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Date RTE Sent to Geology 4/9/25 **eRTE #** 22170

Due Date 4/30/25 **(21 days for 1st NOD, 14 days for 2nd or 3rd)**

327 IAC 19: Design Review Checklist for Geology Section's Review

Facility Name: Minich Dairy Farms Farm ID#: 4255

County: LaPorte Building/Unit #:

Permit Writer: Kraig Whitman Document VFC#: 83792167

Permit Sections' Description of Construction:

The applicant is proposing the construction of a new 48-inch diameter precast manhole with a pump, P1, to pump wash water from the existing E20 calf barn to the existing lagoon, E24.

Geology Section Review Completion Date: 04/30/2025

Assigned Geologist: Michael Elliott, LPG

Peer Reviewing Geologist: William Robinson, LPG

Geology Section Chief Approval: 04/30/2025

Site Location - Actual Address or Other Information to Identify Its Location:

The address of the confined feeding operation (CFO) is 4282 S. 425 W., LaPorte, IN 46350. The CFO is located southwest of the intersection of W. County Road (CR) 400 S. and S. CR 425 W. The location is within the area depicted by USGS Quad: LaPorte West SE T36N R3W Section 29.

Introduction:

I reviewed the site geology and hydrogeology related to the *CFO Permit Application* (Application) that IDEM received on April 9, 2025, from Agronomic Solutions, LLC on behalf of the applicant. The Application proposes to install to the depth of eight feet a new 48-inch diameter precast manhole as a surge tank with a pump (P1), to pump wash water from the existing E20 calf barn to existing concrete lined waste storage lagoon, E24. The Application does not propose to revise the current permitted allowable cattle population of 799 mature cattle, 375 dairy calves, 35 dairy heifers, and 20 beef cattle. The number of permitted cattle qualifies the operation under the larger CFO classification of being a Concentrated Animal Feeding Operation (CAFO).

Brief Summary of Geology Sections' Review Findings:

There is general agreement between the one included site-specific soil boring and publicly available geologic and hydrogeologic information for LaPorte County. Part 2 of this Design Review Checklist summarizes my geologic and hydrogeologic findings for the regional area of the CAFO.

The CAFO exists in an area of LaPorte County underlain by a highly utilized unconsolidated aquifer resource capable of meeting the needs of domestic and high-capacity users. The unconsolidated aquifer consists predominately of sand that is highly productive and highly susceptible to the introduction of surface contamination. The unconsolidated aquifer is in turn underlain by shale bedrock considered an aquitard and present across all of LaPorte County. The shale has very limited potential as a source of groundwater.

The greatest hydrogeologic concern at the CAFO and the surrounding area is the existence of thick sequences of sandy material at or near ground surface to groundwater and considerable depths and a lack of lower permeability clay sequences to hinder downward migration of surface contamination.

Given the high regional use, productivity, and susceptibility of the unconsolidated sand aquifer, protecting the groundwater resource from contamination is paramount to users in the area of the CAFO. Therefore, there is a basis under 327 IAC 19-10-1(a) to include requirements to protect the groundwater resource throughout the active life of the waste management system.

Part 1 - Checklist of Items Reviewed by the Geology Section:

Instructions: If a below checklist item is acceptable for purposes of the geologic/hydrogeologic review, then the assigned geologist can place an "X" in the associated check box to the left of the checklist item's description. However, if the checklist item is missing from the application, or the geologist's review finds the submitted information insufficient to meet the requirements of the rule citation for that item, then the geologist can leave the associated check box empty (blank) and include a written description of the insufficiency or concern regarding the item in the associated comments box provided below the item in the checklist. ***Note: Some of the following checklist items truncate the rules to show only items specific to Geology's review.***

327 IAC 19-7 Application Requirements:

327 IAC 19-7-2 Plot Maps

☒ USDA Soil Survey Map

☒ USGS Topographic Map that includes identification of any public water supply wells and public water supply intake structures within 1,000 feet of the manure storage facilities.

☒ The above USDA and USGS Plot Maps are legible and clearly show, the location of waste management systems, the boundaries of the property and the CFO, the boundaries of livestock and poultry production areas, and the boundaries and owners of all manure application areas.* *(To be legible and clearly identify the features and locations shown, the maps need to include a north arrow, map scale, and a map legend explaining all symbols, fill patterns, or color coding.)*

*[*Note: The Geology Section does not have an assigned responsibility for reviewing manure application area acreage calculations, but as necessary, the permit manager may request that the Geology Section review manure application area field plot plans for adequacy of marking applicable manure application setbacks (327 IAC 19-14-6(a)) for karst sinkholes, water wells, or other features. Such a request may necessitate a site visit to the proposed manure application property or properties.]*

Comments or Inadequacies # 1:

None

327 IAC 19-7-3 Farmstead Plan

☐ A farmstead plan must show all existing and proposed structures, including the most recent construction approval dates for all existing structures and, within 500

feet of the waste management systems, show the following known features listed by 327 IAC 19-7-3(a) existing at the time of the application:

(1) Surface waters of the state.
(2) Public and private roads.
(3) Water well locations.
(4) Characteristics of karst terrain.
(5) Production area surface drainage patterns.
(6) Property boundary lines
(7) All outfalls of known subsurface drainage structures, including perimeter drain outfalls.
(8) Drainage inlets, including water and sedimentation basins.
(9) Mortality management sites.
(10) Any residence.

☒ The farmstead plan must:

- Show the diversion of uncontaminated surface water.
- Be legible and either: (1) drawn to approximate scale or (2) show specific distances between the waste management systems and features listed in 327 IAC 19-7-3(a) *[see above]* that are within 500 feet of the existing or proposed waste management system.
- Contain reference to true north.

Comments or Inadequacies # 2:

The Farmstead Plan does not identify the locations of any on-site water wells. However, information available on the Indiana Department of Natural Resources (DNR) online water well database (https://www.in.gov/dnr/water/ground-water-wells/water-well-record-database/) suggests that there are four water wells on-site with two being designated for residential use (DNR registered well #s 330254 & 380965) and two being designated for animal production use (DNR registered well #s 396099 and 413139). The applicant needs to update the Farmstead Plan to include identifying the location of all on-site water wells and identify which water wells are potable water use sources.

327 IAC 19-7-4 Waste Management System Drawings

Waste management system drawing must show detailed views and necessary cross sections to define all dimensions and construction materials. Systems relying on gravity flow must provide elevations of the entire waste management system that relies on gravity.

☒ Cross-sections and/or accompanying text identify the bottom or base elevation of the waste management structures and depth of any associated perimeter drainage systems in relation to current and planned land surface elevations.

Comments or Inadequacies # 3:

Design does not include a perimeter drain since application reports the seasonal high water table does not occur within eight-foot depth range of the manhole.

☐ **327 IAC 19-7-1(c)(6) Soil and Water Table Information**

Soil and water table information from test holes for proposed manure storage facilities that are conducted by a soil scientist registered under the Indiana board of registration for soil scientists, a professional geologist certified in Indiana under IC 25-17.6, or a professional engineer registered in Indiana. The number of test holes must be sufficient to adequately characterize the seasonal water table and soil. Test holes for concrete manure storage facilities must be at least two (2) feet below the base of the structure. If the manure storage facility is earthen, test holes must be:

(A) Placed at a rate of two (2) holes for the first acre of storage and one (1) additional hole for each additional half acre of storage;

(B) Evenly distributed throughout the storage structure;

(C) At least five (5) feet below the base of the structure for non-karst areas; or

(D) In accordance with 327 IAC 19-12-2(b)(3) in areas of karst terrain. 327 IAC 19-12-2(b)(3) requires at least one (1) of the soil borings or test holes to the shallower of either: bedrock or ten (10) feet below the lowest point of the proposed waste management system.

Comments or Inadequacies # 4:

Only one test hole completed to a depth of eight feet below ground surface. One test hole is a sufficient number given the limited 48-inch diameter of the proposed precast manhole structure. However, since the application states plans to install the precast concrete manhole to an eight-foot depth, the test eight-foot hole depth does not extend to a depth of at least two feet below the base of the concrete structure as specified by 327 IAC 19-7-1(c)(6).The applicant needs to justify the adequacy of depth discrepancy or provide addition deeper boring information from the location or nearby comparable areas.

☒ *[If the application does not include the 327 IAC 19-7-1(c)(7) checklist item immediately below, or the application includes the item, but the Geology Section does not review it, then place an "X" in this box, skip the next item, and leave its associated checklist box blank]*

☐ **327 IAC 19-7-1(c)(7) Proposed Alternative to a Specific Rule Requirement**

A description of any proposed alternative to a specific requirement of 327 IAC 19 to demonstrate equivalent environmental and human health protection in accordance with 327 IAC 19-5.

☐ *[If the application does not include the 327 IAC 19-7-1(c)(10) checklist item immediately below, or the application includes the item, but the Geology Section does not review it, then place an "X" in this box, skip the next item, and leave its associated checklist box blank]*

☒ **327 IAC 19-7-1(c)(10) Other Plans or Supplemental Information**
Other plans or supplemental information that may have been required in the application through the commissioner's written documentation and notification of the need for the information to ensure compliance with 327 IAC 19.

Comments or Inadequacies # 5:

The CAFO maintains a surface water drainage diversion berm between portions of its waste management system and the adjacent Mill Creek on its western boundary. Of particular note, the diversion berm provides surface run-off diversion near existing waste lagoon E24. The operation of E24 is the downstream recipient of waste in the present application.

327 IAC 19-12-2 Site Restrictions

☒ **327 IAC 19-12-2(a):** Waste management systems **must not be constructed**:

☒ Except for 327 IAC 19-12-2(b), in karst terrain based on information compiled by IDEM and from karst and bedrock maps from Indiana Geological Survey* dated 1997.
*[*Note: For online information searches, the Indiana Geologic Survey in 2017 was redesignated the Indiana Geologic and Water Survey (https://igws.indiana.edu/index.cfm).]*

☒ In a floodway.

☒ Over mines**.
*[**Note: CFO/CAFO construction may be acceptable in areas of prior surface mining under specific conditions. See the Permit Manager for specifics. However, CFO/CAFO construction approval has not occurred for locations above underground mines.]*

☒ In soil types that are expected to have a seasonal high water table *[above the lowest elevation of the waste management system]*, unless the water table is lowered to keep the water table below the bottom of the waste management system.

☒ *[If the geologist's review finds that the proposed facility does not appear to be located in a karst terrain, then place an "X" in this box, skip the 327 IAC 19-12-2(b) checklist item immediately below, and leave its associated checklist box blank.]*

☐ **327 IAC 19-12-2(b) Karst**
Place an "X" in this checklist item box if staff reviewed and found the below listed information in the application acceptable for the purposes of

determining if IDEM may allow the proposed structures to be constructed in karst terrain with respect to geologic and groundwater considerations:

- Characterization of the soil and seasonal water table.
- For manure storage facilities that are earthen, in addition to 327 IAC 19-7-1(c)(6), information from at least one of the soil borings or test holes to the shallower of either (A) bedrock; or (B) 10 feet below the lowest point of the proposed waste management system.
- *(If applicable at the time of the application)* Other information that the commissioner deems necessary to ensure protection of human health and the environment.

Comments or Inadequacies # 6:

None

327 IAC 19-12-3 Setbacks

Except where allowed by the commissioner under 327 IAC 19-12-3(d), waste management systems must be located to maintain the minimum setback distances from the following features that are known and identifiable at the time an application is submitted for approval:

☒ **327 IAC 19-12-3(a)(1)**: 1,000 feet from a public water supply well or public water supply surface intake structure.

☐ *[If the application does not include a proposed liquid manure storage structure, then place an "X" in this box, skip the 327 IAC 19-12-3(a)(2) checklist item immediately below, and leave its associated checklist box blank.]*

☒ **327 IAC 19-12-3(a)(2) Liquid Manure Storage**

Except as allowed by 327 IAC 19-12-3(c), a manure storage structure containing liquid manure must be maintained to have a minimum setback of 300 feet from the following:

(A) Surface waters of the state.
(B) Drainage inlets, including water and sediment control basins.
(C) Sinkholes, as measured from the surficial opening or the lowest point of the feature.
(D) Off-site water wells.

☐ **327 IAC 19-12-3(a)(3)**: 100 feet from on-site water wells.

☒ *[If the application does not include a proposed solid manure storage structure, then place an "X" in this box, skip the 327 IAC 19-12-3(b) checklist item immediately below, and leave its associated checklist box blank.]*

☐ **327 IAC 19-12-3(b) Solid Manure Storage**
A manure storage structure that contains solid manure must be maintained to have a minimum setback of 100 feet from the features (A) through (D) in subsection 327 IAC 19-12-3(a)(2) (see above).

Comments or Inadequacies # 7:

I cannot determine whether the application meets the 327 IAC 19-12-3(a)(3) 100-foot setback from on-site water wells because the application does not identify the locations of on-site water wells on the Farmstead Plan or other maps. See my entry and recommendations in Comments and Inadequacies box #2.

Part 2 - The Site Location's Geologic and Hydrogeologic Environment.

Instructions: To make recommendations as to whether groundwater monitoring (327 IAC 19-10-1) or other measures to protect the groundwater or the environment are necessary, the assigned geologist reviews information available from the permit application, publications of the Indiana Department of Natural Resources (DNR) Division of Water (www.in.gov/dnr/water/publications), publications of the Indiana Geological and Water Survey (https://igws.indiana.edu/index.cfm), Indiana Geographic Information Office's (IGIO) *IndianaMap website (https://www.indianamap.org), and other information sources as warranted to compile a general overview of the location's expected geologic and hydrogeologic environment. When information is available, the geologist will include a summary of the information in the text box immediately following the associated subject matter headers below.*

Limitations on Reliability of Water Well Records

The Geology Section's evaluation of a location's aquifer resources considers information reported via driller's logs from the available records of water wells near the site found in the DNR Division of Water's online Water Well Viewer (www.in.gov/dnr/water/ground-water-wells/water-well-record-database). However, the Geology Section uses appropriate professional judgement when considering the water well records due to the driller's descriptions included in the records being typically incomplete and only providing a very rough picture of the subsurface. The water well drillers, who are rarely geologists or other trained geotechnical specialists, produce the majority of the water well records. The resulting water well records are of limited value for completing a detailed hydrogeologic evaluation due to overlooked features, inaccurate descriptions, and an incomplete picture of the subsurface.

327 IAC 19-10-1, Groundwater Monitoring

As stated under 327 IAC 19-10-1(a), "Ground water monitoring may be required when the commissioner makes a determination that the monitoring is required to protect human health and the environment. The commissioner shall make a written determination describing the basis for the need for groundwater monitoring based on information provided about any of the following:

(1) Proximity of ground water aquifer to waste management systems.
(2) Soil types located at and around the proposed waste management systems.
(3) Site-specific factors at the location of the proposed waste management system that may elevate the potential for contamination of the ground water aquifer."

Brief Overview of the Location's Geology and Hydrogeology:

The CAFO exists in an area of LaPorte County underlain by a highly utilized unconsolidated aquifer resource capable of meeting the needs of domestic and high-capacity users. The unconsolidated aquifer consists predominately of sand that is highly productive and highly susceptible to the introduction of surface contamination. The unconsolidated aquifer is in turn underlain by shale bedrock considered an aquitard and present across all of LaPorte County. The shale has very limited potential as a source of groundwater.

Unconsolidated Materials and Unconsolidated Aquifer Resources:

Based on DNR's published map Unconsolidated Aquifer Systems of LaPorte County, Indiana (https://www.in.gov/dnr/water/files/LaPorte_County_UNC_AQSYS_map.pdf) by Division of Water (1990, 1994) the unconsolidated Valparaiso Outwash Apron Aquifer System (VOAAS) underlies the CAFO. DNR describes the VOAAS as follows:

> *"This aquifer system, which forms the southern slope of the Valparaiso Moraine, is a deposit of fine to medium grained sand interbedded with gravel rich zones and clay lenses. Shale rich gravel lenses are scattered throughout the apron. The outwash apron occurs across the central portion of LaPorte County.*
>
> *Most wells are completed in the upper aquifer unit and have depths ranging from 30 feet to more than 100 feet. The wells completed in the lower aquifer unit typically exceed 50 feet deep and may be more than 150 feet deep. The depth to the static water level typically is less than 20 feet deep, but at higher surface elevations, depths may exceed 40 feet. Yields in the upper and lower aquifer units are similar, ranging from 15 to 60 gpm for domestic wells.*
>
> *There are 118 registered significant groundwater withdrawal facilities (159 wells) with yields from 10 to 1500 gpm. Because there is no clay rich cap, the aquifer system is highly susceptible to surface contamination."*

Based on my researching DNR's online registered water wells database there are about 48 registered residential and agriculture water wells and four registered significant withdraw well facilities (SWWF) within a 1.5-mile radius of CAFO. Based on the available water well logs, all the registered water wells withdraw water from the unconsolidated aquifer. With several of the residential water wells producing water from relative shallow depths with total depths of the wells in the 40-to-50-foot range and screenings in sand and or gravel deposits.

These wells are at risk from any contaminant release through drainage through the prevalent permeable shallow sandy materials present across the area.

Site-Specific Soil Information:

Due to the relatively small size of the planned manhole installation, the application provides only one soil boring extending to a depth of eight feet. The materials encountered include mostly silty sands to 40 inches below ground surface (bgs), with an intervening clayey sand layer from 20 to 32 inches bgs, followed by poorly sorted sand and poorly sorted sand with silty sand to the eight-foot total depth of the test hole.

The U.S.D.A. soil type for the area of the proposed construction appears to be non-hydric Tracy sandy loam derived from parent material consisting of loamy outwash over shaly sandy outwash. The soil classification description indicates water availability to depths of 60 inches bgs is low, and there is typically no zone of saturation within a depth of 72 inches bgs. The soil classification description also states the Tracy sandy loam “is not flooded or ponded,” and organic content in the surface horizon is typically about two percent.

Site-Specific Shallow Groundwater:

No site-specific groundwater elevation data is available to evaluate groundwater flow beneath the site. One can speculate that any shallow groundwater would likely flow to Mill Creek along the western boundary of the site. DNR has publish a county-wide piezometric map for the unconsolidated sediments beneath LaPorte County. The map projects groundwater in the vicinity of the site and most of the lower two-thirds of LaPorte County as flowing southward towards the Kankakee River.

Bedrock and Bedrock Aquifer Resources:

DNR's published map Bedrock Aquifer Systems of LaPorte County, Indiana (https://www.in.gov/dnr/water/files/LaPorte_County_BED_AQSYS_map.pdf) by the Division of Water (1990, 1994) states the entire county is underlain by one bedrock aquifer system identified as the Devonian and Mississippian (geologic age) - Coldwater, Ellsworth, and Antrim Shales Aquifer System and reports:

> *"…This system subcrops throughout LaPorte County. These shales are commonly considered an aquitard; therefore, the system is an extremely limited groundwater resource.*
>
> *This aquifer system consists of the Coldwater, Ellsworth, and Antrim Shales. However, in LaPorte County only the Ellsworth and Antrim Shales are present. The Ellsworth Shales consist primarily of gray-green shale with limestone or dolomite lenses in the upper part and alternating beds of gray-green shale and black-brown shale in the lower part. The underlying Antrim Shales consist of brown to black non-calcareous shale in the upper part and black to brown noncalcareous shale with calcareous shale, limestone, and sandstone present in the lower part of the unit. This system is overlain by unconsolidated deposits ranging in thickness from 50 feet to over 400 feet.*
>
> *Because of the availability of the overlying unconsolidated resources, few water wells have been completed in the Coldwater, Ellsworth, and Antrim Shales Aquifer System in LaPorte County. However, this aquifer system is capable of meeting the needs of some domestic users in this county. Domestic well yields are commonly less than 10 gallons per minute with dry holes likely. Well depths range from 66 to 200 feet deep and static water levels typically range from 10 to 80 feet below the land surface. The amount of rock penetrated in this system ranges from 50 to 62 feet. There are no registered significant groundwater withdrawal facilities in LaPorte County.*
>
> *Since the permeability of shale materials is considered low and the overlying unconsolidated deposits are thick, susceptibility to contamination introduced at or near the surface is low."*

Based on the available bedrock layer information on the IndianaMap website the uppermost bedrock beneath the CAFO is the Devonian Elsworth Shale, described above. Based on my search of DNR's online registered water wells database there are no registered wells with a 1.5-mile radius of CAFO drawing water from the shale bedrock. All water wells within that distance withdraw water from the unconsolidated aquifer.

Water Well Records:

Within a one-mile radius of the CAFO there are 10 DNR registered residential wells (2 associated with the CAFO), two registered on-site agricultural wells, two registered agricultural wells, and three registered significant withdraw well facilities (SWWF) that appear to be agricultural irrigation related. Extending out to a 1.5-mile radius there are an additional 31 registered residential wells, another three registered agricultural wells and another registered SWWF. The drilling logs for all report the presence of thick sand and/or sandy material sequences from near surface to significant depths.

Several of the residential water wells within the 1.5-mile radius produce water from relatively shallow depths with total depths of the wells in the 40-to-50-foot range and screenings in sand and or gravel deposits. However, there are a few wells southwest of the CAFO with total depths of only 30-32 feet. The DNR water well logs indicate the unconsolidated material beneath the CAFO area is greater than 100 feet thick.

The water wells in the area of the CAFO are at risk from any contaminant release draining through the thick sequences of permeable sandy materials, the upper portion of which is present in the shallow subsurface across the same area.

Wellhead Protection Areas:

The CAFO is not within the boundaries of any delineated public water supply wellhead protection areas (WHPAs) on record with IDEM. The closest WHPAs are the Westville Water Department and Westville Correction Center WHPAs that are approximately 4.9 to 5.2 miles west of the CAFO; the LaPorte Water Works WHPA roughly within the same distance range northeast of the CAFO; and Kingsford Heights WHPA located about 5.3 to 5.4 miles to the southeast of the CAFO.

Surface Water Drainage:

Surface water drainage appears to flow towards Mill Creek, which flows southward along the western boundary of the site, then south southeastward within Mill Creek to its confluence with Whitham Ditch, and then further southward to join into the Kankakee River at a confluence point about 10.4 miles south-southeast of the CAFO.

Any Other Site-Specific Geologic or Hydrogeologic Factors to Consider:
[This could include for example: liquefaction, seismic, mining, wetland, or flood concerns. Also, if relevant, then include discussion here or in a new box of any 327 IAC 19-2-39 defined "sensitive areas" not fully addressed elsewhere in this review.]

Information at the IndianaMap web site documents two historic earthquakes in the area. One occurred in 1899, at a location west of LaPorte and 4.1 miles north of the CAFO with a magnitude of 4.11. A second quake occurred about 12 miles north-north-west of the CFO with a magnitude of 3.69. Given the age and magnitudes of the quakes, earthquakes do not appear to be a major concern, although future ones could occur in the area.

Potential Site-Specific Geologic or Hydrogeologic Concerns:

Based on the considerations of 327 IAC 19-10-1(a):

(1) There is a close proximity of the highly prolific unconsolidated aquifer to the waste management units.
(2) The "soil" type below the CAFO is predominately sandy materials to groundwater and significantly greater depths.
(3) There is high utilization of the shallow unconsolidated sand aquifer in the area surrounding CAFO. The unconsolidated aquifer is essentially the sole-source aquifer for the area because the underlying shale bedrock is essentially an aquitard and not a prolific or reliable source of groundwater. Further, the unconsolidated sand aquifer is highly susceptible to contamination due a lack of an overlying low permeable protective layer.

Therefore, a release to the environment could greatly impact the water resources for the larger area.

327 IAC 19-10-1(b), The commissioner may request additional information from an owner/operator to complete the written determination in 327 IAC 19-10-1(a).

Recommended Additional Information Request(s):

None

Concluding Recommendations:

[If the reviewer included inadequacy comments in the Comment or Inadequacies boxes # 1 through # 7 of Part 1 above, then the reviewer may reference those inadequacy comments by the associated number # 1 through # 7 assigned to the comment box.]

The applicant needs to address the comments from the Comments or Inadequacies boxes 2, 4, and 7 from this design review checklist.

Further, there is a basis under 327 IAC 19-10-1(a) to include groundwater monitoring or other requirements to protect the underlying groundwater resource throughout the active life of the CAFO's waste management system. This is due to the high regional use, productivity, and susceptibility of the unconsolidated sand aquifer. The hydrogeologic environment beneath the area of the CAFO is not good for not only the CAFO but any industry that could have a potential contaminant release. Protecting the groundwater resource from contamination is paramount to all the users in the area of the CAFO, particularly those that consume groundwater downgradient from the site.

We recognize the application only proposes the installation of a precast concrete manhole associated with waste transfer, and that the CAFO has a current permit that does not include a groundwater monitoring requirement. However, the CFO program did not include Geology Section reviews of CFO applications until recent years. Therefore, most past CFO applications did not receive Geology Section reviews, including any of the past application(s) for this particular CAFO. Had the Geology Section reviewed this facility's historic application(s), we would have identified the potential threat to the unconsolidated aquifer and recommended groundwater monitoring under 327 IAC 19-10-1(a) at that time. Fortunately, it appears much of the CAFO's waste management system is at least concrete floored or concrete-lined, inclusive of waste storage lagoon, E24, which alleviates some concern. However, the facility has one earthen-lined storage lagoon E16 on-site, which provides limited protection of the unconsolidated aquifer.

If the Confined Feeding Permitting Section does not believe it can add groundwater monitoring to the permit due to the limited expansion of the application or other reasons, then we encourage the inclusion in the permit of routine inspections for potential spills or leakage, engineering controls, and routine monitoring of effluent in any exist on-site perimeter drains for ammonia, discoloration, and odor.

Place an "X" in the following review conclusion boxes as they apply to findings of this review:

☒ The Geology Section recommends the Confined Feeding Permits Section send the applicant the inadequacy comments identified in this review before further processing of the application proceed.

☒ The Geology Section recommends any approval of the application include the proposed permitting conditions described in this review's Concluding Recommendations.

☐ The Geology Section does not have any comments to send to the applicant, nor any recommended permitting conditions for potential approval of the application. The Confined Feeding Permits Section should proceed with processing the application.

Geology Task ID # 48672

cc: VFC\Minich Dairy\Confined Feeding\Technical Review\Geology
Daniel Harper, Engineering E7, Permits Branch, OLQ, IDEM
Joseph Goetz, Chief, Confined Feeding Permits, Permits Branch, OLQ, IDEM
Emily McKinney, Engineering Section, Permits Branch, OLQ, IDEM