MANITOBA ECO-NETWORK

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August 25, 2020

Honourable Sarah Guillemard
Minister of Climate and Conservation

Shannon Kohler
Director, Environmental Approvals

Jennifer Winsor
EAB Contact Person

Re: Silica Sand Developments – CanWhite Sands Corp. File 6057.00

Dear Minister Guillemard, Ms. Kohler and Ms. Winsor,

This letter is in response to the Environment Act Proposal (EAP) for the Vivian Sand Facility Project. Since 1988, the Manitoba Eco-Network (MbEN) has promoted positive environmental action by supporting people and groups in our community. Local residents have contacted us and expressed serious concerns about CanWhite's proposed development and its potential impacts on the environment and human health. There has also been significant concern about the scope of the proposed project and corresponding environmental assessment. CanWhite has publicly stated that they intend to undertake additional silica sand extraction activities but will pursue a separate licence for these undertakings. We find this process of splitting up CanWhite's silica sand activities for licensing purposes very problematic.

We ask that you require an expansion of the scope of the Vivian Sand Facility Project environmental assessment to include CanWhite's proposed silica sand extraction activities to ensure the cumulative effects of CanWhite Sands silica sand activities are meaningfully considered. To facilitate meaningful public participation, we also ask that you consider CanWhite's combined silica sand activities as a Class 3 Development and require a Clean Environment Commission public hearing with participant funding.

Our reasons are as follows:

The size and scope of this project

CanWhite's mining claims of 166,890 acres (67,537 hectares) of land is the largest given to any one company in Manitoba's history. The impacts of the processing plant cannot be properly assessed without including an assessment of the impacts of sand extraction, because the processing plant cannot operate without the sand extraction portion of this project.

The EAP states,

> *Sand will enter the Processing Facility via a sand and water slurry infeed pipe (Figure 2-2). As described above in Section 1.1, the moveable slurry pipe supplying the infeed* ***will be a component of the extraction project that will be proposed for approval later this summer*** *p 12/129*

and,

> *The sand is removed, water is treated (as explained in Section 2.3.1), and **the water is returned to the to the slurry line system at the extraction site**, creating a loop system (illustrated in Figure 2-1) for bringing slurry to the facility for processing. P 19/129*

It is unclear in CanWhite's EAP as to how much water will be flowing through and into the facility as a result of their slurry line technology, recycling systems and on-site waste water surface tank.

Impacts to the Sandstone and Carbonate Aquifers

The silica mining/extraction will take place 200 feet under the surface in the Winnipeg Formation of the Sandstone aquifer, which is overlain by a layer of shale, the carbonate aquifer and till. Once brought up to the surface and exposed to air, the shale that separates the two aquifers and the sand will potentially generate acid and cause leaching of acid and heavy metals into the water from the shale.

The science advisor of the local organization, What the Frack Manitoba (WTFM), indicates acid drainage has occurred and is still occurring at an abandoned silica mine on Black Island. In their assessment of the EAP, WTFM predicts that,

> *The three sources of pyrite at Vivian, the shale, the sand and the oolite will begin to leach acid and heavy metals into the aquifer upon exposure to the compressed air used to extract sand as described in the EAP.*[1]

Aquifer Sustainability and Cumulative Impacts

The aquifers threatened by CanWhite's silica sand activities support many municipal water systems, agriculture, industry, private well users and of course an abundance of wildlife and ecosystems. The sustainable yield of these aquifers, have not been established. It is also unclear how much water will be used for the combined processing plant and sand extraction aspects of this project.

One report for government by Betcher and Ferguson[2] concluded:

> *Approximately 1500 water wells have been drilled as open holes interconnecting the Winnipeg Formation aquifer and the overlying Carbonate aquifer in south-eastern Manitoba. The open hole well design has allowed the exchange of formation fluids between the two aquifers with a number of consequent impacts. These include an accelerated loss of head in the Winnipeg Formation aquifer to the extent that flowing artesian conditions are now found only in a few areas, possible movement of the fresh water-saline water boundary, a loss of the unique naturally softened groundwater, and local water quality changes in the Carbonate aquifer.*

[1] Comments on the Vivian Sand Facility Project Registry no. 6057 by D.M LeNeveau B.Sc, M.Sc. B. Ed. On behalf of What the Frack Manitoba, Aug 20 2020.

[2] Impacts from Boreholes interconnecting multiple aquifers – a case study of Paleozoic aquifers in south-eastern Manitoba 2003 NAGS Conference, Robert Betcher, Manitoba Water; Grant Ferguson, Dept of Civil Engineering, University of Manitoba.

Kennedy and Woodbury[3] in developing a model for the sustainability of the carbonate and sandstone aquifers, made the observation that:

> *With increased population and development it is most likely that the stresses on the groundwater system will continue to increase. To account for this increase in stress, the domestic pumping rates were increased with time. The pumping rates were assumed to increase by 2% every five years (comparable to population increase). The model was then run over a 20-year period…*
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> *In terms of sustainability, there remains a region where the heads dropped below the top of the aquifer and where dewatering may occur. Note also the percent of recharge taken by well extraction has increased to 55% from the base sustainability case. This value is greater than the maximum suggested value of 50% of recharge, indicating that the system is no longer sustainable.*

The Southeast Regional Groundwater Management Plan (SRGMP)[4] identifies a number of unknowns in both aquifers (carbonate and sandstone) including rates of recharge, movement of the saline and brackish groundwater into freshwater zones and sustainable yield. It is unclear if Manitoba has implemented the SRGMP and there is no indication in the EAP, that the proponent is aware of the plan.

Unproven Mining Method

CanWhite Sands Corp. is experimenting with a new, unprecedented method for mining silica sand 200 feet below the surface in the Winnipeg Formation, a process that has only been experimented with in Manitoba, without much success in the past.[5]

CanWhite confirmed this technological challenge in their EAP where they stated that they anticipate,

> *…that special license conditions will have to be contemplated for extraction which will involve changing of extraction sites on a relatively frequent basis,* ***which is not typical for Environment Act Licenses****…is proposing an extraction project for licensing later this year, while construction of the Processing Facility is underway P7/129*

It would be irresponsible to build a facility without first assessing the use of an unknown technology that can potentially denigrate Manitoba's southeastern and Interlake groundwater and surface water sources.

MbEN appreciates your consideration of our comments about the environmental assessment and licensing of CanWhite's proposed silica sand extraction and processing activities and welcomes future opportunities to engage with the Department in the assessment of projects in Manitoba to ensure the highest level of environmental protection measures are required. Under *The Environment Act*, the Department is tasked with protecting the quality of the environment and environmental health of

[3] Sustainability of the Bedrock Aquifer Systems in South Central Manitoba: Implication for Large-Scale Modelling. Paula L. Kennedy, Allan D. Woodbury. Canadian Water Resources Journal Vol. 30(4): 281-296 (2005).
[4] SRGMP, Southeast Regional Groundwater Management Plan, Manitoba Water Stewardship April 10, 2010.
[5] Silica in Manitoba by D.M. Watson. Manitoba Energy and Mines Geological Services, 1985.

present and future generations and providing the opportunity for all citizens to exercise influence over the quality of their living environment. We are confident you will adhere to these principles and ensure an informed decision about the proposed development can be made.

Sincerely,

Glen Koroluk, Executive Director

Heather Fast B.A., J.D., LL.M., Policy Committee Chair

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Chief Deborah Smith, Brokenhead Ojibway Nation
Hon. Ron Schuler, MLA for Springfield-Ritchot
Bob Lagasse, MLA for Dawson Trail
Mayor Tiffany Fell, RM of Springfield
Mayor Justin Bohemier, RM of Tache
Reeve Paul Saindon, RM of St. Anne