

March 22 2023

Dear Commissioners,

My name is Elizabeth Worden , I am 33 years old, and my partner and I are stakeholders and property owners in the RM of Reynolds about [REDACTED], with a lot rich in bush, forest, wetland, and where Hazel Creek runs through. We do not yet have children but we hope to bring the next generation into the land we love, as it is, so they may also experience the wonder of nature, clean water, and tranquility. I will open this written submission by saying I am not here to restate all of the excellent quality science provided by Participant experts throughout the course of this procedural process and the hearings. I know you have been provided with ample information from various Participants pointing out multiple flaws, shortcomings and cut corners in Sio Silica's proposal. The MSSAC has provided significant concerns that reflect my concerns as a stakeholder and rate payer in Reynolds. Sunrise School Division's concern for their students' access to safe and clean drinking water reflects my own concerns for the children in my life. I hope you give all of the local, scientific, engineering and expert submissions the weight they deserve, especially Dr. Eva Pip's incredibly insightful submission, based on her unique and deep experience as a Manitoba aquatic biologist and water quality specialist.

I am here to provide a different perspective, one that stems from my connection to the land that would be affected by the development and subsequent follow-on activities, by potential disaster and collapse of the aquitard. I am here to take a step back and look at the bigger picture of this project in relation to the way the world is going climatically. I am here to appeal to both logic and emotion. I am staunchly against granting an Environmental Act License to Sio Silica's proposed project. I think it will cause irreversible damage to something that is increasingly rare – a fully functioning, intact, dynamic and resilient ecosystem.

Let me introduce you to our 80-acre property. It is a quiet haven which almost every Manitoba species imaginable can call home. Cedars, tamarack, spruce, pines, birch, box elder, burr oak and black ash thrive here. I am a native plant enthusiast (I worked at a native plant nursery in the past), and I have identified dozens and dozens of native plant species, including less commonly occurring species such as rat root, wild iris, lady's slippers, leadplant and meadow blazing star. For animals, we have pine martens hunting snowshoe hares in winter, American woodcocks doing aerial courtship displays in spring, a family of Saw Whet owls raising their young in the summer, and countless migratory birds passing through in fall. A bear has made its den roughly 200 meters from our house (!!), and a pack of wolves cruise their patrol routes through our forest, howling at night. The aurora borealis and Milky Way can be seen on clear nights. It is so quiet that we can hear which direction the wind is coming through the forest. It is perfect.

I am saying this because all of these features rely on our area staying the way it is, without noise pollution, light pollution, and disturbance from development. We are enamored by the magnificence of our ecosystem and wouldn't have it any other way. However, we may be forced

to 'have it another way' if Sio Silica's proposal is granted a license and moves forward. In our eyes, there is so much to lose from this development, and nothing to gain.

When I say 'nothing to gain', I recognize that I could immediately be labeled as a hypocrite because I am a proud and active environmentalist who cares about the future of our planet immensely. I work at the University of Manitoba in a research unit within the Department of Environment and Geography called the Centre for Earth Observation Science (CEOS). CEOS is an international acclaimed research centre that studies climate change and its effects, largely through an Arctic systems science focus. I am a social scientist, working with northern Indigenous and Inuit communities, interviewing them, discussing observed changes to their ecosystems, and hearing the concerns they have for the future. A common thread is that we take too much from the planet and expect it to carry too much of our burden. We have lost our way, we have forgotten our place in the system, and we have to practice more humility and respect. I agree with all these statements. So, where will it end? Where will our short-sightedness lead us?

You may wonder, how could I turn away from a 'green' opportunity to produce solar panels and other 'solutions'? Well, my answer is that it is not that simple, and I honestly do not believe that we should regard any extractive technologies as 'solutions' to our problem. I do not need to be told that climate change is an imminent concern and that reducing our fossil fuel emissions is a critical part of lessening the anthropogenic impact on the planet. However, I can also say that cutting out greenhouse gas emissions is not the only, or most important, way forward. It is much more nuanced and diverse than that, and we must seriously consider the environmental costs associated with each extraction. We need to look at the earth as a system that we, as humans, are a part of, and fully reliant on. We need to look at the critical components of the Earth that we cannot live without and put them above any form of monetary profit or technology. And what is one of the most critical components of the Earth's system to support all life? Water. Fresh, clean, drinking water. Legislation, acts, protocols, agreements and statements on the importance of protecting drinking water are proliferous on an international scale. The number of drought-stricken countries are increasing, and water wars will happen in my lifetime. It is not a question of 'if', but 'when'. And Sio Silica's project will directly compromise this increasingly rare resource. It cannot go forward.

Climate projections for the prairies do not look good for our water regime. The southern regions of the provinces of Manitoba, Saskatchewan and Alberta will become "highly drought vulnerable, followed by the southwestern and southeastern regions" (Masud, Khaliq & Wheeler, 2017, p. 2685). An increasing demand for fresh water in the southern Canadian Prairie provinces will coincide with a high likelihood of more frequent and severe droughts for this region, with less snowpack, higher summer temperatures leading to increased evapotranspiration and lowered surface water levels. With an ever-increasing global population and a higher demand for agricultural activities, there will be mounting strain on our groundwater resources (Kerr, Andreichuk & Sauchyn, 2021). This will be the case for the southeast regional groundwater resource, which includes the Carbonate and Winnipeg Formation aquifers – the aquifers to be affected by Sio Silica. The Southeast Regional Groundwater Management Plan provides in-depth,

stakeholder and local perspective and expertise on the future projections and concerns for our shared groundwater resource, but Sio Silica did not take it into consideration. Why? Because, according to Sio Silica's lawyer, it was 'too old' of a reference, which, as an academic and Master of Art in Geography, I can confidently say is a bogus excuse. A 12-year old reference is not too old, especially when it is a reference of this nature; one-of-a-kind and seminal, based on local perspectives, and studying the (relatively) slowly changing feature of underground aquifers.

As I write, on March 22nd 2023, World Water Day, colleagues from my research group are leading discussions at the United Nations Headquarters in New York City on the UN Sustainable Development Goals, one of which is SDG6 – Clean Water and Sanitation, which the University of Manitoba was named the hub to help lead research in (<https://umanitoba.ca/research/united-nations-sustainable-development-goal-6>). I find it ironic that I am here on my couch, pleading the case for maintaining the integrity and quality of high quality, intact, pure drinking water in my own backyard. I write this as emphatically as I possibly can. Please consider the ramifications of throwing caution to the wind in the face of profit. I know that Manitoba has invested a lot into the mining sector, and that the pressure is on to give lucrative 'green' projects such as this the 'green' light. However, the downstream effects are far from funny. Literal floodgates will be opened to more development that will inherently change the landscape.

Puns aside, here are some of my concerns on how I see the proposal as it stands, and how it will quite likely go.

- 1) Sio Silica's proposal does not have enough substantive proof that this mining project will not result in a disastrous collapse of the aquitard, or contamination of the subsurface water. The fact that this extraction method is an 'innovative, patent-pending method' (taken from Sio Silica's website) makes me incredibly uneasy. This is far too large a scale, with far too great a consequence, to serve as a 'guinea pig' project. The fact that the proposed 'room and pillar' mining method is expected to work with wet sand as pillars is, in my opinion, absolutely absurd and one of many critical flaws of the proposal. How can pillars made of wet sand be expected to support the roof, with that many wells drilled in such close proximity? It is physically impossible with the proposed plans. Please do not allow this component of the project design to pass, it will undoubtedly result in severe subsidence or a total collapse.
- 2) Project splitting is not acceptable or appropriate in such a large-scale project, with such widespread impacts, over such a long project life. This is endemic to a problem with aspects of the Environmental Assessment process, which I know the CEC has been made aware of in the past, and made recommendations on improving. This allows proponents of developments to take advantage of the loopholes presented by fragmenting the effects of the project to make it seem less significant than it truly is. This is ethically wrong and defies the entire point of an environmental assessment process. What are the true impacts? We do not even know, but we must know.
- 3) What happens when things go wrong? Who will be responsible? How can Sio Silica compensate us for the collapse and contamination of an entire aquifer? The simple

answer is they cannot. It will be another tragic environmental disaster that will be written about, people will be enraged, but at the end of the day, it will be the water that suffers.

- 4) When drought conditions become dire, what will happen to the aquifer? I do not understand how the removal of millions of tonnes of silica sand, which currently is mixed into the water table, can result in a water table level that meets the currently existing residential water wells. Even without the modeled and predicted drought conditions, the water table will go down with silica mining. Add in drought and water shortage, and there won't be a single water well existing that will reach the aquifer anymore. Will Sio Silica drill our new wells? What proof will they require to justify that it is their actions lowering the water table, or will they pass it off as drought effects? Do not let them play games with us, please.
- 5) This project requires a proper cumulative effects assessment. I know Manitoba Eco Network and Our Line in the Sand explored this concern in great detail, so I will not elaborate further, as they have said everything I could possibly say. I am simply stating my agreement. I have taken part in previous CEC hearings as a Participant (for the Keeyask Generation Station), and Cumulative Effects Assessments are *critical* to this environmental assessment process. Please do not approve Sio Silica's project without demanding that they do a *proper* and *comprehensive* cumulative effects assessment. We need it.
- 6) Speaking of cumulative effects, here is my concern as a land owner in the area, and perhaps my most urgent fear. What are the long-term effects of approving this project? Economic boosts to the province, sure. Infrastructure expansion and improvements for my RM, sure. But with those 'perks', come the negatives. What if this Memorandum of Understanding with the German company GMBH comes to fruition and the largest solar panel manufacturing plant in North America is built near us? This will be an utter monstrosity. It will impose enormous demands and stresses on our RM's infrastructure. Will Highway 15 be allowed to remain a two-way highway, or will it be expanded? Construction. Vastly increased rail traffic. Ecosystem fragmentation. Noise pollution. A huge facility (or facilities). Light pollution, tailings, emissions, you name it. Many more people moving into the area – how many new people? Thousands? More traffic, more human needs, more taxes, more rates to pay. More stress on an increasingly stressed aquifer (ironic!). A huge stress on our brand new, not yet built sewage lagoon, whose effluent, incidentally, drains directly into the headwater wetlands of Hazel Creek, which flows through our property. Side note – Hazel Creek is an intermittent creek with natural wet and dry cycles based on the season. Fall is a dry time for Hazel Creek, but the lagoon will be emptied in October, causing a major disruption to the hydrological cycle and all of the creek's species (which includes a species, the Carmine Shiner, that is rated as Endangered under COSEWIC). Now imagine 8000 more homes dumping their wastewater into the sewage lagoon. What are the downstream effects on Hazel Creek? It makes me sick with anxiety to fathom.

The positive spin on all this, I suppose, is that it could open the door to more infrastructure. At our property, we currently don't have a garbage or recycling pick up, we don't have cell phone reception. We are considered 'underserved'. I find this to be

quite an ironic statement though, and not a positive spin whatsoever. Sure, we don't have municipal services, but, as humans, we can make up for them. No cell phone reception? Use wi-fi, get a land-line, and make do. No garbage or recycling service? Pack it into the car, take it to the depot and dump, and manage it. These 'services' we can do ourselves, and I personally prefer doing this, if it means my property is quiet and intact. But do you know what 'services' we *cannot* recreate as humans? The priceless, irreplaceable ecosystem services that our forest, land, and waters provide to us. These have no cost. They are becoming rarer, they are disappearing, and they will be gone if we continue down this path. There have been attempts to monetize ecosystem services and they work out to billions of dollars. Money becomes irrelevant when tying these concepts together. Fresh water truly does not have a price, because assigning a price to fresh water is like assigning a price to life.

In conclusion, I beseech you to think of the harm that could and will be done if this project proceeds. Greenwashing a 'clean' product to 'save the world' does not work for me, and it cannot work for any of us, if we want to move forward responsibly and in a good way. The path we have been on has been bad for humanity, for the planet. Some would argue we are going on a new path of green technology if we accept Sio Silica as 'good neighbours', but from my vantage point, I see us walking on the same path, just on the other side. We are still consuming at the cost of others, at the cost of critical environmental services. I know consumption is part of being human, but it does not have to occur at this cost, with this risk, with these unknowns. We do not have to say yes to this. As an advisory body to the decision-makers in this province, please recommend that the proponent, Sio Silica, cannot be granted an Environment Act License with this proposal. They have not done their due diligence. They will profit at the expense of everybody else, at the expense of the land, the wildlife, and the water. We cannot keep making the same mistakes, granting the same power to the same people. Please change the narrative and say no. Set a precedent for new Environmental Assessment criteria. Inspire the future generations that change will happen, and those who may extract will firstly and above all, be held accountable for their actions.

Thank you for your time and I truly hope, 90 days from now, to see a recommendation that inspires hope in me for the future.

Best regards,
Elizabeth Worden

Kerr, SA, Andreichuk, Y, Sauchyn, D. Warm and cool season reconstruction and assessment of the long-term hydroclimatic variability of the Canadian prairie provinces through the development of the Canadian Prairies Paleo Drought Atlas. *Int J Climatol*. 2021; 41: 3539– 3560. <https://doi-org.uml.idm.oclc.org/10.1002/joc.7034>
Masud, M. B., et al. "Future Changes to Drought Characteristics over the Canadian Prairie Provinces Based on NARCCAP Multi-RCM Ensemble." *Climate Dynamics*, vol. 48, no. 7-8, 2017, pp. 2685–705, <https://doi.org/10.1007/s00382-016-3232-2>.