



18 November 2019

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CONFIDENTIAL

To: R.M. of Hoodoo No. 401
P.O. Box 250
Cudworth, SK S0K 1B0

Attention: Ms. Madsine Madsen, Administrator

**Subject: REVIEW & COMMENTS ON HNIDY FARM SITE
CHARACTERIZATION REPORT, WAKAW, SASKATCHEWAN**

INTRODUCTION

PINTER and Associates Ltd. (PINTER) has completed the review of the "Site Characterization Investigation" Report (dated 02 October 2019) for the proposed Colony (the Colony) expansion at Hnidy Farms Company Ltd. at Wakaw, Saskatchewan. The report was prepared by the WaterMark Consulting Ltd. (the Consultant) as part of the approval process to the Saskatchewan Ministry of Agriculture (SMA) and the Water Security Agency (WSA). The report investigates the Colony's site suitability for the following main expansion components:

- Deadstock compost management area,
- Mass mortality burial area,
- Domestic facultative lagoon for the Colony's domestic waste treatment and storage, and
- Dairy barn pens and poultry runoff management area.

MAIN REVIEW POINTS

The report concludes the following:

- Surface drainage of the expansion area is to southeast towards Vier Lake. Vier Lake drainage is isolated from the Wakaw Lake drainage with no organized outlet.
- There are no significant shallow groundwater aquifers in the area. All significant aquifers are deep (more than 30 m below the ground surface (m bgs)).
- The scattered shallow thin sand and gravel isolated lenses have limited yield capacity. The nearest shallow well is approximately 1.60 kilometres (km) northeast of the Colony.

- The expansion's main components are more than 570 m away from the nearest residential dwelling and more than 7.97 km from the nearest urban community.
- The soil profile is consistent along the expansion site and have a minimum clay content of 32% and a minimum fines content of 64% which is suitable for using as a compacted clay liner.
- The proposed design of the domestic facultative lagoon is sufficient to accommodate the Colony's future size. Treated effluent will be discharged on semi-annual basis towards the Vier Lake. The WSA confirmed that there is no need to carry out Downstream User Impact Study (DUIS) as the Lake is saline and not a fish-bearing lake.
- The liquid manure storage lagoon accommodates approximately 408 days of agriculture liquid manure production. The solids will be cleaned annually and the liquids will be used for arable lands.
- Decanted liquid manure and/or cleanout manure will be used on arable lands.
- Separate runoff management plans are provided in the report to accommodate; compost runoff, poultry manure storage runoff, and dairy pens runoff.
- All operations have a separate run on control.

COMMENTS

- Based on the report results, PINTER agrees with the Consultant that the site is a geologically variable to secure for the proposed development as per the Saskatchewan Agriculture, Food and Rural Revitalization Site Characterization Manual (2005).
- Due to the natural slope of the area towards Vier Lake, it is expected that nutrient loading will increase as a result of the proposed development. The main sources of nutrients will be:
 - Domestic effluent (from the Colony) discharge which will take place twice a year, normally during spring runoff in the spring and during the fall, and;
 - Decanted liquid manure and/or cleanout manure applied on arable lands. Natural surface runoff from those arable lands will be draining towards Vier Lake.
- The nature of Vier Lake as an almost closed drainage basin will encourage algae growth within the Lake. This growth will be magnified with the impact of climate change.
- Although the Lake is not designated as a fish-bearing water body, other activities on or adjacent to the Lake may be impacted due to uncontrolled algae bloom.
- If the RM of Hoodoo's Administration or Council is aware of any future growth plans on or around Vier Lake, it is recommended that potential risks to the different receptors be evaluated.
- Currently, the nearest neighbor is 720 m from the domestic (municipal) lagoon. As per the WSA regulations that the setback distance from the facultative lagoons is 550 m. Any development will need to be restricted if it falls within this setback.

- The Consultant recommends a modest construction supervision due to the nature of the site. A clay liner requires more intense Quality Control/Quality Assurance and professional supervision to insure the design specifications are met.

If you require additional information, please do not hesitate to contact the undersigned at 306-244-1710.

PINTER & Associates Ltd.



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