

From: johnvdennis@gmail.com

To: "Vigneault, Thomas M (DEC)" <thomas.vigneault@dec.ny.gov>

1254pm 13 February 2024

Dear Tom,

Thanks for your call on Jan 12 as well as your e-mail below. I hope you will share this e-mail other members of the technical team designing Cargill's new SPDES permit for their road salt processing campus in Lansing, NY.

Below are 11 paragraphs which I hope you will find more-or-less pertinent to designing a truly lake- and lake tributary-protective SPDES permit:

- 1) Cargill wants out of the room and pillar salt mining business and possibly from their entire salt division. According to the 15 August 2023 issue of [The Deal](#), they have hired Deutsche Bank to find a willing buyer for Cayuga Salt Mine.
- 2) The present extraction ratio in the anomalous mining zone near Anomaly B in Cayuga Salt Mine is—by our calculation--about 43% compared to American Rock Salt's 60%. This mine is ungainly, underperforming, and no longer economically competitive. And, demand for road salt in NY State is expected to level off if not decline over the next decade.
- 3) The mine closure plan (see section 2.6) in the [Mined Land Use Plan of 2000](#) makes no mention of whether or not the mine would be flooded at decommissioning. Until an up-to-date mine closure plan is created which specifies whether a dry closure or wet closure is planned, it makes no sense to allow the outcome to be predetermined by allowing flooding in any portion of the 6-level mine.
- 4) According to text on p. 3 of [Cargill's 2012 Annual Report to DEC](#), Shaft No. 1 leakage waters were entering the mine at a rate of 16 gpm and Electrolysis (ED) plant concentrate discharged to the mine was reported to be 7 gpm. Also on this page was a sentence indicating that Cargill planned to begin pumping Shaft No. 1 leakage waters to the ED Plant as soon as installation of the necessary piping was completed. "Once the piping installation is completed, the system is expected to reduce inflow by an additional 6 gpm ( $\approx 3,000,000$  gpm)[sic]". Assuming the entire 16 gpm were pumped to the ED plant, it appears the ED plant would concentrate each 16 gallons down to 10 gallons. This seems a modest reduction compared to a reverse osmosis system.
- 5) In any case, on p. 3 of [Cargill's 2022 Annual Report to DEC](#), Shaft No. 1 inflow into the mine is put at 29 gpm and "ED Plant Concentrate discharge" at "Less than 1 gpm."
- 6) We are left to surmise that:
  - a. Shaft No. 1 leakage has increased by about 81% over the past ten years,
  - b. Cargill abandoned their practice of pumping Shaft No. 1 leakage waters to the ED plant (or never implemented it?)
  - c. The ED plant was operating in 2022 at a fraction of its 2012 usage rate. (Might this be to cut costs to burnish the bottom line prior to a sale on the mine?)
- 7) Prior to an Environmental Impact Statement and new mine closure plan determining whether dry mine closure is preferred over wet closure, Cargill should be required to follow lake- and mine-friendly practices:

- a. pump all shaft leakage waters to the surface
  - b. not be permitted to discharge ED plant concentrate or stormwater runoff into the mine
  - c. not be permitted to discharge stormwater runoff or other fluids into the lake that are above a chloride concentration of 250 mg/L, i.e., the SPDES permit limit in effect in 1980 and the EPA's drinking water standard.
- 8) Given that Cargill has state of the art brine evaporation technology at Watkins Glen and subject to the findings of an EIS, it may be advisable for Cargill to pump all brine stored on their 4-level mine to the surface where it can be treated and made into commercially attractive products including brine for highway application in winter.
  - 9) Sodium, chloride, pH, and temperature and electrical conductivity should all be measured in real time using data-logging sondes and made publicly available in real time at DEC's and Cargill's websites for all of the SPDES outfalls on the Cargill campus. Additional real-time available-to-the public monitoring of these water quality parameters should required for the two waterways to the north and south of Cargill's Lansing campus, Minnegar Brook and Gulf Creek. Despite Cargill's hiring Ramboll Group to generate hundreds of pages of new Best Management Practices for their Lansing campus, electrical conductivity measured at the mouth of Minnegar Brook remain at about 1500 uS/cm, i.e., about the same as EC levels at the bottom of the Belhurst Castle Hole in Seneca Lake.
  - 10) All ingredients added to Cargill road salt products at Portland Point should regulated in the new SPDES permit including any proprietary chemicals such as the Trans-2851, for which no Safety Data Sheet (SDS) appears to be available. In our opinion, sale of Cargill's "enhanced" road salt product, ClearLane, should be halted until such time as Cargill is willing and able to produce an SDS for this compound and until this compound is regulated by Cargill's SPDES permit.
  - 11) Cargill should not be allowed to add new ingredients to their products without the SPDES permit first being amended so that the new ingredients will be measured as soon the new ingredient begins to be mixed into the product on site.

You mentioned in our call that you hadn't been able to find any 1980 Cargill SPDES permit that used an effluent level of 250 mg chloride/L for Cargill's Outfall 001. I too am not finding it in our SPDES folder or in our DropBox when I search on NY0101290.

However, at the SPDES Permit section in our website is a [Figure 1](#) that we made several years ago comparing the 1980 SPDES permit with the 2004 SPDES permit. (The permits may have been in force in those years rather than issued in those years.)

Also in this section of our library is a [February 27, 1980, DEC memo to Cargill](#) followed by a March 20, 1980, report in the same 7-page document. You can see at the top of page 4 that the Cargill's SPDES permit at that time consisted of two outfalls with both having limits for chloride at 250 mg/L max, for TDS at 1000 mg/L max and for Cyanide at 0.4 mg/L average & max.

Note also that [measured chloride levels sampled over the August 1977 to January 1980 period](#) ranged from 1,950 to 84,253 (this latter figure being >4X the salinity of seawater). We have

calculated the average for the 18 chloride numbers over the 30-month period to be 22,565 mg Cl/L.

$22,565/250 = 90.26$  In other words, Cargill's effluent at Outfall 001 was averaging 90 times the SPDES limit for chloride at that time. This was an egregious, almost two orders of magnitude exceedance of the permitted limit.

Note the three-page letter from DEC's Leland C. Flocke to Cargill that specifies that Cargill should hire a consultant who will work out a plan for reducing the concentration of chloride effluents released into Cayuga Lake. There is a threat of fines of up to \$10,000 per day for failure to implement improvements.

What then actually happened? They may very well exist, but we've never seen any records indicating that DEC ever fined Cargill for SPDES permit exceedances in the 1970s and early 1980s. Instead, it seems DEC subsequently issued a permit that limited the concentration of chloride at Outfall 001 to 40,000 mg/L, i.e., >twice a salinity of seawater and an 160-fold increase over the original permit level for this outfall. But there was no limitation on the actual amount of salinized water Cargill could put into the lake. This sadly remains the case today.

Unlike the SPDES permits for the two solution mining operations in Watkins Glen which each set chloride loading of the lake per day to a total amount, no SPDES permit for Cargill in Lansing has ever limited the actual amount of chloride that can be added to the lake, only the concentration. And the variety of limits set for different outfalls never reflected a careful science-based approach to chloride loading of Cayuga Lake. The current outfalls are located 2-2.3 miles north of the Bolton Point water intake that supplies water to about 30,000 people. And while there is thought to be a mild Coriolis effect carrying water up the east shore on windless days, Prof. Todd Cowen, an engineer at Cornell University, believes that water circulates in the lake in a series counter-clockwise loops which each being are about as high (south-to-north) as the lake is wide. If I have understood this model correctly, it would be possible for water enriched by Cargill SPDES outfalls to circulate back to the vicinity of the Bolton Point intake.

As you may recall from our 13 October 2023 WEBEX call, Attorney Edan Rotenberg of Super Law Group mentioned he thought it would be helpful if DEC specified the use of reverse osmosis technology in the Cargill's new SPDES permit. But I recall your saying that DEC leaves it to the permittee to utilize whatever technology they deem appropriate to comply with a SPDES permit.

I'm sure that Cargill could afford this technology, but there would still be the question of what to do with the backwash concentrate.

I look forward to being in touch.

Best regards, John

John V Dennis, PhD

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----- Forwarded message -----

From: **Vigneault, Thomas M (DEC)** <thomas.vigneault@dec.ny.gov>  
Date: Fri, Jan 12, 2024 at 4:34 PM  
Subject: RE: Cayuga Salt Mine  
To: John Dennis <johnvdennis@gmail.com>  
Cc: Glance, Dereth B (DEC) <Dereth.Glance@dec.ny.gov>, Moss, Monica B (DEC)  
<monica.moss@dec.ny.gov>, Hampston, Edward (DEC) <edward.hampston@dec.ny.gov>,  
McElroy, Kerry M (DEC) <Kerry.McElroy@dec.ny.gov>, Russo, Matthew J (DEC)  
<Matthew.Russo@dec.ny.gov>, Stercho, Jonathan J (DEC) <jonathan.stercho@dec.ny.gov>,  
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Hi John,

Thanks for your time on the phone today. As discussed, here's DEC's response to your questions:

**1) Is the CSM permit currently undergoing a technical review?**

As discussed in our previous meeting, DEC is currently performing a full technical review of Cargill's State Pollutant Discharge Elimination System (SPDES) permit. DEC subjects every application to a rigorous review of all applicable federal and state standards to ensure the agency's decisions are protective of public health and the environment. Protecting drinking water and water quality in Cayuga Lake are top priorities for New York State and DEC.

**2) And, if so, when might a new draft permit become available for public comment?**

DEC's review of the permit is ongoing. As part of the [process for all SPDES permits](#), an opportunity for public comment will be published in the [Environmental Notice Bulletin](#) and the draft permit will be posted for review on [DECinfo Locator](#).

**3) Will the new permit add outfalls for:**

**a) the weigh station area that drains to Minnegar Brook and** - Yes, the proposed permit includes outfalls for the weigh scale area.

**b) the ditch that has carried brine that is often more saline than seawater across Cargill property and into Gulf Creek at the railroad crossing?**

**(Even with pump-and-treat left in place near the top of the nearby hill, it could be many years before the brine-impacted landscape down-gradient from the pump-and-treat installation loses its ability to contaminate stormwater.)**

DEC is in discussions with Cargill regarding the company's stormwater systems and continued investigation of hillside flow sources.

**4) Would it be helpful to the present process if CLEAN were to submit a letter to DEC laying out our understanding that DEC needs to conduct both a water quality-based**

**analysis and a technology-based analysis of the limits it can set in the permit and then according to the Clean Water Act choose the more stringent of the two?**

DEC's process for developing SPDES permits involves a review of both water quality-based effluent limitations and technology-based effluent limitations. DEC encourages public feedback on draft permits and considers all input submitted during the comment period.

Have a great weekend.

Tom

**Thomas Vigneault, P.E.**

Regional Engineer

Region 7, Division of Water

**New York State Department of Environmental Conservation**

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**From:** John Dennis <[johnvdennis@gmail.com](mailto:johnvdennis@gmail.com)>

**Sent:** Thursday, December 28, 2023 9:56 AM

**To:** Vigneault, Thomas M (DEC) <[thomas.vigneault@dec.ny.gov](mailto:thomas.vigneault@dec.ny.gov)>

**Subject:** Re: Cayuga Salt Mine

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Hi Tom,

Thanks for your helpful reply. I look forward to being in further touch in January.

Holidays are going well; I hope yours are as well.

Best regards, John

On Wed, Dec 27, 2023 at 4:53 PM Vigneault, Thomas M (DEC)  
<[thomas.vigneault@dec.ny.gov](mailto:thomas.vigneault@dec.ny.gov)> wrote:

Hi John,

I'm out of the office until 1/3, but we have a technical review meeting on the Cargill SPDES Permit for January 12<sup>th</sup> where I can raise these questions to the DEC team and finalize a complete response to your questions. We are still working on the technical review for the Cargill SPDES Permit.

Hope your holidays are going well and Happy New Year.

Tom

**Thomas Vigneault, P.E.**

Regional Engineer

Region 7, Division of Water

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**From:** John Dennis <[johnvdennis@gmail.com](mailto:johnvdennis@gmail.com)>  
**Sent:** Wednesday, December 27, 2023 9:23 AM  
**To:** Vigneault, Thomas M (DEC) <[thomas.vigneault@dec.ny.gov](mailto:thomas.vigneault@dec.ny.gov)>  
**Subject:** Cayuga Salt Mine

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Dear Mr. Vigneault,

Thank you for being on the call earlier this year with Edan Rotenberg, Annie Beaman and me to discuss the SPDES permit for the Portland Point campus of Cayuga Salt Mine (CSM).

I'd be grateful if you could reply to a few questions:

1) Is the CSM permit currently undergoing a technical review?

2) And, if so, when might a new draft permit become available for public comment?

3) Will the new permit add outfalls for:

a) the weigh station area that drains to Minnegar Brook and

b) the ditch that has carried brine that is often more saline than seawater across Cargill property and into Gulf Creek at the railroad crossing?

(Even with pump-and-treat left in place near the top of the nearby hill, it could be many years before the brine-impacted landscape down-gradient from the pump-and-treat installation loses its ability to contaminate stormwater.)

4) Would it be helpful to the present process if CLEAN were to submit a letter to DEC laying out our understanding that DEC needs to conduct both a water quality-based analysis and a technology-based analysis of the limits it can set in the permit and then according to the Clean Water Act choose the more stringent of the two?

Best regards,

John

John V Dennis, PhD

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