

## Decision Summary RA21021

This document summarizes my reasons for issuing Registration RA21021 under the *Agricultural Operation Practices Act* (AOPA). Additional reasons are in Technical Document RA21021. All decision documents and the full application are available on the Natural Resources Conservation Board (NRCB) website at [www.nrcb.ca](http://www.nrcb.ca) under Confined Feeding Operations (CFO)/CFO Search. My decision is based on the act and its regulations, the policies of the NRCB, the information contained in the application, and all other materials in the application file.

Under AOPA this type of application requires a registration. For additional information on NRCB permits please refer to [www.nrcb.ca](http://www.nrcb.ca).

### 1. Background

On April 23, 2021, Eric Boeve on behalf of Ridgebeam Farms Ltd. (Ridgebeam Farms) submitted a Part 1 application to the NRCB to construct a new dairy CFO with 120 milking cows (plus dries and replacements).

The Part 2 application was submitted on August 30, 2021. On September 16, 2021, I deemed the application complete. On January 25, 2022 the applicant requested to put the application on hold until he can provide additional information, requested by the NRCB, regarding the liner of a proposed earthen liquid manure storage (EMS). I mailed/emailed this request to delay processing the application to all the affected parties that had submitted responses to the application.

On May 3, 2022, Ridgebeam Farms submitted updated information regarding the dimension and location of the dairy barn (including the manure transfer pit) and the calf barn. On June 9, 2022, Ridgebeam Farms submitted and provided the final additional information regarding the proposed liner of the EMS in the form of an updated site and soil assessment report.

The proposed CFO involves:

- Constructing a dairy barn (and manure transfer pit) (79 m x 21 m + 17 m x 6 m x 2.4 m deep manure transfer pit)
- Constructing a calf barn (22 m x 11 m)
- Constructing an EMS (55 m x 45 m x 4.75 m deep)
- Constructing a solid manure storage pad (45 m x 30 m)

The application also notified the NRCB of the proposed construction of a utility room, attached to the dairy barn (11 m x 10 m). This facility is an “ancillary structure,” under section 1(1)(a.1) of the Agricultural Operations, Part 2 Matters Regulation, because it will not be used to store or collect manure or to confine livestock. Therefore, under section 4.1 of that regulation, this structure does not need to be permitted under the act.

#### a. Location

The proposed CFO is located at NW 4-40-26 W4M in Lacombe County, roughly 3.5 km southeast of the City of Lacombe. The terrain is undulating with a general slope to the northwest on the north area, and to the southwest in the south area of the quarter section of land.

## 2. Notices to affected parties

Under section 21 of AOPA, the NRCB notifies (or directs the applicant to notify) all parties that are “affected” by a registration application. Section 5 of AOPA’s Part 2 Matters Regulation defines “affected parties” as:

- In the case where part of a CFO is located, or is to be located, within 100 m of a bank of a river, stream or canal, a municipality entitled to divert water from that body within 10 miles downstream
- the municipality where the CFO is located or is to be located
- any other municipality whose boundary is within a ½ mile (805 m) from the CFO
- all persons who own or reside on land within the greater of ½ mile (805 m) or the minimum distance separation for the land on which the CFO is located

For this application the minimum distance separation is 290 metres. Therefore, the notification distance is 805 metres (½ mile). (The NRCB refers to this distance as the “notification distance.”)

A copy of the application was sent to Lacombe County, which is the municipality where the CFO will be located. The application was not sent to other municipalities as none are located within 805 m of the proposed site. Further the CFO is not located within 100 m of the bank of the river, stream or canal.

The NRCB gave notice of the application by public advertisement in the Lacombe Express on September 16, 2021. The full application was posted on the NRCB website for public viewing. As a courtesy, 14 letters were sent to people identified by Lacombe County as owning or residing on land within the notification distance.

## 3. Notice to other persons or organizations

Under NRCB policy, the NRCB may also notify persons and organizations the approval officer considers appropriate. This includes sending applications to referral agencies which have a potential regulatory interest under their respective legislation.

Referral letters and a copy of the complete application were emailed to, Alberta Health Services (AHS); Alberta Environment and Parks (AEP); and Agriculture, Forestry and Rural Economic Development (AFRED). I also sent a copy of the application to ATCO Gas and Pipelines Ltd.

I received responses from AHS and AEP.

Mr. Quentin Schatz, an AHS environmental health officer/executive officer, indicated that AHS has no concerns with this application. Mr. Quentin included in his response that AHS recommends to construct the CFO according to the technical requirements provided in the application, and to not construct any water wells within 100 metres of the EMS.

Ms. Laura Partridge, a senior water administration officer with AEP, indicated that application for a water licensing and a groundwater evaluation report under the *Water Act* are required. The applicant is reminded that they need to obtain all applicable licences and permits

#### **4. Alberta Land Stewardship Act (ALSA) regional plan**

Section 22(9) of AOPA requires that an approval officer must ensure the application complies with any applicable ALSA regional plan.

There is no ALSA regional plan for the area where the proposed CFO is to be located.

#### **5. Municipal Development Plan (MDP) consistency**

I have determined that the proposed CFO is consistent with the land use provisions of Lacombe County's MDP. (See Appendix A for a more detailed discussion of the county's planning requirements.)

#### **6. AOPA requirements**

With respect to the technical requirements set out in the regulations, the proposed CFO:

- Meets the required AOPA setbacks from all nearby residences (AOPA setbacks are known as the "minimum distance separation" requirements, or MDS)
- Meets the required AOPA setbacks from water wells, springs, and common bodies of water
- Has sufficient means to control surface runoff of manure
- Meets AOPA's nutrient management requirements regarding the land application of manure
- Meets AOPA groundwater protection requirements for the design of floors and liners/protective layers of manure storage facilities and manure collection areas

With the terms and conditions summarized in part 9, the application meets all relevant AOPA requirements.

When preparing this decision summary, I received technical assistance from Scott Cunningham, Environmental Specialist with the NRCB Science and Technology Division. Mr. Cunningham's report is available on the Wind Rose and Dispersion Factor Report.

#### **7. Responses from the municipality and other directly affected parties**

Directly affected parties are entitled to a reasonable opportunity to provide evidence and written submissions relevant to the application and are entitled to request an NRCB Board review of the approval officer's decision. Not all affected parties are "directly affected" under AOPA.

Municipalities that are affected parties are identified by the act as "directly affected." Lacombe County is an affected party (and directly affected) because the proposed CFO is located within its boundaries.

Ms. Allison Noonan, a planning services administrative assistant with Lacombe County, provided a written response on behalf of Lacombe County. Ms. Noonan stated that the application is consistent with Lacombe County's land use provisions of the municipal development plan. The application's consistency with Lacombe County's municipal development plan is addressed in Appendix A, attached.

Ms. Noonan also indicated that the application meets the setbacks required by Lacombe County's land use bylaw (LUB).

Apart from municipalities, an owner or occupant of land within the affected party radius may request to be considered “directly affected.” The NRCB received five responses from seven individuals. Under our policy, because they are located within the notification distance and have submitted a timely response they are presumed to be directly affected. (See NRCB Operational Policy 2016-7: Approvals, part 6.2)

All of the seven people who submitted responses own or reside on land within the 805 metre (½ mile) notification distance for affected persons. Because of their location within this distance, and because they submitted a response, they qualify for directly affected party status. (See NRCB Operational Policy 2016-7: Approvals, part 6.2)

The directly affected parties raised concerns regarding:

- Increase in odours, noise, flies and insects (quality of life)
- Dispersion factor (MDS)
- Expansion of existing operation
- Run off from manure application
- Groundwater supply and usage
- Groundwater quality
- Surface water and illegal activity regarding water drainage
- Property values
- High density of CFOs (cumulative effects)
- Health issues
- Lack of trees
- Build facilities at the center of the quarter section
- No incorporation of manure spread

These concerns are addressed in Appendix B.

## **8. Environmental risk of CFO facilities**

As part of my review of this application, I assessed the risk to the environment posed by the CFO’s proposed manure storage facilities and manure collection areas. I used the NRCB’s environmental risk screening tool (ERST) to assist in my assessment of risk to surface water and groundwater (see NRCB Operational Policy 2016-7: Approvals, part 8.13). The tool provides for a numeric scoring of risks, which can fall within a low, moderate, or high risk range. (A complete description of this tool is available under CFO/Groundwater and Surface Water Protection on the NRCB website at [www.nrcb.ca](http://www.nrcb.ca).)

The assessment found that all the proposed facilities pose a low potential risk to groundwater and surface water. See results in RA21021 TD page 5 of 99

## **9. Terms and conditions**

Registration RA21021 specifies the permitted livestock capacity as 120 milking cows (plus dries and replacements), and permits the construction of a dairy barn, a calf barn, an EMS and a solid manure storage pad.

Registration RA21021 contains terms that the NRCB generally includes in all AOPA registrations, including terms stating that the applicant must follow AOPA requirements and must adhere to the project descriptions in their application and accompanying materials.

In addition to the terms described above, Registration RA21021 includes conditions that generally address construction deadlines, document submission, construction inspection, and confirmation of the distance to residences. For an explanation of the reasons for these conditions, see Appendix C.

## **10. Conclusion**

Registration RA21021 is issued for the reasons provided above, in the attached appendices, and in Technical Document RA21021.

June 28, 2022

(original signed)  
Francisco Echegaray, P.Ag.  
Approval Officer

### **Appendices:**

- A. Consistency with the municipal development plan
- B. Concerns raised by directly affected parties
- C. Explanation of conditions in Registration RA21021

## APPENDIX A: Consistency with the municipal development plan

Under section 22 of AOPA, an approval officer may only approve an application for a registration if the approval officer holds the opinion that the application is consistent with the “land use provisions” of the applicable municipal development plan (MDP).

This does not mean consistency with the entire MDP. In general, “land use provisions” cover MDP policies that provide generic directions about the acceptability of various land uses in specific areas.

Conversely, “land use provisions” do not call for discretionary judgements relating to the acceptability of a given confined feeding operation (CFO) development. Similarly, section 22(2.1) of the act precludes approval officers from considering MDP provisions “respecting tests or conditions related to the construction of or the site” of a CFO or manure storage facility, or regarding the land application of manure. (These types of MDP provisions are commonly referred to as MDP “tests or conditions.”) “Land use provisions” also do not impose procedural requirements on the NRCB. (See NRCB Operational Policy 2016-7: Approvals, part 8.2.5.)

Ridgebeam Farms’ proposed CFO is located in Lacombe County and is therefore subject to that county’s MDP. Lacombe County adopted the latest revision to this plan on April 8, 2021 (updated on April 14, 2022), under Bylaw 1238/17. As relevant here:

Section 3.3.1 states that “All lands in the County shall be deemed to be agricultural lands unless otherwise designated by the Municipal Development Plan, an approved statutory or non-statutory plan, the Land Use Bylaw, or provincial legislation.”

This provides insight for the interpretation of the remaining portions of the MDP and land use bylaw (LUB).

Section 3.9.1 of the county’s MDP states that the “County shall provide input on applications for confined feeding operations to the Natural Resources Conservation Board (NRCB) under the *Agricultural Operations Practices Act*. The county’s support is subject to the following:

- a) No new confined feeding operation shall be permitted less than 1.6 kilometres (1 mile) from the boundary of:
  - i) a town, village, summer village or hamlet;
  - ii) an area developed or designated for multi-lot residential use; or
  - iii) a provincial or municipal park or recreation area, or other area used or intended to be used for a recreational facility development,except that where provincial regulations require a larger setback distance, that distance shall apply.

Further restriction on the development of confined feeding operations may apply as directed by an Intermunicipal Development Plan or other local plan approved by Council.”

Ridgebeam Farms’ proposed CFO is located outside any of these 1.6 km setbacks.

As for section 3.9.1’s reference to intermunicipal development plans (IDP) or other plans approved by the county’s council, the proposed CFO is located outside of the City of Lacombe/Lacombe County IDP, the Town of Blackfalds IDP, or any other local plans.

For these reasons, I conclude that the application is consistent with the land use provisions of Lacombe County's MDP. This conclusion is consistent with the county's written response to the application.

## **APPENDIX B: Concerns raised by directly affected parties**

### **Concerns from owners/occupants of land within the notification distance**

Randy Cappis  
SW 9-40-26 W4M

Ira and Sharon McKeage  
SW 4-40-26 W4M

Naomi and James Pickett  
SW 9-40-26 W4M

(Mr. Cappis indicated that this location is one of his rental properties; however, Mr. and Ms. Pickett did not include their LLD in their response letter, or confirmed this is their LLD when I requested it by an email)

Garth Riley  
SW 9-40-26 W4M  
(Mr. Cappis indicated that this location is one of his rental properties)

Dietrich Unruh  
SE 5-40-26 W4

In a letter dated November 12, 2021 Eric Boeve, on behalf of Ridgebeam Farms, responded to the issues raised in the written responses. The full response is included on pages 26 to 33 of 99 of Technical Document RA21021.

The directly affected parties (DAPs) raised the following concerns which are listed and summarized below, together with my analysis and conclusions, as well as parts of the applicant's response:

- 1. Increase in odours, noise and flies; MDS dispersion factor; expansion** – Many of the individuals expressed concern about a potential increase in odours, noise, flies, and the impact on air quality and their quality of life due to odours. Some of them also noted that they live north of the proposed site and the prevailing winds come from the south, and there are no trees to reduce the odours. One of the respondents requested the NRCB to apply an MDS dispersion factor of 2.0 due to screening and microclimate factors. A couple of the respondents raised concerns indicating that this proposal is an expansion of the existing dairy CFO across the road, which is owned by the applicants.

#### **Applicant's response:**

The applicant stated the following:

..."The NRCB requires minimum distance separation which is based on animal type and quantity and neighbour land zoning. As all neighbours within the notification radius are also zoned Agriculture 'A' the shortest minimum distance separation is to be used which provides neighbours with a distance buffer to reduce possible noise, dust, flies and odour that may be produced by the dairy operation.

Some neighbours have commented that the operation should be moved due to odour blowing directly to their residence and included the attached figure 1 as evidence. However, figure 2, located at another weather station approximately the same distance away from Ridgebeam Farms as the one in figure 1, shows a very different wind map. Figure 3 shows the two weather stations locations and Ridgebeam Farms. Comparing figures 1 and 2 shows that the majority of wind has a west component which directs odours away from neighbours. As wind directions are not consistent from day to day there will be at some times possible odours that reach neighbours which is why there is a minimum distance separation requirement to reduce this possibility.

The majority of manure produced on the farm will be stored in the liquid manure lagoon as there are no outdoor corrals planned. Odours are strongest during agitation and emptying of the lagoon. This happens one or two times a year for fall and possibly spring manure spreading when the manure is applied and incorporated into the soil as fertilizer. Manure spreading must meet setback requirements from neighbours, water wells and water bodies and neighbours can report any non-compliance”...

... ”Neighbours have noted concerns that this operation is an expansion of Boxrose Farms and is a ‘mega dairy’. Using Google Earth and the NRCB’s online CFO search I found the nearest five dairies listed range from 300 to 700 cow permits. Combining Boxrose Farms permit of 200 cows and Ridgebeam Farms permit application for 120 cows brings the total to 320 which is second smallest of these neighbouring NRCB permits. Ridgebeam’s 120 cow permit is smaller than the average size 2020 Alberta dairy according to Alberta Milk.

Boxrose Farms and Ridgebeam Farms are both currently owned by Mike and Rose Boeve with generational transition plans to transfer to Jesse and Lisa Bouwknicht and Eric and Rebecca Boeve. As this involves significant assets and accounting it takes time to transition and is not a rapid change of ownership. It would be far more economical and profitable to simply expand the existing Boxrose Farms yard site on NE5 instead of duplicating milking facilities, houses, services, yard sites, feed storage, manure storage and more. However, one large dairy does not allow individual ownership and management styles in the future. The two farms should be treated as separate entities because animals are not moved between the farms, quota holdings are separate (milk is not moved between farms), manure storage is separate, etc. Both of these farms have purpose built facilities to properly house dairy cattle from birth to milking age as a closed herd design where all replacement animals are home grown and no animals are purchased or raised off site”...

...” The neighbours desire for a tree buffer near the north property line to reduce odour has also been noted”...

**Approval officer’s conclusion:**

AOPA’s minimum distance separation (MDS) is a means for mitigating odour and other nuisance impacts from CFOs. Ridgebeam Farms’ proposed CFO will be located well outside of the required MDS from other existing residences. The closest neighbouring

residence to the CFO will be 350 m away, and north from the proposed CFO. This distance exceeds the required 290 m MDS to that residence.

The NRCB measured the distances to the nearest houses using air photography; however, there are no constructed buildings to use as a reference to measure these distances. In order to ensure that Ridgebeam Farms builds the CFO facilities while maintaining the distance to neighboring residences, a condition will be included in the registration requiring them to provide documentation, from a qualified third party, of the distance from the closest manure collection or storage facility to the nearest neighbouring residence.

Notwithstanding the CFO's distances to its nearest neighbours, it is reasonable to expect that there will be some odour emissions and other potential nuisances when the new CFO is operational.

Operators are expected to control flies at their operation. If necessary, the NRCB can require the operator to adopt a fly control program.

AOPA does not prescribe that permit holders must have trees to reduce or mitigate odours from a CFO.

I consulted with Mr. Scott Cunningham, NRCB Science and Technology, regarding the concerns related to the predominant wind direction from the south, lack of trees between the CFO and the residences, and using a dispersion factor of 2.0 instead of the standard 1.0 when calculating the MDS, due to screening and microclimate factors.

In a detailed report named "Wind Rose and Dispersion Factor Report" Mr. Cunningham analyzed the wind direction from 10 wind roses found in central Alberta and found that they all have dissimilar frequencies of wind directions; however, he determined that most of the wind blows from the southeast and the northwest.

In the Standards and Administration Regulation, Schedule 1, section 1(a), dispersion factor "allows for a variance to the MDS due to the unique climatic and topographic influences at the site, and is determined in accordance with section 5".

Section 5(1) states "Unless information is provided to establish otherwise to an approval officer's or the Board's satisfaction, the dispersion factor must equal 1.0."

Section 5: "(2) The dispersion factor, if applied, must be determined for the following unique conditions that can influence dispersion:

- (a) topography factor (DT), the effect of topographical features on air dispersion;
- (b) screening factor (DS), the effect of natural or constructed screening which reduces wind effects at the manure storage facility;
- (c) micro-climate factor (DW), the effect of temperature, humidity and wind direction and intensity that demonstrates significant alteration in odour intensity or frequency of occurrence in relation to neighbouring residences."

Mr. Cunningham, in his Wind Rose and Dispersion Factor Report, evaluated whether to apply a different dispersion factor of 1.0. In his analysis he indicated, in part, the following:

The topography factor (DT) has not been raised in the response, so the appropriate value for DT would be 1.0.

The screening factor (DS) was raised in the response and was responded to by the applicant. Note that the screening factor wording “the effect of natural or constructed screening which reduces wind effects” would only result in a DS of less than 1.0 for this file. There is no wording that suggests that the absence of screening should result in a DS of greater than 1.0. The applicant responded that the berm and fence at the lagoon will direct wind away from the lagoon surface reducing odours. A typical berm and fence at a lagoon are not unique and will have minimal impact on odour reduction to a neighbour. Therefore, the appropriate value for DS would be 1.0.

The micro-climate factor (DW) was raised in the response and the applicant’s response, largely as a discussion of the wind roses from the Lacombe CDA 2 and Prentiss stations. Looking at the 10 wind roses, they have some similarities and some differences. However, the wind rose information suggests that the location of the Cappis residences do not have unique wind direction and intensity relative to the proposed dairy operation. Therefore, the appropriate value for DW would be 1.0.

Mr. Cunningham indicated that the three sub-factors (DT, DS and DW) all have values of 1.0, and therefore, he recommended that the standard dispersion factor of 1.0 should be used to calculate the MDS; and therefore, I used the standard dispersion factor of 1.0.

The present application is for a new dairy CFO with 120 milking cows (plus dries and replacements). I considered whether, for MDS purposes, the proposed new CFO and the existing CFO across the road to the west, will each be a single and separate operation. The proposed dairy CFO will have its own utilities and infrastructure, animals will not be moved between the farms, each farm will have its own milk quota, and there is a range road that separates both the existing and proposed dairy operations. Additionally, the proposed dairy CFO could potentially be sold separately without affecting the existing dairy CFO (or vice versa).

I determined that the existing dairy CFO across the road to the west (Boxrose), and the proposed dairy CFO (Ridgebeam) are not located on adjacent land parcels. Section 3(11) of the Standards and Administration Regulation only requires an approval officer to determine if two CFOs are one if they are located on “adjacent land parcels.” Therefore, for the purpose of calculating the MDS, the proposed dairy CFO (Ridgebeam Farms) is a new CFO on its own and not an expansion of the existing dairy CFO (Boxrose Farms Ltd.).

Often, any issues that arise relating to the operation of a CFO, and other disagreements, can be resolved through good communication between neighbours and the CFO operator. However, if a member of the public has concerns regarding a CFO, including whether or not the operation is complying with AOPA, they may contact the NRCB through its toll free reporting line (1-866-383-6722 or 310-0000). An NRCB inspector will follow up on the concern.

- 2. Property values** – Several parties indicated that the new CFO will devalue their property or the rental income from these properties.

#### **Approval officer's conclusions**

In several review decisions, the NRCB's board members have consistently stated that concerns regarding effects on land or property values are "not a subject for [the board's] review under AOPA" or for approval officers' consideration of permit applications. According to the board, impacts on property values are a land use issue which is a "planning matter dealt with by municipalities in municipal development plans..." *Zealand Farms*, RFR 2011-02, p. 5; see also, e.g. *Pigs R Us Inc.*, RFR 2017-11, p. 6 (Stating that effects on land values are "not a relevant Board consideration when the development is consistent with the MDP's land use provisions.") Effects on property values are especially irrelevant when approval officers are considering applications for registrations. *Wyntjes*, RFR 2007-10, pp. 9-10.

- 3. Manure application** – a couple of the respondents raised concerns regarding manure spreading, including incorporation, odour during manure application, manure application, setback to bodies of water (impact into surface water), runoff concerns, and setbacks to residences

#### **Applicant's response:**

The applicant stated the following:

... " Manure is also required to be incorporated soon after spreading to reduce odour and runoff potential. Manure is applied according to soil test requirements for the crops to be grown. The manure lagoon will have an outer berm as well as a fence which helps direct wind away from the lagoon surface reducing odours. The neighbours desire for a tree buffer near the north property line to reduce odour has also been noted"...

..." Manure is applied according to soil test reports determining future crop needs to minimize purchased fertilizer while avoiding excess nutrients. Manure is applied mainly during fall following crop harvest which is a dry time of year which minimizes potential of runoff. Manure is incorporated within 48 hours as required by NRCB regulations. Manure setbacks are observed from water wells, neighbouring residences and common bodies of water. Manure is used for growing crops more efficiently and is not an unwanted by-product that is washed away to pollute neighbouring land..."

#### **Approval officer's conclusion:**

Manure application is regulated under section 24 of the Standards and Administration Regulation.

Section 24(1) of the regulation requires manure to be incorporated within 48 hours of application when it is applied to cultivated land.

Incorporating reduces odours by working the manure into the soil. This type of land application of manure is typically limited to once or twice per year and are typically of short duration. Odours from manure spreading typically do not persist for extended periods of time.

Under section 24(5)(a) of that regulation, manure does not need to be incorporated after surface application on forages, or on no-till cropland, in order to conserve the soil. However, the manure must be applied at least 150 m from any residence. This setback helps mitigate the odour from manure spreading without incorporation.

The Standards and Administration Regulation has other requirements to protect surface and groundwater from excessive application of manure (section 25). These include soil testing requirements, soil salinity limits, nitrate-nitrogen limits, setbacks based on the slope of the terrain to common bodies of water, and setbacks to water wells and residences. Under the regulation (section 28), the operator must also keep manure spreading and soil sampling records for five years and provide those records to the NRCB upon request.

When followed, all of these AOPA requirements will provide protection to neighbours from manure runoff, nutrient leaching, and nuisances from manure spreading.

I conducted a couple of site visits to verify the topography and the general slope of the land at the CFO site. I also reviewed available air photos and topographic maps to determine the flow direction of a couple of intermittent streams east (and north) and south of the site. I found that the terrain at the site, where the dairy barn, calf barn, the EMS and the solid manure storage pad will be constructed, is undulating with a general slope to the northwest, towards a culvert on the northwest of the quarter section and crosses under range road 26-4. The topographic maps show that the lands to the south of the CFO, are also undulating with a general slope to the south and southwest.

During my site visits, I did not note any springs or common bodies of water within 100 m and 30 m, respectively, of where the proposed CFO will be. I also verified these distances by reviewing available air photos. The proposed CFO meets these AOPA requirements.

Complaints about CFO-related issues can be reported to the NRCB's 24 hour toll free reporting line (1-866-383-6722 or 310-0000). An NRCB inspector will follow up on the concern. Neighbours can also call any NRCB office during regular business hours if they have questions about permit conditions or ongoing AOPA operational requirements.

- 4. Groundwater supply** - the potential impact on groundwater quantity was a significant concern for most of the parties. Parties expressed concern that the CFO would remove water from the same aquifer that the surrounding community also uses, with the consequence of depleting the aquifer. Parties recommended monitoring the impact on the aquifer and wells.

**Applicant's response:**

The applicant stated the following:

... "Neighbours are concerned about their drinking water quantity and quality. Ridgebeam Farms is required to receive a water use license from Alberta Environment which requires a licensed groundwater specialist to prepare a report showing that existing wells will not be negatively impacted by new wells from Ridgebeam Farms. Additionally, NRCB regulations prohibit manure spreading

within 30m of any water wells. New wells are constructed in accordance with Alberta standards to minimize potential of contamination. Finally, annual water potability tests for bacteria of on farm wells are required by Alberta Milk”...

#### **Approval officer’s conclusions**

Alberta Environment and Parks (AEP) is responsible for licencing the use of groundwater and surface water in the province. The water licencing process includes an opportunity for neighbours to provide input. Therefore, for efficiency and to avoid inconsistent regulation, NRCB approval officers generally do not consider water supply concerns when reviewing AOPA permit applications, other than ensuring that applicants sign one of the water licensing declarations listed in the Part 2 application form. (This declaration is on page 3 of 99 of Technical Document RA21021.)

A copy of this decision will also be forwarded to AEP for its information.

- 5. Groundwater quality** - Several individuals raised concerns that manure leakage from the CFO’s manure storage facilities and manure application to the land would contaminate groundwater.

#### **Applicant’s response:**

The applicant stated the following:

... “NRCB regulations prohibit manure spreading within 30m of any water wells. New wells are constructed in accordance with Alberta standards to minimize potential of contamination. Finally, annual water potability tests for bacteria of on farm wells are required by Alberta Milk”...

#### **Approval officer’s conclusions**

As noted in the decision summary above, and documented in Technical Document RA21021, the proposed CFO facilities meet all AOPA technical requirements. Several of these requirements are designed to prevent or minimize manure leakage from CFO facilities and thus to prevent manure from reaching and contaminating groundwater..

As noted in section 8 of the decision summary, I assessed the CFO’s proposed facilities, using the NRCB’s environmental risk screening tool (ERST), in order to determine the level of risk they pose to groundwater. The CFO’s proposed facilities pose a low potential risk to groundwater.

Regulations under AOPA set nutrient application limits to prevent the soils from being overloaded with nitrogen and minimize the potential for groundwater to be impacted by manure. The Standards and Administration Regulation under AOPA also requires operators to test soils on farmland to which manure is applied for salts and nitrogen at least every three years, and to make these records available for inspection by the NRCB.

6. **Surface water** - The NRCB received several concerns related to the impact of the CFO facilities on the quality of the surface water, particularly runoff and leaching from the facilities. Many of the respondents indicated that intermittent streams run to the northwest and to the southwest. The individuals were concerned that the streams will be contaminated. One of responses alleged some illegal activities regarding water drainage from the NW 4 onto the SW 4 quarter sections, and the response included an Alberta Environment and Parks letter dated August 10, 2010.

**Applicant's response:**

The letter submitted on November 12, 2021 by Eric Boeve included an air photo with the different slopes and drainages on land

The applicant stated the following

... "As seen in Figure 4 the restored ground levels from a 2010 dispute with previous owners are still in place on SW4-40-26W4. Ridgebeam Farm's land cannot freely drain onto SW4 or SE5 and cause manure runoff problems. As discussed in the 2010 letter unauthorized water pumping and ditching from NW4 to SW4 has been halted. Figure 5 shows that southwest low spot doesn't drain freely and is not cropped like the rest of the field.

Figure 6 shows drainage of NW4. The farm site drains south where it is intercepted by a depression which drains north west until it crosses under RR26-4 through the only culvert on NW4. The depression prevents any runoff at the farm site from travelling south to SW4 or SE5. Runoff to the north of farm site only occurs at the backyard of proposed house to a small low area on north side of fence line. Runoff to the east low area is prevented by land sloping from RR26-4 uphill until approximately 500m from road which is further east than the earthen manure storage. Figure 7 shows where photos were taken to show drainage. Figures 8 through 10 show the depression south of farm site"...

**Approval officer's conclusions**

AOPA and its regulations contain several requirements to prevent or minimize manure leakage from CFO facilities and thus to prevent CFO manure from reaching and contaminating surface water. Two of these requirements are the setbacks from springs and common bodies of water set out in Section 7(1)(a) and (c) of the Standards and Administration Regulation, which prohibits the construction of a manure storage facility or manure collection area less than 100 m from a spring and 30 m from a common body of water.

During my site visits, I have not noted any springs or common bodies of water within 100 m and 30 m, respectively, of the proposed CFO. I also verified these distances by reviewing available air photos. The proposed CFO meets all of these requirements.

Additionally, I consulted a few topographic maps to determine the general slope of the land and the flow direction of a couple of intermittent streams east (and north) and south of the site. I found that the terrain at the site, where the dairy and calf barns, EMS and solid manure storage will be constructed, is undulating with a general slope to the northwest, towards a culvert on the northwest of the quarter section that crosses under range road 26-4. The topographic maps show that the lands to the south of the CFO are also undulating with a general slope to the south and southwest.

As noted in section 8 of the decision summary, I assessed the CFO's proposed facilities, using the NRCB's ERST, in order to determine the level of risk they pose to surface water. The CFO's proposed facilities pose a low potential risk to surface water.

As noted in the decision summary above, and further documented in Technical Document RA21021, the proposed CFO meets all AOPA technical requirements.

Sections 24(9) (a), (b) and (c), and (10)(a), (b) and (c) of the Standards and Administration Regulation, define the setbacks for manure application from a common body of water and water wells, as well as setbacks based on the slope of the terrain to common bodies of water. The operator is responsible to follow these requirements.

During a site visit on November 19, 2021, I visited a low area located about 500 m south of the proposed CFO facilities. The low area continues across the property line to the south, towards the property of one of the respondents, who indicated that there was some illegal drainage back in 2010. I did not notice any indication of any drainage work or runoff towards the land on the south. The low area is not cultivated like the rest of the field.

Additionally, on November 23, 2021, I contacted Mr. Bill Kingston, an environmental protection officer with Alberta Environment and Parks, regarding the illegal drainage that occurred in 2010. Mr. Kingston indicated that the water contravention issue was closed in 2015, and there is no further concern.

Incidences of non-compliance can be reported to the NRCB's 24 hour a day reporting line (1-866-383-6722 or 310-0000). An NRCB inspector will follow up on the concern.

- 7. High density of CFOs (cumulative effects)** – Some of the parties indicated that their residences are located near CFOs (dairy, hogs and beef), and therefore, they question how many CFOs can be permitted in one area.

#### **Approval officer's conclusions**

AOPA does not expressly require approval officers to consider the cumulative effects of proposed developments together with those of other existing CFOs, or other activities in the area. In addition, the NRCB's board members have directed approval officers to ignore this factor in their permitting decisions. For example, in a 2011 decision, the board stated that the issue of cumulative effects is "not within the Board's regulatory mandate. As a statutory decision maker, the Board takes its direction from the authorizing legislation. AOPA does not provide for cumulative effects assessment." (*Zealand Farms*, RFR 2011-02 at 5.)

- 8. Health risk** – one respondent indicated that too many CFOs in the area, in addition to the proposed CFO, "...is fast becoming a health issue".

#### **Approval officer's conclusions**

AOPA does not expressly require approval officers to consider the nuisance or health effects of a proposed development, when deciding whether to issue a registration under

the act.

Approval officers refer applications to Alberta Health Services (AHS) for its information, and for it to identify any potential health issues related to the proposed developments.

As per NRCB Operational Policy 2016-7: *Approvals*, part 8.8., I referred the application to AHS for its comments.

In their response AHS recommended to construct the CFO according to the technical requirements provided in the application, and to not construct any water wells within 100 metres of the EMS.

As noted in the decision summary above, and further documented in Technical Document RA21021, the proposed CFO meets all AOPA technical requirements. Several of these requirements are intended to protect surface and groundwater from manure contamination. The application is also consistent with the “land use provisions” of the County’s MDP.

- 9. Construction of CFO facilities should be at the center of the quarter section of land** – Some of the respondents indicated that the CFO should be build in the middle of the quarter section to increase the distance to their residences

**Approval officer’s conclusions**

AOPA does not prescribe where a CFO should be located or how much land is required in order to build a CFO. AOPA stipulates only that the location must be consistent with the county’s MDP, which is a county planning document, and that it must meet the required minimum distance separation from neighboring homes.

## APPENDIX B: Explanation of conditions in Registration RA21021

Registration RA21021 includes several conditions, discussed below:

### a. Groundwater protection requirements

Ridgebeam Farms proposes to construct the new earthen liquid manure storage (EMS) with a 1.1 metre thick compacted soil liner, and a solid manure storage pad with a 1.2 metre thick protective layer. Section 9 of AOPA's Standards and Administration Regulation specifies a maximum hydraulic conductivity for this type of liner, and protective layer in order to minimize leakage.

#### EMS

To demonstrate compliance with this standard, Ridgebeam Farms provided lab measurements of the hydraulic conductivity of the materials that will be used to construct the compacted soil liner. Lab measurements of hydraulic conductivity are made in a precisely controlled setting and are typically based on a small soil sample. Therefore, the NRCB generally multiplies lab-measured hydraulic conductivity values by a factor of 10 to reflect the potential variability in actual liner materials and conditions that can reasonably be expected to be achieved in the field.

The regulations provide that the actual hydraulic conductivity of a one metre thick compacted soil liner must not be more than  $1 \times 10^{-7}$  cm/sec.

In this case, the lab measurement was  $1.1 \times 10^{-8}$  cm/sec. With the required ten-fold modification, the expected field value is  $1.1 \times 10^{-7}$  cm/sec. With the proposed 1.1 metre thick compacted soil liner, this expected value is below the maximum value in the regulations. Therefore, the proposed liner meets the hydraulic conductivity requirement in the regulations.

To provide additional assurance that the as-built EMS adequately protects groundwater, Registration RA21021 includes a condition requiring the submission of a completion report, stamped by a professional engineer, certifying that the EMS has been constructed in accordance with the proposed design (prepared by Envirowest Engineering Inc. on June 9, 2022, and part of application RA21021) including the:

- Location is the same as proposed
- Inlet to the EMS is located in the lower quarter of the structure
- Constructed under the supervision of a professional engineer
- EMS dimensions, along with elevations above and below grade, berm height, and side wall slopes are the same as proposed

#### Solid Manure Storage

Ridgebeam Farms measured the hydraulic conductivity of the protective layer of the proposed solid manure storage by installing a monitoring well (or water table well) at the time of borehole drilling. This approach provides an adequate representation of the protective layer proposed to be used to protect the groundwater resource.

The regulations provide that the actual hydraulic conductivity of a 2 metre thick naturally occurring protective layer must not be more than  $1 \times 10^{-6}$  cm/sec.

In this case, the in situ measurement was  $4.1 \times 10^{-7}$  cm/sec. This value is below the maximum value in the regulations. Therefore, the proposed naturally occurring protective layer for the solid manure storage meets the hydraulic conductivity requirement in the regulations.

#### **b. Construction Deadline**

Ridgebeam Farms proposes to complete construction of the proposed new facilities by June 1, 2023. This time-frame may not be reasonable for the proposed scope of work. Allowing additional construction seasons is more reasonable, therefore a deadline of November 30, 2025 is included as a condition in Registration RA21021.

#### **c. Post-construction inspection and review**

The NRCB's general practice is to include conditions in new or amended permits to ensure that the new or expanded facilities are constructed according to the required design specifications. Accordingly, Registration RA21021 includes conditions requiring that the concrete used to construct the liner of the manure collection and storage portion of the liquid manure transfer pit, the dairy barn and the calf barn to meet the specification for category B (liquid manure shallow pits), category C (solid manure – wet), and category D (solid manure – dry), respectively, in Technical Guideline Agdex 096-93 "Non-Engineered Concrete Liners for Manure Collection and Storage Areas." Ridgebeam Farms shall provide written confirmation from a qualified third party that the concrete used for the manure collection and storage areas meet the required specifications.

The NRCB routinely inspects newly constructed facilities to assess whether the facilities were constructed according to their required design specifications. To be effective, and to reduce risk to the operator, these inspections must occur before livestock or manure are placed in the newly constructed facilities. Registration RA21021 includes conditions stating that Ridgebeam Farms shall not place livestock or manure in the manure storage or collection portions of the dairy barn (including the pit) the calf barn, the EMS, and the solid manure storage pad until NRCB personnel have inspected them and confirmed in writing that they meet the registration requirements.

#### **d. Distance to neighboring residences**

Ridgebeam Farms is constructing a new CFO on a piece of land that has no constructed buildings. In order to ensure that they build the CFO facilities while maintaining the distance to neighboring residences as set out in the application, a condition will be included in the registration requiring Ridgebeam Farms to provide documentation, from a qualified third party, of the distance from the closest manure collection or storage facility to the nearest neighbouring residence.