

STATEMENT OF BASIS
GROUND WATER DISCHARGE PERMIT
UGW170004

Lost Creek Hogs LLC
2.6 miles South of Circleville
Garfield County, Utah

August 2021

Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules¹ (Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water². As defined by the Ground Water Rules, such facilities include mining operations.³ 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.⁴ Following this strategy, ground water is divided into classes based on its quality⁵; and higher-quality ground water is given greater protection⁶ due to the greater potential for beneficial uses. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the operations, maintenance, best available technology⁷ (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.

¹ Utah Admin. Code Rule 317-6

² 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)

Purpose

Ground Water Discharge Permit UGW170004 was originally issued in April 2018. This is the first renewal of the permit. Lost Creek Hogs LLC is located south of Circleville in Garfield County, Utah and currently operates one farm site comprised of 4 barns with 8,800 total hogs and a single, 3.7-million-gallon containment basin (Pond 1) which receives waste water from swine production operations. The containment basin is sized to hold accumulated discharge from barn operations temporarily. Manure is removed annually from the containment basin and is used for land application and fertilization of nearby agricultural acreage.

Lost Creek LLC has applied for a construction permit for the construction of 4 additional barns, each with the capacity to hold an additional 1,100 hogs, which will increase the total number of potential hogs at the farm to 13,200; and a new 3.7 million-gallon waste water containment basin (Pond 2), which will be located immediately north of Pond 1. Wastewater from all 12 barns will flow into Pond 1 and will gravity feed through a 12-inch pipe into Pond 2. This Ground Water Discharge Permit and Construction Permit will require continued ground water and process water compliance monitoring in accordance with the *Water Quality Sampling, Handling, and Analysis Plan*. The waste water will be land applied in accordance with the *Comprehensive Nutrient Management Plan* (CNMP).

Potential Impacts to Ground Water

The containment basins will be constructed with 60 mil High-Density Polyethylene HDPE Flexible Membrane Liner to minimize discharge to the subsurface. Ground water quality monitoring of the shallow aquifer downgradient of the basins will be conducted to determine if ground water quality has been impacted by basin discharges.

Basis for Specific Permit Conditions

Hydrogeology

The Lost Creek Hogs LLC facility is located in the Upper Sevier River Valley with the nearby Tushar Mountains approximately 3.5 miles to the west. Rocks in the area range in age from Triassic, Jurassic, Cretaceous, Tertiary and Quaternary. The valley fill material of Circle Valley consists of alluvial deposits of silt, clay, sand and gravel size materials. The thickness of valley fill deposits may be up to 680 feet in thickness in the vicinity of the farm site. Ground water in the Circle Valley occurs in mostly unconsolidated and semi-consolidated alluvial deposit and flows to the northwest generally in the direction of the Sevier River which is approximately 7500 feet to the northwest from the proposed site. Based on the results of groundwater monitoring activities, ground water is approximately 45 to 65 feet below the ground surface in the area of the waste water containment basins.

Ground Water Quality

The results of the ongoing compliance ground water monitoring program indicate that the site is situated over Class IA Pristine Ground Water. Class I Pristine Ground Water has the following characteristics: 1) total dissolved solids concentrations less than 500 mg/L; and 2) No contaminants that exceed Utah ground water quality standards. Class I ground water will be protected to the maximum extent feasible from degradation due to facilities that discharge or would probably discharge to ground water.

Compliance Monitoring Program

Process water characterization sampling is required on an annual basis prior to the land application of the contents of the wastewater containment basins. Ground water quality compliance monitoring is required on a semi-annual basis for the two monitoring wells near Pond-1 (Dalton Farm MU, up-

gradient, and Dalton Farm MD, down-gradient). A new monitoring well (Dalton Farm MD2) will be installed down-gradient of Pond-2 once the new wastewater containment basin is constructed and prior to operation. Because monitoring well Dalton Farm MD is located in between Pond-1 and Pond-2, it will function as both the down-gradient monitoring well for Pond-1 and the up-gradient monitoring well for Pond-2.

Background water quality values for the site, shown in Table 1, were determined by calculating the mean values for each analyte of concern for the first eight ground water monitoring events at up-gradient monitoring well Dalton Farm MU, in accordance with R317-6-6.10.

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)
- Chloride
- Nitrate + Nitrite as N
- Ammonia as N
- Bicarbonate

Following an accelerated background water quality monitoring period, Ground Water Protection Levels were calculated for Dalton Farm MU and Dalton Farm MD in accordance with R317-6-4. The Interim Ground Water Protection Levels for Dalton Farm MD2 will mirror Dalton Farm MD based on the close proximity of the two monitoring wells. Ground Water Protection Levels for Dalton Farm MD2 will be updated in Table 2 following an accelerated water quality monitoring period in accordance with R317-6-4.

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 waste water containment basins as follows:

- Flexible Membrane Liner (FML) – the liner consists of 60 mil HDPE. The liner shall be maintained to ensure containment. The operator will conduct daily inspections to ensure the integrity of the liner.
- 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

Ground-Water Conditions and Geologic Reconnaissance of the Upper Sevier River Basin, Utah, Carpenter, C.H., and Robinson, G.B. 1967. United States Geological Survey, U.S. Department of the Interior. Survey Paper #1836.

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