Please arrange to have the following public notice(s) printed in the legal column of the designated newspaper(s) as close to 8/7/2020 as possible.

The Affidavit of Publication and billing notice should be sent to: North Dakota Department of Environmental Quality, Judicial Wing, Division of Accounting, 600 East Boulevard Ave, Bismarck ND 58505.

Name of the Newspaper: The Teller

North Dakota Department of Environmental Quality Public Notice
Issue of an AFO Permit

Public Notice Date: 8/7/2020

Purpose of Public Notice

The Department intends to issue the following Animal Feeding Operation AFO Permit under the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Public Notice Number: ND-2020-021
Application Date: 6/8/2020 Application Number: NDAFO0886
Applicant Name: Justin and Nathan Quandt
Mailing Address: 11020 93rd street SE, Oakes, ND 58474
Telephone Number: 701.710.1101
Proposed Permit Expiration Date: 8/31/2025

Facility Description

The application is for a finishing swine feedlot facility that is located 5 miles east and 6 miles south of Oakes, ND, in the SW 1/4 of Section 20, Township 130N, Range 58W, in Sargent County. The application indicates the facility will have a maximum of 4,800 finishing swine that weigh about 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.

Purpose of Public Notice

The Department intends to issue the following Animal Feeding Operation AFO Permit under the authority of Section 61-28-04 of the North Dakota Century Code.

Permit Information

Public Notice Number: ND-2020-022
Application Date: 6/8/2020 Application Number: NDAFO0887
Applicant Name: Quandt Family Barn
Mailing Address: 11020 93rd street SE, Oakes, ND 58474
Telephone Number: 701.710.1101
Proposed Permit Expiration Date: 8/31/2025

Facility Description

The application is for a finishing swine feedlot facility that is located ten miles south and six miles east on the east side of 116th Ave SE of Oakes, ND, in SW ¼ of Section 16, Township 129 N, Range 58W or Latitude 45.993217 N and Longitude -97.965831 W, in Sargent County. The application indicates the facility will have a maximum of 4,800 finishing swine that weigh about 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. 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 September 08, 2020 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-0886

JUSTIN AND NATHAN QUANDT
OAKES, ND

DATE OF THIS FACT SHEET – August 6, 2020

INTRODUCTION

The North Dakota Department of Environmental Quality has the statutory responsibility to control the pollution of surface waters, groundwaters, and the air of the state. Water Quality Standards have been developed and adopted for the surface waters of North Dakota. An extensive Water Pollution Control Act, addressing among other things the control of livestock waste, was adopted by the 1967 state legislature. 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 North Dakota Administrative Code (NDAC) Chapter 33.1-16-03.1, 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. The period of comment may be extended at the discretion of the department. In making its final decision on the application or draft permit, the department shall consider all comments submitted within a time frame specified in the public notice and all comments received at any public hearing. Within twenty days of the close of the public comment period, the applicant, if any, may submit a written response to the public comments. The department shall consider the applicant's response in making its final decision. Pursuant to the requirements of this chapter

(NDAC Section 33.1-16-03.1(8) and within sixty days of the applicant's response to the public comments, the department shall make a final determination as to whether the permit should be approved, approved with conditions, or denied. The department shall notify the applicant in writing of its final determination and provide to the applicant a copy of the final permit, if issued. Upon request, other interested individuals may also obtain copies of the final permit. (NDAC Chapter 33.1-16-03.1)

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.**

TABLE OF CONTENTS

Contents

BACKGROUND INFORMATION

Table 1. General Facility Information

Applicant:	Justin and Nathan Quandt
Facility Name and Address:	Justin and Nathan Quandt 11020 93rd St SE Oakes, ND 58474
Permit Number:	NDAFO-0886
Permit Type:	CAFO
Hydrologic Code:	10160003 – Upper James

FACILITY DESCRIPTION

The Justin and Nathan Quandt facility is located approximately five miles east and six miles south of Oakes, ND, in SW ¼ of Section 20, Township 130 N, Range 58W or Latitude 46.050758 N and Longitude -97.987581 W, in Sargent County.

The application submitted to the department on June 8, 2020, indicates the proposed facility will consist of one finisher barn, which will house a maximum capacity of 4,800 finisher pigs with an average weight of 150 lbs. for 318 days a year. The finisher barn will be roofed and will have slatted concrete floors over an 8-foot deep concrete pit. The deep pit can contain 318 days of waste generated through the production of livestock.

Additionally, the facility submitted a nutrient management plan (NMP) that addresses how liquid manure streams will comply with the environmental standards of the State of North Dakota.

GROUNDWATER AND SURFACE WATER

Geology:

This part of Sargent County is located within the glaciated lake plains of the Central Lowland physiographic province of North Dakota. The underlying geology of the property in which the facility resides consists of interbedded lake silts and some fluvial sand which are associated with Lake Dakota. Gravel is also seen in locations throughout the surface geology.

Topography:

This area is characterized by low topographic reef, except in the glacial morainal areas in the southwest potion of the county where streams are incised.

Slope:

The slope of the site is 1.0 % percent (%) at the site.

Runoff:

All waste will be contained in the concrete deep pit of the confinement barn. This facility will not produce any dirty runoff water and therefore no runoff containment structure will

be required. All precipitation (rain or snow) and surface waters will be diverted or will drain away from the confinement barn.

Elevation:

According to the United States Geological Survey Quadrangle maps, the facility is at an approximate elevation of 1,322.3 feet.

Site Drainage:

The natural drainage of the area drains southwest and southeast into prairie pothole wetlands. There are no defined streams within several miles of the facility.

Water Bodies:

Meszarous Slough is located 5.98 miles from the facility.

Soils:

The primary soils underlying the facility indicated by the National Resource Conservation Service (NRCS) soil survey, include Fossum fine sandy loam, Bantry-Hamar-Aylmer Complex and Hecla-Garbory loamy fine sands. These soils consist mostly of SC-SM, CL-ML, ML, SM, SP-SM, and SW-SM materials. (See Appendix C, Table 8)

Aquifers:

The facility overlies the Oakes aquifer.

Public Wells:

There are 42 observation wells located within two miles of the site. (Appendix C, Table 7)

Private Wells:

Within two miles of the site there are 45 private well(s) identified. Wells in the area range from 22 feet to 187 feet deep. This facility is currently served by rural water.

MANURE HANDLING AND DISPOSAL

Facility Operation:

The facility will incorporate a deep pit confinement barn with slatted floors. Livestock will be residing within the facility for 365 days a year time period. However, each group of hogs will be in the facility for 318 days a year cycle. During the 47 days, pens in the facility will be cleaned and sanitized for the next group of hogs. All manure from the livestock will be stored in the deep pit of the confinement barn until it is utilized during land application. Drain tile around the deep pit barn will be used to lower the water table in this area to reduce hydraulic stress on the deep pit barn's walls and floor.

Manure Handling:

Liquid manure will be moved from the deep pit confinement barn and injected in accordance with the Nutrient Management Plan (NMP) twice a year.

Expected Manure Quantities:

Table 2. Manure quantities from design plans

Livestock Information	Amount	Type	Average Weight (*lbs.*)	Manure Production (*ft³/day*)	Wash Water (ft³/day)
	4,800	Finisher Pigs	150	720	155.5

	ft³/year	*Mgal*
Volume Needed for 270 days of Manure Storage	194,400	1.4
Total Volume Needed for Manure Storage	228,960	1.7

Mortality Disposal:

The owners have chosen composting for the facility's disposal method. 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 location will be at the Quandt's Family barn located 4.5 miles southeast of this facility. Composting bins are 86-feet long by 20-feet wide with and 12-foot apron. The bins consist of 8 bays that are 20-feet long by 10-feet wide with 6-feet side walls. Each bay would have a 3-inch lip on the front side with a 3% slope to the back wall of the bay. This is suitable to sustain a 100-year, 24-hour storm event.

ODORS

Potential Sources:

A source of potential odors appears to be the deep pit barn. The nearest resident is about 1.1 miles northwest from the facility's site. 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)) The township regulates the nature, scope, and location of this operation. The facility received zoning approval from Jackson Township on July 18, 2020.

SPECIFICATIONS

Manure Storage Structures:

Table 3. Required Manure Storage

Type: Slatted Barn – Deep Pit	Barn Information Proposed Construction Year: 2020
Deep Pit Dimensions (*ft*)	336.33 by 120.87
Top Liquid Area (ft^2)	40,652
Bottom Surface Area (ft^2)	40,652
Design Volume (ft^3)	294,103
Design Volume (Mgal)	2.2
Manure Storage Depth (*ft*)	7.17
Total Depth (*ft*)	8
The facility has the capacity to store the manure generated.	

Soil Summary:

The proposed location appears suitable based on the provided soil survey, which also indicates groundwater levels from 1.5-feet to 5-feet throughout the site. The borings indicate that the Unified classification for the subsoil at the site is generally SP to a relative (~) depth of 15 feet. The bottom of the manure deep pit is proposed to be 8.4-feet, from the top of the slate at the surface to the subgrade of the deep pit (Appendix C, Table 9).

Manure Transfer Components:

Manure will be contained below the barn where the livestock is being housed. Manure will be pumped and injected through the summer, and fall.

Manure Storage Structure Considerations:

Confinement barn: The facility has incorporated 12 pump-out ports into the design. There will be 6 ports located on the east and west sides of the barn.

Concrete & Rebar:

The confinement barn concrete and rebar specifications follow the guidelines of the American Concrete Institute's publication "Building Code Requirements for Structural Concrete", ACI 318.Only one brand of concrete will be used throughout this project; Portland Cement ASTM C 150, Type 1. The concrete will be air entrained according to ASTM C 260. The compressive strength of the concrete for the precast components will be 4,000 psi. The steel reinforcing shall be Grade 40 or 60 throughout the building in

accordance with ASTM A615 and ACI 318-83. Concrete coverage for all rebar, especially for manure exposed areas (beams, columns, walls, etc.) will have a minimum cover of 2-inches

Foundation Drain:

Drain tile will be placed around the perimeter, outside the foundation base of the deep pit of the confinement barn at 8.83-feet below the surface. The tile collects clean water from outside water sources that apply pressure to the walls, this will help extend the life of the structure. The water captured by the drain tile discharges on the surface through a 4-inch PVC piping near the northeast corner of the site.

Earth Fill:

All organic material and topsoil shall be removed prior to areas with fill as shown on the design drawings and replaced with compacted mineral earthfill. These areas will be graded, roller, compacted, and smoothed prior to geotextile and fill placement. Low lying areas shall be brought up to top of subgrade with earthfill material.

Groundwater Monitoring Plan:

Very little groundwater data exists within and around the facility site. The site does not overlie any wellhead or source water protection areas, however, does overlie the Oakes aquifer, which is a sensitive groundwater area. ND State Water Commission logs of two observation wells located approximately 1/2 mile to the east and west indicated water levels from 3-6 feet below ground surface (bgs).

A search of the NRCS' websoil survey indicates that the soil within the site is a fine sand down to about 60 inches below ground surface. Based on information found within the file, runoff from the facility is to the east to lowlands and pothole wetlands.

Due to current operations, designed construction, and overlying a sensitive groundwater area (Oakes aquifer), groundwater monitoring should be conducted. Recommended 3 monitoring wells at site one upgradient and two downgradient of the livestock and waste storage or handling facility.

Operation and Maintenance Plan:

All swine waste shall be applied as specified in Nutrient Management Plan or Waste Utilization plan.

Travel of vehicles should be confined to designated areas to prevent concrete pit damage and reduce drainage erosion

Vegetation on side slopes shall be clipped annually as a minimum and only when area is dry and firm. Do not allow trees to grow adjacent to concrete storage tanks or existing storage ponds, to avoid root damage to the structures. Regrade, seed and mulch any areas which become damaged immediately.

Maintain grades around containment structures to assure surface drainage away from the structures. Fill any settled areas which may collect water. Repair any damage to fences, gates, marker posts and safety signs.

Inspect concrete storage tank and storage ponds for signs of leaking or seepage, excessive settling, excessive vegetation growth or damage due to vehicles or equipment, rodents or erosion. Report any leakage as detailed above and make plans to rectify any problems as soon as possible.

Solids accumulation in the waste storage pit will be inspected annually. Solids will be cleaned from the pit using agitation when necessary and land applied in accordance with the current NMP. Monitor the Deep pit concrete levels weekly. Inspect Sewer pipes to ensure they are not plugged or damaged. Maintain manure levels below the Freeboard level of the structures.

Inspect drainage pipes and risers after major storm events for damage and debris. Remove any debris from inlet or outlet structures. Repair any damage immediately.

Maintain records of all inspections, facility repairs, mortality disposal type, and manure applications.

Drain tile inspection riser shall be inspected weekly for discharge.

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.

Application Rates:

Liquid manure from the deep pit barn will be pumped out and shallow injection into the soil surface by two rolling coulters spaced to be as close to the row without damaging roots. The manure will be applied in the spring, summer, and fall to spread the application out to about 60 lbs of available Nitrogen.

The manure application rates are dependent on agronomic rates which factor crop, crop yield goals, and soil test results. Manure will be applied at a rate not to exceed

phosphorus levels recommended for the crop of the following production year. Applications will be limited to low amounts and timed so the crop is in fast growing conditions so all nutrients will be used by the crop and not leach away. All drain tiled fields will be monitored to prevent any leaching from the fields during injection of liquid manure.

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 (NDAC 33.1-16-03.1-09, and ND Livestock Program Design Manual 7.7 Record Retention):

- 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	5,386 gal/day 720 cu ft	1.7 Mgal 228,960 cu ft
Nitrogen (N)	302 lbs/day	96,163 lbs
Phosphorus (P2O5)	264 lbs/day	83,799 lbs
Potassium (K2O)	191 lbs/day	60,674 lbs
Storage loss of Nitrogen.	22.5%	
Land application loss of Nitrogen.	1%	

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 23.5% losses)	100 lbs N/acre

Anticipated crop grown: Corn, Potato, and Soybean

Risk assessment for phosphorus: low

Amount of land estimated for spreading at agronomical rates: N: 737.81 acres
P2O5: 1596.2 acres

Amount of land identified by applicant for land application: 1,728.9 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 **Justin and Nathan Quandt**. 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 **8/7/2020** in the **The Sargent County Teller** 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 Tyson Jeannotte.

North Dakota Department of Environmental Quality Public Notice
Issue of an AFO Permit

Public Notice Date: 8/7/2020 Public Notice Number: ND-2020-021

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: 6/8/2020 Application Number: NDAFO0886

Applicant Name: Justin and Nathan Quandt
Mailing Address: 11020 93rd street SE, Oakes, ND 58474
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The application is for a finishing swine feedlot facility that is located 5 miles east and 6 miles south of Oakes, ND, in the SW 1/4 of Section 20, Township 130N, Range 58W, in Sargent County. The application indicates the facility will have a maximum of 4,800 finishing swine that weigh about 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. 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 September 08, 2020 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.

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
129-058-13 AAB	Domestic	150	4	Oakes
129-058-13 CCC1	Observation	160	1.25	Oakes
129-058-13-CCC2	Observation	50	1.25	Oakes
130-058-16 BBC	Domestic	103	6.25	
130-058-16 CAA	Stock	79	9	
130-058-17 ABC2	irrigation	44	23	
130-058-17 DCBB	irrigation	47	17.5	
130-058-17 BBD2	Irrigation	75	17.5	
130-058-17 DDDB	Irrigation	61	17.5	
130-058-17 DDCB	Irrigation	77	17.5	
129-058-17 BAB1	Irrigation	38	8	Oakes
129-058-17 BAB2	Irrigation	38	8	Oakes
130-058-18ABD	Irrigation	50	12.75	
130-058-18 AAC2	Irrigation	55	17.75	
129-058-18 AAA2	Observation	32	2	Oakes
129-058-18 ADD	Observation	28	2	Oakes
129-058-18 CAA	Observation	18	2	Oakes
129-058-18 CBB	Observation	28	2	Oakes
129-058-18 CCC1	Observation	0	2	Oakes
129-058-18 CCC2	Observation	23	2	Oakes
129-058-18 CCD	Observation	182	2	Oakes
129-058-18 CDD	Observation	28	2	Oakes
130-058-19 DDB	Irrigation	73	23	
130-058-19 ACA	Irrigation	46	12.75	
130-058-19BDA	Irrigation	42	12.75	
130-058-19 BDAB	Irrigation	41	11.75	
130-058-19 ACB	Irrigation	41	11.75	
130-058-19 DDB2	Irrigation	58	17.5	
130-058-19 ABD	Irrigation	75	32	
130-058-19 CAD	Irrigation	22	12	
129-058-19 AAA2	Observation	65	2	Oakes
129-058-19 AAC2	Observation	35	1.25	Oakes
129-058-19 ABB2	Observation	60	1.25	Oakes
129-058-19 ACC	Observation	160	1.25	Oakes
129-058-19 ADD	Observation	180	1.25	Oakes
129-058-19 BBD2	Observation	75	1.25	Oakes
129-058-19 BCC	Observation	28	2	Oakes
129-058-19 BCD	Observation	160	1.25	Oakes

129-058-19 CAA	Observation	28	2	Oakes
129-058-19 CBC2	Observation	65	1.25	Oakes
129-058-19 CBD	Observation	155	1.25	Oakes
129-058-19 CDD	Observation	160	1.25	Oakes
129-058-19 DAA	Observation	23	2	Oakes
130-058-20 CAC2*	Irrigation	187	17.5	
129-058-20 BBB*	Observation	0	3	Oakes
129-058-20 CCC2*	Observation	38	2	Oakes
130-058-21 CCA	Stock	58	8.75	
130-058-21 DDA	Stock	53	6.75	
130-058-25 CBB	Domestic	132	4	
130-058-25 DCB	Irrigation	187	17.5	
130-058-29 DCC	Stock	65	6.25	
130-058-29 ACA	Stock	92	6.25	
129-058-29 BBB	Observation	0	3	Oakes
130-058-30 CDA	Irrigation	89	17.5	
130-058-30 D	Irrigation	58	28	
130-058-30 ADD7	Irrigation	75	23	
130-058-30 ADD	Irrigation	69	12.5	
129-058-30 ABB	Observation	28	2	Oakes
129-058-30 BCC	Observation	28	2	Oakes
129-058-30 CCC	Observation	160	1.25	Oakes
129-058-30 CCD2	Observation	47	2	Oakes
129-058-30 CDD2	Observation	45	2	Oakes
129-058-30 DAA	Observation	23	2	Oakes
129-058-30 DBB	Observation	23	2	Oakes
129-058-30 DDD1	Observation	180	1.25	Oakes
129-058-30 DDD2	Observation	50	1.25	Oakes
130-058-31 ADA	Irrigation	63	32	
130-058-31 BAA	Irrigation	82	17.5	
130-058-31 DCA2	Irrigation	55	22	
130-058-31 ADC	Irrigation	140	-	
130-058-31	Irrigation	160	4.75	
129-058-31 AAC	Irrigation	60	16	Oakes
129-058-31 ABC	Irrigation	72	16	Oakes
129-058-31 BCC	Observation	28	2	Oakes
129-058-31 CCC	Observation	0	3	Oakes
129-058-31 DAA	Observation	23	2	Oakes
129-058-31 DAC	Irrigation	52	8	Oakes
129-058-31 DBD3	Irrigation	50.5	8	Oakes
129-058-31 DCC	Observation	23	2	Oakes
129-058-31 DDD1	Observation	0	3	Oakes
129-058-31 DDD2	Observation	23	2	Oakes

130-058-32	Irrigation	156	17.5	
130-058-32 BAB	Domestic	60	8	
130-058-32 CBC2	Irrigation	23	2	
130-058-32 C	Irrigation	75	16	
130-058-32 BBB	Irrigation	76	23	

*****Wells closest to facility.

Table 8-Soil Survey Data:

Map unit	Name	Description	Bedrock depth	Seasonal water table	Unified soil class*	Perm in/hr	Lagoon Restrictions
G33A	Fossum fine sandy loam, 0-1% slopes.	The Fossum series consists of very deep, poorly and very poorly drained soils that formed in calcareous sandy glaciolacustrine or outwash sediments on lake and outwash plains. These soils have rapid permeability.	0 - 60"	0 > 6’	SM, SC-SM	-	Very limited: Ponding, Depth to saturated zone, Seepage
G337B	Bantry-Hamar-Aylmer complex, 0-6% slopes	The Bantry series consists of very deep, somewhat poorly drained, rapidly permeable soils that formed in windblown glaciofluvial deposits. These soils are on sandy delta plains and outwash plains. The Hamar series consists of very deep, poorly drained soils formed in eolian or lacustrine sands in upland swales and depressions. Permeability is rapid or moderately rapid. The Aylmer series consists of very deep, moderately well drained, rapidly permeable soils that formed in wind worked sand on outwash plains and delta plains.	0 - 60"	1.5 > 6’	SC-SM, SM, SP-SM, SW-SM	-	Very limited: Depth to saturated zone, Seepage, Slope, Ponding
G369A	Hecla-Garborg loamy fine sands, 0-2% slopes	The Hecla series consists of very deep, moderately well drained soils formed in sandy sediments on lake plains and glacial outwash plains. Permeability is moderately rapid or rapid. The Garborg series consists of very deep, somewhat poorly drained soils formed in eolian, glaciofluvial or glaciolacustrine deposits on delta plains, lake plains, outwash plains and beach ridges. Permeability is moderately rapid or rapid.	0 - 60"	1.5 > 6’	SC-SM, CL-ML, ML, SM,	-	Very limited: Seepage, depth to saturated zone
CL-Clay of low plasticity, ML-Silt, SC-Clayey sand, SM-Silty sand, SP-Poorly graded sand, SW-Well-graded sand							

Table 9-Soil Boring Information:

	TP 1	TP 2	TP 3
Elevation (*ft*)	99.8	99.2	99.3
0 to 1	TS	TS	TS
1 to 2	SP	SP	SP
2 to 3	SP	SP	SP
3 to 4	SP	SP	SP
4 to 5	SP	SP	SP
5 to 6	SP	SP	SP
6 to 7	SP	SP	SP
7 to 8	SP	SP	SP
8 to 9	SP	SP	SP
9 to 10	SP	SP	SP
10 to 11	SP	SP	SC
11 to 12	SP	SP	SC
12 to 13	SP	SP	SC
13 to 14	SP	SP	SC
14 to 15	SP	SP	SC
15 to 16	-	SP	-

TS-top soil, SP-poorly graded sand, SC-clayey sand.

APPENDIX D – RESPONSE TO COMMENTS

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

Effective Date: Date of signature
Expiration Date: August 31, 2025

STATE ANIMAL FEEDING OPERATION PERMIT

NDAFO-0886

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 **Justin and Nathan Quandt** facility located in the SW ¼ of Section 20, Township 130 N, Range 58 W, in Sargent County, North Dakota is granted provided the following conditions are met:

1) The application indicated the facility is a CAFO that will house **4,800 finisher pigs** 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. Composting is the option for this facility. Mortality will be composted in concrete bins on the property. Mortality will be composted until the bones of the carcass fully decomposed.

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.

14) The operator shall install three monitoring wells at the facility, one up-gradient (north) and two down-gradient (south/southwest) of the facility. Annual groundwater monitoring shall be completed by the department during inspection. If groundwater monitoring indicates that the facility is detrimentally impacting groundwater, the facility will need to take corrective action to prevent groundwater impacts.

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 _____

FACT SHEET FOR STATE AFO PERMIT
NDAFO-0887

QUANDT FAMILY BARN
OAKES, ND

DATE OF THIS FACT SHEET – August 6, 2020

INTRODUCTION

The North Dakota Department of Environmental Quality has the statutory responsibility to control the pollution of surface waters, groundwaters, and the air of the state. Water Quality Standards have been developed and adopted for the surface waters of North Dakota. An extensive Water Pollution Control Act, addressing among other things the control of livestock waste, was adopted by the 1967 state legislature. 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 North Dakota Administrative Code (NDAC) Chapter 33.1-16-03.1, 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. The period of comment may be extended at the discretion of the department. In making its final decision on the application or draft permit, the department shall consider all comments submitted within a time frame specified in the public notice and all comments received at any public hearing. Within twenty days of the close of the public comment period, the applicant, if any, may submit a written response to the public comments. The department shall consider the applicant's response in making its final decision. Pursuant to the requirements of this chapter

(NDAC Section 33.1-16-03.1(8) and within sixty days of the applicant's response to the public comments, the department shall make a final determination as to whether the permit should be approved, approved with conditions, or denied. The department shall notify the applicant in writing of its final determination and provide to the applicant a copy of the final permit, if issued. Upon request, other interested individuals may also obtain copies of the final permit. (NDAC Chapter 33.1-16-03.1)

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.**

TABLE OF CONTENTS

Contents

BACKGROUND INFORMATION

Table 1. General Facility Information

Applicant:	Quandt Family Barn
Facility Name and Address:	Quandt Family Barn 11020 93rd St SE Oakes, ND 58474
Permit Number:	NDAFO-0887
Permit Type:	CAFO
Hydrologic Code:	10160003 – Upper James

FACILITY DESCRIPTION

The Quandt Family Barn is located approximately ten miles south and six miles east on the east side of 116th Ave SE of Oakes, ND, in NW ¼ of Section 16, Township 129 N, Range 58W or Latitude 45.993217 N and Longitude -97.965831 W, in Sargent County.

The application submitted to the department on June 8th, 2020, indicates the proposed facility will consist of one finisher barn, which will house a maximum capacity of 4,800 finisher pigs with an average weight of 150 lbs. for 318 days a year. The finisher barn will be roofed and will have slatted concrete floors over an 8-foot deep concrete pit. The deep pit can contain 318 days of waste generated through the production of livestock.

Additionally, the facility submitted a nutrient management plan (NMP) that addresses how liquid manure handling will comply with the environmental standards of the State of North Dakota.

GROUNDWATER AND SURFACE WATER

Geology:

This part of Sargent County is located within the glaciated lake plains of the Central Lowland physiographic province of North Dakota. The underlying geology of the property in which the facility resides consists of interbedded lake silts and some fluvial sand which are associated with Lake Dakota. Gravel is also seen in locations throughout the surface geology.

Topography:

This area is characterized by low topographic reef, except in the glacial morainal areas in the southwest potion of the county where streams are incised.

Slope:

The slope at the facility site is 1.0 percent (%) in the lot.

Runoff:

All waste will be contained in the concrete deep pit of the confinement barn. This facility will not produce any dirty runoff water and therefore no runoff containment structure will be required. All precipitation (rain or snow) and surface waters will be diverted or will drain away from the confinement barn.

Elevation:

According to the United States Geological Survey Quadrangle maps, the facility is at an approximate elevation of 1363 feet.

Site Drainage:

The natural drainage of the area drains southwest and southeast into prairie pothole wetlands or low setting areas. There are no defined streams within several miles of the facility.

Water Bodies:

Meszaros Slough is located 6.41 miles from the facility.

Soils:

The primary soils underlying the facility indicated by the National Resource Conservation Service (NRCS) soil survey, include Maddock Hecla and Hecla-Garbory loams. These soils consist mostly of SC-SM materials. (See Appendix C, Table 8)

Aquifers:

The facility overlies the Oakes aquifer.

Public Wells:

There are 39 observations wells located within two miles of the site. (Appendix C, Table 7)

Private Wells:

Within two miles of the site there are 23 private well(s) identified. Wells in the area range from 34 feet to 137 feet deep. This facility is currently served by well water.

MANURE HANDLING AND DISPOSAL

Facility Operation:

The facility will incorporate a deep pit confinement barn with slatted floors. Livestock will be residing within the facility for 365 days a year time period. However, each group of hogs will be in the facility for 318 days a year cycle. During the 47 days, pens in the

facility will be cleaned and sanitized for the next group of hogs. All the manure from the livestock will be stored in the deep pit of the confinement barn until it is utilized during land application. Drain tile around the deep pit barn will be used to lower the water table in this area to reduce hydraulic stress on the deep pit barn's walls and floor.

Manure Handling:

Liquid manure will be moved from the deep pit confinement barn and injected accordance with the Nutrient Management Plan (NMP) twice a year.

Expected Manure Quantities:

Table 2. Manure quantities from design plans

Livestock Information	Amount	Type	Average Weight (*lbs.*)	Manure Production (*ft^3/day*)	Wash Water (ft^3/day)
	4,800	Finisher Pigs	150	720	155.5

	ft^3/year	*Mgal*
Volume Needed for 270 days of Manure Storage	194,400	1.4
Total Volume Needed for Manure Storage	228,960	1.7

Mortality Disposal:

The owners have chosen composting for the facility's disposal method. 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 location will be 300-feet northeast of deep pit barn. Composting bins are 86-feet long by 20-feet wide with and 12-foot apron. The bins consist of 8 bays that are 20-feet long by 10-feet wide with 6-feet side walls. Each bay would have a 3-inch lip on the front side with a 3% slope to the back wall of the bay. This is suitable to sustain a 100-year, 24-hour storm event.

ODORS

Potential Sources:

A source of potential odors appears to be the deep pit barn. The nearest resident is about 2.3 miles southeast from the facility's site. 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)). The facility received zoning

documentation from Southwest Township on July 22, 2020. The Southwest Township ordinance covering livestock operations is not official as the ordinance has not been submitted to the Department of Environmental Quality. So, in this case the state setbacks apply.

SPECIFICATIONS

Manure Storage Structures:

Table 3. Required Manure Storage

Type: Slatted Barn – Deep Pit	Barn Information Proposed Construction Year: 2020
Deep Pit Dimensions (*ft*)	336.33 by 120.87
Top Liquid Area (ft^2)	40,652
Bottom Surface Area (ft^2)	40,652
Design Volume (ft^3)	294,103
Design Volume (Mgal)	2.2
Manure Storage Depth (*ft*)	7.17
Total Depth (*ft*)	8
The facility has the capacity to store the manure generated.	

Soil Summary:

The proposed location appears suitable based on the provided soil survey, which also indicates groundwater levels from 2.5-feet to 6.5-feet throughout the site. The borings indicate that the Unified classification for the subsoil at the site is generally SP to a relative (~) depth of 15-feet. The bottom of the manure deep pit is proposed to be 7.6-feet, from the top of the slate at the surface to the subgrade of the deep pit. (Appendix C, Table 9).

Manure Transfer Components:

Manure will be contained below the barn where the livestock is being housed. Manure will be pumped and irrigated through the spring, summer, and fall.

Manure Storage Structure Considerations:

Confinement barn: The facility has incorporated 12 pump-out ports into the design. There will be 6 ports located on the east and west sides of the barn.

Concrete & Rebar:

The confinement barn concrete and rebar specifications follow the guidelines of the American Concrete Institute's publication "Building Code Requirements for Structural

Concrete", ACI 318.Only one brand of concrete will be used throughout this project; Portland Cement ASTM C 150, Type 1. The concrete will be air entrained according to ASTM C 260. The compressive strength of the concrete for the precast components will be 4,000 psi. The steel reinforcing shall be Grade 40 or 60 throughout the building in accordance with ASTM A615 and ACI 318-83. Concrete coverage for all rebar, especially for manure exposed areas (beams, columns, walls, etc.) will have a minimum cover of 2-inches

Foundation Drain:

Drain tile will be placed around the perimeter, outside the foundation base of the deep pit of the confinement barn at 8.83-feet below the surface. The tile collects clean water (ground water) from outside water sources that apply pressure to the walls which will help extend the life of the structure. The water captured by the drain tile discharges on the surface through a 4-inch PVC piping near the northeast corner of the site.

Earth Fill:

All organic material and topsoil shall be removed prior to areas with fill as shown on the design drawings and replaced with compacted mineral earthfill. These areas will be graded, roller, compacted, and smoothed prior to geotextile and fill placement. Low lying areas shall be brought up to top of subgrade with earthfill material.

Groundwater Monitoring Plan:

Very little groundwater data exists within and around the facility site. The site does not overlie any wellhead or source water protection areas, however, it does overlie the Oakes aquifer, which is a sensitive groundwater area. A search of the NRCS' websoil survey indicates that the soil within the site is a loamy fine sand down to about 80 inches below ground surface.

Based on information found within the file, runoff from the facility is to the west to lowlands and pothole wetlands. Due to current operations, designed construction, and overlying a sensitive groundwater area (Oakes aquifer), groundwater monitoring should be conducted at the facility. Recommended 3 monitoring wells at the site. Well locations should be placed topographically with one upgradient and two downgradient of the livestock and waste storage or handling facility.

Operation and Maintenance Plan:

All swine waste shall be applied as specified in Nutrient Management Plan or Waste Utilization plan.

Travel of vehicles should be confined to designated areas to prevent concrete pit damage and reduce drainage erosion.

Vegetation on side slopes shall be clipped annually as a minimum and only when area is dry and firm. Do not allow trees to grow adjacent to concrete storage tanks or existing

storage ponds, to avoid root damage to the structures Regrade, seed and mulch any areas which become damaged immediately.

Maintain grades around containment structures to assure surface drainage away from the structures. Fill any settled areas which may collect water. Repair any damage to fences, gates, marker posts and safety signs.

Inspect concrete storage tank and storage ponds for signs of leaking or seepage, excessive settling, excessive vegetation growth or damage due to vehicles or equipment, rodents or erosion. Report any leakage as detailed above and make plans to rectify any problems as soon as possible.

Solids accumulation in the waste storage pit will be inspected annually. Solids will be cleaned from the pit using agitation when necessary and land applied in accordance with the current NMP. Monitor the Deep pit concrete levels weekly. Inspect Sewer pipes to ensure they are not plugged or damaged. Maintain manure levels below the Freeboard level of the structures.

Inspect drainage pipes and risers after major storm events for damage and debris. Remove any debris from inlet or outlet structures. Repair any damage immediately.

Maintain records of all inspections, facility repairs, mortality disposal type, and manure applications.

Drain tile inspection riser shall be inspected weekly for discharge.

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.

Application Rates:

Liquid manure from the deep pit barn will be pumped out and shallow injection into the soil surface by two rolling coulters spaced to be as close to the row without damaging roots. The manure will be applied in the spring, summer, and fall to spread the application out to about 60 lbs of available Nitrogen.

The manure application rates are dependent on agronomic rates which factor crop, crop yield goals, and soil test results. Manure will be applied at a rate not to exceed phosphorus levels recommended for the crop of the following production year. Applications will be limited to low amounts and timed so the crop is in fast growing conditions so all nutrients will be used by the crop and not leach away. All drain tiled

fields will be monitored to prevent any leaching from the fields during injection of liquid manure.

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 (NDAC 33.1-16-03.1-09, and ND Livestock Program Design Manual 7.7 Record Retention):

- 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	318 Days
Volume of animal manure	5,386 gal/day 720 cu ft	1.7 Mgal 228,260 cu ft
Nitrogen (N)	302 lbs/day	96,163 lbs
Phosphorus (P2O5)	264 lbs/day	83,799 lbs
Potassium (K2O)	191 lbs/day	60,674 lbs
Storage loss of Nitrogen.	22.5%	
Land application loss of Nitrogen.	1%	

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 23.5% losses)	100 lbs N/acre

Anticipated crop grown: Corn, Potatoes, and Soybean

Risk assessment for phosphorus: low

Amount of land estimated for spreading at agronomical rates: N:737.8 acres
P2O5: 1,596.2 acres

Amount of land identified by applicant for land application: 1,972.7 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 **Quandt Family Barn**. 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 **8/7/2020** in the **The Sargent County Teller** 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 Tyson Jeannotte.

North Dakota Department of Environmental Quality Public Notice
Issue of an AFO Permit

Public Notice Date: 8/7/2020 Public Notice Number: ND-2020-022

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: 6/8/2020 Application Number: NDAFO0887

Applicant Name: Quandt Family Barn
Mailing Address: 11020 93rd street SE, Oakes, ND 58474
Telephone Number: 701.710.1101

Proposed Permit Expiration Date: 8/31/2025

Facility Description
The application is for a finishing swine feedlot facility that is located ten miles south and six miles east on the east side of 116th Ave SE of Oakes, ND, in SW ¼ of Section 16, Township 129 N, Range 58W or Latitude 45.993217 N and Longitude -97.965831 W, in Sargent County. The application indicates the facility will have a maximum of 4,800 finishing swine that weigh about 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. 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 September 08, 2020 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.

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
129-058-03 DBD	Domestic	130	-	Unknown
129-058-03 DBD	Stock	106	7.88	Unknown
129-058-05 CCC	Observation	20	3	Oakes
129-058-06 ACD2	Irrigation	65.5	17.5	Oakes
129-058-06 ADD	Irrigation	50	17.5	Oakes
129-058-06 ABD2	Irrigation	68	17.5	Oakes
129-058-06 AAA	Irrigation	60	17.5	Oakes
129-058-06 DCA	Irrigation	63.5	17.5	Oakes
129--58-06 BBC	Observation	19	-	Oakes
129--58-06 CAA	Observation	28	2	Oakes
129--58-06 CCC1	Observation	19	3	Oakes
129--58-06 CCC2	Observation	18	2	Oakes
129--58-06 BBD1	Observation	10	3	Oakes
129--58-06 DAA	Observation	28	2	Oakes
129-058-06 BAD5	Irrigation	160	12	Oakes
129-058-07 ACC	Observation	28	2	Oakes
129-058-07 CBB	Observation	18.5	2	Oakes
129-058-07 CCC	Observation	182	2	Oakes
129-058-07 DCC	Observation	28	2	Oakes
129-058-07 DDD	Observation	15	3	Oakes
129-058-08 ABB	Observation	28	2	Oakes
129-058-08 ACC	Observation	23	2	Oakes
129-058-08 CCC	Observation	18	2	Oakes
129-058-08 CDC1	Irrigation	34	12.75	Oakes
129-058-08 CDC2	Irrigation	37	12.75	Oakes
129-058-08 CDB1	Irrigation	37	12.75	Oakes
129-058-08 CDB2	Irrigation	38	12.75	Oakes
129-058-08 CDD	Observation	23	2	Oakes
129-058-09 AAB	Domestic	137	4	Undefined
129-058-09 AA	Domestic	137	6.25	Undefined
129-058-10 CCD	Domestic	125	-	Unknown
129-058-17 B	Irrigation	38	12.75	Oakes
129-058-17 BAB1	Irrigation	38	8	Oakes
129-058-17 BAB2	Irrigation	38	8	Oakes
129-058-18 BCC	Irrigation	114	21	Oakes
129-058-18 BB	Irrigation	120	21	Oakes
129-058-18 BC	Irrigation	116	21	Oakes
129-058-18 BCB	Irrigation	110	21	Oakes
129-058-18 AAA2	Observation	32	2	Oakes
129-058-18 AAD	Observation	28	2	Oakes
129-058-18 CAA	Observation	18	2	Oakes

129-058-18 CBB	Observation	28	2	Oakes
129-058-18 CCC1	Observation	11	3	Oakes
129-058-18 CCC2	Observation	23	2	Oakes
129-058-18 CCB	Observation	182	2	Oakes
129-058-18 CDD	Observation	28	2	Oakes
129-058-19 AAA2	Observation	65	2	Oakes
129-058-19 AAC2	Observation	35	1.25	Oakes
129-058-19 ABB2	Observation	60	1.25	Oakes
129-058-19 ACC	Observation	160	1.25	Oakes
129-058-19 ADD	Observation	180	1.25	Oakes
129-058-19 BBD2	Observation	75	1.25	Oakes
129-058-19 BCC	Observation	28	2	Oakes
129-058-19 BCD	Observation	160	1.25	Oakes
129-058-19 CAA	Observation	28	2	Oakes
129-058-19 CBC2	Observation	65	1.25	Oakes
129-058-19 CBD	Observation	155	1.25	Oakes
129-058-19 CDD	Observation	160	1.25	Oakes
129-058-19 DAA	Observation	23	2	Oakes
129-058-20 BBB	Observation	10	3	Oakes
129-058-20 CCC2	Observation	38	2	Oakes
129-058-22 ADD	Domestic	-	2	Dakota Group

Table 8-Soil Survey Data:

Map unit	Name	Description	Bedrock depth	Seasonal water table	Unified soil class*	Perm in/hr	Lagoon Restrictions
G369A	Hecla-Garborg loamy fine sands, 0-2% slopes.	The Hecla series consists of very deep, moderately well drained soils formed in sandy sediments on lake plains and glacial outwash plains. Permeability is moderately rapid or rapid. The Garborg series consists of very deep, somewhat poorly drained soils formed in eolian, glaciofluvial or glaciolacustrine deposits on delta plains, lake plains, outwash plains and beach ridges. Permeability is moderately rapid or rapid.	0 - 60"	1-5’	SC-SM	-	Very limited: Seepage, Depth to saturated zone, Ponding
G384B	Maddock-Hecla loamy fine sands, 0-6% slopes	The Maddock series consists of very deep, well drained or somewhat excessively drained, rapidly permeable soils that formed in fine sands deposited by wind or water. These soils are on sandy glaciolacustrine or glaciofluvial, outwash and delta plains.	0 - 60"	1 – 5’	SC-SM	-	Very limited: Seepage, Slope, Depth to saturated zone,Slope, Ponding
SC-Clayey sand, SM-Silty sand							

Table 9-Soil Boring Information:

	TP 1	TP 2	TP 3
Elevation (*ft*)	99.8	99.2	99.3
0 to 1	TS	TS	TS
1 to 2	SP	SP	SC
2 to 3	SP	SP	SC
3 to 4	SP	SP	SC
4 to 5	SP	SC	SP
5 to 6	SP	SC	SP
6 to 7	SP	SC	SP
7 to 8	SP	SC	SP
8 to 9	SC	SC	SP
9 to 10	SC	SC	SP
10 to 11	SC	SC	SP
11 to 12	SC	SC	SP
12 to 13	SP	SC	SP
13 to 14	SP	SC	SP
14 to 15	SP	SC	SP
15 to 16	SC	-	-
16 to 17	SC	-	-
17 to 18	SC	-	-

TS-top soil, SP-poorly graded sand, SC-clayey sand.

APPENDIX D – RESPONSE TO COMMENTS

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

Effective Date: Date of signature
Expiration Date: August 31, 2025

STATE ANIMAL FEEDING OPERATION PERMIT

NDAFO-0887

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 **Quandt Family Barn** facility located in the NW ¼ of Section 16, Township 129 N, Range 58 W, in Sargent County, North Dakota is granted provided the following conditions are met:

1) The application indicated the facility is a CAFO that will house **4,800 finisher pigs** 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. Composting is the option for this facility. Mortality will be composted in concrete bins on the property. Mortality will be composted until the bones of the carcass fully decomposed.

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.

14) The operator shall install three monitoring wells at the facility, one up-gradient (north) and two down-gradient (south/southwest) of the facility. Annual groundwater monitoring shall be completed by the department during inspection. If groundwater monitoring indicates that the facility is detrimentally impacting groundwater, the facility will need to take corrective action to prevent groundwater impacts.

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 _____