

115: 84069

5-10-21

**Pomajzl, Mark**

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**From:** Scott Tingelhoff <stingelhoff@mrgkc.com>  
**Sent:** Friday, May 07, 2021 4:03 PM  
**To:** Pomajzl, Mark  
**Subject:** NPDES Annual Land Application Report 2020 - AltEn  
**Attachments:** ALT 2020 CY AR.PDF; Letter to NDEE - NPDES Wastewater Land Application (05-07-21).pdf

Mark,

Please see the attached. If you have any questions, please let me know.

Scott

-----  
Scott Tingelhoff  
General Manager  
AltEn, LLC  
1344 County Road 10  
Mead, NE 68041  
Office: (402) 624-2000, ext. 1008  
Direct: (402) 624-0900  
Fax: (402) 624-2027  
[stingelhoff@mrgkc.com](mailto:stingelhoff@mrgkc.com)





# Nebraska Department of Environmental Quality

**Wastewater Section**  
1200 'N' Street, Suite 400, The Atrium  
PO Box 98922  
Lincoln, NE 68509-8922  
Tel. 402/471-4220 / Fax 402/471-2909

## Attachment 1

### CERTIFICATION OF ANNUAL LAND APPLICATION REPORT

#### A. Identification of Facility

Facility Name: AltEn, LLC NPDES Permit NE NE0137634  
Mailing Address: 1344 County Road 10  
City: Mead State: NE Zip Code: 68041

#### B. Agronomist that Prepared the Annual Report

Name of Agronomist: Andy Scholting - Nutrient Advisors Phone Number 402-372-2236  
Mailing Address: 449 E Deere Street  
City: West Point State: NE Zip Code: 68788

#### C. Certification of Annual Report

I certify that the AltEn, LLC facility, located  
In Mead, Nebraska is in compliance with the requirements of the NPDES permit

I also certify, under penalty of law, that the annual report and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry, 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 of Cognizant Official \_\_\_\_\_ Date \_\_\_\_\_

Printed Name \_\_\_\_\_ Title \_\_\_\_\_

# ALTEN, LLC

## 2020 NPDES ANNUAL REPORT

NDEE IIS: 84069  
NPDES Permit: NE0137634

Submitted by:



449 E. Deere Street ■ West Point, NE 68788 ■ Phone: 402.372.2236

[NUTRIENTADVISORS.COM](http://NUTRIENTADVISORS.COM)



**NUTRIENT  
ADVISORS**

## **2020 Annual Report to NDEE**

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  - Wastewater Review
  - Agricultural Practices
  - Concerns/Problems
- Soil Testing Analysis
- Wastewater Analysis

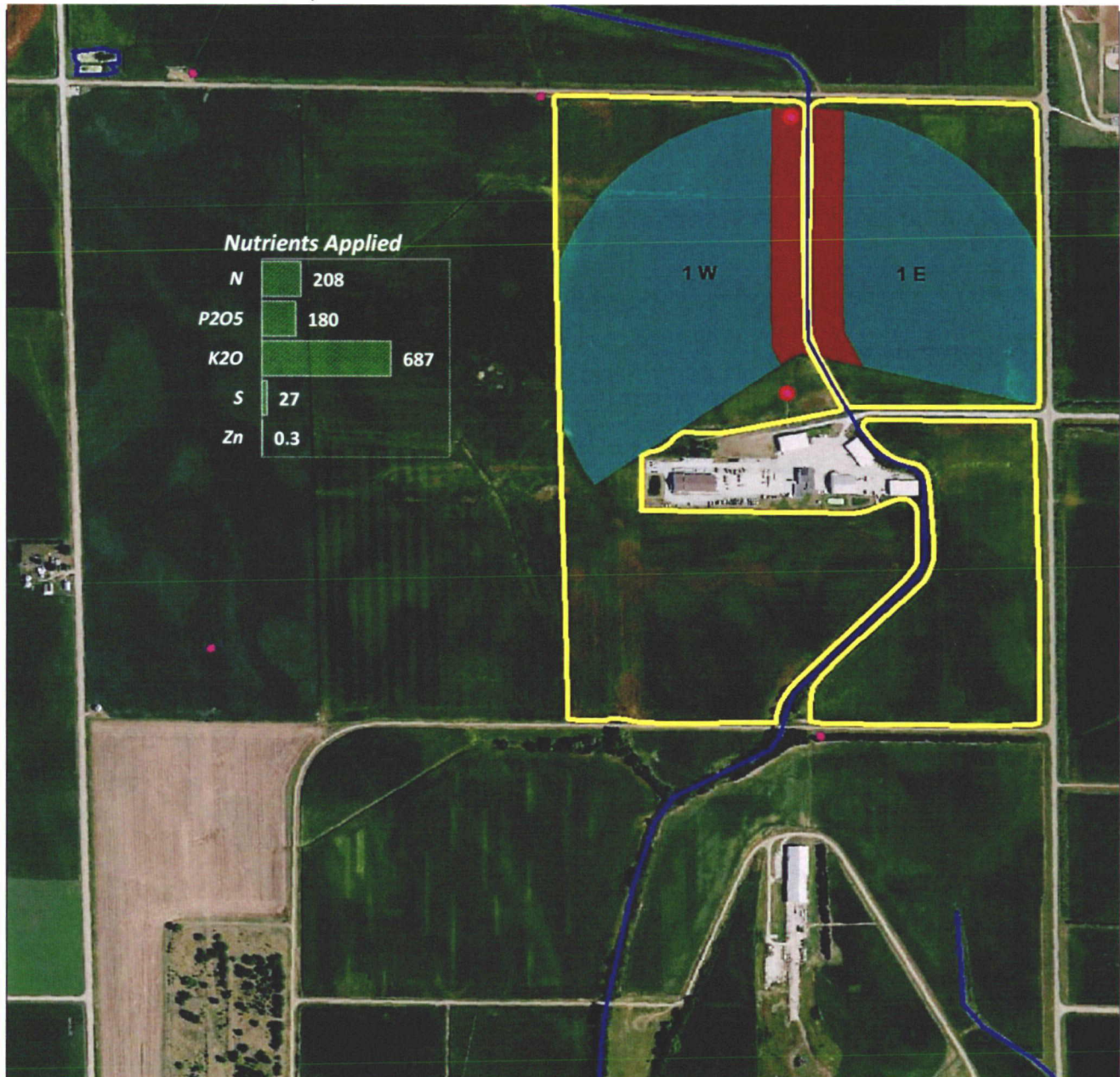


449 E. Deere Street • West Point, NE 68788  
Phone: 402.372.CAFO [nutrientadvisors.com](http://nutrientadvisors.com)



# ALTEN, LLC

# Waste Water Fertilizer Application Map



\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.

## Map Legend

- applied area
- field boundary
- registered wells
- application setbacks\*
- tile inlets
- streams/water

Crop Producer: RAINIER RESOURCES

Field Name: FIELD 1- SITE 1

Acres: 75.51

Legal Description: N2 NE4, 14-14-8E

Product: S LAGOON WATER

Application Type: Center Pivot Irrigation

Application Rate: 3.08 Acre Inches

Application Date(s): 9/18-19,10/17,19-20/19 & 4/10-11,6/7-8,30-7/3/20

Incorporation: Sprinkler Irrigation



© Nutrient Advisors 402-372-2236





**ALTEN, LLC**

**Waste Water Fertilizer Application Map**



\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.

**Map Legend**

- applied area
- field boundary
- registered wells
- application setbacks\*
- tile inlets
- streams/water

**Crop Producer:** RAINIER RESOURCES  
**Field Name:** FIELD 2- SITE 2  
**Acres:** 111.10  
**Legal Description:** SW4, 11-14-8E  
**Product:** S LAGOON WATER  
**Application Type:** Center Pivot Irrigation  
**Application Rate:** 1.49 Acre Inches  
**Application Date(s):** 4/21,6/25-29,7/3,16-17/20  
**Incorporation:** Sprinkler Irrigation





**ALTEN, LLC**

**Waste Water Fertilizer Application Map**



\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.

**Map Legend**

- applied area
- field boundary
- registered wells
- application setbacks\*
- tile inlets
- streams/water

**Crop Producer:** RAINIER RESOURCES

**Field Name:** FIELD 6 - SITE 6

**Acres:** 75.39

**Legal Description:** N2 NW4, 12-14-8E

**Product:** S LAGOON WATER

**Application Type:** Center Pivot Irrigation

**Application Rate:** 2.14 Acre Inches

**Application Date(s):** 9/16-17,10/21-22/19 & 6/5-6,7/4-6/20

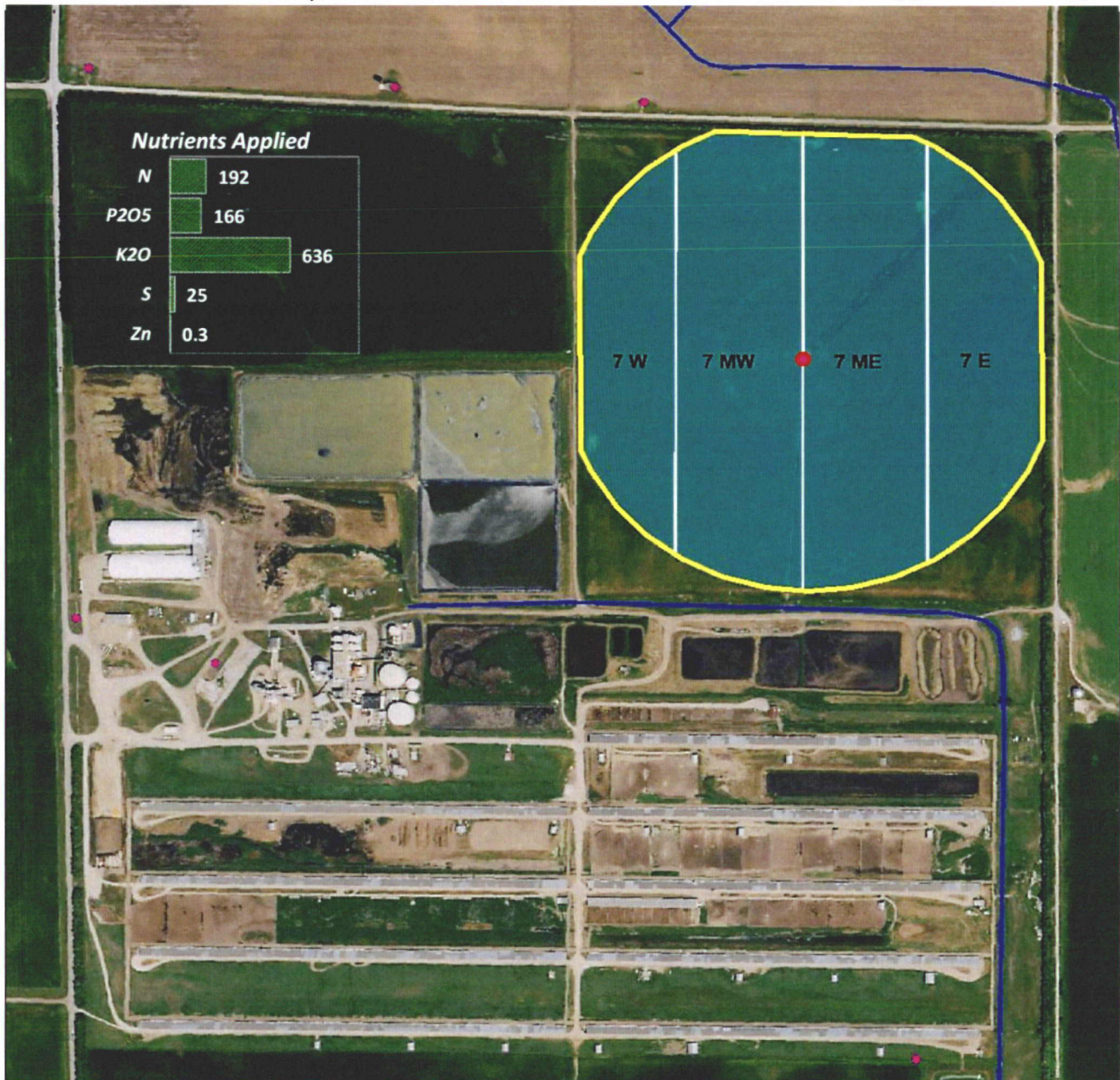
**Incorporation:** Sprinkler Irrigation





**ALTEN, LLC**

**Waste Water Fertilizer Application Map**



\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.

**Map Legend**

-  applied area
-  field boundary
-  registered wells
-  application setbacks\*
-  tile inlets
-  streams/water

**Crop Producer:** RAINIER RESOURCES

**Field Name:** FIELD 7- SITE 7

**Acres:** 131.40

**Legal Description:** NE4, 12-14-8E

**Product:** S LAGOON WATER

**Application Type:** Center Pivot Irrigation

**Application Rate:** 2.85 Acre Inches

**Application Date(s):** 10/18,25-27,11/4-5,9-10,15-21,24-25,12/7-8 & 6/8-12,7/6-8/20

**Incorporation:** Sprinkler Irrigation



© **Nutrient Advisors** 402-372-2236





**ALTEN, LLC**

**Waste Water Fertilizer Application Map**



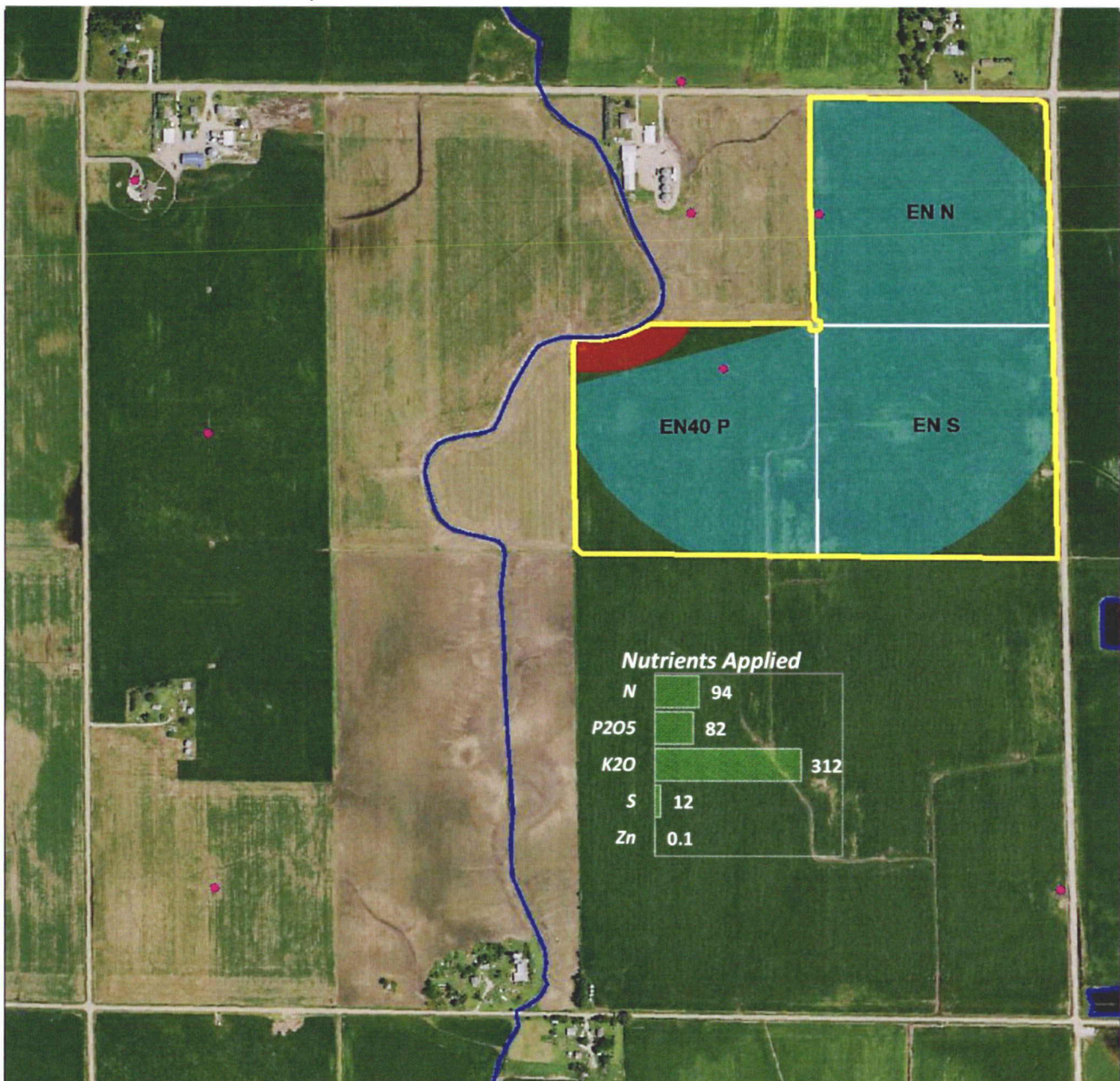
\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.










**ALTEN, LLC**

**Waste Water Fertilizer Application Map**



\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.

**Map Legend**

-  applied area
-  field boundary
-  registered wells
-  application setbacks\*
-  tile inlets
-  streams/water

**Crop Producer:** DUANE JOHNSON

**Field Name:** ERICKSON N- SITE 4

**Acres:** 99.95

**Legal Description:** SW4 NE4 & E2 NE4, 10-14-8E

**Product:** S LAGOON WATER

**Application Type:** Center Pivot Irrigation

**Application Rate:** 1.40 Acre Inches

**Application Date(s):** 6/12-25/2020

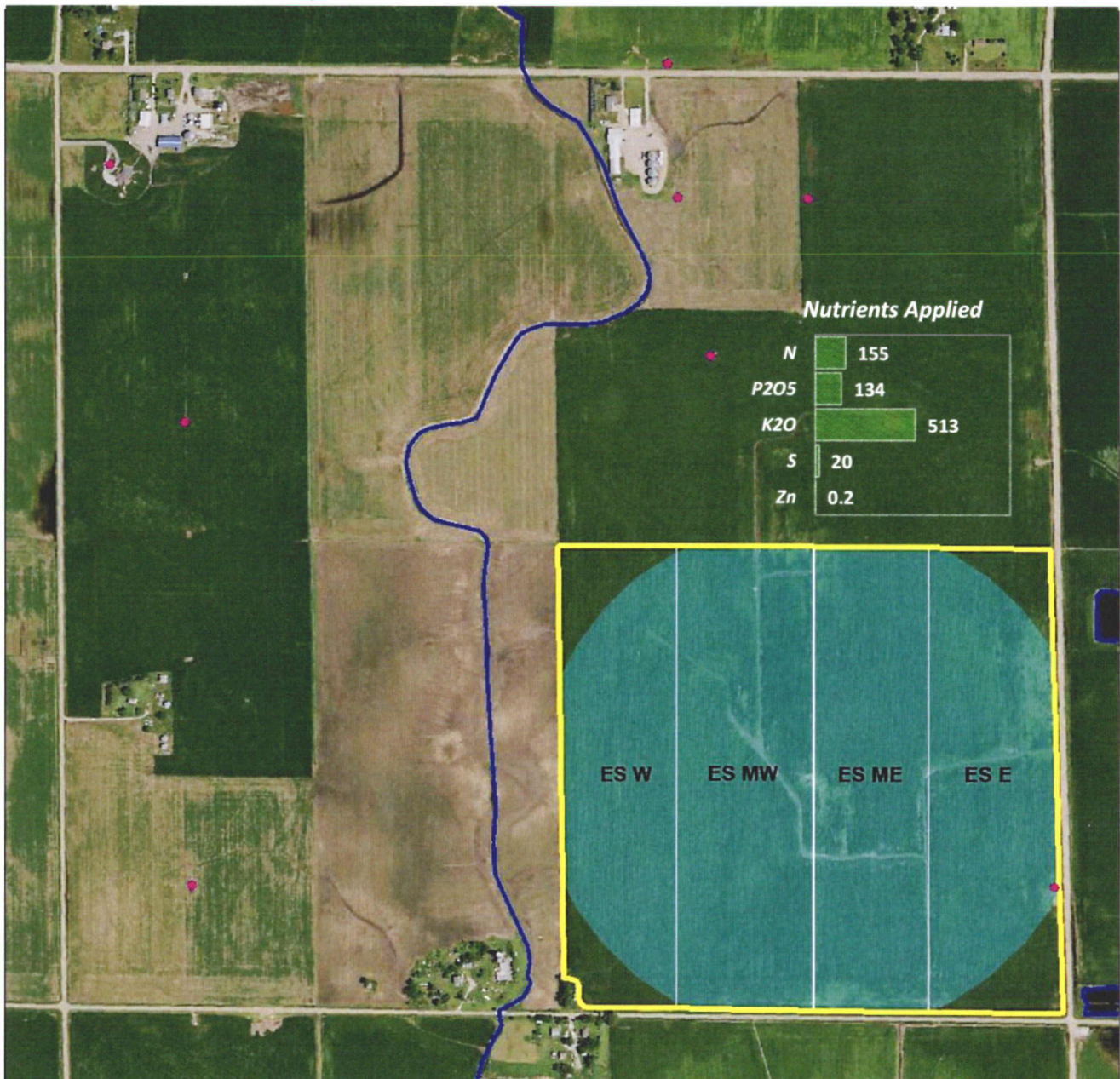
**Incorporation:** Sprinkler Irrigation







**ALTEN, LLC**

**Waste Water Fertilizer Application Map**



\*\*\*setbacks are maintained from concentrated surface water drainage, streams, wells, and tile inlets unless a 35' vegetative buffer exists, then 35' of buffer is sufficient.

**Map Legend**

-  applied area
-  field boundary
-  registered wells
-  application setbacks\*
-  tile inlets
-  streams/water

**Crop Producer:** EMIL ERICKSON  
**Field Name:** ERICKSON S- SITE 13  
**Acres:** 139.50  
**Legal Description:** SE4, 10-14-8E  
**Product:** S LAGOON WATER  
**Application Type:** Center Pivot Irrigation  
**Application Rate:** 2.30 Acre Inches  
**Application Date(s):** 6/12-25, 7/27-8/3/20  
**Incorporation:** Sprinkler Irrigation





# NUTRIENT BUDGET

Facility: **ALTEN, LLC**  
 Producer: **RAINIER RESOURCES**  
 Crop Year: **2020**  
 Crop: **Corn Silage**  
 Previous Crop: **Corn Silage**

Field: **FIELD 1- SITE 1**  
 Acres: **75.51**  
 Legal: **N2 NE4, 14-14-8E**  
 Yield Goal: **30**  
 Product ID: **S LAGOON WATER**  
 Report No. **20-164-4132**



## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
16.7	7.0	230.3	724.0	13.3	6.6	3.0	6.2

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
123.00	16.90	58.40	223.00	8.70	0.10
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)			
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)			



**Total Nitrogen Requirement** **315**

### NITROGEN CREDITS

Organic N available from 2018 CY application 3.0  
 Organic N available from 2019 CY application 11.0

Previous Crop N Contribution 0.0

Total Soil Nitrate N from Surface & Subs 73.6

Current Year Nutrient Application Credits

**TOTAL CREDITS** **87.6**

<b>Nutrient Application Requirements (#/ Acre)</b>	<b>227.4</b>	<b>0.0</b>	<b>0.0</b>	<b>17.5</b>	<b>0.0</b>
	N	P	K	S	Zn

**RECOMMENDED APPLICATION:** **Nitrogen Based**

Unit Description	Units/Acre	Lbs./acre of Nutrients				
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	<b>3.37</b>	227	197	752	29	0.3

### ACTUAL APPLICATION

Acre Inches		3.08		
Application Dates:		9/18-19,10/17,19-20/19 & 4/10-11,6/7-8,30-7/3/20		
Incorporation:		Sprinkler Irrigation		
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
208	180	687	27	0.3
20	0	0	0	0

### Additional Nutrient Needs:

2021 Crop Organic N Available- **8** #/Acre  
 2022 Crop Organic N Available- **4** #/Acre

# NUTRIENT BUDGET

**Facility:** ALTEN, LLC  
**Producer:** RAINIER RESOURCES  
**Crop Year:** 2020  
**Crop:** Corn Silage  
**Previous Crop:** Corn Silage

**Field:** FIELD 2- SITE 2  
**Acres:** 111.10  
**Legal:** SW4, 11-14-8E  
**Yield Goal:** 30  
**Product ID:** S LAGOON WATER  
**Report No.** 20-164-4132

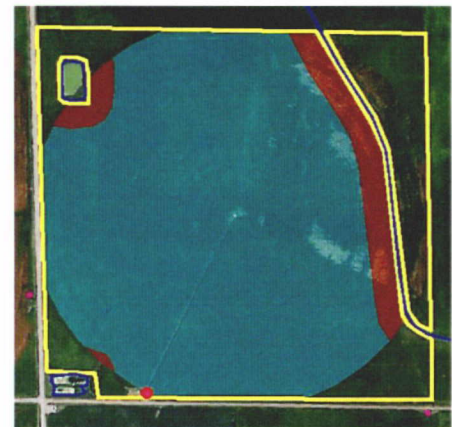


## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
21.0	9.3	236.0	773.8	26.3	7.4	3.0	6.7

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
123.00	16.90	58.40	223.00	8.70	0.10
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)			
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)			



**Total Nitrogen Requirement** **315**

### NITROGEN CREDITS

Organic N available from 2018 CY application 5.0  
 Organic N available from 2019 CY application 67.0

Previous Crop N Contribution 0.0

Total Soil Nitrate N from Surface & Subs 94.8

Current Year Nutrient Application Credits

**TOTAL CREDITS 166.8**

<b>Nutrient Application Requirements (#/ Acre)</b>	<b>148.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	N	P	K	S	Zn

**RECOMMENDED APPLICATION: Nitrogen Based**

## ACTUAL APPLICATION

Acre Inches		1.49				
Application Dates:		4/21,6/25-29,7/3,16-17/20				
Incorporation:		Sprinkler Irrigation				
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn		
100	87	332	13	0.1		
50	0	0	0	0		

		Lbs./acre of Nutrients				
Unit Description	Units/Acre	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	2.20	148	128	490	19	0.2

### Additional Nutrient Needs:

2021 Crop Organic N Available- 4 #/Acre  
 2022 Crop Organic N Available- 2 #/Acre



# NUTRIENT BUDGET

**Facility:** ALTEN, LLC  
**Producer:** RAINIER RESOURCES  
**Crop Year:** 2020  
**Crop:** Corn Silage  
**Previous Crop:** Corn Silage

**Field:** FIELD 6 - SITE 6  
**Acres:** 75.39  
**Legal:** N2 NW4, 12-14-8E  
**Yield Goal:** 30  
**Product ID:** S LAGOON WATER  
**Report No.** 20-164-4132



## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
36.0	13.0	284.5	1066.0	14.5	8.3	3.1	6.4

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn	
123.00	16.90	58.40	223.00	8.70	0.10	
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)				
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)				



**Total Nitrogen Requirement** **315**

### NITROGEN CREDITS

Organic N available from 2018 CY application	5.0
Organic N available from 2019 CY application	14.0
Previous Crop N Contribution	0.0
Total Soil Nitrate N from Surface & Subs	148.8
Current Year Nutrient Application Credits	
<b>TOTAL CREDITS</b>	<b>167.8</b>

<b>Nutrient Application Requirements (#/ Acre)</b>	<b>147.2</b>	<b>0.0</b>	<b>0.0</b>	<b>14.7</b>	<b>0.0</b>
	N	P	K	S	Zn

**RECOMMENDED APPLICATION:** Nitrogen Based

Unit Description	Units/Acre	Lbs./acre of Nutrients				
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	2.18	147	128	487	19	0.2

### ACTUAL APPLICATION

Acre Inches	2.14				
Application Dates: 9/16-17,10/21-22/19 & 6/5-6,7/4-6/20					
Incorporation:		Sprinkler Irrigation			
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn	
144	125	477	19	0.2	
5	0	0	0	0	

### Additional Nutrient Needs:

2021 Crop Organic N Available- 5 #/Acre  
 2022 Crop Organic N Available- 3 #/Acre

# NUTRIENT BUDGET

**Facility:** ALTEN, LLC  
**Producer:** RAINIER RESOURCES  
**Crop Year:** 2020  
**Crop:** Corn Silage  
**Previous Crop:** Corn Silage

**Field:** FIELD 7- SITE 7  
**Acres:** 131.40  
**Legal:** NE4, 12-14-8E  
**Yield Goal:** 30  
**Product ID:** S LAGOON WATER  
**Report No.** 20-164-4132

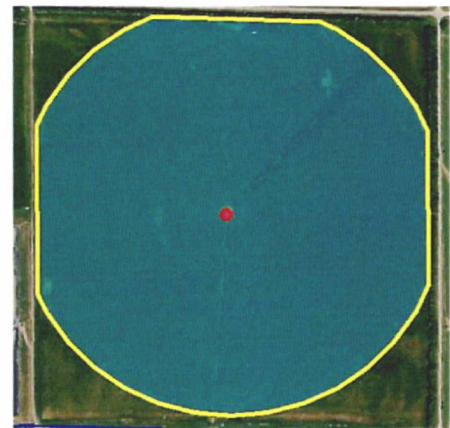


## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
8.8	6.8	287.5	990.5	22.3	8.6	3.5	6.8

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
123.00	16.90	58.40	223.00	8.70	0.10
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)			
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)			



**Total Nitrogen Requirement** **315**

### NITROGEN CREDITS

Organic N available from 2018 CY application	8.0
Organic N available from 2019 CY application	9.0
Previous Crop N Contribution	0.0
Total Soil Nitrate N from Surface & Subs	53.4
Current Year Nutrient Application Credits	
<b>TOTAL CREDITS</b>	<b>70.4</b>

Nutrient Application Requirements (#/ Acre)	N	P	K	S	Zn
	244.6	0.0	0.0	0.0	0.0

**RECOMMENDED APPLICATION:** Nitrogen Based

## ACTUAL APPLICATION

Acre Inches		2.85		
Application Dates:		10/18,25-27,11/4-5,9-10,15-21,24-25,12/7-8 & 6/8-12,7/6-8/20		
Incorporation:		Sprinkler Irrigation		
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
192	166	636	25	0.3
50	0	0	0	0

Unit Description	Units/Acre	Lbs./acre of Nutrients				
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	3.63	245	212	809	32	0.4

### Additional Nutrient Needs:

2021 Crop Organic N Available- 7 #/Acre  
 2022 Crop Organic N Available- 3 #/Acre



# NUTRIENT BUDGET

**Facility:** ALTEN, LLC  
**Producer:** RAINIER RESOURCES  
**Crop Year:** 2020  
**Crop:** Corn Silage  
**Previous Crop:** Corn Silage

**Field:** FIELD 11E- SITE 11E  
**Acres:** 66.18  
**Legal:** N2 NE4, 15-14-8E  
**Yield Goal:** 30  
**Product ID:** S LAGOON WATER  
**Report No.:** 20-164-4132



## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
12.0	12.5	39.5	350.5	9.0	1.4	3.1	5.5

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn	
123.00	16.90	58.40	223.00	8.70	0.10	
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)				
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)				



**Total Nitrogen Requirement** **315**

### NITROGEN CREDITS

Organic N available from 2018 CY application 6.0  
 Organic N available from 2019 CY application 8.0

Previous Crop N Contribution 0.0

Total Soil Nitrate N from Surface & Subs 88.8

Current Year Nutrient Application Credits

**TOTAL CREDITS 102.8**

<b>Nutrient Application Requirements (#/ Acre)</b>	<b>212.2</b>	<b>34.9</b>	<b>0.0</b>	<b>27.9</b>	<b>0.0</b>
	N	P	K	S	Zn

**RECOMMENDED APPLICATION: Nitrogen Based**

Unit Description	Units/Acre	Lbs./acre of Nutrients				
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	3.15	212	184	702	27	0.3

## ACTUAL APPLICATION

Acre Inches		2.37		
Application Dates: 3/31,4/7-8,20,6/4-5,29-30,7/3-4/20				
Incorporation: Sprinkler Irrigation				
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
160	138	529	21	0.2
50	0	0	7	0

### Additional Nutrient Needs:

2021 Crop Organic N Available- 6 #/Acre  
 2022 Crop Organic N Available- 3 #/Acre



# NUTRIENT BUDGET

**Facility:** ALTEN, LLC  
**Producer:** DUANE JOHNSON  
**Crop Year:** 2020  
**Crop:** Corn  
**Previous Crop:** Corn

**Field:** ERICKSON N- SITE 4  
**Acres:** 99.95  
**Legal:** SW4 NE4 & E2 NE4, 10-14-8E  
**Yield Goal:** 275  
**Product ID:** S LAGOON WATER  
**Report No.** 20-164-4132



## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
9.0	6.3	39.0	437.0	9.3	2.4	2.8	6.5

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
123.00	16.90	58.40	223.00	8.70	0.10
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)			
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)			



**Total Nitrogen Requirement** **330**

### NITROGEN CREDITS

Organic N available from 2018 CY application 0.0  
 Organic N available from 2019 CY application 5.0

Previous Crop N Contribution 0.0

Total Soil Nitrate N from Surface & Subs 52.0

Current Year Nutrient Application Credits

**TOTAL CREDITS 57.0**

<b>Nutrient Application Requirements (#/ Acre)</b>	<b>273.0</b>	<b>39.2</b>	<b>0.0</b>	<b>32.6</b>	<b>0.0</b>
	N	P	K	S	Zn

**RECOMMENDED APPLICATION: Nitrogen Based**

Unit Description	Units/Acre	Lbs./acre of Nutrients				
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	4.05	273	236	903	35	0.4

### ACTUAL APPLICATION

Acre Inches		1.40		
Application Dates:		6/12-25/2020		
Incorporation:		Sprinkler Irrigation		
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
94	82	312	12	0.1
180	0	0	20	0

### Additional Nutrient Needs:

2021 Crop Organic N Available- 4 #/Acre  
 2022 Crop Organic N Available- 2 #/Acre

# NUTRIENT BUDGET

**Facility:** ALTEN, LLC  
**Producer:** EMIL ERICKSON  
**Crop Year:** 2020  
**Crop:** Corn  
**Previous Crop:** Corn

**Field:** ERICKSON S- SITE 13  
**Acres:** 139.50  
**Legal:** SE4, 10-14-8E  
**Yield Goal:** 275  
**Product ID:** S LAGOON WATER  
**Report No.** 20-164-4132

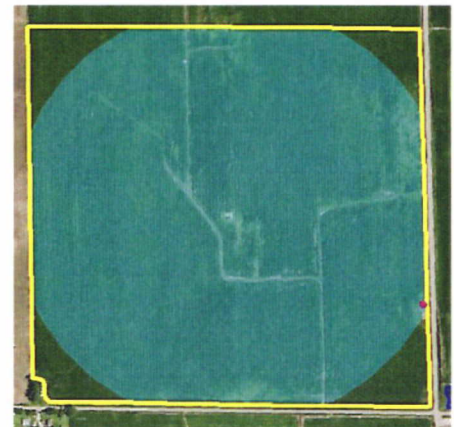


## Soil Test Values - Averages in ppm

0-8" N	8-24" N	P	K	S	Zn	OM	pH
8.0	7.3	65.8	533.5	15.0	2.6	3.3	6.4

## Waste Water Analysis Results in pounds per acre-inch

Ammonium N	Organic N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
123.00	16.90	58.40	223.00	8.70	0.10
50%	35%	- Nitrogen Conversion Rates (1st Year Availability)			
61.50	5.92	- Nitrogen # per acre-inch (1st Year Availability)			



**Total Nitrogen Requirement** **330**

### NITROGEN CREDITS

Organic N available from 2018 CY application 0.0  
 Organic N available from 2019 CY application 5.0

Previous Crop N Contribution 0.0

Total Soil Nitrate N from Surface & Subs 54.0

Current Year Nutrient Application Credits

**TOTAL CREDITS 59.0**

<b>Nutrient Application Requirements (#/ Acre)</b>	<b>271.0</b>	<b>0.0</b>	<b>0.0</b>	<b>19.0</b>	<b>0.0</b>
	N	P	K	S	Zn

**RECOMMENDED APPLICATION: Nitrogen Based**

		Lbs./acre of Nutrients				
Unit Description	Units/Acre	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn
Acre Inches	4.02	271	235	896	35	0.4

### ACTUAL APPLICATION

Acre Inches		2.30				
Application Dates:		6/12-25, 7/27-8/3/20				
Incorporation:		Sprinkler Irrigation				
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	S	Zn		
155	134	513	20	0.2		
115	0	0	0	0		

### Additional Nutrient Needs:

2021 Crop Organic N Available- 6 #/Acre  
 2022 Crop Organic N Available- 3 #/Acre



# SOILS MAP



Area Symbol: NE155, Soil Area Version: 16

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	SRPG	*n NCCPI Soybeans
7280	Tomek silt loam, 0 to 2 percent slopes	95.90	48.7%	Iw	Iw	77	67
7340	Filbert silt loam, 0 to 1 percent slopes	69.44	35.2%	IIw	IIw	60	60
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	31.70	16.1%	IIIe	IIIe	72	53
Weighted Average						70.2	*n 62.3



FACILITY: ALTEN  
CROP PRODUCER: RAINIER RESOURCES  
FIELD NAME: FIELD 1- SITE 1

ACRES: 197.00  
LOCATION: NE4 & N2 SE4, 14-148E  
COUNTY: SAUNDERS





# SOILS MAP



Area Symbol: NE155, Soil Area Version: 16

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	SRPG	*n NCCPI Soybeans
7340	Filbert silt loam, 0 to 1 percent slopes	77.31	53.1%	IIw	IIw	60	60
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	41.11	28.2%	IIe	IIe	72	53
7280	Tomek silt loam, 0 to 2 percent slopes	14.97	10.3%	Iw	Iw	77	67
3948	Fillmore silt loam, terrace, occasionally ponded	11.55	7.9%	IIw	IVw	47	68
3911	Scott silt loam, terrace, frequently ponded	0.76	0.5%	Vw		20	16
Weighted Average						63.9	*n 59.1



FACILITY: MEAD CATTLE COMPANY, LLC  
CROP PRODUCER: RAINIER RESOURCES  
FIELD NAME: FIELD 2-SITE 2

ACRES: 145.70  
LOCATION: SW4, 11-14-8E  
COUNTY: SAUNDERS





# SOILS MAP



Area Symbol: NE155, Soil Area Version: 17

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	SRPG	*n NCCPI Soybeans
7340	Filbert silt loam, 0 to 1 percent slopes	41.66	48.0%	IIw	IIw	60	60
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	36.46	42.0%	IIe	IIe	72	53
7280	Tomek silt loam, 0 to 2 percent slopes	8.60	9.9%	Iw	Iw	77	67
3948	Fillmore silt loam, terrace, occasionally ponded	0.07	0.1%	IIIw	IVw	47	68
Weighted Average						66.7	*n 57.8



FACILITY: MEAD CATTLE COMPANY, LLC  
CROP PRODUCER: RAINIER RESOURCES  
FIELD NAME: FIELD 6- SITE 6

ACRES: 86.79  
LOCATION: N2 NW4, 12-14-8E  
COUNTY: SAUNDERS





# SOILS MAP



Area Symbol: NE155, Soil Area Version: 12

Code	Soil Description	Acres	Percent of field	Non-Irr Class	Irr Class	SRPG
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	73.44	46.7%	Ile	IIle	72
7340	Filbert silt loam, 0 to 1 percent slopes	68.67	43.6%	IIw	IIw	60
7280	Tomek silt loam, 0 to 2 percent slopes	7.86	5.0%	I	I	77
3948	Fillmore silt loam, terrace, occasionally ponded	7.43	4.7%	IIIw	IVw	47
Weighted Average						65.8



FACILITY: MEAD CATTLE COMPANY  
CROP PRODUCER: RAINIER RESOURCES  
FIELD NAME: FIELD 7- SITE 7

ACRES: 157.40  
LOCATION: NW4, 12-14-8E  
COUNTY: SAUNDERS





# SOILS MAP



Area Symbol: NE155, Soil Area Version: 16

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	SRPG	*n NCCPI Soybeans
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	35.73	47.0%	IIe	IIIe	72	53
7340	Filbert silt loam, 0 to 1 percent slopes	29.11	38.3%	IIw	IIw	60	60
7280	Tomek silt loam, 0 to 2 percent slopes	10.80	14.2%	Iw	Iw	77	67
8145	Pohocco-Pahuk complex, 6 to 11 percent slopes, eroded	0.41	0.5%	IIIe	IVe	47	40
Weighted Average						68	*n 57.6



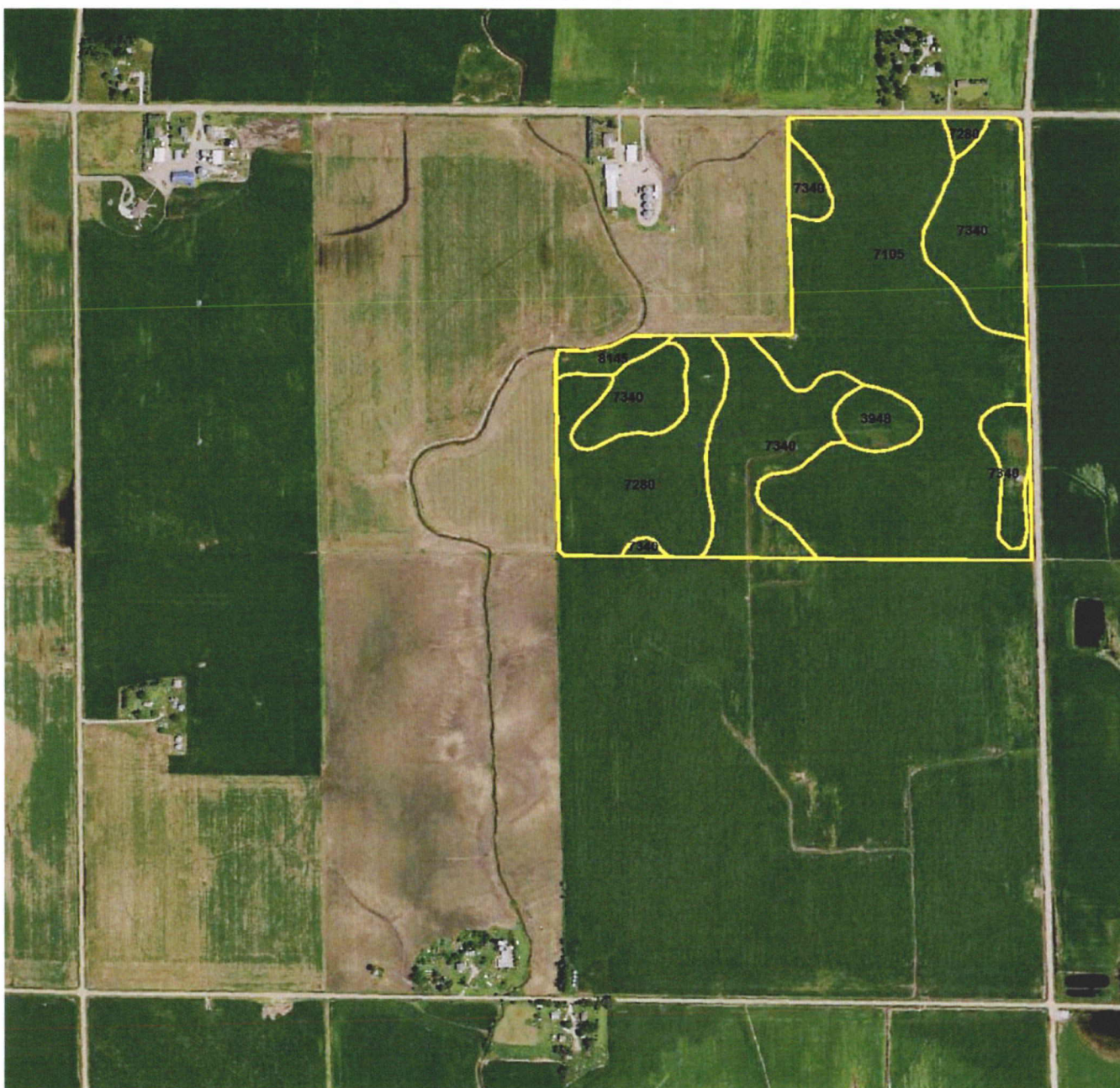
FACILITY: ALTEN  
CROP PRODUCER: RAINIER RESOURCES  
FIELD NAME: FIELD 11E- SITE 11

ACRES: 76.05  
LOCATION: N2 NE4, 15-14-8E  
COUNTY: SAUNDERS





## SOILS MAP



Area Symbol: NE155, Soil Area Version: 17

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	SRPG	*n NCCPI Soybeans
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	55.24	47.8%	Ile	IIle	72	53
7340	Filbert silt loam, 0 to 1 percent slopes	36.90	31.9%	IIw	IIw	60	60
7280	Tomek silt loam, 0 to 2 percent slopes	18.38	15.9%	Iw	Iw	77	67
3948	Filimore silt loam, terrace, occasionally ponded	3.18	2.8%	IIw	IVw	47	66
8145	Pohocco-Pahuk complex, 6 to 11 percent slopes, eroded	1.90	1.6%	IIle	IVe	47	40
<b>Weighted Average</b>						<b>67.9</b>	<b>*n 57.7</b>



FACILITY: ALTEN

**CROP PRODUCER: DUANE JOHNSON**

FIELD NAME: ERICKSON NORTH - SITE 4

**ACRES: 115.60**

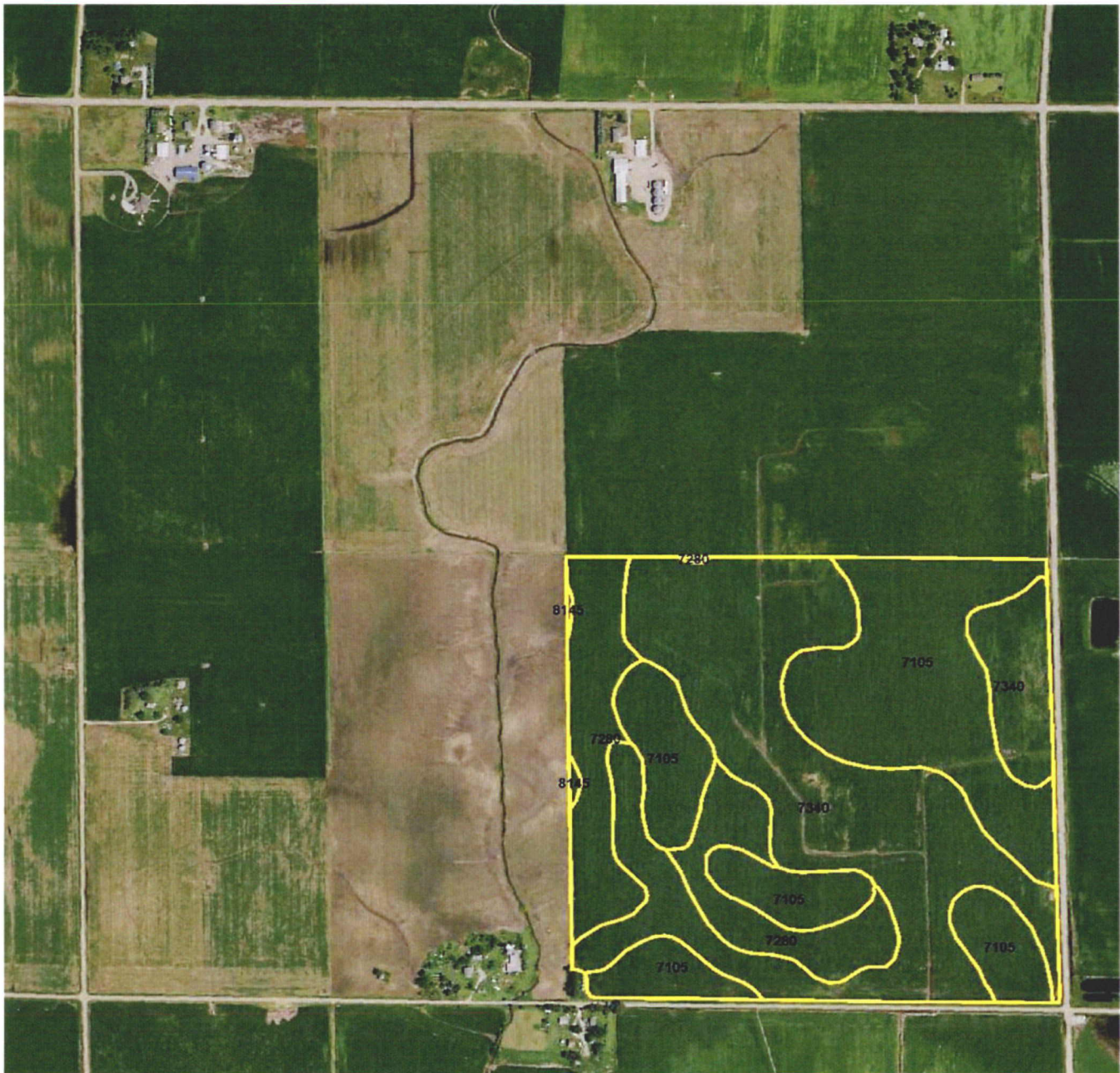
LOCATION: SW4 NE4 & E2 NE4,  
10-148E

COUNTY: SAUNDERS





# SOILS MAP



Area Symbol: NE155, Soil Area Version: 17

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	SRPG	*n NCCPI Soybeans
7340	Filbert silt loam, 0 to 1 percent slopes	71.79	46.3%	IIw	IIw	60	60
7105	Yutan silty clay loam, terrace, 2 to 6 percent slopes, eroded	56.40	36.4%	IIIe	IIIe	72	53
7280	Tomek silt loam, 0 to 2 percent slopes	26.16	16.9%	Iw	Iw	77	67
8145	Pohocco-Pahuk complex, 6 to 11 percent slopes, eroded	0.65	0.4%	IIIe	IVe	47	40
Weighted Average						67.2	*n 58.6



FACILITY: ALTEN  
CROP PRODUCER: DUANE JOHNSON  
FIELD NAME: ERICKSON SOUTH - SITE 13

ACRES: 155.00  
LOCATION: SE4, 10-14-8E  
COUNTY: SAUNDERS





# EFFLUENT LAND APPLICATION SUMMARY

## ALTEN, LLC



Application Site	System Type	Acres applied	Date	Gallons Pumped	gallons per acre	Total Acre-Inches per Acre	Total Acre-Inches
N2 NE4, 14-14-8E	Center Pivot	75.51	9/18-19/2019	1,093,500	14,481.53	0.53	40.27
N2 NE4, 14-14-8E	Center Pivot	75.51	10/17,19-20/2019	1,093,500	14,481.53	0.53	40.27
N2 NE4, 14-14-8E	Center Pivot	75.51	4/10-11/2020	1,290,600	17,091.78	0.63	47.53
N2 NE4, 14-14-8E	Center Pivot	75.51	6/7-8/2020	1,574,370	20,849.82	0.77	57.98
N2 NE4, 14-14-8E	Center Pivot	75.51	6/30-7/3/2020	1,254,960	16,619.79	0.61	46.22
SW4, 11-14-8E	Center Pivot	111.10	4/21/2020	488,970	4,401.17	0.16	18.01
SW4, 11-14-8E	Center Pivot	111.10	6/25-29/2020	2,393,550	21,544.10	0.79	88.15
SW4, 11-14-8E	Center Pivot	111.10	7/3,16-17/2020	1,620,000	14,581.46	0.54	59.66
N2 NW4, 12-14-8E	Center Pivot	75.39	9/16-17/2019	1,039,500	13,788.30	0.51	38.28
N2 NW4, 12-14-8E	Center Pivot	75.39	10/21-22/2019	1,039,500	13,788.30	0.51	38.28
N2 NW4, 12-14-8E	Center Pivot	75.39	6/5-6/2020	1,105,380	14,662.16	0.54	40.71
N2 NW4, 12-14-8E	Center Pivot	75.39	7/4-6/2020	1,195,290	15,854.76	0.58	44.02
NE4, 12-14-8E	Center Pivot	131.40	10/18,25-27/2019	1,755,000	13,356.16	0.49	64.63
NE4, 12-14-8E	Center Pivot	131.40	11/4-5,8-10,15-16/2019	1,755,000	13,356.16	0.49	64.63
NE4, 12-14-8E	Center Pivot	131.40	11/16-21/2019	1,755,000	13,356.16	0.49	64.63
NE4, 12-14-8E	Center Pivot	131.40	11/25-25,12/3,7-8/2019	699,000	5,319.63	0.20	25.74
NE4, 12-14-8E	Center Pivot	131.40	6/8-12/2020	2,083,590	15,856.85	0.58	76.73
NE4, 12-14-8E	Center Pivot	131.40	7/6-8/2020	2,111,130	16,066.44	0.59	77.75
N2 NE4, 15-14-8E	Center Pivot	66.18	3/31/2020	720,360	10,884.86	0.40	26.53
N2 NE4, 15-14-8E	Center Pivot	66.18	4/7-8/2020	446,820	6,751.59	0.25	16.46
N2 NE4, 15-14-8E	Center Pivot	66.18	4/20/2020	419,500	6,338.77	0.23	15.45
N2 NE4, 15-14-8E	Center Pivot	66.18	6/4-5/2020	744,660	11,252.04	0.41	27.42
N2 NE4, 15-14-8E	Center Pivot	66.18	6/29-30/2020	1,018,440	15,388.94	0.57	37.51
N2 NE4, 15-14-8E	Center Pivot	66.18	7/3-4/2020	910,710	13,761.11	0.51	33.54
SW4 NE4 & E2 NE4, 10-14-8E	Center Pivot	99.95	6/12-25/2020	3,799,659	38,015.60	1.40	139.93
SE4, 10-14-8E	Center Pivot	139.50	6/12-25/2020	5,303,176	38,015.60	1.40	195.30
SE4, 10-14-8E	Center Pivot	139.50	7/27-8/3/2020	3,427,380	24,569.03	0.90	126.22

**Total Gallons Pumped** 42,138,545

**Total Acre Inches Pumped** 1551.84



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## Agronomic Review

### Crop Conditions

The application sites for AltEn wastewater were all in corn/corn silage production in 2020. All sites are quality silty clay loam soils with good productivity. The sites have been in row crop grain and/or silage production for many years. General conditions were very dry but it was a good year for irrigated corn production in Saunders county.

### Soil Conditions

The application sites are in sections 10, 11, 12, 14, & 15, T14N-R8E. The sites are nearly all silt loams and silty clay loams and have very little slope. This soil is good crop production and has excellent water holding and nutrient capacity.

### Review of Soil Testing Data

Soil testing data prior to the 2020 crop year showed average to high levels of general fertility including Phosphorus and Potassium. Soil pH ranged from 5.3-6.9. Soluble Salt levels ranged from 0.2-0.8. Sodium Adsorption ratios ranged from 0.3-2.7. All of these indicate no yield limiting imbalances of nutrients and that salts from effluent are not being applied at rates beyond what these soils/crop can utilize or tolerate. Sites 11E and 7 did show an elevated Sodium Adsorption ratio. The levels just above 2.0 is only a caution for sensitive crops. The chart below shows the ideal and concern levels for SAR.

Sodium adsorption ratio (SAR) is determined by saturated paste extraction and is reported as a special ratio of sodium to calcium plus magnesium.

This test evaluates the sodium content of soil. A value of 13 or greater indicates an excess of sodium will be adsorbed by the soil clay particles. Excess sodium can cause soil to be hard and cloddy when dry, to crust badly, and to take water very slowly.

The gypsum test is conducted if the SAR is greater than or equal to 15. Total gypsum is reported in meq (milliequivalent)  $\text{CaSO}_4/100\text{g}$ . If sufficient native gypsum is present, sodium-affected soils may be successfully treated without addition of amendments such as gypsum or sulfur. The gypsum supplies soluble calcium to replace the adsorbed sodium. Reclamation can proceed if drainage of the land is possible. A gypsum recommendation is provided if the gypsum test shows insufficient gypsum in sodic soils.

Table 1: Tolerance levels of Crops for soluble salts.

Test values in mmhos/cm	Interpretation
0-2	Satisfactory for Crops
2-4	Affects sensitive Crops
4-8	High for many Crops
above 8	Very high for most Crops



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Phone: 402.372.CAFO nutrientadvisors.com





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### **Review of Process Wastewater Data**

The results of the wastewater analysis show that it is a quality source of Nitrogen fertilizer and carries high amounts of Potassium. The wastewater had a pH of 7.34. Nutrient parameters were consistent and manageable considering total application amounts ranging from 1.40 – 3.08 acre-inches per acre. The nutrient concentrations at these rates supplied a good rate of available Nitrogen however some sites required supplemental Nitrogen.

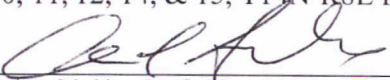
### **Agricultural Practices**

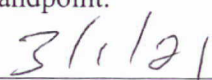
Practices on the application site are generally grain crop or silage production. Sites are row crops and utilize conventional tillage systems in most years.

### **Concerns/Problems**

The review of the annual soil tests and application data show that Nitrogen was not over applied for a 275 bu yield goal. Some fields had elevated soil test nitrate levels and were credited on the 2020 nutrient budgets to determine maximum applications. Soil fertility levels, though high, are sustainable as long as wastewater does not contribute to over applications of Nitrogen which it did not for the 2020 crop year. Annual soil testing evaluates residual soil nitrate and those credits are used for nutrient budgeting. High Potassium levels exist and have not caused any known soil problems or crop productivity problems at this point. These levels need to be monitored and crop yield results evaluated annually. Effluent applications should not exceed the agronomic rates of Nitrogen.

**Certification:** I certify that the land application of wastewater from AltEn in 2020 crop year did not cause any detriments to the agronomic productivity of the application sites in sections 10, 11, 12, 14, & 15, T14N-R8E from a nutrient application standpoint.

  
Andrew Scholting, Certified Crop Advisor Cert.#29053

  
Date



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REPORT NUMBER

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**Sep 23, 2019****NUTRIENT ADVISORS SOIL****449 E DEERE ST  
WEST POINT NE 68788-**

IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 1-SITE 1  
NA****SOIL ANALYSIS REPORT**

NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)

INFO SHEET: 1149772

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I.	NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)										INFO SHEET: 1149772																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
			PHOSPHORUS						POTASSIUM		MAGNESIUM		CALCIUM		SODIUM		pH		CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
			P <sub>1</sub> (WEAK BRAY) 1:7	P <sub>2</sub> (STRONG BRAY) 1:7	OLSEN BICARBONATE P	K	Mg	Ca	Na	SOIL pH 1:1	BUFFER INDEX	% K	% Mg	% Ca	% H	% Na																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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LAB NUMBER	NITRATE-N (FIA)										SULFUR S ICAP	ZINC Zn DTPA	MANGANESE Mn DTPA	IRON Fe DTPA	COPPER Cu DTPA	BORON B SORB. DTPA	EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/ cm	RATE
	SURFACE			SUBSOIL 1			SUBSOIL 2			Total lbs/A									
	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)										
*348*																			
24740	5	12	0-8	2	10	8-24				22	8	L	6.4	VH				0.2	L
24742	34	82	0-8	10	48	8-24				130	15	M	6.7	VH				0.6	L
24744	11	26	0-8	9	43	8-24				69	17	M	6.6	VH				0.5	L
24746	3	7	0-8	1	5	8-24				12	11	L	4.8	H				0.2	L
24748	4	10	0-8	2	10	8-24				20	9	L	5.9	H				0.2	L

REV.10/17

**The above analytical results apply only to the sample(s) submitted. Samples are retained a maximum of 30 days.**

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IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 1-SITE 1  
NA**

### **ADDITIONAL SOIL ANALYSIS**

Labnum	Sample ID	Chloride
*348*		CaNO3 ppm
24740	1 D Depth: 0-8	4
24742	1 W Depth: 0-8	56
24744	1 E Depth: 0-8	55
24746	1 SE Depth: 0-8	7
24748	1 SW Depth: 0-8	3

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## IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 1-SITE 1  
NA****SODIUM ADSORPTION RATIO REPORT**

Method Lab Number Units	Sample Id	CALCULATED Sodium Adsorption Ratio	SATURATED Sodium (Water Soluble) mg/L	PASTE EXTRACTION Magnesium (Water Soluble) mg/L	Calcium (Water Soluble) mg/L
348247401	D	0.5	14	18	24
348247421	W	1.5	44	12	46
348247441	E	1.5	30	7	19
348247461	SE	0.6	9	4	13
348247481	SW	0.4	11	16	24

*The above analytical results apply only to the sample(s) submitted. Samples are retained a maximum of 30 days.*

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REPORT NUMBER

**19-252-0215 v2**COMPLETED DATE  
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WEST POINT NE 68788-**

IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 2-SITE 2  
NA****SOIL ANALYSIS REPORT**

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I.	PHOSPHORUS				NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)				pH		CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED)				
			P <sub>1</sub> (WEAK BRAY) 1-7	P <sub>2</sub> (STRONG BRAY) 1-7	OLSEN BICARBONATE P		K	Mg	Ca	Na	SOIL pH 1:1	BUFFER INDEX		% K	% Mg	% Ca	% H	% Na
			percent RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE								
*348*																		
19211	2 N	2.5 L	195 VH	196 VH			592 VH	555 VH	2724 H		6.8		19.8	7.7	23.4	68.9	0.0	
19213	2 MN	2.4 L	212 VH	213 VH			735 VH	621 VH	3309 H		6.9		23.6	8.0	21.9	70.1	0.0	
19215	2 MS	3.4 M	284 VH	285 VH			897 VH	507 VH	2634 M		6.4	6.7	21.6	10.6	19.6	61.0	8.8	

LAB NUMBER	NITRATE-N (FIA)										SULFUR S ICAP	ZINC Zn DTPA	MANGANESE Mn DTPA	IRON Fe DTPA	COPPER Cu DTPA	BORON B SORB. DTPA	EX335 LINE RATE	SOLUBLE SALTS 1:1 mmhos/ cm	RATE
	SURFACE			SUBSOIL 1			SUBSOIL 2			Total lbs/A									
	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)		ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE	
*348*																			
19211	8	19	0-8	2	10	8-24				29	23 H	5.1 H						0.4	L
19213	21	50	0-8	5	24	8-24				74	25 VH	6.6 VH						0.6	L
19215	27	65	0-8	16	77	8-24				142	28 VH	9.3 VH						0.6	L

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REPORT NUMBER

**19-252-0215 v2**

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**Sep 11, 2019**

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**18237**



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IDENTIFICATION

**MEAD CATTLE COMPANY LLC**

**RAINIER RESOURCES**

**FIELD 2-SITE 2**

**NA**

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TODAY'S DATE

**Sep 23, 2019**

**NUTRIENT ADVISORS SOIL**

**449 E DEERE ST**

**WEST POINT NE 68788-**

## ADDITIONAL SOIL ANALYSIS

Labnum	Sample ID	Chloride
*348*		CaNO3 ppm
19211	2 N <i>Depth: 0-8</i>	24
19213	2 MN <i>Depth: 0-8</i>	27
19215	2 MS <i>Depth: 0-8</i>	27

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## IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 2-SITE 2  
NA****SODIUM ADSORPTION RATIO REPORT**

Method Lab Number Units	Sample Id	CALCULATED Sodium Adsorption Ratio	SATURATED Sodium (Water Soluble) mg/L	PASTE EXTRACTION Magnesium (Water Soluble) mg/L	Calcium (Water Soluble) mg/L
348192112 N		1.1	30	11	39
348192132 MN		1.0	36	19	71
348192152 MS		1.2	30	9	31

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REPORT NUMBER

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IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 6 - SITE 6  
NA****SOIL ANALYSIS REPORT**

NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)

INFO SHEET: 1148742

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I.  *348*	PHOSPHORUS						POTASSIUM		MAGNESIUM		CALCIUM		SODIUM		pH		CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED)				
			P (WEAK BRAY) 1:7 ppm RATE	P (STRONG BRAY) 1:7 ppm RATE	OLSEN BICARBONATE P ppm RATE	K ppm RATE	Mg ppm RATE	Ca ppm RATE	Na ppm RATE	SOIL pH 1:1	BUFFER INDEX	% K	% Mg	% Ca	% H	% Na								
19205	6 N	3.3 M	281 VH	282 VH		1019 VH	425 VH	2475 M		6.3	6.7	20.7	12.6	17.1	59.8	10.5								
19207	6 S	2.9 M	288 VH	289 VH		1113 VH	485 VH	2647 M		6.5	6.8	21.7	13.2	18.6	61.0	7.2								
19209	6 D	3.3 M	375 VH	376 VH		711 VH	337 VH	1976 M		5.7	6.6	18.4	9.9	15.3	53.7	21.1								

LAB NUMBER	NITRATE-N (FIA)										SULFUR S ICAP		ZINC Zn DTPA		MANGANESE Mn DTPA		IRON Fe DTPA		COPPER Cu DTPA		BORON B SOB. DTPA		EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/ cm	
	SURFACE			SUBSOIL 1			SUBSOIL 2			Total lbs/A															
	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)																
*348*																									
19205	34	82	0-8	14	67	8-24				149	13	M	7.9	VH									0.5	L	
19207	38	91	0-8	12	58	8-24				149	16	M	8.7	VH									0.6	L	
19209	7	17	0-8	2	10	8-24				27	10	L	5.0	H									0.2	L	

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**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 6 - SITE 6  
NA**

### **ADDITIONAL SOIL ANALYSIS**

Labnum	Sample ID	Chloride
*348*		CaNO3 ppm
19205	6 N Depth: 0-8	37
19207	6 S Depth: 0-8	38
19209	6 D Depth: 0-8	2

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IDENTIFICATION

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RAINIER RESOURCES  
FIELD 6 - SITE 6  
NA****SODIUM ADSORPTION RATIO REPORT**

Method Lab Number Units	Sample Id	CALCULATED Sodium Adsorption Ratio	SATURATED PASTE EXTRACTION		
			Sodium (Water Soluble) mg/L	Magnesium (Water Soluble) mg/L	Calcium (Water Soluble) mg/L
348192056	N	1.3	30	8	28
348192076	S	1.0	27	16	34
348192096	D	0.3	6	11	16

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REPORT NUMBER

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IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 7-SITE 7  
NA****SOIL ANALYSIS REPORT**

NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)

INFO SHEET: 1149666

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I. percent	PHOSPHORUS				POTASSIUM		MAGNESIUM		CALCIUM		SODIUM		pH		CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED)				
			P <sub>1</sub> (WEAK BRAY) 1:7 ppm	P <sub>2</sub> (STRONG BRAY) 1:7 ppm	OLSEN BICARBONATE P ppm	RATE	K ppm	RATE	Mg ppm	RATE	Ca ppm	RATE	Na ppm	RATE	SOIL pH 1:1	BUFFER INDEX		% K	% Mg	% Ca	% H	% Na
*348*																						
24717	7 D	4.0 H	465 VH	466 VH			780 VH		314 VH		1972 M				5.8	6.6	17.9	11.2	14.6	55.1	19.1	
24719	7 W	3.4 M	261 VH	262 VH			1027 VH		468 VH		2746 M		169 VH		6.9		21.0	12.5	18.6	65.4	0.0	3.5
24721	7MW	3.4 M	273 VH	274 VH			985 VH		412 VH		2354 M		173 VH		6.8		18.5	13.7	18.6	63.6	0.0	4.1
24723	7 ME	3.7 H	292 VH	293 VH			942 VH		341 VH		2048 M		162 VH		6.8		16.2	14.9	17.5	63.3	0.0	4.3
24725	7 E	3.4 M	324 VH	325 VH			1008 VH		376 VH		2187 M		152 VH		6.8		17.3	14.9	18.1	63.2	0.0	3.8

LAB NUMBER	NITRATE-N (FIA)										SULFUR S ICAP	ZINC Zn DTPA	MANGANESE Mn DTPA	IRON Fe DTPA	COPPER Cu DTPA	BORON B SORB. DTPA	EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/ cm	RATE
	SURFACE			SUBSOIL 1			SUBSOIL 2			Total lbs/A									
	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)										
*348*																			
24717	4	10	0-8	2	10	8-24				20	8	L	9.4	VH				0.2	L
24719	7	17	0-8	4	19	8-24				36	23	H	6.7	VH				0.6	L
24721	9	22	0-8	9	43	8-24				65	24	H	8.7	VH				0.5	L
24723	11	26	0-8	7	34	8-24				60	23	H	8.7	VH				0.5	L
24725	8	19	0-8	7	34	8-24				53	19	H	10.1	VH				0.5	L

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**RAINIER RESOURCES**

**FIELD 7-SITE 7**

**NA**

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TODAY'S DATE

**Sep 23, 2019**

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**449 E DEERE ST**

**WEST POINT NE 68788-**

## ADDITIONAL SOIL ANALYSIS

Labnum *348*	Sample ID	Chloride CaNO3 ppm
24717	7 D Depth: 0-8	4
24719	7 W Depth: 0-8	53
24721	7MW Depth: 0-8	69
24723	7 ME Depth: 0-8	53
24725	7 E Depth: 0-8	45

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**Sep 23, 2019****NUTRIENT ADVISORS SOIL**

**449 E DEERE ST  
WEST POINT NE 68788-**

## IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 7-SITE 7  
NA**

**SODIUM ADSORPTION RATIO REPORT**

Method Lab Number Units	Sample Id	CALCULATED Sodium Adsorption Ratio	SATURATED Sodium (Water Soluble) mg/L	PASTE EXTRACTION Magnesium (Water Soluble) mg/L	Calcium (Water Soluble) mg/L
348247177 D		0.4	6	4	14
348247197 W		2.3	55	8	31
348247217MW		2.5	57	8	27
348247237 ME		2.7	56	6	22
348247257 E		2.3	44	5	20

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IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 11E-SITE 11E  
NA****SOIL ANALYSIS REPORT**

NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)

INFO SHEET: 1149644

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I. percent	PHOSPHORUS						POTASSIUM		MAGNESIUM		CALCIUM		SODIUM		pH		CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED)				
			P <sub>1</sub> (WEAK BRAY) 1:7 ppm	P <sub>2</sub> (STRONG BRAY) 1:7 ppm	OLSEN BICARBONATE P ppm	RATE	RATE	RATE	K ppm	RATE	Mg ppm	RATE	Ca ppm	RATE	Na ppm	RATE	SOIL pH 1:1	BUFFER INDEX		% K	% Mg	% Ca	% H	% Na
*348*																								
24728	11E W	3.2 M	38 VH	55 H					371 VH		249 VH		1449 M				5.4	6.6	14.4	6.6	14.4	50.3	28.7	
24730	11E E	2.9 M	41 VH	54 H					330 VH		302 VH		1710 M				5.5	6.5	16.1	5.3	15.6	53.1	26.0	

LAB NUMBER	NITRATE-N (FIA)										SULFUR S ICAP	ZINC Zn DTPA	MANGANESE Mn DTPA	IRON Fe DTPA	COPPER Cu DTPA	BORON B SORB. DTPA	EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/ cm	RATE
	SURFACE			SUBSOIL 1			SUBSOIL 2			Total lbs/A									
	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)	ppm	lbs/A	depth (in)										
*348*																			
24728	11	26	0-8	11	53	8-24				79	9	L	1.5	M				0.3	L
24730	13	31	0-8	14	67	8-24				98	9	L	1.3	M				0.4	L

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IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 11E-SITE 11E  
NA**

### **ADDITIONAL SOIL ANALYSIS**

Labnum	Sample ID	Chloride
*348*		CaNO3 ppm
24728	11E W Depth: 0-8	30
24730	11E E Depth: 0-8	45

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## IDENTIFICATION

**MEAD CATTLE COMPANY LLC  
RAINIER RESOURCES  
FIELD 11E-SITE 11E  
NA****SODIUM ADSORPTION RATIO REPORT**

Method Lab Number Units	Sample Id	CALCULATED Sodium Adsorption Ratio	SATURATED PASTE EXTRACTION		
			Sodium (Water Soluble) mg/L	Magnesium (Water Soluble) mg/L	Calcium (Water Soluble) mg/L
3482472811E W		2.0	38	7	16
3482473011E E		2.4	45	5	19

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REPORT NUMBER 19-326-1003

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ANALYSIS DATE DEC 5, 2019

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SOIL ANALYSIS REPORT by MIDWEST LABORATORIES  
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view Sodium Adsorption Ratio Report																				
LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER	PHOSPHORUS			NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)				pH		CATION EXCHANGE CAPACITY	PERCENT BASE SATURATION (COMPUTED)							
			P <sub>1</sub>	P <sub>2</sub>	BICARBONATE P	K	Mg	Ca	Na	SOIL BUFFER	% K		% Mg	% Ca	% H	% Na				
			L.O.I.	WEAK BRAY 1:7	STRONG BRAY 1:7	OLSEN					pH		INDEX	C.E.C.						
			PERCENT RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	1:1			meq/100g						
35454954	END	1.9		41	61			225		269	1753			6.5	6.9	12.5	4.6	17.9	70.1	7.4
35454956	EN N	2.4		28	41			401		387	2315			6.4	6.8	17.4	5.9	18.5	66.5	9.1
35454958	EN S	3.0		40	56			467		397	2459			6.3	6.7	18.8	6.4	17.6	65.4	10.6

Sample ID	NITRATE-N (FIA)										DTPA Extraction					EXCESS LIME RATE	SOLUBLE SALTS 1:1		CHLORIDE
	Surface			Sub 1			Sub 2			Total	SULFUR S ICAP	ZINC Zn	MANGANESE Mn	IRON Fe	COPPER Cu	BORON B			
	ppm	lbs/A	depth IN	ppm	lbs/A	depth IN	ppm	lbs/A	depth IN	lbs/A	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE	ppm RATE			
																	mmhos/cm	RATE	ppm
EN D	4	10	0-8	3	14	8-24				24	7	2.0						0.2	5
EN N	6	14	0-8	4	19	8-24				33	8	2.3						0.2	7
EN S	8	19	0-8	7	34	8-24				53	11	2.3						0.2	9



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<b>Report Date</b>	<b>Aug 4, 2020</b>		<b>Date Received</b>	<b>Nov 22, 2019</b>
<b>Account 18237</b>	<b>Identification</b>	<b>Copy Number</b>	<b>2nd CopyTo</b>	<b>3rd CopyTo</b>
	<b>ALTEN</b>			
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<b>449 E DEERE ST</b>	<b>ERICKSON N</b>			
<b>WEST POINT,68788-</b>	<b>NA</b>			
<b>Sodium Adsorption Ratio Report</b>				
<b>Method</b>		<b>Calculated</b>	<b>Saturated Paste Extract</b>	
<b>Lab</b>	<b>Sample</b>	<b>Sodium</b>	<b>Sodium</b>	<b>Magnesium</b>
<b>Number</b>	<b>ID</b>	<b>Adsorption Ratio</b>	<b>(water soluble)</b>	<b>(water soluble)</b>
<b>Detection Limit</b>			<b>1.0</b>	<b>1.0</b>
<b>35454954</b>	<b>EN D</b>	<b>1.0</b>	<b>18 mg/L</b>	<b>4 mg/L</b>
<b>35454956</b>	<b>EN N</b>	<b>1.0</b>	<b>19 mg/L</b>	<b>5 mg/L</b>
<b>35454958</b>	<b>EN S</b>	<b>1.0</b>	<b>16 mg/L</b>	<b>3 mg/L</b>
			<b>15 mg/L</b>	

REPORT NUMBER 19-326-1002

PAGE 1/1

ANALYSIS DATE DEC 5, 2019

ACCOUNT NO. 18237



NUTRIENT ADVISORS SOIL  
449 E DEERE ST  
WEST POINT NE  
68788-

GROWER  
ALTEN  
EMIL ERICKSON  
ERICKSON N 40  
NA

SOIL ANALYSIS REPORT by MIDWEST LABORATORIES  
[VIEW YOUR SUBMITTAL FORM](#)

[View Sodium Adsorption Ratio Report](#)

view Sodium Adsorption Ratio Report																					
LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER	NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE)								pH	CATION EXCHANGE CAPACITY	PERCENT BASE SATURATION (COMPUTED)								
			PHOSPHORUS			POTASSIUM	MAGNESIUM	CALCIUM	SODIUM	SOIL BUFFER			C.E.C.	% K	% Mg	% Ca	% H	% Na			
			P <sub>1</sub>	P <sub>2</sub>	BICARBONATE P	K	Mg	Ca	Na												
			L.O.I.	WEAK BRAY 1:7	STRONG BRAY 1:7	OLSEN															
			PERCENT RATE	ppm RATE	ppm RATE	ppm	RATE	ppm	RATE										ppm	RATE	ppm
35454949	EN40 D	2.7		28		38			445		326		2059		5.9	6.6	17.1	6.7	15.9	60.2	17.2
35454952	EN40 P	3.0		49		89			443		316		2363		6.7		15.6	7.3	16.9	75.8	

Sample ID	NITRATE-N (FIA)												SULFUR S ICAP		DTPA Extraction						EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/cm	CHLORIDE ppm					
	Surface				Sub 1				Sub 2				Total lbs/A	ppm	RATE	ZINC Zn ppm	RATE	MANGANESE Mn ppm	RATE	IRON Fe ppm				RATE	COPPER Cu ppm	RATE	BORON B ppm	RATE
	ppm	lbs/A	depth in		ppm	lbs/A	depth in		ppm	lbs/A	depth in																	
EN40 D	4	10	0-8		3	14	8-24					24	5	1.6												0.2	5	
EN40 P	13	31	0-8		8	38	8-24					69	9	2.7												0.3	14	



				Page: 1/1	
Report Date	Aug 4, 2020		Date Received	Nov 22, 2019	
Account 18237	Identification	Copy Number	2nd CopyTo	3rd CopyTo	
	ALTEN				
NUTRIENT ADVISORS SOIL	EMIL ERICKSON				
449 E DEERE ST	ERICKSON N 40				
WEST POINT,68788-	NA				
Sodium Adsorption Ratio Report					
Method		Calculated	Saturated Paste Extract		
Lab	Sample	Sodium	Sodium	Magnesium	Calcium
Number	ID	Adsorption Ratio	(water soluble)	(water soluble)	(water soluble)
Detection Limit			1.0	1.0	1.0
35454949	EN40 D	0.6	11 mg/L	4 mg/L	17 mg/L
35454952	EN40 P	1.1	24 mg/L	6 mg/L	29 mg/L





				Page: 1/1	
Report Date	Aug 4, 2020		Date Received	Nov 22, 2019	
Account 18237	Identification	Copy Number	2nd CopyTo	3rd CopyTo	
	ALTEN				
NUTRIENT ADVISORS SOIL	EMIL ERICKSON				
449 E DEERE ST	ERICKSON S				
WEST POINT,68788-	NA				
Sodium Adsorption Ratio Report					
Method		Calculated	Saturated Paste Extract		
Lab	Sample	Sodium	Sodium	Magnesium	Calcium
Number	ID	Adsorption Ratio	(water soluble)	(water soluble)	(water soluble)
Detection Limit			1.0	1.0	1.0
35454939	ES D	1.2	24 mg/L	5 mg/L	23 mg/L
35454941	ES W	2.2	47 mg/L	6 mg/L	25 mg/L
35454943	ES MW	1.8	38 mg/L	5 mg/L	24 mg/L
35454945	ES ME	1.7	35 mg/L	5 mg/L	23 mg/L
35454947	ES E	1.8	38 mg/L	5 mg/L	24 mg/L

REPORT NUMBER

**20-164-4132**REPORT DATE  
**Jun 12, 2020**RECEIVED DATE  
**Jun 08, 2020**SEND TO  
**27354****PAGE 1/1**ISSUE DATE  
**Jun 12, 2020**

**ALTEN  
KEN PETERSON  
1344 COUNTY RD 10  
MEAD NE 68041**

**Nutrient Land Application**  
For: (27354) ALTEN  
S Lagoon Water  
105484

Sample ID: **060820-1000** Lab Number: **8765712****Pounds of Nutrient AR**

Parameter	Analysis As Received	per 1000 gal	per acre-in	Method	Reviewer-Date
Ammoniacal Nitrogen	544 mg/L	4.60	123	SM 4500-NH3 C-(1997)	jdb5 2020-06-11 17:37:38
Organic nitrogen	75 mg/L	0.6	16.9	Calculation	Auto 2020-06-12 17:47:16
Total Kjeldahl nitrogen (TKN)	619 mg/L	5.23	140	PAI-DK01 *	jdb5 2020-06-11 17:37:38
Phosphorus (as P2O5)	259 mg/L	2.2	58.4	EPA 200.7	Auto 2020-06-12 17:47:16
Potassium (as K2O)	990 mg/L	8.4	223	EPA 200.7	Auto 2020-06-12 17:47:16
Sulfur (total)	38.6 mg/L	0.33	8.70	EPA 200.7	trh1 2020-06-12 17:47:16
Calcium (total)	35.3 mg/L	0.30	7.96	EPA 200.7	trh1 2020-06-12 17:47:16
Magnesium (total)	36.2 mg/L	0.31	8.16	EPA 200.7	trh1 2020-06-12 17:47:16
Sodium (total)	394 mg/L	3.33	88.8	EPA 200.7	trh1 2020-06-12 17:47:16
Iron (total)	0.32 mg/L	---	0.07	EPA 200.7	trh1 2020-06-12 17:47:16
Manganese (total)	0.038 mg/L	---	0.01	EPA 200.7	trh1 2020-06-12 17:47:16
Zinc (total)	0.45 mg/L	---	0.10	EPA 200.7	trh1 2020-06-12 17:47:16
Copper (total)	< 0.01 mg/L	---	---	EPA 200.7	trh1 2020-06-12 17:47:16
Conductivity	7.66 mS/cm			SM 2510 B-(1997)	jdb5 2020-06-11 17:37:38
pH	7.34 S.U.			SM 4500-H+ B-(2011)	jdb5 2020-06-11 17:37:38

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 lbs/acre. Less than 500 lbs/acre if annual rainfall is less than 25 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

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**AltEn, LLC**

1344 County Road 10  
Mead, NE 68041

May 7, 2021

NDEE Wastewater Section  
P.O. Box 98922  
Lincoln, NE 68509-8922

**Re: 2020 NPDES Annual Land Application Report AltEn, LLC, Mead, Nebraska**  
**NPDES Permit NE: NE0137634**

Attached hereto for filing is the 2020 Certification of Annual Land Application Report for AltEn, LLC, NPDES Permit NE0137634. Please note that Part C. Certification of Annual Report has not been signed. I am the Cognizant Official and General Manager. Given the allegations in the Complaint filed in *State of Nebraska, ex rel., Jim Macy, Director, Nebraska Department of Environment and Energy v. AltEn, LLC*, Saunders County District Court; Case No. CI 21-36, the facility will not be able to certify the 2020 Annual Report. Despite that, I can confirm that the attached report prepared by Nutrient Advisors is true and accurate.

If any additional documentation is needed, please do not hesitate to contact me at 402-624-0900 or [stingelhoff@mrgkc.com](mailto:stingelhoff@mrgkc.com).

Sincerely,

Scott Tingelhoff  
General Manager