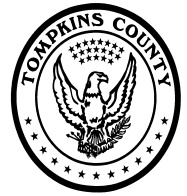




TOMPKINS COUNTY
ENVIRONMENTAL MANAGEMENT COUNCIL

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Resolution 2016-02: RECOMMENDING THAT THE TOMPKINS COUNTY LEGISLATURE URGE THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TO REQUIRE CARGILL INC. AND ITS SUBSIDIARY CARGILL DEICING TECHNOLOGY INC. (CARGILL) TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE PROPOSED CONSTRUCTION OF MINE SHAFT #4

Whereas, Cargill has operated a rock salt mine in the Town of Lansing since 1970, and,

Whereas, Cargill is a major employer in Tompkins County providing jobs for approximately 200 local residents, and,

Whereas, Cargill provides a valuable commodity to local and regional municipalities, and,

Whereas, Cargill has proposed to construct a new mine shaft near Ridge Road between Sweazey and Ross Roads that would provide the following benefits: an access and evacuation route closer to the active mine area, reduced underground travel time for mine workers, improved ventilation capacity, and lower costs for electricity, and,

Whereas, Cargill's mine is largely located under Cayuga Lake and presently consists of 13,567+/- permitted acres and 9,410+/- acres of underground affected acres, and,

Whereas, the environmental review process was conducted solely between the applicant, Cargill, and NYSDEC staff without an

opportunity for independent, qualified experts to participate in the discussion and submit relevant technical information, and,

Whereas, on June 30, 2016, NYSDEC issued a Negative Declaration: a determination that the proposed project would have no significant adverse environmental impacts, and,

Whereas, the Environmental Management Council (EMC) discovered very late in the process that there was a 30-day public comment opportunity, and,

Whereas, due to lack of local access, EMC members reviewed the application's materials in NYSDEC's sub-regional office in Cortland, and,

Whereas, the EMC identified at least four areas of environmental concern:

a) bottom-up reaming of an 18-foot diameter shaft could release an uncontrollable amount of groundwater into the mine if contact is made with an aquifer fracture, possibly resulting in mine flooding and collapse with the consequent salinization of Cayuga Lake,

b) Cargill admits that the plan to store an as yet undetermined amount of unsaturated groundwater flow from the construction and operation of the shaft into the mine—rather than pumping it to the surface—could raise year-round rates of pillar squeeze¹, room closure², and salt creep³; Cargill's consultant, Spectra Environmental Group, did not reply adequately to NYSDEC's query as to how this increase in humidity would affect global mine stability, and,

¹ Refers to the tendency of pillars in salt mines to grow shorter over time as pressures from above and below cause the pillar to deform in a lateral direction (Warren, John K., 2006. *Evaporities: a Geological Compendium*. Second Editions; Springer, Cham, Switzerland).

² Refers to the tendency for the ceilings and floors of mining passageways or rooms to move closer to each other at measureable rates. (Warren, John K., 2006. *Evaporities: a Geological Compendium*. Second Editions; Springer, Cham, Switzerland).

³ Informal term that refers to the visco-elastic-plastic behavior of salt, the tendency of underground salt strata to deform and move in the direction of least pressure over time. (Warren, John K., 2006. *Evaporities: a Geological Compendium*. Second Editions; Springer, Cham, Switzerland).

c) a plan to convey methane—produced where Shaft 4 would intersect with gas-producing formations—throughout the mine to dissipate its concentration, or alternatively to install a gas bleeder system to vent natural gas directly to the atmosphere, in either case constituting an adverse environmental impact not considered in the “Neg Dec” and requiring a greenhouse gas emissions calculation and mitigation plan, and,

d) RESPEC Consulting and Services’ 2013 Corehole 18 stratigraphy report, commissioned by Cargill, and only recently released to the public by NYSDEC, indicates that as little as 150 meters of bedrock separates the Bottom of Lake from Top of Salt at the deepest part of the lake at Milliken Station, a distance of separation that in the opinion of evaporite geologist Dr. John K. Warren⁴ is less than half the amount required for Cargill to be able to safely mine under this northern extent of their presently permitted mining reserves, and,

Whereas, such potentially significant environmental issues require further investigation and study, an EIS should be prepared by an independent third-party consultant, and,

Whereas, it is the designated purpose of the EMC to advocate for the environmental protection and conservation of Tompkins County’s natural resources, and,

Whereas, Dr. Warren, who has 30 years of experience with salt mine studies, both academic and applied, authored four advanced-level textbooks on the topic of salt and numerous papers printed in peer-reviewed journals, and who is well respected by local geologists for his work in this particular geological setting, has produced a 30-page scientific paper addressing issues of concern with the proposed project, and,

⁴ Dr. Warren Resume Attached.

Whereas, the values of water quality in and lake-front properties upon Cayuga Lake provide natural resources and tax benefits that greatly exceed the life-time value of the salt product coming from the Cayuga mine, and,

Whereas, the long-term stability of the mine will remain of critical importance long after its decommissioning by Cargill or a successor company. **Therefore, Be It**

Resolved that the EMC urges the Tompkins County Legislature to support the interests of residents and valuable natural resources in the vicinity of Cayuga Lake by requesting that the NYSDEC rescind its “Neg Dec” and require the applicant, Cargill, to prepare an EIS.

Date: October 13, 2016

Voting in the Affirmative 13

Opposed 0

Abstentions 0

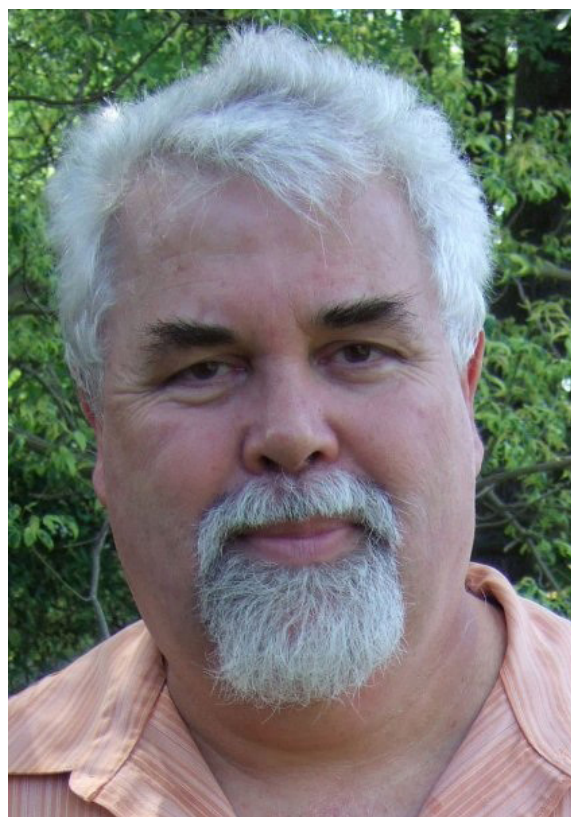
JOHN K. WARREN

John Warren holds a doctorate from Flinders University of South Australia and is a graduate of the University of Adelaide. He is currently a Director of SaltWork Consultants Pte Ltd, Adelaide and holds a part-time professorship in the Graduate School of Petroleum Geoscience at Chulalongkorn University, Thailand. Prior to this he held the Shell Chair in Carbonate Studies at Sultan Qaboos University, Oman. Before that he was a contract Professor at Universiti Brunei Darussalam. In a former life as a full-time bureaucrat he was Professor of Petroleum Geology and Director of the Key Centre in Resource Exploration in the School of Applied Geology at Curtin University in Perth, Western Australia. In the 1980s and early 90s he was a faculty member of the University of Texas in Austin and the National Centre of Petroleum Geology and Geophysics in Adelaide.

Dr Warren's research centers on rock matrix characterization in evaporite-related hydrocarbon reservoirs and ore deposits, including the reliable scaling of wireline and rock-property data into reservoir and ore deposit models. He specializes in applied aspects of carbonate-evaporite studies and is the author/compiler of the SaltWork GIS database. He has written numerous papers and a number of books on various aspects of applied sedimentology and consulted widely in the minerals and petroleum industries.

He has worked as a consultant on rock characterization problems in metal and hydrocarbon exploration programs conducted by Asia-Pacific Potash, MMG, Exxon International, BHP Billiton Resources, BHP Billiton Petroleum, Homestake, Pasminco, Shell International, Chevron International, Statoil, PTTEP, ADNOC, Saudi Aramco, Nexen, NIOC and others. He has also served as a technical expert in evaporites for the AAPG, BBC, IHRDC, and New World Horizons. Dr Warren has served on World Bank Panel of Experts and also serves on the Editorial Board of the Journal of Petroleum Geology.

He is the author of the Salty Matters blog, accessible at www.saltworkconsultants.com. His next book on evaporites will be published by Springer in November 2015.



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