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CANADIAN CENTRE FOR POLICY ALTERNATIVES – MANITOBA

The Manitoba Government Has Its Head Stuck in the Sand When it Comes to Protecting the Source of Southeastern Manitoba's Drinking Water.

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If there was ever a time for the Manitoba government to call on the Clean Environment Commission (CEC) to review independently the veracity and validity of the information contained in an Environment Act Proposal (EAP) for a proponent's development project, this would indeed be the moment to do so.

Unfortunately, this government has never once called on the CEC to undertake an independent environmental review of any major proposed development project since taking office in 2016.

CanWhite Sands (CWS) has recently submitted, for review and approval by the Province of Manitoba, an incomplete EAP for its proposed silica sand extraction activities. CWS EAP only provides information for its first four years of operation and not for the full 24 years that they intend to operate their proposed silica sand mine.

In addition, CWS makes mention of but failed to include eight critical mitigation plans in their EAP for review and comments by both the public and the Government of Manitoba's Technical Advisory Committee.

CWS also intends to request alterations to its Environment Licence, once received, starting in 2025. If these requested alterations

are deemed to be minor in nature, by the Manitoba Director of the Environmental Approval Branch, the public will have absolutely no ability to review and provide comments on the proposed changes in their alteration request to their Environment Licence.

The government of Manitoba will simply roll over CWS Environment Licence for automatic renewal, on an ongoing basis. The public and other interested parties would have no way of assessing what the impacts are of the changes made to its Environment Licence in the alteration requests.

If the company's current EAP is approved and receives its Environment Licence from the Province to proceed with their proposed silica sand mining project in Southeastern Manitoba, there is a very high probability it will jeopardize the source of drinking water for the entire region.

The global consulting firm hired by CWS to prepare their EAP has done a stellar job of glossing over, or finding ways to understate, the many serious issues that have been identified that need to be addressed immediately

there is an alternative.

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before any Environment Licence is issued by the Province to CWS. This should come as no surprise. The consulting firm is paid to make sure that their client's EAP is approved by the government with the least amount of government conditions or restrictions placed on their proposed silica sand mining operation.

In the first four years (2021-2025) of their operation, CWS is projected to drill over 2000 silica sand extraction wells in a very limited area in order to suck up some 1.3 million tonnes of silica sand from deep within the sandstone aquifer in Southeastern Manitoba, using a very unconventional mining method.

According to the CWS EAP, seven wells will be drilled to form a single cluster and each well cluster will be able to produce 21,000 tonnes of silica sand. In the first year there will be 56 clusters, and roughly 65 clusters per year thereafter.

Extrapolating from CWS's own drilling figures for the first four years in their EAP, they could be drilling upwards of 10,000 silica sand extraction wells or more over the 24-year period they state they will be operating their proposed silica sand mining project. The consequence of all these drilled extraction wells could be devastating.

The layer of limestone in the carbonate aquifer over top of the cavities created in the sandstone aquifer, as a result of all the drilled extraction wells, is not thick enough to be stable. Glacial till overlying the compromised limestone could migrate into the extraction cavities causing sinkholes. The unconsolidated sand between well clusters would slump into the cavities caused by sand extraction increasing the area of unsupported limestone.

The limestone would eventually collapse causing general land subsidence over the entire area of the well clusters.

The well clusters and resulting general subsidence would cover an area in excess of 65 hectares per year or more than 130 CFL football fields. This would cause massive property damage, change to

drainage, and formation of wetlands. The aquifers would be structurally compromised and exposed to surface contamination over this large ever growing area.

This could also lead to a Walkerton, Ontario type scenario happening, where at least seven people died and 2300 others became ill as a result of surface runoff containing E. Coli entering a well supplying drinking water in the region. The bacteria came from manure that had been spread on a nearby farm. It could also lead to the mixing of water between the sandstone and limestone aquifer, which is prohibited under Manitoba law.

Another potential avenue for contaminating the aquifer will be by the re-injection, into the sandstone aquifer, of excess aerated water that has been extracted along with the silica sand via CWS's modified air lift pump method.

The oxygen in the re-injected water would react with sulphide in the pyrite in the shale aquitard, with the deeper layers of shale within the sandstone, with marcasite in the sand, with pyritic oolite layers in the sandstone and with pyritic concretions in the sandstone. The aerated re-injected water would oxidize sulphide to form acid. The acid formed by oxidation of sulphide would mobilize heavy metals such as arsenic. A soluble form of selenium can be released directly by oxidation from the re-injected aerated water

The CWS EAP glosses over this huge issue by stating that the core log samples and sand samples that they took are low in sulphide content. What CWS does not state is that both their core log samples and sand samples are corrupted, as the samples used for geochemical analysis were left exposed to air for far too long before being tested, thus rendering the analysis results meaningless.

CWS goes on to state in their EAP that they will be installing an Ultra Violet (UV) system, designed to sterilize the re-injected aerated water to prevent harmful microbes from entering the aquifer.

However, the UV system will be ineffective because manganese iron and fine particulates in the water will scatter the UV light that is designed to sterilize these harmful microbes.

Another source of potential contamination is via the numerous slurry lines that are to be used to send the extracted silica sand and water from the numerous extraction wells to CWS processing facility.

CWS does not acknowledge contaminants will continually build up in the slurry lines as the water is recycled. CWS even plans to store the contaminated water in the slurry lines and the wash plant over winter in a large tank. CWS plans to reuse the water for 24 years without removing the contaminants including microbes that would proliferate in a heated tank stored over winter.

CWS admits that slurry line leakage would be a potential source for contamination in their EAP. They state that they will mitigate this from happening by daily slurry line site inspections.

These slurry lines will erode eventually from the inside, as the material flowing inside these high-density polyethylene slurry lines is highly abrasive. Any outside slurry line inspection is unlikely to catch any breakage until it is too late to prevent.

These slurry lines will eventually cross the Winnipeg aqueduct, likely multiple times. The aqueduct is known to have cracks that allow infiltration of surface water and thus a slurry line spills near the aqueduct could contaminate Winnipeg's drinking water supply with arsenic, selenium, other heavy metals and the highly toxic acrylamide monomer released into the slurry lines from the processing plant clarifier tank.

Given the speed and volume of water and silica sand being run through these slurry lines, should a single slurry line break occur that goes undetected for eight hours, it would spew out enough toxic water and silica sand to fill approximately four and half Olympic-size pools.

These concerns raised here and a number of other very serious issues have been identified in a 20 page scientific evidence-based review of CWS EAP that was prepared by What the Frack Manitoba Science Researcher, Dennis

LeNeveu.

It is highly unlikely that this document will be circulated to the provincial Technical Advisory Committee set up to review and provide comments on the CWS EAP, because there is simply no legal requirement to do so under the Manitoba Environment Act.

Manitobans are now left with a government that is more interested in making sure that an Alberta-based company reaps the economic benefits of silica sand mining, than they are about ensuring that those living in Southeastern Manitoba have a continued viable source of clean drinking water into the future.

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