

Decision Summary LA23039

This document summarizes my reasons for issuing Authorization LA23039 under the *Agricultural Operation Practices Act* (AOPA). Additional reasons are in Technical Document LA23039. All decision documents and the full application are available on the Natural Resources Conservation Board (NRCB) website at 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 an authorization. For additional information on NRCB permits please refer to www.nrcb.ca.

1. Background

On September 7, 2023, Hutterian Brethren Church of Mountainview (Mountainview Colony) submitted a Part 1 application to the NRCB to construct a two-cell earthen liquid manure storage (EMS) from the hog facilities at an existing multi species CFO.

The dimensions of the proposed two-cell EMS are:

- Cell 1: 73.9 m x 69.4 m x 2.1 m deep
- Cell 2: 72.4 m x 34.4 m x 2.1 m deep

The proposed construction is to replace an existing hog earthen liquid manure storage that was built pre-2002, with a new one in a different location.

The applicant also proposed to decommission the existing hog EMS and convert it into a freshwater lagoon. My analysis can be found on page 4 of Technical Document LA23039.

The Part 2 application was submitted on September 12, 2023, and I deemed the application complete the same day.

a. Location

The existing CFO is located at NE 19-26-25 W4M and NW 20-26-25 W4M in Wheatland County, roughly 19 km north of Strathmore, Alberta. The topography at the site is flat to gently undulating with a general slope to the south and east. The closest common body of water is a marsh complex 630 m to the west of the CFO.

b. Existing permits

The CFO is permitted under Approval LA22019 and Authorization LA23027.

2. Notices to affected parties

Under section 21 of AOPA, the NRCB notifies all parties that are “affected” by an authorization application. Section 5 of AOPA’s Part 2 Matters Regulation defines “affected parties” as:

- the municipality where the CFO is located or is to be located

- 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
- any other municipality whose boundary is within a notification distance. In this case, the notification distance is 1.5 miles (2,414 m) from the CFO

A copy of the application was sent to Wheatland County, which is the municipality where the CFO is located, and to Rocky View County which has a boundary within the notification distance for the CFO.

The CFO is not located within 100 m of a bank of a river, stream or canal.

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 Protected Areas (EPA), and the Western Irrigation District.

I also sent a copy of the application to Ember Resources Ltd because they are a right of way holder at this land location.

The NRCB did not receive any responses from the agencies that were notified.

4. Municipal Development Plan (MDP) and Intermunicipal Development Plan (IDP) consistency

I have determined that the proposed construction is consistent with the land use provisions of Wheatland County's municipal development plan and the Intermunicipal Development Plan Wheatland County shares with Rocky View County. (See Appendix A for a more detailed discussion of the county's planning requirements.)

5. AOPA requirements

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

- 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
- Meets AOPA groundwater protection requirements for the design of floors and liners of manure storage facilities

With the terms and conditions summarized in part 8 and Appendix B, the application meets all relevant AOPA requirements. The condition that is required to address the AOPA requirements around the thickness and construction procedures of the compacted clay liner are discussed in Appendix B of this decision summary.

6. Responses from municipalities

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.

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

Ms. Suzanne Hayes, a development officer with Wheatland County, provided a written response on behalf of Wheatland County. Ms. Hayes stated that the application is consistent with the land use provisions of Wheatland County's MDP. She also stated that the CFO is within the IDP area with Rocky View County. The application's consistency with Wheatland County's MDP and IDP is addressed in Appendix A, attached.

Ms. Hayes noted that the application meets the setbacks required by Wheatland County's land use bylaw (LUB).

Rocky View County is also a directly affected party because its borders are within the notification distance. The NRCB did receive a response from Ms. Kaitlyn Luster, a planner for Rocky View County. In her response Ms. Luster stated that from a planning perspective, she would like to suggest that nuisance impacts on neighboring agricultural lands should be mitigated during and post-construction. There are no provisions in AOPA that dictate mitigation of impacts during construction of CFO facilities. Nuisance impacts arising from new MSF or MCA are mitigated through meeting the MDS. Mountainview Colony's new EMS does meet the MDS to all neighboring residences. Ms. Luster also requested that a condition should be included that requires Mountainview Colony to contact Rocky View County to see if Road Use Agreements are required for the proposed and any future developments. The NRCB does not have direct responsibility for regulating road use. Section 18 of the *Municipal Government Act* gives counties "direction, control, and management" of all roads within their borders. Because of this, it would be impractical and inefficient for the NRCB to attempt to manage road use or direct CFO permit holders to enter, apply or consult municipalities for road use agreements through AOPA permits. I will therefore not address these issues any further.

7. Environmental risk of facilities

When reviewing a new authorization application for an existing CFO, NRCB approval officers assess the CFO's existing buildings, structures, and other facilities. In doing so, the approval officer considers information related to the site and the facilities, as well as results from the NRCB's environmental risk screening tool (ERST). The assessment of environmental risk focuses on surface water and groundwater. The ERST provides for a numeric scoring of risks, which can fall within either 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.) However, if those risks have previously been assessed, the approval officer will not conduct a new assessment unless site changes are identified that require a new assessment, or the assessment was supported with a previous version of the risk screening tool and requires updating. See NRCB Operational Policy 2016-7: Approvals, part 9.17.

In this case, the risks posed by Mountainview Colony's existing CFO facilities were assessed in 2009 (hog EMS), and 2011 (renovated hog barns and chicken broiler barn) respectively using

the ERST. The assessment indicated that the potential risks to groundwater from the hog EMS and renovated hog barns were moderate, and from the chicken broiler barn were low. The risk to surface water was low for all of the facilities.

A re-assessment was conducted in 2023 in conjunction with Authorization LA23027. The reassessment concluded that the risk of the hog EMS to groundwater was high. The change to high risk is based on the monitoring result. The determined moderate risk to groundwater of the dairy EMS remained at moderate. The assessment also included the sheep barn and the feedlot. Both pose a low risk to groundwater. All facilities pose a low risk to surface water. A condition is included in this permit, requiring Mountainview Colony to decommission the existing hog EMS. As explained in Technical Document LA23030, page 4, the conversion of the EMS into a freshwater reservoir is not supported due to the likely presence of residual ammonia in the deeper soil horizons that can convert to nitrate once exposed to air during the excavation. I therefore included a condition requiring Mountainview Colony to decommission the EMS according to Technical Guideline Agdex 096-90 for liquid manure storage facilities with a high risk to groundwater.

New manure storage facilities (MSF) which clearly meet or exceed AOPA requirements are automatically assumed to pose a low risk to surface and groundwater. Nevertheless, I conducted a risk screening and determined that with the conditions included in this permit, the two-cell EMS will pose a low risk to groundwater.

8. Terms and conditions

Authorization LA23039 permits the construction of the two-cell earthen liquid manure storage.

Authorization LA23039 contains terms that the NRCB generally includes in all AOPA authorizations, 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, Authorization LA23039 includes conditions that generally address a construction deadline, construction procedures, document submission and construction inspection, and decommissioning of the old hog EMS. For an explanation of the reasons for these conditions, see Appendix B.

9. Conclusion

Authorization LA23039 is issued for the reasons provided above, in the attached appendices, and in Technical Document LA23039.

Authorization LA23039 must be read in conjunction with Mountainview Colony's Approval LA22019 and Authorization LA23027 which remain in effect.

November 29, 2023

(Original signed)
Carina Weisbach
Approval Officer

Appendices:

- A. Consistency with the municipal development plan and intermunicipal development plan
- B. Explanation of conditions in Authorization LA23039

APPENDIX A: Consistency with the municipal development plan and intermunicipal development plan

Under section 22 of AOPA, an approval officer may only approve an application for an authorization or amendment of an authorization 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.

In Decision 2022-02 Double H Feeders Ltd., the NRCB Board directed approval officers away from a narrow reading of this part of AOPA. An approval officer should determine an application’s consistency with not just the MDP, but also the IDP (if one applies). Given changes to the hierarchy of statutory plans under the *Municipal Government Act*, the Board suggested that ignoring an applicable IDP could lead to absurd outcomes in the event of a conflict between an MDP and an IDP. Under NRCB Operational Policy 2016-7: Approvals, part 9.2.1, I consider both MDP and IDP in this discussion.

“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 9.2.7.)

Mountainview Colony’s CFO is located in Wheatland County and is therefore subject to that county’s MDP. Wheatland County adopted the latest revision to this plan in 2022, under Bylaw #2022-11.

The relevant section can be found in section 3.1 Agriculture: section 3.1.3 which states that the county shall act as referral agency and respond in accordance with the MDP and LUB when the Natural Resources Conservation Board is processing applications for CFO’s. In my interpretation, this is not a land use provision. Therefore, I will not consider this section in my consistency determination, regardless, I notified the county and considered their response (see section 6).

In my view, the text in 4.2.2 of Wheatland County’s MDP also provides a clear intent to adopt provisions from the land use bylaw (LUB). Following the NRCB Operational Policy 2016-7: *Approvals*, part 9.2.4, I also consider Wheatland County’s Land Use #2016-01 (with its last amendment on March 24, 2020 under Bylaw 2020-04). Under that bylaw, the subject land is currently zoned as Agricultural General District. Confined feeding operations are not listed as a permitted, discretionary or prohibited use. There is a general listing “Agricultural Operation” which does not require a permit. Section 4.2.7 of Part 4 specifies these as ‘*an agricultural operation*’ as defined in the Act on a parcel designated AG. This is understandable as Section 8.6 of the LUB states that the NRCB has full authority over CFOs and manure storage facilities

and that applicants/landowners are responsible for obtaining the necessary permits required by the NRCB under AOPA.

The proposed two-cell EMS also meets all applicable setbacks. In her response, Ms. Hayes confirmed that all setbacks have been met.

Based on my analysis, I determined that the development is consistent with the MDP and the county's LUB.

Mountainview Colony's CFO is also in the area included in the Intermunicipal Development Plan (IDP) area between Wheatland County and Rocky View County and is therefore subject to this IDP. Wheatland County and Rocky View County adopted the latest revision to this plan in 2021 - November 30, 2021, by Rocky View County under Bylaw C-8164-2021 and November 16, 2021, by Wheatland County under Bylaw 2021-10.

The relevant land use policies can be found in section 3.3 – Land Use Policies, Agriculture specifically section 3.3.3. This policy requires applications for new or expanded CFOs within the plan area to be referred to the adjacent municipality. Although this is not considered a land use policy, I did send the application to Rocky View County for comments because its boundary is within the 1.5 miles notification distance.

Map 3a: Land Use – North, indicates that the area in which Mountainview Colony is located is zoned Agriculture.

No other policies in this IDP apply to this application.

Based on my analysis, I determined that the development is consistent with the IDP.

APPENDIX B: Explanation of conditions in Authorization LA23039

a. Groundwater protection requirements

Mountainview Colony proposes to construct the new two-cell earthen liquid manure storage (EMS) with a 1.5 metre thick compacted soil liner. Section 9 of AOPA's Standards and Administration Regulation specifies a maximum hydraulic conductivity for this type of liner to minimize leakage.

To demonstrate compliance with this standard, Mountainview Colony 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 1×10^{-7} cm/sec.

In this case, the lab measurement was 6.6×10^{-8} cm/sec. With the required ten-fold modification, the expected field value is 6.6×10^{-7} cm/sec. This expected value is above (worse than) the maximum value in the regulations and would, realistically, not meet the regulations by increasing the thickness of the compacted clay liner. However, Technical Guideline Agdex 096-64, November 2022, page 6 allows the consideration of additional construction procedures that account for scenarios where the laboratory hydraulic conductivity value is not increased by an order of magnitude.

These considerations include increasing the compacted soil's design moisture content to be $\geq 2\%$ more than the optimum moisture content in addition to determining moisture content and density test results for each lift of the compacted soil liner. Therefore, a condition will be included that requires the construction to be supervised by a professional engineer to ensure moisture content and density testing has been conducted appropriately for each lift and that the final thickness of the compacted soil liner has a minimum of 1.5 m.

In order to ensure protection of the liner, no trees or other deep rooting vegetation are allowed to establish around the two cell EMS.

b. Construction above the water table

Section 9(2) of the *Standards and Administration Regulation* under the *Agricultural Operation Practices Act* (AOPA) requires the bottom of the liner of a manure storage facility or manure collection area to be not less than one metre above the water table of the site "at the time of construction."

The engineering report attached to the application shows a water table at 2.89 m below ground level (page 40, Technical Document LA23039). The depth of the bottom of the two cells of the EMS is proposed to be at 0.9 m below ground level.

Based on this information, the proposed two cell EMS meets the one metre requirement of section 9(2). However, because the height of the water table can vary over time, a condition is included requiring Mountainview Colony to cease construction and notify the NRCB immediately if the water table is encountered during construction.

c. Construction Deadline

Mountainview Colony proposes to complete construction of the proposed new two cell earthen liquid manure storage by December 31, 2026. This timeframe is considered to be reasonable for the proposed scope of work. The deadline of December 31, 2026, is included as a condition in Authorization LA23039

d. 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, Authorization LA23039 includes conditions requiring:

- a. Mountainview Colony to provide completion report, stamped by a professional engineer, certifying that the two-cell earthen liquid manure storage has been constructed at the approved location, that all setbacks have been met, the final dimensions including inside and outside slopes, that the liner was constructed with the same liner material as used for hydraulic conductivity testing, that the thickness of the liner is a minimum of 1.5 m and that all construction procedures as outlined above have been followed and AOPA's liner requirements have been met.

The NRCB routinely inspects newly constructed facilities to assess whether the facilities were constructed according to their required design specifications. To be effective, these inspections must occur before manure is placed in the newly constructed facilities. Authorization LA23039 includes a condition stating that Mountainview Colony shall not place manure into the new two cell earthen liquid manure storage until NRCB personnel has inspected the two-cell earthen liquid manure storage and confirmed in writing that it meets the authorization requirements.

e. Closure/decommissioning of the old (existing) hog EMS

Mountainview Colony proposed to repurpose the old hog EMS from a manure storage facility to a freshwater lagoon. Technical Guideline Agdex 096-90 requires the over-excavation of the EMS and refill it with appropriate materials with a mound to prevent surface water pooling at the site of the filled-in EMS. Generally, the use of old lagoons as water reservoirs is possible. However, there are several procedures that need to be followed in order to use a decommissioned EMS as a water storage. These include flushing with fresh water until nutrient levels are acceptable (see Technical Report: Closure of manure storage and manure collection areas, Report from November 2011). In addition, the storage should remain full at all times because despite the over-excavation of the EMS by 1 m (as stipulated in the Agdex 096-90), there is a great likelihood of residual ammonia in the subsoil horizon that can quickly convert into nitrate once exposed to oxygen. Nitrate is highly mobile and prone to leaching (personal communication with the AOPA engineer, Alberta Agriculture and Irrigation). Considering all site specific factors at this site, including groundwater monitoring data collected at this site, shallow water wells, subsoils, and enforceability of a condition that would have to state that the bottom of the water reservoir has to be covered with water at all times, I conclude that due to the potential risks involved, the re-purposing of this facility as a freshwater lagoon is not recommended and the EMS must be decommissioned properly. Therefore, a condition will

be included that requires Mountainview Colony to decommission the old hog EMS according to Technical Guideline Agdex 096-90 for liquid manure storage facilities with high risk to groundwater. The decommissioning must occur within one year of completion of the new two-cell EMS. The NRCB must be notified before the over-excavation of the EMS begins. Refilling of the over-excavated old EMS must occur immediately after completion of the excavation process and the NRCB must be notified once the decommissioning is complete.