State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

FILE COPY

DWQ-2019-005581 BLJ

June 4, 2019

Mr. Jim Webb
Director of EHS and Public Affairs
Smithfield Foods
341 South Main
PO Box 100
Milford, UT 84751

Subject: Issuance of Ground Water Discharge Permits UGW010002, UGW010008, and UGW210005 for Farm Operations

Dear Mr. Webb:

The 30-day public comment period closed on May 20, 2019 for the issuance of Ground Water Discharge Permits UGW010002, UGW010008, and UGW210005. No comments were received during the comment period. The final Ground Water Discharge Permit and Statement of Basis for each of the permits are enclosed. An invoice is also enclosed for $9,000 based on the legislative mandated rate of $100/hr. for 90 hours of staff time preparing the three permits.

If you have any questions or comments about the permit, please contact Christopher L. Shope at cshope@utah.gov or (801) 536-4309.

Sincerely,

Erica Brown Gaddis, PhD
Director

EBG/DJH/CLS/blj

Cc: Via Email
John Chartier, DWQ Central Utah District Engineer
Jeremy Roberts, Southwest Health Department

Enclosures (7):

1. UGW010002, UGW010008, UGW210005 Invoice #197-444 2019 (DWQ-2019-005652)
2. UGW010002 SOB 2019 Final (DWQ-2019-001120)
3. UGW010002 Permit 2019 Final (DWQ-2019-001119)
4. UGW010008 SOB 2019 Final (DWQ-2019-001900)
5. UGW010008 Permit 2019 Final (DWQ-2019-001899)
6. UGW210005 SOB 2019 Final (DWQ-2019-001902)
7. UGW210005 Permit 2019 Final (DWQ-2019-001901)

DWQ-2019-005581

STATE OF UTAH

INVOICE

SEND PAYMENT TO:
DEPT OF ENVIRONMENTAL QUALITY
WATER QUALITY
195 N 1950 West 3rd Fl
Salt Lake City UT 84114-4870

Invoice Number:	Original Invoice Date:
1970000444	05-21-19
Amount Due:	**Due Date:**
$9,000.00	06-20-19

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

AMOUNT ENCLOSED _____
Please write INVOICE NO. on front of check or money order

MAKE CHECKS PAYABLE TO:
UTAH DIVISION OF WATER QUALITY

AR DEPT:BPRO 480:48070

RETURN THIS PORTION WITH YOUR PAYMENT
RETAIN FOR YOUR RECORDS

Contact : Susan Woeppel 801-536-4354

STATE OF UTAH **MODIFIED**

Invoice Number:	Original Invoice Date:	Due Date:	Amount Due:
1970000444	05-21-19	06-20-19	$9,000.00

Invoice Charges

Line Number	Description	Amount
1	*Legislative mandated fee for Staff Review. 3 permits, 30 hours per permit, @ $100 per hour.*	*$9,000.00*
	Total Invoice Charges	*$9,000.00*

Other Charges

Description	Amount
Other Fee	*$0.00*
NSF Fee	*$0.00*
Total Other Charges	*$0.00*
Payments Applied	*$0.00*
Total Amount Due	*$9,000.00*

Instructions:

DUE DATE: 06-20-19 AMOUNT DUE: $9,000.00

DWQ-2019-005652

STATEMENT OF BASIS

GROUND WATER DISCHARGE PERMIT UGW010002

Smithfield Foods, Inc. – Skyline Complex Farms
Milford, Utah

May 2019

Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules[1] (Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water[2]. As defined by the Ground Water Rules, such facilities include Agricultural 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 quality[5]; and higher-quality ground water is given greater protection[6] due to the greater potential for beneficial uses.

Under Rule 317-6, Smithfield Foods, Inc. has requested a ground water discharge permit renewal (Permit) for the Skyline Farm Complex. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the operations, maintenance, best available technology[7] (BAT), and the hydrogeologic and climatic conditions of the site, to insure that the operation would not contaminate ground water.

Basis for Permit Renewal

This Permit is being renewed in accordance with R317-6-6.7. However, a permit may be terminated or a renewal denied if any one of the four items in R317-6-6.8 applies:

A. Noncompliance by the permittee with any condition of the Permit where the permittee has failed to take appropriate action in a timely manner to remedy the Permit violation;

B. The permittee's failure in the application or during the Permit approval process to disclose fully all significant relevant facts at any time;

C. A determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

D. The permittee requests termination of the Permit.

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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
[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

Smithfield Hog Production's groundwater discharge permit for the Skyline Farm Complex (UGW010002) is being renewed for a five-year permit term. Smithfield Hog Production operates swine production facilities in Beaver County southwest of Milford, Utah. Manure from each of the swine production facilities is drained into an associated anaerobic lagoon system for treatment and storage. The lagoon systems at the farm sites consist of one primary lagoon and one containment basin for evaporation. The primary lagoons and the containment basins are each compacted to at least 90 percent of maximum dry density and lined with a 40-mil high density polyethylene (HDPE) flexible membrane liner (FML), or for 10 lagoons, clay. Table 1 below provides a summary of the Smithfield Hog Production permitted facilities for the Skyline Farm Complex.

Table 1: Summary of Smithfield Hog Production Ground Water Discharge Permit

Permit No.	Complex/County	Facility Type	Farm Nos.	Total Farm Sites
UGW010002	Skyline/Beaver	Sow Farms Nursery Farms Finisher Farms Boar Stud Facility	41101- 41108 41201- 41210 41301- 41323 49170	42

Hydrogeology

The Milford basin lies in southwestern Utah, and comprises a 3,004 km^2 area in the Basin and Range physiographic province. The mountain ranges adjacent to the basin are bounded by normal faults and have large coalescing alluvial fans extending into the valley. The principal water-yielding aquifer is a basin-fill aquifer. Sediments that make up the basin-fill aquifer are late Tertiary to Quaternary age and consist of multiple discontinuous layers of silt, sand, and gravel separated by less permeable layers of clay and silt. The basin-fill deposits are at least 270 m thick in the basin center and thin toward the margins (Van der Hoven, 2001).

Ground Water Quality

Ground Water Class and Protection Levels Based on ground water quality data from historical site-specific monitoring wells, the ground water quality beneath farm sites ranges from Class 1A Pristine Ground Water to Class IV saline Ground Water. Compliance limits for each farm site are summarized in Appendix I of Permit UGW010002.

As required in Part I.E.5.(c) of the permit, a background monitoring program has been completed by the permittee to collect data for calculating well-specific background ground water quality statistics. This includes background ground water concentrations for total dissolved solids, chloride, bicarbonate, nitrate + nitrite as nitrogen, ammonia as nitrogen, and pH, all of which have been defined for the purposes of determining the applicable protection levels and compliance limits. Most wells have more than a 10-year monitoring history. Compliance limits for all farms were evaluated for this permit issuance.

Class I Protection Levels. In accordance with UAC R317-6-4.2, Class I ground water will be protected to the extent feasible from degradation due to facilities that discharge or would probably discharge to ground water. Class I protection levels are established in accordance with the following criteria in UAC R317-6-4.2B.

Class II Protection Levels. In accordance with UAC R317-6-4.5, Class II ground water will be protected for use as drinking water or other similar beneficial use with conventional treatment prior to use. Class II protection levels are established in accordance with the following criteria in UAC R317-6-4.5B.

Class III Protection Levels. In accordance with UAC R317-6-4.6, Class III ground water will be protected as a potential source of drinking water after substantial treatment, and as a source of water for industry and agriculture. Class III protection levels are established in accordance with the following criteria in UAC R317-6-4.6B.

Class IV Protection Levels. In accordance with UAC R317-6-4.5, Protection levels for Class IV ground water will be established to protect human health and the environment.

Long term ground water elevation monitoring indicates a steady decline in the water table elevation over the last several years. Some monitoring wells with a small water column purge to dry conditions, which can affect the quality of the water sample.

Compliance Monitoring Program

A ground water monitoring well system has been installed at each of the lagoon systems for the purpose of establishing the ground water gradient at each farm site and to monitor the ground water quality both upgradient and downgradient in the uppermost water-bearing zone under the lagoons. Ground water is sampled and analyzed semi-annually for the term of the permit. The following key leakage parameters were selected for compliance monitoring based on their high concentrations in the process water compared to concentrations in shallow ground water:

- Bicarbonate
- Nitrate+ nitrite as N
- Chloride
- Total Dissolved Solids

In order to more completely identify background analyte concentrations relative to drought conditions or individual sources, Smithfield Hog Production will collect and report additional major ion concentrations for one year (two semi-annual samples) from all wells at three farm locations. The farms requiring this additional water quality sampling are 41304, 41318, and 49170. The water quality constituents, including the aforementioned, are as follows:

- Major anions (Sulfate)
- Major cations (Sodium, Potassium, Magnesium, Calcium)

Field parameters collected for each groundwater sampling event include: pH, specific conductance, and temperature. This list of ground water monitoring parameters may be updated in the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan* .

Regulatory decisions made as a result of ground water monitoring must take into account the background variability of ground water quality at the sites. Smithfield Hog Production will not be required to take corrective action if it can be verified that changes in ground water quality are a result of other factors not related to their operations.

Best Available Technology (BAT)

The administration of this permit is founded on the use of best available treatment technology, in accordance with the requirements of UAC R317-6-1.3.

These farm sites each have at least one primary lagoon and a containment basin for evaporation. Primary lagoons and containment basins are compacted to a minimum of 90 percent maximum dry density (ASTM D698) and lined with a 40-mil synthetic high-density polyethylene (HDPE) FML. The coefficient of permeability for 40-mil HDPE is 2.7×10^{-13} cm/sec (Haxo and Lahey, 1988). The constructed depth and maximum operating depth of the primary and containment basins at each farm site are included in the construction permits and construction permit applications.

The lagoon system is sized to accept up to 1.8 cubic feet of volume per live animal weight (LAW) in the primary lagoon for sow, finisher, and boar stud farms (2.3 cubic feet for nursery farms) and provide enough surface area for evaporation of water in the containment basin. The primary lagoons at each farm site are designed to operate as anaerobic waste treatment lagoons in which liquid and solid swine waste flushed from the pits under the animal containment barns is digested primarily by anaerobic bacteria in the treatment volume of the lagoon and sludge accumulates in the underlying sludge volume. These design specifications require the establishment and maintenance of a properly balanced bacterial population, which is realized through the proper operation, and management of the anaerobic lagoons. Proper operation and management of anaerobic lagoons will also optimize volatile solids digestion and prevent excessive sludge build up extending the effective life of the lagoon before sludge removal is required. Only wastes from the hog-raising operations may be treated in the lagoons. The design, operational, and contingency requirements detailed above represent Best Available Technology since the implementation of these requirements is expected to be protective of ground water resources in the area surrounding the facility.

Currently Smithfield Hog Production has 42 farm sites in operation for this permit, and each site has at least one primary lagoon where manure solids are collected. It may be necessary to remove accumulated solids from the bottom of each primary lagoon at the farm sites so that treatment zones are maintained. Sludge storage volume is engineered for approximately 20 years of accumulation. Sludge accumulation is measured and reported. Smithfield Hog Production has implemented a program to remove the solids from the lagoons and dry the manure on a drying pad constructed near the lagoon. The manure is a nutrient source and the drying of the manure will allow the nutrients to be sold and applied to local cropland at agronomic rates. Drying pad construction will follow the engineering design approved by a licensed Professional Engineer with the Utah Division of Water Quality.

Potential Impacts to Ground Water

Leakage from liners can cause degradation of the ground water at the permitted sites. Potential impacts to ground water can be minimized by employing best available technology and discharge minimization technology for the lagoons. BAT performance monitoring, treatment technology, and compliance monitoring wells are used to ensure that the facility is operated in accordance with design specifications and will also ensure that any early indications of facility problems will be detected.

Liner replacements in the primary lagoon have been made at farms 41108, 41317, 41319, and

41320; these lagoons previously had clay liners. Based on hydrogeological tests to determine the rate of groundwater velocity in the Skyline area, improvements in ground water quality measured at downgradient monitoring wells require several years following repairs. These farms are considered compliant even though a monitoring well may have analytical results exceeding a compliance limit for that farm. Statistical trend analysis is used for an appropriate period of time that allows for a natural decrease in elevated target parameters. If no decrease is observed, further Corrective Action may be warranted.

A Source Assessment investigation has been completed at farm 41108, and 41319. Monitoring parameter trends are observed at these farms during the permit term. If further degradation of ground water from probable failure of BAT is observed, additional source assessment or corrective action may be required.

Major Permit Changes

No major changes to Permit UGW010002 have been made for this permit cycle.

Compliance Schedule

No compliance schedule items required for Permit UGW010002 under this permit cycle.

Permit Application Documents

Applicable Smithfield Hog Production Operations Documents for this permit include but are not limited to:

Anaerobic Lagoon Systems Operation and Maintenance Manual (rev. 2015)

Spill Prevention and Response Manual (rev. 2015)

Sludge Disposal and Farm Closure Plan (rev. 2015)

Nutrient Management Plan for Land Application (rev. 2015)

Smithfield Hog Production Sampling and Analysis Plan (rev. 2015)

Manure Drying Program Plan (rev. 2013)

References:

ASAE, 1999. American National Standards Institute/American Society of Agricultural Engineers (ANSI/ASAE) Engineering Practice EP403.3 Jul99, *Design of Anaerobic Lagoons for Animal Waste Management* pp 6. Retrieved on January 30, 2019 from http://agrienvarchive.ca/bioenergy/download/anaerobic_lagoons_asae_ep403.3.pdf

ASAE, 2012. American National Standards Institute/American Society of Agricultural Engineers (ANSI/ASAE) Engineering Practice EP379.5 APR2012, *Management of Manure Odors* pp 7. Retrieved on January 30, 2019 from https://elibrary.asabe.org/azdez.asp?JID=2&AID=41359&CID=s2000&T=2

Haxo, H.E., and Lahey, T.P., 1988. Transport of Dissolved Organics from Dilute Aqueous Solutions Through Flexible Membrane Liners, Hazardous Waste and Hazardous Materials, 1988, 5, 275-294.

Miller, R. and Major, J., 2013. Lagoon Startup and Maintenance for Optimal Livestock Waste Treatment. Utah State Cooperative Extension: Logan, UT. Retrieved on January 30, 2019 from https://extension.usu.edu/agwastemanagement/ou-files/pdfs/Lagoon_Startup_and_Maintenance_2013.pdf

NRCS, 2009. Chapter 13 Operation, Maintenance, and Safety In L. Owens, S. Self, W. Pierce (Eds.), *Part 651 Agricultural Waste Management Field Handbook* (pp. 57). Washington D.C.. Retrieved on January 30, 2019 from https://www.wcc.nrcs.usda.gov/ftpref/wntsc/AWM/handbook/ch13.pdf

Van der Hoven, S.J. 2001. Determination of Groundwater Transport Rates, Annual Recharge, and Sources of Microbial Contamination in the Milford Basin, Utah. Department of Geography-Geology, Illinois State University

DWQ-2019-001120

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. UGW010002

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

Smithfield Foods, Inc. – Skyline Complex Farms
PO Box 100
Milford UT 84751

hereafter referred to as the Permittee, is granted a Ground Water Discharge Permit for the operation of hog production facilities at 42 existing farm sites southwest of Milford, Utah at the Skyline Farm Complex. The farm sites are located in Sections 27, 28, 33, and 34, T. 29 S., R. 11 W., Salt Lake Base & Meridian, Sections 2, 3, 4, 5, 7, 8, 9, 10, 16, and 19, T. 30 S., R. 11 W., Salt Lake Base & Meridian, and Sections 3, 4, 9, and 10, T. 30 S., R. 12 W., Salt Lake Base & Meridian.

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 June 3, 2019.

This permit and authorization to operate shall expire at midnight June 2, 2024.

Signed this 3rd day of June, 2019.

Erica B. Gaddis, PhD
Director

DWQ-2019-001119

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APPENDIX I Farm and Monitoring Well Compliance Limit Summary

APPENDIX II Monitoring Well Locations

APPENDIX III Summary of Construction Details for Primary and Secondary Lagoons

Applicable Smithfield Hog Production Skyline Farm Complex Operations Documents for this permit include but are not limited to:

Anaerobic Lagoon Systems Operation and Maintenance Manual (rev. 2015)

Spill Prevention and Response Manual (rev. 2015)

Sludge Disposal and Farm Closure Plan (rev. 2015)

Nutrient Management Plan for Land Application (rev. 2015)

Smithfield Hog Production Sampling and Analysis Plan (rev. 2015)

Manure Drying Program Plan (rev. 2013)

PART I SPECIFIC CONDITIONS

A. GROUND WATER CLASSIFICATION

Ground water class as defined in UAC R317-6-4 is indicated for each farm site in Appendix I. Ground water classification is determined through background ground water monitoring in the monitoring wells associated with each farm site. At farm sites 41103, 41104, 41105, 41106, 41108, 41201, 41204, 41205, 41206, 41306, 41307, 41308, 41309, 41311, 41312, 41313, 41314, 41316, 41317, 41318, 41319, 41320, 41321, 41322, and 41323 ground water is classified as Class IA, Pristine Ground Water. Farm sites 41101, 41102, 41107, 41203, 41209, 41303, 41304, 41305, 41310, 41315 and 49170 are underlain by Class II, Drinking Water Quality Ground Water. Farm sites 41202, 41207, 41208, 41210, 41301, and 41302 are underlain by Class III, Limited Use Ground Water.

B. BACKGROUND GROUND WATER QUALITY

Ground water quality information is presented in Appendix I. All parameters in Appendix I are in units of mg/l, except pH. 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.(c).

C. GROUND WATER PROTECTION LEVELS

Ground water compliance limits 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 as required in Part I.E.5.(c) of this permit. Compliance limits are based on 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.

Construction standards for the farm sites covered by this permit are detailed in the construction permits. The construction permits associated with each farm site are listed in Table 1.

TABLE 1 Construction Permits

Farm Sites	Construction Permit
41101, 41102, 41103, 41201, 41301	November 15, 1993 amended March 25, 1994
41202, 41203	March 17, 1995
41302, 41303, 41304, 41305	August 10, 1995
41204, 41205, 41206	October 27, 1995
41204, 41208	September 30, 1996
41209,41210	June 16, 1997
49170 49170 Expansion	March 31, 1998 September 16, 2005

41104, 41105, 41106	November 5, 1995
41306 through 41315	May 13, 1996
41107, 41108	April 1, 1997
41316 through 41323	July 1, 1997

These farm sites each have at least one primary lagoon and one containment basin for evaporation. The lagoon systems are sized to accept up to 1.8 cubic feet (for sow, finisher, and boar stud farms) or 2.3 cubic feet (for nursery farms) of volume per live animal weight (LAW) in the primary lagoon and provide enough surface area for evaporation of water in the containment basin. The primary lagoons and the containment basins are lined either with 12 inches of clay soil amended with bentonite or with a 40-mil high-density polyethylene (HDPE) flexible membrane liner (FML). The liners, both clay and FML, are designed to yield a liner hydraulic permeability coefficient no greater than 1×10^{-7} cm/sec. The liner type, dimensions, maximum operating depth, free board, liquid contact area, and operating volume of each primary and containment basin for each farm site are presented in the construction permits and construction permit applications covering those units. This information is summarized in Appendix III. Only wastes from the hog-raising operations may be treated in the lagoons.

The hog waste is drained into primary anaerobic lagoons for treatment and storage. The hog waste from twenty-three finisher farm sites, as an option, can be collected and conveyed through a Collection System to a Central Treatment Plant operated by a third party. The effluent from the Central Treatment plant is conveyed back to each existing primary lagoon of the finisher farms. A diversion valve connection is installed to either allow the wastewater from the recharge pits to continue to flow into the existing anaerobic lagoon system, or to be diverted into the buffer basins for treatment in the Central Treatment Plant.

Waste water from the lagoons may be land-applied as described below at the agronomic rate according to the most recently revised and approved version of the Smithfield Hog Production *Nutrient Management Plan for Land Application* (NMP). 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.

Currently Smithfield Hog Production has 42 operational farm sites for this permit, and each site has at least one primary lagoon where manure solids are collected and at least one secondary evaporative lagoon (Appendix III). It may be necessary to remove accumulated solids from the bottom of each primary lagoon at the farm sites. Sludge storage volume is engineered for approximately 20 years of accumulation. Smithfield Hog Production has implemented a program to remove the solids from the lagoons and dry the manure on a drying pad constructed near the lagoon. The manure is a nutrient source and the drying of the manure allows the nutrients to be sold and applied to local

cropland at agronomic rates. Drying pad construction will follow the engineering design approved by a licensed Professional Engineer with the Utah Division of Water Quality.

1. Performance Standard for Best Available Technology
Compliance with the requirements for use of best available technology (BAT) will be demonstrated by construction, maintenance and operation of the lagoon systems according to the construction permits issued previously for the sites.

   a. *Liner* - Performance of the clay or FML liner will be evaluated for compliance with the requirements of Part II.E of this permit. Liner integrity will be evaluated 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 which 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 lagoons and containment basins, as provided by liner slack and ballast when necessary to minimize billowing caused by the wind. Adequate slack and ballast when necessary will also be provided 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 lagoons 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 Smithfield Hog Production *Spill Prevention and Response Plan.*

   b. *Lagoons* - The performance standard for anaerobic lagoons operation is based on operating and maintaining the lagoons in a manner consistent with the design criteria detailed in the construction permits. The design of the primary lagoons is based on a total volumetric capacity of approximately 1.80 cubic feet per pound of LAW, consisting of 1.2 cubic foot for treatment and 0.6 cubic foot for 20-year sludge accumulation for boars, sows, and finishing hogs. Total volumetric lagoon capacity for nursery pigs is based on 1.97 cubic feet per pound of LAW for treatment and 0.29 cubic feet per pound of LAW for a 20-year sludge accumulation. The evaporation basins (secondary lagoons or containment basins) are designed to have a normal operating depth with additional surface area needed to maintain a constant depth, at the same time of each year and evaporate the excess wastewater during each annual cycle. Construction dimensions for each primary and secondary at each farm site are summarized in Appendix III.

      The anaerobic lagoon system must be operated and maintained in accordance with the most recently revised and approved Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual.* Performance of the anaerobic lagoons will be demonstrated by the monitoring specified in Part I.E.5.b.

c. *Land Application* - Land application is currently limited to the parcels of land contained in the West ½ of Section 27, North ½ of the North ½ of Section 28 and the West ½ of Section 33, T. 29 S., R. 11 W., SLB&M. Land application of wastewater from the farm sites covered by this permit is not planned as a routine method of wastewater treatment, but may be employed in an emergency situation. 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 Smithfield Hog Production *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 a DWQ engineer. Drying pad construction must be performed in accordance with the most recently revised and approved version of the Smithfield Hog Production *Manure Drying Program Plan.*

2. Closure Plan

Any lagoon system closure must be undertaken in compliance with the most recently revised and approved version of the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan* that has been prepared by the permittee.

Prior to closure of any lagoon or lagoon system, the permittee shall submit to the Director a site-specific closure plan for disposition of the liquids, solids and liner material of the lagoon(s) to be closed. A plan for land application of the liquids and solids at appropriate agronomic rates, on-site or at manure drying pads, or other disposal methods, will be submitted for approval by the Director. The lagoon liner material will be tested according to an approved testing plan to determine an appropriate means of disposal, which 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.

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 lagoon seepage. Under the provisions of this permit, ground water contamination in the shallow aquifer under the lagoon sites 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 at each existing farm site to establish the ground water gradient underlying each lagoon system and to monitor ground water quality in both the upgradient and downgradient wells. The permittee will be required to drill additional wells if the ground water flow directions are different than expected as revealed when the wells are drilled. The locations and status of the wells are

described in Appendix II. Information for any new wells installed for the farm sites covered under this permit shall be submitted to the Director and includes:

1. well identification,
2. latitude and longitude relative to NAD83,
3. hinge elevation, and
4. the well construction log.

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, 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 Part I.C 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.

1. Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*.

2. Unless revised by the Smithfield Hog Production *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.d.

3. Unless revised by the Smithfield Hog Production *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).

4. 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 accompanied by any supporting raw data.

b) Annual Monitoring - Annual compliance monitoring shall be conducted by the permittee under the provisions of this permit according to the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*, the Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual*, and the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan* as indicated below.

1. Compliance Monitoring – In addition to the semi-annual Ground Water Compliance Monitoring, major ion sampling will be performed for one year (two semi-annual samples) from all wells at three farm locations (41304, 41318, and 49170). Laboratory parameters to be measured for the annual monitoring, in addition to the semi-annual monitoring, shall be: sulfate, sodium, potassium, magnesium, and calcium. Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*.

2. Water Supply and Production Wells - All water supply and production wells supporting the activities at the farm sites covered by this permit shall be monitored annually for Nitrate plus Nitrite as Nitrogen and Total Dissolved Solids (TDS). Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*. The analytical results and any supporting raw data shall be submitted to

the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

3. Lagoon Waste Water - The waste water from a representative operating primary manure lagoon at a nursery (41202), sow (41102), and finisher (41302) farm site in the Skyline Complex shall be analyzed annually for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.* Samples shall be taken in the late summer when parameter concentrations should be at their yearly maximum. Analyses for nitrogen species shall be conducted at the same laboratory. Results of the wastewater monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

4. Lagoon Sludge - Sludge sampling at the primary lagoon at a nursery (41202), sow (41102), and finisher (41302) farm site in the Skyline Complex shall be analyzed annually for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Sample collection, handling, and analysis shall be conducted according to the most recently revised and approved version of the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan.* Samples shall be taken in the late summer when parameter concentrations should be at their yearly maximum. The results of this sludge sampling accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

5. Lagoon Performance Monitoring - Lagoon performance monitoring shall be conducted annually according to the most recently revised and approved version of the Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual.* Samples will be analyzed for temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Results of the lagoon performance monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality according to Part II.C

6. Lagoon Sludge Profiling - Sludge profiling of all primary lagoons shall be conducted annually at one third of the farms to ensure that each primary lagoon has been profiled every three years by the permittee according to the most recently revised and approved version of the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan.* Samples will be analyzed for temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. The results of this profiling accompanied by any supporting raw data shall be submitted to the Division of Water Quality according to Part II. D.

c) 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 Smithfield Hog Production *Sampling and Analysis Plan.* The results accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

d) 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 months for the entire Skyline Farm Complex. 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.

e) 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 Smithfield Hog Production *Sampling and Analysis Plan* and the provisions of UAC R317-6-6.3.

f) 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, the 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 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, and provide written notice within 5 days of the detection, and

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.

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. 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 Smithfield Hog Production *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 Smithfield Hog Production *Spill Prevention and Response Manual* 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

Monitoring Period	Report Due Date
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 Smithfield Hog Production *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 Smithfield Hog Production *Sampling and Analysis Plan.*

   c. Well Construction - All data associated with newly installed compliance and monitoring wells will be provided to the Director. This information includes the well identification, latitude and longitude relative to NAD83, well installation date, depth to ground water, and well construction information.

4) Water Supply and Production Well Report - The results of water supply and production well use throughout the Skyline Farm Complex, accompanied by any supporting raw data, shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report.

5) Lagoon Waste Water and Sludge Monitoring Report – The results of the annual lagoon waste water and sludge monitoring report accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report.

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 all required ground water monitoring data (analytical ground water results, water level measurements, water supply, lagoon waste water and sludge analytical results, sludge profile monitoring data, and the lagoon performance data) in the electronic format specified by the Director. A hard copy of the required reports, including data analysis will be provided to the Director. In addition, a pdf version of the full report, including analytical data, will be submitted through the DEQ Web Portal. All analytical data and updated tables will be provided in xlsx format. The data may be submitted through the online DEQ Submission Portal at https://deq.utah.gov/water-quality/water-quality-electronic-submissions. .

H. COMPLIANCE SCHEDULE

There are no outstanding compliance items at the time of this permit issuance for UGW010002.

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.

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 I

UGW010002 FARM AND MONITORING WELL COMPLIANCE LIMIT SUMMARY *

FARM SYSTEM	NITRATE + NITRITE (mg/L)	BICARBONATE (mg/L)	CHLORIDE (mg/L)	TOTAL DISSOLVED SOLIDS (mg/L)
41101	2.5	162	263	1144
41102	2.5	313	358	1460
41103	2.5	151	80	600
41104	2.5	190	63	378
41105	2.5	188	63	349
41106	2.5	210	63	322
41107	2.5	194	112	658
41108	2.5	198	94	590
41201	2.5	250	100	826
41202	7	316	2800	8200
41203	12.5	576	698	2470
41204	2.5	510	63	400
41205	2.5	226	63	403
41206	2.5	202	63	399
41207	10	500	3500	14000
41208	5	500	1400	8314
41209	5	436	3378	8328
41210	10	1200	5061	16000
41301	5	517	3500	9151
41302	5	361	1821	5266
41303	2.5	162	727	2200
41304	2.5	437	727	2200
41305	2.5	225	727	2200
41306	2.5	226	63	405
41307	2.5	228	63	374
41308	2.5	194	84	599
41309	2.5	241	63	550
41310	2.7	191	151	758
41311	2.5	177	63	336
41312	2.5	189	99	519

FARM SYSTEM	NITRATE + NITRITE (mg/L)	BICARBONATE (mg/L)	CHLORIDE (mg/L)	TOTAL DISSOLVED SOLIDS (mg/L)
41313	2.5	183	63	343
41314	5	167	63	393
41315	2.5	176	410	1425
41316	2.5	190	130	568
41317	2.5	195	93	569
41318	2.5	191	94	577
41319	2.5	242	70	499
41320	2.5	337	128	531
41321	2.5	186	114	541
41322	2.5	200	63	385
41323	2.5	177	114	498
49170	2.5	230	100	750

pH range for all farms is 6.5 – 8.5

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

APPENDIX II

MONITORING WELL LOCATIONS

Farm Site	Well	Latitude (North)	Longitude (West)	Hinge Elevation (feet – amsl)	Status
41101	41101MU2	38.237000	-113.102700	5030.1	active
	41101MD2	38.238950	-113.099450	5027.0	active
	41101MD3	38.239333	-113.100583	5027.7	active
	41101MD4	38.238950	-113.100750	5026.8	active
41102	41102MU	38.247217	-113.078667	5021.5	active
	41102MD2	38.263283	-113.098883	5023.2	active
41103	41103MU2	38.247217	-113.078667	5036.5	active
	41103MD2	38.248783	-113.075000	5040.2	active
	41103MD3	38.249016	-113.075950	5041.7	active
41104	41104MU	38.193967	-113.088583	5056.3	active
	41104MD	38.195417	-113.085317	5057.4	active
41105	41105MU	38.200600	-113.089500	5053.3	active
	41105MD2	38.202133	-113.086867	5054.0	active
41106	41106MU	38.208700	-113.089250	5051.1	active
	41106MD2	38.210117	-113.086683	5052.5	active
41107	41107MU	38.216083	-113.201100	5073.8	active
	41107MD	38.216783	-113.199050	5064.0	active
41108	41108MU	38.217517	-113.183817	5047.8	active
	41108MU2	38.219417	-113.190467	5065.6	active
	41108MU3	38.219433	-113.186017	5056.6	active
	41108MD	38.220133	-113.181317	5051.6	active
	41108MD2	38.217850	-113.181050	5044.9	active
	41108MD3	38.218700	-113.180900	5046.2	active
	41108MD4	38.217183	-113.181933	5043.7	active
41201	41201MU2	38.236217	-113.096017	5029.6	active
	41201MD2	38.237600	-113.095700	5029.9	active
	41201MD3	38.237250	-113.094883	5032.0	active
41202	41202MU	38.262783	-113.085300	5028.3	active
	41202MD	38.263450	-113.084133	5027.2	active
41203	41203MU3	38.262667	-113.076283	5031.7	active
	41203MD2	38.263583	-113.075200	5031.7	active
41204	41204MU	38.193283	-113.102250	5048.7	active
	41204MD	38.194000	-113.099800	5049.9	active
41205	41205MU	38.200200	-113.102117	5045.4	active
	41205MD	38.200783	-113.099717	5046.7	active
41206	41206MU	38.207750	-113.102033	5042.8	active
	41206MD	38.208367	-113.099617	5044.7	active
41207	41207MU	38.219450	-113.128883	5021.7	active
	41207MD	38.220283	-113.126950	5022.1	active
41208	41208MU	38.219500	-113.137133	5021.4	active
	41208MD	38.160550	-113.136117	5020.7	active
41209	41209MU	38.207933	-113.128000	5027.5	active
	41209MD	38.208600	-113.126433	5026.4	active
41210	41210MU	38.207067	-113.132900	5026.5	active
	41210 MD	38.208550	-113.132917	5025.4	active
41301	41301MU2	38.247900	-113.102060	5029.4	active
	41301MD2	38.250522	-113.100286	5029.2	active
41302	41302MU	38.256983	-113.102233	5016.5	active
	41302MD	38.258283	-113.099050	5027.3	active
41303	41303MU	38.253710	-113.095883	5021.6	active
	41303MD	38.254117	-113.092983	5023.9	active

Farm Site	Well	Latitude (North)	Longitude (West)	Hinge Elevation (feet – amsl)	Status
41304	41304MU	38.253217	-113.088117	5027.2	active
	41304MD	38.254083	-113.084967	5031.2	active
	41304MD2	38.253917	-113.086533	5031.5	active
	41304MD3	38.253333	-113.084950	5031.5	active
	41304MD4	38.252750	-113.083917	5031.8	active
41305	41305MU	38.257500	-113.087067	5029.4	active
	41305MD	38.259033	-113.085183	5030.2	active
41306	41306MU	38.219917	-113.103167	5037.4	active
	41306MD2	38.221600	-113.100000	5037.0	active
41307	41307MU	38.221700	-113.092067	5042.3	active
	41307MD2	38.221900	-113.091783	5043.0	active
41308	41308MU	38.221250	-113.085200	5045.3	active
	41308MD2	38.220883	-113.085100	5047.2	active
41309	41309MU	38.227850	-113.093717	5039.4	active
	41309MD2	38.228700	-113.090017	5037.3	active
41310	41310MU	38.227267	-113.084250	5042.0	active
	41310MD2	38.228167	-113.081367	5042.8	active
41311	41311MU2	38.226750	-113.065450	5058.0	active
	41311MD2	38.229483	-113.067950	5055.1	active
41312	41312MU2	38.227233	-113.057033	5068.8	active
	41312MD2	38.228500	-113.058833	5065.4	active
41313	41313MU2	38.235150	-113.061650	5059.6	active
	41313MD2	38.235883	-113.063700	5056.5	active
41314	41314MU2	38.234800	-113.047800	5077.7	active
	41314MD2	38.235383	-113.050433	5074.2	active
41315	41315MU	38.224683	-113.110683	5030.9	active
	41315MD	38.226300	-113.108833	5031.4	active
41316	41316MU	38.228517	-113.202867	5134.3	active
	41316MD	38.226550	-113.199283	5128.6	active
41317	41317MU2	38.22396	-113.190117	5086.1	active
	41317MD2	38.226267	-113.187250	5088.3	active
	41317MD3	38.224500	-113.186355	5081.2	active
41318	41318MU2	38.225517	-113.179700	5076.8	active
	41318MD2	38.226533	-113.177483	5075.4	active
41319	41319MU	38.234367	-113.198500	5183.7	active
	41319MD	38.234483	-113.195200	5168.5	active
41320	41320MU	38.233800	-113.188150	5138.4	active
	41320MD2	38.234967	-113.184817	5138.3	active
	41320MD3	38.235294	-113.185300	5141.0	active
	41320MD4	38.233917	-113.184327	5130.3	active
41321	41321MU	38.235067	-113.178800	5111.0	active
	41321MD2	38.233467	-113.177500	5116.0	active
41322	41322MU	38.226233	-113.102967	5036.6	active
	41322MD	38.227967	-113.098833	5036.9	active
41323	41323MU	38.214933	-113.109817	5034.9	active
	41323MD	38.217917	-113.106883	5035.7	active
49170	49170MU	38.178700	-113.139083	5070.1	active
	49170MU2	38.179047	-113.140231	5067.1	active
	49170MD	38.179667	-113.137417	5059.5	active
	49170MD2	38.179725	-113.139917	5065.5	active

APPENDIX III

SUMMARY OF LAGOON CONSTRUCTION DETAILS

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
41101	Primary	FML	350	350	200	200	25	2.9	1,937,500
	Secondary	FML	215	251	125	161	15	1.3	535,226
	Tertiary	FML	321	224	270	173	7	1.7	411,991
41102	Primary	Clay	350	350	200	200	25	2.9	1,937,500
	Secondary	FML	334	373	239	278	15.8	2.9	1,485,224
41103	Primary	FML	350	350	200	200	25	2.9	1,937,500
	Secondary	FML	215	251	125	161	15	1.3	535,226
	Tertiary	FML	259	259	217	217	7	1.6	397,537
41104	Primary	FML	456	456	306	306	25	4.9	3,675,900
	Secondary	FML	540	540	506	506	5.7	6.7	1,559,664
41105	Primary	FML	456	456	306	306	25	4.9	3,675,900
	Secondary	FML	540	540	506	506	5.7	6.7	1,559,664
41106	Primary	FML	456	456	306	306	25	4.9	3,675,900
	Secondary	FML	540	540	506	506	5.7	6.7	1,559,664
41107	Primary	FML	540	385	390	235	25	4.9	3,646,553
	Secondary	FML	603	546	573	516	5	7.6	1,561,513
41108	Primary	FML	540	385	390	235	25	4.9	3,646,553
	Secondary	FML	603	546	573	516	5	7.6	1,561,513
41201	Primary - North	FML	188	188	60	60	16.2	0.8	271,210
	Primary - South	FML	191	191	140	140	8.5	0.9	234,659
	Secondary	FML	158	158	116	116	7	0.6	132,412
41202	Primary	FML	197	197	47	47	25	0.9	418,975
	Secondary	FML	193	193	139	139	9	0.9	250,191
41203	Primary	FML	197	197	47	47	25	0.9	418,975
	Secondary	FML	193	193	139	139	9	0.9	250,191
41204	Primary	FML	231	231	81	81	25	1.3	655,275
	Secondary	FML	270	270	236	236	5.7	1.7	365,400
41205	Primary	FML	231	231	81	81	25	1.3	655,275
	Secondary	FML	270	270	236	236	5.7	1.7	365,400
41206	Primary	FML	231	231	81	81	25	1.3	655,275
	Secondary	FML	270	270	236	236	5.7	1.7	365,400
41207	Primary	Clay	293	293	203	203	15	2	932,685
	Secondary	Clay	293	145	263	115	5	0.9	180,961
41208	Primary	Clay	293	293	203	203	15	2	932,685
	Secondary	Clay	293	145	263	115	5	0.9	180,961
41209	Primary	Clay	293	293	203	203	15	2	932,685
	Secondary	FML	293	145	263	115	5	0.9	180,961

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
41210	Primary	Clay	293	293	203	203	15	2	932,685
	Secondary	FML	293	145	263	115	5	0.9	180,961
49170	Primary – East	Clay	171	171	63	63	18	0.7	263,898
	Secondary – East	FML	171	171	63	63	18	0.7	263,898
	Primary – West	FML	91	91	53.8	53.8	6.2	0.2	33,214
	Secondary - West	FML	91	91	53.8	53.8	6.2	0.2	33,214
41301	Primary	Clay	350	350	200	200	25	2.9	1,937,500
	Secondary	FML	215	251	125	161	15	1.3	535,226
	Tertiary	FML	268	268	226	226	7	1.7	428,092
41302	Primary	FML	360	360	210	210	25	3.1	2,077,500
	Secondary	FML	309	309	267	267	7	2.2	581,637
41303	Primary	FML	360	360	210	210	25	3.1	2,077,500
	Secondary	FML	309	309	267	267	7	2.2	581,637
41304	Primary	FML	360	360	210	210	25	3.1	2,077,500
	Secondary	FML	309	309	267	267	7	2.2	581,637
41305	Primary	FML	360	360	210	210	25	3.1	2,077,500
	Secondary	FML	309	309	267	267	7	2.2	581,637
41306	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41307	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41308	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41309	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41310	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41311	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41312	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41313	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41314	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41315	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	251	251	210	210	6.8	1.5	362,238
41316	Primary	Clay	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204
41317	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
41318	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204
41319	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204
41320	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204
41321	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204
41322	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204
41323	Primary	FML	426	426	276	276	25	4.3	3,126,900
	Secondary	FML	432	366	402	336	5	3.7	732,204

STATEMENT OF BASIS

GROUND WATER DISCHARGE PERMIT UGW010008

Smithfield Foods, Inc. – Blue Mountain Complex Farms Beaver County
Milford, Utah

May 2019

Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules[1] (Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water[2]. As defined by the Ground Water Rules, such facilities include Agricultural 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 quality[5]; and higher-quality ground water is given greater protection[6] due to the greater potential for beneficial uses.

Under Rule 317-6, Smithfield Foods, Inc. has requested a ground water discharge permit renewal (Permit) for the Blue Mountain Farm Complex in Beaver County. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the operations, maintenance, best available technology[7] (BAT), and the hydrogeologic and climatic conditions of the site, to insure that the operation would not contaminate ground water.

Basis for Permit Renewal

This Permit is being renewed in accordance with R317-6-6.7. However, a permit may be terminated or a renewal denied if any one of the four items in R317-6-6.8 applies:

A. Noncompliance by the permittee with any condition of the Permit where the permittee has failed to take appropriate action in a timely manner to remedy the Permit violation;

B. The permittee's failure in the application or during the Permit approval process to disclose fully all significant relevant facts at any time;

C. A determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

D. The permittee requests termination of the Permit.

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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
[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

Smithfield Hog Production's groundwater discharge permit for the Blue Mountain Beaver County Farm Complex (UGW010008) is being renewed for a five-year permit term. Smithfield Hog Production operates swine production facilities in Beaver and Iron Counties southwest of Milford, Utah. Manure from each of the swine production facilities is drained into an associated anaerobic lagoon system for treatment and storage. The lagoon systems at the farm sites consist of one primary lagoon and one containment basin for evaporation. The primary lagoons and the containment basins are each compacted to at least 90 percent of maximum dry density and lined with at least a 40-mil high density polyethylene (HDPE) flexible membrane liner (FML). Smithfield Hog Production has also constructed collection basins adjacent to some of the existing lagoon systems. Table 1 below provides a summary of the Smithfield Hog Productionpermitted facilities for the Blue Mountain Beaver County Farm Complex.

Table 1: Summary of Smithfield Hog Production Ground Water Discharge Permit

Permit No.	Complex/County	Facility Type	Farm Nos.	Total Farm Sites
UGW010008	Blue Mountain /Beaver	Finisher Farms	42301- 42308 42315, 42316	10

Hydrogeology

The Milford basin lies in southwestern Utah, and comprises a 3,004 km^2 area in the Basin and Range physiographic province. The mountain ranges adjacent to the basin are bounded by normal faults and have large coalescing alluvial fans extending into the valley. The principal water-yielding aquifer is a basin-fill aquifer. Sediments that make up the basin-fill aquifer are late Tertiary to Quaternary age and consist of multiple discontinuous layers of silt, sand, and gravel separated by less permeable layers of clay and silt. The basin-fill deposits are at least 270 m thick in the basin center and thin toward the margins (Van der Hoven, 2001).

Ground Water Quality

Ground Water Class and Protection Levels Based on ground water quality data from historical site-specific monitoring wells, the ground water quality beneath farm sites 42301, 42302, 42303, 42304, 42305, 42306, 42307, and 42308 is Class 1A Pristine Ground Water to Class IV saline Ground Water. The ground water quality beneath farm sites 42315 and 42316 is Class II Drinking Water and Class III Limited Use ground water quality. Compliance limits for each farm site are summarized in Appendix I of Permit UGW010008.

As required in Part I.E.5.(c) of the permit, a background monitoring program has been completed by the permittee to collect data for calculating well-specific background ground water quality statistics. This includes background ground water concentrations for total dissolved solids, chloride, bicarbonate, nitrate + nitrite as nitrogen, ammonia as nitrogen, and pH, all of which have been defined for the purposes of determining the applicable protection levels and compliance limits. Most wells have more than a 10-year monitoring history. Compliance limits for all farms were evaluated for this permit issuance.

Class I Protection Levels. In accordance with UAC R317-6-4.2, Class I ground water will be protected to the extent feasible from degradation due to facilities that discharge or would probably discharge to ground water. Class I protection levels are established in accordance with

the following criteria in UAC R317-6-4.2B.

Class II Protection Levels. In accordance with UAC R317-6-4.5, Class II ground water will be protected for use as drinking water or other similar beneficial use with conventional treatment prior to use. Class II protection levels are established in accordance with the following criteria in UAC R317-6-4.5B.

Class III Protection Levels. In accordance with UAC R317-6-4.6, Class III ground water will be protected as a potential source of drinking water after substantial treatment, and as a source of water for industry and agriculture. Class III protection levels are established in accordance with the following criteria in UAC R317-6-4.6B.

Class IV Protection Levels. In accordance with UAC R317-6-4.5, Protection levels for Class IV ground water will be established to protect human health and the environment.

Long term ground water elevation monitoring indicates a steady decline in the water table elevation over the last several years. Some monitoring wells with a small water column purge to dry conditions, which can affect the quality of the water sample.

Compliance Monitoring Program

A ground water monitoring well system has been installed at each of the lagoon systems for the purpose of establishing the ground water gradient at each farm site and to monitor the ground water quality both upgradient and downgradient in the uppermost water-bearing zone under the lagoons. Ground water is sampled and analyzed semi-annually for the term of the permit. The following key leakage parameters were selected for compliance monitoring based on their high concentrations in the process water compared to concentrations in shallow ground water:

- Bicarbonate
- Nitrate+ nitrite as N
- Chloride
- Total Dissolved Solids

In order to more completely identify background analyte concentrations relative to drought conditions or individual sources, Smithfield Hog Production will collect and report additional major ion concentrations for one year (two semi-annual samples) from all wells at two farm locations. The farms requiring this additional water quality sampling are 42301 and 42305. The water quality constituents, including the aforementioned, are as follows:

- Major anions (Sulfate)
- Major cations (Sodium, Potassium, Magnesium, Calcium)

Field parameters collected for each groundwater sampling event include: pH, specific conductance, and temperature. This list of ground water monitoring parameters may be updated in the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.*

Regulatory decisions made as a result of ground water monitoring must take into account the background variability of ground water quality at the sites. Smithfield Hog Production will not be required to take corrective action if it can be verified that changes in ground water quality are a

result of other factors not related to their operations.

Best Available Technology (BAT)

The administration of this permit is founded on the use of best available treatment technology, in accordance with the requirements of UAC R317-6-1.3.

These farm sites each have at least one primary lagoon and a containment basin for evaporation. Primary lagoons and containment basins are compacted to a minimum of 90 percent maximum dry density (ASTM D698) and lined with at least a 40-mil synthetic high-density polyethylene (HDPE) FML. The coefficient of permeability for 40-mil HDPE is 2.7×10^{-13} cm/sec (Haxo and Lahey, 1988)[2]. The constructed depth and maximum operating depth of the primary and containment basins at each farm site are included in the construction permits and construction permit applications.

The lagoon system is sized to accept up to 1.8 cubic feet of volume per live animal weight (LAW) in the primary lagoon for finisher farms and provide enough surface area for evaporation of water in the containment basin. The primary lagoons at each farm site are designed to operate as anaerobic waste treatment lagoons in which liquid and solid swine waste flushed from the pits under the animal containment barns is digested primarily by anaerobic bacteria in the treatment volume of the lagoon and sludge accumulates in the underlying sludge volume. These design specifications require the establishment and maintenance of a properly balanced bacterial population, which is realized through the proper operation, and management of the anaerobic lagoons. Proper operation and management of anaerobic lagoons will also optimize volatile solids digestion and prevent excessive sludge build up extending the effective life of the lagoon before sludge removal is required. Only wastes from the hog-raising operations may be treated in the lagoons. The design, operational, and contingency requirements detailed above represent Best Available Technology since the implementation of these requirements is expected to be protective of ground water resources in the area surrounding the facility.

Currently Smithfield Hog Production has 10 farm sites in operation for this permit, and each site has a primary lagoon where manure solids are collected. It may be necessary to remove accumulated solids from the bottom of each primary lagoon at the farm sites so that treatment zones are maintained. Sludge storage volume is engineered for approximately 20 years of accumulation. Sludge accumulation is measured and reported. Smithfield Hog Production has implemented a program to remove the solids from the lagoons and dry the manure on a drying pad constructed near the lagoon. The manure is a nutrient source and the drying of the manure will allow the nutrients to be sold and applied to local cropland at agronomic rates. Drying pad construction will follow the engineering design approved by a licensed Professional Engineer with the Utah Division of Water Quality.

Potential Impacts to Ground Water

Leakage from liners can cause degradation of the ground water at the permitted sites. Potential impacts to ground water can be minimized by employing best available technology and discharge minimization technology for the lagoons. BAT performance monitoring, treatment technology, and compliance monitoring wells are used to ensure that the facility is operated in accordance with design specifications and will also ensure that any early indications of facility problems will be detected.

Liner repairs in the primary or evaporative lagoon have been made at farms 42301 and 42305;

these lagoons previously had FML liners. Based on hydrogeological tests to determine the rate of groundwater velocity in the Blue Mountain Beaver area, improvements in ground water quality measured at downgradient monitoring wells require several years following repairs. These farms are considered compliant even though a monitoring well may have analytical results exceeding a compliance limit for that farm. Statistical trend analysis is used for an appropriate period of time that allows for a natural decrease in elevated target parameters. If no decrease is observed, further Corrective Action may be warranted.

Major Permit Changes

No major changes to Permit UGW010008 have been made for this permit cycle.

Compliance Schedule

There are no outstanding compliance items at the time of this permit issuance for UGW010008.

Permit Application Documents

Applicable Smithfield Hog Production Operations Documents for this permit include but are not limited to:

Anaerobic Lagoon Systems Operation and Maintenance Manual (rev. 2015)

Spill Prevention and Response Manual (rev. 2015)

Sludge Disposal and Farm Closure Plan (rev. 2015)

Nutrient Management Plan for Land Application (rev. 2015)

Smithfield Hog Production Sampling and Analysis Plan (rev. 2015)

Manure Drying Program Plan (rev. 2013)

References:

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DWQ-2019-001900

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. UGW010008

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

Smithfield Foods, Inc. – Blue Mountain Complex Farms Beaver
County PO Box 100
Milford UT 84751

hereafter referred to as the Permittee, is granted a Ground Water Discharge Permit for the operation of hog production facilities at 10 existing farm sites southwest of Milford, Utah at the Blue Mountain Beaver Farm Complex. The farm sites are located in Sections 27, 28, 33, and 34, T. 29 S., R. 11 W., Salt Lake Base & Meridian, Sections 2, 3, 4, 5, 7, 8, 9, 10, 16, and 19, T. 30 S., R. 11 W., Salt Lake Base & Meridian, and Sections 3, 4, 9, and 10, T. 30 S., R. 12 W., Salt Lake Base & Meridian.

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 June 3, 2019.

This permit and authorization to operate shall expire at midnight June 2, 2024.

Signed this 3rd day of June, 2019.

Erica B. Gaddis, PhD
Director

DWQ-2019-001899

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Applicable Smithfield Hog Production Blue Mountain Beaver Farm Complex Operations Documents for this permit include but are not limited to:

Anaerobic Lagoon Systems Operation and Maintenance Manual (rev. 2015)

Spill Prevention and Response Manual (rev. 2015)

Sludge Disposal and Farm Closure Plan (rev. 2015)

Nutrient Management Plan for Land Application (rev. 2015)

Smithfield Hog Production Sampling and Analysis Plan (rev. 2015)

Manure Drying Program Plan (rev. 2013)

PART I SPECIFIC CONDITIONS

A. GROUND WATER CLASSIFICATION

Ground water class as defined in UAC R317-6-4 is indicated for each farm site in Appendix I. Ground water classification is determined through background ground water monitoring in the monitoring wells associated with each farm site. At farm sites 42301, 42302, 42303, 42304, 42305, 42306, 42307, 42308, and 42315 ground water is classified as Class IA, Pristine Ground Water. Farm site 42316 is underlain by Class III, Limited Use Ground Water.

B. BACKGROUND GROUND WATER QUALITY

Ground water quality information is presented in Appendix I. All parameters in Appendix I are in units of mg/l, except pH. 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.(c).

C. GROUND WATER PROTECTION LEVELS

Ground water compliance limits 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 as required in Part I.E.5.(c) of this permit. Compliance limits are based on 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.

Construction standards for the farm sites covered by this permit are detailed in the construction permits. The construction permits associated with each farm site are listed in Table 1.

TABLE 1 Construction Permits

Farm Sites	Construction Permit
42301, 42302, 42303, 42304	August 3, 1998
42315, 42316	July 14, 2000
42305, 42306	October 1, 2001
42307, 42308	September 15, 2006

Except for farm sites 42302 and 42303, these farm sites each have at least one primary lagoon and one containment basin for evaporation. The lagoon systems are sized to accept up to 1.8 cubic feet the finisher farms of volume per live animal weight (LAW) in the primary lagoon and provide enough surface area for evaporation of water in the containment basin. Farm sites 42302 and 42303 have a common manure treatment System that treats combined waste from the two farm sites. The system consists of three ponds and a concrete processing pad for each farm site, and two evaporation or

containment basins that will be shared by the two farms. Treated water discharged from the B2 cell is contained in the basins (EVAP-1 or EVAP-2) for evaporation. When EVAP-1 is full, liquid waste overflows to EVAP-2.

All of the primary lagoons, the containment basins, are lined with at least a 40-mil high-density polyethylene (HDPE) flexible membrane liner (FML). The liners are designed to yield a liner hydraulic permeability coefficient no greater than 1×10^{-7} cm/sec. The liner type, dimensions, maximum operating depth, free board, liquid contact area, and operating volume of each primary and containment basin for each farm site are presented in the construction permits and construction permit applications covering those units. This information is summarized in Appendix III. Only wastes from the hog-raising operations may be treated in the lagoons.

Waste water from the lagoons and solids may be land-applied on an emergency basis as described below at the agronomic rate according to the most recently revised and approved version of the *Nutrient Management Plan for Land Application* (NMP). 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.

Currently Smithfield Hog Production has 10 farm sites in operation for this permit, and each site has a primary lagoon where manure solids are collected. It may be necessary to remove accumulated solids from the bottom of each primary lagoon at the farm sites. Sludge storage volume is engineered for approximately 20 years of accumulation. Smithfield Hog Production has implemented a program to remove the solids from the lagoons and dry the manure on a drying pad constructed near the lagoon. The manure is a nutrient source and the drying of the manure allows the nutrients to be sold and applied to local cropland at agronomic rates. Drying pad construction will follow the engineering design approved by a licensed professional engineer with the Utah Division of Water Quality.

1. Performance Standard for Best Available Technology
Compliance with the requirements for use of best available technology (BAT) will be demonstrated by construction, maintenance and operation of the lagoon systems according to the construction permits issued previously for the sites.

   a. *Liner* - Performance of the FML liner will be evaluated for compliance with the requirements of Part II.E of this permit. Liner integrity will be evaluated 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 which 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 lagoons and containment basins, as provided by liner slack and ballast

when necessary to minimize billowing caused by the wind. Adequate slack and ballast when necessary will also be provided 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 lagoons 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 Smithfield Hog Production *Spill Prevention and Response Plan.*

b. *Lagoons* - The performance standard for anaerobic lagoons operation is based on operating and maintaining the lagoons in a manner consistent with the design criteria detailed in the construction permits. The design of the primary lagoons is based on a total volumetric capacity of approximately 1.80 cubic feet per pound of LAW, consisting of 1.2 cubic foot for treatment and 0.6 cubic foot for 20-year sludge accumulation for finishing hogs. The evaporation basins (secondary lagoons or containment basins) are designed to have a normal operating depth with additional surface area needed to maintain a constant depth, at the same time of each year and evaporate the excess wastewater during each annual cycle. Construction dimensions for each primary and secondary at each farm site are summarized in Appendix III.

The anaerobic lagoon system must be operated and maintained in accordance with the most recently revised and approved Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual.* Performance of the anaerobic lagoons will be demonstrated by the monitoring specified in Part I.E.5.b.

c. *Land Application* - Land application is currently limited to the parcels of land contained in the West ½ of Section 27, North ½ of the North ½ of Section 28 and the West ½ of Section 33, T. 29 S., R. 11 W., SLB&M. Land application of wastewater from the farm sites covered by this permit is not planned as a routine method of wastewater treatment, but may 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 any parcel of land not described above 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 the Director. Drying 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 lagoon system closure 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.

Prior to closure of any lagoon or lagoon system, the permittee shall submit to the Director a site-specific closure plan for disposition of the liquids, solids and liner material of the lagoon(s) to be closed. A plan for land application of the liquids and solids at appropriate agronomic rates, on-site or at manure drying pads, or other disposal methods, will be submitted for approval by the Director. The lagoon liner material will be tested according to an approved testing plan to determine an appropriate means of disposal, which 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.

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 lagoon seepage. Under the provisions of this permit, ground water contamination in the shallow aquifer under the lagoon sites 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 at each existing farm site to establish the ground water gradient underlying each lagoon system and to monitor ground water quality in both the upgradient and downgradient wells. The permittee will be required to drill additional wells if the ground water flow directions are different than expected as revealed when the wells are drilled. The locations and status of the wells are described in Appendix II. Information for any new wells installed for the farm sites covered under this permit shall be submitted to the Director and includes:

1. well identification,
2. latitude and longitude relative to NAD83,
3. hinge elevation, and
4. the well construction log.

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, 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 Part I.C 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.

1. Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.*

2. Unless revised by the Smithfield Hog Production *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.d.

3. Unless revised by the Smithfield Hog Production *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).

4. 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 accompanied by any supporting raw data.

b) Annual Monitoring - Annual compliance monitoring shall be conducted by the permittee under the provisions of this permit according to the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*, the Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual*, and the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan* as indicated below.

1. Compliance Monitoring – In addition to the semi-annual Ground Water Compliance Monitoring, major ion sampling will be performed for one year (two semi-annual samples) from all wells at two farm locations (42301 and 42305). Laboratory parameters to me measured for the annual monitoring, in addition to the semi-annual monitoring, shall be: sulfate, sodium, potassium, magnesium, and calcium. Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.*

2. Water Supply and Production Wells - All water supply and production wells supporting the activities at the farm sites covered by this permit shall be monitored annually for Nitrate plus Nitrite as Nitrogen and Total Dissolved Solids (TDS). Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.* The analytical results, monthly pumping records, and any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

3. Lagoon Waste Water - The waste water from a representative operating primary manure lagoon at a nursery (42201), sow (42101), and finisher (42301) farm site in the Blue Mountain Complex shall be analyzed annually for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.* Samples shall be taken in the late summer when parameter concentrations should be at their yearly maximum. Analyses

for nitrogen species shall be conducted at the same laboratory. Results of the wastewater monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

4. Lagoon Sludge - Sludge sampling at the primary lagoon at a nursery (42201), sow (42101), and finisher (42301) farm site in the Blue Mountain Complex shall be analyzed annually for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Sample collection, handling, and analysis shall be conducted according to the most recently revised and approved version of the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan.* Samples shall be taken in the late summer when parameter concentrations should be at their yearly maximum. The results of this sludge sampling accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

5. Lagoon Performance Monitoring - Lagoon performance monitoring shall be conducted annually according to the most recently revised and approved version of the Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual.* Samples will be analyzed for temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Results of the lagoon performance monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality according to Part II.C

6. Lagoon Sludge Profiling - Sludge profiling of all primary lagoons shall be conducted annually at one third of the farms to ensure that each primary lagoon has been profiled every three years by the permittee according to the most recently revised and approved version of the Smithfield Hog Production Sludge *Disposal and Farm Closure Plan.* Samples will be analyzed for temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. The results of this profiling accompanied by any supporting raw data shall be submitted to the Division of Water Quality according to Part II. D.

c) 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 Smithfield Hog Production *Sampling and Analysis Plan*. The results accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

d) 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 months for the entire Blue Mountain Beaver Farm Complex. 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.

e) 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 Smithfield Hog Production *Sampling and Analysis Plan* and the provisions of UAC R317-6-6.3.

f) 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, the 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 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, and provide written notice within 5 days of the detection, and

         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.

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.

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 Smithfield Hog Production *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 Smithfield Hog Production *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

Monitoring Period	Report Due Date
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 Smithfield Hog Production *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 Smithfield Hog Production *Sampling and Analysis Plan.*

Well Construction - All data associated with newly installed compliance and monitoring wells will be provided to the Director. This information includes the well identification, latitude and longitude relative to NAD83, well installation date, depth to ground water, and well construction information.

4) Water Supply and Production Well Report - The results of water supply and production well use throughout the Skyline Farm Complex, accompanied by any supporting raw data, shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report.

5) Lagoon Waste Water and Sludge Monitoring Report – The results of the annual lagoon waste water and sludge monitoring report accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report.

8) Noncompliance or Probable Noncompliance - Reporting requirements for noncompliance or probable noncompliance status shall be according to the provisions of Part I.F.

9) Electronic Filing Requirements - In addition to submittal of the hard copy data, above, the permittee will electronically submit all required ground water monitoring data (analytical ground water results, water level measurements, water supply and production well volumes, lagoon waste water and sludge analytical results, sludge profile monitoring data, and the lagoon performance data) in the electronic format specified by the Director. A hard copy of the required reports, including data analysis will be provided to the Director. In addition, a pdf version of the full report, including analytical data, will be submitted through the DEQ Web Portal. All analytical data and tables will be provided in xlsx format. The data may be submitted through the online DEQ

Submission Portal at https://deq.utah.gov/water-quality/water-quality-electronic-submissions. .

H. COMPLIANCE SCHEDULE

There are no outstanding compliance items at the time of this permit issuance for UGW010008.

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.

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 I

UGW010008 FARM AND MONITORING WELL COMPLIANCE LIMIT SUMMARY *

FARM SYSTEM	NITRATE + NITRITE (mg/L)	BICARBONATE (mg/L)	CHLORIDE (mg/L)	TOTAL DISSOLVED SOLIDS (mg/L)
42301	2.5	208	85	500
42302	2.5	216	108	587
42303	2.5	216	108	587
421304	2.5	226	80	509
42305	2.5	233	157	689
42306	2.5	229	145	623
42307	2.5	222	160	643
42308	2.5	299	142	643
42315	2.5	245	74	502
42316	5	428	1939	6495

pH range for all farms is 6.5 – 8.5

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

APPENDIX II

MONITORING WELL LOCATIONS

Farm Site	Well	Latitude (North)	Longitude (West)	Hinge Elevation (feet – amsl)	Status
42301	42301MD	38.18734167	-113.2996169	5140.4	active
	42301MU	38.18662222	-113.3039361	5144.6	active
42302 & 42303	42302-3MU	38.17912222	-113.3050806	5126.9	active
	42302-3MD	38.17945278	-113.2987139	5118	active
	42302-3MD2	38.17698333	-113.2967111	5108.9	active
42304	42304MU	38.17357222	-113.3039083	5110.3	active
	42304MD	38.173725	-113.2995889	5104.3	active
42305	42305-6MU	38.18362222	-113.2848417	5118.8	active
	42305MD	38.18430278	-113.2824611	5132.6	active
	42305MD2	38.18269444	-113.2826944	5115.24	active
42306	42305-6MU	38.18362222	-113.2848417	5118.8	active
	42306MD	38.18432222	-113.2801028	5119.8	active
	42306MD2	38.18269722	-113.2804972	5113.2	active
42307	42305-6MU	38.18362222	-113.2848417	5118.8	active
	42307MD	38.18361111	-113.2769444	5119.7	active
	42307MD2	38.18361111	-113.2769444	5127.4	active
42308	42305-6MU	38.16695556	-113.2848417	5118.8	active
	42308MD	38.18277778	-113.2752778	5113.7	active
	42308MD2	38.18277778	-113.2752778	5108.9	active
42315	42315MU	38.15840556	-113.3054056	5077.6	inactive
	42315MU2	38.16083333	-113.3051056	5083.6	active
	42315MD	38.16026389	-113.3026083	5077.5	active
42316	42316MU	38.15835	-113.3007778	5072.9	active
	42316MD	38.15737778	-113.29715	5061.8	active

APPENDIX III

SUMMARY OF LAGOON CONSTRUCTION DETAILS

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
42301	Primary	FML	512	512	332	322	30	6.21	5,423,520
	Secondary	FML	437	437	411.8	411.8	4.2	4.41	756,707
42302	B1A	FML	360	129	288	57	10	1.07	279,660
	SE1A	FML	237	192	175	132	8	1.04	252,384
	SE1B	FML	237	192	175	132	8	1.04	252,384
42303	B1B	FML	360	129	288	57	10	1.07	279,660
	SE1C	FML	237	192	175	132	8	1.04	252,384
	SE1D	FML	237	192	175	132	8	1.04	252,384
42302 & 42303 Shared	SE2	FML	470	190	410	130	8	2.05	536,224
	B2	FML	456	159	372	75	12	1.66	548,640
	Evap 1	FML	800	400	746	346	7	7.35	1,971,452
	Evap 2	FML	461	461	423	423	4	4.88	764,068
42304	Primary	FML	512	512	332	322	30	6.21	5,423,520
	Secondary	FML	437	437	411.8	411.8	4.2	4.41	756,707
42305	Primary	FML	574	574	394	394	30	7.78	7,108,680
	Secondary	FML	440	440	415	415	4.2	4.47	767,795
42306	Primary	FML	574	574	394	394	30	7.78	7,108,680
	Secondary	FML	440	440	415	415	4.2	4.47	767,795
42307	Primary	FML	574	574	394	394	30	7.78	7,108,680
	Secondary	FML	440	440	415	415	4.2	4.47	767,795
42308	Primary	FML	574	574	394	394	30	7.78	7,108,680
	Secondary	FML	440	440	415	415	4.2	4.47	767,795

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
42315	Primary	FML	512	512	332	322	30	6.21	5,423,520
	Secondary	FML	437	437	411.8	411.8	4.2	4.41	756,707
42316	Primary	FML	512	512	332	322	30	6.21	5,423,520
	Secondary	FML	437	437	411.8	411.8	4.2	4.41	756,707

STATEMENT OF BASIS

GROUND WATER DISCHARGE PERMIT UGW210005

Smithfield Foods, Inc. – Blue Mountain Complex Farms Iron County
Milford, Utah

May 2019

Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules[1] (Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water[2]. As defined by the Ground Water Rules, such facilities include Agricultural 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 quality[5]; and higher-quality ground water is given greater protection[6] due to the greater potential for beneficial uses.

Under Rule 317-6, Smithfield Foods, Inc. has requested a ground water discharge permit renewal (Permit) for the Blue Mountain Farm Complex in Iron County. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the operations, maintenance, best available technology[7] (BAT), and the hydrogeologic and climatic conditions of the site, to insure that the operation would not contaminate ground water.

Basis for Permit Renewal

This Permit is being renewed in accordance with R317-6-6.7. However, a permit may be terminated or a renewal denied if any one of the four items in R317-6-6.8 applies:

A. Noncompliance by the permittee with any condition of the Permit where the permittee has failed to take appropriate action in a timely manner to remedy the Permit violation;

B. The permittee's failure in the application or during the Permit approval process to disclose fully all significant relevant facts at any time;

C. A determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

D. The permittee requests termination of the Permit.

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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
[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

Smithfield Hog Production's groundwater discharge permit for the Blue Mountain Iron Farm Complex (UGW210005) is being renewed for a five-year permit term. Smithfield Hog Production operates swine production facilities in Beaver and Iron Counties southwest of Milford, Utah. Manure from each of the swine production facilities is drained into an associated anaerobic lagoon system for treatment and storage. The lagoon systems at the farm sites consist of one primary lagoon and one containment basin for evaporation. The primary lagoons and the containment basins are each compacted to at least 90 percent of maximum dry density and lined with at least a 40-mil high density polyethylene (HDPE) flexible membrane liner (FML). Table 1 below provides a summary of the Smithfield Hog Production permitted facilities for the Blue Mountain Iron Farm Complex.

Table 1: Summary of Smithfield Hog ProductionGround Water Discharge Permit

Permit No.	Complex/County	Facility Type	Farm Nos.	Total Farm Sites
UGW210005	Blue Mountain/Iron	Sow Farms Nursery Farms	42100- 42108 42200- 42203	13

Hydrogeology

The Milford basin lies in southwestern Utah, and comprises a 3,004 km^2 area in the Basin and Range physiographic province. The mountain ranges adjacent to the basin are bounded by normal faults and have large coalescing alluvial fans extending into the valley. The principal water-yielding aquifer is a basin-fill aquifer. Sediments that make up the basin-fill aquifer are late Tertiary to Quaternary age and consist of multiple discontinuous layers of silt, sand, and gravel separated by less permeable layers of clay and silt. The basin-fill deposits are at least 270 m thick in the basin center and thin toward the margins (Van der Hoven, 2001).

Ground Water Quality

Ground Water Class and Protection Levels Based on ground water quality data from historical site-specific monitoring wells, the ground water quality beneath farm 42203 is Class 1A Pristine Ground Water. The ground water quality beneath farm sites 42100, 42101, 42102, 42103, 42104, 42105, 42106, 42107, 42108, 42200, 42201, and 42202 is Class II Drinking Water Quality Ground Water. Compliance limits for each farm site are summarized in Appendix I of Permit UGW210005.

As required in Part I.E.5.(c) of the permit, a background monitoring program has been completed by the permittee to collect data for calculating well-specific background ground water quality statistics. This includes background ground water concentrations for total dissolved solids, chloride, bicarbonate, nitrate + nitrite as nitrogen, ammonia as nitrogen, and pH, all of which have been defined for the purposes of determining the applicable protection levels and compliance limits. Most wells have more than a 10-year monitoring history. Compliance limits for all farms were evaluated for this permit issuance.

Class I Protection Levels. In accordance with UAC R317-6-4.2, Class I ground water will be protected to the extent feasible from degradation due to facilities that discharge or would probably discharge to ground water. Class I protection levels are established in accordance with

the following criteria in UAC R317-6-4.2B.

Class II Protection Levels. In accordance with UAC R317-6-4.5, Class II ground water will be protected for use as drinking water or other similar beneficial use with conventional treatment prior to use. Class II protection levels are established in accordance with the following criteria in UAC R317-6-4.5B.

Class III Protection Levels. In accordance with UAC R317-6-4.6, Class III ground water will be protected as a potential source of drinking water after substantial treatment, and as a source of water for industry and agriculture. Class III protection levels are established in accordance with the following criteria in UAC R317-6-4.6B.

Class IV Protection Levels. In accordance with UAC R317-6-4.5, Protection levels for Class IV ground water will be established to protect human health and the environment.

Long term ground water elevation monitoring indicates that drought is causing a steady decline in the water table elevation over the last several years. Some monitoring wells with a small water column purge to dry conditions, which can affect the quality of the water sample.

Compliance Monitoring Program

A ground water monitoring well system has been installed at each of the lagoon systems for the purpose of establishing the ground water gradient at each farm site and to monitor the ground water quality both upgradient and downgradient in the uppermost water-bearing zone under the lagoons. Ground water is sampled and analyzed semi-annually for the term of the permit. The following key leakage parameters were selected for compliance monitoring based on their high concentrations in the process water compared to concentrations in shallow ground water:

- Bicarbonate
- Nitrate+ nitrite as N
- Chloride
- Total Dissolved Solids

In order to more completely identify background analyte concentrations relative to drought conditions or individual sources, Smithfield Hog Production will collect and report additional major ion concentrations for one year (two semi-annual samples) from all wells at three farm locations. The farms requiring this additional water quality sampling are 42100, 42101, 42102, 42103, 42104, 42200, 42201, and 42202. The water quality constituents, including the aforementioned, are as follows:

- Major anions (Sulfate)
- Major cations (Sodium, Potassium, Magnesium, Calcium)

Field parameters collected for each groundwater sampling event include: pH, specific conductance, and temperature. This list of ground water monitoring parameters may be updated in the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.*

Regulatory decisions made as a result of ground water monitoring must take into account the background variability of ground water quality at the sites. Smithfield Hog Production will not

be required to take corrective action if it can be verified that changes in ground water quality are a result of other factors not related to their operations.

Best Available Technology (BAT)

The administration of this permit is founded on the use of best available treatment technology, in accordance with the requirements of UAC R317-6-1.3.

These farm sites each have at least one primary lagoon and a containment basin for evaporation. Primary lagoons and containment basins are compacted to a minimum of 90 percent maximum dry density (ASTM D698) and lined with at least a 40-mil synthetic high-density polyethylene (HDPE) FML. The coefficient of permeability for 40-mil HDPE is 2.7×10^{-13} cm/sec (Haxo and Lahey, 1988)[2]. The constructed depth and maximum operating depth of the primary and containment basins at each farm site are included in the construction permits and construction permit applications.

The lagoon system is sized to accept up to 1.8 cubic feet of volume per live animal weight (LAW) in the primary lagoon for sow farms (2.3 cubic feet for nursery farms) and provide enough surface area for evaporation of water in the containment basin. The primary lagoons at each farm site are designed to operate as anaerobic waste treatment lagoons in which liquid and solid swine waste flushed from the pits under the animal containment barns is digested primarily by anaerobic bacteria in the treatment volume of the lagoon and sludge accumulates in the underlying sludge volume. These design specifications require the establishment and maintenance of a properly balanced bacterial population, which is realized through the proper operation, and management of the anaerobic lagoons. Proper operation and management of anaerobic lagoons will also optimize volatile solids digestion and prevent excessive sludge build up extending the effective life of the lagoon before sludge removal is required. Only wastes from the hog-raising operations may be treated in the lagoons. The design, operational, and contingency requirements detailed above represent Best Available Technology since the implementation of these requirements is expected to be protective of ground water resources in the area surrounding the facility.

Currently Smithfield Hog Production has 13 farm sites in operation for this permit, and each site has a primary lagoon where manure solids are collected. It may be necessary to remove accumulated solids from the bottom of each primary lagoon at the farm sites so that treatment zones are maintained. Sludge storage volume is engineered for approximately 20 years of accumulation. Sludge accumulation is measured and reported. Smithfield Hog Production has implemented a program to remove the solids from the lagoons and dry the manure on a drying pad constructed near the lagoon. The manure is a nutrient source and the drying of the manure will allow the nutrients to be sold and applied to local cropland at agronomic rates. Drying pad construction will follow the engineering design approved by a licensed Professional Engineer with the Utah Division of Water Quality.

Potential Impacts to Ground Water

Leakage from liners can cause degradation of the ground water at the permitted sites. Potential impacts to ground water can be minimized by employing best available technology and discharge minimization technology for the lagoons. BAT performance monitoring, treatment technology, and compliance monitoring wells are used to ensure that the facility is operated in accordance with design specifications and will also ensure that any early indications of facility problems will be detected.

Leak detection surveys, repairs, and liner replacements in the lagoons have been made at farms 42102, 42306, and 42202. Based on hydrogeological tests to determine the rate of groundwater velocity in the Blue Mountain Iron County area, it will be several years following repairs for improvements in ground water quality to be measured at the downgradient monitoring wells. These farms are considered compliant even though a monitoring well may have analytical results exceeding a compliance limit for that farm. Statistical trend analysis is used for an appropriate period of time that allows for a natural decrease in elevated target parameters. If no decrease is observed, further Corrective Action may be warranted.

Source Assessment investigations have also been completed at farms 42101, 42103, 42104, and 42201. Monitoring parameter trends are observed at these farms during the permit term. If further degradation of ground water from probable failure of BAT is observed, additional source assessment or Corrective Action may be required.

Major Permit Changes

No major changes to Permit UGW210005 have been made for this permit cycle

Compliance Schedule

No compliance schedule items required for Permit UGW210005 under for this permit cycle

Permit Application Documents

Applicable Smithfield Hog Production Operations Documents for this permit include but are not limited to:

Anaerobic Lagoon Systems Operation and Maintenance Manual (rev. 2015)

Spill Prevention and Response Manual (rev. 2015)

Sludge Disposal and Farm Closure Plan (rev. 2015)

Nutrient Management Plan for Land Application (rev. 2015)

Smithfield Hog Production Sampling and Analysis Plan (rev. 2015)

Manure Drying Program Plan (rev. 2013)

References:

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DWQ-2019-001902

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. UGW210005

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

Smithfield Foods, Inc. – Blue Mountain Complex Farms Iron
County PO Box 100
Milford UT 84751

hereafter referred to as the Permittee, is granted a Ground Water Discharge Permit for the operation of hog production facilities at 13 existing farm sites southwest of Milford, Utah at the Blue Mountain Iron Farm Complex. The farm sites are located in Sections 27, 28, 33, and 34, T. 29 S., R. 11 W., Salt Lake Base & Meridian, Sections 2, 3, 4, 5, 7, 8, 9, 10, 16, and 19, T. 30 S., R. 11 W., Salt Lake Base & Meridian, and Sections 3, 4, 9, and 10, T. 30 S., R. 12 W., Salt Lake Base & Meridian.

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 June 3, 2019.

This permit and authorization to operate shall expire at midnight June 2, 2024.

Signed this 3rd day of June, 2019.

Erica B. Gaddis, PhD
Director

DWQ-2019-001901

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Applicable Smithfield Hog Production Blue Mountain Iron Farm Complex Operations Documents for this permit include but are not limited to:

Smithfield Hog Production Sampling and Analysis Plan

Anaerobic Lagoon Systems Operation and Maintenance Manual (rev. 2015)

Spill Prevention and Response Manual (rev. 2015)

Sludge Disposal and Farm Closure Plan (rev. 2015)

Nutrient Management Plan for Land Application (rev. 2015)

Smithfield Hog Production Sampling and Analysis Plan (rev. 2015)

Manure Drying Program Plan (rev. 2013)

PART I SPECIFIC CONDITIONS

A. GROUND WATER CLASSIFICATION

Ground water class as defined in UAC R317-6-4 is indicated for each farm site in Appendix I. Ground water classification is determined through background ground water monitoring in the monitoring wells associated with each farm site. At farm site42203 ground water is classified as Class IA, Pristine Ground Water. Farm sites 42100, 42101, 42102, 42103, 42104, 42105, 42106, 42107, 42108, 42200, 42201, and 42202 are underlain by Class II, Drinking Water Quality Ground Water..

B. BACKGROUND GROUND WATER QUALITY

Ground water quality information is presented in Appendix I. All parameters in Appendix I are in units of mg/l, except pH. 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.(c).

C. GROUND WATER PROTECTION LEVELS

Ground water compliance limits 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 as required in Part I.E.5.(c) of this permit. Compliance limits are based on 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.

Construction standards for the farm sites covered by this permit are detailed in the construction permits. The construction permits associated with each farm site are listed in Table 1.

TABLE 1 Construction Permits

Farm Sites	Construction Permit
42101, 42102, 42201, 42202	January 27, 1998
42100, 42200	August 10, 2000
42103, 42104, 42203	October 7, 1998
42105, 42106, 42107, 42108	May 1, 2005

These farm sites each have at least one primary lagoon and one containment basin for evaporation. The lagoon systems are sized to accept up to 1.8 cubic feet (for Sow farms) or 2.3 cubic feet (for Nursery farms) of volume per live animal weight (LAW) in the primary lagoon and provide enough surface area for evaporation of water in the containment basin. The primary lagoons and the containment basins are lined with at least a 40-mil high-density polyethylene (HDPE) flexible membrane liner (FML). The liners are designed to yield a liner hydraulic permeability coefficient no greater than

1×10^{-7} cm/sec. The liner type, dimensions, maximum operating depth, free board, liquid contact area, and operating volume of each primary and containment basin for each farm site are presented in the construction permits and construction permit applications covering those units. This information is summarized in Appendix III. Only wastes from the hog-raising operations may be treated in the lagoons.

Waste water from the lagoons may be land-applied on an emergency basis as described below at the agronomic rate according to the most recently revised and approved version of the *Nutrient Management Plan for Land Application* (NMP). 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.

Currently Smithfield Hog Production has 13 farm sites in operation for this permit, and each site has a primary lagoon where manure solids are collected. It is necessary to remove accumulated solids from the bottom of each primary lagoon at the farm sites. Sludge storage volume is engineered for approximately 20 years of accumulation. Smithfield Hog Production has implemented a program to remove the solids from the lagoons and dry the manure on a drying pad constructed near the lagoon. The manure is a nutrient source and the drying of the manure allows the nutrients to be sold and applied to local cropland at agronomic rates. Drying pad construction will follow the engineering design approved by a licensed Professional Engineer with the Utah Division of Water Quality.

1. Performance Standard for Best Available Technology
Compliance with the requirements for use of best available technology (BAT) will be demonstrated by construction, maintenance and operation of the lagoon systems according to the construction permits issued previously for the sites.

   a. *Liner* - Performance of the FML liner will be evaluated for compliance with the requirements of Part II.E of this permit. Liner integrity will be evaluated 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 which 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 lagoons and containment basins, as provided by liner slack and ballast when necessary to minimize billowing caused by the wind. Adequate slack and ballast when necessary will also be provided 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 lagoons 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 Smithfield Hog Production *Spill Prevention and Response Plan.*

b. *Lagoons* - The performance standard for anaerobic lagoons operation is based on operating and maintaining the lagoons in a manner consistent with the design criteria detailed in the construction permits. The design of the primary lagoons is based on a total volumetric capacity of approximately 1.80 cubic feet per pound of LAW, consisting of 1.2 cubic foot for treatment and 0.6 cubic foot for 20-year sludge accumulation for sows. Total volumetric lagoon capacity for nursery pigs is based on 1.97 cubic feet per pound of LAW for treatment and 0.29 cubic feet per pound of LAW for a 20-year sludge accumulation. The evaporation basins (secondary lagoons or containment basins) are designed to have a normal operating depth with additional surface area needed to maintain a constant depth, at the same time of each year and evaporate the excess wastewater during each annual cycle. Construction dimensions for each primary and secondary at each farm site are summarized in Appendix III.

The anaerobic lagoon system must be operated and maintained in accordance with the most recently revised and approved Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual.* Performance of the anaerobic lagoons will be demonstrated by the monitoring specified in Part I.E.5.b.

c. *Land Application* - Land application is currently limited to the parcels of land contained in the West ½ of Section 27, North ½ of the North ½ of Section 28 and the West ½ of Section 33, T. 29 S., R. 11 W., SLB&M. Land application of wastewater from the farm sites covered by this permit is not planned as a routine method of wastewater treatment, but may 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 any parcel of land not described above 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 Smithfield Hog Production *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 the Director. Drying pad construction must be performed in accordance with the most recently revised and approved version of the Smithfield Hog Production *Manure Drying Program Plan.*

2. Closure Plan

Any lagoon system closure must be undertaken in compliance with the most recently revised and approved version of the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan* that has been prepared by the permittee.

Prior to closure of any lagoon or lagoon system, the permittee shall submit to the Director a site-specific closure plan for disposition of the liquids, solids and liner material of the lagoon(s) to be closed. A plan for land application of the liquids and solids at appropriate agronomic rates, on-site or at manure drying pads, or other disposal methods, will be submitted for approval by the Director. The lagoon liner material will be tested according to an approved testing plan to determine an appropriate means of disposal, which 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.

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 lagoon seepage. Under the provisions of this permit, ground water contamination in the shallow aquifer under the lagoon sites 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 at each existing farm site to establish the ground water gradient underlying each lagoon system and to monitor ground water quality in both the upgradient and downgradient wells. The permittee will be required to drill additional wells if the ground water flow directions are different than expected as revealed when the wells are drilled. The locations and status of the wells are described in Appendix II. Information for any new wells installed for the farm sites covered under this permit shall be submitted to the Director and includes:

1. well identification,
2. latitude and longitude relative to NAD83,
3. hinge elevation,and
4. the well construction log.

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, 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 Part I.C 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.

      1. Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*.

      2. Unless revised by the Smithfield Hog Production *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.d.

      3. Unless revised by the Smithfield Hog Production *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).

4. 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 accompanied by any supporting raw data.

b) Annual Monitoring - Annual compliance monitoring shall be conducted by the permittee under the provisions of this permit according to the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan*, the Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual*, and the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan* as indicated below.

1. Compliance Monitoring – In addition to the semi-annual Ground Water Compliance Monitoring, major ion sampling will be performed for one year (two semi-annual samples) from all wells at eight farm locations (42100, 42101, 42102, 42103, 42104, 42200, 42201, and 42202). Laboratory parameters to be measured for the annual monitoring, in addition to the semi-annual monitoring, shall be sulfate, sodium, potassium, magnesium, and calcium. Sample collection, handling and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.*

2. Water Supply and Production Wells - All water supply and production wells supporting the activities at the farm sites covered by this permit shall be monitored annually for Nitrate plus Nitrite as Nitrogen and Total Dissolved Solids (TDS). Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.* The analytical results and any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

3. Lagoon Waste Water - The waste water from a representative operating primary manure lagoon at a nursery (42201), and sow (42101) farm site in the Blue Mountain Complex shall be analyzed annually for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Sample collection, handling, and analysis shall be conducted in accordance with the most recently revised and approved version of the Smithfield Hog Production *Sampling and Analysis Plan.* Samples shall be taken in the late summer when parameter concentrations should be at their yearly maximum. Analyses for nitrogen species shall be conducted at the same laboratory. Results of the wastewater monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

4. Lagoon Sludge - Sludge sampling at the primary lagoon at a nursery (42201), sow (42101), and finisher (42301) farm site in the Blue Mountain Complex shall be analyzed annually for the following parameters: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Sample collection, handling, and analysis shall be conducted according to the most recently revised and approved version of the Smithfield Hog Production *Sludge Disposal and Farm Closure Plan.* Samples shall be taken in the late summer when parameter concentrations should be at their yearly maximum. The results of this sludge sampling accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B.

5. Lagoon Performance Monitoring - Lagoon performance monitoring shall be conducted annually according to the most recently revised and approved version of the Smithfield Hog Production *Anaerobic Lagoon Systems Operation and Maintenance Manual.* Samples will be analyzed for: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. Results of the lagoon performance monitoring accompanied by any supporting raw data shall be submitted to the Division of Water Quality according to Part II.C

6. Lagoon Sludge Profiling - Sludge profiling of all primary lagoons shall be conducted annually at one third of the farms to ensure that each primary lagoon has been profiled every three years by the permittee according to the most recently revised and approved version of the Smithfield Hog Production Sludge *Disposal and Farm Closure Plan.* Samples will be analyzed for: temperature, specific conductance, pH, nitrate plus nitrite as nitrogen, ammonia as nitrogen, total Kjeldahl nitrogen (TKN), sulfate, bromide, chloride, total dissolved solids, sodium, potassium, calcium, magnesium, bicarbonate, carbonate, phosphorus, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc The results of this profiling accompanied by any supporting raw data shall be submitted to the Division of Water Quality according to Part II. D.

c) 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 Smithfield Hog Production *Sampling and Analysis Plan*. The results accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report according to Part II.B

d) 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 months for the entire Blue Mountain Iron Farm Complex. 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.

e) 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 Smithfield Hog Production *Sampling and Analysis Plan* and the provisions of UAC R317-6-6.3.

f) 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, the 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 protection level or compliance limit. Out of compliance status for exceedance of bicarbonate 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, and provide written notice within 5 days of the detection, and

         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.

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. 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 Smithfield Hog Production *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 Smithfield Hog Production *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

Monitoring Period	Report Due Date
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 Smithfield Hog Production *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 Smithfield Hog Production *Sampling and Analysis Plan.*

c. Well Construction - All data associated with newly installed compliance and monitoring wells will be provided to the Director. This information includes the well identification, latitude and longitude relative to NAD83, well installation date, depth to ground water, and well construction information.

4) Water Supply and Production Well Report - The results of water supply and production well use throughout the Blue Mountain Iron Farm Complex, accompanied by any supporting raw data, shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report.

5) Lagoon Waste Water and Sludge Monitoring Report – The results of the annual lagoon waste water and sludge monitoring report accompanied by any supporting raw data shall be submitted to the Division of Water Quality with the next Semi-annual Ground Water Quality Monitoring Report.

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 all required ground water monitoring data (analytical ground water results, water level measurements, water supply, lagoon waste water and sludge analytical results, sludge profile monitoring data, and the lagoon performance data) in the electronic format specified by the Director. A hard copy of the required reports, including data analysis will be provided to the Director. In addition, a pdf version of the full report, including analytical data, will be submitted through the DEQ Web Portal. All analytical data and tables will be provided in xlsx format. The data may be submitted through the online DEQ Submission Portal at https://deq.utah.gov/water-quality/water-quality-electronic-submissions. .

H. COMPLIANCE SCHEDULE

There are no outstanding compliance items at the time of this permit issuance for UGW210005.

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.

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 I

UGW210005 FARM AND MONITORING WELL COMPLIANCE LIMIT SUMMARY *

FARM SYSTEM	NITRATE + NITRITE (mg/L)	BICARBONATE (mg/L)	CHLORIDE (mg/L)	TOTAL DISSOLVED SOLIDS (mg/L)
42100	2.5	189	722	2716
42101	2.5	256	128	720
42102	2.5	202	132	680
42103	2.5	202	160	834
42104	30	202	150	834
42105	5	150	520	1900
42106	5	150	520	1900
42107	2.5	190	900	3150
42108	2.5	190	900	3150
42200	2.5	182	748	2853
42201	5	185	258	900
42202	5	193	258	900
42203	2.5	220	106	516

pH range for all farms is 6.5 – 8.5

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

APPENDIX II

MONITORING WELL LOCATIONS

Farm Site	Well	Latitude (North)	Longitude (West)	Hinge Elevation (feet – amsl)	Status
42100	42200MD/ 42100MU	38.08503889	-113.3514222	5135.3	active
	42100MD	38.08820278	-113.3463417	5124.9	active
	42100MD2	38.08772222	-113.3484417	5131.4	active
42101	42101MU	38.11535556	-113.3581444	5151.8	active
	42101MD	38.11723056	-113.3536278	5132.5	active
42102	42102MU	38.116425	-113.3491889	5125	active
	42102MD	38.11679444	-113.3465167	5112.8	active
42103	42103 & 4MU	38.10815278	-113.3502333	5131.2	active
	42103MD1	38.11186944	-113.3482417	5122.3	active
	42103MD2	38.1139	-113.3478222	5116.8	active
42104	42103&4MU	38.10815278	-113.3502333	5131.2	active
	42104MD1	38.11001944	-113.3485611	5124.3	active
	42104MD2	38.11032222	-113.3459083	5120.3	active
42105	42105-06MU	38.10125833	-113.3501944	5147	active
	42105MD	38.10531944	-113.3485194	5139	active
	42105MD2	38.10554722	-113.3459278	5128.7	active
42106	42106MD	38.10316667	-113.3485	5140.3	active
	42106MD2	38.10339722	-113.3458917	5131.3	active
42107	42107-08MU	38.09388889	-113.3483333	5147.9	active
	42107MD	38.09777778	-113.3466667	5140.6	active
	42107MD2	38.09805556	-113.3441667	5131.1	active
42108	42108MD	38.09651389	-113.3476583	5142.1	active
	42108MD2	38.09659167	-113.3451111	5132.8	active
42200	42200MU	38.083775	-113.3533167	5139.9	active
	42200MD/100MU	38.08503889	-113.3514222	5135.3	active
42201	42201MU	38.12740278	-113.3527361	5123.6	active
	42201MD/202M	38.12816389	-113.3499333	5110.7	active
42202	42201MD/202M	38.12816389	-113.3499333	5110.7	active
	42202MD	38.12831111	-113.3457389	5101.9	active
42203	42203MU	38.13982222	-113.3515361	5100.6	active
	42203MD	38.141125	-113.3498472	5094.8	active
	42203MD2	38.14106389	-113.3479833	5090.2	active

APPENDIX III

SUMMARY OF LAGOON CONSTRUCTION DETAILS

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
42100	Primary	FML	492	492	342	342	25	5.71	4,394,100
	Secondary	FML	615	615	595	595	3.3	8.71	1,208,390
42101	Primary	FML	495	495	345	345	25	5.78	4,456,875
	Secondary	FML	626	626	606	606	3.3	9.03	1,252,719
42102	Primary	FML	495	495	345	345	25	5.78	4,456,875
	Secondary	FML	626	626	606	606	3.3	9.03	1,252,719
42103	Primary	FML	492	492	342	342	25	5.71	4,394,100
	Secondary	FML	615	615	595	595	3.3	8.71	1,208,390
42104	Primary	FML	492	492	342	342	25	5.71	4,394,100
	Secondary	FML	615	615	595	595	3.3	8.71	1,208,390
42105	Primary	FML	503	503	353	353	25	5.97	4,726,440
	Secondary	FML	590	590	554	554	6	8.15	1,965,048
42106	Primary	FML	503	503	353	353	25	5.97	4,726,440
	Secondary	FML	590	590	554	554	6	8.15	1,965,048
42107	Primary	FML	503	503	353	353	25	5.97	4,726,440
	Secondary	FML	590	590	554	554	6	8.15	1,965,048
42108	Primary	FML	503	503	353	353	25	5.97	4,726,440
	Secondary	FML	590	590	554	554	6	8.15	1,965,048

Farm Site	Lagoon	Liner Type	Liquid Level Length, ft	Liquid Level Width, ft	Bottom Level Length, ft	Bottom Level Width, ft	Max. Liquid Depth, ft	Wetted Surface at Max. Liquid Depth, acres	Operating Volume at Max. Liquid Level Depth, cu. ft
42200	Primary	FML	222	222	102	102	20	1.18	4,106,171
	Secondary	FML	230	222	204	196	4.2	1.19	1,432,021
42201	Primary	FML	305	305	155	155	25	2.22	1,369,375
	Secondary	FML	512	305	492	285	3.3	3.6	489,052
42202	Primary	FML	305	305	155	155	25	2.22	1,369,375
	Secondary	FML	512	305	492	285	3.3	3.6	489,052
42203	Primary	FML	363	363	207	207	26	3.15	16,276,469
	Secondary	FML	472	472	451	451	3.5	5.15	5,667,100