

DAUB & ASSOCIATES, INC.



1985 ½ SOUTH BROADWAY
GRAND JUNCTION, CO 81507-9649
(970) 254-1224
FAX (970) 242-8438
email: gjdaub@daubandassociates.com
www.daubandassociates.com

January 28, 2021

Division of Reclamation, Mining and Safety
Attn: Minerals Division, Amy Yeldell
1313 Sherman Street, Room 215
Denver, CO 80203

Electronically Received by DRMS
January 28, 2021

**Re: Natural Soda LLC Nahcolite Project File No. M-1983-194, Technical Revision (TR-45)
Adequacy Review Response**

Dear Ms. Yeldell,

The following are the responses to the questions in the DRMS Adequacy Review of the BG-11 (TR-45) dated January 26, 2021.

- Addition of BG-11 to replace B-Groove wells BG-5 and BG-9
 - DRMS Comments: What is the estimated rate of transport for the elevated constituents seen in BG-5 and BG-9? Similarly what is the anticipated time frame to see a potential plume effect in the proposed BG-11 well?
 - NS Response: The estimated rate of transport for the elevated constituents seen in BG-5 and BG-9 will be on the order of feet per year. Historical data shows a groundwater velocity in the aquifers below the R-7 Zone (B-Groove and Dissolution Surface) to be 3-4 feet/year. However, we do not believe there is a "plume" as all data indicates the higher TDS fluid is isolated in and/or in the immediate area of the wellbore.
 - NS Response: Using historical data (3-4 feet/year groundwater velocity), the anticipated time frame to see a potential plume effect, if present, in the proposed BG-11 well would be approximately 200 to 300 years. It is hereby noted that elevated groundwater chemistry from samples collected from sample points associated with the B-Groove (BG) Aquifer are believed to result from vertical flow inside the casing or drilled wellbore of the affected wells, and as such there may be no plume or only a very minimal higher TDS fluid associated with these wells.

This statement is supported by the stagnant hydraulic well bore conditions seen in the recent video logs performed in both wells. The only visible flow in the BG-5 is at the very bottom of the well, and the presence of haloclines indicates stagnation. In the BG-9 video log, very minimal flow is seen moving through a only one of the 16 perforations, and this may be due to the disruption in hydraulic head caused by the movement of the video camera tool, and minimal flow is observed at well TD. No flow is observed in the vicinity of the casing partings in the BG-9.

During November 2020 recompletion efforts multiple, wellbore fluid volumes were evacuated from the BG-9, additionally, multiple wellbore fluid volumes will be pumped out of the BG-5 and BG-9 prior to the upcoming plug and abandonment (P&A) operations.

- DRMS Comments: Natural Soda LLC needs to make a commitment to conduct monthly groundwater samples and provide those results to the Division for all groundwater monitoring wells that have issues or those wells that have been recompleted to a different zone than initially drilled which have a potential for communication issues.
 - NS Response: NS hereby commits to collecting monthly groundwater samples from the BG-11 for a period of 6 months, then quarterly. Monthly sampling will be conducted on all groundwater monitoring wells that have issues or those wells that have been recompleted to a different zone than initially drilled which have a potential for communication issues (AG-1, BG-1, BG-4, and BG-6) if they exhibit any significant departures. Currently the BG-4 and BG-6 are sampled monthly, BG-1 quarterly, and AG-1 annually. The laboratory analyses of those samples are included in the NS monthly reports supplied to the BLM.
- DRMS Comments: Once a revision fee is received by the Division a decision date will be set.
 - NS Response: A replacement check for the original check sent to DRMS on 1/15/2021 (which was lost by the Denver DRMS office) for the TR-45 technical revision fee was sent to the DRMS (overnight FedEx) on January 26, 2021 and delivered to the DRMS Denver office on the morning of the 27th.

Should you have any questions or comments, please contact me at (970) 254-1224 or (970) 216-1010 (c), or Kirk Daehling at (970) 456-1268.

Regards,



Gerald J. Daub, PG, CPG
President
Daub & Associates, Inc.

Cc: Kirk Daehling
President
Natural Soda LLC

Kent Walters
Bureau of Land Management (WRFO)

Amy Yeldell (via email)
Colorado Division of Reclamation, Mining and Safety

File