OFFICE OF THE COMMISSIONER

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August 17, 2017

Honorable Steven Englebright
Chairman, Environmental Conservation Committee
New York State Assembly
149 Main Street
East Setauket, NY 11733

Honorable Barbara S. Lifton
New York State Assembly
106 East Court Street
Ithaca, NY 14850

Dear Assembly Members Englebright and Lifton:

Thank you for your recent letter regarding the application by Cargill, Inc. for Shaft 4 and for your comments about Cargill's Cayuga Salt Mine. Specifically, Cargill has applied to Department of Environmental Conservation (DEC) for a permit to construct a shaft in the Town of Lansing to access their salt mining operation under Cayuga Lake. As proposed, the project would impact 12.3 acres of land. Although the application before us includes only the Shaft 4 project, DEC takes your concerns seriously and has considered them with regard to the ongoing, previously approved salt mining operations.

Please note that the proposed action to add a new access shaft does not immediately impact the mine or mining operations. These activities are permitted and may continue with or without the construction and use of Shaft 4. Therefore, issues raised in your letter that are related to the mine and mining activities, and unrelated to the new access shaft, such as mine flooding, subsidence, and aquifer/lake salinization, are not subject to review under State Environmental Quality Review (SEQR). The modification does not allow additional mining under Cayuga Lake beyond what is currently permitted. Shaft 4 is meant to provide an additional egress and to provide an additional access point for ventilation of the mine. Environmental assessments that detail DEC's review for this proposed action, as well as previous applications have been prepared and are available for public review.

The crux of Dr. Young's presentation is that horizontal forces generated by plate tectonics have not been considered in the design of the mine and constitute new information that needs to be evaluated by DEC. Plate tectonics theory is now decades old. Mine engineers have been aware of significant horizontal stresses in underground mines long before the origin of plate tectonics theory and performed mine design accordingly. Since the advent of the understanding of plate tectonics, residual horizontal stresses resulting therefrom have been incorporated into mine design and mine modeling. DEC does not consider the issue of stresses from plate tectonism new information that should initiate a new SEQR review of the currently permitted mining operation.

Mining and geotechnical engineering are advanced disciplines that take into account the numerous contributing factors to horizontal and vertical stresses and the resultant response of the rock when designing a mine. Proper mine design requires a thorough understanding of the forces that exist and how the rock surrounding the mine openings will behave. Only with a full understanding of the regional geology, the vertical and horizontal stresses, and mechanical properties of the overlying rock, can a meaningful and proper model and mine design be accomplished. The mine design also benefits from a century of mining experience at the Lansing facility.

As part of the 2000 Expanded Environmental Assessment, the geology above the mine was investigated, along with a geo-mechanical evaluation of mine design and practices. An extensive, multi-year review was performed for the 2003 permit modification. Special conditions were added to the mining permit requiring additional investigations of disturbed areas and thinning rock overburden before DEC authorizes mining to proceed into those areas. Cargill's permit requires DEC receive an annual report of their operations. An onsite review of that required annual report and a mine inspection follows. At Cargill's Cayuga Mine, the areas of thinning bedrock and specific anomalies have been identified and well defined by geophysical surveys. By permit condition, Cargill is not allowed to mine in these areas until such time as further geophysical and other studies are undertaken and DEC is satisfied that mining may be safely accomplished or mining must be avoided in these areas. DEC has not approved mining under any of these areas.

The "small pillar" mining technique referred to in your letter is in fact not new at this facility. It has been used successfully at Cargill's Cayuga Mine for over 40 years. Improper pillar and room sizes can result in a transfer of the forces anticipated to be taken up in the pillars and abutment areas as horizontal stress in the floor and roof. Extensive instrumentation within the mine, including over 300 closure stations and extensometers, has been installed and is utilized to assess mine performance. This system would provide early indications of such stresses if they were to occur on the mine floor and roof. The data generated by the monitoring systems are also used to plan for future mine excavation.

In consideration of the fact that the permit before DEC does not approve different or additional mining operations, but is limited to the construction and use of an additional access and ventilation shaft, Shaft 4, we have decided to issue the permit to Cargill for their Shaft 4 project. Our review of substantial information provided with the application has determined that the Shaft 4 addition will not result in any significant adverse environmental impacts.

Although not specifically relevant to the Shaft 4 permit, we have met with several parties concerned with the mine stability question. We have provided those parties with responses to the information they provided and issues raised.

We appreciate you communicating your concerns and questions regarding this project to us. Please contact us again if you have additional questions regarding this or any other regulated project.

Sincerely,

Basil Seggos
Commissioner