UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Fact Sheet and Statement of Basis

Minor Modification of Class III Solution Mining Underground Injection Control (UIC) Permit – UTU-27AP-9232389 Issued to NGL Supply Terminal Solution Mining, LLC dba Sawtooth NGL Caverns, LLC (Sawtooth) October 2016

I. Purpose of the Fact Sheet

Pursuant to section §124.8 of the Underground Injection Control (UIC) regulations in Title 40 of the Code of Federal Regulations (CFR) which is incorporated by reference in the Utah UIC Administrative Rules (R317-7), the purpose of this fact sheet is to briefly describe the principal facts and considerations that went into preparing the modifications of this permit by the Division of Water Quality (DWQ), the UIC permitting authority. To meet these objectives, this fact sheet contains a description of the permitted facility, a description of the injectate, information on the permitting process, , a statement of basis for setting permit conditions, and the reasons for specific permit modifications.

II. Brief Description of the Facility

Sawtooth operates a facility in which natural gas liquids (NGL); such as propane, butane, and isobutane; are stored in solution-mined, underground caverns which are created in a tectonically thickened salt body located approximately 9 miles north of Delta, Utah in Millard County. Upon reaching the permitted volume, each cavern will have an open volume of approximately 2.1 million barrels corresponding to an NGL storage capacity of 2 million barrels.

III. Description of Injectate

The storage caverns are created by solution mining with fresh water in a tectonically thickened salt. Product is brought to the surface by displacement with unsaturated to saturated brine stored in surface evaporation ponds.

Location:

Northeastern Millard County (see map below)

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Location of Sawtooth NGL Caverns in Millard County, Utah

IV. Information on the Permitting Process

The permit became effective on February 17, 2015 upon its transfer from Magnum NGLs Solution Mining, LLC to NGL Supply Terminal Solution Mining, LLC which is doing business in Utah as Sawtooth NGL Caverns, LLC. After the ownership transfer and after reviewing the conditions of the permit, Sawtooth requested several revisions to those conditions. The requested revisions pertained to cavern construction requirements which had been previously approved by the DWQ. In preparing this modification of the permit to incorporate those revisions, DWQ has imposed several additional requirements of its own including more stringent injection zone monitoring during the drilling of the pilot borehole for each cavern; operational control of the facility by adding set back requirements from the area permit boundary which is shared with an adjacent operator; and typographical corrections that were not addressed at the time of the original permit transfer.

Referring to 40 CFR 144.41 which is incorporated by reference in R317-7 and included in the permit at Part II (D) (6) (c), DWQ has determined that these modifications are minor and therefore not subject to the procedures for decision-making under 40 CFR 124. Furthermore, 40 CFR 124.5 (c) (2), also incorporated by reference in R317-7, states that for permit modifications only those conditions being modified shall be reopened when preparing a new draft permit. Finally, preparation of this fact sheet is also not required for minor modifications of a permit, however, DWQ is doing so for the sake of transparency in its permitting process.

V. Statement of Basis for Establishing Permit Conditions

The original basis for issuing the UIC Class III Solution Mining area permit was, and still is, to ensure compliance with the Utah UIC administrative rules for Class III injection well activities, R317-7, and with underground hydrocarbon storage industry standards for the construction of wells and caverns as detailed in the following documents, where applicable:

- Common Practices – Gas Cavern Site Characterization, Design, Construction, Maintenance, and Operation, SMRI Research Report RR2012-03
- Recommended Practice for the Design of Solution-Mined Underground Storage Facilities – API Recommended Practice 1114, API, July 2013
- Recommended Practice on the Operation of Solution-Mined Underground Storage Facilities – API Recommended Practice 1115 (R2012), API, October 2012
- Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage – API Recommended Practice 1170, API, July 2015
- Canadian Standard Association, CWA Z341 Series 14 – Storage of hydrocarbons in underground formations, April 2014

Since Utah does not have specific statutes and regulations for the construction and operation of underground hydrocarbon storage caverns, we have combined the authorities under the UIC Program in DWQ and those available in the Division of Oil, Gas and Mining (DOGM) to cover the oversight of these facilities. DWQ and DOGM share regulatory oversight of the construction of the cavern well. DWQ assumes primary oversight during the solution mining of the caverns. At the end of a solution mining phase, DOGM assumes primary authority under a special board order during storage of product. This cycle continues until the cavern has reached its permitted volume under the UIC permit at which time each cavern well system will be released from the Class III UIC permit and regulatory oversight transferred to DOGM for maintenance and operation of the storage facility.

VI. Reasons for Specific Modifications of the Permit

Following are the specific minor modifications made to the permit:

1. Addition of a requirement to assess the nature of any anomalous zones encountered or anticipated to be encountered in the drilling of any new cavern wells in Part III (D) (6).
2. Addition of specific requirements for maintaining minimum S:D ratios between caverns and minimum setbacks from property boundaries in Part III (D) (10) to maintain the mechanical integrity of the salt web between caverns developed by different operators with shared boundaries.
3. Striking of the requirement that each NGL cavern be completed to permitted capacity within 3 years after the commencement of cavern solution mining (Part III (D) (12) (a). Striking this requirement does not decrease the safety or protection to USDWs therefore it is considered allowable as a minor modification.
4. Striking of the reference to NG caverns in Part III (K) (b) as Sawtooth's infrastructure is not suitable for handling NG and their other permits are limited to NGLs. The original permit allowed for creation of caverns for both NG and NGL storage. In 2014 the permit was split so that the creation of caverns for each product type was covered under separate permits. The reference to NG caverns should have been deleted from the NGL cavern permit; hence, this is considered a typographical error and therefore a minor modification.
5. Adding an addendum to the Section 4 – Cavern Capacity Expansion Plan – of the Construction and Cavern Development Plan (Attachment D of the Permit) to provide more details regarding cavern enlargement by fresh water displacement of product.
6. Correcting the legal description of the permit area in Part I and in Attachment B of the permit as well as the accompanying map to reflect the change in the permit area at the time of the transfer of the permit from Magnum to Sawtooth in 2015.
7. Correcting the S:D ratio, the distance between the centers of two caverns to the average diameter of the two caverns, in Part III (D)(10) and (K)(1) from 2:1 to 3:1. The ratio 2:1 is the salt pillar thickness between two caverns to the average diameter of the two caverns (P:D). This ratio was incorrectly reported as the S:D ratio in earlier versions of the permit.