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-2019-000602 BLJ

January 17, 2019

CERTIFIED MAIL
(Return Receipt Requested)

Mitch Hancock
Sun Ray Dairy
1240 North 5600 West
Corinne, UT 84307

Subject: Public Notice of Nutrient Management Plan (NMP) for Rasmussen Feedlot
UPDES General CAFO Permit UTG080100

Dear Mr. Hancock:

Enclosed is a copy of the dairy's NMP for public notice for permit issuance. Public notice of a CAFO's NMP is required prior to CAFO permit issuance. The public notice allows comments from the public on the NMP for at least 30 days. If significant comments are received, if any, DWQ may need to require the dairy to change the NMP based on the comments. **This information will also be made available on-line at http://www.waterquality.utah.gov/info/notices.htm**

If you have any questions with regards to this matter, please contact Don Hall at (801) 536-4492.

Sincerely,

Jeanne Riley, Manager
UPDES Storm Water Section

JR/DH/blj

Enclosures (3):
1. Rasmussen Feedlot Public Notice (DWQ-2019-000604)
2. Notice of Intent (DWQ-2019-000601)
3. Newspaper Letter (DWQ-2019-000603)

cc: Grant Koford, Bear River Health Department, via email w/enclosure
Jay Olsen, Utah Department of Agriculture and Food, via email w/enclosure
Monique Bridges, DWQ, via email w/enclosure

DWQ-2019-000602

NOTICE OF INTENT
Utah Pollutant Discharge Elimination System,
Concentrated Animal Feeding Operation (CAFO) General Permit,
Permit Number UTG08000

Submission of this Notice of Intent (NOI) with a complete NRCS certified planner approved Nutrient Management Plan (NMP) constitutes application for coverage under this CAFO General Permit. The NOI and NMP must be approved by the Utah Division of Water Quality for permit coverage to be granted under the general permit. Once permit coverage is granted, the permittee is obligated to comply with the requirements and conditions of the permit.

Required NOI Content (Attach additional pages if needed)	*(Division Use Only)* *Assigned CAFO General Permit Number:*
1. Name(s) of responsible owners and operators.	1. MITCH HANCOCK 2. NOO SUN DAIRY
2. Two contact phone numbers, if available.	1. [redacted] 2. [redacted]
3. Facility name.	NOO SUN DAIRY, RASMUSSEN FEEDLOT
4. Type of facility (dairy, beef feedlot, etc.).	DAIRY FEEDLOT
5. Facility physical address.	Street Address: 1855 N 6400 W Town/City, State, Zip: CORINNE UT 84307 Other location: (milepost, etc) County: BOX ELDER
6. Mailing address.	Street Address, PO Box, other: 1240 N 5600 W Town/City, State, Zip: CORINNE UT 84307
7. Email address *(optional)*:	1. [redacted] 2.
8. Latitude and longitude of production area or on-site office.	Location of lat/long (office or production area): Latitude North: Longitude West:
9. Attach with the NOI, a topographic map of the geographic area in which the CAFO is located showing the specific location of the production area and any nearby surface waters of the state.	
10. The name and location of the nearest surface water. Describe any conveyances to any surface waters of the State (washes, ditches, canals, pipes, culverts, etc.).	Name of nearest surface water: BEAR RIVER Location of surface water from production area: 3 MI Conveyances to surface water: SURFACE DITCHES, DRAIN DITCHES.

11. Type of animals (cows, calves, pullets, layers, swine over 55 pounds, swine under 55 pounds, etc.), and average weight of each type.	Type of Animal	Average Weight
	1. DAIRY HEIFER	800 lb
	2.	
	3.	
	4.	
	5.	

12. Number of animals for each type, and type of containment (housed, open lot, barn, etc.).	Number of Animals for Each Type	Containment Type
	1. 2200	Open Lot
	2.	
	3.	
	4.	
	5	

13. Type and number of solid and liquid waste retention, treatment, containment, and storage (anaerobic lagoon, evaporation pond, underfloor pit, concrete pad, storage shed, aerobic pond, manure pit, tailwater pond, concrete bunker, tanks, solid separator, runoff pond, bermed compost area, in-corral composting, etc.). Storage Capacity for manure, litter, compost, and process wastewater (tons, gallons, etc.) of each structure.	Type	Number	Storage Capacity
	1. BERMED DITCH	2	
	2. IN CORRAL COMPOSTING		10,000 TON
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		
	9.		
	10.		
14. Total number of acres under control of the applicant available for land application of manure, litter, compost, process wastewater.	Number of acres for land application: 385 ACRES		
15. Estimated amounts of manure, litter, compost, and process wastewater generated per year (tons, gallons, etc.).	Amount of manure generated: 29,000 TONS		
	Amount of litter generated:		
	Amount of compost generated: 15,000 TONS		
	Amount of process wastewater generated:		
16. Estimated amounts of manure, litter, compost, and process wastewater transferred or sold to other persons per year (tons, gallons, etc.).	Amount of manure transferred or sold:		
	Amount of litter transferred or sold:		
	Amount of compost transferred or sold: 15,000 TONS		
	Amount of process wastewater transferred or sold:		

Certified Planner Signature

I certify that I am a Natural Resources Conservation Service (NRCS) approved certified planner qualified to review and approve nutrient management plans (NMPs) for compliance with NRCS NMP planning practices and NRCS standard practices. I certify that the NMP developed for the facility submitting this NOI for permit coverage complies with Parts VII, VIII, IX, XI, and XII of the CAFO permit and all applicable NRCS practice standards, including Practice 590 and UMARI. The NMP, if fully implemented, will be in accordance with all NMP permit requirements and all applicable NRCS practice standards for the facility.

I approve the nutrient management plan for the facility seeking permit coverage under this NOI.

Signature	Date	Print Name
	5-18-15	Heather Thomas

Applicant Signature

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.

Signature	Date	Print Name
	5/18/2015	MITCH HANCOCK

PERMIT APPLICATION INSTRUCTIONS

Please see the CAFO permit application instructions below. Please contact the CAFO Program Coordinator at (801) 536-4492 or dghall@utah.gov, if you have questions.

Who must complete a Notice of Intent (NOI) Form?
Animal feeding operations that are Large CAFOs that discharge or Medium or Designated CAFOs, must submit a NOI for UPDES CAFO General Permit coverage. Please see Part II of the general permit or the CAFO Permit Fact Sheet/Statement of Basis, to determine whether your facility requires a CAFO permit.

How do I apply for permit coverage?
Submit a completed NOI, a certified planner approved NMP, and permit fee to the Utah Division of Water Quality by the facility's required permit application deadline.

When is the permit application due?
Please refer to Part III.A.5 in the permit for permit application deadlines.

Where do I submit the NOI Form, NMP, and permit fee?
Mail:
Attn: Accounts Receivable
Division of Water Quality
195 North 1950 West
P.O. Box 144870
Salt Lake City, UT 84114-4870

To submit the application in person:
Department of Environmental Quality
Division of Water Quality
195 North 1950 West (Multi-state Agency Office Building)
Salt Lake City, Utah 84116

Make all checks payable to the Division of Water Quality.

How much does the permit cost?

Please contact the AFO/CAFO Program Coordinator at (801) 536-4492 or email Don Hall at dghall@utah.gov to obtain the permit fee at the time of your permit application submission.

Nutrient Managements Plan (NMP)
Rasmussen Heifer Feedlot

Purpose: To provide the site specifications necessary to properly utilize manure generated on the Rasmussen Feedlot owned and operated by Mitch Hancock, and to prevent the degradation of soil, water, air, plant, and animal resources. To meet the objectives of the owner, get the most value from their manure, and to stay in compliance with current state and national regulations.

Farm/Facility: **Rasmussen Feedlot**
1855 N 6400 W
Corrine, Utah 84307

Owner Operator: Mitch Hancock

Farm Headquarters Latitude and Longitude: 41.541768, -112.169180

Plan Period: March 2016 to March 2021

Watershed Number 16010204
Certified Conservation Planner

I certify that I am a Natural Resources Conservation Service (NRCS) approved certified planner qualified to review and approve nutrient management plans (NMPS) for compliance with NRCS NMP planning practices and NRCS standard practices. I certify that the NMP developed for the facility submitting this NOI for permit coverage complies with parts VII, VIII, IX, XI and XII of the CAFO permit and all applicable NRCS practice standards, including Practice 590d UMARI. The NMP, if fully implemented, will be in accordance with all NMP permit requirements and all applicable NRCS practice standards for the facility.

I approve the nutrient management plan for the facility seeking permit coverage under this NOI.

Signature: _____ Date: 3-6-17
Name: Heywood Thomas
Title Nutrient Mgmt Planner Certification Credentials:

Owner Operator

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 gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed this system, or those persons directly responsible for gathering the information, the information submitted to us, 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 or imprisonment for knowing violations.

Signature: _____ Date 3/6/2017

Name: Mitch Hancock

Nutrient Managements Plan (NMP)
Rasmussen Heifer Feedlot

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Farm/Facility: **Rasmussen Feedlot**
1855 N 6400 W
Corrine, Utah 84307

Owner Operator: Mitch Hancock

Farm Headquarters Latitude and Longitude: 41.541768, -112.169180

Plan Period: March 2016 to March 2021

Watershed Number 16010204, Bear River

Certified Conservation Planner

I certify that I am a Natural Resources Conservation Service (NRCS) approved certified planner qualified to review and approve nutrient management plans (NMPS) for compliance with NRCS NMP planning practices and NRCS standard practices. I certify that the NMP developed for the facility submitting this NOI for permit coverage complies with parts VII, VIII, IX, XI and XII of the CAFO permit and all applicable NRCS practice standards, including Practice 590d UMARI. The NMP, if fully implemented, will be in accordance with all NMP permit requirements and all applicable NRCS practice standards for the facility.

I approve the nutrient management plan for the facility seeking permit coverage under this NOI.

Signature: _____ Date: _____
Name: _____
Title _____ Certification Credentials:

Owner Operator

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 gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed this system, or those persons directly responsible for gathering the information, the information submitted to us, 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 or imprisonment for knowing violations.

Signature: _____ Date _____

Name: Mitch Hancock

Table of Contents

Section 1 Background and Site Information

1.1 General Description of Operation

The feedlot is currently feeding about 2200 animals in a facility West of Corinne, Utah. The feedlot is located in the Bear River drainage basin. The land is well drained silt to sandy loam on zero to 2 percent slopes. Rainfall is generally not sufficient to fill the low spots in the feed lot and flow beyond an intercept ditch down slope from the feedlot. In addition to concrete barriers surrounding each individual pen, there is a bermed swell and an 18 acre parcel adjacent to the feedlot that will maintain all runoff water on the property owned by NooSun Dairy and Mr. Hancock. The field is only used for manure water overflow in the case of an extraordinary event, and is monitored for the NMP accordingly. The operation grows a significant portion of the feed for their dairy operation on 2300 acres of land owned and leased by the operation. Manure from the feedlot is applied to approximately 546 acres of cropland.

Section 2 Resource Concerns and Management

2.1 Soil Quality Concerns,

Soil Quality Concern	Activities to Address Concern
Ephemeral Gully Erosion	Not a concern
Gully Erosion	Not a concern
Sheet and Rill Erosion	Not a concern
Stream/Ditch bank Erosion	Not a concern
Wind Erosion	Plant cover crops after corn harvest
Nutrient Management	Follow recommendations of NMP
Acres Available for Manure Application	385 acres of cropland

2.2 Water Quality Concerns

Water Quality Concern	Activities to Address Concern
Facility Wastewater runoff	Crop Irrigation
Manure Runoff (Field Application)	Overland application by CNMP
Manure Runoff Production Area	Grass forage buffers
Nutrients in Ground Water	Application by CNMP peramiters
Nutrients in Surface Water	Crop planning for consumption
Silage Leachate	Flows to manure lagoons on dairy property
Fields with Excess Nutrients	Land application by CNMP
Tile Drained Fields	Buffers and prompt incorporation
100-Year Floods	Maintain adequate storage capacity
Run-on	Not a concern
Grazing	Not a concern
Water Source Protection	Not a concern

2.3 Other Concerns

Other Concerns	Activities to Address Concern
Aesthetics	Planning/forecasting needs
Maximize Nutrient Utilization	BMP with Agronomist
Minimize Nutrient Costs	BMP with Agronomist
Neighbor Relations	Present and active in the community
Profitability	Show me how?
Soil Compaction	Tillage practices
Time Available for Manure Application	Adequate storage capacity
Odors	Additives and aeration as needed
Air Quality	
Dust Control and Wind Borne Manure	Crop selection and prompt incorporation
Biosecurity	Security monitoring and signage

2.4 Map(s) of Areas of Concern

There are no imminent areas of concern for this facility. The issues relate to easier management of waste materials for the convenience of the operator during high rain fall events and winter storage concerns.

Section 3 Production Area Effluent Limitation Guidelines

3.1 Production Area Map

3.2 Generation Storage and Transfer of Manure and wastewater

Generation:

This plan is based on manure quantity and nutrient content estimates generated from NRCS guidelines for the animal type, waste production values, and number of animals. These estimated values account for typical storage, volatilization, denitrification, and mineralization losses based on the proposed methods of handling the manure. The approximately 2,200 feeders will produce approximately 18,000 tons per year of fresh manure. Straw is used to bed all of the animals.

For: Rasmussen Heifer Feedlot
County: Box Elder

Manure Production for Given Animal Type(s)

Type of Animal	Volume cu ft/d	Animal #s	A.U.	Number of days Confined	Manure volume cu ft
Heifers	1.37	1,300	1.000	365	650,065
Heifers	1.37	600	0.600	365	180,018
Heifers	1.37	300	0.500	365	75,008
Total A.U.'s:		1810			905,091

Storage:

Manure is left in the pens to aid in bedding during winter months. There is a 12 inch concrete barrier around each pen to contain all manure and rain water that falls on non-permeable surfaces in the feedlot. Each pen is surrounded by a 24 inch tall wall, in line with the perimeter fences, which restricts all manure and runoff water to that individual pen. The waste is then hauled to fields prior to planting or after crops are harvested. Pens are large enough to store all of the solid manure that is produced for a period of 180 days. Manure is applied to approximately 546 acres of farm land. The manure application is rotated around the 546 acres based on crop rotations and plant needs.

The area inside the alleyways is 51,600 cubic feet. There is no outlet for precipitation within this non-permeable area due to concrete wall containment. As needed this storage is then moved directly to the fields and land applied.

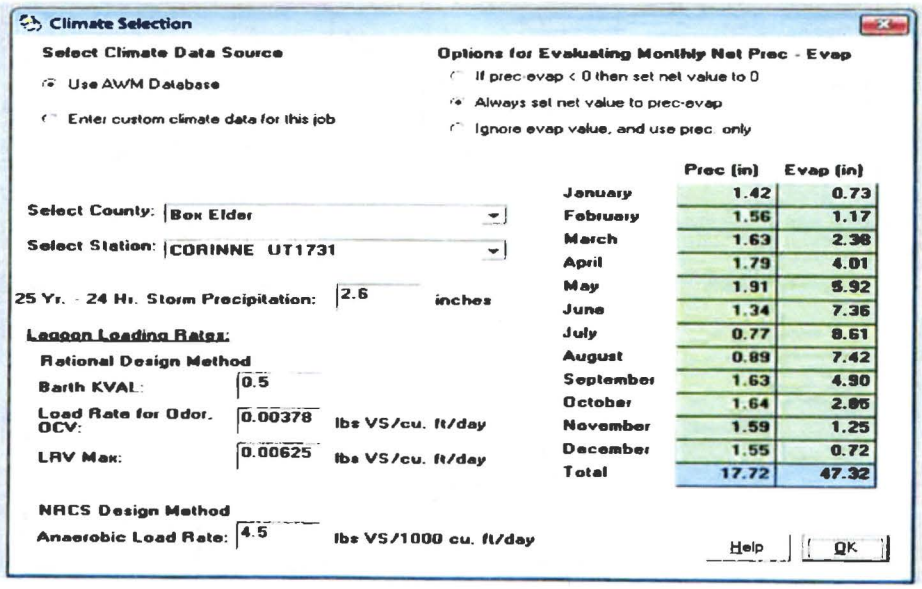
The feedlot is approximately 540,000 sq. ft. A 24-hour 25-year storm event would produce 117,000 cubic feet of water. With the 24-inch concrete wall around the outside of the feedlot the storage capacity of the lot is approximately 540,600 cubic feet. Since the 24-hour 25-year storm only produces 117,000 cubic feet there is sufficient storage without any additional storage required. In the event that water passes around the 24-inch wall there are two additional features to prevent manure or water from leaving the property. There is one 22,000 cubic foot earthen storage basin adjacent to the south side of the pens as well as the adjacent 18 acre field that is bermed and sits lower than the feedlot so that it can be used as an emergency storage facility. All drain water from the

field can be controlled and stopped prior to entering any ditches connecting property not owned by the dairy operation.

Collection/Transfer:

Solids Collection: There is a total capacity of nearly 3 acres of non-permeable concrete surfaces in which solids can be stored and stacked. In addition to the non-permeable surfaces, the surface area of the permeable pens amounts to 12.8 acres in which solids are used for bedding, mixed and turned with straw pack to keep animals elevated and dry. Solid manure is scraped from the corrals and walkways into piles in the feedlot pens and distributed to the fields or compost rows as capacity dictates, usually once per year. Much of the dry manure hauled to the Harper Dairy for composting is hauled 4 times per year. The Dairy also has an agreement with the city of Brigham City, Utah to remove as much manure as they need for their composting operation.

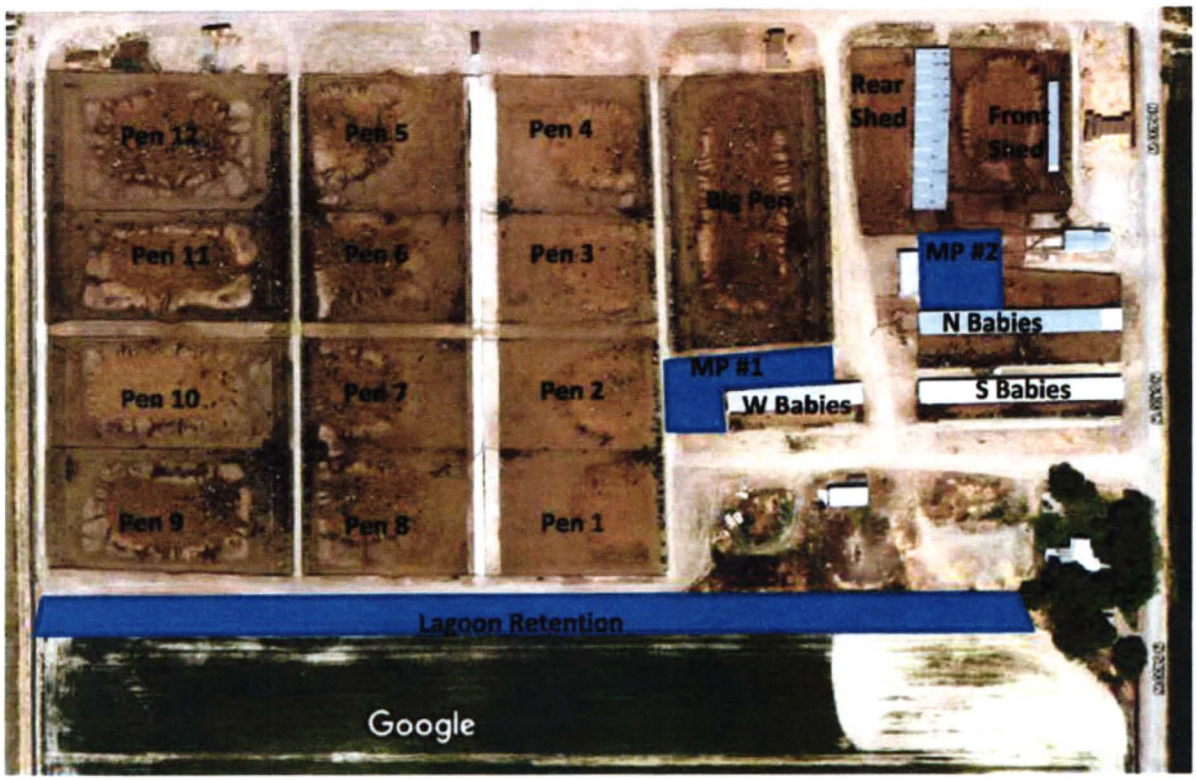
Liquids Collection: There exists a storage capacity of 77,500 CF within the non-permeable bounds of the concrete mangers and one liquid storage bunker. Due to the slope of the ground across the feedlot, any overflow drains to the field to the South and is contained on operator owned land where there is a grass buffer of approximately 0.5 acres. The grass buffer is surrounded by a 12 inch earthen barrier. If in an extraordinary event more surface area is required, the adjacent 18 acre field allows for all run-off to be collected and stored on dairy owned property. The drainage system for the field can be dammed to prevent any overflow to discharge off of dairy owner property. Any water collection on permeable ground can be distributed over surface area in order to prevent water depth of 18 inches to become a groundwater concern. All cropland management by the dairy operation is based on yearly soil samples taken by a 3rd party. Those soil samples dictate volume of manure application and crop rotation based on soil conditions and known crop needs. Such management practices aid in preventing excess nutrient loading in the case of weather events which require the grass buffer and adjacent field overflow.



Client: Rassmussen Feedlot
County: State: UT
Practice: Feedlot runoff
Calculated By: JHR Date: 11/5/2018
Checked By: _____ Date: _____

Drainage Area:	12	Acres (user entered value)
Curve Number:	74	(provided from RCN Calculator)
Watershed Length:	750	Feet
Watershed Slope:	.5	Percent
Time of Concentration:	0.71	Hours (calculated value)
Rainfall Type:	II	

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100
24-Hr rainfall (in)	1.26	1.55	1.89	2.17	2.56	2.87	3.19
Ia/P Ratio	00.56	00.45	00.37	00.32	00.27	00.24	00.22
Used	00.56	00.45	00.37	00.32	00.27	00.24	00.22
Runoff (in)	.08	.16	.30	.43	.64	.83	1.03
(ac-ft)	00.08	00.16	00.30	00.43	00.64	00.83	01.03
Unit Peak Discharge (cfs/acre/in)	00.332	00.367	00.477	00.534	00.577	00.595	00.610
Peak Discharge (cfs)		1	2	3	4	6	8



Pen Label	Quantity	Size/Age	Sex
Front Shed	80	800 lbs	H
Rear Shed	100	800 lbs	H
N Babies	110	400 lbs	H
S Babies	110	350 lbs	H
W Babies	110	300 lbs	H
Big Pen	200	1200 lbs	H
Pen 1	110	500 lbs	H
Pen 2	110	550 lbs	H
Pen 3	110	600 lbs	H
Pen 4	110	650 lbs	H
Pen 5	110	700 lbs	H

3.3 Animal Mortality Management

a. Mortality management and disposal shall be according to NRCS practices and any applicable state, county, or local requirements.

b. Properly dispose of dead animals in a timely manner. Animals shall be disposed of in a manner to prevent contamination of surface waters of the state or creation of a public health hazard.

Dead Animal Management:

Dead animals are currently being composted on property owned by Hancock Dairies. The dairy has a proven history of composting animals and separating large bones from the compost before mixing into the normal compost production facility. The dead animal compost facility is located on the Harper Dairy property and all dead animals from the four facilities are composted at that site.

Composting of mortalities, blood, and animal by-products requires approval from the Division of Solid and Hazardous Waste (DSHW). Please contact DSHW at (801) 536-0211, for more detail animal composting requirements.

In the case of a mass mortality event, animals that can be accommodated within the mortality composting process will be composted. Animals that cannot be accommodated within the existing compost plan will be incinerated in a trench. The remains will then be buried. Contact the state veterinarian's office at (801) 538-7162 in case of catastrophic death loss.

3.4 Clean Water Diversion

On all buildings in the facility that are guttered the clean water is diverted to the irrigation ditch network. For the buildings, which have no gutter, the clean water is incorporated into the wastewater facility. There is no opportunity for overland flow moving through the facility as it is bounded by the road on the west and ditches form an effective barrier to waters entering or leaving from the north, east and south sides. The general slope of the land carries storm waters away from the facility to the south. Where the area above the facilities drains toward the feedlot a diversion is in place to divert water to the borrow pit or around the facility to the west. The borrow pit is owned by the dairy and is lined with grass forage as a buffer zone. All downstream ditches are dammed, in order to stop the movement of water from the feedlot owned property.

3.5 Direct animal contact with surface water

Prevent direct contact of confined animals with surface waters.

a. Surface waters of the State are not allowed to flow through animal confinement areas.

b. Animals are not allowed access, including for watering purposes, to surface waters of the State.

c. New facilities shall not be built in surface waters of the state. (no facilities are or will be located in 100-year flood plains unless the facilities are protected from 100-year floods or lesser inundation)

The facility is constructed such that there is no incidental contact of animals with water other than in the constructed watering facilities in the corrals. Overflow of water is contained and drained to the irrigation system to prevent contact with manure.

3.6 Chemical Handling

Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, storm water, or process wastewater storage system unless specifically designed to treat such chemicals and other contaminants. Chemicals are stored on site in containers and removed periodically to a hazardous waste processing facility in Box Elder County.

Chemicals and other contaminants include: animals, dips, pesticides, cleaning and disinfection agents, foot bath chemicals, pharmaceuticals, fertilizers, fuel, oil, cooling water, etc.

Resulting from the normal operation of the CAFO, only manure, litter, compost, process wastewater, and precipitation are allowed in storage and retention structures.

Section 4 Nutrient Application and Land Management

4.1 Land Conservation and Application Practices

Identify site-specific conservation practices that will be implemented, including as appropriate, buffers or equivalent practices, to control runoff of pollutants to surface water. Such practices shall include, but are not limited to:

Solid manure shall be incorporated as soon as possible after application, unless the application site has perennial vegetation (such as alfalfa) or is no-till cropped, and where the nutrient management plan adequately demonstrates that surface water quality will be protected where manure is not immediately incorporated.

a. The majority of the solid manure within the feedlot site is moved by semi to the compost facility, where it is composted and used for recycled purposes.

b. Process wastewater to furrow or flood-irrigated land application sites shall be applied in a manner that prevents any process wastewater runoff into surface waters of the state.

c. When process wastewater is sprinkler or drip applied, the soil water holding capacity of the soil shall not be exceeded.

d. Process wastewater shall not be applied to frozen, snow covered, or saturated land application sites unless according to NRCS practice 590, Utah Manure Application Risk Index (UMARI) or other NRCS practices.

e. Where applicable of the following, the greatest setback distance of land applied manure and process wastewater applies: *(See Table 4)*

    1. 50 feet (or 35-foot vegetated buffer as appropriate) of all drainage systems or ditches, which could lead to water of the state.
    2. 100 feet of domestic water supply wells,
    3. Setbacks or vegetative buffers established through UMARI or other NRCS practices, and
    4. Setbacks otherwise required by UAC R309-600, as it pertains to drinking water source protection.

4.2 Land Application Methods

Establish protocols to land-apply manure or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater. Such protocols shall include, but are not limited to:

a. Compliance to NRCS Practice 590, Nutrient Management, January 2013. *(See Appendix a)*

b. No application of manure or process wastewater shall be made to a land application site at a rate that will exceed the capacity of the soil and the agronomic nutrient uptake of the planned crops and yields. Manure and wastewater shall be applied to useful crops. Manure shall not be applied to bare ground or other areas where a crop will not be harvested for 12 months or more following the application.

c. Manure and process wastewater shall be applied as uniformly as possible with properly calibrated equipment. Any feed runoff, pen or corral runoff, or other process wastewater applications to fields shall be evenly distributed throughout the field.

d. Operators must inspect annually, and calibrate as needed, any equipment used for land application of manure, litter, compost, or process wastewater.

e. Direct land application of mortalities, blood, animal by-products, waste feed, waste milk, or other products or materials is prohibited unless the nutrient applications are accounted for in the NMP and DWQ approves the NMP which includes such specific applications.

The Rasmussen Feedlot applies manure with both liquid and solid manure spreaders. This is done normally in the spring prior to planting and includes same day incorporation into the soil.

Wastewater is applied through the surface irrigation ditch network during the growing season to encourage immediate plant use. The water table averages from 50 to 100 inches deep on the property

Manure spreader operators are trained to follow setback requirements as outlined in the permit language.

Land application of manure will be based on the following table:

Soil Test Phosphorus (ppm)	Apply Based on
Phosphorus < 50 ppm	Spread based on nitrogen needs
Phosphorus 50 -100 ppm	Spread based on phosphorus needs
Phosphorus 100 - 120 ppm	50% of crop phosphorus needs
Phosphorus > 120 ppm	No application of manure

Utilization: On fields with soil test levels less than 50 ppm Soil Test Phosphorus (STP), solid manure can be land -applied based on crop nitrogen needs in years when corn is grown in the crop rotation. On fields with soil test levels between 50 and 100 ppm Soil Test Phosphorus (STP), solid manure will be land-applied based on crop phosphorus needs for the crop rotation. (Actual manure application rates are found on the individual field specification sheets in the nutrient balance section of the plan. A separate sheet is attached for each field. When new field soil tests are taken the specification sheet may be updated to reflect the new soil test levels and adjustments made in manure applications.) In this case, commercial nitrogen fertilizer may need to be used to maximize crop production and to facilitate crop removal of phosphorus. Nitrogen additions will be based on soil test recommendations as outlined in the (USU Extension) Utah Fertilizer Guide. With the current crop rotation

and crop yields, the 336 acres available to the Rasmussen Feedlot can utilize only a portion of the phosphorus produced on the facility by a herd of 2200 heifers. The remainder will be composted and used for bedding, removed for use on other farms or composted for sale. Current surface storage and composting facilities will be adequate to manage the manure during composting and/or direct sale to others.

Liquid manure and storm water runoff will be applied based on soil and manure testing and NRCS Irrigation Water Management and Nutrient Management guidelines. Liquids from the lagoon will be pumped to adjacent fields through a pipeline or by using large liquid manure spreaders. All of the liquid can be safely used on the 244 acres but nearly all of the solid waste will be composted and removed from the farm. Annual soil tests will determine the amount of solid manure applied to each field. There is a reduction of 40 acres in the application areas in the fields due to buffers or setbacks.

4.3 Calibration of Application Equipment

Spreader Calibration: Several methods are available for spreader calibration. To calibrate the solid manure spreader, first load and weigh the contents of the spreader or weigh a 5-gallon bucket of manure and multiply the weight x 1.5 x length x width x height of the spreader. This will give you tons per load of manure. To calibrate liquid/slurry spreaders, one must first determine the volume of material in gallons from manufacturer specifications. If the specifications do not show volume, multiply the length x width x height of the spreader x 7.5. For volume in cylindrical tanks, multiply length x width x height of the spreader x 0.8 x 7.5.

Next determine the distance in feet that it takes to spread the entire load. Distance can be estimated or determined based on known field length or by counting fence posts along the length of the spread and multiplying by the average distance between posts. Then estimate the width of the spread in feet, allowing for a 10-20% pass overlap to ensure uniform coverage. Calculate the area covered and divide by 43,560 to convert to acres. Divide the weight or volume of manure in the spreader by the acres covered to determine the application rate for the given spreader setting (length x width of spread / acres covered = application rate in tons or gallons). Adjust the spreader settings and redo the calculations until the desired application rate is achieved.

Application rates in inches being applied through liquid irrigation systems can be determined by using the formula, inches applied = (cfs X hrs)/ac. In the formula, cfs represents the cubic feet per second, hrs. are the hours that the water has run, and ac. is the acres covered. If the water is measured in gpm, it can be converted to cfs by dividing gpm by 450. The acres can be calculated by multiplying the width and length of the set, and then dividing by 43,560 (length x width / 43,560).

Where sprinkler systems are used, application rates can be estimated by placing six straight-sided cans at various locations under the sprinkler system. Measure the depth of liquid in inches accumulated in the cans over a period of time (e.g., 1 hour). Calculate the average depth of liquid in the cans and divide by the time interval to determine the application rate in inches per hour. Contact NRCS or USU if additional assistance is needed in calibrating your spreader.

4.4 Narrative Nutrient Management Planning

Nutrients will be applied to fields as outlined in the following tables for each field according to the NRCS standard 590 application rates identified in the NRCS Nutrient balance spreadsheet. The following example of the spreadsheet analysis is printed here. The remainders of the fields are attached as Appendix A.

Each field will be addressed individually using the specification sheet for that field and the guidelines for application outlined above, section 4.2.

Table 3 Field nutrient application guide (See Appendix A for each field table.)

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information

Year: 2015

Tract/Field Number(s): Drake 1 Number of Acres: 36.1

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 17 ppm Soil test P: 42 ppm

Crop nitrogen (N) recommendation:	190	lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	109	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form: solid

Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: ___ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	190	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	190	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	97	32	tons/acre
8. Travel distance while unloading spreader	400	1100	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice,

as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

4.5 Field Maps Rasmussen Feedlot

Table 4 Rasmussen Feedlot Field List

Field Name	Size in Acres	Applicable Acres w/Buffer Zone	
1 - Drake 1	36	34	
2 - Drake 2	37	36	
3 - Labor	39	37	
4 - Dennis	19	18	
5 - #1	53	51	
6 - Jessie	36	34	
7a - Pauline 1	20	19	
7b - Pauline 2	11	10	
7c - Pauline 3	8	7	
7d - Pauline 4	20	19	
7e - Pauline 5	18	17	
7f - Pauline 6	36	34	
8 - Hubbard	40	38	
9 - Kunzler	39	37	
Carter	40	38	
Iverson	40	38	
Total Acreage	**492**	**467**	

4.6 Soil and Field Information

Table 5 UMARI Data for Rasmussen Feedlot

*Utah Manure Application Risk Index Worksheet

Landowner:	Rasmussen Heifer Feed lot	**Weather Station:**	Corinne
Planner:	HRT	**Location:**	Corrine, UT
Winter Precipitation:	7.7	**Date:**	May 8 2015

Tract:	2393	1180	1180	1180	1180	2395	1181	1181
Field:	Iverson	Dennis	Labor	Alex	Jessie	P-1	P-2	P-3
Soil Symbol:	ls	ls	Ls	Fv	Ls	Fv	Fu	Fu
Adj AWC (5ft):	6.38	6.38	6.38	5.33	6.35	5.33	6.38	6.38
Section 1: Winter Application Parameters								
Distance	3	9	6	3	6	3	3	3
Irr. Type	1.5	3	1.5	1.5	1.5	1.5	1.5	1.5
Cover Type	6	6	6	6	3	1.5	1.5	1.5
Containment	1.5	6	1.5	1.5	1.5	1.5	1.5	1.5
Restrict. Lay.	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Hyd. Group	6	6	6	6	6	6	6	6
% Slope	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Adj. AWC	2	2	2	2	2	2	2	2
Winter Precip.	1	1	1	2	1	2	1	1
Total Points:	24.0	36.0	27.0	25.0	24.0	20.5	19.5	19.5
Risk Level:	Low	Med.	Low	Low	Low	Low	Low	Low
Practices to be implemented								
Section 2: Spring, Summer, Fall Application Parameters								
Distance	3	9	6	3	6	3	3	3
Irr. Type	1.5	3	1.5	1.5	1.5	1.5	1.5	1.5
Cover Type								
Incorporation	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Restrict. Lay.	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Hyd. Group	6	6	6	6	6	6	6	6
% Slope	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Runoff Control	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Irr. Efficiency	3	3	3	3	3	3	3	3
Total Points:	19.5	27.0	22.5	19.5	22.5	19.5	19.5	
Risk Level:	Low	Low	Low	Low	Low	Low	Low	
Practices to be								

implemented								

*Any individual features with a High rating should be evaluated and conservation practices applied where possible. Where a restrictive layer is present at <= 2 feet, manure should not be applied on frozen/snow covered ground nor at levels above agronomic rate for phosphorus.

Practices to be implemented:

CT = Cover Type
IS = Irrigation System Improvement
RB = Riparian Buffer
FS = Filter Strip
IWM = Irrigation Water Management
RC = Runoff Containment
IN = Incorporation
SM = Soil Moisture Management
RL = Restrictive Layer
SB = Setback
TR = Tailwater Recovery System
WS = Wetland System

4.7 Nitrogen and Phosphorus Risk Analysis

The risk analysis program used for Utah is the Utah Manure Application Risk Analysis, UMARI. The results of the UMARI runs are detailed in Table 4.7-1 below

Current Soil Test Levels:

Rasmussen Feedlot Fields	Date Test Processed	Soil Nitrogen Level	Soil Phosphorus level	Soil Potassium level	Crop	Yeild	Size of Field	Manure Application Risk (Winter)	Manure Application Risk (Spring, Summer, Fall)
1 - Drake 1	1/28/2015	17	42	410	Corn Silage	35 T	36		
2 - Drake 2	1/28/2015	92	42	595	Corn Silage	35 T	37		
3 - Labor	1/28/2015	45	90	840	Corn Silage	35 T	39	Low	Low
4 - Dennis	1/28/2015	47	56	875	Corn Silage	35 T	19	Med	Low
5 - # 1	1/28/2015	8	16	385	Corn Silage	35 T	53		
6 - Jessie	1/28/2015	10	50	830	Alfalfa	10 T	36	Low	Low
7a - Pauline 1	1/28/2013	10	20	550	Corn Silage	35 T	20	Low	Low
7b - Pauline 2	1/28/2015	15	29	575	Corn Silage	35 T	11	Low	Low
7c - Pauline 3	1/28/2015	15	134	940	Corn Silage	35 T	8	Low	

7d - Pauline 4	1/28/2015	27	39	980	Corn Silage	35 T	20	Low	Low
7e - Pauline 5	1/28/2015	81	45	540	Corn Silage	35 T	18	Low	Low
7f - Pauline 6								Low	Low
8 - Hubbard	1/28/2015	6	29	375	Onions	800 CWT	40		
9 - Kunzler	1/28/2015	26	282	1230	Alfalfa	10 T	39		
Carter									
Iverson								Low	Low
						Total Acres	376		

4.8 Required NMP Submissions to DWQ

Projections that are not permit NMP terms under the NMP, that must be submitted to DWQ, are:

1. the CAFO's planned crop rotations for each field for the period of permit coverage; (please refer to field sheets)

2. the projected amount of manure, litter, or process wastewater to be applied;

3. projected credits for all nitrogen in the field that will be plant-available;

4. consideration of multi-year phosphorus application;

5. accounting for other additions of plant-available nitrogen and phosphorus to the field

6. the predicted form, source, and method of application of manure, litter, and process wastewater for each crop.

4.9 Required Calculations

1. Utilizing NRCS Practice 590 and current soil and manure monitoring results, CAFOs must calculate and determine the maximum amounts of manure, litter, and process wastewater to be land-applied on a field- specific basis, at least once each year based on the following data:

a. A determination of nitrogen and phosphorus available in soil that will be available during the growing season. This includes nitrogen mineralization from previous land applications.

b. The results of most recent representative manure, litter and process wastewater test for nitrogen and phosphorus taken within 12 months or less of the date of land application, in order to determine the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

Section 5 Best Management Practices

5.1 Required BMPs

Production Area Required Best Management Practices (BMPs) and Prohibitions Applicable to all CAFOs

1. Perform weekly visual inspections of all storm-water run-on diversion devices, runoff diversion structures, animal waste storage structures and devices channeling process wastewater to impoundments or tanks.

2. As required by federal requirements, perform daily visual inspections of water lines, including drinking water or cooling water lines looking for leaks that could create process wastewater that would require containment or treatment of the contaminated leaked water.

3. Install depth markers in all open liquid impoundments and terminal storage tanks to indicate the maximum elevation to maintain capacity necessary to contain the facility's required storm event amount, and in addition provide a one-foot freeboard elevation above the containment freeboard of the facility's required storm event. The depth markers shall be marked at a maximum of one-foot increments.

4. Perform weekly inspections of impoundments and tanks and record the process wastewater elevation levels in the structures as indicated by the depth marker(s).

5. Correct any deficiencies found as a result of daily and weekly inspections as soon as possible, but no later than 30 days after identifying the deficiency, unless:

a. Factors preventing correction within 30 days have been documented.

b. Any deficiency where storage structure freeboard or structure integrity is insufficient to contain the required storm event, must be corrected immediately and is not given the 30-day timeframe to correct a problem.

6. Remove accumulations of liquids, solids, and manure from impoundments and tanks as necessary to maintain the capacity of the structures to retain the storage volume for the required storm event.

7. Maintain on-site records documenting the implementation of these required BMPs in Paragraph G. All records shall be maintained and retained on-site for five-years from the date they were created and must be made available during inspections by DWQ or authorized agent.

8. A CAFO's production area may not be located within a 100-year flood plain, unless the production area is protected from inundation damage and discharges that may as a result of 100-year flood waters or flow.

9. There shall be no discharge of manure, litter, or process wastewater from the production area to groundwater with direct hydrologic connection to surface waters of the State.

Hancock Rasmussen Feedlot will:

1) Provide adequate storage and management options to accommodate the 2,200 heifers.
2) Manage the liquid storage facility to accommodate the liquids from corrals and potential storm water spills from solid storage pits;
3) Irrigate with water from the liquid storage through existing surface ditches, or through a newly designed sprinkler system. Apply manure in an appropriate manner and according to agronomic rates.
4) Where possible incorporate manure applied on the surface into the ground within 48 hours of application.
5) Record all manure applications and dispositions of manure on fields.
6) Keep monthly records of inspections and manure applications.

7) Stay in compliance with state and federal laws and regulations.
8) Maximize productivity and profitability while correcting unacceptable environmental conditions;
9) Not apply manure at any time within 50 feet of irrigation return flow ditches or upstream from the sloughs
10) Establish a vegetative buffer strip on the lower 50 feet of all fields where irrigation runoff flows into a water course for summer applications on cropland before and after the crop.

5.2 Crop Rotation:

The crop rotation on this farm is alfalfa for five years, corn for 4 years and wheat as the rotation moves back into alfalfa. The rotation of other cash crops, such as onions, takes place for 2 consecutive years out of every 5, within the corn rotation. A total 385 acres are farmed and available for manure application

Irrigation Water Management: Proper management of irrigation water can reduce coliform, nitrogen, phosphorus, and other nutrients being leached into the ground water or flowing off the land completely. When applying liquid waste from the liquid storage pond, irrigation applications will not exceed the soil's Available Water Holding Capacity (AWC). Irrigation water management will be done according to the attached Irrigation Water Management plan.

Section 6 Emergency Spill and Discharge Response Plan

6.1 Emergency Response Plan

Emergency plan: Even though there is no water body close to the manure storage facility, there is a very limited chance of manure discharge into a water body. Several prolonged precipitation events or a malfunctioning livestock watering system may cause that the feedlot, which is designed for normal precipitation plus a 25 year / 24-hour storm event to fill up prematurely and overflow. (*See section 3.2 above for calculations*) It is important to acknowledge that a problem exists before manure or wastewater leaves the property or enters a water body of the State of Utah. Suggested preventative actions include:

a. Minimize (or stop if possible) all additional flow (waters, flushing system, etc.) to the storage.
b. Use a skid loader or tractor and blade to contain or divert a spill or leak, where possible.
c. Begin emergency utilization of manure by pumping or hauling onto fields at acceptable agronomic rates.
d. Prevent additional surface water from entering the storage, where possible.
e. Add soil to dikes to fill or repair any low areas or create temporary dikes with straw bales.
f. Call the Utah Department of Environmental Quality at (801) 536-4300 during normal working hours or their 24 hour answering service at (801) 536-4123 to report discharges during emergency situations. Discharges should be reported within 24 hours of occurrence.
g. Maintain the designed storage capacity in ponds by cleaning out sediment and emptying according to the outlined schedule in your NMP.

6.2 Required Discharge and Noncompliance Reporting;

1. The permittee shall report any discharge to surface waters of the state within 24 hours from the time the permittee first became aware of the discharge by calling the AFO/CAFO Program Coordinator at (801) 536-4300. Any discharge or other noncompliance that may endanger health or the environment shall be reported immediately (sooner than 24 hours) by calling the Division of Water Quality 24-hour hotline (801) 536-4123.

a. In addition, a written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. 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;
IV. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
V. steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.

Section 7 Other Requirements and Practices:

7.1 Closure of Facilities or Dairy Operation

The following conditions shall apply to the closure of lagoons and other earthen or synthetic-lined basins and other manure, litter, compost, or process wastewater storage and handling structures:

1. Closure of Lagoons and Other Surface Impoundments.

a. Any storage and other earthen or synthetic-lined basins must be properly closed if the facility ceases operation. In addition, any lagoon or other earthen or synthetic-lined basin that is not in use for a period of twelve consecutive months must be properly closed unless the facility intends to resume use of the structure at a later date and maintains the structure as though it were actively in use. The permittee shall notify DWQ of the action taken and shall conduct required routine inspections, maintenance, and record keeping during the inactive period. No manure, litter, compost, or process wastewater storage and handling structure shall be abandoned.

b. For proper closure, earthen or synthetic-lined basins must be consistent with Utah NRCS Closure of Waste Impoundments Practice Standard Code 360. Consistent with this standard, the permittee shall remove all waste materials to the maximum extent practicable and utilize or dispose of them in accordance with the permittee's NMP. The permittee is responsible for any discharge of pollutants.

c. CAFOs which have ceased operation shall maintain permit coverage until all manure, litter, compost, or process wastewater storage and handling structures have been properly closed.

7.3 Transfer of Manure, Litter, and Process Wastewater to Other Persons.

1. Transfer of Manure, Litter, and Process Wastewater To Other Persons

2. When manure, litter, compost, or process wastewater is sold or given away, the permittee must comply with the following conditions:

a. maintain records showing the date and amount of manure, litter, compost and/or process wastewater that leaves the permitted operation on an annual basis;

b. record the name and address of the recipient;

c. provide the recipient(s) with representative information on the phosphorus and nitrogen content of the manure, litter, compost and/or process wastewater; and

d. for a period of five years, permit-related records are to be retained on-site and made available for review upon request. Also, records are to be submitted to DWQ upon request.

e. Report the amount and test results for the manure and compost sold or given away to DWQ each year.

Section 8 Record Keeping

8.1 Required Record Keeping:

Records are the responsibility of the landowner and will be kept according to the following schedule.

Records will include:

Annual reports
Manure transfer forms
Records needed for 4.8 above
Records of mortality management
Records of overflows, discharges, etc. with date, time, length of discharge, and volume
Land application records, dates of, weather conditions, amounts,
Records of soil, manure, wastewater, compost analysis
Expected and actual crop yields
Records of daily water line inspections
Description of basis for determining application rates
Calculations showing total N and P applied to each field including sources other than manure, compost, or wastewater
Records of dates of manure application equipment inspections and calibrations
Records of weekly inspections of structures and impoundments
Records of weekly freeboard readings
Records documenting corrective actions

Section 9 Monitoring and analytical methods

9.1 Manure and soil sampling frequency

Manure, Compost, and Wastewater Testing: Manure tests will be taken at least yearly. Utah State University procedures will be followed (Refer to the attached manure testing guidelines). Manure test values will be used to determine actual moisture and nutrient content of the manure. Adjustments will be made in application rates based on actual soil and manure tests.

Soil Testing: As a minimum, an initial soil tests will be taken to establish base-line soil test phosphorus. Soil tests will then be taken on fields where manure is applied annually except on alfalfa and grass plantings where the soil test is required only every three years. Soil tests will be used to monitor phosphorus levels. Utah State University soil-testing procedures will be followed (Refer to the attached USU soil testing guidelines). Soil tests may be sent to Utah State University or other approved private testing facilities (see NRCS for a list of approved testing facilities).

Soil and Manure Testing

Directions on collecting soil samples

For nitrogen-based applications, collect separate soil samples at depths of 0 to 12 and 12 to 24 inches. For phosphorus-based applications collect soil samples at a depth of 0 to 12 inches only. A soil probe is the most efficient way to collect samples. Probes are available on loan from County Extension Agents. Collect a composite sample by combining a minimum of 8-10 samples taken randomly throughout a field in a plastic bucket. Mix the samples and send at least one pint to the lab for analysis. More than one composite may be needed for large or highly variable fields.

Directions on collecting manure samples

Since manure is a variable material, proper procedures must be followed to ensure a representative sample is collected. For liquids, sample directly from the storage structure, from the outlet pipe where liquid is removed, or from the field using catch cans to collect samples applied through sprinklers. When sampling liquids, collect a minimum of six separate subsamples. Combine the subsamples in a clean bucket, mix well, and transfer approximately one pint of liquid to a clean bottle or other rigid container.

9.2 Monitoring Protocols

North American Proficiency Testing (NAPT) certified laboratory. A NAPT certified lab should be "an approved" lab, and helps ensure that they are using good practices. (USU Analytical Labs is NAPT certified.)

Section 10 Monitoring Results

10.1 Soil Sampling results

Rasmussen Feedlot Fields	Date Test Processed	Soil Nitrogen Level	Soil Phosphorus level	Soil Potassium level	Crop	Yield	Size of Field	Manure Application Risk (Winter)	Manure Application Risk (Spring, Summer, Fall)
1 - Drake 1	1/28/2015	17	42	410	Corn Silage	35 T	36		
2 - Drake 2	1/28/2015	92	42	595	Corn Silage	35 T	37		
3 - Labor	1/28/2015	45	90	840	Corn Silage	35 T	39	Low	Low
4 - Dennis	1/28/2015	47	56	875	Corn Silage	35 T	19	Med	Low
5 - # 1	1/28/2015	8	16	385	Corn Silage	35 T	53		
6 - Jessie	1/28/2015	10	50	830	Alfalfa	10 T	36	Low	Low
7a - Pauline 1	1/28/2013	10	20	550	Corn Silage	35 T	20	Low	Low
7b - Pauline 2	1/28/2015	15	29	575	Corn Silage	35 T	11	Low	Low
7c - Pauline 3	1/28/2015	15	134	940	Corn Silage	35 T	8	Low	
7d - Pauline 4	1/28/2015	27	39	980	Corn Silage	35 T	20	Low	Low
7e - Pauline 5	1/28/2015	81	45	540	Corn Silage	35 T	18	Low	Low
7f - Pauline 6								Low	Low
8 - Hubbard	1/28/2015	6	29	375	Onions	800 CWT	40		
9 - Kunzler	1/28/2015	26	282	1230	Alfalfa	10 T	39		
Carter									
Iverson								Low	Low
						Total Acres	376		

10.2 Manure sampling results (Manure results are in 10.1 above prior year results will be used to determine nutrient application amounts.)

Manure Testing: Manure tests will be taken at least yearly for a minimum of 5 years so that average manure test values can be obtained. Utah State University procedures will be followed (Refer to the attached manure testing guidelines). Manure test values will be used to determine actual moisture and nutrient content of the manure. Adjustments will be made in application rates based on actual soil and manure tests. (See Appendix A for field by field estimates of manure and soil nutrient levels.)

10.3 Compost sampling results

10.4 Wastewater sampling results

Waste water sampling is not required.

Section 11 Annual Report

11.1 Annual Report Requirements

The permittee must submit an annual report to DWQ by April 1 of each year covering permit coverage during the previous calendar year. The reporting requirements and April 1 deadline also applies to facilities with partial years of permit coverage. The feedlot will use the DWQ Annual Report Form for the annual report.

Plan Review: This plan will be reviewed and updated at least once every five years. This is to assure that the operation is still running correctly, is being managed such that the correct amounts of animal manure are being applied and that the plan is working properly. Updated plans must meet NRCS standards and specifications. The plan must also be reviewed and, if needed, revised if the STP levels start to exceed 50 ppm or when significant changes (>20%) are made in animal numbers or in the manner that manure is handled.

Signatures: This nutrient management plan is based on my current and planned system and objectives. I have reviewed this plan and understand what is required. My decisions for installation, operation, maintenance, and safety are accurately represented by this plan. I agree to operate according to this plan for the life of the contract and beyond to ensure that all objectives are met. I understand that it is my responsibility to obtain all permits required to implement this plan. If I plan to alter my operation I will contact the Weber Soil Conservation District to determine if a revised plan is needed.

_____ - _____

Mitch Hancock **Date**

_____ - _____

Certified Planner **Date**
Howard R. Thomas

Appendix A: Field specification sheets for Manure Application

Crop/ Major Species	Field Inventory		Prod. (Unit/A)	Annual Nutrients Removed by Crop in lbs/unit			Crop N Credits	N Req'd	Nutrients Required for Each Field (lbs)			Application Rate in tons/ac	
	Field	Acres		N	P205	K20	(lb/ac)	(lb/ac)	N	P205	K20	N	P205
Alfalfa	P6	39	8.0	56.60	13.30	60.00	330	123	4,789	4,150	18,720	63	32
Corn Silage	P1 - P5	77	30.0	9.00	3.10	9.00		270	20,790	7,161	20,790	138	28
Corn Silage	Hubbard	40	30.0	9.00	3.10	9.00		270	10,908	3,757	10,908	138	28
Corn Silage	Dennis	20	28.0	9.00	3.10	9.00		252	4,939	1,701	4,939	129	26
Corn Silage	Labor	39	28.0	9.00	3.10	9.00		252	9,828	3,385	9,828	129	26
Corn Silage	# 1	14	53.0	9.00	3.10	9.00		477	6,678	2,300	6,678	245	49
Alfalfa	Jessie	36	11.0	56.60	13.30	60.00		623	22,663	5,325	24,024	319	44
Alfalfa	Drake 1	36	9.0	56.60	13.30	60.00		509	18,389	4,321	19,494	261	36
Corn Silage	Drake 2	37	30.0	9.00	3.10	9.00		270	9,990	3,441	9,990	138	28
Alfalfa	Kunzler	46	9.0	56.60	13.30	60.00		509	23,432	5,506	24,840	261	36

Field: 1 – Drake 1

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Drake 1 Number of Acres: 36.1

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 17 ppm Soil test P: 42 ppm

Crop nitrogen (N) recommendation: 190 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 109 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	190	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	190	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	97	32	tons/acre
8. Travel distance while unloading spreader	400	1100	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 2 - Drake 2

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Drake 2 Number of Acres: 37

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 92 ppm Soil test P: 42 ppm

Crop nitrogen (N) recommendation: 0 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 109 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Phosphorus Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	0	32	tons/acre
8. Travel distance while unloading spreader	0	1100	feet
9. Additional N needed if applied based on P	-63		lbs/acre

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 3 – Labor

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Labor Number of Acres: 39

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 45 ppm Soil test P: 90 ppm

Crop nitrogen (N) recommendation:	50	lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	109	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Phosphorus Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	50	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	50	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	26	32	tons/acre
8. Travel distance while unloading spreader	1400	1100	feet
9. Additional N needed if applied based on P	-13		lbs/acre

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 4 – Dennis

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Dennis Number of Acres: 19.6

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 47 ppm Soil test P: 56 ppm

Crop nitrogen (N) recommendation: 40 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 109 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Phosphorus Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	40	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	40	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	21	32	tons/acre
8. Travel distance while unloading spreader	1800	1100	feet
9. Additional N needed if applied based on P	-23		lbs/acre

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 5 - #1

NUTRIENT MANAGEMENT (Manure) SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information — Year: 2015

Tract/Field Number(s): #1 Number of Acres: 53

Crop: Corn Silage Yield Goal: 30 tons

Soil test nitrate-N: 8 ppm Soil test P: 16 ppm

Crop nitrogen (N) recommendation:	210	lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	93	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: None

Timing of Incorporation: Manure will not be incorporated

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	210	93	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	210	93	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	108	28	tons/acre
8. Travel distance while unloading spreader	300	1300	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 6 – Jessie

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Jessie Number of Acres: 36.4

Crop: Alfalfa Yield Goal: 10 tons

Soil test nitrate-N: 10 ppm Soil test P: 50 ppm

Crop nitrogen (N) recommendation: 0 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 130 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: None

Timing of Incorporation: Manure will not be incorporated

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	130	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	130	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	0	39	tons/acre
8. Travel distance while unloading spreader	0	900	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 7a – Pauline 1

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rassmussen Heifer feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Pauline 1 Number of Acres: 20

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 10 ppm Soil test P: 20 ppm

Crop nitrogen (N) recommendation: 225 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 109 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	225	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	225	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	115	32	tons/acre
8. Travel distance while unloading spreader	300	1100	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 7b – Pauline 2

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name:	Rasmussen Heifer Feedlot	**Date:**	05/13/16
Planned By:	HRT	**Field Office:**	Tremonton

Purpose(s):
- To budget and supply nutrients for plant production.
- To minimize agricultural non-point source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.
- To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information — **Year:** 2015

Tract/Field Number(s):	Pauline 2	Number of Acres:	11
Crop:	Corn Silage	Yield Goal:	35 tons
Soil test nitrate-N:	15 ppm	Soil test P:	29 ppm
Crop nitrogen (N) recommendation:	200 lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	109 lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application:	Broadcast-incorporated	Method of Incorporation:	Disk
Timing of Incorporation:	Manure will be incorporated within 5-7 days		
Date of application:		Field Conditions:	
Basis of Application:	Nitrogen	Actual Application Rate:	tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	200	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	200	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	103	32	tons/acre
8. Travel distance while unloading spreader	400	1100	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 7c – Pauline 1 – Pauline 5

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton.

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Pauline P1-P5 Number of Acres: 8

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 15 ppm Soil test P: 134 ppm

Crop nitrogen (N) recommendation:	200	lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	0	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	200	0	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	200	0	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	103	0	tons/acre
8. Travel distance while unloading spreader	400	0	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 7d – Pauline 1 – Pauline 5

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Pauline P1-P5 Number of Acres: 20

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 27 ppm Soil test P: 39 ppm

Crop nitrogen (N) recommendation:	140	lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	109	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	140	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	140	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	72	32	tons/acre
8. Travel distance while unloading spreader	500	1100	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 7f – Pauline 6

NUTRIENT MANAGEMENT (Manure) SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Pauline P6 Number of Acres: 18

Crop: Corn Silage Yield Goal: 35 tons

Soil test nitrate-N: 81 ppm Soil test P: 45 ppm

Crop nitrogen (N) recommendation: 0 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 109 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	109	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	109	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	0	32	tons/acre
8. Travel distance while unloading spreader	0	1100	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 8 – Hubbard

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Hubbard Number of Acres: 40

Crop: Onions Yield Goal: 800 cwt

Soil test nitrate-N: 6 ppm Soil test P: 29 ppm

Crop nitrogen (N) recommendation:	90	lb N/acre	Based on:	USU Calculated
Crop phosphorus (P205) recommendation:	104	lb P205/acre	Based on:	Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast-incorporated Method of Incorporation: Disk

Timing of Incorporation: Manure will be incorporated within 5-7 days

Date of application: _____ Field Conditions: _____

Basis of Application: Nitrogen Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	90	104	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	90	104	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	46	31	tons/acre
8. Travel distance while unloading spreader	800	1200	feet

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Field: 9 – Kunzler

NUTRIENT MANAGEMENT (Manure)
SPECIFICATION SHEET (590)

Name: Rasmussen Heifer Feedlot **Date:** 05/13/16

Planned By: HRT **Field Office:** Tremonton

Purpose(s): To budget and supply nutrients for plant production.
To minimize agricultural non-point source pollution of surface and ground water resources.
To maintain or improve the physical, chemical and biological condition of soil.
To prevent or reduce excess nutrient concentrations in the soil.

Field and Soil Information **Year:** 2015

Tract/Field Number(s): Kunzler Number of Acres: 46

Crop: Alfalfa Yield Goal: 9 tons

Soil test nitrate-N: 26 ppm Soil test P: 28 ppm

Crop nitrogen (N) recommendation: 0 lb N/acre Based on: USU Calculated

Crop phosphorus (P205) recommendation: 117 lb P205/acre Based on: Crop Uptake

Manure Information

Manure form:	solid	
Manure N content:	13.0	lbs/ton
Manure P205 content:	5.6	lbs/ton

Application Information

Method of application: Broadcast Method of Incorporation: None

Timing of Incorporation: Manure will not be incorporated

Date of application: _____ Field Conditions: _____

Basis of Application: Phosphorus Actual Application Rate: _____ tons/acre

Calculations

	N-based	P205-based	
1. Nutrients needed	0	117	lbs/acre
2. Nutrient from other sources (credits)			lbs/acre
3. Additional nutrients needed (lb/acre)	0	117	lbs/acre
4. Total N and P205 in manure	13.0	5.6	lbs/ton
5. Nutrient availability factor	15%	60%	
6. Available nutrients in manure	2.0	3.4	lbs/ton
7. Manure application rate	0	35	tons/acre
8. Travel distance while unloading spreader	0	1100	feet
9. Additional N needed if applied based on P	-68		lbs/acre

Certification

I agree to the installation and maintenance of this practice as outlined. This practice, as installed, meets NRCS Standards and Specifications.

Cooperator: _____ **Planner:** _____

Appendix B Soil Tests

(please fix widths)
Rasmussen Feed lot
BEAR RIVER VALLEY CO-OP 103 435/744-2211 P.O. BOX 86
435/744-5158
4780 W. 2800 N. Report No.: 97510,
CORINNE UT 84307 Date Received: 11/30/15
GROWER: NOO SUN DAIRY Date Reported: 12/01/15 Soil Test Data

	Sample 2			Sample 1	Sample 2	Sample 1
pH	8.2	H	SAMPLE IDENTITY	PAULINE 2 SALTS, mmhos/cm 2.1	H	
	CROP		CORN SILAGE CHLORIDES, ppm	114 H YEILD GOAL	30 T	
SODIUM, meq/100g	1.1	M	ACRES			
CEC, meq/100g	17.2	M	Past Crop T/Acre	NONE GIVEN EXCESS LIME, %	4.0	
	M		MANURE T/Acre 0			
ORGANIC MATTER,%	2.14	M	PREV. APPLIED NUTRIENTS 0			
ORGANIC N, lb/Acre	85	M	**RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre**			
AMMONIUM-N,ppm	4.1	VL				
NITRATE-N, ppm	19	M	NITROGEN	175		
PHOSPHORUS, ppm	39	H	P_2O_5 - PHOSPHATE	40		
POTASSIUM	390	H	K_2O - POTASH	0		
CALCIUM, meq/100g	9.1	L	CALCIUM	0		
MAGNESIUM, meq/100g	5.7	VH	MAGNESIUM	0		
SULFATE-S, ppm	119	VH	SULFATE - SULFUR	0		
ZINC, ppm	2.2	H	ZINC	0		
IRON, ppm	6.0	M	IRON	0		
MANGANESE, ppm	2.9	L	MANGANESE	4		
COPPER, ppm	0.9	M	COPPER	0		
BORON, ppm	2.30	H	BORON	0		
SOIL TEXTURE	See Table	See Table	ELEMENTAL SULFUR	200		

RATINGS: VL - Very Low L - Low M - Medium H - High VH - Very High

SAMPLE	ACTUAL AND RECOMMENDED PERCENT OF CEC								CEC / SOIL TEXTURE
	Actual % Potassium	Recom. Potassium	Actual % Calcium	Recom. Calcium	Actual % Magnesium	Recom. Magnesium	Actual % Sodium	Recom. Sodium	
1	7.6		52.9		33.1		6.4		0-5 Sand
		3.0-6.0%		65-80%		15-25%		< 3.0%	5-12 Loamy Sand
2									12-18 Sandy Loam
									18-24 Silt Loam
									24-36 Clay Loam
									36+ Clay

R Crop1:Split application of N is advised. Monitor crop with plant tissue tests and add N as needed.

BEAR RIVER VALLEY CO-OP 103 435/744-2211 P.O. BOX 86
435/744-5158
4780 W. 2800 N. Report No.: 97510,

CORINNE UT 84307 Date Received: 11/30/15

GROWER: NOOSUN DAIRY Date Reported: 12/01/15 Soil Test Data

	Sample 2				Sample 1	Sample 2	Sample 1
pH	8.2	H	SAMPLE IDENTITY		PAULINE 2 SALTS, mmhos/cm 2.1	H	
	CROP		CORN SILAGE CHLORIDES, ppm		114 H YEILD GOAL	30 T	
SODIUM, meq/100g	1.1	M	ACRES				
CEC, meq/100g	17.2	M	Past Crop T/Acre		NONE GIVEN EXCESS LIME, %	4.0	
	M	MANURE T/Acre	0				
ORGANIC MATTER,%	2.14	M	PREV. APPLIED NUTRIENTS 0				
ORGANIC N, lb/Acre	85	M	**RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre**				
AMMONIUM-N,ppm	4.1	VL					
NITRATE-N, ppm	19	M	NITROGEN	175			
PHOSPHORUS, ppm	39	H	P_2O_5 - PHOSPHATE	40			
POTASSIUM	390	H	K_2O - POTASH	0			
CALCIUM, meq/100g	9.1	L	CALCIUM	0			
MAGNESIUM, meq/100g	5.7	VH	MAGNESIUM	0			
SULFATE-S, ppm	119	VH	SULFATE - SULFUR	0			
ZINC, ppm	2.2	H	ZINC	0			
IRON, ppm	6.0	M	IRON	0			
MANGANESE, ppm	2.9	L	MANGANESE	4			
COPPER, ppm	0.9	M	COPPER	0			
BORON, ppm	2.30	H	BORON	0			
SOIL TEXTURE	See Table	See Table	ELEMENTAL SULFUR	200			

RATINGS: VL - Very Low L - Low M - Medium H - High VH - Very High

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4780 W. 2800 N. Report No.: 98620,
CORINNE UT 84307 Date Received: 12/17/15
GROWER: NOO SUN DAIRY Date Reported: 12/18/15 Soil Test Data

	Sample 1		Sample 2
pH	8.3	H	
	0.7	L	
ppm	54	M	
	0.6	L	
CEC, meq/100g	17.3	M	
%	6.4	H	
ORGANIC MATTER,%	1.79	M	
ORGANIC N, lb/Acre	70	M	
AMMONIUM-N,ppm	2.3	VL	
NITRATE-N, ppm	11	M	
PHOSPHORUS, ppm	31	H	
POTASSIUM	235	M	
CALCIUM, meq/100g	10.6	M	
MAGNESIUM, meq/100g	5.3	VH	
SULFATE-S, ppm	35	H	
ZINC, ppm	2.4	H	
IRON, ppm	6.0	M	
MANGANESE, ppm	3.0	L	
COPPER, ppm	1.0	M	
BORON, ppm	1.30	H	
SOIL TEXTURE	See Table		See Table

	Sample 1	Sample 2
SAMPLE IDENTITY	DRAKE 1 SALTS, mmhos/cm	
CROP	FIELD CORN CHLORIDES,	
YEILD GOAL	180 BU SODIUM, meq/100g	
ACRES		
Past Crop T/Acre	NONE GIVEN EXCESS LIME,	
MANURE T/Acre	0	
PREV. APPLIED NUTRIENTS	0	

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	200
P_2O_5 - PHOSPHATE	35
K_2O - POTASH	40
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	0
ZINC	0
IRON	0
MANGANESE	3
COPPER	0
BORON	0
ELEMENTAL SULFUR	100

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4780 W. 2800 N. Report No.: 98621,
CORINNE UT 84307 Date Received: 12/17/15
GROWER: NOO SUN DAIRY Date Reported: 12/18/15 Soil Test Data

	Sample 1		Sample 2		Sample 1	Sample 2
pH	8.2	H		SAMPLE IDENTITY	DRAKE 2 SALTS, mmhos/cm	
	0.9	L		CROP	FIELD CORN CHLORIDES,	
ppm	52	M		YEILD GOAL	180 BU SODIUM, meq/100g	
	0.7	L		ACRES		
CEC, meq/100g	17.4	M		Past Crop T/Acre	NONE GIVEN EXCESS LIME,	
%	3.0	M		MANURE T/Acre	0	
ORGANIC MATTER,%	1.57	M		PREV. APPLIED NUTRIENTS 0		
ORGANIC N, lb/Acre	65	M		**RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre**		
AMMONIUM-N,ppm	2.2	VL				
NITRATE-N, ppm	28	M		NITROGEN	150	
PHOSPHORUS, ppm	28	H		P_2O_5 - PHOSPHATE	45	
POTASSIUM	270	H		K_2O - POTASH	0	
CALCIUM, meq/100g	10.3	M		CALCIUM	0	
MAGNESIUM, meq/100g	5.5	VH		MAGNESIUM	0	
SULFATE-S, ppm	59	VH		SULFATE - SULFUR	0	
ZINC, ppm	1.9	M		ZINC	4	
IRON, ppm	4.9	M		IRON	0	
MANGANESE, ppm	2.7	L		MANGANESE	3	
COPPER, ppm	0.8	M		COPPER	0	
BORON, ppm	1.80	H		BORON	0	
SOIL TEXTURE	See Table		See Table	ELEMENTAL SULFUR	150	

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4780 W. 2800 N. Report No.: 98632,
CORINNE UT 84307 Date Received: 12/17/15
GROWER: NOO SUN DAIRY Date Reported: 12/18/15 Soil Test Data

	Sample 1		Sample 2		Sample 1	Sample 2
pH	8.4	H		SAMPLE IDENTITY	P-1	
SALTS, mmhos/cm	3.1	VH		CROP	FIELD CORN CHLORIDES,	
ppm	77	H		YEILD GOAL	180 BU SODIUM, meq/100g	
	0.8	L		ACRES		
CEC, meq/100g	18.4	H		Past Crop T/Acre	NONE GIVEN EXCESS LIME,	
%	5.9	H		MANURE T/Acre	0	
ORGANIC MATTER,%	2.20	M		PREV. APPLIED NUTRIENTS 0		
ORGANIC N, lb/Acre	85	M		**RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre**		
AMMONIUM-N,ppm	4.8	VL				
NITRATE-N, ppm	35	H		NITROGEN	105	
PHOSPHORUS, ppm	93	VH		P_2O_5 - PHOSPHATE	0	
POTASSIUM	690	VH		K_2O - POTASH	0	
CALCIUM, meq/100g	10.3	M		CALCIUM	0	
MAGNESIUM, meq/100g	5.0	VH		MAGNESIUM	0	
SULFATE-S, ppm	64	VH		SULFATE - SULFUR	0	
ZINC, ppm	3.1	H		ZINC	0	
IRON, ppm	3.4	L		IRON	0	
MANGANESE, ppm	3.3	M		MANGANESE	0	
COPPER, ppm	2.5	H		COPPER	0	
BORON, ppm	2.65	H		BORON	0	
SOIL TEXTURE	See Table		See Table	ELEMENTAL SULFUR	200	

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4780 W. 2800 N. Report No.: 98633,
CORINNE UT 84307 Date Received: 12/17/15
GROWER: NOO SUN DAIRY Date Reported: 12/18/15 Soil Test Data

	Sample 1		Sample 2
pH	8.4	H	
SALTS, mmhos/cm	1	L	
ppm	285	VH	
	1.7	H	
CEC, meq/100g	17.4	M	
%	5.6	H	
ORGANIC MATTER,%	1.78	M	
ORGANIC N, lb/Acre	70	M	
AMMONIUM-N,ppm	4.3	VL	
NITRATE-N, ppm	22	M	
PHOSPHORUS, ppm	25	M	
POTASSIUM	460	VH	
CALCIUM, meq/100g	9.4	L	
MAGNESIUM, meq/100g	4.8	VH	
SULFATE-S, ppm	68	VH	
ZINC, ppm	0.9	L	
IRON, ppm	5.0	M	
MANGANESE, ppm	3.8	M	
COPPER, ppm	0.8	M	
BORON, ppm	1.35	H	
SOIL TEXTURE	See Table		See Table

	Sample 1	Sample 2
SAMPLE IDENTITY	P3	
CROP	FIELD CORN CHLORIDES,	
YEILD GOAL	180 BU SODIUM, meq/100g	
ACRES		
Past Crop T/Acre	NONE GIVEN EXCESS LIME,	
MANURE T/Acre	0	
PREV. APPLIED NUTRIENTS	0	
RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre		
NITROGEN	160	
P_2O_5 - PHOSPHATE	55	
K_2O - POTASH	0	
CALCIUM	0	
MAGNESIUM	0	
SULFATE - SULFUR	0	
ZINC	8	
IRON	0	
MANGANESE	0	
COPPER	0	
BORON	0	
ELEMENTAL SULFUR	400	

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4780 W. 2800 N. Report No.: 98634,
CORINNE UT 84307 Date Received: 12/17/15
GROWER: NOO SUN DAIRY Date Reported: 12/18/15 Soil Test Data

	Sample 1		Sample 2
pH	8.3	H	
SALTS, mmhos/cm	3.3	VH	
ppm	52	M	
	0.4	VL	
CEC, meq/100g	19	H	
%	6.9	H	
ORGANIC MATTER,%	3.11	H	
ORGANIC N, lb/Acre	110	H	
AMMONIUM-N,ppm	4.6	VL	
NITRATE-N, ppm	30	M	
PHOSPHORUS, ppm	112	VH	
POTASSIUM	1010	VH	
CALCIUM, meq/100g	10.9	M	
MAGNESIUM, meq/100g	4.3	VH	
SULFATE-S, ppm	23	M	
ZINC, ppm	5.0	V	
IRON, ppm	14.0	H	
MANGANESE, ppm	3.5	M	
COPPER, ppm	1.0	M	
BORON, ppm	2.50	H	
SOIL TEXTURE	See Table		See Table

	Sample 1	Sample 2
SAMPLE IDENTITY	P4	
CROP	FIELD CORN CHLORIDES,	
YEILD GOAL	180 BU SODIUM, meq/100g	
ACRES		
Past Crop T/Acre	NONE GIVEN EXCESS LIME,	
MANURE T/Acre	0	
PREV. APPLIED NUTRIENTS	0	

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	95
P_2O_5 - PHOSPHATE	0
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	25
ZINC	0
IRON	0
MANGANESE	0
COPPER	0
BORON	0
ELEMENTAL SULFUR	100

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4780 W. 2800 N. Report No.: 98635,
CORINNE UT 84307 Date Received: 12/17/15
GROWER: NOO SUN DAIRY Date Reported: 12/18/15 Soil Test Data

	Sample 1		Sample 2
pH	8.0	H	
SALTS, mmhos/cm	1.5	M	
ppm	79	H	
	0.3	VL	
CEC, meq/100g	15.1	M	
%	3.6	M	
ORGANIC MATTER,%	2.05	M	
ORGANIC N, lb/Acre	80	M	
AMMONIUM-N,ppm	3.4	VL	
NITRATE-N, ppm	42	VH	
PHOSPHORUS, ppm	40	H	
POTASSIUM	590	VH	
CALCIUM, meq/100g	10.2	H	
MAGNESIUM, meq/100g	2.6	H	
SULFATE-S, ppm	37	H	
ZINC, ppm	1.9	M	
IRON, ppm	4.7	M	
MANGANESE, ppm	3.3	M	
COPPER, ppm	0.7	M	
BORON, ppm	1.50	H	
SOIL TEXTURE	See Table		See Table

	Sample 1	Sample 2
SAMPLE IDENTITY	P5	
CROP	FIELD CORN CHLORIDES,	
YEILD GOAL	180 BU SODIUM, meq/100g	
ACRES		
Past Crop T/Acre	NONE GIVEN EXCESS LIME,	
MANURE T/Acre	0	
PREV. APPLIED NUTRIENTS	0	

RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre

NITROGEN	90
P_2O_5 - PHOSPHATE	10
K_2O - POTASH	0
CALCIUM	0
MAGNESIUM	0
SULFATE - SULFUR	0
ZINC	4
IRON	0
MANGANESE	0
COPPER	0
BORON	0
ELEMENTAL SULFUR	100

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4780 W. 2800 N. Report No.: 98924,
CORINNE UT 84307 Date Received: 12/28/15
GROWER: NOO SUN DAIRY Date Reported: 12/29/15 Soil Test Data

	Sample 1		Sample 2
pH	8.1	H	
SALTS, mmhos/cm	1.2	L	
ppm	55	M	
SODIUM, meq/100g	0.5	L	
CEC, meq/100g	16.5	M	
LIME, %	1.5	M	
ORGANIC MATTER,%	1.53	M	
ORGANIC N, lb/Acre	65	M	
AMMONIUM-N,ppm	4.3	VL	
NITRATE-N, ppm	11	M	
PHOSPHORUS, ppm	12	M	
POTASSIUM	140	L	
CALCIUM, meq/100g	11.0	H	
MAGNESIUM, meq/100g	4.5	VH	
SULFATE-S, ppm	45	VH	
ZINC, ppm	1.7	M	
IRON, ppm	8.9	M	
MANGANESE, ppm	3.7	M	
COPPER, ppm	1.1	M	
BORON, ppm	1.00	M	
SOIL TEXTURE	See Table		See Table

	Sample 1	Sample 2
SAMPLE IDENTITY	P-1	
CROP	CORN SILAGE CHLORIDES,	
YEILD GOAL	30 T	
ACRES	20	
Past Crop T/Acre	CORN SILAGE 1 EXCESS	
MANURE T/Acre	0	
PREV. APPLIED NUTRIENTS	0	
RECOMMENDATIONS , lbs or Units Actual Nutrients per Acre		
NITROGEN	235	
P_2O_5 - PHOSPHATE	140	
K_2O - POTASH	135	
CALCIUM	0	
MAGNESIUM	0	
SULFATE - SULFUR	0	
ZINC	6	
IRON	0	
MANGANESE	0	
COPPER	0	
BORON	0	
ELEMENTAL SULFUR	100	

CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

NUTRIENT MANAGEMENT

(Ac.)

CODE 590

DEFINITION

Managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments.

PURPOSE

- To budget, supply, and conserve nutrients for plant production.
- To minimize agricultural nonpoint source pollution of surface and groundwater resources.
- To properly utilize manure or organic by-products as a plant nutrient source.
- To protect air quality by reducing odors, nitrogen emissions (ammonia, oxides of nitrogen), and the formation of atmospheric particulates.
- To maintain or improve the physical, chemical, and biological condition of soil.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where plant nutrients and soil amendments are applied. This standard does not apply to one-time nutrient applications to establish perennial crops.

CRITERIA

General Criteria Applicable to All Purposes

A nutrient budget for nitrogen, phosphorus, and potassium must be developed that considers all potential sources of nutrients including, but not limited to, green manures, legumes, crop residues, compost, animal manure, organic by-products, biosolids, waste water, organic matter, soil biological activity, commercial fertilizer, and irrigation water.

Enhanced efficiency fertilizers, used in Utah must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by
Robert L. Hougaard Utah Department of Agriculture and Food 350 N. Redwood Rd. PO Box 146500 Salt Lake City, UT 84114-6500 Phone: (801) 538-7187 who is the State fertilizer control official, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.

For nutrient risk assessment policy and procedures see Title 190, General Manual (GM), Part 402, Nutrient Management, and Title 190, National Instruction (NI), Part 302, Nutrient Management Policy Implementation.

To avoid salt damage, the rate of applied nitrogen and potassium in starter fertilizer must be consistent with Utah State University guidelines; The Utah Fertilizer

Guidehttp://extension.usu.edu/files/publications/publication/AG_431.pdf Page 23. The NRCS-approved nutrient risk assessment for nitrogen must be completed on all source protection zones identified by the State of Utah Department of Environmental Quality Division of Drinking Water. NRCS Field offices have access to this GIS database layer. Contact Ryan Pierce at NRCS for specific maps and updates.

The NRCS-approved nutrient risk assessment for phosphorus must be completed when:

- phosphorus application rate exceeds Utah State University fertility rate guidelines for the planned crop(s), or
- the planned area is within a phosphorus- impaired watershed (contributes to 303d-listed water bodies), or
- where NRCS and the State of Utah Division of Water Quality have not determined specific conditions where the risk of phosphorus loss is low.

A phosphorus risk assessment will not be required when the State NRCS, with concurrence of the State of Utah Division of Water Quality, has determined specific conditions where the risk of phosphorus loss is low. These fields must have a documented agronomic need for phosphorus; based on soil test phosphorus (STP) and Utah State University nutrient recommendations. When Nutrient Management 590 is planned, all fields will be rated using Utah's Manure Application Risk Index UMARI.
On organic operations, the nutrient sources and management must be consistent with the USDA's National Organic Program.

Areas contained within minimum application setbacks (e.g., sinkholes, wellheads, gullies, ditches, or surface inlets) must receive nutrients consistent with the setback restrictions listed in the Utah Manure Application Risk Index.

Applications of irrigation water must minimize the risk of nutrient loss to surface and groundwater.

Soil pH must be maintained in a range that enhances an adequate level for crop nutrient availability and utilization. Refer to Utah Fertilizer Guide:
http://extension.usu.edu/files/publications/publication/AG_431.pdf**Soil, Manure, and Tissue Sampling and Laboratory Analyses (Testing).**

Nutrient planning must be based on current soil, manure, and (where used as supplemental information) tissue test results developed in accordance with Utah State University guidance, or industry practice (reference material – list here

Current soil tests are those that are no older than one year for annual crops or 3 years for perennial crops, The area represented by a soil test must be that acreage recommended by Utah State University.

Where a conservation management unit (CMU) is used as the basis for a sampling unit, all acreage in the CMU must have similar soil type, cropping history, and management The soil and tissue tests must include analyses pertinent to monitoring or amending the annual nutrient budget, e.g., pH, electrical conductivity (EC) and sodicity where salts are a concern, soil

organic matter, phosphorus, potassium, or other nutrients and test for nitrogen where applicable.

Guidelines from the Utah Fertilizer Guide will be used for sampling
http://extension.usu.edu/files/publications/publication/AG_431.pdf.

Soil test analyses must be performed by laboratories successfully meeting the requirements and performance standards of the North American Proficiency Testing Program-Performance Assessment Program (NAPT-PAP) under the auspices of the Soil Science Society of America (SSSA) and NRCS, or other NRCS-approved program that considers laboratory performance and proficiency to assure accuracy of soil test results NAPT can be found here:

http://www.naptprogram.org/about/participants

Nutrient values of manure, organic by-products and biosolids must be determined prior to land application.

Manure analyses must include, at minimum, total nitrogen (N), ammonium N, total phosphorus (P) or P_2O_5, total potassium (K) or K_2O, and percent solids, or Utah State University guidance regarding required analyses.

Manure, organic by-products, and biosolids samples must be collected and analyzed at least annually, or more frequently if needed to account for operational changes (feed management, animal type, manure handling strategy, etc.) impacting manure nutrient concentrations. If no operational changes occur, less frequent manure testing is allowable where operations can document a stable level of nutrient concentrations for the preceding three consecutive years, unless federal, State, or local regulations require more frequent testing.

Samples must be collected, prepared, stored, and shipped, following Utah State University guidance or industry practice.

When planning for new or modified livestock operations, acceptable "book values" recognized by the NRCS (e.g., NRCS Agricultural Waste Management Field Handbook) and Utah State University, or analyses from similar operations in the geographical area, may be used if they accurately estimate nutrient output from the proposed operation.

Manure testing analyses must be performed by laboratories successfully meeting the requirements and performance standards of the Manure Testing Laboratory Certification program (MTLCP) under the auspices of the Minnesota Department of Agriculture, http://www2.mda.state.mn.us/webapp/lis/manurelabs.jsp

or other NRCS- approved program that considers laboratory performance and proficiency to assure accurate manure test results.

Nutrient Application Rates.

Planned nutrient application rates for nitrogen, phosphorus, and potassium must not exceed Utah State University guidelines or industry practice when recognized by the university.

At a minimum, determination of rate must be based on crop/cropping sequence, current soil test results, realistic yield goals, and NRCS- approved nutrient risk assessments.

If the land-grant university does not provide specific guidance that meets these criteria, application rates must be based on plans that consider realistic yield goals and associated plant nutrient uptake rates.

Realistic yield goals must be established based on historical yield data, soil productivity information, climatic conditions, nutrient test results, level of management, and local research results considering comparable production conditions.

Estimates of yield response must consider factors such as poor soil quality, drainage, pH, salinity, etc., prior to assuming that nitrogen and/or phosphorus are deficient.

For new crops or varieties, industry- demonstrated yield, and nutrient utilization information may be used until Utah State University information is available.

Lower-than-recommended nutrient application rates are permissible if the grower's objectives are met.

Applications of biosolids, starter fertilizers, or pop-up fertilizers must be accounted for in the nutrient budget.

Nutrient Sources.

Nutrient sources utilized must be compatible with the application timing, tillage and planting system, soil properties, crop, crop rotation, soil organic content, and local climate to minimize risk to the environment.

Nutrient Application Timing and Placement.

Timing and placement of all nutrients must correspond as closely as practical with plant nutrient uptake (utilization by crops), and consider nutrient source, cropping system limitations, soil properties, weather conditions, drainage system, soil biology, and nutrient risk assessment results.

Nutrients must not be surface-applied if nutrient losses offsite are likely. This precludes spreading on:

- frozen and/or snow-covered soils, and
- when the top 2 inches of soil are saturated from rainfall or snow melt.

Exceptions for the above criteria can be made for surface-applied manure when the Utah Manure Application Risk Index is used and the risk is "Low". Additional Criteria to Minimize Agricultural Nonpoint Source Pollution of Surface and Groundwater

Planners must use the current Utah Manure Application Risk Index.

When there is a high risk of transport of nutrients, conservation practices must be coordinated to avoid, control, or trap manure and nutrients before they can leave the field by surface or subsurface drainage (e.g., tile). The number of applications and the application rates must also be considered to limit the transport of nutrients to tile drains.

Nutrients must be applied with the right placement, in the right amount, at the right time, and from the right source to minimize nutrient losses to surface and groundwater. The following nutrient use efficiency strategies or technologies must be considered:

- slow and controlled release fertilizers
- nitrification and urease inhibitors
- enhanced efficiency fertilizers
- incorporation or injection
- timing and number of applications
- soil nitrate and organic N testing
- coordinate nutrient applications with optimum crop nutrient uptake
- Corn Stalk Nitrate Test (CSNT), Pre-Sidedress Nitrate Test (PSNT), and Pre-Plant Soil Nitrate Test (PPSN)
- tissue testing, chlorophyll meters, and spectral analysis technologies
- other land-grant university recommended technologies that improve nutrient use efficiency and minimize surface or groundwater resource concerns.

Additional Criteria Applicable to Properly Utilize Manure or Organic By-Products as a Plant Nutrient Source

When manures are applied, and soil salinity is a concern, salt concentrations must be monitored to prevent potential crop damage and/or reduced soil quality.

The total single application of liquid manure:

- must not exceed the soil's infiltration or water holding capacity
- be based on crop rooting depth
- must be adjusted to avoid runoff or loss to subsurface tile drains.

Crop production activities and nutrient use efficiency technologies must be coordinated to take advantage of mineralized plant-available nitrogen to minimize the potential for nitrogen losses due to denitrification or ammonia volatilization.

Nitrogen and phosphorus application rates must be planned based on risk assessment results as determined by the Utah Manure Application Risk Index.

- Manure or organic by-products may be applied on legumes at rates equal to the estimated removal of nitrogen in harvested plant biomass, not to exceed Utah State University recommendations.

Manure may be applied at a rate equal to the recommended phosphorus application, or estimated phosphorus removal in harvested plant biomass for the crop rotation, or multiple years in the crop sequence at one time. When such applications are made, the application rate must not exceed the acceptable phosphorus risk assessment criteria, must not exceed the recommended nitrogen application rate during the year of application or harvest cycle, and no additional phosphorus must be applied in the current year and any additional years for which the single application of phosphorus is supplying nutrients.

Additional Criteria to Protect Air Quality by Reducing Odors, Nitrogen Emissions and the Formation of Atmospheric Particulates

To address air quality concerns caused by odor, nitrogen, sulfur, and/or particulate emissions; the source, timing, amount, and placement of nutrients must be adjusted to minimize the negative impact of these emissions on the environment and human health. One or more of the following may be used:

- slow or controlled release fertilizers
- nitrification inhibitors
- urease inhibitors
- nutrient enhancement technologies
- incorporation
- injection
- stabilized nitrogen fertilizers
- residue and tillage management
- no-till or strip-till
- other technologies that minimize the impact of these emissions

Do not apply poultry litter, manure, or organic by-products of similar dryness/density when there is a high probability that wind will blow the material offsite.

Additional Criteria to Improve or Maintain the Physical, Chemical, and Biological Condition of the Soil to Enhance Soil Quality for Crop Production and Environmental Protection

Time the application of nutrients to avoid periods when field activities will result in soil compaction.

In areas where salinity is a concern, select nutrient sources that minimize the buildup of soil salts.

CONSIDERATIONS

Elevated soil test phosphorus levels are detrimental to soil biota. Soil test phosphorus levels should not exceed State-approved soil test thresholds established to protect the environment.

Use no-till/strip-till in combination with cover crops to sequester nutrients, increase soil organic matter, increase aggregate stability, reduce compaction, improve infiltration, and enhance soil biological activity to improve nutrient use efficiency.

Use nutrient management strategies such as cover crops, crop rotations, and crop rotations with perennials to improve nutrient cycling and reduce energy inputs.

Use variable-rate nitrogen application based on expected crop yields, soil variability, soil nitrate or organic N supply levels, or chlorophyll concentration.

Use variable-rate nitrogen, phosphorus, and potassium application rates based on site-specific variability in crop yield, soil characteristics, soil test values, and other soil productivity factors.

Develop site-specific yield maps using a yield monitoring system. Use the data to further diagnose low- and high- yield areas, or zones, and make the necessary management changes. See Title 190, Agronomy Technical Note (TN) 190.AGR.3, Precision Nutrient Management Planning.

Use manure management conservation practices to manage manure nutrients to limit losses prior to nutrient utilization.

Apply manure at a rate that will result in an "improving" Soil Conditioning Index (SCI) without exceeding acceptable risk of nitrogen or phosphorus loss.

Use legume crops and cover crops to provide nitrogen through biological fixation and nutrient recycling.

Modify animal feed diets to reduce the nutrient content of manure following guidance contained in Conservation Practice Standard (CPS) Code 592, Feed Management.

Soil test information should be no older than 1 year when developing new plans.

Excessive levels of some nutrients can cause induced deficiencies of other nutrients, e.g., high soil test phosphorus levels can result in zinc deficiency in corn.

Use soil tests, plant tissue analyses, and field observations to check for secondary plant nutrient deficiencies or toxicity that may impact plant growth or availability of the primary nutrients.

Use the adaptive nutrient management learning process to improve nutrient use efficiency on farms as outlined in the NRCS' National Nutrient Policy in GM 190, Part 402, Nutrient Management.

Potassium should not be applied in situations where an excess (greater than soil test potassium recommendation) causes nutrient imbalances in crops or forages.

Workers should be protected from and avoid unnecessary contact with plant nutrient sources. Extra caution must be taken when handling anhydrous ammonia or when dealing with organic wastes stored in unventilated enclosures.

Material generated from cleaning nutrient application equipment should be utilized in an environmentally safe manner. Excess material should be collected and stored or field applied in an appropriate manner.

Nutrient containers should be recycled in compliance with State and local guidelines or regulations.

Considerations to Minimize Agricultural Nonpoint Source Pollution of Surface and Groundwater.

Use conservation practices that slow runoff, reduce erosion, and increase infiltration, e.g., filter strip, contour farming, or contour buffer strips. These practices can also reduce the loss of nitrates or soluble phosphorus.

Use application methods and timing strategies that reduce the risk of nutrient transport by ground and surface waters, such as:

- split applications of nitrogen to deliver nutrients during periods of maximum crop utilization,
- banded applications of nitrogen and/or phosphorus to improve nutrient availability,
- drainage water management to reduce nutrient discharge through drainage systems, and
- incorporation of surface-applied manures or organic by-products if precipitation capable of producing runoff or erosion is forecast within the time of planned application.

Use the agricultural chemical storage facility conservation practice to protect air, soil, and water quality.

Use bioreactors and multistage drainage strategies when approved by Utah State University.

Considerations to Protect Air Quality by Reducing Nitrogen and/or Particulate Emissions to the Atmosphere.

Avoid applying manure and other by-products upwind of inhabited areas.

Use high-efficiency irrigation technologies (e.g., reduced-pressure drop nozzles for center pivots) to reduce the potential for nutrient losses.

PLANS AND SPECIFICATIONS

The following components must be included in the nutrient management plan:

- aerial site photograph(s)/imagery or site map(s), and a soil survey map of the site,
- soil information including: soil type surface texture, pH, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and/or ponding frequency,
- location of designated sensitive areas and the associated nutrient application restrictions and setbacks,
- for manure applications, location of nearby residences, or other locations where humans may be present on a regular basis, and any identified meteorological (e.g., prevailing winds at different times of the year), or topographical influences that may affect the transport of odors to those locations,
- results of approved risk assessment tools for nitrogen, phosphorus, and erosion losses,
- documentation establishing that the application site presents low risk for phosphorus transport to local water when phosphorus is applied in excess of crop requirement.
- current and/or planned plant production sequence or crop rotation,
- soil, water, compost, manure, organic by-product, and plant tissue sample analyses applicable to the plan,
- when soil phosphorus levels are increasing, include a discussion of the risk associated with phosphorus accumulation and a proposed phosphorus draw-down strategy,
- realistic yield goals for the crops,
- complete nutrient budget for nitrogen, phosphorus, and potassium for the plant production sequence or crop rotation,
- listing and quantification of all nutrient sources and form,
- all enhanced efficiency fertilizer products that are planned for use,
- in accordance with the nitrogen and phosphorus risk assessment tool(s), specify the recommended nutrient application source, timing, amount (except for precision/variable rate applications specify method used to determine rate), and placement of plant nutrients for each field or management unit, and
- guidance for implementation, operation and maintenance, and recordkeeping.

In addition, the following components must be included in a precision/variable rate nutrient management plan:

- Document the geo-referenced field boundary and data collected that was processed and analyzed as a GIS layer or layers to generate nutrient or soil amendment recommendations.
- Document the nutrient recommendation guidance and recommendation equations used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.
- Document if a variable rate nutrient or soil amendment application was made.

- Provide application records per management zone or as applied map within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all applications that resulted from use of the precision agriculture process for nutrient or soil amendment applications.

- Maintain the electronic records of the GIS data layers and nutrient applications for at least 5 years.

If increases in soil phosphorus levels are expected (i.e., when N-based rates are used), the nutrient management plan must document:

- the soil phosphorus levels at which it is desirable to convert to phosphorus based planning,
- the potential plan for soil test phosphorus drawdown from the production and harvesting of crops, and
- management activities or techniques used to reduce the potential for phosphorus transport and loss,
- for AFOs, a quantification of manure produced in excess of crop nutrient requirements, and
- a long-term strategy and proposed implementation timeline for reducing soil P to levels that protect water quality,

CERTIFICATION REQUIREMENTS

The data listed below is necessary at a minimum to document that the completed practice meets the standard and specification:

1. How the producer has adopted the management and mitigating practices listed on the UMARI
2. Nutrient application records that show nutrients were applied according to the soil test and/or plant tissue test
3. Soil test and other test results (i.e. plant tissue test, manure test), where appropriate
4. Crop(s) grown and yield records
5. Timing and method of application
6. Map indicating acres treated

OPERATION AND MAINTENANCE

Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans must be reviewed and revised, as needed with each soil test cycle, changes in manure volume or analysis, crops, or crop management.

Fields receiving animal manures and/or biosolids must be monitored for the accumulation of heavy metals and phosphorus in accordance with land- grant university guidance and State law.

Significant changes in animal numbers, management, and feed management will necessitate additional manure analyses to establish a revised average nutrient content.

Calibrate application equipment to ensure accurate distribution of material at planned rates.

Document the nutrient application rate. When the applied rate differs from the planned rate, provide appropriate documentation for the change.

Records must be maintained for at least 5 years to document plan implementation and maintenance. As applicable, records include:

- soil, plant tissue, water, manure, and organic by-product analyses resulting in recommendations for nutrient application,
- quantities, analyses and sources of nutrients applied,

- dates, and method(s) of nutrient applications, source of nutrients, and rates of application,
- weather conditions and soil moisture at the time of application; lapsed time to manure incorporation; rainfall or irrigation event,
- crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed,
- dates of plan review, name of reviewer, and recommended changes resulting from the review, and
- all enhanced efficiency fertilizer products used.

Additional records for precision/variable rate sites must include:

- maps identifying the variable application source, timing, amount, and placement of all plant nutrients applied, and
- GPS-based yield maps for crops where yields can be digitally collected.

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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

January 23, 2019

DIVISION OF WATER QUALITY
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
PUBLIC NOTICE OF NUTRIENT MANAGEMENT PLAN WITH INTENT
TO ISSUE A UPDES GENERAL CAFO PERMIT TO RASMUSSEN FEEDLOT

PURPOSE OF PUBLIC NOTICE

The purpose of this public notice is to declare the state of Utah's intention to issue a Utah Pollutant Discharge Elimination System (UDPES) General Concentrated Animal Feeding Operation (CAFO) Permit to Rasmussen Feedlot under authority of the Utah Water Quality Act. As required by the Clean Water Act, a site-specific Nutrient Management Plan (NMP) for a CAFO must be public noticed prior to CAFO permit issuance. Certain NMP conditions are permit requirements, therefore the NMP must be public noticed as part of the permit. If no changes are made to the NMP following the comment period, then the Utah Division of Water Quality (DWQ) intends to issue the CAFO permit to Rasmussen Feedlot.

PERMIT INFORMATION

PERMITTEE NAME:	Rasmussen Feedlot
FACILITY LOCATION:	1855 North 6400 West, Corinne, UT 84307
UPDES PERMIT NO.:	UTG080100
RECEIVING WATERS:	Bear River, (none)

BACKGROUND

Rasmussen Feedlot is a large CAFO that is voluntarily seeking coverage under the UPDES General CAFO Permit. A Natural Resources Conservation Service (NRCS) approved certified planner has approved the nutrient management plan for compliance with NRCS standard practices. In addition, DWQ has approved the NMP for compliance with the CAFO permit requirements. During the public comment period, the public has opportunity to comment on the NMP and the potential permitting of Rasmussen Feedlot in Corinne, Utah.

PUBLIC COMMENTS

Public comments are invited any time prior to the deadline of the close of business on **February 22, 2019**. Written public comments can be submitted to: Don Hall, Storm Water Section, Utah Division of Water Quality, PO Box 144870, Salt Lake City, Utah 84114-4870 or by email at: dghall@utah.gov. After considering public comment the Director may execute the permit issuance, revise it, or abandon it. The permit is available for public review at http://www.deq.utah.gov/NewsNotices/notices/water/index.htm. If internet access is not available, a copy may be obtained by calling Don Hall 801-536-4492.

DWQ-2019-000604

State of Utah
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Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

January 17, 2019

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ATTN: Legal Advertising Department
Email: legals@bejournal.com

This letter will confirm authorization to publish the attached NOTICE in The Box Elder News Journal in the first available edition. Please mail the invoice and affidavit of publication to:

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Division of Water Quality
Attn: Emily Canton
PO Box 144870
Salt Lake City, Utah 84114-4870

If there are any questions, please contact Brenda Johnson at (801) 536-4329. Thank you for your assistance.

Sincerely,

Jeanne Riley, Manager
UPDES Storm Water Section

JR/DH/blj

DWQ-2019-000603

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**DIVISION OF WATER QUALITY
UTAH DEPARTMENT OF
ENVIRONMENTAL QUALITY
PUBLIC NOTICE OF NUTRIENT
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TENT TO ISSUE A UPDES
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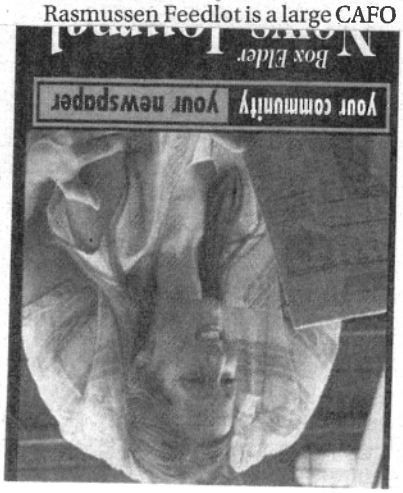

I, Casey Claybaugh, being first duly sworn depose and say that I am the Publisher of the Box Elder News Journal, a newspaper of general circulation, published every Wednesday in Brigham City, Utah, County of Box Elder; that the notice

INTENT TO ISSUE A
UPDES GENERAL CAFO PERMIT
RASMUSSEN FEEDLOT

of which a copy is hereto attached, was published in said newspaper, the first publication having been made on the 23rd day of January 2019, and the last on the 23rd day of January 2019; that said notice was published in the regular and entire issue of every number of the paper during the period and times of publication, and the same was published in the newspaper proper and not in the supplement.

Same was also published online at utahlegals.com, according to Section 45-1-101, Utah Code Annotated beginning on the first date of publication and for 30 days thereafter.

Casey Claybaugh, Publisher

Subscribed and sworn before me this 23rd day of January 2019.

Sean Michael Hales, Notary Public
Residence: Brigham City, Utah
My commission expires August 29, 2022

SEAN M HALES
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UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
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