

Decision Summary RA20029

This document summarizes my reasons for issuing Authorization RA20029 under the *Agricultural Operation Practices Act* (AOPA). Additional reasons are in Technical Document RA20029. 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.

1. Background

On May 20, 2020, Lone Pine Hutterian Brethren (Lone Pine) submitted a Part 1 application to the NRCB to construct a new earthen liquid manure storage (EMS) (61 metres x 61 metres x 4.5 metres deep) at an existing multi species CFO. The Part 2 application was submitted on July 27, 2020. On July 29, 2020, I deemed the application complete.

There is no proposed increase in livestock.

Under AOPA, this type of application requires an authorization. (This is one of several types of “permits” issued under AOPA. For an explanation of the different types and when each one applies, see www.nrcb.ca.)

a. Location

The existing CFO is located at SW 7-39-17 W4M in the County of Stettler, roughly 4 km northeast of Botha, Alberta. The terrain of the CFO’s site is level to gently sloping.

b. Existing permitted facilities

The CFO is currently permitted under NRCB Approval RA19004. This approval allows the construction of CFO facilities for the following permitted livestock numbers:

- 500 sow farrow to finish
- 200 milking cow dairy (associated replacements and dries also allowed on site)
- 30,000 layer chickens (associated pullets also allowed)
- 400 beef finishers
- 4000 broiler chickens
- 450 geese
- 900 ducks

The CFO’s existing permitted facilities are listed in an Appendix of Approval RA19004.

2. Notices to affected parties

Under section 21 of AOPA, notice of an authorization application must be provided to municipalities that are “affected” by the application. Section 5 of AOPA’s Part 2 Matters Regulation lists the categories of municipalities that are affected parties. These categories

include the municipality where the existing CFO is located. Under section 21(2) of the act, all affected municipalities are automatically also “directly affected” parties. The NRCB interprets section 21(3) as allowing affected municipalities to provide written submissions regarding whether the application meets the requirements of the regulations under the act. (See Operational Policy 2016-7: *Approvals*, part 7.11.2.)

The County of Stettler is both an affected and directly affected party because the proposed facility/expansion is located within its boundaries.

On July 29, 2020, the NRCB emailed referral letters and a copy of the application to the County of Stettler, Alberta Health Services (AHS), Alberta Environment and Parks (AEP), and Alberta Agriculture and Forestry (AF).

3. Responses from the municipality and referral agencies

I received responses from the county, AEP and AF. No response was received from AHS.

Ms. Cara McKenzie, a development officer with the County of Stettler, provided a written response on behalf of the county. As noted in section 2, the County of Stettler is a directly affected party.

Ms. McKenzie stated that the application is consistent with the county’s municipal development plan (MDP). The application’s consistency with the county’s MDP is addressed in Appendix A, attached.

Ms. McKenzie also listed the setbacks required by the County of Stettler’s land use bylaw (LUB) and noted that the application seems to meet these setbacks. Additionally, she indicated that the CFO site and all lands within 1,600 m of the CFO, are zoned as ‘Agricultural’ under the county’s LUB.

The NRCB also received a response from Laura Partridge, a senior water administration technologist at AEP indicating that the colony has an application for a licence under the *Water Act*. Ms. Partridge indicated that the water application includes animal numbers that exceed the animal capacity reflected under Approval RA19004; and therefore, the applicant should apply for more animal capacity under AOPA or reduce the water requirements under the *Water Act* application.

An AF inspector indicated that AF has no concerns with the application.

4. Environmental risk screening of existing and proposed facilities

When reviewing a new authorization application for an existing CFO, NRCB approval officers normally assess the CFO’s existing buildings, structures, and other facilities, using the NRCB’s environmental risk screening tool to determine the level of risk they pose to surface water and groundwater. This tool 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 done with a previous version of the risk screening tool and requires updating. See NRCB Operational Policy 2016-7: *Approvals*, part 8.13.

In this case, the risks posed by Lone Pine's existing CFO facilities were assessed in 2013 and 2019. According to those assessments, the facilities posed a low risk to surface water and groundwater.

The circumstances have not changed since those assessments were done. As a result, a new assessment of the risks posed by the CFO's existing facilities is not required.

I also assessed the proposed EMS, using the NRCB's risk screening tool, and determined that it poses a low risk to groundwater and surface water.

5. Other factors considered

The application meets all relevant AOPA requirements, with the terms and conditions summarized in part 6.

In addition, the proposed construction is consistent with the land use provisions of County of Stettler's municipal development plan. (See Appendix A for a more detailed discussion of the county's planning requirements.)

With respect to the act's technical requirements, the proposed 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
- Has sufficient means to control surface runoff of manure
- Meets AOPA groundwater protection requirements for the design of floors and liners of manure storage facilities

While assessing this application, I received technical assistance from Scott Cunningham, NRCB Environmental Specialist.

6. Terms and conditions

Authorization RA20029 permits the construction of the EMS.

Authorization RA20029 also 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 RA20029 includes conditions that:

- Set a deadline of November 30, 2022 for the approved construction to be completed
- Require submission of an engineer's completion report for the constructed EMS
- Prohibit Lone Pine from placing manure in the EMS until the facility has been inspected by the NRCB following its construction

For an explanation of the reasons for these conditions, see Appendix B.

7. Conclusion

Authorization RA20029 is issued for the reasons provided above, in the attached appendices, and in Technical Document RA20029.

Authorization RA20029 should be read in conjunction with previously issued Approval RA19004, which remains in effect.

September 21, 2020

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

Appendices:

- A. Consistency with the municipal development plan
- B. Explanation of conditions in Authorization RA20029

APPENDIX A: Consistency with the municipal development plan

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

The NRCB interprets the term “land use provisions” as covering MDP policies that provide generic directions about the acceptability of various land uses in specific areas and that do not call for discretionary judgements relating to the acceptability of a given confined feeding operation (CFO) development. (See NRCB Operational Policy 2016-7: *Approvals*, part 8.2.5.) Under this interpretation, the term “land use provisions” also excludes MDP policies that impose procedural requirements. In addition, 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.”)

Lone Pine’s CFO is located in County of Stettler and is therefore subject to that county’s MDP. County of Stettler adopted the latest revision to this plan on June 25, 2014 under Bylaw 1529-14. Section 4.15 of the MDP deals specifically with CFOs. The subsections of this section that are relevant to this application are discussed below.

Subsection 4.15(d) states that the CFO site “must be located” in either the Agricultural District or the Agricultural Preserve District under the county’s land use bylaw, otherwise the county will ask the NRCB to include a condition in the permit requiring the applicant to obtain rezoning from the county. This CFO is located within the Agricultural District. Therefore, the application is consistent with this MDP policy.

Subsection 4.15(e) states that the “proposed location of a CFO structure must comply with the minimum front, side and rear yard setbacks for farm buildings as described in the land use bylaw.” The proposed earthen liquid manure storage meets these setbacks.

Subsection 4.15(f) states that the county *may* request that the NRCB include a condition in the permit requiring the applicant to enter into a road use agreement with the county. This is likely not a land use provision. Nevertheless, the county has made no such request for this application. Further, NRCB policy is not to use AOPA permit conditions to require applicants to enter into road use agreements. (See NRCB Operational Policy 2016-7: *Approvals*, part 8.9.)

Subsections 4.15(h) and (i) preclude new or expanding CFOs within any exclusion zones identified in an intermunicipal development plan or in any area structure, concept and outline plans listed in those subsections. Lone Pine’s CFO is not within any of these exclusion zones.

For the reasons stated above, I conclude that the application is consistent with the land use provisions of the County of Stettler’s MDP. This conclusion is supported by the county’s response letter, which stated that the application is consistent with its MDP.

In my view, the text of County of Stettler’s MDP also provides a clear intent to adopt provisions from the land use bylaw (LUB), in sections 1.0, 3.6, 4.1, 4.7, 4.15 d), 4.15 e), 4.15 g), and 4.16. Following the NRCB Operational Policy 2016-7: *Approvals*, part 8.2.3, I also considered County of Stettler’s Land Use Bylaw #1634-20 (most recently amended on May 13, 2020). Under that bylaw, the subject land is currently zoned as Agriculture.

Section 8.1 of the land use bylaw exempts CFOs from the definition of agricultural operations. However, section 91.14 of the bylaw states that the county “supports the location” of CFOs in the agricultural district, if they “comply with the relevant policies” in the county’s MDP, particularly, the exclusion zones cross-referenced in the inter-municipal development plans, and around approved area structure plans, concept plans and outline plans. The development officer’s response indicated that the subject property is not located within any areas covered by area structure plans or inter-municipal development plans.

APPENDIX B: Explanation of conditions in Authorization RA20029

Authorization RA20029 includes several conditions, discussed below:

a. Groundwater protection requirements

Lone Pine proposes to construct the new EMS with a one metre thick compacted soil liner. Section 9 of AOPA's Standards and Administration Regulation specifies a maximum hydraulic conductivity for this type of liner in order to minimize leakage.

To demonstrate compliance with this standard, Lone Pine 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.

Example: Hydraulic conductivity = k
 Lab k = 1×10^{-9} cm/sec
 Expected field k = $10 \times (1 \times 10^{-9}$ cm/sec) = 1×10^{-8} cm/sec

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.

NRCB Approvals Policy, Operational Policy 2016-7, section 8.7.2, requires approval officers to increase the lab measurements of hydraulic conductivity by one order of magnitude (a factor of 10) to estimate the actual (in field) hydraulic conductivity for proposed liners under section 9(6) of the Standards and Administration Regulation. This section states:

"However, lab measurements of a sample of material taken from the field are not considered an accurate representation of the actual field hydraulic conductivity values. This is because of the potential variability of soils, differences in compaction methods and variances in compaction."

In this case, the lab measurement was 7.2×10^{-8} cm/sec. With the required ten-fold modification, the expected field value is 7.2×10^{-7} cm/sec. With the expected field level, the results would not meet the regulations of 1×10^{-7} cm/sec. However, Envirowest Engineering Inc. (who completed soil testing and soil engineering work on behalf of Lone Pine) recognizes that this value did not meet the safety factor and addressed this shortfall by proposing additional construction requirements for the new EMS:

- *Excavation of material should be placed in three piles: a spoils pile (material that is evident to not be appropriate for a liner, such as sand or silt), a liner pile (material consistent with that tested for hydraulic conductivity), and a third pile for transition or outlier material.*
- *The liner and transition piles should be sampled for particle size (hydrometer) prior to installation.*
- *Each 0.15 m lift should be tested along the walls and base for moisture content and compaction following installation, prior to addition of the subsequent lift.*

As noted in part 5 above, while assessing this application, I received technical assistance from Scott Cunningham, NRCB Environmental Specialist. Mr. Cunningham stated in correspondence related to this application, that the proposed testing of each 0.15 m lift along the walls and base for moisture content and compaction after installation, and prior to the addition of subsequent lifts is more testing than typical for a new EMS.

Additionally, Mr. Cunningham indicated that the use of particle size testing to confirm suitable soil that will be installed as a liner, is also more testing than typical for a new EMS; and recommended that I accept the above mentioned tests as “sufficient construction quality controls” where a factor of 10 adjustment to the hydraulic conductivity is not required. Mr. Cunningham also stated that he was of the opinion, that the level of construction quality control would address “...potential variability of soils, differences in compaction methods and variances in compaction.” listed in section 8.7.2, NRCB Approvals Policy, Operational Policy 2016-7.

As such, I’m accepting Mr. Cunningham’s recommendations to compare the lab k to regulation k (laboratory hydraulic conductivity of 7.2×10^{-7} cm/sec directly to the regulation requirement of 1×10^{-7} cm/sec) based on the construction protocols proposed by the engineer and have added conditions to the authorization, requiring Lone Pine to construct the new EMS in accordance with the proposed design and construction protocols, and to report on all the sampling and testing programs as proposed.

Accordingly, Authorization RA20029 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 July 24, 2020, and part of application RA20029) 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 and side wall slopes are the same as proposed
- Location of and testing results of moisture content and compaction, for each 0.15 m lift to be reported in the completion report
- Clay content of the soil used to construct the compacted soil liner must be included in the completion report and compared to a minimum of 28% clay content
- Sand and silt content of the soil used to construct the compacted soil liner must be included in the completion report
- Sand, silt and clay content are to be reported for each texture test as individual test results within the completion report

b. Construction Deadline

Lone Pine proposes to complete construction of the proposed new EMS by the fall of 2020, within the same construction season when this authorization is issued. In my opinion, a construction schedule that allows more than two construction seasons is more practical and realistic for the proposed development. Therefore, Authorization RA20029 includes a condition stating a deadline of November 30, 2022.

c. Post-construction inspection

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 livestock or manure are placed in the newly constructed facilities. Authorization RA20029 includes a condition stating that Lone Pine shall not place manure in the manure storage portions of the new EMS until NRCB personnel have inspected it and confirmed in writing that it meets the authorization requirements.