From: [redacted]
To: Laura Friend
Subject: Email 2 - Permits with RCC as liner
Date: Thursday, April 8, 2021 3:27:54 PM

Hi Laura,

For the Board review, the Muilwijks would like to make the following permits available for discussion. Could you please download from the NRCB webpage and submit as a .pdf.

Stronks – Open Feedlot

LA 18053B:
https://www.nrcb.ca/public/uploads/nrcb_cfo_search_documents/A8056_LA18053B_AP_16_Jul_19.pdf

LA 17038:
https://www.nrcb.ca/public/uploads/nrcb_cfo_search_documents/A6629_LA17038%20DS%2024%20Apr%2018.pdf

Spring View Colony – Covered Feedlot

LA 18031:
https://www.nrcb.ca/public/uploads/nrcb_cfo_search_documents/A6824_LA18031_DS_17_Jul_18.pdf

Kind Regards,

Cody Metheral, P. Eng.

Linkage Ag Solutions

NRCB Natural Resources Conservation Board

Total permitted animal capacity from all permits for this site:
10,000 Beef finishers

In consideration of Decision Summary LA18053B, LA18053A, LA18053, and Board Decision 2019-03/LA18053, Approval LA18053B is issued to:

Name: Stronks Feedlot Ltd. (the "permit holder")
Address: Box 870, Picture Butte, Alberta T0K 1V0
Contact person: Carson Stronks

Permitted construction (based on the submitted site plan):

- One row of pens south of the existing pen area (330 m x 80 m)
- One row of pens east of the existing pen area (260 m x 70 m)
- Permission to use the north row of pens (180 m x 40 m) (north side of the existing pen area), and reconstruct this row of pens with a new 0.15 metre (6") thick roller compacted concrete liner (RCC) to meet AOPA groundwater protection requirements
- Installation of a floating runoff pump in the natural catchment area with a buried PVC pipe connecting it to a center pivot located on the east side of the NW 33-10-20 W4M

The permit holder shall comply with the requirements of the *Agricultural Operation Practices Act* (AOPA) and the regulations passed pursuant to that act.

The permit holder shall adhere to the descriptions contained in the filed application, LA18053A, LA18053, and Board Decision 2019-03/LA18053 together with the site plan, operating plan, manure management plan, engineering reports and other attached documents, unless otherwise noted in the following conditions.

The permit holder shall contact the NRCB at least 10 working days in advance of the desired inspection date to schedule the inspection in conditions 2, 6 and 9.

The permit holder is responsible for all costs associated with monitoring, sampling, testing, recording and reporting requirements.

New floating pump for runoff control

Construction completion deadline

1. The permit holder shall complete installation of the new runoff pump system (including installation of the buried PVC pipe) prior to December 31, 2019.

Post construction inspection

2. The permit holder shall not use the new runoff pump system until inspected and signed off by NRCB personnel.

New feedlot pens

Construction completion deadline

3. The permit holder shall complete construction of the manure collection and storage portions of the new feedlot pens prior to December 31, 2020. Upon request, this deadline may be extended by the NRCB in writing.

Construction completion report

4. The permit holder shall provide the NRCB with a written construction completion report for the new feedlot pens. The report shall be stamped and signed by a "professional engineer," as defined in the Standards and Administration Regulation, and shall certify that:

    - the feedlot pens were constructed at the location specified in the site plan provided with the application;
    - the bed for the liner was level and compacted, before the RCC is installed;
    - the RCC product was placed on the bed with an even thickness of at least 7" (0.18 metres) and at least 6" (0.15 metres) when compacted;
    - the RCC was properly compacted around transition zones (stock waterers, the feed bunk apron, the pen entrances, fence posts, and any other objects that penetrate the RCC), according to the product supplier's compaction recommendations which require compacting the RCC with a hand packer around posts and with a small vibrator compactor around stock waterers, feed bunk aprons, and pen entrance areas;
    - the RCC was properly covered immediately after it was compacted, and for a sufficiently long period, to ensure proper curing; and
    - the final compaction has reached at least a 92% compaction density.

Survey

5. Prior to the post construction inspection of the new feedlot pens (see condition 11 below), the permit holder shall provide the NRCB with a survey from an Alberta land surveyor as defined in the *Land Surveyor Act*, verifying that the new feedlot pens are at least:

    - 150 metres away from the nearest wall of the Stroeve residence;
    - 30 metres away from the nearest property line.

    The distances shall be measured from the nearest parts of the facility and the nearest residence or property line (as required), to the nearest 0.1 metres. All parts of the CFO facilities that do not meet the required setbacks must be decommissioned.

Post construction inspection

6. The permit holder shall not allow livestock in the new feedlot pens until the facilities have been inspected by NRCB personnel and determined by them, in writing, to have been constructed in accordance with the terms and conditions of this permit and all of the parts of the runoff control system have been completed and approved for use.

North row of feedlot pens

Construction completion deadline

7. The permit holder shall complete construction of the compacted concrete floor for the manure collection and storage portions of the new feedlot pens prior to December 31, 2019.

Construction completion report

8. The permit holder shall provide the NRCB with a written construction completion report for the new feedlot pens. The report shall be stamped and signed by a "professional engineer," as defined in the Standards and Administration Regulation, and shall certify that:

    - the feedlot pens were constructed at the location specified in the site plan provided with the application;
    - the bed for the liner was level and compacted, before the RCC is installed;
    - the RCC product was placed on the bed with an even thickness of at least 7" (0.18 metres) and at least 6" (0.15 metres) when compacted;
    - the RCC was properly compacted around transition zones (stock waterers, the feed bunk apron, the pen entrances, fence posts, and any other objects that penetrate the RCC), according to the product supplier's compaction recommendations which require compacting the RCC with a hand packer around posts and with a small vibrator compactor around stock waterers, feed bunk aprons, and pen entrance areas;
    - the RCC was properly covered immediately after it was compacted, and for a sufficiently long period, to ensure proper curing; and
    - the final compaction has reached at least a 92% compaction density.

Post construction inspection

9. The permit holder shall not allow livestock in the newly reconstructed feedlot pens until the pens have been inspected by NRCB personnel and determined by them, in writing, to have been constructed in accordance with the terms and conditions of this permit and all of the parts of the runoff control system have been completed and approved for use.

Operating conditions

10. A fly control program must be in place during fly breeding season

Soil testing

11. The permit holder shall conduct annual soil testing in the natural catchment area commencing in 2019. The sampling shall be conducted by a professional agrologist and with the same requirements and at the same locations as directed by the Board in Board Decisions RFR 2018-07 / LA17038 and 2018-09 / LA17038. *("…must divide the catchment area into four equally large sections with five samples per section at two sample depths (0 cm – 15 cm; 15 cm – 60 cm). The five samples per section can be combined into two composite samples of 0 cm – 15 cm and 15 cm – 60 cm for soil analysis (total of eight samples) Follow the soil analysis requirement referenced in Schedule 3 of the Standards*

and Administration Regulation under AOPA for extractable nitrate-nitrogen and soil salinity."). The soil testing results must be submitted annually by December 15 to the NRCB. The NRCB may revise those requirements as determined necessary, in writing.

Nutrient management

12. The permit holder must implement the nutrient management plan as submitted in his submission to the Board and considered by the Board in Board Decision 2019-03/LA18053. This plan can be modified, if required, by the NRCB in writing.

Other conditions

13. The permit holder shall conduct the following tests at the time 2019 soil tests under condition 11 are being conducted and submit the results to the NRCB:
    a. The permit holder shall conduct soil testing to identify the soil texture in the natural catchment area. A minimum of 5 boreholes to a depth of 60 cm shall be drilled, transecting the natural catch basin area, starting at the west side (west point of the natural catchment area) to the east side (section line) to determine the soil texture. The samples shall be separated if different soil layers are encountered and analyzed separately.
    b. A minimum of 5 boreholes shall be drilled, transecting the natural catchment area, starting at the west side (west point of the natural catchment area) to the east side (section line) to identify the water table.
14. Within one month of receiving the soil tests and prior to December 15, 2024:

- The NRCB shall determine whether nitrate nitrogen and electrical conductivity levels in the natural catchment area (as shown on site plan) are achieving the nutrient application limits (section 24 and 25, Standards and Administration Regulation and schedule 3).
- If the soil test results remain in exceedance of the AOPA standards by December 15, 2024:
    a. The NRCB shall determine whether the nutrient management plan has resulted in sufficient reductions in nitrate nitrogen and electrical conductivity levels to warrant continued operation. If so, the NRCB shall provide the permit holder a reasonable extension period up to, but not exceeding, five years (to December, 2029).
    b. If, in the opinion of the NRCB, sufficient reductions in nitrate nitrogen and electrical conductivity levels have not been achieved to warrant an extension, the permit holder shall either:
        i. obtain a permit for a constructed runoff control and storage system that meets AOPA ground and surface water protection requirements and have it constructed by December 1, 2025, or
        ii. depopulate and remove all manure from all CFO pens within one year of receiving direction from the NRCB.

The NRCB reserves the right to amend this condition should information become available to support the change.

Approval LA18053B becomes effective immediately and replaces approval LA18053A. Approval LA18053B conditions will remain in effect unless amended in writing by the NRCB.

Approval LA18053 is hereby cancelled and no longer in effect, unless Approval LA18053B is held invalid, in which case the previous permit will remain in effect.

July 16, 2019

Carina Weisbach
Approval Officer

Approval LA18053A – Appendix

Existing permitted facilities

- Feedlot pen areas (total footprint): 255 m x 260 m plus 203 m x 183 m
- The CFO also has a grandfathered natural catchment area with approximate dimensions: 160 m x 180 m plus 125 m x 50 m (irregular shape) as identified by the NRCB Board members in its RFR decision 2018-07/LA17038 (June 11, 2018).

NRCB | Natural Resources Conservation Board

Decision Summary LA17038

This document summarizes my reasons for denying Approval LA17038 under the *Agricultural Operation Practices Act* (AOPA). Additional reasons are in Technical Document LA17038. That document and the full application are available from the decisions search engine on the Natural Resources Conservation Board (NRCB) website at www.nrcb.ca. 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 June 30, 2017, Stronks Feedlot Ltd. (Stronks) submitted a Part 1 application to the NRCB to expand an existing beef confined feeding operation (CFO). The Part 2 application was submitted on August 1, 2017. I initially deemed the application complete on August 15, 2017 and the NRCB issued a full public notice on that day.

The proposed expansion involves:

- Increasing the permitted number of beef finishers from 6,500 to 10,000
- Constructing one row of pens south of the existing pen area – 320 m x 80 m
- Constructing one row of pens east of the existing pen area – 260 m x 70 m
- Permitting one row of already constructed but unpermitted pens on the north side of the existing pen area (180 m x 40 m), and reconstruct this row of pens with a new 0.15 metre (6") thick roller compacted concrete liner (RCC) to meet AOPA liner requirements.
- Permitting use of an existing catchment area to contain runoff from the three new rows of pens

The areas of the proposed pens, and the unpermitted north row of pens, are all shown on the diagram on page 5 of Technical Document LA17038.

Under AOPA, this type of application requires an approval.

On September 25, 2017, I determined that Stronks needed to supply soil tests results to show that Stronks' proposed continued use of the catchment area to manage runoff would not create an undue environmental risk. (The relevance of this information is discussed in Appendix B attached.) However, Stronks chose not to provide the requested information.

In my view, Stronks' application is deficient. As a result, I am denying the application. A denial, rather than putting it on hold, is warranted so that Stronks may request that the NRCB's board members review my determination that the additional information was needed. See NRCB Operational Policy 2016-4: *Resolving Disputed Permit Information Requirements Between the Applicant and Approval Officer* (Jan. 26, 2016).

a. Location

The existing CFO is located at NW 33-10-20 W4M in Lethbridge County, roughly seven km east of Picture Butte, Alberta. The terrain is generally flat before sloping gently toward coulees draining into the Oldman River. The closest common bodies of water are an irrigation canal 460 m to the north and the Oldman River 1.5 km to the south.

b. Existing permitted facilities

The CFO is grandfathered with a deemed approval under section 18.1 of AOPA. This deemed approval includes two development permits issued by Lethbridge County in 1992 and 1994 (development permits 92-25 and 94-43, respectively). Together, the CFO's deemed approval allows the construction and operation of a 6,500 head cattle finisher feedlot CFO.

The CFO's grandfathered status, including a list of the CFO's deemed facilities, is explained in Appendix B.

2. Notices to affected parties

Under section 19 of AOPA, the NRCB is required to notify (or direct the applicant to notify) all parties that are "affected" by an approval application. Section 5 of the Part 2 Matters Regulation under the act defines "affected parties" as:

- the municipality where the CFO is located
- any other municipality whose boundary is within a specified distance from the CFO
- all individuals who own or reside on land within a specified distance from the CFO

The specified distances vary depending on the size of the CFO. For this application, the notification distance is two miles. (The NRCB refers to this distance as the "affected party radius.")

Under AOPA, municipalities that are affected parties are also "directly affected"; as such, they are entitled to provide evidence and written submissions. Lethbridge County is an affected party (and therefore also a directly affected party), because the proposed expansion is located within its boundaries.

All other parties who receive notice of the application may request to be considered "directly affected." Under NRCB policy, all individuals who own or reside on land within the affected party radius are presumed to be "directly affected" if they submit a timely written response to the notice. See NRCB *Operational Policy 2016-7: Approvals* (January 26, 2016), part 6.2.

Under section 20 of the act, all directly affected parties are entitled to a reasonable opportunity to provide evidence and written submissions regarding the application.

All directly affected parties are also entitled to request that the NRCB's board members review the final decision on whether to grant the approval application.

The NRCB published notice of the application in the Sunny South News on August 15, 2017, and posted the full application on the NRCB website for public viewing. The NRCB also emailed referral letters and a copy of the complete application to Lethbridge County, the Town of Picture Butte, Alberta Health Services (AHS), Alberta Environment and Parks (AEP), Alberta Transportation, and the Lethbridge Northern Irrigation District (LNID). Forty-seven courtesy letters were sent to the people identified by Lethbridge County as owning or residing on land within the affected party radius.

3. Responses from the municipality, referral agencies and other parties

The NRCB received a written response to the application notice from Hilary Janzen, a senior planner with Lethbridge County. As noted in section 2, Lethbridge County is a directly affected party.

Ms. Janzen stated that Lethbridge County believes the application is consistent with Lethbridge County's municipal development plan. The application's consistency with Lethbridge County's municipal development plan is addressed in Appendix A, attached.

Ms. Janzen also noted that the proposed expansion meets the setbacks required by Lethbridge County's land use bylaw.

The NRCB also received a written response from: John Thomas, a development /planning technologist with Alberta Transportation; John Younger, an executive officer with AHS; and Alan Harrold, general manager with the LNID.

Mr. Thomas stated that Alberta Transportation has no concerns with this application and that the development does not require a permit from that department.

Mr. Younger stated that AHS has no objection to this application, given that the residents of several residences within the minimum distance separation had all signed waivers.

Mr. Harrold stated that Stronks will require a water conveyance agreement with the LNID to cover the additional water it needs for the expansion. Mr. Stronks received a copy of this letter for his information.

No responses were received from the Town of Picture Butte, or from individuals or other non-government parties.

4. Environmental risk screening of existing and proposed facilities

As part of my review of this application, I assessed the risk to surface water and groundwater posed by the CFO's existing and proposed new manure storage facilities. I used the NRCB's environmental risk screening tool for this purpose (see NRCB Operational Policy 2016-7: *Approvals*, part 8.13). The tool provides for a numeric scoring of risks of manure storage facilities, which risks can fall within either a low, moderate, or high risk range. (A complete description of this tool is available on the NRCB website, at www.nrcb.ca/Guides.)

All of the CFO's existing and proposed feedlot pens pose a low potential risk to groundwater and surface water.

The runoff catchment area is not a "manure storage facility" per se, so the NRCB's risk screening tool is not useable for assessing the risks posed by Stronks' use of that area. Those risks are discussed further in Appendix B, attached.

5. Other factors considered

As noted in part 1 above, I determined that Stronks' application lacks sufficient information to show that the CFO's runoff control system can meets the AOPA performance requirements. This information deficiency is explained in more detail in Appendix B.

Except for this runoff-related deficiency, the application meets the other AOPA technical requirements. In particular, the proposed expansion:

- Meets the required AOPA setbacks from all nearby residences, with the five signed MDS waivers and a condition requiring a survey to Mike Stroeve's and Lanser's residence (these setbacks are known as the "minimum distance separation" requirements, or MDS)
- Meets AOPA's land base requirements for nutrient management
- Meets AOPA groundwater protection requirements for the design of floors and liners for the proposed feedlot pens (manure storage facilities - see Appendix C for details)

As required by section 4(1) of the South Saskatchewan Regional Plan (SSRP), I considered that document's Strategic Plan and Implementation Plan and determined that the application is consistent with those plans. In addition, there are no notices or orders under the Regulatory Details portion of the SSRP that apply to this application.

In addition, I assessed the effects of the proposed expansion on the environment. Consistent with NRCB policy, I determined that these effects are **not** acceptable because of the runoff-related information deficiency noted above and explained further in Appendix B attached.

Because of this deficiency, I have not assessed the application's effects on the economy and community.

6. Conclusion

Application LA17038 is denied because Stronks has not provided sufficient information to confirm that the runoff control systems for the feedlot can meet the performance requirements under section 6, 19, and 24, of the AOPA Standard and Administration Regulation.

However, if, following a review hearing, the NRCB's board members determine that a permit should be issued, I have included (in Appendix C) recommendations on the conditions I would include in an approval for the proposed feedlot expansion.

April 24, 2018

Carina Weisbach
Approval Officer

Appendices:

A. Consistency with the municipal development plan
B. Grandfathering determination and adequacy of the CFO's catchment area for runoff control
C. Recommended Conditions (if the NRCB board members decide that Application LA17038 should be granted)

APPENDIX A: Consistency with the municipal development plan

Under section 20 of AOPA, an approval officer may grant an application for an approval 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 6.4.) Under this interpretation, the term "land use provisions" also excludes MDP policies that impose procedural requirements. In addition, section 20(1.1) 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.")

Stronks' CFO is located in Lethbridge County and is therefore subject to that county's MDP. Lethbridge County adopted the latest revision to this plan on January 20, 2010, under Bylaw #1331.

The MDP provisions relating to CFOs are in part 6.6 of the plan.

As relevant here, section 6.6.3(a) states that the county "shall restrict the development of CFOs in the Rural Urban Fringe." Stronks' CFO is not in any of the rural urban fringe areas designated in the MDP, so the proposal is consistent with this provision.

Section 6.6.3(d)(II) states that the NRCB "should also consider" the following:

- The cumulative effect of a new approval on any area near other existing confined feeding operations
- Environmentally sensitive areas as shown in the report, *County of Lethbridge: Environmentally Significant Areas in the Oldman River Region*
- Applying MDS calculations to all country residential clusters whether or not they are specifically designated in the land use bylaw

The first of these three considerations is likely not a land use provision because of its project-specific focus (viewed cumulatively with other existing CFOs), and its request for the NRCB to make a discretionary judgement about the degree of cumulative effects that are acceptable. Therefore, this consideration is not relevant to my MDP consistency determination. (See Operational Policy 2016-7: *Approvals*, part 8.2.5.)

As for the second consideration, the CFO is not located close to any of the environmentally significant areas noted in the county's report.

The third consideration appears to refer to AOPA's "minimum distance separation" (MDS) requirements. Under NRCB policy, approval officers should not consider MDP provisions that rely on or change the MDS formulas or MDS requirements under AOPA. (See also Operational Policy 2016-7: *Approvals*, part 8.2.5.) At any rate, there are no country residential clusters in the immediate vicinity of the CFO, so this MDP consideration does not apply to the Stronks' application.

Section 6.6.3(d)IV of the MDP states that a CFO "shall not be approved in the areas shown and designated on Figure 11B as exclusion areas". Stronks' CFO is not located in any of the designated CFO exclusion areas, so the application is consistent with this provision.

Finally, section 6.6.3(e) of the MDP imposes development setbacks, which are listed in this section of the plan. The proposed new feedlot pens and the already constructed but not yet permitted north pens all meet these setbacks.

For these reasons, the proposed CFO expansion is consistent with the relevant land use provisions of Lethbridge County's MDP. As stated above, the county agrees with this conclusion (and has no concerns with the application).

The CFO is also subject to Lethbridge County's Land Use Bylaw #1404. Under that bylaw, the subject land is currently zoned Rural Agriculture. CFOs and CFO expansions are a discretionary use under this bylaw. Under NRCB policy, a proposed CFO is considered to be consistent with a land use bylaw if it is listed as either a permitted or discretionary land use for the relevant land use district. (See NRCB Operational Policy 2016-7: *Approvals*, part 8.3.)

APPENDIX B: Grandfathering determination and adequacy of the CFO's catchment area for runoff control

As noted in the decision summary, Stronks' application proposes to expand an existing CFO that is not covered by an NRCB-issued permit under AOPA. The application therefore requires me to determine whether the existing CFO is covered by a deemed (that is, grandfathered) permit under section 18.1 of the act. That determination is in section 1 below.

As part of its expansion, Stronks proposes to continue using its existing runoff catchment area as a primary means to manage manure-contaminated runoff from the existing and proposed new feedlot pens. This proposal raises issues related to the catchment area meeting regulatory requirements under AOPA for controlling manure-contaminated runoff from CFO facilities. These issues are discussed in sections 2-3 below.

1. The CFO's overall grandfathered status

As noted in part 1(b) above, Stronks' CFO is covered by Lethbridge County development permits 92-25 and 94-93, which the county issued in 1992 and 1994, respectively. Taken together, these permits allowed the construction and operation of a 6,500 finisher cattle CFO. The development permits are deemed (i.e. grandfathered) permits under section 18.1(1)(b) of AOPA.

Stronks accepts that the 6,500 limit in its municipal permits is its deemed capacity.

Besides determining the CFO's deemed capacity, I must also determine which facilities are grandfathered and the footprint of those facilities. For this determination, it is necessary to determine the scope of CFO facilities that actually existed on January 1, 2002. For this purpose, I consulted an aerial picture (Valtus photo) taken sometime between 1999 and 2002 and a Google Earth picture taken in April 2004. When determining the existing permitted footprint, I also considered a verbal agreement between a former NRCB approval officer and the then-owner of the feedlot to 'square up' the layout of the existing feedlot pens. This agreement is reflected in a database entry from January 18, 2008.

The Valtus and Google Earth pictures show two groups of feedlot pens with three rows of pens in each group. These two groups are referred to as the north and south blocks of pens on the photo on page 5 of the Technical Document. The south and north blocks of pens measure 255 m x 260 m (66,300 m^2), and 203 m x 183 m (37,149 m^2), respectively. The north block dimension includes one pen that was likely used only as a handling pen (40 m x 50 m). The total footprint for these two blocks of pens – including the handling pen, is 103,449 m^2 (1,113,516 ft^2).

The photos also show:

- a solid manure storage/pen area (approximate dimensions 80 m x 40 m) on the south side of the south block of pens
- a partially constructed row of pens on the north side of the north block of pens

Based on my conversation with the present operator and with an NRCB inspector who was on site in 2004, I have determined that this partially constructed row of pens was used solely as a handling area through at least 2002. Therefore, I have not considered this row for purposes of determining the footprint of grandfathered feedlot pens.

Based on the findings and reasons provided above, I consider Stronks' CFO to have a deemed approval allowing 6,500 finisher cattle operation with a total deemed pen footprint of 103,449 m^2 and with the pen layout shown on the diagram on page 5 of Technical Document LA17038.

2. Legal status of the catchment area

In its application and particularly in its communications after I deemed the application complete, Stronks has claimed that:

- its use of the catchment area to contain runoff from the pens is covered by the CFO's deemed approval and,
- because the catchment area is grandfathered, Stronks can continue using the catchment area for its proposed feedlot expansion.

The first of these two claims is arguable, at best. At any rate, the second of these two claims does not follow from the first. Therefore, I must assess whether the catchment area meets applicable requirements under the act and, more generally, whether it is an effective method for retaining runoff and does not pose undue environmental risks (section 3).

The catchment area is approximately 43,200 m^2 and is east of the two blocks of pens (as marked on the diagram on page 5 of Technical Document LA17038). Based on historical pictures and conversations with the current operator, this catchment area was in use before January 1, 2002.

Neither of Stronks' municipal permits specifically required or allowed use of this catchment area to control runoff from the pens. In fact, condition 6 of county development permit 94-43 requires the CFO owner to "contain all surface drainage from the existing and proposed expansion to be contained in *properly constructed catch basins/lagoons*" (emphasis added).

Stronks never constructed the catch basin or lagoon required by this condition. However, to date the NRCB's compliance division has not considered this omission to be a violation of Stronks' deemed approval. Thus, for this decision I presume that Stronks' deemed approval does not require construction of a catch basin or lagoon for runoff control. That said, I also do not consider the catchment area to be grandfathered. In my view, grandfathering relates only to *facilities* for storing manure or for confining and feeding livestock; it does not cover *systems* or *management practices* for controlling runoff and the components of those systems. The catchment area does not fall within either of these *facility* categories; rather, it is a component of the CFO's runoff control system or, in other words, a management *practice.*[1]

---

[1] When I deemed Stronks' application to be complete, I tended to view the catchment area as a manure storage *facility* (or manure collection area) akin to a catch basin. However, I later learned that Stronks was cropping the area as a way to manage nutrients from the runoff.

I also learned, while I was considering the application, that heavy motorized earth moving equipment had created significant tire ruts in a portion of the area which would have damaged any liner in the area.

These activities both suggest that the catchment area is not a facility or catch basin. In fact, the first of these two activities suggests that the catchment area was more like conventional agricultural land to which manure was being "applied," than a facility for collecting and storing manure (or manure-contaminated runoff). Alternatively, the catchment area could also be considered as akin to a vegetated filter strip to retain runoff nutrients.

Even if the catchment area was considered a deemed *facility,* Stronks' earth moving and cropping activities are arguably *modifications* to the area's *deemed liner*, any such modifications need to be re-permitted.

Even if the catchment area is grandfathered (that is, if it is allowed by Stronks' deemed approval), that status does not entitle Stronks to continue using the catchment area for the proposed feedlot expansion. This is because grandfathered CFOs still need a new permit to expand beyond their deemed capacity. Nothing in the act states that CFOs with *deemed* permits are exempt from the permitting requirements when they seek to expand.

That said, the permitting requirements do not always apply to *all* parts or aspects of an expanded CFO. For example, if a CFO has one permitted dairy barn, and the CFO owner applies for a new permit to construct a new, standalone dairy barn, the owner will not have to show that the liner of the existing barn meets the current liner requirements for manure storage facilities, unless the existing barn's liner poses an environmental risk. If a risk is identified, the operator will have to address the risk.

However, if the proposed new facility is sufficiently *integrated* with an existing facility, then an approval officer needs to apply the permit requirements to both the new and existing facility, rather than just to the new facility. (Likewise, if a proposed enlargement of an existing facility is structurally integrated with the existing portion, an approval officer likely needs to apply the permit requirements to both the new and existing portions.)

Similarly, if the proposed new facility will be serviced by the same liquid manure lagoon as that used for the existing facility, then the lagoon must meet the capacity requirements for new lagoons. Or, if an owner proposes to expand an existing lagoon to have sufficient capacity for an additional barn, the entire lagoon's liner must meet the AOPA liner requirements, as a condition for permitting the lagoon expansion and the additional barn.

Here, Stronks proposes a single runoff control system—based on the catchment area—for both its existing permitted and proposed new (and unpermitted) pens. Therefore, Stronks needs to apply to use the catchment area for this purpose, whether or not the catchment area is covered by Stronks' deemed approval (to service the deemed pens).

3. Is the catchment area adequate for runoff control?

Read together, sections 6 and 19 of the Standards and Administration Regulation under AOPA give an approval officer broad discretion to require applicants to adopt a "surface water control system" with any additional measures, including a catch basin, that the approval officer considers reasonably necessary to adequately manage runoff. Those sections set out minimum requirements for any such system, and for catch basins in particular, if an approval officer considers a catch basin (or other surface water control system components) to be needed.

Catch basins are the most common means for controlling runoff from outdoor livestock pens. Under the Standards and Administration Regulation, catch basins must have a naturally occurring protective layer or a constructed liner that meets specified hydraulic conductivity requirements. These requirements are meant to prevent feedlot runoff from leaking into and contaminating groundwater. The regulation also specifies a minimum volume for catch basins to ensure they are large enough to contain the expected runoff.

There are two key considerations in deciding whether Stronks' catchment area is an adequate alternative to a catch basin for runoff control. The first is whether the catchment area is likely to

prevent surface runoff from leaving the CFO site; the second is whether runoff contained in the catchment area can leach into the subsurface and pose a risk of groundwater contamination. Each of these issues is discussed below.

a. Surface containment

The maximum runoff volume from the feedlot pens, under a one day rainfall with a one in 30 year probability, is 9,610 m^3. This volume is based on the following variables, using the formula and tables in Schedule 2 of the Standards and Administration Regulation:

- Total pen area – 103,449 m^2 of existing pens with earthen floor and 51,000 m^2 of proposed pen area with an RCC-liner (potential run on from areas outside the pen areas are not included)
- Rainfall volume (for Picture Butte, AB) – is 85 mm
- Runoff coefficient for the pens with an earthen floor is 0.6 and 1 for the pens with the RCC-liner

The catchment area covers approximately 43,000 m^2. The area is located on NW 33-10-20 W4M. This quarter and the adjacent quarter (NE 33-10-20 W4M) are both owned by Stronks. The closest common body of water is about 400 m north of the catchment area.

The area, collecting runoff from the feedlot pens, is a lower laying area that is approximately 0.5 m deeper than the surrounding areas in this quarter section. I have not seen evidence that suggests that, even in wetter years, runoff could not be contained and was released into a county ditch or other common body of water. I therefore believe that there is likely sufficient capacity.

Based on these estimations, it appears that the catchment area is large enough and sufficiently contoured to contain runoff generated by a one day rainfall with a one in 30 year probability. Therefore, it is likely that the catchment area provides equivalent containment to a catch basin sized to meet storage volume requirements. Other evidence appears to support these calculation. This evidence consists of satellite pictures taken between 2004 and 2016, available on Google Earth.

b. Risk of groundwater contamination

In general, any structure or natural feature that retains runoff from livestock pens poses some risk to groundwater. This risk is caused by nutrients from manure-contaminated runoff that infiltrate into the soil, accumulate and potentially percolate into groundwater supplies.

AOPA-approved catch basins address this risk in large part by having constructed liners or naturally occurring protective layers that do not exceed maximum hydraulic conductivity values specified in the Standards and Administration Regulation. (The hydraulic conductivity of a material is essentially a benchmark of the material's porosity and therefore of its ability to retain liquids. The lower the material's hydraulic conductivity, the lower its porosity and the better it is able to prevent leakage.)

Stronks' catchment area does not have a constructed liner and there is no evidence that the area's naturally occurring soils meet the requirements in the Standards Regulation, for naturally occurring protective layers for catch basins.

Another factor that bears on groundwater risk is the retention period of the runoff in the surface containment area. Feedlot operators with catch basins typically pump the catch basin contents periodically, and land apply the pumped liquids, to ensure that the catch basin retains sufficient volume (including a 0.5 m freeboard) to contain future runoff. Stronks typically lets accumulated runoff water evaporate or infiltrate into the soil.

To absorb accumulating nutrients, Stronks has been planting and harvesting annual or bi-annual crops in the catchment area. Crops absorb some of the runoff water, and also take up some of the nutrients accumulating in the area's soils.

However there is insufficient evidence that annual or bi-annual cropping sufficiently retains runoff and captures sufficient nutrients to minimize groundwater risks. For this reason, and given the circumstances described above, I informed Stronks that the soils in the catchment area needed to be tested to determine the extent to which nutrients have been accumulating in the subsoils.

For this testing, I believe the testing protocols referenced in Schedule 3 of the Standards Regulation should be used. In addition, the nutrient limits in section 25(3) and Schedule 3 of the regulation provide a good benchmark for whether the nutrient accumulation in the soils of the catchment area poses a groundwater contamination risk. In fact, in a sense, Stronks' use of the catchment area might be viewed as "manure application," in which case the nutrient limits in that section apply anyway.

4. Conclusion

As explained above, Stronks' catchment area likely isn't covered by the CFO's deemed permit. Even if it is covered, the deemed permit is only for use of the existing pens; it does not allow Stronks to use the catchment area for the expanded operation.

Stronks' catchment area appears to be sufficiently large and contoured to prevent surface runoff from leaving the land owned by Stronks. However, the area's use for that purpose poses the risk to contaminate groundwater—the area lacks a constructed liner; there is no information that the area's naturally occurring layer meets AOPA hydraulic conductivity standards. Notwithstanding these factors, it is possible that the nutrients are not accumulating at unreasonably high levels or percolating into the groundwater, especially with the cropping activity in the area. However, absent rigorous nutrient testing of the area's soils, there is insufficient evidence that the groundwater risks are being sufficiently minimized.

Because Stronks has not shown that it has a runoff control system which can meet AOPA requirements, I must deny Stronks' expansion application. (This denial decision is independent of whatever further action may be needed to determine whether Stronks' use of the catchment area for its *existing* feedlot operation poses undue environmental risks.)

APPENDIX C: Recommended conditions

If the board decides that the proposed expansion should be permitted, I recommend including five new conditions discussed in section 1 below in a new approval. (The five recommended conditions do not address what circumstances or requirements should be in place if the board allows Stronks to use its catchment area for the expanded operation.) These conditions are in addition to the terms that approval officers include in every approval, including a term requiring the permit holder to comply with the operational requirements under AOPA and its implementing regulations.

In addition, I recommend consolidating a new approval with Stronks' deemed permit. Permit consolidation generally involves carrying forward all non-redundant terms and conditions in existing permits into the new permit, with any necessary changes or deletions of those existing terms and conditions, and then cancelling all existing permits once the new permit is issued. (When done by approval officers, this consolidation is carried out under section 23 of AOPA, which enables approval officers to amend AOPA permits on their own motion.)

Therefore, in addition to containing the new terms and conditions recommended in section 1 below, I would recommend that a new approval also include all existing non-redundant terms and conditions in development permits 92-25 and 94-43, except the conditions noted in section 2 below.

Recommended new conditions

1. Construction deadline

Stronks proposes to construct the proposed new south and east rows of pens, and reconstruct the north row of pens, by December 1, 2018. This time-frame is considered to be reasonable for the proposed scope of work. The deadline of December 1, 2018 should be included as a condition in the approval.

2. Pen liners

Stronks proposes to reconstruct the existing, unpermitted feedlot pens and the new feedlot pens with a 0.15 metre (6") thick roller compacted concrete liner (RCC). This differs in that the Technical Guideline Agedx 096-93 – Non-Engineered Concrete Liners for Manure Collection and Storage Areas – requires a concrete strength of 30 MPa at 28 days for outdoor solid manure storage facilities. However, the hydraulic conductivity of the RCC is better or at least equivalent to the requirements under section 9(6)(c) Standards and Administration Regulation which requires 0.5 m of compacted soil with a hydraulic conductivity of 5×10^{-7} cm/sec. The RCC is therefore an acceptable alternative.

RCC is a relatively new product and has been placed on top of existing liners in several feedlot facilities. It is currently undergoing intensive investigation to assess its potential to provide the same groundwater protection as other liner types referenced in section 9(6) of the Standards and Administration Regulations under AOPA. So far, the investigations conducted by an engineering company in cooperation with AF show that the product is suitable. However, feedlot operators who use this product as well as the product supplier have indicated that, for RCC to work as designed, the person constructing an RCC liner needs to pay special attention to:

a) place the product evenly to ensure uniformity of the liner,
b) ensure the concrete has the proper water content during placement to ensure proper compaction,

c) properly compact the product around transition areas such as waterers, bunk apron, fence posts, and pen entrances to avoid the formation of deep grooves,
d) prevent premature drying of the product's surface which in turn could lead to an incomplete curing process causing cracks and increased permeability.

In addition, the product supplier recommends the following measures to ensure that these four guidelines are met and to ensure proper performance of the RCC liner:

- The bed (that is, the surface underneath the RCC), must be level and properly compacted to ensure the RCC liner has an even thickness.
- A trained installer should install the product.
- The trained installer should use either GPS or laser technology to ensure that the product is laid out with an even thickness of 7" (0.18 m).
- The RCC should have a minimum strength of 10-20 MPa. This would result in a hydraulic conductivity similar to conventional plastic concrete (in the range of $1x10^{-9}$ cm/sec)
- The moisture content should be approximately 5.7% for maximal compaction. The laid concrete should have between 92-95% compaction.
- The concrete must be compacted with a hand packer around posts and with a small vibrator around stock waterers, feed bunk aprons, and pen entrance areas. These steps are needed to avoid gaps and premature deterioration of the product in transition areas. Deterioration includes the formation of deep holes within a very short time, particularly when wet, in these high use areas (bunk apron, waterer).
- The installed RCC must be kept moist for at least 48 hours after compaction to ensure proper curing. To keep the compacted concrete moist, the installer should use a wet straw cover placed on the product immediately after the compaction process and before a grey cover develops. (A grey cover indicates premature drying of the concrete surface.)

Given these recommendations, and to ensure that the new feedlot pens (south, east, and north rows) adequately protect groundwater, the approval should include a condition requiring written confirmation from a professional engineer that the following construction standards have been met:

- the bed for the liner is level and compacted, before the RCC is installed
- the RCC product has been placed on the bed with an even thickness of 7" (0.18 m) 6" (0.15 m) when compacted)
- the RCC has been properly compacted around transition zones (stock waterers, the feed bunk apron, the pen entrances, fence posts, and any other objects that penetrate the RCC), according to the product supplier's compaction recommendations noted above
- the RCC was properly covered immediately after it was compacted (e.g. with straw), and for a sufficiently long period, to ensure proper curing
- the final compaction density has reached at least 92%

3. Catch basin volume

If the board decides to approve Stronk's proposed feedlot expansion on the condition that Stronks constructs a catch basin, the catch basin should have a minimum volume of 9,610 m^3 to meet the storage requirement in section 19(2) of the Standards and Administration Regulation under AOPA. This is the rainfall volume based on the formula in Schedule 2 of the Standards Regulation. For this calculation, I used a 1:30, one day rainfall of 85 mm, which is the number

listed in Table 2 of Schedule 2, for Picture Butte, AB. I used a runoff coefficient of 0.6 for the existing feedlot pens (surface area of 103,449 m^2) and a runoff coefficient of 1.0 for the proposed pens (surface area of 51,000m^2) because the compacted RCC liner is equivalent to a paved surface from an infiltration standpoint. In addition to the above noted storage capacity, the runoff storage volume should be adjusted to take into consideration all areas which might contribute runoff.

The catch basin must also be designed and constructed with a 0.5 m freeboard, to meet the freeboard requirement in section 19(3) of the Standards Regulation.

The catch basin must also be constructed with a liner or naturally occurring protective layer that meets the requirements in section 9 of the Standards Regulation.

4. Surveyor

As noted on page 8 of the Technical Document, the nearest proposed manure storage facility to the Lancer and Stroeve residences is 883 m and 200 m from those residences, respectively. Therefore, the facility meets the 881 m MDS to the Lancer and Stroeve residences by only two and 50 m, respectively. In addition, one row of proposed new pens (south row) is very close to the 30 m property line setback in the county's land use bylaw.

Given these close distances, a condition should be included requiring Stronks to provide the NRCB with a survey, conducted by a professional surveyor, verifying the distances (to the nearest 0.1 m)

- from the new feedlot pens on the south end to the Lancer residence;
- from the new feedlot pens on the south end to the Stroeve residence and;
- from the new feedlot pens on the south to the property line on the south.

This survey must be provided to the NRCB before the construction completion inspection referenced below.

5. Post-construction inspection

The NRCB routinely inspects newly constructed facilities to assess whether the facilities were constructed according to the permit requirements. To be effective, these inspections must occur before livestock or manure are placed in the newly constructed facilities. Approval LA17038 should include a condition stating that Stronks shall not place livestock or manure in the manure in the new south and east rows of pens, and in the reconstructed north row of pens, until NRCB personnel have inspected the facilities and determined in writing that they meet the approval requirements.

A similar condition should be included for the catch basin, if the approval is conditioned on Stronks' construction of a catch basin.

Conditions that should not be carried forward from the consolidated municipal development permits

Development permit 92-25:

> Condition 2 states: "The applicant is required to obtain a 'Certificate of Compliance' as issued by Alberta Agriculture. Contact Mr. Gregg Dill, Regional Engineer 2 381-5113."

There is no record that the CFO owner obtained a Certificate of Compliance before AOPA came into effect on January 1, 2002. Agriculture and Forestry (the successor to "Alberta Agriculture") stopped issuing these certificates after AOPA came into effect. Therefore, this condition has become unenforceable due to the passage of time.

Development permit 94-43:

> Condition 2 states: "Manure is not to be stockpiled for any length of time, but rather pens cleaned, land spread and incorporated within a reasonable time."

This condition uses vague timelines ("any length of time" and "reasonable time") compared to sections 5 and 24 of the Standards and Administration Regulation under AOPA. Section 5 allows operators to store manure on a short term basis (for an accumulated total of not more than seven months over a period of three years), and section 24 prescribes incorporation within 24 hours if manure is applied on conventional tilled land.

These specific, numerical timelines are reasonable benchmarks for the vague, narrative timelines in condition 2 of development permit 94-43. Therefore, this condition would be unnecessary if the approval includes the term approval officers include in the opening paragraph of every approval, requiring the permit holder to adhere to AOPA and all its regulations.

> Condition 4 states: "The operator is to maintain an adequate land base for manure disposal (550 acres of irrigated land)."

The number of acres stated in this condition is less than the required land base under AOPA, which is 1,532 acres of irrigated land. (See page 23 of the Technical Document.) Stronks has proven that this latter land base is available for the first year of manure spreading, and therefore meets the requirements under section 24 of the Standards Regulation.

That section also sets nutrient limits that prevent the excessive accumulation of nutrients on manure spreading lands. As a result, that section provides a greater level of protection—with respect to nutrient accumulation—than a condition specifying a minimum available land base to spread manure. Hence, condition 4 of the development permit is less stringent than the requirements under AOPA and should be deleted. Will therefore be replaced by the terms included in the opening paragraph of the permit (-if issued) that will state that the permit holder must adhere to AOPA and all its regulations.

> Condition 5 states: "Deads are to be disposed of in a prompt and acceptable manner."

Based on a Memorandum of Understanding between the NRCB and Alberta Agriculture and Forestry (AF), municipal conditions relating to animal disposal that are more stringent than the requirements of the Destruction and Disposal of Dead Animals Regulation, Alta. Reg. 229/2000 (under the *Animal Health Act*), will continue to be enforced by the NRCB instead of by AF's Regulatory Services Branch.

However, condition 5 of development permit 94-43 requires dead animal disposal "in a prompt and acceptable manner."

This standard is vague in comparison to the current regulation, which provides an appropriate benchmark for defining "acceptable" disposal methods. For this reason, the county's permit condition is arguably not more stringent than the requirements of the above-noted regulation. It therefore is redundant and will not be carried forward.

Condition 6 requires the CFO owner to "contain all surface drainage from the existing and proposed expansion to be contained in properly constructed catch basins/lagoons".

This condition may need to be amended or deleted, depending on whether the board allows Stronks to continue using its catchment area instead of a catch basin.

Condition 7 states: "Protect all waterways traversing the land from the spreading of manure."

Subsection 24(9) and (10) of the Standards Regulation protect surface waters from manure spreading by prohibiting manure spreading within specified distances from common bodies of water. Under those subsections, the size of the required setback varies depending on whether the manure is injected or applied to the surface on frozen or snow covered land, or on forage and directly seeded crops.

These numeric setbacks are more precise and are therefore easier to enforce than the general narrative requirement in condition 7, to "[p]rotect all waterways" from manure spreading. The numeric setbacks are also reasonable benchmarks for determining an acceptable degree of "protection." Therefore, that condition is redundant and should not be carried forward.

NRCB Natural Resources Conservation Board

Decision Summary LA18031

This document summarizes my reasons for issuing Approval LA18031 under the *Agricultural Operation Practices Act* (AOPA). Additional reasons are in Technical Document LA18031. That document and the full application are available from the decisions search engine on the Natural Resources Conservation Board (NRCB) website at www.nrcb.ca. 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 April 25, 2018, Hutterian Brethren of Spring View (Spring View Colony) submitted a Part 1 application to the NRCB to expand an existing multi species confined feeding operation (CFO) by adding 1,600 beef finishers and constructing a covered feedlot with a roller compacted concrete pen floor (152.2 metre x 45.72 metre). The Part 2 application was submitted on May 29, 2018. On June 5, 2018, I deemed the application complete.

Under AOPA, this type of application requires an approval.

a. Location

The existing CFO is located at SE 02-024-16 W4M & SE 11-024-16 W4M in the County of Newell, roughly 7 km north of the hamlet of Gem. The terrain in the area is undulating.

b. Existing permitted facilities

The existing, mixed CFO holds NRCB Approval LA16016. This approval allows:

- 480 sow farrow to finish,
- 120 milking cows (plus associated dries and replacements),
- 80 beef feeders,
- 22,000 chicken layers,
- 24,000 chicken pullets,
- 4,000 chicken broilers, and
- 1,200 ducks at this site.

All existing facilities are listed in an appendix to the approval (Approval LA18031). Details of the grandfathering determination and permit history can be found in the decision summaries of Approval LA05029 and Approval LA13007.

2. Notices to affected parties

Under section 19 of AOPA, the NRCB is required to notify (or direct the applicant to notify) all parties that are "affected" by an approval application. Section 5 of AOPA's Part 2 Matters Regulation defines "affected parties" as:

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

- any other municipality whose boundary is within a specified distance from the CFO, depending on the size of the CFO
- all individuals who own or reside on land within a specified distance from the CFO, depending on the size of the CFO

For this application, the distance is 1.5 miles. (The NRCB refers to this distance as the "affected party radius.")

Municipalities that are affected parties are defined by the act to be "directly affected" and are entitled to provide evidence and written submissions. The County of Newell is an affected party (and therefore also a directly affected party) because the proposed expansion is located within its boundaries.

All other parties who receive notice of the application may request to be considered "directly affected." Under NRCB policy, all individuals who own or reside on land within the affected party radius are presumed to be "directly affected" if they submit a written response to the notice within the prescribed timeline. See NRCB Operational Policy 2016-7: *Approvals*, part 6.2.

Under section 20 of the act, all directly affected parties are entitled to a reasonable opportunity to provide evidence and written submissions regarding the application.

All directly affected parties are also entitled to request an NRCB board review of the approval officer's decision on the approval application.

The NRCB published notice of the application in the Brooks Bulletin on June 5, 2018 and posted the full application on the NRCB website for public viewing. The NRCB also emailed referral letters and a copy of the complete application to the County of Newell, Alberta Health Services (AHS), Alberta Environment and Parks (AEP), Alberta Transportation, and the Eastern Irrigation District (EID). Twelve courtesy letters were sent to people identified by the County of Newell as owning or residing on land within the affected party radius.

3. Responses from the municipality, referral agencies and other directly affected parties

I received responses from the County of Newell and Alberta Transportation. No response was received from AEP, AHS, the EID or any other individuals or other non-government parties.

Ms. Alyce Wickert, manager of planning and development with the County of Newell, provided a written response on behalf of the county. As noted in section 2, the County of Newell is a directly affected party.

Ms. Wickert stated that the application is consistent with the County of Newell's municipal development plan and that no other planning type documents apply. She also stated that the subject lands as well as all lands within 1600 metres are zoned agricultural district. The application's consistency with the County of Newell's municipal development plan, is addressed in Appendix A, attached.

Ms. Wickert also commented that Alberta Transportation's setbacks as included in the waiver shall apply to the proposed development. She also pointed out that there is an EID canal in the vicinity of the development and that the EID should be contacted. A copy of the application was sent to the EID for their comments. The NRCB has not received a response from the EID.

4. Environmental risk screening of existing and proposed facilities

When reviewing new permit applications 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, with low risk being the lowest possible score. (A complete description of this tool is available on the NRCB website, at www.nrcb.ca, Confined Feeding Operations/Guides.) 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.

In this case, the risks posed by Spring View Colony's CFO facilities were assessed in 2014. That assessment concluded that all facilities pose a low risk to surface water and groundwater. The newly constructed facilities (new dairy barn and steel tank) are both completed and signed off by a professional engineer and also pose a low risk to surface water and groundwater. Therefore, the assessment is still accurate and a new assessment of the risks posed by the CFO's existing facilities is not required.

I also assessed the risk of the proposed covered feedlot. The risk assessment concluded that the covered feedlot 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 7.[1]

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

With respect to the act's technical requirements, the proposed expansion:

- 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 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 of manure storage facilities.

I also determined that the proposed covered feedlot is located within the required AOPA setback from three existing water wells. However, as explained in Appendix B, this covered feedlot warrants an exemption from the 100 metre water well setback due to the wells' construction and locations in respect to the covered feedlot.

---

1. For a summary of these requirements, please see the 2008 AOPA Reference Guide, available on the NRCB website at www.nrcb.ca/Guides).

As required by section 4(1) of the South Saskatchewan Regional Plan (SSRP), I considered that document's Strategic Plan and Implementation Plan and determined that the application is consistent with those plans. In addition, there are no notices or orders under the Regulatory Details portion of the SSRP that apply to this application.

In addition, I assessed the effects of the proposed expansion on the environment. Consistent with NRCB policy, I determined that these effects are acceptable because the application meets all of AOPA's technical requirements. I also determined that the application's effects on the economy and community are acceptable, and that the proposed expansion is an appropriate use of land. Under NRCB policy, these determinations are based on the application's consistency with the municipal development plan and land use bylaw. (See NRCB Operational Policy 2016-7: *Approvals*, part 8.7.3.)

6. Terms and conditions

Approval LA18031 specifies the new permitted livestock capacity as 120 dairy cows (plus associated dries and replacements), 480 sow farrow to finish, 1,600 beef finishers, 80 beef feeders, 22,000 chicken layers, 24,000 chicken pullets, 4,000 chicken broilers; 1,200 ducks and permits the construction of the covered feedlot.

Approval LA18031 also contains terms that the NRCB generally includes in all AOPA approvals, 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, Approval LA18031 includes conditions that:

- Set a deadline of September 6, 2020 for the approved construction to be completed.
- Require submission of an engineer's completion report confirming that the roller compacted concrete liner meets the required specifications.
- Prohibit Spring View Colony from placing manure or livestock in the covered feedlot until the facility has been inspected by the NRCB following its construction.

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

a. Conditions carried forward from previously issued permits

For clarity, and pursuant to NRCB policy, I consolidated Approval LA16016 with Approval LA18031 (see NRCB Operational Policy 2016-7: *Approvals*, part 10.5). Consolidating permits generally involves carrying forward all relevant terms and conditions in the existing permits into the new permit, with any necessary changes or deletions of those terms and conditions, and then cancelling all existing permits once the new permit is issued. This consolidation is carried out under section 23 of AOPA, which enables approval officers to amend AOPA permits on their own motion.

Therefore, in addition to containing the new terms and conditions summarized above, Approval LA18031 includes all existing terms and conditions from Approval LA16016. Construction conditions that have been met are included in an appendix to Approval LA18031.

7. Conclusion

Approval LA18031 is issued for the reasons provided above, in the attached appendices, and in Technical Document LA18031.

Spring View Colony's Approval LA16016 is therefore cancelled, unless Approval LA18031 is held invalid following a review and decision by the NRCB's board members or by a court, in which case Approval LA16016 will remain in effect.

July 17, 2018

Carina Weisbach
Approval Officer

Appendices:

A. Consistency with the municipal development plan
B. Exemptions from water well setbacks and monitoring requirements
C. Explanation of conditions in Approval LA18031

APPENDIX A: Consistency with the municipal development plan

Under section 20 of AOPA, an approval officer may approve an application for an approval 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 20(1.1) 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.")

The applicant's confined feeding operation (CFO) is located in the County of Newell and is therefore subject to that county's MDP. The County of Newell adopted the latest revision to this plan in February 2013, under Bylaw 1705-10, consolidated to Bylaw 1761-13.

The MDP policies relating to CFOs are in part 7. Section 7.1 states that the county "shall restrict the development of CFOs within the established urban fringe areas…."

Spring View Colony is not located in any of the urban fringe areas designated in the MDP, so the proposal is consistent with this policy.

Section 7.2 states that the NRCB "should also consider" the following:

- Proximity to water bodies to minimize negative impact on drinking water supplies;
- The "cumulative effect of a new approval" on any area near other CFOs;
- Environmentally sensitive areas as shown in the report "Environmentally Significant Areas of the County of Newell (1991)";
- Giving notice to adjacent landowners even in case of applications for authorizations.

Spring View Colony's CFO is close to an EID irrigation canal but meets the required setback of 30 metres between a manure storage facility and a common body of water. In addition, as explained in section 5 above, all of the CFO's facilities pose a low risk to surface water.

The second of these four items does not apply because this permit is an expansion of an existing operation and therefore not a 'new approval." In addition, this provision is likely not a land use provision as it calls for site-specific discretionary judgements (viewed cumulatively with other existing CFOs), so it is not relevant to my MDP consistency determination. (See Operational Policy 2016-7: *Approvals*, part 8.2.5.).

As for the third item, the CFO is located in an environmentally significant area of regional significance, the Matzhiwin sand plain, as shown in a site plan of the report referenced in the MDP. In addition to this section, section 5.1 also refers to the protection of 'environmentally significant areas from inappropriate development'. Neither of these two section (Section 5.1 and 7.2) define what inappropriate development entails nor what the consequence of the consideration should be. At any rate, as explained in section 5 above, all of the CFO's facilities, including the proposed new covered feedlot pose a low risk to ground or surface water, as a

consequence, the environmental impact of the proposed feedlot is considered acceptable. Since this section (section 7.2 of the MDP) does not preclude the construction of CFO facilities the proposal is consistent with this policy.

As for the fourth item in section 7.2, this item is likely not a land use provision because of its focus on process and therefore does not need to be considered in my MDP consistency determination. As explained above, the NRCB did notify the County of Newell, several referral agencies, as well as all land owners within a 1.5 mile radius in addition to placing a notice in the Brooks Bulletin newspaper (see also Operational Policy 2016-7: *Approvals*, part 7.5. The notification requirements under AOPA have been met.

Section 7.3 of the MDP states that the county "may use the MDS method to establish separation distances between proposed developments and CFOs". This policy appears to refer to the "minimum distance separation" (MDS) requirements under AOPA. However, in several review decisions, the NRCB's board members have made it clear that approval officers should not consider MDP provisions that rely on or change the MDS formulas or MDS requirements under AOPA. That said, the county may still rely on this policy to set appropriate setbacks from proposed residential or other developments that the county regulates, from Spring View Colony's CFO.

Section 7.4 of the MDP states that a county "will impose a CFO exclusion zone" around the City of Brooks. The applicant's CFO is not located in the designated CFO exclusion area, so the application is consistent with this part of the plan.

Finally, section 7.5 of the MDP states that, as a "general guideline," the county will use an 800 metre development setback from all reservoirs. However, this setback can be adjusted on a case-by-case basis depending on topography and other factors. As proposed, the new chicken layer/pullet barn meets this suggested setback of 800 metres to a reservoir and is therefore consistent with this policy.

For these reasons, I conclude that the application is consistent with the land use provisions of County of Newell's MDP.

The CFO is also subject to the County of Newell's Land Use Bylaw 1755-12 (consolidated to Bylaw 1853-16, February 2016). Under that bylaw, the subject land is currently zoned as Agricultural. CFOs are not specifically listed but would fall under the category of "Agricultural operation" which are a permitted use in this zone category.

APPENDIX B: Exemptions from water well setbacks and monitoring requirements

According to the application, three water wells are located within 100 metres of the proposed covered feedlot, water wells 1831593 (98 metres); 198058 (90 metres); and 198059 (91 metres). I have confirmed this information by site visit and aerial photos.

Because of this proximity, the applicant's proposed covered feedlot conflicts with a regulation under AOPA, which prohibits the construction of manure storage facilities (MSFs) within 100 metres of water wells.[2] However, the regulation allows approval officers to grant an exemption from this prohibition. I must therefore consider whether an exemption is appropriate in this instance.

Under the regulation, the test for granting an exemption is whether the "aquifer into which the well is drilled is not likely to be contaminated" by the proposed MSF. (According to the regulation, when granting an exemption, an approval officer may require the applicant to implement a "groundwater monitoring program.")

The regulation also makes it clear that the applicant has the burden of proving that an exemption is warranted.

In considering whether an applicant has met that burden, approval officers presume that the risks of direct aquifer contamination from the MSF are low if the applicant's proposed MSF meets AOPA's technical requirements to control runoff and leakage. However, when determining whether an MSF that meets AOPA's technical requirements should be exempted from the 100 metre water well setback requirement, approval officers also assess whether water wells that are less than 100 metres from the MSF could act as conduits for aquifer contamination.

Approval officers assess the following factors to determine the risk of aquifer contamination via the water well:

- How the well was constructed.
- Whether the well is being properly maintained.
- The distance between the well and the proposed MSF.
- The estimated water well pumping rate.
- Whether the well is up- or down-gradient from the MSF 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.

All three wells in question are at the same level as the proposed covered feedlot but the direction of groundwater flow from the MSF (the proposed feedlot) is likely eastwards, away from the wells. The three wells are located within a distance of 10 metres of each other (well cluster), north of the proposed covered feedlot.

---

[2] Standards and Administration Regulation, Alta. Reg. 267/2001, section 7(1)(b).

- Well 1831593 is 19.2 metres deep, with perforations at a depth between 7.92 metres and 11.58 metres in the blue sand strata. The well is sealed with bentonite at a depth of 2.44 metres to 3.05 metres. The protective layer is brown till and a total of 3.05 metres deep.
- Well 198058 is 19.81 metres deep with perforations between 6.1 metres and 15.24 metres below ground in the blue sand strata. The well has an unknown seal placed from ground level to a depth of 2.74 metres. The protective layer is brown till with a depth of 5.19 metres.
- Well 198059 is 18.59 metres deep with perforation at a depth of 5.49 metres to 15.24 metres, in the same blue sand strata. The well is sealed with bentonite at a depth of 2.44 metres to 3.05 metres. The protective layer is brown till and a total of 3.05 metres deep.

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 and to decide whether an exemption from the 100 metre setback to a well is warranted. This tool consists of a two-stage risk screening process; each stage provides a numeric risk "score" based on the information that is input into the tool.

The first stage focuses on the well's construction. If the well scores less than 10 at this stage, the tool suggests granting a setback exemption for the subject facility. If the well scores more than 28, the tool recommends denying the exemption. If the well scores between 10 and 28, the tool recommends that the approval officer proceed to the second stage screening, which focuses on the gradient and other factors bearing on the risk of manure runoff or leachate reaching the water well. If the risk score at the second stage is more than 20, the tool suggests denying the setback exemption to the subject well.

For the process described above:

- water well #1831593 scored 15 in the first risk screening stage and 7 in the second stage
- water well #198058 scored 24 in the first risk screening stage and 7 in the second stage
- water well #198059 scored 26 in the first risk screening stage and 7 in the second stage

An exemption from the 100 metres setback to these wells is warranted, for the following reasons:

- Risk score of water wells using the water well exemption screening tool is low.
- The MSF meets all other AOPA technical requirements, as noted in the attached decision summary and documented in Technical Document LA18031. Therefore, the risk of manure-contaminated water leaking or running off from the MSF is low.
- Any manure that leaves the MSF is unlikely to reach the water well because there is a densely vegetated area (grove) between the proposed covered feedlot and the wells. In particular, the feedlot, as mentioned earlier, is covered and no manure contaminated runoff can leave the facility on the site closest to the wells.
- In the unlikely event that any manure reaches the well, the manure is unlikely to actually enter the well and flow down the well into the aquifer. This risk pathway is very unlikely because all three wells are sealed and one of the wells is in a well house.

APPENDIX C: Explanation of conditions in Approval LA18031

a. Construction Deadline

Spring View Colony proposes to complete construction of the proposed new covered feedlot by September 6, 2020. This time-frame is considered to be reasonable for the proposed scope of work. The deadline of September 6, 2020 is included as a condition in Approval LA18031.

b. Groundwater protection requirements

Spring View Colony proposes to construct the covered feedlot with a 0.15 metre (6") thick roller compacted concrete liner (RCC). This differs in that the Technical Guideline Agedx 096-93 – Non-Engineered Concrete Liners for Manure Collection and Storage Areas – requires a concrete strength of 30 MPa at 28 days for outdoor solid manure storage facilities. However, the hydraulic conductivity of the RCC is equivalent to, or better, than the requirements under section 9(6)(c) Standards and Administration Regulation which requires 0.5 metres of compacted soil with a hydraulic conductivity of 5×10^{-7} cm/sec for a solid manure storage facility. I therefore consider the RCC to be an acceptable alternative liner to provide groundwater protection.

RCC is a relatively new product for the feedlot industry and has been placed on top of existing liners in several feedlot facilities. It is currently undergoing intensive investigation to assess its potential to provide the same groundwater protection as other liner types referenced in section 9(6) of the Standards and Administration Regulations under AOPA. So far, the investigations conducted by an engineering company in cooperation with AF show that the product is suitable. However, feedlot operators who use this product as well as the product supplier have indicated that, for RCC to work as designed, the person constructing an RCC liner needs to pay special attention to:

a) place the product evenly to ensure uniformity of the liner,
b) ensure the concrete has the proper water content during placement to ensure proper compaction,
c) properly compact the product around transition areas such as waterers, bunk apron, fence posts, and pen entrances to avoid the formation of deep grooves, and
d) prevent premature drying of the product's surface which in turn could lead to an incomplete curing process causing cracks and increased permeability.

In addition, the product supplier recommends the following measures to ensure that these four guidelines are met and to ensure proper performance of the RCC liner:

- The bed (that is, the surface underneath the RCC), must be level and properly compacted to ensure the RCC liner has an even thickness.
- A trained installer should install the product.
- The trained installer should use either GPS or laser technology to ensure that the product is laid out with an even thickness of 7" (0.18 metres).
- The RCC should have a minimum strength of 10-20 MPa. This would result in a hydraulic conductivity similar to conventional plastic concrete (in the range of 1×10^{-9} cm/sec)
- The moisture content should be approximately 5.7% for maximal compaction. The laid concrete should have between 92-95% compaction.

- The concrete must be compacted with a hand packer around posts and with a small vibrator around stock waterers, feed bunk aprons, and pen entrance areas. These steps are needed to avoid gaps and premature deterioration of the product in transition areas. Deterioration includes the formation of deep holes within a very short time, particularly when wet, in these high use areas (bunk apron, waterer).
- The installed RCC must be kept moist for at least 48 hours after compaction to ensure proper curing. To keep the compacted concrete moist, the installer should use a wet straw cover placed on the product immediately after the compaction process and before a grey cover develops. (A grey cover indicates premature drying of the concrete surface.)

Given these recommendations, and to ensure that the new covered feedlot adequately protects groundwater, the approval includes a condition requiring written confirmation from a professional engineer that the following construction standards have been met:

- The bed for the liner is level and compacted, before the RCC is installed.
- The RCC product has been placed on the bed with an even thickness of 7" (0.18 metre) 6" (0.15 metre) when compacted.
- the RCC has been properly compacted around transition zones (stock waterers, the feed bunk apron, the pen entrances, fence posts, and any other objects that penetrate the RCC), according to the product supplier's compaction recommendations noted above.
- the RCC was properly covered immediately after it was compacted (e.g. with straw), and for a sufficiently long period, to ensure proper curing.
- the final compaction density has reached at least 92%.

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. Approval LA18031 includes a condition stating that Spring View Colony shall not place livestock or manure in the manure storage portions of the new covered feedlot until NRCB personnel have inspected the covered feedlot and confirmed in writing that it meets the approval requirements.