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

Public Notice Date: 11/3/2021 Public Notice Number: ND-2021-030

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: 5/19/2021

Application Number: NDAFO0885

Applicant Name: Cole Johnson Mailing Address: 3151 56th street SE, Napoleon, ND 58561 Telephone Number: 701.321.0215

Proposed Permit Expiration Date: 12/31/2026

Facility Description

The application is for an expanding facility that is located 7 miles north of Napoleon, ND. The feedlot is in the S ½ of Section 8, Township 136, Range 72, in Logan County. The application indicates the facility will be permitted for a maximum of 2,500 beef feeders with an average weight of 700 lbs.

Tentative Determinations

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

Information Requests and Public Comments

Copies of the application, draft permit, and related documents are available for review. For further information on making public comments/public comment tips please visit: https://deq.nd.gov/ PublicCommentTips.aspx. Comments or requests should be directed to the ND Dept of Env Quality, Div of Water Quality, 4201 Normandy Street, Bismarck ND 58503-1324 or by calling 701.328.5210.

All comments received by December 02, 2021 will be considered prior to finalizing the permit. If there is significant interest, a public hearing will be scheduled. Otherwise, the Department will issue the final permit within sixty (60) days of this notice. If you require special facilities or assistance relating to a disability, call TDD at 1.800.366.6868.

FACT SHEET FOR STATE AFO PERMIT NDAFO-0885

COLE JOHNSON NAPOLEON, ND

DATE OF THIS FACT SHEET – November 1, 2021

INTRODUCTION

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

The following rules or regulations apply to feedlot operations permits:

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

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

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

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BACKGROUND INFORMATION

Table 1 – General Facility Information

Applicant:	Cole Johnson
Facility Name and Address:	Cole Johnson
	3153 56 th Street SE
	Napoleon, ND 58561
Permit Number:	NDAFO-0885
Permit Type:	CAFO
Hydrologic Code:	10130103 Apple Creek

FACILITY DESCRIPTION

The Cole Johnson farm is located 7 miles North of Napoleon, ND, in the S $\frac{1}{2}$ of Section 8, Township 136, Range 72 or Latitude 46.602278 N and Longitude -99.756763 W, in Logan County.

An application submitted to the department on May 19, 2021 indicates the facility will be permitted for a maximum of 2,500 beef feeders with an average weight of 700 lbs. Livestock will be confined in open feedlot pens for a maximum of 365 days a year. Facility has two runoff containment ponds that have the ability to contain a 25-year, 24-hour rainfall event and 365-days of generated runoff.

GROUNDWATER AND SURFACE WATER

Geology:

This part of Logan County is located within the Missouri Coteau section of the Great Plains physiographic province. Glacial drift blankets the surface and overlies bedrock shale of the Pierre Formation. Surficial material consists of undifferentiated clay with abundant sand lenses possibly deposited by glacial lakes.

Topography:

Generally, the Missouri Coteau as an area of extensive glacial stagnation with a hilly, irregular surface and numerous sloughs and potholes (Bluemle, 1991).

Slope:

The slope of the site is 5 percent (%) in feed lot area.

Runoff:

Runoff generated from the approximately 12.9 acres of open feed lots will be contained in the ponds.

Elevation:

According to the United States Geological Survey Quadrangle maps, this facility is at an approximate elevation of 2,030 feet.

Site Drainage:

The facility site drains north, 0.32 miles to an unnamed wetland.

Water Bodies:

The closest named water body is Alkaline Lake which is 6.1 miles northeast of the facility.

Soils:

The primary soils at the site, as indicated by National Resource Conservation Service (NRCS) soil survey, including Zahl-Williams-Zahill complex, Zahl-Williams loams, Zahl-Max-Bowbells loam, Bowdle-Lehr loams, Wabek-Lehr-Appam complex, Wabek-Appam complex, and Wabek-Lehr complex. These soils consist mostly of CL, ML-CL, ML, SM, GM, SP, SW, SC, SC-SM, SP-SM, and GP-GM materials. The water table is greater than six feet deep. (See Appendix C, Table 8)

Aquifers:

The facility does not overly any aquifer. The nearest aquifer (Napoleon) is 3.25 miles southwest of the facility.

Public Wells:

There are 4 domestic wells and 1 stock well located within two miles of the site. (Appendix C, Table 7)

Private Wells:

Within two miles of the site there are 13 private well(s) identified. Wells in the general area range from 170 feet to 420 feet deep.

MANURE HANDLING AND DISPOSAL

Facility Operation:

The facility is a crop/forage raising and beef operation that will incorporate a series of open feed lots, two solid separators, and two runoff containment ponds. This facility will maintain up to 2,500 head of cattle which can be on-site for a maximum of 365-days and has the capability to manage manure for 365 days. Runoff containment ponds have the capacity to contain a 25-year, 24-hour rainfall event and 365-days of generated runoff.

Manure Handling:

Manure from open feedlots will be stacked in a designated area and runoff will be routed by a 5% slope and a water diversion into the solid separators. Wastewater will flow from the solid separator through an18-inch polyethylene (PE) pipe into a respective runoff containment pond.

Manure application will be in accordance to the nutrient management plan (NMP) submitted with this application. The plan indicates that solid manure will be spread and incorporated within 3 days while liquid runoff from the holding ponds will be spread with the use of a traveling gun.

Expected Manure Quantities:

Table 2 - Manure quantities from design plans

Livestock	Amount	Ту	pe	Average Weight (<i>lbs</i>	.) N	1anure Produ (ft³/day)	ction
Information	2,500	Beef F	eeders	700		1,435	
ft³/year mgal							
Volume Neede	Volume Needed for 365 Days of Manure Storage					3.9	
-	Total Area	25-Year,	24-Hour		Annı	Jal	
Runoff Generated	d (<i>acr</i> es)	Rainfall	Runoff	Rainfall	Rund	off Evapor	ation
Logan County, NI	D	(inches)	(inches)	(inches)	(inche	es) (inch	es)
	12.9	3.9	2.9	19.7	3.9	39	
	ft³/year mgal						
Total Volum	ne of Storage Need	ded*	2	93,502		2.1	

*Note: Manure was not incorporated to the total storage volume because solid manure will be separated using a solid separator prior to entering the runoff containment pond. Therefore, only wastewater runoff was used to calculate the total storage volume needed.

Mortality Disposal:

The owners have chosen burial 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."

Burial location is 600-feet west of the facility's feedlot driveway and 600-feet north of 56th Street southeast. According to the NRCS Web soil survey, this site has a soil classification of C874C-Wabek-Appam complex which is dominantly clay to loamy clay soils allowing this area to be suitable for this type of mortality practice.

ODORS

Potential Sources:

A source of potential odors appears to be the open lots and runoff containment ponds. Odors from the feed lots may be minimized with good house-keeping practices. Land application may present a source of short-term odor events. However, land application is exempt from state odor restrictions (NDAC Section 33.1-15-16-02(3)). The county regulates the nature, scope, and location of this operation. The nearest residence is 0.50 miles from the feedlot. Logan county approved the expansion of the facility on April 22, 2021.

SPECIFICATIONS

Manure Storage Structures:

Table 3 - Feed	l storage ru	inoff	conta	ainme	ent	
				-		

	Runoff Pond	Runoff Pond
Type: Runoff Containment	Construction Date: 2020	Construction Date: 2021
Polia	Existing	Proposed
Top Liquid Area (<i>ft</i> ²)	60,904	62,357
Bottom Surface Area (<i>ft</i> ²)	46,104	42,296
Design Volume (<i>ft</i> ³)	187,264	209,306
Design Volume (m/gal)	1.4	1.5
Manure Storage Depth (ft)	3.5	4
Total Depth (<i>ft</i>)	6.5	6

The facility has the capacity to store the designed runoff from the 12.9-acre feed storage area for 365 days.

Soil Summary:

The proposed location appears suitable based on soil survey and ground water survey information. The borings indicate that the Unified classification for the subsoil at the site is generally a poorly graded sandy clay (CL) and poorly graded gravel (GP) to a relative (\sim) depth of about \sim 17 to \sim 18 feet. The bottom of the runoff containment pond is proposed to be at a relative elevation of \sim 8 to \sim 10 feet below surface grade (Appendix C, Table 9). Note, the water table wasn't observed at the time of the soil borings.

Clay Liner Construction Testing:

A two-foot clay liner was required in the runoff pond due to the required depths of standing liquid manure and runoff according to the North Dakota Livestock Program Design Manual (NDLPDM). Clay liner material will be excavated or borrowed from areas and approved by the engineer. Material was either classified as CL or CH Unified Classifications and was installed in 6-inch lifts. Each lift was compacted in the liner area to create a uniformly compaction of 97% Standard Proctor Density (ASTM D-698).

Moisture content during compaction shall be maintained up to 3% or below 1% optimum moisture. Permeability falls well below 1/16-inch/day (0.00366-inch/day), a standard in the NDLPDM Section 5.3.5.

Manure Storage Structure Considerations:

The facility has incorporated one clean water diversion into the design. This diversion will have two roles, to help contain the wastewater in the open feedlot basin while diverting clean water around the facility. The top of the dike is 20-feet wide, with a 4:1 slope extending to the clean water side bottom which has a width of 10-feet. All wastewater in the open feedlot basin will flow from the basin to a respective solid separator by the means of gravity. From the solid separator, wastewater will be routed through 18-inch PE pipe into the runoff containment pond. Runoff water from the owner's *"working area"* will be routed to the runoff containment pond through 18-inch of PE pipe. Inlet erosion protection will be provided where the pipe enters the ponds. A 6-feet wide concrete chute will convey the runoff from the pipe outlet to the bottom of the pond. A 6-feet by 6-feet splash pad will be placed on the pond bottom. The splash pad will have a 3.5-inch curb.

Concrete & Rebar:

The splash pad concrete and rebar specifications follow the guidelines of the American Concrete Institute's publication "Building Code Requirements for Structural Concrete", ACI 318 and Portland Cement Association. Concrete will be air entrained according to the requirements if ASTM Specification C 260. The compressive strength of the concrete for the base slab and footings will be 3,000 psi.

Earth Fill:

The facility was constructed as the design plans indicated. Vegetation and organic material were stripped and removed from the footprint of the embankment. Organic materials or frozen soils was not used in the fill material. Appropriate topsoil was used as cover material on the outside slopes of the embankment. The embankment is seeded to a shallow rooted perennial grass and vegetation is maintained.

Groundwater Monitoring Plan:

The facility does not overlie any wellhead protection areas (WHPA's), aquifers, or sensitive groundwater areas. A search of the NRCS websoil survey indicates that the soil within the facility area is a loamy soil down to about 60 inches below ground surface.

The construction of a second clay lined runoff pond will also reduce the risk of ground water contamination. Based on the above information, the groundwater program does not recommend the installation of monitoring wells.

Operation and Maintenance Plan:

Accumulated solids shall be removed from the feedlot and settling basin a minimum of one time per year and shall be applied as specified in Nutrient Management Plan.

Screens, piping, and appurtenances in solid separator area(s) shall be inspected after all storm events and cleaned of any accumulated debris and/or solids to allow for proper drainage and function of settling area. Any damaged or deteriorated components shall be repaired to original condition immediately.

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

Vegetation on holding pond berm shall be clipped annually as a minimum and only when area is dry and firm. Regrade, seed and mulch any areas which become damaged immediately.

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

Repair any damages to fences, gates, marker posts, and safety signs.

Inspect concrete work annually for major damages. Repair as needed to maintain original design requirements.

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

Monitor and record holding pond levels weekly. Under normal conditions, water should not be allowed to exceed the maximum operating elevation as designated on the staff gage. If water does exceed this level due to a large runoff event, the pond shall be pumped, and the wastewater land applied in accordance with the current Nutrient Management Plan as soon as possible to return the pond to or below the maximum operating elevation.

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:

Solid manure will be applied in the fall after harvest, but prior to freeze up when soils temperatures are below 50 degrees Fahrenheit. Manure shall be land applied at a rate

not to exceed phosphorus levels recommended for the crop of the following production year.

Record Keeping:

The facility must make the following records available to the department for review upon request for a minimum of 5 years from the date they are created:

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

	Daily	365 Days	
Volume of animal manure	10,733.8 gal/day	3.9 Mgals	
	1,435 cu ft	523,775 cu ft	
Nitrogen (N)	630 lbs/day	229,950 lbs	
Phosphorus (P2O5)	376.25 lbs/day	137,331 lbs	
Potassium (K2O)	442.75 lbs/day	161,604 lbs	
Storage	30%		
Land apply method	22.5%		

Table 5-Expected Manure Volumes and Nutrients

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 52.5% losses)	100 lbs N/acre

Anticipated crops grown: Sorghum/Sudan Grass, Barley, and Soybeans

Risk assessment for phosphorus: Low

Amount of land estimated for spreading at agronomical rates: <u>1,247.5 acres</u>

Amount of land identified by applicant for land application: 3,153.2 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 crop-land 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

FACT SHEET FOR STATE AFO PERMIT NDAFO-0885 COLE JOHNSON – NAPOLEON, ND **EXPIRATION DATE: December 31, 2026** Page 11 of 24

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 **Cole Johnson.** 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 November 3, 2021 in the **Logan County Record** 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 4201 Normandy Street, 3rd Floor Bismarck, ND 58503

The primary author of this permit and fact sheet is Rachel Strommen.

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APPENDIX B – DEFINITIONS

DEFINITIONS Standard Permit (BP 2019.09.23)

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

- 9. "Large concentrated animal feeding operation" means any animal feeding operation that stables or confines as many as or more than the numbers of animals, not including unweaned young, specified in any of the following categories:
 - a. Seven hundred mature dairy cows, whether milked or dry;
 - b. One thousand veal calves;
 - c. One thousand cattle other than mature dairy cows or veal calves. "Cattle" includes, but is not limited to, heifers, steers, bulls, and cow/calf pairs;
 - d. Two thousand five hundred swine, each weighing 55 pounds or more;
 - e. Ten thousand swine, each weighing less than 55 pounds;
 - f. Five hundred horses;
 - g. Ten thousand sheep or lambs;
 - h. Fifty-five thousand turkeys;
 - i. Thirty thousand laying hens or broilers, if the animal feeding operation uses a liquid manure handling system;
 - j. One hundred twenty-five thousand chickens (other than laying hens), if the animal feeding operation uses other than a liquid manure handling system;
 - k. Eighty-two thousand laying hens, if the animal feeding operation uses other than a liquid manure handling system;
 - I. 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;
 - I. 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.

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APPENDIX C – DATA AND TECHNICAL CALCULATIONS

Table 7-Water Commission Well Data:

Location	Use	Depth(ft)	Diameter(inches)	Aquifer
136-072-04 CD	Stock	200	7	
136-072-07 DB	Stock	330	7.88	
136-072-08	Stock	420	-	
136-072-09	Stock	240	-	
136-072-13 BBB	Domestic	210	-	Fox Hills
136-072-15 BB	Stock	300	8	
136-072-15 BD	Domestic	170	8	
136-072-17 BBB	Domestic	180	4	Fox Hills
136-072-18 AA	Domestic	200	7	
136-072-18 C	Stock	204	4	
136-072-19 DAA	Domestic	238	7	
136-072-19 DAB	Domestic	238	4	Fox Hills
136-072-20 A	Stock	285	7	
136-072-20 B	Domestic	250	4	
136-072-22 CCA	Stock	240	4	Fox Hills
136-072-22 CCC	Domestic	230	6	Fox Hills
136-072-22 C	Stock	210	6	
136-072-24 DDC	Domestic	300	7.88	

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Table 8-Soil Survey Data:

Map unit	Name	Description	Bedrock depth	Seasonal water table	Unified soil class*	Perm in/hr	Lagoon Restrictions
C135C	Zahl- Williams -Zahill complex , 6-9% slopes	The Zahl series consists of very deep, well drained, moderately slow or slowly permeable soils that formed in calcareous glacial till. These soils are on glacial till plains, moraines and valley side slopes. The Williams series consists of very deep, well drained, moderately slow or slowly permeable soils formed in calcareous glacial till. These soils are on glacial till plains and moraines. The Zahill series consists of very deep, well drained soils that formed in till. These soils are on till plains, hills, moraines and escarpments.	0-60"	>6.0'	CL-ML, ML, CL	0.6-2 0.6-2 0.2-0.6 0.2-0.6	Very limited: slope, seepage, ponding, depth to saturated zone
C135D	Zahl- Williams Ioams, 9-15% slopes	The Zahl series consists of very deep, well drained, moderately slow or slowly permeable soils that formed in calcareous glacial till. These soils are on glacial till plains, moraines and valley side slopes. The Williams series consists of very deep, well drained, moderately slow or slowly permeable soils formed in calcareous glacial till. These soils are on glacial till plains and moraines.	0-60"	>6.0'	CL-ML, ML, CL	0.6-2 0.6-2 0.2-0.6 0.2-0.6	Very limited: slope, seepage, ponding, depth to saturated zone
C156F	Zahl- Max- Bowbell s loam, 6-35% slopes	The Zahl series consists of very deep, well drained, moderately slow or slowly permeable soils that formed in calcareous glacial till. These soils are on glacial till plains, moraines and valley side slopes. The Max series consists of very deep, well drained, moderately or moderately slowly permeable soils that formed in till. These soils are on till plains. The Bowbells series consists of very deep, well and moderately well drained soils formed in glacial till and alluvium from glacial till on glacial till plains and moraines. These soils have moderate permeability in the upper part and moderately slow or slow in the substratum.	0-60"	>6.0'	CL, ML, CL- ML	0.6-2 0.6-2 0.2-0.6	Very limited: slope, seepage, ponding, depth to saturated zone

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C814A	Bowdle- Lehr loams, 0-2% slopes	The Bowdle series consists of well drained soils formed in loamy alluvium underlain by sand and gravel. The soils are moderately deep over sand and gravel and are on outwash plains and stream terraces. Permeability is moderate in the solum and rapid or very rapid in the underlying material. The Lehr series consists of very deep, somewhat excessively drained soils shallow to sand and gravel. They formed in loamy alluvium over sand and gravel. Permeability is moderate or moderately rapid in the upper part and rapid or very rapid in the substratum. These soils are on outwash plains and stream valley terraces.	0-60"	>6.0'	CL, CL-ML, ML, SC, SC- SM, SM, SP- SM, GM, GP, SW-SM	0.6-2 6-61 0.6-6 6-60	Very limited: seepage
C870E	Wabek- Lehr- Appam complex , 9-25% slopes	The Wabek series consists of very deep, excessively drained, rapidly and very rapidly permeable soils formed in sand and gravel glaciofluvial deposits. These soils are on outwash plains, beach ridges, terraces. The Lehr series consists of very deep, somewhat excessively drained soils shallow to sand and gravel. They formed in loamy alluvium over sand and gravel. Permeability is moderate or moderately rapid in the upper part and rapid or very rapid in the substratum. These soils are on outwash plains and stream valley terraces. The Appam series consists of very deep, somewhat excessively drained soils that formed in glaciofluvial deposits. Permeability is moderately rapid in the upper part and very rapid in the substratum. These soils are on outwash plains and terraces.	0-60"	>6.0'	SM, GM, SP, SW, CL, CL- ML, ML, SC, SC-SM, SP- SM	2-6 2-20 20-61 2-6 6-20	Very limited: slope, seepage, ponding, depth to saturated zone
C874C	Wabek- Appam complex , 6-9% slopes	The Wabek series consists of very deep, excessively drained, rapidly and very rapidly permeable soils formed in sand and gravel glaciofluvial deposits. These soils are on outwash plains, beach ridges, terraces. The Appam series consists of very deep, somewhat excessively drained soils that formed in glaciofluvial deposits. Permeability is moderately rapid in the upper part and very rapid in the substratum. These soils are on outwash plains and terraces.	0-60"	>6.0'	SM, GM, SP, SW, SC, SC- SM, GP, GP- GM, SP-SM	2-6 2-20 20-61 2-6 6-20	Very limited: slope, seepage, ponding, depth to saturated zone

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C877B W Le cc , 2 sk	Vabek- .ehr :omplex 2-6% :lopes	The Wabek series consists of very deep, excessively drained, rapidly and very rapidly permeable soils formed in sand and gravel glaciofluvial deposits. These soils are on outwash plains, beach ridges, terraces. The Lehr series consists of very deep, somewhat excessively drained soils shallow to sand and gravel. They formed in loamy alluvium over sand and gravel. Permeability is moderate or moderately rapid in the upper part and rapid or very rapid in the substratum. These soils are on outwash plains and stream valley terraces.	0-60"	>6.0'	SM, GM, SP, SW, CL, CL- ML, ML, SC, SC-SM, SP- SM	0.6-6 6-60 2-6 2-20 20-61	Very limited: slope, seepage, ponding, depth to saturated zone
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CL-Clay of low plasticity, ML-Silt, SM-silty sand, SC-clayey sand, GM-silty gravel, SP-poorly graded sand, GP-poorly graded gravel, SW-well-graded sand, fine to coarse sand

Table 9-Soil Boring Information:

	TP 1	TP 2	TP 3	TP4
Elevation (ft)	103	104	108	107
0 to 1	TS-OL	TS-OL	TS-OL	TS-OL
1 to 2	TS-OL	TS-OL	GP	GP
2 to 3	GP-SP	GP-SP	GP	GP
3 to 4	GP-SP	GP-SP	GP	GP
4 to 5	GP-SP	GP-SP	GP	GP
5 to 6	GP-SP	GP-SP	GP	GP
6 to 7	GP-SP	GP-SP	GP	GP
7 to 8	GP-SP	GP-SP	GP	GP
8 to 9	GP-SP	GP-SP	CL	GP
9 to 10	GP-SP	GP-SP	GP-SC	GP
10 to 11	GP-SP	GP-SP	GP-SC	GP
11 to 12	GP-SP	GP-SP	GP-SC	GP
12 to 13	-	-	GP-SC	GP
13 to 14	-	-	GP-SC	GP
14 to 15	-	-	GP-SC	GP
15 to 16	-	-	GP-SC	GP
16 to 17	-	-	GP-SC	GP
17 to 18	-	-	GP-SC	-

TS-top soil, OL-organic lean clay, SC- clayey sane, SP-poorly graded sand, and GP– poorly graded gravel

APPENDIX D – RESPONSE TO COMMENTS

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

STATE ANIMAL FEEDING OPERATION PERMIT

NDAFO-0885

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 **Cole Johnson** facility located in the S 1/2 of Section 8, Township 136 N, Range 72 W, in Logan County, North Dakota is granted provided the following conditions are met:

- 1. The application indicated the facility will house **2,500 beef feeders**. 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 <u>not</u> 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. All embankments must be constructed of relatively impervious materials and compacted sufficiently to form a stable structure. An appropriate liner material must be used to prevent excess seepage from the storage pond. Seepage from the storage pond must not exceed 1/16 inch per day and must not detrimentally impact waters of the state.
- 5. All open 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.
- 6. Mortality must be disposed of in accordance with NDCC section 36-14-19, in a manner acceptable to the North Dakota Board of Animal Health, and so they will not impact waters of the state. Burial is the option for this facility. Mortality will be buried on your property and be at least four feet below the ground level and covered with dirt to that depth. Mortality must not be buried in an area where there could be a surface or ground water impact such as along riverbanks or in sandy soils with high water tables. The best locations for burying are on higher areas with heavy clay soil that are away from water and drainage ways.
- 7. 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.

- 8. The following records pertaining to nutrient management must be maintained for a minimum of three years:
 - a. The crops grown and an expected realistic crop yields;
 - b. The date(s) manure, litter or process wastewater is applied to each field;
 - c. Test results from testing of manure, litter, and process wastewater, that are not more than three years old; and
 - d. 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 4)
- 9. This permit must 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 must 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.
- 10. The department must be notified if there is a change in address or other contact information for the facility.
- 11. 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)
- 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.

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. <u>The permit is based on construction being</u> <u>completed as per the design plans reviewed by the department</u>. 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 <u>changes</u>.

Authorized department personnel must 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 must comply with all State and Federal environmental laws and rules, and must also comply with all local building, fire, zoning and other applicable ordinances, codes, and rules.

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	
Ву	(signature)	_ Ву	
Ву	(print name here)	_ By	Karl Rockeman, Director Water Quality Division
Date		Date	