January 6, 2025

Jonathan Stercho

Deputy Regional Permit Administrator

Division of Environmental Permits, Region 7

New York State Department of Environmental Conservation

315-426-7438 [dep.r7@dec.ny.gov](mailto:dep.r7@dec.ny.gov)

RE: Cayuga Salt Mine, Mined Land Reclamation Permit Modification

Dear Mr. Stercho:

I am a retired Research Hydrologist with the United States Geological Survey and spent over 30 years in the Survey office in Ithaca NY. I was involved with USGS studies following the 1994 Retsof salt mine collapse, and have coauthored several papers on this event. My understanding of the subsurface geology beneath Cayuga Lake during that time period was based on the marine seismic studies of Mullins et al (1996), in which a layer of coarse sediment associated with the Valley Heads Moraine deposition was postulated to occur above the bedrock underlying Cayuga Lake. At that time, there was no other information to confirm this finding.

I was recently surprised to find a figure in a 2000 Cargill report (plate 3.1-8) that delineates an artesian aquifer overlying the bedrock beneath Cayuga Lake, as interpreted from 1995 Cargill seismic data. Unfortunately, there is no other information concerning the subsurface geology beneath Cayuga Lake in this heavily redacted report. The USGS contacted both Cargill Salt, Inc. and the NYS Department of Environmental Conservation during the time period following the Retsof salt mine collapse in our attempts to gather additional information concerning the subsurface geology of Finger Lake valleys. No information was provided in response to these requests. Suffice it to say that this information concerning the “artesian aquifer” would have been very valuable in subsequent negotiations between the responsible parties at Retsof and the NYS Attorney General’s Office.

I am also aware of recent studies by the NYS Geological Survey that indicate an aquifer underlies the inlet valley of Cayuga Lake south of Ithaca. This aquifer appears to be correlated with the coarse sediment of Mullins et al (1996) and the artesian aquifer of Cargill (1994). If this is the case, then the situation at the Cargill salt mine in the Cayuga Valley is analogous to that of the Retsof salt mine in the Genesee Valley, with the addition of a lake in the valley. This suggests that a roof collapse at Cargill could result in mine flooding, as was the case at Retsof.

The NYS DEC should be concerned with not only the fate of the Cargill mine, but also with that of Cayuga Lake and the aquifer that could be a future source of ground water for Ithaca and the surrounding area. There is limited public data available to assess the present stability of the Cargill salt mine and the potential effects of storing partially saturated brine in the mine. The reticence of Cargill to share information concerning subsurface geology does not inspire confidence in their ability to objectively assess this situation. I think that an independent consultant with full access to Cargill’s information should assess the mine’s stability and the proposed storage of brine in the mine. The results of this study and the information regarding the mine should be made available to the public. In this case, the potential widespread effects of a catastrophic mine collapse are too severe to allow a private company to assess its own practices.

Sincerely,

Richard Yager

[gwhydro@gmail.com](mailto:gwhydro@gmail.com)

607-280-5300

Mullins, H.T., Hinchey, E.J., Wellner, R.W., Stephens, D.B., Anderson, W.T., Dwyer, T.R., and Hine, A.C., 1996, Seismic stratigraphy of the Finger Lakes: A continental record of Heinrich event H-1 and Laurentide ice sheet instability, *in* Mullins H.T. and Eyles, N,. eds., Subsurface Geologic Investigations of New York Finger Lakes: Implications for Late Quaternary Deglaciation and Environmental Change: Boulder, Colorado, Geological Society of America Special Paper 311.