



October 2019

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; a wholly
owned subsidiary of Sawtooth Caverns, LLC (Sawtooth)*

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 minor 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.

Although, 40CFR 124.8 pertains to major modifications of a permit, we are preparing this fact sheet and statement of basis for this minor permit modification to support increased transparency in our permitting process.

II. Brief Description of the Facility

Sawtooth currently operates a facility in which various liquefied hydrocarbon products are stored in solution-mined, underground caverns which are created in a thickened salt body located approximately 9 miles north of Delta, Utah in Millard County.

Location:

Northeastern Millard County (see map below)

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*Location of Sawtooth
Caverns in Millard County,
Utah*

III. Description of Injectate

The storage caverns are created by solution mining the salt body with fresh water. Brine created by the solution mining process is stored in nearby surface solar evaporation ponds and later used in the operation of brine-compensated caverns to bring liquefied product to the surface.

IV. Information on the Permitting Process

The original permit became effective on February 17, 2015 upon its transfer from Magnum NGLs Solution Mining, LLC to NGL Supply Terminal Solution Mining. After the ownership transfer and after reviewing the conditions of the permit, Sawtooth requested several revisions to those conditions in 2016. The requested revisions pertained to cavern construction requirements which had been previously approved by the DWQ. In preparing the 2016 modification of the permit to incorporate those revisions, DWQ also 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.

The 2017 modification of the permit transferred the 2016 setback requirements to the Utah School and Institutional Trust Lands Administration (SITLA) for regulatory oversight and imposed additional requirements and conditions for conducting geomechanical analyses of the caverns and cavern field.

The May 2019 modification of the permit removed references to specific products to be stored after the caverns are created thus allowing the creation of caverns for storing products other than NGLs; aligned permit conditions with those of Magnum Solution Mining, LLC's (Magnum) Class III permit to facilitate the newly created partnership between Magnum and Sawtooth; and further clarified coordination and jurisdiction between DWQ and the Utah Division of Oil, Gas and Mining (DOGGM) during the construction, development and operation of the well/cavern systems.

This October 2019 minor modification of the permit explicitly clarifies the circumstances under which DWQ and DOGM share regulatory authority of each well/cavern system and when each agency has sole regulatory authority. Specifically, it makes clear that should Sawtooth wish to use fresh water to displace product, resulting in solution mining occurring during operations, the DWQ retains regulatory authority concurrently with DOGM's regulatory authority.

The DWQ determined that this October 2019 modification represents a minor modification under 40 CFR 144.41 which is incorporated by reference in R317-7 and included in the Permit Part II (D) (6) (c) because it clarifies that more monitoring and reporting, namely to both DWQ and DOGM concurrently, will be required during freshwater displacement activities. The DWQ determined that this October 2019 modification did not represent a major modification under 40 CFR 144.39 which is incorporated by reference in R317-7 and included in the permit at Part II (D) (6) (a), because it merely clarifies the concurrent regulatory oversight, and does not represent any material or substantial alteration or addition to the last modification of the permit.

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.

Additionally, the underground hydrocarbon storage industry has standards for the construction, development and monitoring of wells and caverns which were used to inform the development of the permit conditions where they apply to the storage of hydrocarbons in brine-compensated caverns and pressurized gas caverns particularly in regards to cavern integrity and stability.

The following references were used:

- Common Practices – Gas Cavern Site Characterization, Design, Construction, Maintenance, and Operation, SMRI Research Report RR2012-03
- Design and Operation of Solution-Mined Salt Caverns Used for Liquid Hydrocarbon Storage – API Recommended Practice 1115 (2nd Edition), API, November 2018
- 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

Because Utah does not have specific statutes and regulations for the construction and operation of underground storage caverns, in general, and for hydrocarbon storage caverns, specifically, we have combined the authorities under the Utah UIC Program in DWQ and those available in DOGM to cover the oversight of these facilities.

VI. Reasons for Specific Modifications of the Permit

These October 2019 revisions aim to remove misunderstanding regarding the coordination between DOGM and DWQ regarding regulatory oversight authority of each well/cavern systems which still remained after the May 2019 modification of the permit.

Following are the specific modifications made to the permit relative to the May 2019 permit:

1. Part I

- removed the term 'tectonically thickened' in describing the salt body as this raised some concerns about the interpretation of the geologic data in describing the origin of the thickening of the salt, a topic which is not relevant to this permit,
- added a statement explicitly describing the circumstances under which DWQ and DOGM will share regulatory oversight, and
- added a statement explaining that freshwater injection to prevent salt precipitation in the tubing strings and to reclaim cavern capacity lost due to salt creep are considered maintenance activities during product storage and, as such, are subject only to the regulatory authority of DOGM.

- ##### **2. Part III – throughout Part III, replaced references to product-specific Construction and Cavern Development Plans (CCDP) and Monitoring, Recording, and Reporting Plans (MRRP) with references to the following cavern categories: liquid hydrocarbon storage with brine displacement, liquid hydrocarbon storage with overlying vapor space, or gas storage,**

3. Part III (D) (1) and (E)(1) – updated standards references,
4. Part III (G) (1) – revised introductory paragraph describing requirements for requesting and obtaining a release of an individual well/cavern system from the UIC Class III permit for sole regulatory oversight by DOGM / DOGM,
5. Part III (D) (2) - revised introductory paragraph describing requirements for requesting and obtaining re-admittance of an individual well/cavern system back into the UIC Class III permit,
6. Part III (D) (3) - revised paragraph describing the circumstances in which DWQ and DOGM/BOGM will have concurrent regulatory authority of each well/cavern system, and
7. Part III (K) (1) (d)– removed a condition that would require a geomechanical analysis.

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