

STATE OF UTAH  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF WATER QUALITY  
WATER QUALITY BOARD  
P.O. BOX 144870  
SALT LAKE CITY, UTAH 84114-4870

**Ground Water Discharge Permit  
Permit No. UGW010012**

In compliance with the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 1953, as amended, the Act,

**Circle Four Farms  
P.O Box 100  
Milford UT 84751**

Hereafter referred to as the Permittee, is granted a renewed ground water discharge permit for the operation of the Smithfield BioEnergy Plant and a Collection System for twenty-three existing finisher farm sites. This permit is for the construction and operation of an Anaerobic Digester System for all finisher farms in the Skyline Farm Complex. These farm sites and their anaerobic lagoons are still covered under the existing permit UGW010002. The Smithfield BioEnergy Plant is located in the SW ¼ of the SE ¼ of Section 4, Township 30 South, Range 11 West, Salt Lake Base & Meridian, approximately ten miles west of Minersville, Utah. This operation is permitted as an experimental alternative treatment method.

This permit is based on representation made by the Permittee and other information contained in the administrative record. It is the responsibility of the Permittee to read and understand all provisions of this permit.

The facility shall be constructed and operated in accordance with conditions set forth in the permit and the Utah Administrative Rules for Ground Water Quality Protection (UAC R317-6).

This permit shall become effective on [Date](#).

This permit and authorization to operate shall expire at midnight [Date](#).

Signed this \_\_\_\_ day of [month](#), [year](#).

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Walter L. Baker, P.E.  
Director

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**PART I SPECIFIC CONDITIONS**

**A. GROUND WATER CLASSIFICATION**

Ground water class as defined in UAC R317-6-4 for the Smithfield BioEnergy (SBE) Plant is Class 1A Pristine Ground Water. Ground water classification is determined through background ground water monitoring in the monitoring wells associated with the SBE plant and containment basins.

**B. BACKGROUND GROUND WATER QUALITY**

Based on ground water quality data from site-specific monitoring wells, the ground water quality beneath the SBE Plant is Class 1A, Pristine Ground Water. Protection levels have been established by monitoring wells installed upgradient of the anaerobic digesters and containment basin, and by existing monitoring wells at nearby farm sites. Background is defined as the mean concentration in the well during the background monitoring period. For any new wells installed during the permit term, a formal determination of background water quality will be made after completion of accelerated background monitoring as required in Part I.E.5.(b).

**C. GROUND WATER PROTECTION LEVELS**

Ground water protection levels for each farm site are presented in Appendix I. Protection levels are based on background sampling performed to date and on the requirements of R314-6-4. Levels are the greater of the protection level or the mean background plus twice the standard deviation.

**D. BEST AVAILABLE TECHNOLOGY (BAT) STANDARD**

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.

The construction permit for the SBE Plant that describes construction standards for the collection and treatment system for finisher farms was issued on July 25, 2003. The SBE Plant includes anaerobic digesters for treatment and a biogas production facility. The project was completed in two phases, Phase I and II. Farm sites included in each phase are listed in Table 1.

TABLE 1

	<i>Layout</i>	<i>Farm Sites</i>
Phase I	East Skyline Layout	41311 through 41314
	Central Skyline Layout	41306 through 41308 41315 & 41322
Phase II	West Skyline Layout	41316 through 41321
	North Skyline Layout	41301 through 41305

Construction standards for the existing anaerobic lagoon treatment systems for these finisher farm sites are detailed in the construction permits. The construction permits associated with each farm site are listed in Table 2.

TABLE 2

<i>Construction Permits for Anaerobic Lagoon Systems</i>	
<i>Farm Sites</i>	<i>Construction Permit Issued</i>
41302, 41303, 41304, 41305	August 10, 1995
41306 through 41315	May 13, 1996
41316 through 41323	July 1, 1997

The hog waste can be collected from all of the finisher farms that are located in the Skyline Farm Complex. A diversion valve connection is installed to either allow the wastewater from the recharge pits to flow into the existing anaerobic lagoon system, or to be diverted into buffer basins for collection and treatment. When functional activity at the SBE is suspended, the manure is conveyed through the Collection System to the Blue Mountain Biogas plant using existing piping that was installed for the SBE Plant. Prior to anaerobic digester treatment, manure is concentrated in an influent collection basin and then conveyed to the digesters for biogas production. The biogas is then collected and conveyed to the electric generation plant. The wastewater effluent from the Blue Mountain Plant is conveyed back to the primary lagoons using existing piping.

Collection System The system is designed to transfer wastewater from each farm site to the Blue Mountain Plant. The collection system from most farms consists of an on-farm buffer basin and concrete wet-well pump station usually adjacent to each existing primary lagoon, for inflow equalization basins adjacent to lagoon systems and conveyance pipelines.

On-farm Buffer Basin – is installed adjacent to each existing primary lagoon of farm sites included in the Central, East and North Skyline layouts. Wastewater is conveyed from recharge pits to the on-farm buffer basin. The buffer basin will have a total depth of 13.5 or 11.1 feet depending on its location. All of the buffer basins are lined with a 60-mil with flexible membrane liners (FML) made of high-density polyethylene (HDPE). A 6-inch pipe in the bottom of the basin will flow wastewater by gravity to the adjacent wet-well pump station. Wastewater from farms located in West Skyline, will gravity flow from the farm pits through a cement vault to the West Skyline inflow equalization basin at farm 41318.

Wet-Well Pump Station – The wet well is constructed adjacent to each buffer basin to transfer wastewater from the buffer basin to the inflow equalization basin. Each wet well will usually have a total depth of 18 or 16 feet depending on its location and a precast concrete manhole with a minimum concrete strength of 4,000 psi.

Inflow Equalization Basin (IEB) – Central, East, North and West Skyline collection systems have IEBs located adjacent to the existing anaerobic lagoon systems of sites 41306, 41312, 41303 and 41318 respectively. The IEB at Central skyline will also be utilized as on-farm buffer basin for site 41306.

Conveyance Pipelines – SDR 17 HDPE pipelines are installed to convey wastewater to, and from, the SBE Plant. The pipelines have a sewage air release valves spaced at 2,500 feet to prevent air locks in the collection pipelines.

SBE Plant Functional activity at the SBE has been indefinitely suspended. The following components are being maintained for possible future use: four influent manholes, four gravity thickener tanks, four anaerobic digesters, four effluent equalization basins, and four effluent return pump stations. All facilities in the SBE Plant except the gravity thickeners shall be covered when in use, , to capture any biogas and potentially odorous gases.

Influent Manholes – force main pipelines from the set of farms will enter HDPE manholes prior to flowing into the gravity thickeners. Each manhole will have a diameter of 5 feet and a maximum water depth of 10 feet, a reinforced concrete floor thickness of 12 inches, and a wall thickness of 1.5 inches with a minimum concrete strength of 4,000 psi. Potentially odorous off gases shall collected and treated from the manholes and conveyed to off-gas scrubbers.

Gravity Thickener – is an uncovered circular concrete tank that receives wastewater flows from the influent manhole. The gravity thickeners also hold scum from discharging with the supernatant liquid. This is accomplished by means of a baffle and weir system. Scum then collects on the exposed water surface of the thickener and is skimmed by a skimmer arm into a scum collection box and conveyed to join the thickener underflow to be digested. The thickener separates the wastewater into underflow and supernatant. Each thickener will have maximum liquid depth of 16 feet, a reinforced concrete floor thickness of 12 inches, and a wall thickness of 12 inches with a minimum concrete strength of 4,000 psi. Three of the thickeners will each have a diameter of 65 feet and one thickener will have a diameter of 50 feet.

Anaerobic Digester – thickened underflow from the bottom of gravity thickener is pumped to the digester for treatment. Each digester will have a maximum water depth of 34 feet. All of the digesters are lined with a 60-mil HDPE. Each digester shall be covered with a gas-tight floating HDPE cover to capture biogas. Biogas is extracted from under the cover with biogas blowers and discharged into the biomethanol plant.

Return Equalization Basin (REB) – will receive supernatant from the digesters. Each REB will have a maximum water depth of 7 feet. All REBs shall be lined with a 60-mil HDPE plastic liner. The REB shall be covered with a gas-tight floating HDPE cover to capture any biogas release.

Effluent Return Pump Station (ERPS) – is a PVC lined concrete wet-well that is located between each REB and the gravity thickeners and receives flow from REB. Supernatant from the gravity thickener will also enter this pump station where it will mix with REB flow and be pumped back to the primary lagoons at each farm site. Each ERPS will have a maximum water depth of 10 feet and a reinforced concrete floor thickness of 10 inches and a wall thickness of 8 inches with a minimum concrete strength of 4,000 psi. The ERPS are enclosed. Potentially odorous off gases shall be collected and treated from the return pumping stations and conveyed to off-gas scrubbers.

Wastewater Evaporation Basin – to evaporate excess Blue Mountain Plant process water. Circle Four Farms may also use this basin for excess water from farm lagoons and for effluent storage when a lagoon is in the process of sludge removal.

Wastes from the hog-raising operations may be treated in the SBE Plant. Wastes from outside sources may be supplemented to enhance biogas production in the digesters. Wastewater from the unit basins or digesters may be land-applied on an emergency basis. Land application may only occur at or below the agronomic rate according to the most recently revised and approved version of the Nutrient Management Plan (NMP) for Land Application. For the purposes of this permit, the agronomic rate is defined as the rate where all available nitrogen is taken up by crops or other plants before it can leach below the root zone, and where other waste constituents are applied at rates that do not cause ground or surface water pollution or plant toxicity incompatible with the intended use of the land. Emergency waste generated as a result of significant spills, the cleanup of a contamination event, or the necessary removal of waste from the facility to allow the investigation of a possible leak or to perform repairs may be land applied in accordance with the NMP.

Performance Standard for Best Available Technology

Compliance with the requirements for use of best available technology (BAT) shall be demonstrated by construction, maintenance and operation of the collection and the digester systems according to the construction permits issued for with this permit.

- a) Basin and Digester Liner BAT will also be demonstrated by maintaining a performing seepage rate at any point on the liner which is no greater than that provided by one foot of clay with permeability in the order of  $1 \times 10^{-7}$  cm/sec. Performance of the liners shall be evaluated for compliance by the monitoring required in Part I.E. Liner integrity was verified prior to operation with the approved construction quality assurance/quality control (QA/QC) plans contained in the application for this permit.

The liner integrity must be maintained. Deterioration of materials or any other situation that prevents the liner from functioning according to the approved design shall constitute non-compliance with this permit. After completion of construction, synthetic liners must remain in contact with the prepared soil base of the basins and digesters. Adequate slack and ballast will also be provided if necessary, to minimize stresses and suspensions of the liner at the toe of the dikes due to variations in ambient temperature and incident solar radiation. Any large suspensions or billowing of synthetic liner is considered a failure of this performance standard. The formation of bulges or “whales” in the liner when the basins or digesters contain water is an indication of a leak in the liner. When whales form in the liner, the liner must be repaired in an expeditious manner. Impact to the underlying soils must be assessed in conformance with the provisions detailed in the most recently revised and approved version of the Spill Prevention and Response Plan.

- b) Collection System and SBE Plant Operation The performance standard for collection system and SBE Plant is based on operating and maintaining the systems in a manner consistent with the design criteria detailed in the construction permit. The collection system and SBE Plant must be operated in accordance with the most recently revised and approved Collection System and SBE Plant Operation and Maintenance Manual, which has been developed by the permittee. Performance of the collection system and the central plant shall be demonstrated by the monitoring specified in Part I.E.5.b.

The gravity thickeners were installed without covers. The impact of odor production from uncovered gravity thickeners in the SBE Plant must be closely monitored and periodically evaluated by Circle Four. In the event of production of objectionable odor from the SBE Plant, Circle Four will be required to cover the gravity thickeners or to install other effective facilities to correct the odor problem. Covers or other appropriate freezing prevention methodologies will also be required if freezing impairs the proper operation of the thickeners. Circle Four will submit a schedule for installing covers or other facilities within 30 days of notice from the Director stating such covers are necessary for either odor control or freezing protection.

- c) Land Application Land application of wastewater from the farm sites covered by this permit is not planned as a routine method of wastewater treatment, but may need to be employed in an emergency situation as a result of significant spills, the cleanup of a contamination event, or the necessary removal of waste from a facility to allow the investigation of a possible leak or to perform repairs. Land application of wastes generated at any of the facilities covered by this permit may not be performed on a routine basis without first notifying and receiving the approval of the Director. Any land application of wastes generated at any of the facilities covered by this permit must be performed in accordance with the most recently revised and approved version of the Nutrient Management Plan for Land Application.
- d) Manure Drying Pads - Manure drying pads at any of the facilities covered by this permit may not be performed on any parcel of land without first notifying and receiving the approval of DWQ. Pad construction must be performed in accordance with the most recently revised and approved version of the Manure Drying Program Plan.

2. Closure Plan

Any waste handling structure closure from the Collection System and SBE Plant must be undertaken in compliance with the most recently revised and approved version of the Sludge Disposal and Farm Closure Plan that has been prepared by the permittee. Closure also includes conveyance of all wastewater out of the facilities back to the existing lagoon systems, and removal of all sludge and digested materials and debris from the SBE Plant, in accordance with the Plan. Pipelines must be capped off at the ends and unit basins must be dismantled and covered with a minimum of two feet of soil.

Prior to closure of any collection system or SBE Plant, the permittee shall submit to the Director a site-specific closure plan for disposition of the liquids, solids and liner material of the waste handling system(s) to be closed. A plan for land application of the liquids and solids at appropriate agronomic rates, on-site or at other approved sites, or other disposal methods, will be submitted for approval by the Director. The liner material will be tested according to an approved testing plan to determine an appropriate means of disposal that will not lead to ground water contamination. The monitoring wells will continue to be sampled for a post closure monitoring period as determined by the Director.

3. Supplemental Organic Feedstocks (SOF)

To enhance the biogas production in the digester system, Circle Four may supplement wastewater inflow with organic waste generated from various outside sources. Circle

Four must obtain approval prior to introducing any new SOF material for a trial period or for full-scale application. In order to obtain the approval for a 90-day trial period,

- a) Verbally or in writing notify DWQ of the sources and brief description of the proposed SOF. Circle Four is allowed to input six test-loads of SOF in the digester system to develop preliminary information to determine whether or not to proceed with the SOF. The six test-loads will not exceed one load per day or a maximum of 6000 gallons per day for a total of six days.
- b) A formal written notice will be submitted to DWQ if Circle Four desires to proceed with the 90-day trial period based on the preliminary information obtained from the six test-loads. The written notice will incorporate the following items:
  - Circle Four will perform and submit analyses on wastewater composition of the proposed SOF and results of analyses for biological oxygen demand (BOD), chemical oxygen demand (COD), pH, alkalinity, total Kjeldahl nitrogen (TKN), ammonia, volatile fatty acids, total solids, total suspended solids, volatile solids, VSS, nutrients and inorganic metals (phosphorous, potassium, sulfur, calcium, magnesium, sodium, iron and manganese) and heavy metals (arsenic, cadmium, copper, lead, mercury, selenium, zinc)
  - Estimated quantity of the proposed SOF
  - Point of SOF application in the digester system
  - Estimated sludge production rate from the proposed SOF
  - A signed statement from Smithfield BioEnergy and Circle Four Farms indicating consent to continue with the input of the proposed SOF from outside sources

After the submittal of the above items to DWQ, Circle Four must obtain an approval from DWQ prior to proceeding with the 90-day trial period.

Upon completion and evaluation of the 90-days trial study, Circle Four will notify DWQ in writing its intention to convert the trial study to a full-scale application. The notification will incorporate a summary of the trial period and results of additional analysis on normal digester operations, if available. The notification must also incorporate a proposed quantity of SOF for the full-scale application.

Circle Four may discontinue SOF application at any time during the 90-day trial period. No further action will be required from Circle Four or DWQ if Circle Four desires not to proceed with utilizing the SOF in full-scale application.

E. COMPLIANCE MONITORING REQUIREMENTS

The permittee is required to monitor ground water quality and source activities that could potentially impact the ground water quality. Monitoring shall be performed according to the provisions of Part I.E.5 to assure compliance with the terms of this permit.

1. Compliance Monitoring Wells

The network of monitoring wells shall provide the ability to detect contamination in the uppermost groundwater aquifer, which could result from excess basin seepage. Under the provisions of this permit, ground water contamination in the shallow aquifer under the SBE Plant would be a reason for the permittee to take remedial action before further degradation occurs.

a) Location of Monitoring Wells - The permittee has installed a monitoring well system, comprised of one upgradient and two down gradient monitor wells at the SBE Plant and at the containment basin, to establish the ground water gradient underlying the plant and to monitor ground water quality in both the upgradient and downgradient wells. The permittee will be required to drill additional wells if the groundwater flow directions are different than expected as revealed when the wells are drilled. The locations and other information for these wells are given in Appendix II.

The permittee has installed a monitoring well system at each farm site to establish the ground water gradient underlying each existing anaerobic lagoon system. Due to the close proximity of the on-farm buffer basin and the inflow equalization basin to the existing anaerobic lagoon system, installation of additional monitoring well system is not required. The existing monitoring well system will provide the ability to detect contamination in the uppermost groundwater that could result from excess seepage from the on-farm buffer basins and inflow equalization basins. The locations and status of the existing wells are described in Appendix II of Permit No. UGW010002.

b) Damage to Monitoring Wells - If a monitoring well is damaged or is otherwise rendered inadequate for its intended purpose or if a previous hydraulic gradient between two monitor wells is reversed, the Director shall be notified in writing within five days of the permittee becoming aware of the condition.

c) Future Modification of Monitoring Well Network - If at any time the Director determines the monitoring well network to be inadequate due to a change in gradient or for any other reason, the permittee shall submit within 30 days of receipt of notification a plan and compliance schedule to modify the monitoring well network.

2. Monitoring Period

The permittee shall conduct the monitoring detailed in Part I.E.5 for the term of the permit.

3. Monitoring Requirements

The permittee shall comply with the ground water standards, protection levels and compliance limits listed in Appendix I of this permit, and other monitoring requirements contained in the Utah Ground Water Quality Protection Regulations (UAC R317-6). The

monitoring required in Part I.E.5 is based on compounds which may be discharged to ground water or may characterize ground water from different sources and which may be sampled at monitoring wells. The ground water regulations also contain standards for contaminants such as metals, pesticides and volatile organic compounds. Accordingly the permittee must not discharge these or any other contaminants, which could impair beneficial uses of the ground water, even though the permit does not require monitoring for them.

#### 4. Protection Levels and Compliance Limits

- a) Application - The monitoring requirements listed below in Part I.E.5 apply to all upgradient and downgradient wells. The protection levels for indicator parameters are calculated using the Ground Water Quality Protection Regulations (UAC R317-6-4), background water quality data, and historical well data.
- b) Exceedance in Upgradient Well - If the compliance limits referenced in Appendix 1 are exceeded in any upgradient well, the permittee shall note the exceedance in the next semi-annual monitoring report. If ground water elevations indicate that the well is no longer upgradient of the lagoon, or if ground water mounding has developed, the exceedance shall be treated as a non-compliance event according to the provisions of Part I.F. As part of the resolution of the non-compliance situation, the permittee may be required to propose changes to the monitoring plan for the site sufficient to demonstrate that ground water is not being polluted in violation of UAC R317-6.

#### 5. Monitoring Details

- a) Semi-annual Ground Water Quality Compliance Monitoring - Semi-annual ground water compliance monitoring shall be conducted by the permittee under the provisions of this permit.

Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Circle Four Farms Sampling and Analysis Plan.

Unless revised by the Circle Four Farms Sampling and Analysis Plan, the field parameters to be measured during the semi-annual monitoring shall be: temperature, specific conductance, pH, and ground water elevation. Ground water elevations shall be determined according to Part I.E.5.c.

Unless revised by the Circle Four Farms Sampling and Analysis Plan, the laboratory parameters to be measured during the semi-annual monitoring shall be: Nitrate plus Nitrite as Nitrogen, Bicarbonate, Chloride, and Total Dissolved Solids (TDS).

The results of the semi-annual compliance monitoring shall be submitted to the Division of Water Quality along with supporting field data in the Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

b) Background Ground Water Quality Monitoring - Background ground water quality has been established in the upgradient monitoring wells for all the farm sites covered by this permit for the purpose of establishing protection levels and compliance limits. The samples were analyzed for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia, bicarbonate, chloride, total dissolved solids (TDS), sodium, potassium, magnesium, calcium, carbonate, and sulfate. At least one sample from each downgradient monitor well was also analyzed for all these parameters. If any additional upgradient or downgradient wells are installed, the permittee shall collect quarterly samples at equal time intervals over a two-year period from each upgradient well and each downgradient well. The samples shall be analyzed for the parameters listed above. Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Circle Four Farms Sampling and Analysis Plan. The results accompanied by any supporting data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part I.G.

c) Depth to Ground Water and Ground Water Elevation - Depth to ground water shall be measured to the nearest 0.01 foot, below the reference point at the top of the well casing. For each monitoring well, the permittee shall submit a report to the Division of Water Quality accompanied by a surveyors report indicating the elevation, in feet above mean sea level to the nearest 0.01 foot, of the reference point at the top of the well casing from which all ground water depths are measured.

Ground water elevations shall be measured semi-annually at all active monitoring wells at the farm sites covered by this permit. Ground water elevations shall be calculated by subtracting the depth to ground water measurement from the elevation of the reference point at the top of the well casing and reported in feet above mean sea level to the nearest 0.01 foot. Ground water elevation calculations for each semi-annual ground water sampling event shall be submitted with the Semi-annual Ground Water Quality Monitoring Report.

For the purpose of constructing ground water potentiometric surface contour maps, ground water elevation data shall be collected within 48 hours for each farm site and two weeks for farm site clusters (NE Blue Mtn, SW Blue Mtn, West Skyline, etc.). Ground water potentiometric contour maps shall be constructed from these data and submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part I.G.

d) Laboratory Approval - All water analyses shall be performed by a laboratory certified by the State of Utah in accordance with the most recently revised and approved version of the Circle Four Farms Sampling and Analysis Plan and the provisions of UAC R317-6-6.3.

e) Future Modification of Monitoring Plan - If the Director or permittee determine that hydrogeologic conditions at any farm site do not allow a direct comparison of upgradient and downgradient ground water quality, protection levels and

compliance limits shall be established based on ground water quality in the down gradient well. In this event, the Director shall direct the permittee to begin collection of background water quality data in the downgradient well according to Part I.E.5.c. Alternatively, the permittee may propose another method of compliance monitoring within 90 days of the determination that upgradient-downgradient comparison is not possible.

F. NON-COMPLIANCE STATUS

1. Probable Out-of-Compliance Status - The permittee shall evaluate results of each ground water sampling event to determine any exceedance of the Ground Water Compliance Summary found in Appendix 1. Upon determination that a Ground Water Protection Level has been exceeded at any downgradient compliance monitoring well, the permittee shall:
  - a. Immediately re-sample the monitoring well(s) found to be in probable out-of-compliance status for laboratory analysis of the exceeded protection level parameter(s). Submit the analytical results thereof, and notify the Director of the probable out-of-compliance status within 30 days of the initial detection.
  - b. Upon exceedance of any one parameter listed in Part I.C for two consecutive sampling events, immediately implement an accelerated schedule of quarterly sampling analysis, consistent with the requirements of this permit. This quarterly sampling will continue for at least two quarters or until the compliance status can be determined by the Director. Reports of the results of this sampling will be submitted to the Director as soon as they are available, but not later than 30 days from each date of sampling.
2. Out-of-Compliance Status Based on Confirmed Exceedance of Permit Ground Water Protection Levels
  - a. Out of Compliance Status shall be defined as follows:
    - 1) For parameters that have been defined as detectable in the background and for which protection levels have been established, out-of-compliance shall be defined as two consecutive samples exceeding the higher of the protection level or compliance limit. Out of compliance status for exceedance of bicarbonate or chloride occurs only when their respective compliance limits are exceeded and the compliance limit for total dissolved solids is also exceeded.
  - b. Notification and Accelerated Monitoring - upon determination by the permittee or the Director, in accordance with UAC R317-6-6.17, that an out-of-compliance status exists, the permittee shall:
    - 1) Verbally notify the Director of the out-of-compliance within 24 hours.

A written submission shall also be provided to the Director within five days of the time that the permittee becomes aware of the noncompliance. The written submission shall contain:

- i) A description of the noncompliance and its cause;
  - ii) The period of noncompliance, including exact dates and times;
  - iii) The estimated time noncompliance is expected to continue if it has not been corrected; and,
  - iv) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- 2) The permittee shall verbally report any noncompliance, which may endanger public health or the environment as soon as possible, but no later than 24 hours from the time the permittee first became aware of the circumstances. The report shall be made to the Utah Department of Environmental Quality 24 hour number, (801) 536-4123, or to the Division of Water Quality, Ground Water Protection Section at (801) 536-4300, during normal business hours (8:00 am - 5:00 pm Mountain Time Monday through Friday).
  - 3) Continue an accelerated schedule of quarterly ground water monitoring for at least two quarters and continue quarterly monitoring until the facility is brought into compliance as determined by the Director.
- c. Source and Contamination Assessment Study Plan - within 30 days after the written notice to the Director required in Part I.F. 2.b.1, above, the permittee shall submit an assessment study plan and compliance schedule for:
    - i) Assessment of the source or cause of the contamination, and determination of steps necessary to correct the source, if the contamination is caused by facilities or activities for which the permittee is responsible.
    - ii) Assessment of the extent of the ground water contamination and any potential dispersion.
    - iii) Evaluation of potential remedial actions to restore and maintain ground water quality, and ensure that the ground water standards will not be exceeded at the compliance monitoring wells.
3. Out-of-Compliance Status Based Upon Failure To Maintain Best Available Technology - In the event that BAT monitoring indicates a violation of any of the construction or performance standards outlined in Part I.D of this permit, the permittee shall submit to the Director a notification and description of the violation in accordance with Part II.I of this permit.

4. Failure to Maintain Best Available Technology Required by Permit

A facility will be determined to be in an out-of-compliance status if best available technology has failed or cannot be maintained according to the provisions required by this permit, unless:

- a. The Permittee has notified according to Part I.F.2, and
- b. The failure was not intentional or was not caused by the Permittee's negligence, either in action or failure to act, and
- c. The Permittee has taken adequate remedial measures in a timely manner or has developed an approvable remedial action plan and implementation schedule for restoration of best available control technology, an equivalent control technology, or closure of the facility (implementation of an equivalent technology will require permit modification and re-issuance), and
- d. The Permittee has demonstrated that any discharge of a pollutant from the facility is not in violation of the provisions of UCA 19-5-107.

5. Additional Notification - In the event of out-of-compliance status due to either an exceedance of ground water compliance limits, a spill, or a failure of Best Available Technology, the permittee shall notify the Beaver County Commission and the Southwest Utah District Health Department within 24 hours or the first working day following a spill.

6. Contingency Plan - If, after review of ground water monitoring data and other relevant information, the Director determines that use of any lagoon has caused an exceedance of ground water compliance limits at any compliance monitoring point, the permittee shall conduct a Contamination Investigation to determine the extent and severity of contamination caused by the lagoon and submit it for review by the Division of Water Quality within 45 days of determination of out-of-compliance status. After review of this report the Director may require the permittee to develop a Corrective Action Plan to remediate the contamination. Actions taken under the plan may include emptying liquids and sludge from the leaking lagoon into one of the other lagoons in the permittee farm complex, repairing or reconstructing the lagoon liner as needed, constructing temporary holding ponds lined with flexible membrane liners, and developing wells for the purpose of extracting the contaminated ground water. Contaminated ground water may be stored in the lagoons or land applied according to the most recently revised and approved Nutrient Management Plan for Land Application, if necessary and feasible.

Significant hog waste spills from the waste handling system must be addressed in compliance with the most recently revised and approved version of the Spill Prevention and Response Manual that has been prepared by the permittee. Minor spill events shall be reported with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

G. REPORTING REQUIREMENTS

1. Semi-Annual Ground Water Monitoring - monitoring required in Part I.E.5 above shall be reported according to the schedule in Table 3 below, unless modified by the Director:

**Table 3: Semi-Annual Compliance Monitoring Report Schedule**

<u>Monitoring Period</u>	<u>Report Due Date</u>
January through June	August 1
July thru December	February 1

2. Water Level Measurements - water level measurements from ground water monitoring wells will be reported as measured depth to ground water from the surveyed casing measuring point, and ground water elevations as converted by casing measuring point elevations.
3. Ground Water Quality Sampling - reporting will include:
  - a. Field Data Sheets - or copies thereof, including the field measurements, required in Part I.E.5.a above, or as listed in the most recently revised and approved Circle Four Farms Sampling and Analysis Plan; well name/number, date and time, names of sampling crew, type of sampling pump or bail, volume of water purged before sampling, and any pertinent comments relating to sampling conditions.
  - b. Laboratory Analytical Results - including date sampled, date received; and the results of analysis for each parameter, including: value or concentration, units of measurement, reporting limit (minimum detection limit for the examination), analytical method, and the date of the analysis. The analytical methods and the method detection limits for every parameter must conform to those specified in the most recently revised and approved version of the Circle Four Farms Sampling and Analysis Plan.
- 4) Annual Sludge Profile Monitoring Report - The report of the annual sludge profile monitoring, if applicable to the SBE basins, shall be submitted within 30 days of completion of all sampling, monitoring, and analysis.
- 5) Annual Lagoon Performance Monitoring Report - The report of the annual lagoon performance monitoring, if applicable to the SBE basins, shall be submitted within 30 days of completion of all sampling, monitoring, and analysis.
- 6) Noncompliance or Probable Noncompliance - Reporting requirements for noncompliance or probable noncompliance status shall be according to the provisions of Part I.F.
- 7) Electronic Filing Requirements - In addition to submittal of the hard copy data, above, the permittee will electronically submit the required ground water monitoring data in the electronic format specified by the Director. The data may be submitted by e-mail, compact disc, or other approved transmittal mechanism.

H. COMPLIANCE SCHEDULE

There are no outstanding compliance items at time of permit issuance for UGW010012.

**PART II MONITORING, RECORDING AND REPORTING REQUIREMENTS**

- A. REPRESENTATIVE SAMPLING  
Samples taken in compliance with the monitoring requirements established under Part I shall be representative of the monitored activity.
- B. ANALYTICAL PROCEDURES  
Water sample analysis must be conducted according to test procedures specified under UAC R317-6-6.3.L, unless other test procedures have been specified in this permit.
- C. PENALTIES FOR TAMPERING  
The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. REPORTING OF MONITORING RESULTS  
Monitoring results obtained during each reporting period specified in the permit, shall be submitted to the Director, Utah Division of Water Quality at the following address no later than the 15th day of the month following the completed reporting period:  
State of Utah  
Division of Water Quality  
P.O. Box 144870  
Salt Lake City, Utah 84114-4870  
Attention: Ground Water Protection Section
- E. COMPLIANCE SCHEDULES  
Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. ADDITIONAL MONITORING BY THE PERMITTEE  
If the permittee monitors any pollutant more frequently than required by this permit, using approved test procedures as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted. Such increased frequency shall also be indicated.
- G. Records Contents  
Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
  2. The individual(s) who performed the sampling or measurements;
  3. The date(s) and time(s) analyses were performed;
  4. The individual(s) who performed the analyses;
  5. The analytical techniques or methods used; and,
  6. The results of such analyses.
- H. RETENTION OF RECORDS  
The permittee shall retain records of all monitoring information, including all calibration and maintenance records and copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years

from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

I. TWENTY-FOUR HOUR NOTICE OF NONCOMPLIANCE REPORTING

1. The permittee shall verbally report any noncompliance which may endanger public health or the environment as soon as possible, but no later than 24 hours from the time the permittee first became aware of the circumstances. The report shall be made to the Utah Department of Environmental Quality 24 hour number, (801) 536-4123, or to the Division of Water Quality, Ground Water Protection Section at (801) 536-4300, during normal business hours (Monday through Friday 8:00 am - 5:00 pm Mountain Time).
2. A written submission shall also be provided to the Director within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
  - a. A description of the noncompliance and its cause;
  - b. The period of noncompliance, including exact dates and times;
  - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,
  - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
3. Reports shall be submitted to the addresses in Part II.D, Reporting of Monitoring Results.

J. OTHER NONCOMPLIANCE REPORTING

Instances of noncompliance not required to be reported within 24 hours, shall be reported at the time that monitoring reports for Part II.D are submitted.

K. INSPECTION AND ENTRY

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

**PART III COMPLIANCE RESPONSIBILITIES**

A. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

B. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS

The Act provides that any person who violates a permit condition implementing provisions of the Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under Section 19-5-115(2) of the Act a second time shall be punished by a fine not exceeding \$50,000 per day. Nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. PROPER OPERATION AND MAINTENANCE

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

**PART IV GENERAL REQUIREMENTS****A. PLANNED CHANGES**

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when the alteration or addition could significantly change the nature of the facility or increase the quantity of pollutants discharged.

**B. ANTICIPATED NONCOMPLIANCE**

The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

**C. PERMIT ACTIONS**

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

**D. DUTY TO REAPPLY**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a permit renewal or extension. The application should be submitted at least 180 days before the expiration date of this permit.

**E. DUTY TO PROVIDE INFORMATION**

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

**F. OTHER INFORMATION**

When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

**G. SIGNATORY REQUIREMENTS**

All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed as follows:
  - a. For a corporation: by a responsible corporate officer;
  - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.
  - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described above and submitted to the Director, and,

- b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to Authorization. If an authorization under Part IV.G.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. PENALTIES FOR FALSIFICATION OF REPORTS

The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

I. AVAILABILITY OF REPORTS

Except for data determined to be confidential by the permittee, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Director. As required by the Act, permit applications, permits, effluent data, and ground water quality data shall not be considered confidential.

J. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

K. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

L. TRANSFERS

This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Director at least 30 days in advance of the proposed

transfer date;

2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.

M. STATE LAWS

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, penalties established pursuant to any applicable state law or regulation under authority preserved by Section 19-5-117 of the Act.

N. REOPENER PROVISION

This permit may be reopened and modified (following proper administrative procedures) to include the appropriate limitations and compliance schedule, if necessary, if one or more of the following events occurs:

1. If new ground water standards are adopted by the Board, the permit may be reopened and modified to extend the terms of the permit or to include pollutants covered by new standards. The permittee may apply for a variance under the conditions outlined in R317-6-6.4.D.
2. If alternative compliance mechanisms are required.
3. If subsequent ground water monitoring data reveals the background water quality values in Part I Table 1 are not accurate.

**APPENDIX 1**  
**UGW010012 Smithfield BioEnergy Plant**

BASIN SYSTEM	pH <sup>(a)</sup>	NITRATE + NITRITE (mg/L)	BICARBONATE (mg/L)	CHLORIDE (mg/L)	TOTAL DISSOLVED SOLIDS (mg/L)
MUBB	6.5 – 8.5	2.5	222	50	600
MDBB1	6.5 – 8.5	2.5	222	50	600
MDBB2	6.5 – 8.5	2.5	222	50	600
SBMU	6.5 – 8.5	2.5	222	50	600
SBMD1	6.5 – 8.5	2.5	222	50	600
SBMD2 <sup>(b)</sup>	6.5 – 8.5	2.5	222	50	600

(a) Ground Water Quality Standard

(b) variable water quality at site. SBMD2 used to calculate protection level.

Ground water protection levels and compliance limits are established in accordance with R317-6-4. Only the highest allowable concentration is shown in Appendix 1.

**APPENDIX II**  
**UGW010012 Smithfield BioEnergy Plant**

Monitoring Well Location for the SBE Plant and Containment Basin

<i>Monitoring Well Type</i>	<i>Well No.</i>	<i>Latitude NAD 83</i>	<i>Longitude NAD 83</i>	<i>Hinge Elevation</i>	<i>Date Elevation Measured</i>	<i>Status</i>
Upgradient from Treatment Plant	MUBB	38° 13' 23.13"	113° 05' 32.61"	5042.4	10/1/2003	active
Downgradient from Treatment Plant	MDBB1	38° 13' 29.24"	113° 05' 29.33"	5039.9	10/1/2003	active
Downgradient from Treatment Plant	MDBB2	38° 13' 29.27"	113° 05' 26.04"	5040.3	10/1/2003	active
Upgradient from Containment Basin	SBMU	38° 13' 21.04"	113° 05' 19.99"	5043.9	9/12/2006	active
Downgradient from Containment Basin	SBMD1	38° 13' 29.01"	113° 05' 13.90"	5041.8	9/12/2006	active
Downgradient from Containment Basin	SBMD2	38° 13' 29.01"	113° 05' 10.74"	5042.9	9/12/2006	active