feeding operations in the North Dakota Administrative Code (NDAC) chapter 33.1-16-03.1 which was promulgated pursuant to the North Dakota Century Code (NDCC) chapter 61-28. The State of North Dakota is delegated primacy of the Animal Feeding Operation program by EPA. The Rules and Regulations for the Control of Pollution from Certain Livestock Enterprises were first issued in 1972 and updated in 1989, 2005, and 2018.

The following rules or regulations apply to feedlot operations permits:

- Operations requiring a permit (NDAC Section 33.1-16-03.1-05),
- Authority for issuing Feedlot Permits (NDAC Section 33.1-16-03.1-01),
The Department of Environmental Quality has been authorized to provide and administer this chapter relating to the control of pollution from animal feeding operations under the provisions of North Dakota Century Code Section 61-28-04.
- Procedures the department follows for issuing Feedlot permits (NDAC Chapter 33.1-16-03.1),
- Standards of Quality for Waters of the State (NDAC Chapter 33.1-16-02.1)

According to the NDAC section 33.1-16-03.1-13, if the department determines a significant degree of public interest exists regarding new or expanding facilities, it shall issue a public notice requesting comment on applications for both individual permits and general state animal feeding operation permits. The department shall provide a period of not less than thirty days during which time interested persons may submit comments.

For more information regarding preparing and submitting comments about the fact sheet and permit, please see **Appendix A – Public Involvement**. Following the public comment period, the department may make changes to the draft feedlot permit. The department will summarize the responses to comments and changes to the permit in **Appendix D – Response to Comments**.

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BACKGROUND INFORMATION**Table 1 – General Facility Information**

Applicant:	Grady Thorsgard
Facility Name and Address:	Thorsgard Cattle Company 325 39 th St NE Northwood, ND 58267
Permit Number:	NDAFO-0386
Permit Type:	CAFO
Hydrologic Code:	09020109 - Goose

FACILITY DESCRIPTION

The Thorsgard Cattle Company is located 4 miles west and $\frac{3}{4}$ mile south of Northwood, ND. The facility is located in parts of the sections. The areas include SE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 15, NE $\frac{1}{4}$ of section 22, and the NW $\frac{1}{4}$ of section 23 in Township 149N, Range 55W or Latitude 47.71571194 N and Longitude -97.66540945 W, in Grand Forks County.

An application submitted to the department on January 3, 2017, indicates the facility will be permitted for a maximum of 6,000 beef cattle with an average weight of 1,150 lbs. A completed application was not received on January 3, 2017, as the nutrient management plan was not completed. An updated nutrient management plan was submitted on October 7, 2020 which completed the application process. The facility is an existing facility that is permitted for 6,500 beef cattle.

GROUNDWATER AND SURFACE WATER**Geology:**

The Grand Forks County lies within the Interior Plains major division, the Central Lowland province, and the Western Young drift section (Fenneman 1938, 1946 map). The Western Young drift section is divided into seven districts. Two of the districts are drift plains and Agassiz Lake plain. Drift Plains district characteristically, it is a lowland prairie situated upon generally rolling ground moraine interrupted by ridged end moraines and flat outwash plains, in Grand Forks county the drift plains area is characterized by ground moraine on Cretaceous bedrock. The county is mantled with glacial drift, except in a few places in the western part where erosion has exposed the underlying bedrock. Drift thickness increase toward the east. The drift is composed of clay-rich till, which has a low permeability and will yield only small quantities of water. In places the drift is composed of sand and/or gravel and where saturated with water, these deposits form aquifers. The western part of the county is covered mainly by ground moraine. Most of the county, except a narrow strip along western edge, was inundated by glacial Lake Agassiz. The areas not covered by the glacial lake form a gently rolling till plain (Drift plain) that contains sloughs and other undrained depressions. (Grand Forks County Bulletin 53, Part I and III)

The facility is located on ground moraine deposits as noted in the County Ground Water Studies 13, Bulletin 53, part 1, plate 1.

Ground Moraine is a deposit of thin till over a large area that was deposited by a glacier. Ground Moraine deposits consist of mostly clay and sand, that is mostly no more than fifteen feet thick. The topography of this type of moraine is consider hummocky, which is low relief with small till mounds and depressions. Water bodies typically occupy the low-lying areas.

Topography:

The topography in Grand Forks county ranges from broad, flat plains to gently rolling hills. Maximum topographic relief in the county exceeds 700 feet. The highest altitude is more than 1,500 feet above sea level on the summits of hills in the southwestern part of the county. Local relief rarely exceeds 100 feet in a mile. The site lies in the Drift Plains. The Drift plains in this area consist of the soils of the sub humid grasslands. This area of the Drift plains lies about 40 feet higher than the flat glacial lake area to the east. (Grand Forks County Bulletin 53, Part I and III)

Slope:

The slope at the site ranges from flat up to nine percent in the lots.

Runoff:

The majority of the runoff from the lots is directed to a containment structure that has been constructed and is located on the east side of the facility. The remaining runoff from the very southwest lots is routed to a containment area that has been constructed in the southwest corner of the lots. The east containment structure has been pumped in the past and irrigated onto land next to the facility.

Elevation:

The facility is at an elevation of 1,170 feet. (Approximately, based on United States Geological Survey Quadrangle maps)

Site Drainage:

The facility drains into unnamed tributaries that flow north, south, and east. The north and south tributaries eventually flow east into the Goose River. The Goose River is at an elevation of 1,100 feet.

Water Bodies:

The closest water body is the Goose River, at approximately 2.53 stream miles. The Goose river flows into the Red River approximately forty-two stream miles east of the facility.

Soils:

The primary soils at the site, as indicated by Natural Resource Conservation Service (NRCS) soil survey, include Parnell silty clay loams, Southam silty clay loam, Hamerly-Tonka complex, Hamerly – Wyard loams, Vallers, salione-Mafred complex, Barnes-Buse-Langei loams, and Barnes-Buse loams. These soils consist mostly of CL, CH, MH,

ML, and OH materials. The water table is 8 inches to 1.4 feet near the containment structure on the east side. The containment structure is a natural depression that was holding water at the time of the soil borings. The borings indicated inorganic clays and silts to at least six feet below the bottom of the structure. (See Appendix C, Table 8)

Aquifers:

The site does not overly any Wellhead Protection Areas (WHPA's), sensitive groundwater area, or surficial aquifer. Other factors included in this decision was the type of soils and the existing design construction of the facility. Soil borings indicate clay with some inorganic silts in the area of the containment pond to at least twelve feet below the surface.

Public Wells:

There are 5 domestic/stockwell(s), 1 domestic well, 0 public wells, 2 stock wells, 1 unused well, and 0 observation well(s) located within two miles of the site. (Appendix C, Table 7)

Private Wells:

Within two miles of the site there are 7 private well(s) identified. Wells in the general area range from 20 feet to 40 feet deep. The facility uses rural water.

MANURE HANDLING AND DISPOSAL

Facility Operation:

The facility is an open feedlot. Livestock are confined at this site year around.

Manure Handling:

Manure is scraped up and spread on cropland farmed by the facility owners according the nutrient needs of the crop as indicated by soil tests. The owners work with a crop consultant.

Expected Manure Quantities:

Table 2- Manure quantities from design plans

Number of Head	6,000 beef feeders
Average Weight	1,150 lbs.
Manure Production	6,900 ft ³ /day
Total Volume Needed for Manure Storage	2,518,500 ft ³ /yr or 18.838 Mgal

Mortality Disposal:

The owners are using burial and composting for the facilities disposal method. This area runoff is collected in the containment structures.

Animal mortality shall be handled as outlined in the North Dakota Livestock Program Design Manual, Section 6.4:

“Livestock mortality shall be disposed of in a manner acceptable to the Board of Animal Health and in accordance with NDCC Section 36-14-19. Livestock mortality shall be disposed of in areas that will not discharge into waters of the state and where they will not detrimentally impact air quality. Livestock mortality shall not be disposed of in any structure used to store or treat liquid manure, process wastewater, or storm water unless the department-approved system is designed for such a purpose.”

The composting and burial area is in the middle of the site. This area has soil types of Hamerly -Wyard loams with 0 to 3% slopes (G101A) which is indicated by USDA Web Soil Survey and a water table 2.49 feet below the surface.

ODORS

Potential Sources:

A source of potential odors appears to be the lots and runoff containment pond. Odors from the lots may be minimized with good house-keeping practices. Land application may present a source of short-term odor events. However, land application is exempt from state odor restrictions (NDAC Section 33.1-15-16-02(3)). Grand Forks county regulates the nature, scope, and location of this operation, so the state setbacks do not apply. The nearest residence is 0.34 miles from the feedlot, besides the owner's residences.

SPECIFICATIONS

Manure Storage Structures:

Table 3-Feed storage runoff containment

Type: Runoff Containment Pond	
Pond Dimensions	
Design surface area	1,185,000 ft ²
Top liquid area	*
Bottom surface area	*
Design volume	3,552,875 ft ³ or 0.46 Mgal
Depth	6.7 ft

The facility has the capacity to store the designed runoff from the 199.6-acre feed storage area.

* The design information did not include this data. The containment is irregular in size.

Soil Summary:

The proposed location appears suitable based on soil survey and ground water survey information. The borings indicate that the Unified classification for the subsoil at the site is generally CL, CH, MH, ML to a depth of about 12 feet. (Appendix C, Table 9)

Clay Liner Construction Testing:

A clay liner was not required since in situ soils met the department's requirements in the North Dakota Livestock Program Design Manual (NDLPDM) when the site was reviewed in 1999.

Manure Transfer Components:

If the facility chooses to transfer manure to another entity or farm operation, the facility shall keep records of how manure, litter, or process wastewater was transferred. The records shall include the date, location, volume of manure, and nutrient test results of manure transferred.

Manure Storage Structure Considerations:

The facility has installed dikes around the perimeter of the lots to direct the runoff, along with some runoff collection channels in the middle of the lots, to the containment pond. The facility also has a containment area in the southwest corner of the lots to hold runoff.

Earth Fill:

The embankments and dikes are growing vegetation. The inside of the pond dikes is rip-rapped.

Groundwater Monitoring Plan:

The department has determined that the facility does not require ground water monitoring for the following factors. The site does not overly any Wellhead Protection Areas (WHPA's), sensitive groundwater area, or surficial aquifer. Other factors included in this decision was the type of soils and the existing design construction of the facility. Soil borings indicate clay with some inorganic silts in the area of the containment pond to at least twelve feet below the surface.

Operation and Maintenance Plan:

Accumulated solids shall be removed from settling areas, feedlot runoff collection diversions, and feedlot areas a minimum of once a year. It is recommended that feedlot areas be cleaned regularly (weekly) to minimize solids transport and for herd health.

Manure is removed from the lots in the spring as soon as it is dry enough to work the lots. The manure is pushed up in areas that will not block runoff collection diversions and allow the pens dry out. The manure is loaded onto spreaders and hauled to cropland where it is applied at agronomic rates. Cattle are removed from lots that are wet and have the most manure build up so the lots can be cleaned. In the winter, lots are scraped whenever weather will permit. In spring, summer, and fall the lots are scraped approximately every two weeks. Manure is stockpiled in areas where it will not block the runoff collection diversions.

The runoff collection diversions are scraped to remove sediment in the spring when it is thawed and whenever noticeable sediment has built up, such as after a heavy runoff from spring thaw or a heavy rain.

Low areas that tend to remain wet are scraped and manure is piled in higher areas to help reduce odor concerns. These low areas are graded to provide better drainage and prevent ponding in lots. This is done about two times per year in the spring and fall.

Lots are inspected daily for manure build up, and to note any low areas where water may pond, and manure should be cleaned. Runoff collection diversions area inspected on a weekly basis for buildup of sediments or obstructions.

The runoff pond and containment areas are designed to store 365 days of rainfall and runoff from the feedlot area along with a 25-year, 24-hour rain fall event for Grand Forks County, which is 3.9 inches. The runoff pond and containment area will have to be pumped annually, except in drier years when runoff evaporates to acceptable operating depths. On wetter years the containment area and runoff ponds may need to be pumped more than once a year. A marker in the runoff pond indicates when the runoff ponds and containment areas need to be pumped down to maintain design capacity.

All waste from runoff ponds, containment areas, settling areas shall be applied as specified in the Nutrient Management Plan.

Earthwork (dikes, berms, ditches) shall be inspected for signs of seepage, rodent damage, settlement, misalignment, or erosion. The damaged areas need to be repaired to original design grades and specifications.

The runoff pond is inspected weekly for the level of the water and during wet conditions, if it is within one foot of the high-water mark, it is inspected daily as needed. The runoff pond is thoroughly inspected monthly to look for erosion, possible seepage and damage to the embankment from rodents, burrowing animals or deep-rooted plants. Any defects are noted and repaired within 2 weeks as needed.

The lots are inspected thoroughly on a weekly basis to check for damage to embankment or diversion, and to check for areas contributing to excess odor or nuisance sources, such as manure in low spots that do not drain.

Records of inspections will be kept, where in problems found will be noted as well as steps taken to correct them.

Vegetation on the runoff pond dikes shall be clipped annually as a minimum and only when area is dry and firm. Pond dike vegetation shall be managed to limit it to shallow-rooted species.

Vegetation in diversion channels or on dikes shall be grazed or clipped annually as a minimum and only when area is dry and firm. Do not overgraze the areas. Planting row crops will not be permitted within diversion channels. The areas need to be regraded, seed, and mulch any areas which become damaged immediately.

Removal of accumulated sediment within the runoff ponds may be necessary over time to maintain design volume, if necessary, care shall be taken to prevent damage to pond design dimensions.

Plant species for reseeding on pond dikes shall be as specified in original design or other approved shallow rooted plant species.

Buried piping shall be protected from freezing.

Pasture areas or other light-use areas used for occasional feeding should be maintained so that existing vegetation is not greatly disturbed. If these areas are later found to be contributing nutrients and/or pollutants, these areas may need to be considered for some type of containment or alternative treatment.

NUTRIENT MANAGEMENT PLAN AND MANURE APPLICATION

General Conditions:

Managing and applying manure to ensure surface waters are not impacted and minimize nuisance concerns for nearby residents is a requirement. Factors to consider when choosing methods of management and application include but are not limited to the volume of manure, the topography, location of surface and ground water sources, and distance from neighboring residents.

The facility has some cropland that has been drain tiled. The tiled fields will be periodically monitored when manure is applied to the field.

Application Rates:

The runoff pond will be pumped when needed. Manure is land applied at a rate not to exceed phosphorus levels recommended for the crop of the following production year. The owners apply the manure at rates from three to ten tons an acre. They work with a crop consultant on manure application to reduce the phosphorus levels in the some of the fields and to better utilize the nutrients of the manure for crop production.

Record Keeping:

The facility must make the following records available to the department for review upon

request for a minimum of 5 years from the date they are created:

- Document routine visual inspections of the production area and containment structures.
- How, when, and where the manure, litter, or process wastewater was reused or disposed.
- Weather conditions at the time and 24 hours prior to manure application.
- Mortalities management and practices used.
- The date, time and estimated volume of any overflow outside of the containment area.
- Annual nutrient sampling of: manure, litter and/or process wastewater and soil samples where manure has been applied that year.
- An explanation of how the manure application rates were determined with calculations of the planned and actual total nitrogen and phosphorus to be applied to each field.
- The crops grown and crop yields for all fields where manure was applied.
- If manure, litter, or process wastewater is transferred to other persons or entities; the recipient's name and address, approximate amount transferred, and the date of the transfer should be documented.
- Any actions taken to correct deficiencies.

Table 5-Expected Manure Volumes and Nutrients

	Daily	365 Days
Volume of animal manure	51,612 gal/day 6,900 cu ft	18.838 Mgal 2,518,500 cu ft
Nitrogen (N)	2,277 lbs./day	831,105 lbs.
Phosphorus (P ₂ O ₅)	1,895 lbs./day	691,580 lbs.
Potassium (K ₂ O)	2,162 lbs./day	789,046 lbs.
Storage	47.5%	
Land apply method	22.5%	

Land Application of Manure:

Estimate of land needed for manure application:

If the nutrient management plan's phosphorus risk assessment indicates a medium to low risk of movement of phosphorus, facilities are allowed to apply at agronomic nitrogen rates in accordance with the phosphorus index.

If the nutrient management plan's phosphorus risk assessment indicates a high potential for movement or if soil test show phosphorus levels in the high range, the facility is required to apply the manure at agronomic phosphorus rates.

Table 6-Nutrients and Rates

Nutrient	Rate
Phosphorus (with 20% not available)	42 lbs. P2O5/acre
Nitrogen (with 70% losses)	100 lbs. N/acre

Anticipated crop grown: Sunflowers, wheat, corn grain, soybean, edible beans, sunflowers

Risk assessment for phosphorus: Medium and high

Amount of land estimated for spreading at agronomical rates: 3,382 acres

Amount of land identified by applicant for land application: 5,125 acres

The department realizes that the nitrogen in manure is not all available to the crop the first year and therefore the manure will typically be applied at rates higher than the rates listed above. However, the organic nitrogen becomes available the following year(s) so the manure cannot be applied at the same rate subsequent years. These figures are used to estimate the total acres that would be needed over several years of application using proper rotation of cropland and/or calculating nitrogen that is carried over to the following years.

Disclaimer:

This design review accounts for those rules and regulations which govern the integrity of those structures put in place to handle manure, manure runoff, or other waste streams which may impact the waters of the state. All other rules, codes, or regulations are outside the scope of this proposed permit and the authority of this department.

PERMIT ISSUANCE PROCEDURES

PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

PROPOSED PERMIT ISSUANCE

This proposed permit application meets all statutory requirements for the department to authorize a State Animal Feeding Operation Permit. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of North Dakota. The department proposes to issue this permit for a term of five (5) years.

APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

The department proposes to issue a permit to **Thorsgard Cattle Company**. This fact sheet describes the facility and the department's rationale for requiring permit conditions.

The department will place a Public Notice of Draft on **3/10/2021** in the **Grand Forks Herald** to inform the public and to invite comment on the proposed draft North Dakota State AFO Permit and fact sheet.

The Notice-

- Indicates where copies of the draft Permit and Fact Sheet are available for public evaluation.
- Offers to provide assistance to accommodate special needs.
- Urges individuals to submit their comments before the end of the comment period.
- Informs the public that if there is significant interest, a public hearing will be scheduled.

You may obtain further information from the department by telephone, 701.328.5210, or by writing to the address listed below.

North Dakota Department of Environmental Quality
Division of Water Quality
918 East Divide Avenue, 4th Floor
Bismarck, ND 58501

The primary author of this permit and fact sheet is Brady Espe.

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APPENDIX B – DEFINITIONS

DEFINITIONS Standard Permit (BP 2019.09.23)

1. “Animal feeding operation” means a lot or facility, other than an aquatic animal production facility, where the following conditions are met:
 - a. Animals, other than aquatic animals, have been, are, or will be stabled or confined and fed or maintained for a total of forty-five days or more in any twelve-month period; and
 - b. Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.
2. “Bedding material” means an absorbent substance applied to dirt or concrete flooring systems, including wood shavings, wood chips, sawdust, shredded paper, cardboard, hay, straw, hulls, sand, and other similar, locally available materials.
3. “Best management practices” means schedules of activities, prohibitions of practices, conservation practices, maintenance procedures, and other management strategies to prevent or reduce the pollution of waters of the state. Best management practices also include treatment requirements, operating procedures, and practices to control production area and land application area runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
4. “Concentrated animal feeding operation” means an animal feeding operation that is defined as a large, medium, or small concentrated animal feeding operation or any animal feeding operation designated as a concentrated animal feeding operation under section 33.1-16-03.1-04. For purposes of determining animal numbers, two or more feeding operations under common ownership are considered to be a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes.
5. “Earthen storage pond” or “pond” means a topographic depression either below or above ground level, manmade excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials or other seepage control materials, and used to store manure, process wastewater and runoff from the production area of a facility.
6. “Engineer” means a professional engineer registered to practice in the state of North Dakota.
7. “Facility” is an animal feeding operation.
8. “General permit” means a general state animal feeding operation permit. This is a permit issued to cover multiple facilities of the same or similar type, without requiring each facility to be covered under an individual permit.

9. “Large concentrated animal feeding operation” means any animal feeding operation that stables or confines as many as or more than the numbers of animals, not including unweaned young, specified in any of the following categories:
- a. Seven hundred mature dairy cows, whether milked or dry;
 - b. One thousand veal calves;
 - c. One thousand cattle other than mature dairy cows or veal calves. “Cattle” includes, but is not limited to, heifers, steers, bulls, and cow/calf pairs;
 - d. Two thousand five hundred swine, each weighing 55 pounds or more;
 - e. Ten thousand swine, each weighing less than 55 pounds;
 - f. Five hundred horses;
 - g. Ten thousand sheep or lambs;
 - h. Fifty-five thousand turkeys;
 - i. Thirty thousand laying hens or broilers, if the animal feeding operation uses a liquid manure handling system;
 - j. One hundred twenty-five thousand chickens (other than laying hens), if the animal feeding operation uses other than a liquid manure handling system;
 - k. Eighty-two thousand laying hens, if the animal feeding operation uses other than a liquid manure handling system;
 - l. Thirty thousand ducks, if the animal feeding operation uses other than a liquid manure handling system; or
 - m. Five thousand ducks, if the animal feeding operation uses a liquid manure handling system.
10. “Litter” means a mixture of fecal material, urine, animal bedding material, and sometimes waste feed.
11. “Manure” means fecal material and urine, animal-housing wash water, bedding material, litter, compost, rainwater, or snow melt that comes in contact with fecal material and urine, and raw or other materials commingled with fecal material and urine or set aside for disposal.
12. “Manure handling system” means all of the water pollution control structures used at the production area of a facility.
13. “Manure storage pond” means an earthen storage pond that stores liquid manure and process wastewater from indoor confined animal feeding operations.

14. “Manure storage structure” means any water pollution control structure used to contain or store manure or process wastewater. It includes earthen manure storage ponds; runoff ponds; concrete, metal, plastic, or other tanks; and stacking facilities.
15. “Medium animal feeding operation” means any animal feeding operation that stables or confines the numbers of animals, not including unweaned young, specified within any of the following ranges:
 - a. Two hundred to six hundred ninety-nine mature dairy cows, whether milked or dry;
 - b. Three hundred to nine hundred ninety-nine veal calves;
 - c. Three hundred to nine hundred ninety-nine cattle other than mature dairy cows or veal calves. “Cattle” includes, but is not limited to, heifers, steers, bulls, and cow/calf pairs;
 - d. Seven hundred fifty to two thousand four hundred ninety-nine swine, each weighing 55 pounds or more;
 - e. Three thousand to nine thousand nine hundred ninety-nine swine, each weighing less than 55 pounds;
 - f. One hundred fifty to four hundred ninety-nine horses;
 - g. Three thousand to nine thousand nine hundred ninety-nine sheep or lambs;
 - h. Sixteen thousand five hundred to fifty-four thousand nine hundred ninety-nine turkeys;
 - i. Nine thousand to twenty-nine thousand nine hundred ninety-nine laying hens or broilers, if the animal feeding operation uses a liquid manure handling system;
 - j. Thirty-seven thousand five hundred to one hundred twenty-four thousand nine hundred ninety-nine chickens (other than laying hens), if the animal feeding operation uses other than a liquid manure handling system;
 - k. Twenty-five thousand to eighty-one thousand nine hundred ninety-nine laying hens, if the animal feeding operation uses other than a liquid manure handling system;
 - l. Ten thousand to twenty-nine thousand nine hundred ninety-nine ducks, if the animal feeding operation uses other than a liquid manure handling system; or
 - m. One thousand five hundred to four thousand nine hundred ninety-nine ducks, if the animal feeding operation uses a liquid manure handling system.
16. “Medium concentrated animal feeding operation” means a medium animal feeding operation that meets either one of the following conditions:

- a. Pollutants are discharged into waters of the state through a manmade ditch, flushing system, or other similar manmade device; or
 - b. Pollutants are discharged directly into waters of the state which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.
- 17. “North Dakota Livestock Program Design Manual” means the guidelines established for use by the department in the review and permitting process for animal feeding operations.
- 18. “Nutrient management plan” means a written description of the equipment, methods and schedules by which:
 - a. Manure, litter, and process wastewater is beneficially reused in an environmentally safe manner such as being applied to land at appropriate agronomic rates as nutrients or fertilizers; and
 - b. Water pollution and air pollution, including odors, are controlled sufficiently to protect the environment and public health.
- 19. “Open lot” means livestock pens, feeding or holding areas at the production area of an animal feeding operation which are outside and not under roof, and where rain can fall directly on the lot area.
- 20. “Open manure storage structure” means an earthen pond or storage tank for holding liquid manure which is not covered so rainfall can fall directly into the pond or tank.
- 21. “Operation and maintenance plan” means a written description of the equipment, methods, and schedules for:
 - a. Inspection, monitoring, operation, and maintenance of the animal feeding operation, including manure storage structures, water pollution control structures, and the production area; and
 - b. Controlling water pollution and air pollution, including odors sufficient to protect the environment and public health. It includes emergency response actions for spills, discharges or failure of a collection, storage, treatment, or transfer component.
- 22. “Operator” means an individual or group of individuals, partnership, corporation, joint venture, or any other entity owning or controlling, in whole or in part, one or more animal feeding operations.
- 23. “Overflow” means the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or storm water can be contained by the structure.
- 24. “Pollutant” means “wastes” as defined in North Dakota Century Code section 61-28-02, including dredged spoil, solid waste, incinerator residue, garbage, sewage, sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or

discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

25. “Process wastewater” means water directly or indirectly used in the operation of the animal feeding operation for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other animal feeding operation facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts, including manure, litter, feed, milk, eggs, or bedding material.
26. “Production area” means those areas of an animal feeding operation used for animal confinement, manure storage, raw materials storage, and waste containment. The animal confinement area includes open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milking rooms, milking centers, cattle yards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes lagoons, runoff ponds, storage sheds, stockpiles, under-house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes feed silos, silage bunkers, and bedding materials. The waste containment area includes settling basins, areas within berms, and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility and any area used in the storage, handling, treatment, or disposal of mortalities.
27. “Runoff” means rainwater or snow melt that comes in contact with manure at an open lot or open manure storage area and, therefore, is defined as manure.
28. “Runoff pond” means an earthen storage pond that is used to collect and store runoff from an open lot or from a manure storage area.
29. “Seepage” means the volume of flow through a manure storage structure.
30. “Sensitive groundwater area” means vulnerable hydrogeologic settings as determined by the department such as glacial outwash deposits or alluvial or aeolian sand deposits that are critical to protecting current or future underground sources of drinking water. Areas designated as sensitive groundwater areas by the department include alluvial or aeolian sand deposits shown on Geologic Map of North Dakota (Clayton, 1980, North Dakota geological survey) and glacial drift aquifers listed in North Dakota Geographic Targeting System for Groundwater Monitoring (Radig, 1997, North Dakota department of health), or most recent editions of these publications, with DRASTIC scores greater than or equal to 100 based on methodology described in DRASTIC: A Standardized System For Evaluating Groundwater Pollution Potential (Aller et al, 1987, United States environmental protection agency).
31. “Small animal feeding operation” means any animal feeding operation that stables or confines less than the numbers of animals specified for a medium animal feeding operation.

32. “Small concentrated animal feeding operation” means a small animal feeding operation designated as a concentrated animal feeding operation under section 33.1-16-03.1-04.
33. “State animal feeding operation permit” means a permit issued by the department under this chapter to an animal feeding operation.
34. “Surface water” means waters of the state that are located on the ground surface, including all streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, and all other bodies or accumulations of water on the surface of the earth, natural or artificial, public or private.
35. “Unconfined glacial drift aquifer” means a glacial drift aquifer that does not have an impervious soil layer which acts to prevent or minimize movement of water into, through, or out of the aquifer.
36. “Water pollution control structure” means a structure built or used for handling, holding, transferring, or treating manure or process wastewater, so as to prevent it from entering the waters of the state. The term also includes berms, ditches, or other structures used to prevent clean water from coming in contact with manure.
37. “Water quality standards” means the water quality standards contained in chapter 33.1-16-02.1.

APPENDIX C – DATA AND TECHNICAL CALCULATIONS**Table 7-Water Commission Well Data:**

Location	Use	Depth(ft)	Diameter(inches)	Aquifer
14905509BAA	Domestic, Stock	32	36	Qd
14905509DCD	Stock	27	30	Qd
1490550911CDC	Domestic, Stock	25	40	Qd
1490550913AAC	Domestic	31.2	48 x 48	Qd
1490550914BAB	Domestic, Stock	20	48 x 48	Qd
1490550917DBB	Domestic, Stock	40	48 x 48	Qd
1490550921DDC	Stock	40	30	Qd
1490550923CAA	Domestic, Stock	25	48	Qd
1490550926BAA	Unused	26.5	48	Qd

*Wells closest to facility.

* Qd – glacial drift and associated sand and gravel deposits

Table 8-Soil Survey Data:

Map unit	Name	Description	Bedrock depth	Seasonal water table	Unified soil class*	Perm in/hr	Lagoon Restrictions
G3A	Parnell silty clay loam, 0 to 1% slopes.	The Parnell series consists of very deep, very poorly drained and poorly drained soils that formed in water-sorted sediments from glacial drift in depressions, swales and drainageways on glacial moraines. These soils have slow permeability.	0-79"	0'	MH, CH, CL	0.18347	Very limited: ponding, depth to saturated zone.
G4A	Southam Silty clay loams, 0 to 1% slopes.	The Southam series consists of very deep, very poorly drained, slowly permeable soils that formed in local alluvium from glacial drift. These soils are in basins and depressions on till plains, moraines and lake plains.	0-79"	0'	OH, MH, CH, CL	0.18841	Very limited: ponding, organic matter content, depth to saturated zone.

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G100A	Hamerly-tonka complex, 0 to 3% slopes.	<p>The Hamerly series consists of very deep, somewhat poorly drained soils that formed in calcareous loamy till. Permeability is moderate in the upper horizons and moderate or moderately slow in the lower horizons. These soils are on flats on lake plains and on convex slopes surrounding shallow depressions and on slight rises on till plains. They have slopes ranging from 0 to 3 percent.</p> <p>The Tonka series consists of very deep, poorly drained, slowly permeable soils that formed in local alluvium over till or glaciolacustrine deposits. These soils are in closed basins and depressions on till and glacial lake plains and have slopes of 0 to 1 percent.</p>	0-79"	2.49'	ML, CL, CH	1.1097	<p>Very limited: depth to saturated zone, seepage.</p> <p>Very limited: ponding, depth to saturated zone, seepage.</p>
G101A	Hamerly Wyard loams, 0 to 3 percent slopes	<p>The Hamerly series consists of very deep, somewhat poorly drained soils that formed in calcareous loamy till. Permeability is moderate in the upper horizons and moderate or moderately slow in the lower horizons. These soils are on flats on lake plains and on convex slopes surrounding shallow depressions and on slight rises on till plains. They have slopes ranging from 0 to 3 percent.</p> <p>The Wyard series consists of very deep, somewhat poorly drained, moderately permeable soils formed in local alluvium from glacial till. These soils are in swales and depressions on glacial till plains and have slopes ranging from 0 to 3 percent.</p>	0-79"	2.49'	ML, CL	1.1097	<p>Very limited: depth to saturated zone, seepage.</p> <p>Very limited: ponding, depth to saturated zone, seepage.</p>

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CL-Clay of low plasticity, ML-inorganic Silts, OH-organic clay, organic silt, CH -organic clay, organic silt, MH – silt of high plasticity, elastic silt

CL-Clay of low plasticity, ML-inorganic Silts, OH-organic clay, organic silt, CH -organic clay, organic silt, MH – silt of high plasticity, elastic silt

Table 9-Soil Boring Information:

	SB 1	SB 2	SB 3	SB 4	SB 5	SB 6	SB 7
Depth							
0 to 1	Black Sticky Mud. Saturated. ML Water at 8"	Black Topsoil - ML to 0.5', Light brown sticky, rapid water penetration, dirty, gritty, medium strength. ML	Black sticky topsoil (clayey) ML	Black clay with good moisture. CL, ML	Black topsoil with clay, good moisture. CL	Black clayey topsoil CL-ML to 0.5' Light brown clayey material with silt, soft & pliable, slow to no water penetration, good moisture. MH	Black clayey topsoil. CL
1 to 2	Black Sticky Mud. Saturated. ML	Light brown sticky, rapid water penetration, dirty, gritty, medium strength. ML Water at 1.4'	Dark gray material. CL	Black clay with good moisture. CL, ML to 1.5' Light brown clay, good moisture, not dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH	Black topsoil with clay, good moisture. CL	Light brown clayey material with silt, soft & pliable, slow to no water penetration, good moisture. MH	Black clayey topsoil. CL
2 to 3	Light brown silty clay. CL	Light brown sticky, rapid water penetration, dirty, gritty, medium strength. ML to 3.5'	Dark gray material. CL	Light brown clay, good moisture, not dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH	Black topsoil with clay, good moisture. CL to 2.5' Dark grey to black clay, really tough. CH	Light brown clayey material with silt, soft & pliable, slow to no water penetration, good moisture. MH	Black clayey topsoil. CL
3 to 4	Light brown silty clay. CL	Light brown with more clays, slow to no water penetration, with silt. CH, MH	Light brown clayey material w/ sand, slow water penetration, medium strength, slight dilatancy. SC Water at 3'	Light brown clay, good moisture, not dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH	Dark grey to black clay, really tough. CH	Light brown, tougher material, more plastic. Slow water penetration, slow to no dilatancy, No water in the hole. CH	Dark gray silty material, slow water penetration. MH
4 to 5	Light brown silty clay. CL	Light brown with more clays, slow to	Light brown clayey material w/ sand, slow	Light brown clay, good moisture, not	Light brown material, softer with	Light brown, tougher material, more	Light brown silty material, slow water

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		no water penetration, with silt. CH, MH	water penetration, medium strength, slight dilatancy. SC to 4.5' CH same as SB 2. Good material. CH, MH	dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH	more silts, plastic, slow water penetration, no water in hole. CH	plastic. Slow water penetration, slow to no dilatancy, No water in the hole. CH	penetration. MH Water at 3.5'
5 to 6	Light brown silty clay. CL	Light brown with more clays, slow to no water penetration, with silt. CH, MH	CH same as SB 2. Good material. CH, MH	Light brown clay, good moisture, not dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH	Light brown material, softer with more silts, plastic, slow water penetration, no water in hole. MH	Light brown, tougher material, more plastic. Slow water penetration, slow to no dilatancy, No water in the hole. CH	Light brown, tougher soil with more clay, no gravel or sand encountered. CH, MH
6 to 7	Light brown silty clay. CL	Light brown with more clays, slow to no water penetration, with silt. CH, MH	CH same as SB 2. Good material. CH, MH	Light brown clay, good moisture, not dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH	Light brown material, softer with more silts, plastic, slow water penetration, no water in hole. MH	Light brown, tougher material, more plastic. Slow water penetration, slow to no dilatancy, No water in the hole. CH	Black soil turned to light brown soil with clayey material, pliable, low to no water penetration, becomes heavier & tougher as go deeper. MH Water at 7'
7 to 8	Light brown silty clay. CL	Light brown with more clays, slow to no water penetration, with silt. CH, MH	CH same as SB 2. Good material. CH, MH	Light brown clay, good moisture, not dirty, a few stones and granules, gets tougher (better), slow to no water penetration, no water in hole. CH, MH			Light brown tough plastic soil. CH
8 to 9	Light brown silty clay. CL	Light brown with more clays, slow to no water penetration, with silt. CH, MH	CH same as SB 2. Good material. CH, MH				Light brown tough plastic soil. CH
9 to 10	Dark gray clay – silty with very small stones and sand. CL	Light brown with more clays, slow to no water penetration, with silt. CH, MH to 9.5' Dark gray clay, slow to	CH same as SB 2. Good material. CH, MH				

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		no water penetration CH, MH					
10 to 11	Dark gray clay – silty with very small stones and sand. CL	Dark gray clay, slow to no water penetration CH, MH	CH same as SB 2. Good material. CH, MH				
11 to 12		Dark gray clay, slow to no water penetration CH, MH	Light gray clay like SB 2. CH, MH				

SC-clayey sand, CL-Inorganic clays, MH- Inorganic Silts, CH – inorganic clays, ML – Inorganic silts

Elevation	SB 8	SB 9	SB 10	SB 11	SB 12	SB 13	SB 14
0 to 1	Black silty clayey topsoil, very pliable and moist. ML	Straw and manure	Black Clayey topsoil, good moisture. CL	Black Clayey topsoil. CL	Gravel roadbed material-GW 0.5' Black Clayey topsoil. CL	Black Clayey topsoil. CL	Light brown gravel fill. GW
1 to 2	Black silty clayey topsoil, very pliable and moist. ML	Black Clayey topsoil. CL	Black Clayey topsoil, good moisture. CL	Light grey, sticky, soft, weaker silty clay, very pliable. SC Water at 1'	Black Clayey topsoil. CL 1.5' Light brown clayey with a few sand particles, tough material, hard to mold, stiff material. CH	Black Clayey topsoil. CL to 1.5' Dark grey pliable sticky material. CL	Dark black Clayey topsoil. CL
2 to 3	Light gray silty clayey topsoil, very pliable and moist. ML	Black Clayey topsoil. CL	Black Clayey topsoil, good moisture. CL 2.5' Light brown clayey material, slow to no water penetration, a few gritty particles, sticky material with moderate strength, gets tougher as dig deeper. only small	Light brown silty, clayey material with sand lenses, slow to no water penetration, material gets tougher as go deeper. Seems to be perched water table as never find a significant sand & gravel layer. CH, MH	Light brown clayey with a few sand particles, tough material, hard to mold, stiff material. CH	Light brown clayey material, small sand lenses, material gets tougher as dig deeper. MH	Black Clayey topsoil. CL to 2.5' Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. MH

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			occasional particles of sand. CH				
3 to 4	Light brown material slow to no water penetration, slow to no dilatancy, material getting tougher, slightly dirty. MH, CH	Black soil turned to light brown soil with clayey material, pliable, low to no water penetration, becomes heavier & tougher as go deeper. MH	Light brown clayey material, slow to no water penetration, a few gritty particles, sticky material with moderate strength, gets tougher as dig deeper. only small occasional particles of sand. CH	Light brown silty, clayey material with sand lenses, slow to no water penetration, material gets tougher as go deeper. Seems to be perched water table as never find a significant sand & gravel layer. CH, MH	Light brown clayey with a few sand particles, tough material, hard to mold, stiff material. CH	Light brown clayey material, small sand lenses, material gets tougher as dig deeper. CH	Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. MH
4 to 5	Light brown material slow to no water penetration, slow to no dilatancy, material getting tougher, slightly dirty. MH, CH	Black soil turned to light brown soil with clayey material, pliable, low to no water penetration, becomes heavier & tougher as go deeper. MH	Light brown clayey material, slow to no water penetration, a few gritty particles, sticky material with moderate strength, gets tougher as dig deeper. only small occasional particles of sand. CH Water at 4'	Light brown silty, clayey material with sand lenses, slow to no water penetration, material gets tougher as go deeper. Seems to be perched water table as never find a significant sand & gravel layer. CH, MH Water in hole at 4.5'	Light brown clayey with a few sand particles, tough material, hard to mold, stiff material. CH	Light brown clayey material, small sand lenses, material gets tougher as dig deeper. CH	Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. MH
5 to 6	Light brown material slow to no water penetration, slow to no dilatancy, material getting tougher, slightly dirty. CH Water at 5.4'	Black soil turned to light brown soil with clayey material, pliable, low to no water penetration, becomes heavier & tougher as go deeper. CH	Light brown clayey material, slow to no water penetration, a few gritty particles, sticky material with moderate strength, gets tougher as dig deeper. only small occasional particles of sand.	Light brown silty, clayey material with sand lenses, slow to no water penetration, material gets tougher as go deeper. Seems to be perched water table as never find a significant sand & gravel layer. CH	Light brown clayey with a few sand particles, tough material, hard to mold, stiff material. CH Water at 5'	Light brown clayey material, small sand lenses, material gets tougher as dig deeper. CH	Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. MH

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			CH				
6 to 7	Light brown material slow to no water penetration, slow to no dilatancy, material getting tougher, slightly dirty. CH	Black soil turned to light brown soil with clayey material, pliable, low to no water penetration, becomes heavier & tougher as go deeper. CH Water at 7'	Light brown clayey material, slow to no water penetration, a few gritty particles, sticky material with moderate strength, gets tougher as dig deeper. only small occasional particles of sand. CH Water in hole at 7'		Light brown clayey with a few sand particles, tough material, hard to mold, stiff material. CH Water in hole at 7'	Light brown clayey material, small sand lenses, material gets tougher as dig deeper. CH Water hit in hole at 7' water was > 6'	Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. MH, CH
7 to 8			Light brown clayey material, slow to no water penetration, a few gritty particles, sticky material with moderate strength, gets tougher as dig deeper. only small occasional particles of sand. CH to 7.5', bottom of hole.				Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. MH, CH
8 to 9							Light grey material, pliable at beginning turns gritty at 6', turns a little tougher towards bottom. No water pushed up with auger Water at bottom of hole. CH

APPENDIX D – RESPONSE TO COMMENTS

Comments received during the public comment period will be addressed and placed here.

DRAFT

STATE ANIMAL FEEDING OPERATION PERMIT

NDAFO-0386

In compliance with North Dakota Administrative Code (NDAC) 33.1-16-03.1 of the North Dakota Department of Environmental Quality rules as promulgated under Chapters 61-28 and 23-25 of North Dakota Century Code (NDCC), authorization of the **Thorsgard Cattle Company** facility located in the SE ¼ of the SE ¼ of Section 15, NE ¼ of section 22, and the NW ¼ of section 23 in Township 149N, Range 55W in Grand Forks County, North Dakota is granted provided the following conditions are met:

- 1) The application indicated the facility is a CAFO that will house 6,000 beef cattle. The department must be notified in writing if there is an expansion in the number of livestock, change in ownership of the facility, significant changes in the physical operation of the facility or if the lot area where livestock are concentrated is expanded. Changes may require an update to the permit or issuance of a new permit.
- 2) Operation and Maintenance plans and standard operating procedures must be followed as submitted to the department. Changes to the Operation and Maintenance plan must be reviewed by the department prior to being implemented. There must be regular and adequate maintenance and upkeep to prevent degradation of the structures, to ensure the system continues to operate as designed, to ensure the storage pond does not overflow, and to ensure manure or wastewater does not discharge into waters of the state. Operation and maintenance plans shall include:
 - a. Weekly inspections of all storm water diversion devices, runoff diversion structures and devices channeling runoff to the manure storage structure;
 - b. Daily inspection of water lines, including drinking water or cooling water lines; and
 - c. Weekly inspections of the manure storage structures noting the level of liquid in the structure as indicated by the depth marker. (North Dakota Livestock Program Design manual, section 6)
- 3) The operator shall notify the department within thirty days of construction completion of the manure storage or water pollution control structures. The operator shall provide certification from the engineer or the designer that construction of manure storage and water pollution control structures was completed according to designs provided with the application or the department-approved changes. (NDAC 33.1-16-03.1-07(5))
- 4) Mortality shall be disposed of in accordance with NDCC section 36-14-19, in a manner acceptable to the North Dakota Board of Animal Health, and so they will not impact waters of the state. Burial is the option for this facility. Mortality will be composted and buried on the property and be at least four feet below the ground level and covered with dirt to that depth. Mortality shall not be buried in an area where there could be a surface or ground water impact such as along riverbanks or in sandy soils with high water tables. The best locations for burying are on higher areas with heavy clay soil that are away from water and drainage ways.
- 5) Land application of manure shall be in accordance with the nutrient management plan. Manure shall be applied in a manner so it will not be washed into waters of the state. When applying manure within ½ mile of an occupied residence, building, or public area where people may be present; it is recommended that the operator review and follow the guidelines of the North Dakota Livestock Program Design Manual, 7.6, section 4 and incorporate the manure within 8 hours of land application.
- 6) The following records pertaining to nutrient management shall be maintained for a minimum of 5 years:
 - a. The crops grown and expected realistic crop yields;
 - b. The date(s) manure, litter or process wastewater is applied to each field;
 - c. Weather conditions during application, 24 hours prior and following application;
 - d. Test methods used to sample and analyze manure, litter, wastewater and soil;
 - e. Results from annual testing of manure, litter, and process wastewater, and annual soil sample results for land where manure was applied that year;
 - f. An explanation of how the application rates were determined in accordance with standards

- established by the department;
 - g. Calculations showing nutrients applied to each field, including other nutrient sources;
 - h. Total amount of nutrients actually applied to each field, including documentation of calculations for the total amount applied, and;
 - i. Method used to apply the manure, litter or process wastewater; inspection of manure application equipment including method, frequency, dates and repairs made if leaks were found; and setbacks, vegetated buffers or other alternative practices used when land applying manure near surface water or potential conduits to surface water. (North Dakota Livestock Program Design Manual, 7.7, section 2)
- 7) If manure is transferred to other persons or entities not associated with the facility, the following conditions shall apply:
- a. Owners/operators shall provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis prior to transfer;
 - b. The analysis provided shall be consistent with the requirements of section 7.4 in design manual, and;
 - c. The owners/operators of the CAFO shall retain records for five years after the transfer date documenting the recipient's name and address, the approximate amount of manure transferred, and the date the manure was transferred. (North Dakota Livestock Program Design Manual, 7.7, section 3)
- 8) All open manure storage structures shall maintain a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation from a 25-year, 24-hour rainfall event.
- 9) Any deficiency discovered during an inspection shall be corrected as soon as possible. Chemicals or other contaminants handled on site shall not be disposed of in a structure used for storage or treatment of manure, process wastewater or stormwater unless it is specifically designed for that purpose. The operator of a livestock facility should maintain a rain gauge at the production area and record measurable rainfall events. (North Dakota Livestock Program Design manual, 6.2)
- 10) The owner/operator of a CAFO shall make the following records available to the department for review upon request:
- a. Records documenting the visual inspections;
 - b. Weekly records of the depth of the manure and process wastewater in the liquid manure storage structure as indicated by the depth gauge in storage structure; records documenting any actions taken to correct deficiencies;
 - c. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction;
 - d. Records of management and practices used;
 - e. Record documenting current design of any manure storage structures, including solids accumulation volume, design treatment volume, total design volume and the approximate number of days of storage capacity;
 - f. Records of the date, time and estimated volume of any overflow; and records documenting the land application of manure. (North Dakota Livestock Program Design Manual, 6.5)
- 11) This permit shall in no way authorize the discharge of any objectionable odorous air contaminant which is in excess of the limits established in NDAC Chapter 33.1-15-16 of the North Dakota Air Pollution Control Rules. If the department determines odors from the facility exceed limits, steps shall be taken, within a reasonable time, to control and reduce odors from the facility site. This may include requiring the installation of a cover on the ponds or other odor control measures.
- 12) There must be regular and adequate maintenance and upkeep to prevent degradation of the structures, to ensure the system continues to operate as designed, to ensure the containment system does not overflow, and to ensure manure or wastewater does not discharge into waters of the state.
- 13) The department must be notified if there is a change in address or other contact information for the facility.

Effective Date: Date of Signature
Expiration Date: April 30, 2026

The above conditions are considered part of the proper operation of the facility. If any of the above conditions are not met, the department must be notified in writing, within five (5) days. Any noncompliance with the permit conditions or with state requirements must be reported to the department as soon as possible after the facility becomes aware of the noncompliance condition. Failure to meet these requirements may result in monetary penalties and/or revocation of this permit.

Construction may begin upon signature of this permit by the department. The permit is based on construction being completed as per the design plans reviewed by the department. If any structural changes are made that are different than these design plans, the department must be notified in writing and prior approval obtained, before making these changes.

Authorized department personnel shall be permitted access to the facility to determine compliance with department rules and regulations. Department inspections will abide by all security measures implemented by the owner or operator to protect the health and safety of the workers and animals at the facility.

The owner/operator of this facility shall comply with all State and Federal environmental laws and rules, and shall also comply with all local building, fire, zoning and other applicable ordinances, codes, and rules.

Notice of Completion and results of testing completed on the clay liner or the manure storage structures shall be received by the department within 30 days of completion of construction.

I certify that I have read and understand the above information and agree to operate the facility in a manner that will meet all the conditions listed herein.

OWNER/OPERATOR CONSENT

FOR THE NORTH DAKOTA
DEPARTMENT OF
ENVIRONMENTAL QUALITY

By _____
(signature)

By _____

By _____
(print name here)

By Karl Rockeman, Director
Water Quality Division

Date _____

Date _____