Blog Posts

SOUND THE ALARM!

May 25th, 2023

"False Statement" made by Sio Silica

During the first day of the Clean Environment Commission hearing into Sio Silica's proposed mining project, Sio's legal team opening statement was challenged by attendee Dr. Ian Halket who was contracted by Peguis First Nation for his technical expertise. Dr. Halket holds a Ph. D. in Civil Engineering, taught Civil Technology at Red River College, served on the CEC from 2000 – 2014, and is President of Halket Environmental Consultants. Dr. Halket's LinkedIn states "over 40 years of experience in monitoring and assessing the effects of water resources and mining developments on the environment."

Dr. Halket called out Sio Silica's assertion that the "room and pillar" mining technique was a "proven and safe method to mine underground resources" a "false statement". Dr. Halket continued that it may be successful in a dry medium "but this is an aquifer we're talking about". Ideal conditions for room and pillar mining are regular, flat orebodies with large horizontal extent and competent ore and waste rock – not wet sand. Dr. Halket referenced a meeting between Peguis and Sio, approximately 2 or 3 months prior to the hearing where Sio stated "this technique has never been tried before". Now, during the hearing, Dr. Halket criticized Sio's lawyer for "alluding to the fact that this is a common and successful mining technique…I think that was misleading." Sio Silica did not withdraw or respond to Halket's challenge.

However, second day of the hearing, Sio Silica Corp's consultant Stantec presented 5 examples of "room and pillar" mines that they contributed to: Jansen, Esterhay, and Lanigan Potash mines in Saskatchewan; Lamaque gold mine in Quebec; and the troubled Snap Lake diamond mine in Yellowknife that closed when "the company was unable to address ongoing issues of meeting water quality standards set for the underground mine." (CBC, "DeBeers gets license to close Snap Lake mine", May 22, 2020). Stantec's examples are indicative of "room and pillar" mines in a hard medium NOT WET SAND IN AN AQUIFER.

Stantec used Standard Penetration Testing (SPT) and side scan sonar to determine sand strength. SPT measures the relative density of granular soils and is criticized for significantly disturbing the material to be tested. Sonar scans were taken from only two separate trial extraction boreholes, not the proposed "clusters" of boreholes. Scans showed different "room"/cavity shapes and "pillars" indicating geological variability in the Aquifer and inconsistency of the sand's cementation/cohesion, vertically and horizontally. The sonar was incapable of providing data on the entire cavity created.

SPT results showed vertical spatial variability in a cavity demonstrating that the use of single assumed model parameter values for the silica sand was unjustifiable. In particular the anomalously high value for cohesion determined from back calculation for sand overhang shown in 1 scan taken immediately after extraction is not supported by the STP results and would lead to an over prediction of the allowable stable excavation cavity span.

CEC Chair, Jay Doering, Ph.D., P.Eng. found the graphics used by Stantec to explain cavity development and sand sloughing confusing – "you've basically almost entirely filled the hole ["room"] with sloughing" and questioned Stantec's strain weakening model and the time interval "that reduces cohesion from 220 kilopascal to 0." Stantec's response: "the analysis assumed that it went to zero, but it did not include a certain time frame…we're learning more about how the cavities infill and how the sloughing occurs as part of the more recently-the-these figures that we're showing right here. So, definitely this will be part of the next stage when we're going to look at in detail at the sloughing, at having more and more side scan sonars taken over a period of time. I mean, it would be very helpful to know, for example, what is the density of that. We don't have that sort of information at this point. I think it would be helpful to look at other aspects of the sand and how it behaves because that's one of the things I talked about earlier. We're only talking about in that very disturbed zone, that's where the — the — the strain weakening has taken place. Beyond that we're assuming it's still intact — it's — it's in a natural condition, it hasn't been disturbed. So we don't have all the answers right now, but we are getting more information and that will be part of the next stage."

Sio Silica Corp will only give Manitobans “all the answers” if we hand them a License. IT IS UNACCEPTABLE TO USE AN ENVIRONMENT ACT LICENSE TO OBTAIN BASELINE DATA AND TO FIGURE OUT A PROJECT!

Images and quotes: CEC Hearing Participant D. LeNeveu, M.Sc, B.Sc.(Hons), B.Ed.(Education), 14-day rule Submission and presentation. Mr. LeNeveu was the vault modeller for Canadian nuclear waste disposal and responsible for interfacing with numerous professionals in various technical fields. Mr. LeNeveu has published many reports and publications, including state-of -the-art simulation systems. Mr. LeNeveu identified and challenged many of the irregularities with Sio’s data input and modelling analysis. Sio’s legal team tried to discredit Mr. LeNeveu’s credentials rather than addressing the veracity of his findings.

“they also put a value of zero for your cohesion, and it’s in the literature. Did they run that value? No. They refused to. They refused to do any sensitivity analysis, see what happened if you use zero. That’s unacceptable.”

The evidence in Mr. LeNeveu’s 14-day submission, information requests, and final presentation are supported by extensive references, photographs, calculations and simulations. The evidence includes data and reports from accredited specialists in many areas including geochemistry, geology, and biology. Sio Silica made no attempt to address this extensive evidence that would have entailed discrediting the work of a host of accredited scientists and technical experts.

“Inadequate sand slope stability analysis and parameter values leads to limestone collapse and aquifer failure.”

Mr. LeNeveu’s CV is available to view on the CEC website.

Mr. LeNeveu’s March 13 slide presentation HAS NOT BEEN POSTED TO THE CEC PUBLIC REGISTRY.

Link to LeNeveu 14-day rule submission – http://www.cecmanitoba.ca/…/CEC…

IT IS PERVERSE OF OUR GOVERNMENT AND REGULATOR TO HAVE ALLOWED AN ENVIRONMENTAL ASSESSMENT FOR SUCH AN INCOMPLETE, UNDEVELOPED, AND IMPOVERISHED PROJECT.

THE CEC MUST STRONGLY RECOMMEND TO PROHIBIT LICENSING OF THE SILO SILICA PROJECT.