

13 December 2023

Dear Ms Glance and Ms. Dickert,

I am writing on behalf of Cayuga Lake Environmental Action Now (CLEAN) to express our gratitude for both of you and other DEC officials taking the time to meet virtually with us on 10 December to discuss some of our concerns regarding the salt mine under Cayuga Lake. We appreciate your willingness to listen and engage regarding both on-going and possible future environmental impacts of the mine on water and air resources.

We understand that the Department of Environmental Conservation (DEC) has a broad mandate and numerous responsibilities. We are grateful that you have recognized the importance of the salt mine risks to our lake, our community, and the regional economy. The lake is not only an invaluable natural resource that contributes significantly to our local economy, but it also serves as the primary source of drinking water for about 100,000 residents. The risks associated with the salt mine are of paramount concern to us all.

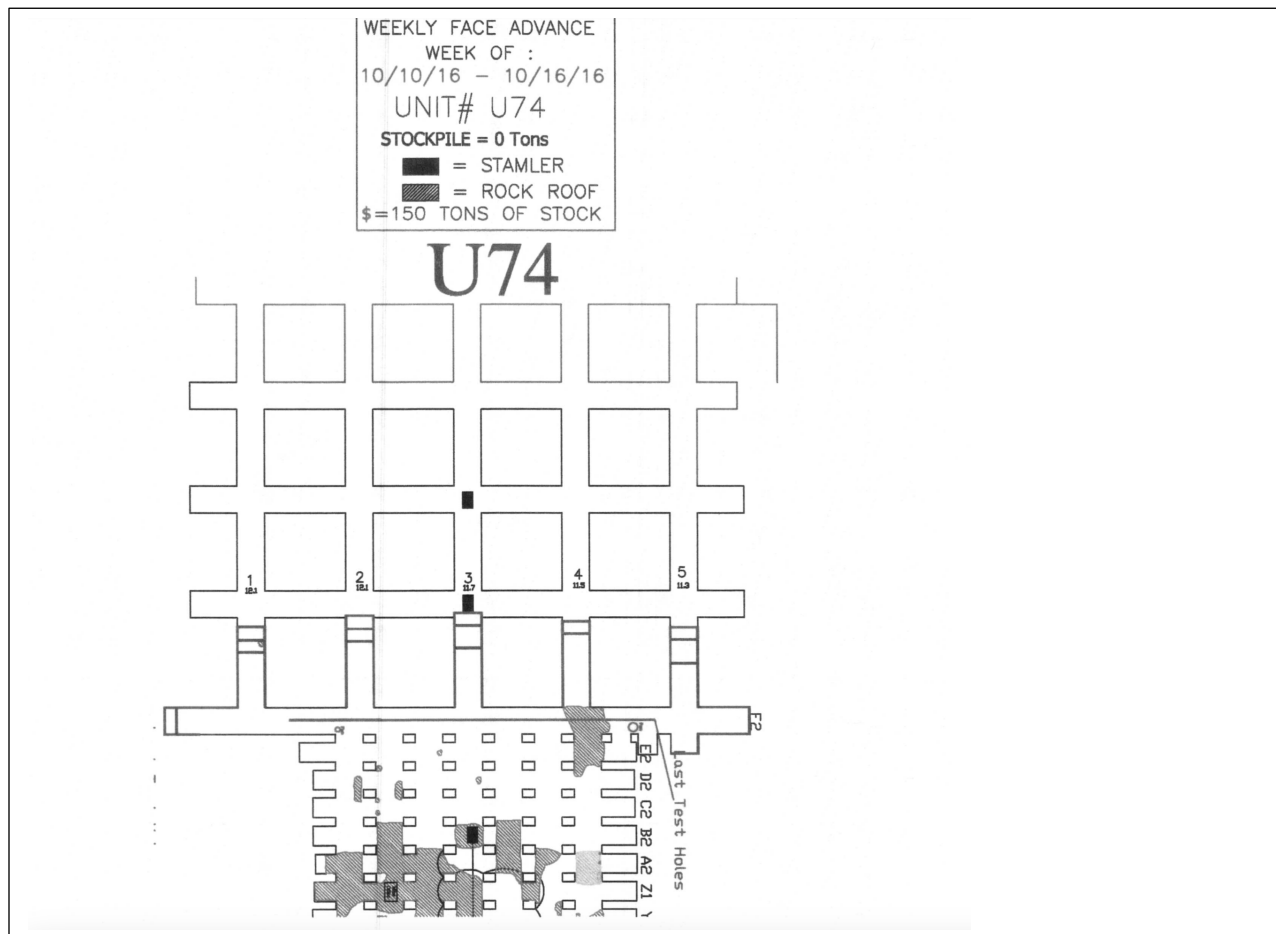
Whether it be CSLAP monitoring, the 2018 DEC report on HABs in Cayuga Lake, or the pending TMDL, we are aware of DEC's on-going commitment to ensuring the safety and sustainability of Cayuga Lake. We are hopeful that our meeting on the 10th marks the beginning of a collaboration between CLEAN, the Cayuga Salt Mine Technical Review Team and the DEC. I believe we can together develop strategies and solutions that will safeguard the lake, its shoreline, and the people who use the lake and its water.

You should already have in hand a written set of questions from Raymond Vaughan, PG, PhD, that focus on the geological anomalies identified by RESPEC in 2010 using seismic data. Submission of further questions may need to wait until January-February when we expect to have guidance from a newly-formed Technical Review Team and more documents from FOIL.

In the remainder of this email, I will revisit some issues we sought to raise during the call. The first is the numbers already indicate that Cayuga Salt Mine is no longer competitive. A new buyer would quickly discover this and also want out. In our view, the mine should be shut down and Cargill required to post a multi-billion dollar bond for >100 years. Please see the attached mine comparison table which indicates that Cargill's extraction ratio in their Large Pillar area—if we have read Cargill's maps accurately---is about 43% compared to the $\leq 60\%$ at Hampton Corners. Salt transport distances within the mine are about 2.4X those at Hampton Corners. It needs to be shut down because it's efficient and no longer competitive.

Second, the two mines produce about 7X the road salt needed in New York and demand will diminish as New York implements road salt reduction policies. A new owner will also want out. Market forces are already closing in on this mine.

Third, Cargill now realizes that mining "outside the salt" and in both near and under geological anomalies is risky. According to our interpretation of Boyd's review of Cargill 2022 Annual Report to DEC, they now have water intrusion at panel S-3. The 2016 map below shows ample evidence of roof rock, i.e., mining outside the salt, which in itself is an invitation to water intrusion.



I am attaching for your reference the John T. Boyd Co. review of Cargill's Annual Report to DEC for 2022, which was sent to Mr. Podniesinski, and is dated 17 April 2023. I would appreciate your forwarding this e-mail with attachments to the other DEC people on Friday's call.

The text at the top of page 12 of the Boyd report includes these somewhat cryptic bullet points:

- *The planned undermining of the edge of Anomaly B in this fiscal year*
- *S-3 Sump*

While there could be more than one way to parse the meaning of “undermining of the edge”, we would note that Dr. Scovazzo appears to be informing the DEC in a low-key manner that Cargill's 2022-25 mining map (also attached here) shows that:

- 1) Cargill intends to mine up to the new southern boundary of Anomaly B (prior to DEC signing off on whether or not for a 1000-foot setback from Anomaly B may be required?) and
- 2) the 2022-2025 mining plan map indicates that Cargill will be—to use Dr. Scovazzo's language--“undermining the edge” of the already 60%-reduced-in-volume version of Anomaly B that Cargill now uses to represent Anomaly B. As mentioned during the call, this reduction freed up about \$93M in additional high-risk salt for mining.

As you can see from the attached Cargill 2022-25 mining plan map, the middle cross cut at the southern tip of the Anomaly B oval protrudes north of the anomaly boundary. Dr. Scovazzo has spotted this over-the-line planned permit violation, but doesn't describe it as such. CLEAN's position for the Anomalies A-E zone echoes that of eminent evaporite geologist John K. Warren who wrote in 2021, "[based on my professional experience I recommend that further mining beneath the trough of thin bedrock be discontinued.](#)"¹

Regarding the reference to an "S-3 Sump", this is the first reference we know of in over 100 years of room and pillar mining at Cayuga Salt Mine whereby the reader can reasonably infer that there is now a water intrusion problem inside the mine as opposed to shaft leakage intrusion.

I am attaching a screen shot of a Google Earth map showing panel S-3, which is about 1.8 miles in length and which runs down the west shore of Cayuga Lake as far as the Ithaca Yacht Club. There has been no mining in this panel for about 15 years, which underscores the point made during the call that DEC should not consider returning financial assurance to a salt mine owner when mining is halted and shafts are sealed. Cargill consultants emphasize that it may take >200 years for subsidence-related risks to play out and that total subsidence at the center line of the lake will be about 5.5 feet in total.

I would ask your team to note that three of the east pointing panels coming off S-3 do protrude under an artesian aquifer which is shown in olive and which is thought to extend south under the City of Ithaca. [The end of the aquifer shown on the map is the end of a 1995 seismic study.]

Our consulting geohydrologist, Dr. Andrew Michalski, is of the opinion that a sudden drawdown of this aquifer—as might happen in the event of a Retsof-like mine collapse—could cause significant subsidence damage within the Ithaca floodplain where the sum of taxable assessed properties was \$1.55B in 2018. We don't yet know if other members of the Technical Review Team will share this concern. I am attaching a map showing subsidence risk zones.

We look forward to continuing our dialogue and working with you to address critical issues such as whether it is time to close Cayuga Salt Mine and what sort of bonding is needed over the many years that the lake will be at risk once the mine is closed. Please do not hesitate to reach out if you require any further information or if there are any upcoming opportunities for us to contribute to the discussion.

Once again, thank you for your time and attention to these matters.

Best regards,

Stephanie Redmond,
Environmental Researcher, Cayuga Lake Environmental Action Now

¹ John K. Warren. June 17, 2021. Affidavit filed with Tompkins County Clerk. Index no. EF2021-0422. Page 4 of 97.

CONFIDENTIAL

Fiscal year 22-23	
Fiscal year 23-24	
Fiscal year 24-25	

CAYUGA MINE 3 YR MINE PLAN

DRAFTED BY: MBD

DATE: 1/10/2023

SCALE:

