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## **GROUND WATER DISCHARGE PERMIT UGW010013 STATEMENT OF BASIS**

**Blue Mountain Biogas, LLC  
Blue Mountain Biogas Facility**

October 2016

### **Purpose**

This Statement of Basis describes the facilities, hydrogeology, ground water quality, basis of permit renewal and specific conditions for Ground Water Discharge Permit UGW010013 for the Blue Mountain Biogas Facility. UGW010013 was issued to Blue Mountain Biogas LLC in 2011 in accordance with UACR317-6-6.4. This will be the first renewal of the UGW010013. There are no existing site conditions that would require termination of this Ground Water Discharge Permit by the Director under UAC R317-6-6.8. There are no major changes to the permit.

### **Facility Description**

Blue Mountain Biogas, LLC operates a biogas plant near Thermo in Beaver County, Utah. This Ground Water Discharge Permit requires best available technology and ground water compliance monitoring for two anaerobic digesters, equalization basins, lift stations at 8 hog farm manure lagoons, and associated pressurized piping.

### **Basis for Permit Renewal**

As a basis for issuance, modification, and renewal of the ground water discharge permits as authorized under UAC R317-6-6.4 and UAC R317-6-6.7, and to assure adequate ground water quality protection, the facility has been designed to employ discharge minimization and control technology with ground water monitoring to prevent any impairment of present and future beneficial uses of the ground water.

Ground water monitoring is the primary compliance monitoring method for the anaerobic digesters and equalization basins. Compliance monitoring is performed at selected wells located surrounding the anaerobic digester. The compliance monitoring parameters are listed in Permit Part I, Section C.

### **Hydrogeology**

Regional. The Milford Valley lies within the Basin and Range physiographic province. The area is dominated by normal block fault structures common to the Basin and Range Province, however there are areas where thrust faults are present the valley. The Mineral Range east of the site is a large Tertiary intrusion that caused mineralization in Paleozoic limestone and dolomite.

Local. The stratigraphy at the site consists of Quaternary age alluvium. These sediments are poorly-sorted stream, alluvial fan, slope-wash, and talus deposits. Sediment thickness is estimated to be in excess of 420 feet based on water supply wells drilled in the area. The shallowest ground water underlying the site is an unconfined water table aquifer

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comprised of gravel, sand, silt and clay in unconsolidated and semi-consolidated alluvial deposits. Ground water aquifers in the southern portion of the Milford Valley are recharged by ephemeral streams, subsurface inflow from bedrock in the mountains, and precipitation on the valley floor. Depth to ground water under the site is approximately 70 feet below ground surface and flows from west to east toward the valley center.

### **Ground Water Quality**

Ground Water Class. The uppermost shallow ground water at the site is classified as Class IA Pristine Ground Water based on facility monitoring wells. A transition zone to Class II Drinking Water Quality is south and east of the facility.

### **Best Available Technology**

The administration of this permit is founded on the use of best available technology, in accordance with the requirements of UAC R317-6-1.3. The Blue Mountain Biogas Facility is a no-discharge facility with an approximate capacity of 19.1 million gallons. The digesters, equalization basins, and piping are a closed system. The facility generates no waste of its own.

The Best Available Technology design for the digesters and equalization basins includes 80-mil synthetic high-density polyethylene (HDPE) flexible membrane liner. The equalization basins are designed to contain sufficient fluid so that a stabilized volume of material can be pumped into the digesters on a daily basis. Digesters and equalization basins are designed with three feet of total freeboard above the design fluid level. Both of the digesters are covered.

Liner integrity was evaluated prior to operation with the approved construction quality assurance/quality control (CQA/QC) plan and the associated Construction Certification As-Built Report as required by the Construction Permit.

### **Basis of Permit Issuance**

The determination of impacts from present day releases to ground water is a major concern in ground water management. Blue Mountain Biogas utilizes a zero discharge approach by using containment technology with a monitoring component to assess potential impacts to ground water quality. This permit incorporates lined basins, ground water monitoring wells, and Best Management Practices as the compliance mechanisms.

The administration of the permit, to assure compliance with ground water protection regulations, is founded on the use of periodic monitoring of ground water in wells to assess potential impacts to ground water quality. Blue Mountain Biogas has four monitoring compliance wells located adjacent to the basins. Compliance limits for the wells were established from background data collected and analyzed by Blue Mountain Biogas over the previous permit term. The Utah Division of Water Quality has collected ground water samples that confirm the historical data.