

## STATEMENT OF BASIS

### GROUND WATER DISCHARGE PERMIT UGW390005

Pitman Farms  
Moroni Wastewater Treatment Plant  
PO Box 308  
Moroni, Utah 84646

June 2021

#### Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules<sup>1</sup>(Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water<sup>2</sup>. As defined by the Ground Water Rules, such facilities include pits, ponds, and lagoons.<sup>3</sup> The Ground Water Rules are based on an anti-degradation strategy for ground water protection as opposed to non-degradation; therefore, discharge of contaminants to ground water may be allowed provided that current and future beneficial uses of the ground water are not impaired and the other requirements of Rule 317-6-6.4.A are met.<sup>4</sup> Following this strategy, ground water is divided into classes based on its quality<sup>5</sup>; and higher-quality ground water is given greater protection<sup>6</sup> due to the greater potential for beneficial uses. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the mined materials, facility operations, maintenance, best available technology<sup>7</sup> (BAT) and the hydrogeologic and climatic conditions of the site, to ensure that the operation would not contaminate ground water.

#### Basis for Permit Issuance

Under Rule 317-6-6.4A, DWQ may issue a ground water discharge permit if:

- 1) The applicant demonstrates that the applicable class TDS limits, ground water quality standards protection levels and permit limits established under R317-6-6.4E will be met;
- 2) The monitoring plan, sampling and reporting requirements are adequate to determine compliance with applicable requirements;
- 3) The applicant is using best available technology to minimize the discharge of any pollutant; and
- 4) There is no impairment of present and future beneficial uses of ground water.

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1 Utah Admin. Code Rule 317-6

2 [https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP\\_PermitInfo.pdf](https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP_PermitInfo.pdf)

3 Utah Admin Code Rule 317-6-6.1A

4 Preamble to the Ground Water Quality Protection Regulations of the State of Utah, sec. 2.1, August, 1989

5 Utah Admin. Code Rule 317-6-3

6 Utah Admin. Code Rule 317-6-4

7 Utah Admin. Code Rule 317-6-1(1.3)

## **Description of Facility and Background Information**

Ground Water Discharge Permit UGW39005 was originally issued in June 2016. This is the first renewal of the permit. A 15 million-gallon anaerobic lagoon was constructed and put into use during 2016 to service a turkey processing plant. The lagoon is located adjacent to the Moroni Wastewater Treatment Plant (WWTP) located in Moroni City, Sanpete County, Utah. The turkey processing plant also operates the WWTP. The WWTP currently receives industrial wastewater from the turkey processing plant and sanitary wastewater from the City of Moroni. The lagoon was constructed to partially treat and equalize wastewater flows from the processing plant, thereby reducing the loading and allow for constant flow into the WWTP.

The turkey processing plant was originally owned and operated by Norbest Inc. Pitman Farms took ownership of the turkey processing plant, responsibility for the operation of the WWTP, and responsibility for the permit on January 2018.

Exceedances of the Ground Water Protection Levels for nitrate/nitrite have been observed at downgradient well MW-3. The source of these exceedances is unknown; however, the reported concentrations have been below the Utah Ground Water Quality Standards and continue to be tracked during the required semi-annual monitoring events to determine if further action is warranted.

## **Basis for Specific Permit Conditions**

Hydrogeology – Sanpete Valley is located in the Basin and Range-Colorado Plateau transition zone physiographic province. Geologic units exposed in the Sanpete Valley range from Jurassic to Quaternary in age. Unconsolidated valley-fill deposits are at least 500 feet thick in Sanpete Valley along the western margin. Sediments are generally coarser grained in alluvial fans along the mountain fronts and finer grained in the central portions of the valley. The valley fill sediments and aquifers are a recharge zone sourced from precipitation in adjacent mountain ranges, and become a discharge zone to lower elevation valley rivers and streams. Site stratigraphy is comprised of an alluvial silty loam soil with a depth of up to 50 feet. Stratified gravel, sand, silt, and clay layers occur to depths of 400 feet and beyond. The clay layers may serve to separate aquifers down to 400 feet.

The primary discharge area follows the lowlands along Silver Creek. Sanpete Valley is a rural area where most residential development and agricultural activities occur on the unconsolidated valley-fill deposits. The valley-fill aquifer is the principal drinking water aquifer for residents of Sanpete Valley.

Ground Water Classification – The results of the ongoing compliance monitoring program indicate that ground water under the lagoon is Class II Drinking Water Quality Ground Water. Class II Drinking Water Quality Ground Water has the following characteristics: 1) total dissolved solids greater than 500 mg/L and less than 3,000 mg/L; and 2) No contaminants that exceed Utah ground water quality standards.

## **Compliance Monitoring Program**

### Water Quality Monitoring

Process water compliance monitoring is required on an annual basis. Ground water quality compliance monitoring is required on a semi-annual basis. Three monitoring wells (MW-1 upgradient, MW-2 downgradient, and MW-3 downgradient) are sampled as part of the ground water quality compliance monitoring program.

The following key parameters were selected for compliance ground water monitoring based on their concentrations in the process water compared to concentrations in shallow ground water:

- Total Dissolved Solids (TDS)
- Bicarbonate
- Chloride
- Nitrate + Nitrite
- Sulfate
- Ammonia

The ground water quality sample results are compared to the Ground Water Protection Levels which were calculated in accordance with UAC R317-6-4.

#### Lagoon Inspection and Leak Detection Survey

The lagoon is inspected daily by the operator. An electrically-based geophysical method is periodically employed to determine if the synthetic liner of the anaerobic lagoon is free from defects or leakage.

#### **Best Available Technology Performance Monitoring**

The administration of this permit is founded on the use of Best Available Technology (BAT), in accordance with the requirements of UAC R317-6-1.3. Compliance with the requirements for use of BAT will be demonstrated by the operation and maintenance of the 15 million-gallon anaerobic lagoon as follows:

- Flexible Membrane Liner (FML) – the liner consists of 40 mil HDPE. The liner shall be maintained to ensure containment. Daily integrity inspections are conducted as required in the *Anaerobic Lagoon Operations Manual* enforceable as Appendix B of the permit.
- Minimum Vertical Freeboard – a minimum of 2 feet of vertical freeboard is maintained to ensure total containment.
- Spill Containment - all pipelines and pumping facilities are required to prevent any spills or leakage from contacting the ground surface or ground water.

#### **References**

Petition for Ground-Water Classification, Sanpete Valley, Sanpete County, Utah, Wallace, Janae, and Mike Lowe. 2005. Utah Geological Survey, Utah Department of Natural Resources. 557.92-UT1S NO.132.

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