

Please arrange to have the following public notice(s) printed in the legal column of the designated newspaper(s) as close to 9/20/2017 as possible

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

Name of the Newspaper: Napoleon Homestead

**North Dakota Department of Health Public Notice
Reissue of an AFO Permit**

Public Notice Date: 9/20/2017

Purpose of Public Notice

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

Permit Information

Public Notice Number: ND-2017-027
Application Date: 8/28/2017 Application Number: NDAFO0629
Applicant Name: J&P Livestock
Mailing Address: PO Box 3, Napoleon, ND 58561
Telephone Number: 701.226.6199,701.754.2879
Proposed Permit Expiration Date: 9/30/2022

Facility Description

The facility is located five miles south of Napoleon, ND, in the NE 1/4 of Section 18, Township 134 N, Range 72 W, in Logan County. A Public Notice was issued, inviting comments on the draft approval developed for this facility.

Comments should be directed to the North Dakota Department of Health, Division of Water Quality, 918 East Divide Avenue, 4th Floor, Bismarck, ND 58501. All Comments received by October 20, 2017, will be considered prior to finalizing the approval.

Additional information may be obtained upon request by calling (701) 328-5210 or by writing the above address. The complete application, draft approval, and related documents are available for review and reproduction at the Department. Copies of the draft approval and related items are also available for review at the Auditor's Office in Napoleon, ND.

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 Health, Div of Water Quality, 918 East Divide Ave, Bismarck ND 58501-1947 or by calling 701.328.5210.

All comments received by October 20, 2017 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.

**LIVESTOCK FACILITY FACT SHEET FOR
J&P Livestock
NDAFO-0629**

Applicant:	Jim and Paul Bitz, Owners.														
Location:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Quarter</th> <th style="text-align: left;">Section</th> <th style="text-align: left;">Township</th> <th style="text-align: left;">Range</th> <th style="text-align: left;">County</th> <th style="text-align: left;">Latitude</th> <th style="text-align: left;">Longitude</th> </tr> </thead> <tbody> <tr> <td>NE</td> <td>18</td> <td>134N</td> <td>72W</td> <td>Logan</td> <td>46.426276°N</td> <td>-99.773664°W</td> </tr> </tbody> </table> <p>5 miles south of Napoleon, ND.</p>	Quarter	Section	Township	Range	County	Latitude	Longitude	NE	18	134N	72W	Logan	46.426276°N	-99.773664°W
Quarter	Section	Township	Range	County	Latitude	Longitude									
NE	18	134N	72W	Logan	46.426276°N	-99.773664°W									
Existing:	The current facility is permitted for 4,000 beef cattle on a contained open lot system. The drainage is contained in two runoff containment ponds.														
Planned:	The owners are planning to add additional pen space and an additional runoff containment pond to collect the dirty water from the feedlot to use it for fertilization on crop land. The owners are also planning to add three slatted floor barns to house animals. The facility will have a maximum of 5,500 beef cattle with an average weight of 850 lbs. The facility will be constructed to confine a maximum of 10,000 beef cattle. The increase to the 10,000 head capacity is contingent on the Department receiving the rest of the information required for the Nutrient Management Plan.														

Site Review

Geology:	<p>The facility is located in the Coteau Slope District of the Great Plains physiographic province (Part I, Clayton, 1962). "The Coteau Slope in Logan and McIntosh Counties is characterized by Thin drift and completely integrated drainage that flows westward to the Missouri River (Part I, Clayton, 1962, p.14)</p> <p>The area the facility is located has landforms that are composed of Ground Moraine and Glacial Modified, Stream-eroded topography. Ground Moraine is composed of till and has low relief. The ground moraine is ten plus feet thick. There are cobbles and boulders covering the surface. Glacial Modified, Stream-eroded topography has thin till or till is not present. Bedrock can be found at the or close to the surface. The topography is created by stream erosion and not glacial activity (Part I, Clayton, 1962).</p> <p>The area is mapped as Medium to low relief of ten to forty feet. (Part I, Plate I, Clayton 1962)</p>
Slope:	The average slope in the lot area will be 5%.
Runoff:	The runoff from the 49.4 acre feedlot will be contained in a storage pond.
Elevation:	2,110 feet (Approx. based on USGS Quadrangle maps)
Site drainage:	The facility drains northwest toward an unnamed drainage a class III stream and then into McKenna Lake a class 4 water body.
Water bodies:	An unnamed drainage is located next to the site a class III stream. This drainage flows into McKenna Lake, a class 4 water body, approximately three miles northwest of the site.
Soils:	The primary soils at the site, as indicated by NRCS soil survey, include Williams loam and Williams-Bowbells loams. These soils consist mostly of Clay Loam (CL) and Silt Loam (ML). (Natural Resources Conservation Service (NRCS), Web Soil Survey). (See Table 2 on page 11)

Aquifers:	<p>The facility is not located over an glacial drift aquifer as indicated by the Ground-water data for Logan County, North Dakota; Part III, North Dakota State Water Commission County Ground-water studies 34-part III and North Dakota Geological Survey bulletin 77 – part III.</p> <p>Some of the wells as indicated in the well data are located in the Fox Hills Aquifer. The Fox Hills formation is cover by glacial drift, except in the area of the Beaver Creek were it is exposed (Part III, Klausing) . “The Fox Hills Sandstone consists of very fine to medium-grained sandstone interbedded with siltstone and shale” (Part III, Klausing, p. 14). The aquifer has up to 135 feet in thickness. The recharged is from precipitation in the above glacial drift with discharge from wells and movement into other glacial deposits (Part III, Klausing).</p> <p>The closest aquifer systems are the Napoleon outwash aquifer which is at least five miles to the north of the facility and the Beaver Lake Aquifer System which is at least two miles south of the site.</p> <p>The Napoleon outwash aquifer is located under the city of Napoleon (Part III, Klausing). “The aquifer varies from very fine to very coarse gravelly sand to fine medium sandy gravel” (Part III, Klausing, p. 25). The aquifer has up to 66 feet in thickness. The recharge is from the Fox Hills and precipitation. Discharge is to lakes, evapotranspiration, and from wells (Part III, Klausing).</p> <p>The Beaver Lake Aquifer System near the site is a Melt-water-channel aquifer. This aquifer located in a drainage eroded into the Fox Hills Sandstone. The aquifer is at most a half mile wide in areas and is from east of Beaver Lake to the Emmons County Line (Part III, Klausing). “The aquifer consists of undifferentiated fluvial, terrace, and melt-water-channel deposits” (Part III, Klausing, p. 28). The deposits are very fine to very coarse gravelly sand. The aquifer has up to 28 feet in thickness. The recharge is from the Fox Hills, glaciofluvial deposits, runoff, flooding, and precipitation. Discharge is to Beaver Creek, evapotranspiration, underflow, and from wells (Part III, Klausing).</p>
Public wells:	There are no public wells or irrigation wells located within two miles of the site. The facility uses wells to obtained water for the feedlot.
Private wells:	Within two miles of the site there are numerous wells are shown. Wells in the general area are from 8 feet to 302 feet deep. The owners' have numerous wells that range from 180 to 240 feet deep. (North Dakota State Water Commission & Office of State Engineer)
Groundwater monitoring plan: * pg 51	The facility does not appear to be located over a glacial drift aquifer. Ground water monitoring wells will not be required at the site at this time, unless there is some indication that ground water is being impacted.

Specifications

* Page reference for North Dakota Department of Health Guidelines for Approval of Livestock Manure Systems

Manure Storage Structures																	
Expected runoff and manure quantities:	<p><u>Runoff quantities from design plans (open lot system with holding pond):</u></p> <table border="0"> <tr> <td>Feedlot area</td> <td><u>49.4 ac</u></td> <td>Sludge:</td> <td><u>0 cu yd x 49.4 ac = 0 cu yd</u></td> </tr> <tr> <td>25-year, 24-hour rainfall:</td> <td><u>3.9 in</u></td> <td>25-year, 24-hour runoff:</td> <td><u>2.8 in</u></td> </tr> <tr> <td>Annual rainfall:</td> <td><u>17 in</u></td> <td>365-day runoff:</td> <td><u>3.9 in</u></td> </tr> <tr> <td>Annual evaporation:</td> <td><u>33 in</u></td> <td></td> <td></td> </tr> </table> <p>Total volume needed for runoff storage:... <u>1,241,001 ft³ or 9.28 Mgal</u></p> <p><u>Manure quantities from design plans (confinement barn system with concrete storage pit):</u></p> <p>Number of animals per barn:.....<u>1,000 head</u></p> <p>Amount of manure produced per animal for storage period:.....<u>365 ft³ or 2,730 gal</u></p> <p>Volume needed for manure storage per barn:.....<u>365,000 ft³ or 2.73 Mgal</u></p> <p>Total volume needed for manure storage for the confinement barns (3 total):...<u>1,095,000 ft³ or 8.19 Mgal</u></p>	Feedlot area	<u>49.4 ac</u>	Sludge:	<u>0 cu yd x 49.4 ac = 0 cu yd</u>	25-year, 24-hour rainfall:	<u>3.9 in</u>	25-year, 24-hour runoff:	<u>2.8 in</u>	Annual rainfall:	<u>17 in</u>	365-day runoff:	<u>3.9 in</u>	Annual evaporation:	<u>33 in</u>		
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Required runoff and manure storage:

Type: East Runoff pond

Pond Dimensions

Design Volume: 311,072 ft³ or about 2.3 Mgal

Pump-out Depth: 3.6 ft

Depth: 5.1 ft

Dimensions are irregular. Volume was calculated using the area and the depth of each area. The bottom has a surface area 49,975 square feet and a top liquid area of 72,014 square feet.

Planned Freeboard: 1.2 ft

Surface area: Approx 2.2 ac or 97,509 ft²

The facility has the capacity to store the designed runoff from the 12.6 acre lot.

Type: West Runoff pond

Pond Dimensions

Design Volume: 317,277 ft³ or about 2.4 Mgal

Pump-out Depth: 4 ft

Depth: 5.5 ft

Dimensions are irregular. Volume was calculated using the area and the depth of each area. The bottom has a surface area 47,611 square feet and a top liquid area of 67,760 square feet.

Planned Freeboard: 1 ft

Surface area: Approx 2.2 ac or 96,170 ft²

The facility has the capacity to store the designed runoff from the 14.3 acre lot.

Type: South Runoff pond - Expansion

Pond Dimensions

Design Volume: 643,707 ft³ or about 4.8 Mgal

Pump-out Depth: 3.5 ft

Depth: 5 ft

Dimensions are irregular. Volume was calculated using the area and the depth of each area. The bottom has a surface area 115,037 square feet and a top liquid area of 142,448 square feet.

Planned Freeboard: 2.5 ft

Surface area: 5.05 ac or 219,841 ft²

The facility has the capacity to store the designed runoff from the 22.5 acre lot.

Type: North Confinement Barn

Concrete Pit Dimensions

Design Volume: 382,800 ft³ or about 2.86 Mgal

Depth: 11 ft

Dimensions are rectangular. Volume was calculated using the area and the depth of the pit. The bottom of the pit has a surface area of 34,800 square feet.

Planned Freeboard: 0.5 ft

The facility has the capacity to store the manure produced in the 1,000 head beef confinement barn.

Type: Middle Confinement Barn

Concrete Pit Dimensions

Design Volume: 382,800 ft³ or about 2.86 Mgal

Depth: 11 ft

Dimensions are rectangular. Volume was calculated using the area and the depth of the pit. The bottom of the pit has a surface area of 34,800 square feet.

Planned Freeboard: 0.5 ft

The facility has the capacity to store the manure produced in the 1,000 head beef confinement barn.

Type: South Confinement Barn

Concrete Pit Dimensions

	<p>Design Volume: <u>382,800 ft³ or about 2.86 Mgal</u> Depth: <u>11 ft</u></p> <p>Dimensions are rectangular. Volume was calculated using the area and the depth of the pit. The bottom of the pit has a surface area of 34,800 square feet.</p> <p>Planned Freeboard: <u>0.5 ft</u></p> <p>The facility has the capacity to store the manure produced in the 1,000 head beef confinement barn.</p>
Earthen runoff pond:	<p><u>Location:</u> The proposed location appears suitable based on soil survey and ground water survey information. Soil borings were completed by K2S Engineering. The borings indicate that the Unified classification for the subsoil at the new runoff containment pond construction site is generally CL to a depth of about 16 feet below the pond bottoms. No notable water table was encountered. The bottoms of the ponds are proposed to be at a relative elevation of 67.5 ft (west), 67.2 ft (east), and 54.5 ft (expansion). See the chart of the borings at the end of document.</p> <p><u>General Requirements:</u> <u>Pond design:</u> Inside slope<u>4:1</u> Outside slope ...<u>4:1</u> Top width <u>10 ft</u> Compaction & Settling Factor: 32% combined total</p>
Clay liner construction testing:	<p><u>Liner:</u> A clay liner is not required in the ponds since in situ soils meet the Department's requirements. However, if unsuitable material is located under a portion of the pond, the engineer has indicated this area will be over excavated and replaced with two feet of compacted clay material.</p> <p>Liner Materials NA Density & Moisture Content NA Permeability NA</p>
Manure transfer components: * pg 37	<p><u>Manure Storage Structure Considerations:</u> The facility has incorporated solids separators into the design. All of the runoff for the outside lots will go through the separators. The solids separators will be constructed from reinforced concrete with a base thickness of five inches and a wall thickness of eight inches. The walls will be connected to the base with reinforcement bars and a key way to reduce the amount of seepage at the joint. The separators will have a 20 foot by 20 foot base with a four-foot wall along three sides. The solids separators will have removable plastic screens to retain solids and to ease cleaning. There are underground pipes that take the dirty water from the solids separators to their respective runoff containment ponds.</p>
Inlet lines and outlet structures:	<p>-Aprons are provided in both of the existing holding ponds and at the entrance and exit of the culverts. -Aprons for the holding ponds are a v in shape with a 6x6 splash pad located at the bottom. The splash pad has a 3.5 inch high, 6 inch wide curb to help prevent erosion. -Aprons for the culverts will have a 10x10 splash pad on both ends however the outlet will have a 2-3 inch curb to prevent erosion. - All concrete is reinforced with #4 rebar at 12 inches center to center, both ways. The chutes will have markers installed to serve as the pond markers.</p>
Plumbing:	<p>- The pipe which drains the northern lots to the south is 18 inches in diameter. - A 120 foot long, 18" PE controlled overflow pipe will be installed between the existing east pond and the new south runoff containment pond. - All pipes are corrosion resistant. - Pipe is sloped at a minimum of 0.5% to allow drainage and minimize plugging. - Clean out ports are provided every 200 feet for gravity drain.</p>

Diversions:	<p>The new access roads and runoff containment pond dikes will serve as protection, preventing clean water from entering the lots. The natural drainage in the area will also aid in keeping clean water from entering the site. A dike will be installed on the south side of the feedlot, running along the south side of the dirty water diversion located at the back of the 700 pens. The dike will also prevent clean water from entering the dirty water diversion.</p> <p><u>Design Criteria:</u> Sizing Expected runoff from a 25 year, 24 hour storm event Freeboard 0.3 feet (minimum) Side Slopes 3:1 max 6:1 recommended when equipment crossing is expected Ridge Width 4 feet minimum Settlement Factor . 10%</p> <p>The channel grade must be designed such that the velocity will not cause excessive erosion for the type of soil and vegetation or other lining. The maximum acceptable channel velocity may range from 2.0 ft/sec on sandy soils with no vegetation to 3.5 ft/sec on clayey soils with vegetation.</p>
Earth fill:	<p>The design plans indicate vegetation and organic material will be stripped and removed from the footprint of the embankment. Organic materials or frozen soil will not be used in fill material. Class C compaction shall be used for earth fill unless otherwise noted. Appropriate topsoil as deemed by the Engineer will be used as cover material on the outside slopes of the embankment. The embankment will be seeded to a shallow rooted perennial grass.</p>
Concrete & Rebar:	<p>-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. The design also references the NRCS Standard 313, Waste Storage Facility.</p> <p>-Concrete will be air entrained ranging from 4%-7%.</p> <p>-The compressive strength of the concrete for the precast components will be 5,000 psi. The compressive strength of the concrete for the base slab and footings will be 3,500 psi.</p> <p>-The steel reinforcing shall be Grade 60 throughout the building in accordance with ACI 318-83.</p>
Operation & maintenance plan:	<p>The operation and maintenance plan calls for cleaning of settling areas and repair as needed to maintain original condition. The ponds must be pumped when it reaches marker to maintain capacity. Earth work must be inspected annually and repaired as needed. Drains and diversions must be mowed and maintained when soil is dry and firm. Sediment build up or erosion in drainage ways must be cleaned and re-graded to original condition. Accumulated manure shall be removed annually and applied in accordance with the nutrient management plan.</p>

Nutrient Management Plan, Manure Handling, and Mortality Disposal

Record keeping:	<p>The CAFO 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:</p> <ul style="list-style-type: none"> • Document routine visual inspections of the production area and containment structures. • Maintain a rain gauge at the production area and record measurable rainfall events. • 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. • Inspection of manure application equipment including method, frequency, dates and repairs made if leaks were found. • Setbacks, vegetated buffers or other alternative practices used when land applying manure near surface water or potential conduits to surface water. • 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.
Manure Handling Description:	<p>-Existing lots are shaped and graded to flow into the dirty water diversions. The diversions direct the runoff into the solid separators. The separators drain into two existing runoff ponds.</p> <p>-Pens 400, 420 and 440 are sloped to drain to the east towards the two solids separators. The two solids separators empty into the existing west runoff containment pond.</p> <p>-Pens 500, 520 and 540 will be sloped to drain towards the south side of pen 540 where a solids separator will be located. A dirty water diversion will be located along the back side of the pens as well to aid in drainage towards the solids separator. The separator will drain to the east into the new south runoff containment pond.</p> <p>-Pens 600, 620, 640 and 660 will be sloped to drain towards the solids separator located just east of the northeast corner of pen 640. The solids separator will empty into the new south runoff containment pond.</p> <p>-Pens 700, 720 and 740 will be sloped to drain towards the solids separator located in the south corner of pen 740. A dirty water diversion will be located along the back side of the pens as well to aid in drainage towards the solids separator. The solids separator empties into the new south runoff containment pond by means of an approximately 500 foot underground pipe.</p> <p>-Pens 900, 920, 940 and 960 will be sloped to drain towards a solids separator located outside the southwest corner of pen 540. The separator will empty into the dirty water diversion that runs along the backside of the 700 pens. The dirty water diversion leads to the solids separator located in the south corner of pen 740. The solids separator empties into the new south runoff containment pond by means of an approximately 500 foot underground pipe.</p> <p>-The producers plan on constructing three slatted floor confinement barns. The barns will have 12 foot deep concrete manure pits with pump outs installed to remove the manure.</p> <p>-The manure will be stockpiled within the lots in the spring. The manure will be spread on cropland in the spring and fall. The runoff ponds will be pumped down and applied to cropland as needed.</p>
Application rates: *page 23	<p>Manure will be scraped from the lots, and will be land applied primarily in the fall by broadcasting with a spreader. Manure will be incorporated within 4 days and not incorporated on hay and alfalfa fields. Liquid manure from slurry pit or runoff pod will be spread with a liquid spreader or traveling gun, with no incorporation. Manure will be land applied at a rate not to exceed high phosphorus levels so it will be utilized for crop production and so manure will not get into waters of the state.</p>
General Conditions: *page 22	<p>Best Management Practices (BMPs) must be exercised when managing and applying manure to ensure surface waters are not impacted and minimize nuisance concerns for nearby residents. 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.</p>

Expected manure volumes & nutrients:	<p>Expected Manure Quantities:</p> <table border="1"> <thead> <tr> <th></th> <th>Daily</th> <th>270 Days</th> </tr> </thead> <tbody> <tr> <td>Volume of animal manure</td> <td>37,026 gal/day</td> <td>10.2 Mgal</td> </tr> <tr> <td>Nitrogen (N)</td> <td>1,633.5 lbs./day</td> <td>441,045 lbs.</td> </tr> <tr> <td>Phosphorus (P₂O₅)</td> <td>1,359.3 lbs./day</td> <td>367,003 lbs.</td> </tr> <tr> <td>Potassium (K₂O)</td> <td>1,551 lbs./day</td> <td>418,725 lbs.</td> </tr> </tbody> </table> <p>* Values from USDA Ag Manure Management Field Hand Book, Chapter 4</p> <p>Nitrogen losses anticipated: Storage: 30% for manure pack and open pond Land apply method: 25% for surface applying and incorporating</p>		Daily	270 Days	Volume of animal manure	37,026 gal/day	10.2 Mgal	Nitrogen (N)	1,633.5 lbs./day	441,045 lbs.	Phosphorus (P ₂ O ₅)	1,359.3 lbs./day	367,003 lbs.	Potassium (K ₂ O)	1,551 lbs./day	418,725 lbs.
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Land application of manure:	<p><u>Estimate of land needed for manure application:</u></p> <p>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.</p> <p>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.</p> <table border="1"> <thead> <tr> <th>Nutrient</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>Phosphorus (w/no losses)</td> <td>*40 lb P₂O₅/acre</td> </tr> <tr> <td>Nitrogen (w/ 47.5% losses)</td> <td>*100 lb N/acre</td> </tr> </tbody> </table> <p>Anticipated crop grown: <u>Silage, Corn, Soybeans, Alfalfa, Grass Hay</u></p> <p>Risk assessment for phosphorus : <u>Medium</u></p> <p>Amount of land estimated for spreading at agronomical rates: <u>2,315 acres</u></p> <p>Amount of land identified by applicant for land application: <u>2,672 acres</u></p> <p>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 years 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.</p> <p>*Average rates, actual rates depend upon crops grown and projected yield</p>	Nutrient	Rate	Phosphorus (w/no losses)	*40 lb P ₂ O ₅ /acre	Nitrogen (w/ 47.5% losses)	*100 lb N/acre									
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Mortality disposal:	All animal mortalities will be buried at a disposal site northwest of the planned feedlot expansion.															
Disclaimer:	This design review is intended to assess a livestock facility's ability to contain, divert, store and properly apply manure and/or runoff water to meet department requirements, to prevent detrimental impacts the quality of waters of the state, and to minimize the potential for odor concerns from livestock facilities. It does not include an assessment of the structural integrity of livestock facilities or manure handling structures such as those made of concrete, metal, wood, plastic, or other material.															

Odor Setback

Potential sources: *page 11	<p>The most significant source of potential odors appears to be the storage pond or open lots. Odors from the lots may be minimized with good house-keeping practices. Land application may present a source of short term odor problems. Since this is an existing facility and the Department has not had odor concerns in the past, odors are not anticipated to be a concern in the future. However, if odors are shown to be a concern, steps must be taken to control them. As the county does regulate the nature scope and location of this operation, the state setbacks do not apply. The facility obtained a conditional use permit on July 11, 2017 from the county. The nearest residence is ¾ mile from the feedlot.</p>
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Approval Conditions:

1. The application indicated the facility will house **5,500 beef cattle**. The Department must be notified in writing if there is an expansion in the number of livestock, change in ownership of the facility, significant changes in the physical operation of the facility or if the lot area where livestock are concentrated is expanded. Changes may require an update to the approval or issuance of a new approval.
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 approved 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 waste water does not discharge into waters of the state. Operation and maintenance plans mean description of the equipment, methods, and schedules for: inspection, monitoring, operation and maintenance of the animal feeding operation (manure storage structures, water pollution control structures, and the production area); and controlling water pollution and air pollution including odors to protect the environment and public health. (Design manual, 6.7, page 42)
3. Notice of Completion and all results of testing completed on the clay liner or the manure storage structures must be sent to the Department when construction is complete.
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 shall not exceed 1/16 inch per day, and shall not detrimentally impact waters of the state.
5. Mortalities 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.
6. Land application of manure must be in accordance with the nutrient management plan. Manure must be applied in a manner so it will not be washed into waters of the state. The Department may require immediately incorporating the manure into the soil or leaving a buffer distance to prevent impacts to waters of the state or impacts from odors.
7. The following records pertaining to nutrient management must be maintained for a minimum of 5 years. The crops grown and expected realistic crop yields; the date(s) manure, litter or process wastewater is applied to each field; weather conditions during application, 24 hours prior and following application; test methods used to sample and analyze manure, litter, wastewater and soil; results from annual testing of manure, litter, and process wastewater, and annual soil sample results for land where manure was applied that year; an explanation of how the application rates were determined in accordance with standards established by the department; calculations showing nutrients applied to each field, including other nutrient sources; total amount of nutrients actually applied to each field, including documentation of calculations for the total amount applied; 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. (Design manual, 7.7, number 2, page 49)

8. If manure is transferred to other persons or entities not associated with the facility, the following conditions shall apply: owners/operators shall provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis prior to transfer; the analysis provided shall be consistent with the requirements of section 7.4 in design manual; and 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. (Design manual, 7.7, number 3, page 50)
9. The owner/operator of a large AFO shall conduct the following routine visual inspections of the production area: weekly inspections of all storm water diversion devices, runoff diversion structures and devices channeling runoff to the manure storage structure; daily inspection of water lines, including drinking water or cooling water lines; and weekly inspections of the manure storage structures noting the level of liquid in the structure as indicated by the depth marker.
10. All open storage structures shall: maintain a depth marker which clearly indicates the minimum capacity necessary to contain the Manure generated and direct precipitation from a 25-year, 24-hour rainfall event.
11. The facility must maintain adequate storage capacity to contain a 25-year, 24 hour storm event.
12. Any deficiencies discovered during the inspections 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 storm water unless it is specifically designed for that purpose; and the operator of a livestock facility requiring a permit should maintain a rain gauge at the production area and record measurable rainfall events. (Design manual, 6.2, page 40)
13. The owner/operator of a large AFO must make the following records available to the department for review upon request: records documenting the visual inspections; 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; deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction; records of management and practices used; 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; records of the date, time and estimated volume of any overflow; and records documenting the land application of manure. (Design manual, 6.5, page 41)
14. The owner/operator of a large AFO shall submit an annual report which includes: the number and type of animals whether in open lots or confined under roof; estimated amount of total manure generated in the previous 12 months; estimated amount of total manure transferred to another party in the previous 12 months; total number of acres for land application covered by the Nutrient Management Plan; person who prepared the Nutrient Management Plan; total number of acres under the control of the facility that were used for land application of manure in the previous 12 months; summary of all manure discharges from the production area that have occurred including date, time, and approximate volume. (Design manual, 6.6, page 42)
15. This approval shall in no way permit or authorize the discharge of any objectionable odorous air contaminant which is in excess of the limits established in North Dakota Administrative Code Ch. 33-15-16 of the North Dakota Air Pollution Control Rules. If the Department determines odors from the facility exceed limits, appropriate steps will be required, within a reasonable time, to control and reduce odors from the facility site. This may include requiring the installation of odor control measures.
16. This approval shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
17. 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 waste water does not discharge into waters of the state.

Table 1: North Dakota State Water Commission Well Data

Location	Use	Depth	Diameter	Aquifer
13407218	Stock	180	4"	-
13407218	Stock	200	4"	-
13407218	Stock	200	4"	-
13407218	Stock	240	4"	-
13407218A	Stock	200	4"	-
13407218AAB	Stock	200	4"	-
13407218AAB	Stock	200	4"	-
13407218CBC	Stock	260	4	Fox Hills
13407220	Domestic	172	4	-
13407301CCC	Observation	282	-	-
13407311CCC2	Observation	32	1.25	Outwash
13407311D	Stock	260	4	-
13407312	Stock	230	4	-
13407312CDC	Stock	230	4	Fox Hills
13407323C	-	-	-	-
13407323CBB	Stock	40	4	-
13407323DDD	Observation	302	-	-
13407325	Domestic	180	4	-
13407325C	Stock	200	4	-
13407326BBB1	Observation	202	-	-
13407326BBB2	Observation	8	1.25	-

Information retrieved from North Dakota State Water Commission web site. (see references)

Table 2: Natural Resource Conservation Soil Survey Data

Map unit	Name	Description	Bedrock depth	Seasonal water table	Unified soil class*	Perm in/hr	Lagoon Restrictions
C131 C	Williams loam, 6 to 9% 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.”	0-79"	> 6'	ML, CL	0.6-2 0.2-0.6	Very Limited: slope, seepage.
C201 B	Williams-Bowbells loams, 3 to 6% slope.	<p>“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.”</p> <p>“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.”</p>	0-79"	> 6'	CL, ML	0.6-2 0.2-0.6	Somewhat Limited: slope, seepage, Depth to saturated zone.

Table 3: Soil Boring information

	TP 1	TP 2	TP 3	TP 4	TP 5	TP 6	TP 7	TP 8	TP 9	TP 10	TP 11	TP 12
Elevation	51	54	60	74	77	70	60	55	74	71	94	108
0 to 1	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS	TS
1 to 2	SP	SP	SP	SP	CL	CL	CL	CL	SP	SP	SM/SC	CL
2 to 3	SP	SP	SP	SP	CL	CL	CL	CL	SP	SP	SM/SC	CL

3 to 4	SP	SP	SP	CL	CL	CL	CL	CL	CL	SP	SM/SC	CL
4 to 5	SP	SP	SP	SP	SP	CL	CL	CL	SP	SP	SM/SC	CL
5 to 6	SP	SP	SP	SP	SP	CL	CL	CL	SP	SP	SM/SC	CL
6 to 7	SP	SP	SP	SP	SP	CL	CL	CL	SP	SP	SM/SC	CL
7 to 8	SP	SP	SP	SP	SP	CL	CL	CL	SP	SP	SM/SC	CL
8 to 9	SP	SP	SP	SP	SP	CL	CL	SP	SP	SP	SM/SC	CL
9 to 10	SP	SP	SP	SP	SP	CL	CL	SP	SP	SP	CL	CL
10 to 11	SP	SP	SP	SP	SP	CL	CL	SP	SP	SP	CL	CL
11 to 12	SP	SP	SP	SP	SP	CL	CL	SP		SP	CL	CL
12 to 13	SP	SP	SP			CL	CL	SP		SP	CL	CL
13 to 14	SP	SP	SP			CL	CL	SP		SP	CL	CL
14 to 15	SP	SP				CL	CL			SP	CL	CL
15 to 16	SP	SP					CL				CL	CL
16 to 17												CL
17 to 18												CL
18 to 19												CL
19 to 20												CL

Information retrieved from Engineering Design submitted by applicant

References

Clayton, Lee. Lee, 1962, Glacial Geology of Logan and McIntosh Counties, North Dakota; North Dakota Geological Survey Bulletin 37, part I, pp. 14, 17, & 23.

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Klausing, Robert L.. Klausing, 1982, Ground-Water data for Logan County, North Dakota; Part II, North Dakota State Water Commission County Ground-Water Studies 34-Part II and North Dakota Geological Survey Bulletin 77 – Part II, p. 21.

Klausing, Robert L.. Klausing, 1983, Ground-Water Resources for Logan County, North Dakota; Part III, North Dakota State Water Commission County Ground-Water Studies 34-Part III and North Dakota Geological Survey Bulletin 77 – Part III, pp.14,25, & 28.

Klausing, Robert L.. Klausing, 1983, Ground-Water Resources for Logan County, North Dakota; Part III, North Dakota State Water Commission County Ground-Water Studies 34-Part III and North Dakota Geological Survey Bulletin 77 – Part III, Plates.

State Water Commission & Office of the State Engineer, Map and Data Resources, Ground-Surface Water and Private Contractor logs, database. http://www.swc.state.nd.us/info_edu/map_data_resources/

Natural Resources Conservation Service (NRCS), Web Soil Survey, database. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

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North Dakota Livestock Program Design Manual, North Dakota Department of Health, January 7, 2005.

APPROVAL TO OPERATE

An Animal Feeding Operation

In compliance with Chapter 33-16-03.1 of the North Dakota Department of Health rules as promulgated under Chs. 61-28 and 23-25 of North Dakota Century Code (NDCC), approval of the **J&P Livestock** livestock facility located in the NE¼ of Section 18, Township 134 N, Range 72 W, in Logan County, North Dakota is granted provided the following conditions are met:

1. The facility will house **5,500 beef cattle**. The Department must be notified in writing if there is an expansion in the number of livestock, change in ownership of the facility, significant changes in the physical operation of the facility or if the lot area where livestock are concentrated is expanded. Changes may require an update to the approval or issuance of a new approval.
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 approved 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 waste water does not discharge into waters of the state. Operation and maintenance plans mean description of the equipment, methods, and schedules for: inspection, monitoring, operation and maintenance of the animal feeding operation (manure storage structures, water pollution control structures, and the production area); and controlling water pollution and air pollution including odors to protect the environment and public health. (Design manual, 6.7, page 42)
3. Notice of Completion and all results of testing completed on the clay liner or the manure storage structures must be sent to the Department when construction is complete.
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 shall not exceed 1/16 inch per day, and shall not detrimentally impact waters of the state.
5. Mortalities 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.
6. Land application of manure must be in accordance with the nutrient management plan. Manure must be applied in a manner so it will not be washed into waters of the state. The Department may require immediately incorporating the manure into the soil or leaving a buffer distance to prevent impacts to waters of the state or impacts from odors.
7. The following records pertaining to nutrient management must be maintained for a minimum of 5 years. The crops grown and expected realistic crop yields; the date(s) manure, litter or process wastewater is applied to each field; weather conditions during application, 24 hours prior and following application; test methods used to sample and analyze manure, litter, wastewater and soil; results from annual testing of manure, litter, and process wastewater, and annual soil sample results for land where manure was applied that year; an explanation of how the application rates were determined in accordance with standards established by the department; calculations showing nutrients applied to each field, including other nutrient sources; total amount of nutrients actually applied to each field, including documentation of calculations for the total amount applied; 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. (Design manual, 7.7, number 2, page 49)

8. If manure is transferred to other persons or entities not associated with the facility, the following conditions shall apply: owners/operators shall provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis prior to transfer; the analysis provided shall be consistent with the requirements of section 7.4 in design manual; and 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. (Design manual, 7.7, number 3, page 50)
9. The owner/operator of a large AFO shall conduct the following routine visual inspections of the production area: weekly inspections of all storm water diversion devices, runoff diversion structures and devices channeling runoff to the manure storage structure; daily inspection of water lines, including drinking water or cooling water lines; and weekly inspections of the manure storage structures noting the level of liquid in the structure as indicated by the depth marker.
10. All open storage structures shall: maintain a depth marker which clearly indicates the minimum capacity necessary to contain the Manure generated and direct precipitation from a 25-year, 24-hour rainfall event.
11. The facility must maintain adequate storage capacity to contain a 25-year, 24 hour storm event.
12. Any deficiencies discovered during the inspections 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 storm water unless it is specifically designed for that purpose; and the operator of a livestock facility requiring a permit should maintain a rain gauge at the production area and record measurable rainfall events. (Design manual, 6.2, page 40)
13. The owner/operator of a large AFO must make the following records available to the department for review upon request: records documenting the visual inspections; 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; deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction; records of management and practices used; 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; records of the date, time and estimated volume of any overflow; and records documenting the land application of manure. (Design manual, 6.5, page 41)
14. The owner/operator of a large AFO shall submit an annual report which includes: the number and type of animals whether in open lots or confined under roof; estimated amount of total manure generated in the previous 12 months; estimated amount of total manure transferred to another party in the previous 12 months; total number of acres for land application covered by the Nutrient Management Plan; person who prepared the Nutrient Management Plan; total number of acres under the control of the facility that were used for land application of manure in the previous 12 months; summary of all manure discharges from the production area that have occurred including date, time, and approximate volume. (Design manual, 6.6, page 42)
15. This approval shall in no way permit or authorize the discharge of any objectionable odorous air contaminant which is in excess of the limits established in North Dakota Administrative Code Ch. 33-15-16 of the North Dakota Air Pollution Control Rules. If the Department determines odors from the facility exceed limits, appropriate steps will be required, within a reasonable time, to control and reduce odors from the facility site. This may include requiring the installation of odor control measures.
16. This approval shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
17. 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 waste water 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 approval 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 fines and/or revocation of this approval to operate.

Permission to begin construction becomes effective upon signature of this Approval by the Department. The approval 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 plan, the Department must be notified in writing and approval obtained, prior to 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.

This approval becomes effective when construction is completed and Notice of Completion and results of testing completed on the clay liner or the manure storage structures are received by the Department.

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 HEALTH

By _____
(signature)

By _____

By _____
(print name here)

By Karl Rockeman, Director
Water Quality Division

Date _____

Date _____