

## Decision Summary RA21023

This document summarizes my reasons for issuing Authorization RA21023 under the *Agricultural Operation Practices Act* (AOPA). Additional reasons are in Technical Document RA21023. 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 an authorization. For additional information on NRCB permits please refer to [www.nrcb.ca](http://www.nrcb.ca).

### 1. Background

On May 7, 2021, Beat & Priska Fischer operating as Whitefish Dairy Ltd. (Whitefish Dairy) submitted a Part 1 application to the NRCB to re-construct and expand an earthen liquid manure storage facility (EMS) (61 m x 57 m x 4.75 m deep) at an existing dairy CFO.

The Part 2 application was submitted on June 2, 2021. On June 3, 2021, I deemed the application complete.

#### a. Location

The existing CFO is located at SW 5-42-3 W5M in Ponoka County, roughly 10 km southwest of Rimbey, Alberta. The terrain is gently undulating with a general slope to the northwest.

#### b. Existing permits

The CFO is already permitted under Authorization RA11014; which grandfathered a deemed Registration. Authorization RA11014 allows a dairy CFO with 80 milking cows (plus associated dries and replacements)

### 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 0.5 mile from the CFO

A copy of the application was sent to Ponoka County, which is the municipality where the CFO is located.

### **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 Alberta Agriculture and Forestry (AF).

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

I have determined that the proposed expansion of the EMS is consistent with the land use provisions of Ponoka County's municipal development plan. (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 proposed EMS expansion:

- Meets the required AOPA setbacks from nearby residences, with an exemption under Section 3(5)(c) of the Standard and Administration Regulation (AOPA setbacks are known as the "minimum distance separation" requirements, or MDS).
- Meets the required AOPA setbacks from 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/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. The exemption that is required to address the AOPA requirements around the setbacks from water wells is discussed in part 8 of this decision summary.

### **6. Responses from the municipality**

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." Ponoka County is an affected party (and directly affected) because the proposed EMS is located within its boundaries.

Mr. Peter Hall, the assistant chief administrative officer with Ponoka County, provided a written response on behalf of Ponoka County. As noted in section 2, Ponoka County is a directly affected party.

In his response, Mr. Hall indicated that there are no issues or concerns with the proposal. The application's consistency with the county's municipal development plan (MDP) is addressed in Appendix A, attached.

## **7. Environmental risk of facilities**

New manure storage or manure collection facilities (MSF/MCA) which clearly meet or exceed AOPA requirements are automatically assumed to pose a low risk to surface and groundwater. However, there may be circumstances where, because of the proximity of a shallow aquifer, or porous subsurface materials, an approval officer may require surface and groundwater monitoring for the facility. In this case a determination was made and monitoring is not required.

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, 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](http://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 8.13.

In this case, the risks posed by Whitefish Dairy's existing CFO facilities were assessed in 2011. The assessment indicated that the potential risks to surface water and groundwater were low.

Since the 2011 risk assessment, the NRCB has developed a new version of the ERST mentioned above. For these reasons, I reassessed the risks posed by the CFO's existing facilities.

For the sake of efficiency, I first assessed the CFO's existing dairy barn using the ERST. This appears to be the CFO's highest risk facility, because it collects liquid manure and is the closest facility to a water well. The assessment found that the dairy barn poses a low potential risk to groundwater and surface water. Because this is the CFO's highest risk facilities, I presume that the CFO's other existing facilities also pose a low potential risk to both groundwater and surface water. From a review of other information gathered in the course of this application, I am satisfied that the screening provided by the ERST is adequate and that the presumption is not rebutted. A further assessment of the risks posed by these other facilities, using the ERST, is not necessary.

## **8. Exemptions**

I determined that the proposed EMS is located within the required AOPA setback from two water wells. As explained in Appendix C, an exemption to the 100 metre water well setback is warranted due to the construction of the water wells and location upslope from the EMS.

## **9. Terms and conditions**

Authorization RA21023 permits the construction of the EMS.

Authorization RA21023 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 RA21023 includes conditions that generally address a construction deadline, document submission and construction inspection. For an explanation of the reasons for these conditions, see Appendix D.

## **10. Conclusion**

Authorization RA21023 is issued for the reasons provided above, in the attached appendices, and in Technical Document RA21023.

Authorization RA21023 must be read in conjunction with NRCB previously issued Authorization RA11014 which remains in effect.

July 15, 2021

(Original Signed)  
Francisco Echegaray, P.Ag.  
Approval Officer

## **Appendices:**

- A. Consistency with the municipal development plan
- B. Responses from referral agencies
- C. Exemptions from water well setbacks
- D. Explanation of conditions in Authorization RA21023

## **APPENDIX A: Consistency with the municipal 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.

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.)

Whitefish Dairy’s CFO is located in Ponoka County and is therefore subject to that county’s MDP. Ponoka County adopted the latest revision to this plan on October 2018, under Bylaw #6-08 MDP.

Sections 2.1 to 2.8 of the MDP deal with CFOs. I have reviewed these sections, and find that these provisions generally apply to new or expanded CFOs. The MDP does not define “expansion,” so I will use the definition in the Part 2 Matters Regulation under AOPA. Section 1(1)(d)(i) of that regulation defines an “expansion” as the construction of additional facilities to confine more livestock. Whitefish Dairy’s application does not involve confining more livestock, so I conclude that it is not an “expansion” under this definition. Therefore, the MDP policies relating to CFO “expansions” do not apply to Whitefish Dairy’s application. Irrespective, the application meets the policies for expanded CFOs.

For these reasons, I conclude that the application is consistent with the land use provisions of Ponoka County’s MDP. This conclusion is supported by the county’s non-objection to the application.

In my view, under sections 1.4, 1.6, 4.10, 17.5 and in Appendix A, the MDP clearly intends to incorporate Ponoka County’s Land Use Bylaw (LUB) # 7-08 (see NRCB Operational Policy 2016-7: *Approvals*, part 8.2.3). Accordingly, I considered the LUB. Under that bylaw, the subject land is currently zoned as agricultural. CFOs are listed as a permitted land use within this land use zoning, provided that they hold the required authorization (or permit) under AOPA. As noted in part 1 of this decision summary, Whitefish Dairy’s CFO has been grandfathered and is now permitted by the NRCB under Authorization RA11014.

## **APPENDIX B: Responses from referral agencies**

This application was referred to AHS, AEP and AF as a courtesy and for their information as the referral agency may have a regulatory interest. Under AOPA referral agencies are not considered affected parties or directly affect parties for authorization applications. The comments from the referral agencies are set out here for information purposes only.

### **a. Alberta Health Services (AHS)**

I received a response from Mr. Gordon Watt, a public health inspector, on behalf of AHS. In his letter, he summarized the scope of the application. He further included a few comments for consideration. Mr. Watt concluded that AHS has no objections to the proposed development.

### **b. Alberta Environment and Parks (AEP)**

Ms. Laura Partridge, a water administrator technologist at AEP sent an email, to the applicant and the NRCB, indicating that no additional water licence under the *Water Act* is required at this time.

### **c. Agriculture and Forestry's (AF) inspection and investigation section of the animal health and assurance branch**

Mr. Stephan Desilets, inspections manager, responded on behalf of AF acknowledging receipt of the application, and provided the name of the inspector assigned to the CFO. AF did not provide any other comments.

## APPENDIX C: Exemption from water well setbacks

### 1. Water Well Considerations

The proposed EMS expansion is located less than 100 m from two water wells. During a site visit I have confirmed that the two water wells are located approximately 40 m and 75 m, respectively from the EMS. This is in conflict with the section 7(1)(b) of the *Standards and Administration Regulation (SAR)*. Section 7(2) allows for exemptions if, before construction, the applicant can demonstrate that the aquifer into which the water well is drilled is not likely to be contaminated by the manure storage facility (MSF)/manure collection area (MCA), or if required by an approval officer a groundwater monitoring program is implemented.

Under the regulation, one basis for granting an exemption is if the approval officer implements a groundwater monitoring program of the water well(s) in question.

One basis for granting an exemption is if the “aquifer into which the well is drilled is not likely to be contaminated” by the proposed MSF or MCA.

Section 7(2) of the SAR states that the 100 m setback to a water well does not apply if the EMS is not likely to contaminate the aquifer into which the water wells are drilled and if required by an approval officer, a groundwater monitoring program is implemented.

The potential risks of direct aquifer contamination from the EMS are presumed to be low if the applicant’s proposed EMS meets AOPA’s technical requirements to control runoff and leakage. Approval officers also assess whether the water well itself could act as a conduit for aquifer contamination.

In this case, I felt the following factors were relevant to determine the risk of aquifer contamination via the water wells:

- a. How the wells were constructed
- b. Whether the wells are being properly maintained
- c. The distance between the wells and the proposed EMS
- d. Whether the wells are up- or down-gradient from the EMS and whether this gradient is a reasonable indication of the direction of surface and groundwater flow between the two structures

These presumptions and considerations are based on NRCB Operational Policy 2016-7: Approvals, part 8.7.1.

Water well # 1405074:

Based on information provided by the applicant and from the Alberta Environment and Parks (AEP) water well database, the water well located approximately 40 m SW of the EMS is likely AEP water well ID # 1405074. This well is reported to have been installed in 2000 and has a perforated or screened zone from 18.3 m to 36.6 m below ground level across stratigraphy. The well has an above ground casing. This well is used for non-domestic purposes. The well’s log identifies protective layers from ground surface to 18.3 m below ground level. The well has a bentonite seal. The well appeared to be in good condition at the time of my site inspection and its casing was protected by a welded steel cage. The well is up-gradient of the EMS.

Water well # 438683:

Based on information provided by the applicant and from the Alberta Environment and Parks (AEP) water well database, the water well located approximately 75 m S of the EMS is likely AEP water well ID # 438683. This well is reported to have been installed in 1989 and has a perforated or screened zone from 18.3 m to 30.5 m below ground level across stratigraphy. The well has an above ground casing. This well is used for domestic and non-domestic purposes. The well's log identifies a protective layer from ground surface to 6.1 m below ground level. The well has a driven seal. The well appeared to be in good condition at the time of my site inspection and its casing was protected by a welded steel cage. The well is up-gradient of the EMS.

The NRCB has developed a "water well exemption screening tool," based on the factors listed above, to help approval officers assess the groundwater risks associated with a nearby water well.<sup>1</sup>

In this case, the results of the water well exemption screening tool suggest that an exemption is likely as seen in Technical Document RA21023.

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1. 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).

## APPENDIX D: Explanation of conditions in Authorization RA21023

Authorization RA21023 includes several conditions, discussed below:

### a. Groundwater protection requirements

Whitefish Dairy proposes to re-construct and expand the earthen liquid manure storage (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, Whitefish Dairy 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  $3.5 \times 10^{-8}$  cm/sec. With the required ten-fold modification, the expected field value is  $3.5 \times 10^{-7}$  cm/sec. With the expected field level, the results would not meet the hydraulic conductivity value of  $1 \times 10^{-7}$  cm/sec as stated in the regulations. However, Envirowest Engineering Inc. (who completed soil testing and soil engineering work on behalf of Whitefish Dairy) recognizes that this value did not meet the safety factor and addressed this shortfall by proposing additional construction requirements for the 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.*

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 the above mentioned tests be accepted as "sufficient construction quality controls" where a factor of 10 adjustment to the hydraulic conductivity is not required. Mr. Cunningham 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  $3.5 \times 10^{-7}$  cm/sec directly to the regulation requirement of  $1 \times 10^{-7}$  cm/sec) based on the construction protocols proposed by the engineer and have added conditions to the authorization, requiring Whitefish Dairy to re-construct and expand the EMS in accordance with the proposed design and construction protocols, and to report on all the sampling and testing programs as proposed.

Accordingly, Authorization RA21023 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 April 11, 2021, and part of application RA21023) 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 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**

Whitefish Dairy proposes to complete construction of the proposed re-construction and expansion of the EMS by November 30, 2022. This time-frame is considered to be reasonable for the proposed scope of work. The deadline of November 30, 2022 is included as a condition in Authorization RA21023.

#### **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, and to reduce risk to the operator, these inspections must occur before livestock or manure are placed in the newly constructed facilities. Authorization RA21023 includes a condition stating that Whitefish Dairy shall not place manure in the manure storage or collection portions of the expanded EMS until NRCB personnel have inspected the EMS and confirmed in writing that it meets the authorization requirements.