ESE ALCOHOL, INC
PO BOX 848
LEOTI, KS 67861
SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-0001
ATTN: PERMITS & COMPLIANCE

SAMPLED AND ANALYZED PRIOR TO IRRIGATION SEASON WHEN UTILIZED FOR IRRIGATION REPORTED ANNUALLY

ISSUE DATE 10/01/2010
EXPIRATION DATE 09/30/2015

KANSAS PERMIT # I-UA26-NP01
ISSUE DATE 06/01/2004
EXPIRATION DATE 09/30/2015

TELEPHONE NUMBER (620) 375-4904

MASH WATER IRRIGATION

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

TESTED BY PACE ANALYTICAL SERVICES, INC.

REPORTING PERIOD 04/28/2019 TESTED BY PACE ANALYTICAL SERVICES, INC.

	CHLORDIE	SODIUM	SULPHATE	AMMONIUM NH3-N	NITRATE NO3	TOTAL PHOSPHORUS	TKN	POTASSIUM	pH	TOTAL CALCIUM	TOTAL MAGNESIUM	HARDNESS	ALKALINITY	ELECTRICAL CONDUCTIVITY	TDS	SAR ABSORPTION	DISSOLVED ORGANIC CARBON
quantitative level	20.0 mg/L	5000 ug/L	20.0 mg/L	5.0 mg/L	1.0 mg/L	20.0 mg/L	25.0 mg/L	5000 ug/L	0.10 s.u.	2000 ug/L	500 ug/L	5000 mg/L	40.0 mg/L	1.0 umhos/cm	5.0 mg/L	mg/L	1000 mg/L
04/16/2019	363	335,000	139	208	0.3	690	402	1,190,000	4.9	269,000	358,000	2,150,000	1,460	8,140	7,360	3.1	8,450

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: ESE ALCOHOL IRRIGATION WATER
Pace Project No.: 60300162

Sample: IRRIGATION WATER **Lab ID: 60300162001** Collected: 04/16/19 08:20 Received: 04/17/19 16:10 Matrix: Water

Comments: • The sample volume received for dissolved organic carbon was laboratory filtered prior to sample analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Calcium	**269000**	ug/L	2000	10	04/25/19 09:19	04/25/19 18:08	7440-70-2	
Magnesium	**358000**	ug/L	500	10	04/25/19 09:19	04/25/19 18:08	7439-95-4	
Potassium	**1190000**	ug/L	5000	10	04/25/19 09:19	04/25/19 18:08	7440-09-7	
Sodium	**335000**	ug/L	5000	10	04/25/19 09:19	04/25/19 18:08	7440-23-5	
Total Hardness by 2340B	**2150000**	ug/L	5000	10	04/25/19 09:19	04/25/19 18:08		
Sodium Adsorption Ratio, SAR	Analytical Method: EPA 6010							
Sodium Adsorption Ratio	**3.1**	meq/L		1		04/25/19 18:08		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**1460**	mg/L	40.0	1		04/25/19 12:21		
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	**8140**	umhos/cm	1.0	1		04/23/19 08:59		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	**7360**	mg/L	5.0	1		04/18/19 17:14		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**4.9**	Std. Units	0.10	1		04/22/19 16:38		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Chloride	**363**	mg/L	20.0	20		04/25/19 20:11	16887-00-6	
Sulfate	**139**	mg/L	20.0	20		04/25/19 20:11	14808-79-8	
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**208**	mg/L	5.0	50		04/22/19 13:26	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**402**	mg/L	25.0	5		04/22/19 14:37	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	**2.3**	mg/L	0.10	1		04/22/19 09:17		
365.4 Total Phosphorus	Analytical Method: EPA 365.4							
Phosphorus	**690**	mg/L	20.0	200		04/25/19 13:38	7723-14-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C							
Dissolved Organic Carbon	**8450**	mg/L	1000	1000		04/25/19 15:12	7440-44-0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

SOLID MANURE NUTRIENT REPORT

SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

Account Number: 38042

Date Sampled:
Date Received: 04/26/2019
Date Reported: 05/02/2019

Lab Number: 29608

Name: ESE ALCOHOL
Sample ID: MASH

Constituent Analyzed	Results	lbs per ton (as received basis)	Method
Moisture	66.20 %		105 C 5HR
Solids	33.80 %		105 C 5HR
Ash	19.03 %		AOAC 942.05
pH	6.17 s.u.		SM 4500 B
Electrical Conductivity	13.69 mmhos/cm		SM 4500 B
Soluble Salts	0.59 %	11.8	SM 4500 B
Total Nitrogen (N)	2.02 %	40.4	AOAC 984.13
Organic Nitrogen (N)	1.98 %	39.6	TN-NH4-NO3
Ammonium-N (N)	0.04 %	0.9	SM 4500 H
Nitrate-N (N)	0.0008 %	0.0	EPA 353.2
Phosphorus (P)	0.15 %	3.0	AOAC 985.01
Phosphorus (P2O5)		6.9	
Potassium (K)	0.15 %	3.0	AOAC 985.01
Potassium (K2O)		3.6	
Calcium (Ca)	0.10 %	2.0	AOAC 985.01
Magnesium (Mg)	0.08 %	1.6	AOAC 985.01
Sodium (Na)	0.01 %	0.2	AOAC 985.01
Chloride (Cl)	0.05 %	1.0	LACHAT12117071A
Sulfur (S)	0.12 %	2.4	AOAC 985.01
Zinc (Zn)	57.1 mg/kg	0.11	AOAC 985.01
Iron (Fe)	1190.5 mg/kg	2.38	AOAC 985.01
Mangenese (Mn)	27.6 mg/kg	0.06	AOAC 985.01
Copper (Cu)	16.5 mg/kg	0.03	AOAC 985.01
Boron (B)	6.3 mg/kg	0.01	AOAC 985.01

Analysis by Olsen's Agricultural Laboratory, Inc.

American Agricultural Laboratory, Inc.

700 West D St. / P.O. Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880 / www.AmAgLab.com
"Analysis You Can Grow With"

DATE	5/2/2019
Submitted By	SKYLER JAMES
Address	1202 COLLEGE
City, State, Zip	SCOTT CITY KS 67871

Re: Nutrient availability from manure application the first crop year after application

Name:	ESE ALCOHOL
Sample ID:	SW LAGOON
Lab Number:	29616

Nutrient	% Availability 1st Year	Lbs/acre inch (as received basis)
Organic N	30%	24.27
Ammonium-N	95%	35.56
Nitrate-N	100%	0.59
Phosphorus (as P_2O_5)	70%	265.97
Potassium (as K_2O)	90%	290.30
Calcium (as Ca)	55%	35.31
Magnesium (as Mg)	55%	46.06
Sodium (as Na)	90%	66.98
Chloride (as Cl)	100%	100.10
Sulfur (as S)	40%	10.48
Zinc (as Zn)	40%	0.24
Iron (as Fe)	40%	0.27
Manganese (as Mn)	40%	0.42
Copper (as Cu)	40%	0.00
Boron (as B)	40%	0.08

% Availability 1st year is an estimation of nutrient availability based on published information for feedlot manure.
Lbs/ton (as received basis) assumes the manure is broadcast and incorporated into the soil immediately after application.

Please contact us if you have any questions. Thanks.

Sincerely,

American Agricultural Laboratory, Inc.

700 West D Street / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

LIQUID MANURE NUTRIENT REPORT

SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

Account Number: 38042

Date Sampled:
Date Received: 04/26/2019
Date Reported: 05/02/2019

Name: ESE ALCOHOL
Sample ID: SW LAGOON

Lab Number: 29616

Constituent Analyzed	Results	lbs per 1000 gallons	lbs per acre-inch	Method
Moisture	99.00 %			105 C 5HR
Solids	1.00 %			105 C 5HR
pH	4.79 s.u.			SM 4500 B
Electrical Conductivity	8.46 mmhos/cm			SM 4500 B
Soluble Salts	5414.4 mg/kg	45.10	1226.7	SM 4500 B
Total Nitrogen	524.8 mg/kg	4.37	118.9	AOAC 984.13
Organic Nitrogen (N)	357.0 mg/kg	2.97	80.9	TN-NH4-NO3
Ammonium-N	165.2 mg/kg	1.38	37.4	SM 4500 H
Nitrate-N (N)	2.6 mg/kg	0.02	0.6	EPA 353.2
Phosphorus (P)	731.7 mg/kg	6.10	165.8	AOAC 985.01
Phosphorus (P2O5)		13.96	379.6	
Potassium (K)	1181.5 mg/kg	9.84	267.7	AOAC 985.01
Potassium (K2O)		11.81	321.2	
Calcium (Ca)	283.4 mg/kg	2.36	64.2	AOAC 985.01
Magnesium (Mg)	369.6 mg/kg	3.08	83.7	AOAC 985.01
Sodium (Na)	328.5 mg/kg	2.74	74.4	AOAC 985.01
Chloride (Cl)	441.8 mg/kg	3.68	100.1	LACHAT12117071A
Sulfur (S)	115.6 mg/kg	0.96	26.2	AOAC 985.01
Zinc (Zn)	2.65 mg/kg	0.022	0.60	AOAC 985.01
Iron (Fe)	2.96 mg/kg	0.025	0.67	AOAC 985.01
Manganese (Mn)	4.65 mg/kg	0.039	1.05	AOAC 985.01
Copper (Cu)	0.01 mg/kg	0.000	0.00	AOAC 985.01
Boron (B)	0.83 mg/kg	0.007	0.19	AOAC 985.01

BY: Electronically Approved by: **Kevin Grooms**

Supplemental Condition No. D-3 Land Irrigation Water Monitoring Requirements

There are three documents that address irrigation water. The first is the volume irrigated from the west irrigation cell on a weekly basis. The second is titled "Irrigation water gallons" which consists of three pages and provides the date, location, the volume of water being applied, and the cropping practice. The third "Mash water irrigation" is an historical summary to provide an historical norm for ESE. Over the past 21 years the average amount of mash water irrigated has been 4,088,486 gallons/year. The most recent five year average has been 4,064,380 gallons/year. Agronomic calculations for the mash water land application have been prepared and are being submitted.

ESE ALCOHOL, INC
PO BOX 348
LEOTI, KS 67861
SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-001

QUANITY MONITORED AND RECORDED

WEEKLY : REPORTED ANNUALLY

ATT:PERMITS & COMPLIANCE

ISSUE DATE_ 10/1/2010 EXPIRATION DATE _____

SIGNATURE OF AUTTHORIZED PERSONAL

PACE ANALYTICAL E= 10116
CERTIFIED LAB & NUMBER

START	END	DUE DATE	IRRIGATION WATER GALLONS	___(620)_-375-4904 TELEPHONE NUMBER
1/1/2018	12/31/2018	4/28/2018		

KANSAS PERMIT # I-UA26-NP01

DATE	COOLING WATER BASIN	MASH WATER POND #1	TOTAL GALLONS	APPLICATION SITE
1/1/2013	0		0	TRACT # 88
1/8/2018	0		0	
1/15/2018	0		0	
1/22/2018	0		0	
1/29/2018	0		0	
2/5/2018	0		0	
2/12/2018	0		0	
2/19/2018	0		0	
2/26/2018	0		0	
3/5/2018	0		0	
3/12/2018	0		0	
3/19/2018	0		0	
3/26/2019	0		0	
4/2/2018	0		0	
4/9/2018	0		0	
4/16/2018	0		0	
4/23/2018	0		0	
4/30/2018	0		0	
5/7/2018	0		0	
5/14/2018	0		0	
5/21/2018	0		0	
5/28/2018	0		0	
6/4/2018	0		0	
6/11/2018	0		0	
6/18/2018	0		0	
6/25/2018	0		0	
7/2/2018	0		0	
7/9/2018	0		0	
7/16/2018	0	1,277,500	1,277,500	
7/23/2018	0		0	
7/30/2018	0		0	
8/6/2018	0		0	
8/13/2018	0	1,588,600	1,588,600	
8/20/2018	0		0	
8/27/2018	0		0	
9/3/2018	0		0	
9/10/2018	0		0	
9/17/2018	0		0	
9/24/2018	0		0	
10/1/2018	0		0	
10/8/2018	0		0	
10/15/2018	0		0	
10/22/2018	0		0	
10/29/2018	0		0	
11/5/2018	0		0	
11/12/2018	0		0	
11/19/2018	0		0	
11/26/2018	0		0	
12/3/2018	0		0	
12/10/2018	0		0	
12/17/2018	0		0	
12/24/2018	0		0	
12/31/2018	0		0	
	0		0	
TOTAL GALLONS	2018		2,866,100	TOTAL GALLONS

Nutrient Balance for Nitrogen: Mash Water

Field	Crop & year	Yield goal	Soil N available	Recommended N	Effluent water applied	Lbs N from water	Additional N needed	Net soil change
			lbs/a	lbs/a	Acre inch/a	lbs/a	lbs/a	Lbs/a
NW20-18-36	Wheat 2017	100 bu/a	53.9	116	1.27	128	0	-42
SW20-18-36	Wheat 2016	100 bu/a	47	123	0.46	46	76	-6
NW20-18-36	Wheat 2019	100 bu/a	11.95	158	1.42	143	15	n/a
SW20-18-36	Wheat 2018	100 bu/a	41	129	1.22	123	6	13
SW20-18-36	Wheat 2020	100 bu/a	29	142	0.88	89	53	n/a

Effluent analsys	2/17/2017		
	Lbs/acre-inch	% available	lbs/acre-inch to credit
Nitrate	0.5	100%	0.5
Ammonium	79.8	95%	75.81
Organic N	82	30%	24.6
Total	**162.3**		**100.91**

Comments:

The winter of 2017/18 was very dry and wheat yields reflected the wheather pattern, however SW 20 still raised decent wheat considering the year. Effluent water was applied at a rate pretty close to the recommendation and the small net increase is attributable to the dry winter. NW20 is now planted to wheat and off to a good start for a 2019 wheat crop with effluent application again close to recommended rate. Carryover Nitrogen levels are remaining steady to lower the last couple years indicating an efficient use Nitrogen from effluent applications.

Lab Date	Field	Exchangeable NH4-N 0-6		Exchangeable NH4-N 6-24		Nitrate-N 0-6		Nitrate-N 6-24		Total available
		ppm	lbs/A	ppm	lbs/a	ppm	Lbs/A	ppm	Lbs/A	lbs/A
7/13/2017	NW 20 18 37	0.4	0.7	1.2	6.5	1.6	3	1.8	10	11.95
7/14/2016	SW 20 18 37	2.2	4	3.1	16.7	10.5	19	3.7	20	41.35
7/16/2018	SW20 18 36	1.5	2.7	1.6	8.6	3.3	6	5.7	31	28.5
7/14/2015	NW 20 18 37	4.3	7.7	3.9	21.4	8.4	15	7.5	41	53.9
7/13/2017	NW 20 18 37	0.4	0.7	1.2	6.5	1.6	3	1.8	10	11.95
7/23/2014	SW 20 18 36	5.1	9.2	3.5	18.9	5.1	9	7.3	39	47.15
7/14/2016	SW 20 18 37	2.2	4	3.1	16.7	10.5	19	3.7	20	41.35
7/16/2018	SW20 18 36	1.5	2.7	1.6	8.6	3.3	6	5.7	31	28.5

* 100% credit given to Nitrogen in 0-6 inch range and 50% credit to 6-24 inch nitrogen

Nutrient Balance for Phosphorous: Mash Water

Field	Crop	Yield goal	p1 phos available	Lbs P available	Lbs p205 Available	Recommended P2O5	Mash water applied	Lbs p2o5 from water	Fertilizer p205 needed	Net soil change	Net soil change P	Net Soil Change P2O5
			ppm	lbs/a	lbs/a	lbs/a	Acre inch/a	lbs/a	lbs/a	ppm	lbs/a	lbs/a
NW20-18-36	Wheat 2017	100 bu	89	163.76	375.25604	0	1.27	375.5136	0	-1	-1.84	-4.2
SW20-18-36	Wheat 2016	100 bu	31	57.04	130.70716	20	0.46	136.0128	0	28	51.52	118.1
NW20-18-36	Wheat 2019	100 bu	88	161.92	371.03968	0	1.42	419.8656	0	na	#VALUE!	#VALUE!
SW20-18-36	Wheat 2018	100 bu	82	150.88	345.74152	0	1.22	360.7296	0	15	27.6	63.2
SW20-18-36	Wheat 2020	100 bu	97	178.48	408.98692	0	0.88	260.1984	0	na	#VALUE!	#VALUE!

Water Analysis	2/17/2017		
	Lbs/acre inch	% available	lbs/acre inch to credit
Phos as P	184.4		
Phos as p2o5	422.4	70%	295.68
Total	**422.4**		**295.68**

Lab Date	Field	Bray p1 ppm	Bray p1 Lbs/a P
		ppm	Lbs/a
7/14/2015	NW 20 18 36	89	163.76
7/13/2017	NW 20 18 36	88	161.92
7/23/2014	SW 20 18 36	54	99.36
7/14/2016	SW 20 18 37	82	150.88
7/13/2017	NW 20 18 36	88	161.92
	NW 20 18 36		
7/14/2016	SW 20 18 37	82	150.88
7/16/2018	SW 20 18 37	97	178.48
7/16/2018	SW 20 18 37	97	178.48
	SW 20 18 37		0

Comments:

While water Mash water is applied at a rate to provide adequate Nitrogen for the crops Phosphorous fertilization is another benefit of the application. While there has been a steady increase in Phosphorous levels over the last few years to a more productive level, 2017-18 tests show a continued leveling off, indicating an efficient use of effulent as a phosphorous fertilizer. The smaller change in soil test phos compared to the applied phos is not suprising since the soil tests are an index indicating what will become available to the plant rather than total soil phosphorous. Much of the phosphorous in these soils is tied up with calcium with only a small portion is in soil solution at any given time.

Nutrient Balance for Potasium: Mash Water

Field	Crop	Yield goal	Soil K available	Recommended K2O	Mash water applied	Lbs K2O from water	Fertilizer K2O needed	Net soil change
			ppm	lbs/a	Acre inch/a	lbs/a	lbs/a	ppm
NW20-18-36	Wheat 2017	100 bu/a	667.5	0	1.27	426.6819	0	-3
SW20-18-36	Wheat 2016	100 bu/a	677	0	0.45	151.1865	0	6
NW20-18-36	Wheat 2019	100 bu/a	682.5	0	1.42	477.0774	0	na
SW20-18-36	Wheat 2018	100 bu/a	682	0	1.22	409.8834	0	15
SW20-18-36	Wheat 2020	100 bu/a	726.5	0	0.88	295.6536	0	0

Mash analysis	2/17/2017			
	Lbs/acre-inch	% available		lbs/acre-inch to credit
Potassium as K	311			0
Potassium as K20	**373.3**		**90%**	**335.97**

Lab Date	Field	K PPM 0-6 inch	K PPM 6-24 inch
		ppm	ppm
7/14/2015	NW 20 18 36	821	514
7/13/2017	NW 20 18 36	854	511
7/23/2014	SW 20 18 36	870	484
7/14/2016	SW 20 18 37	874	490
7/13/2017	NW 20 18 36	854	511
7/14/2016	SW 20 18 37	874	490
7/16/2018	SW 20 18 38	889	564
7/16/2018	SW 20 18 38	889	564

*100% credit givent to Nitrogen in 0-6 inch range and 50% credit to 6-24 inch nitrogen

Comments:

Potasium is a nutrient rarely needed in Wichita county due to the naturally high level of potasium in the soils and these fields are no exeption. Soil tests tend to vary up and down overtime as seen on the trends pages for both NW20 and SW20. As with phosphorous, much of the potasium is tied up in the soils making it not sprising that although more is applied than removed, soil tests and overall levels change very little.

ESE MASH WATER IRRIGATION

Year	Total Usage
1998	3,428,300
1999	6,954,500
2000	4,131,700
2001	2,614,600
2002	3,425,100
2003	4,347,400
2004	4,923,600
2005	6,613,499
2006	3,673,500
2007	7,645,300
2008	4,868,300
2009	4,159,000
2010	4,029,600
2011	572,900
2012	0
2013	4,149,000
2014	3,196,500
2015	5,627,900
2016	3,988,500
2017	4,642,900
2018	2,866,100

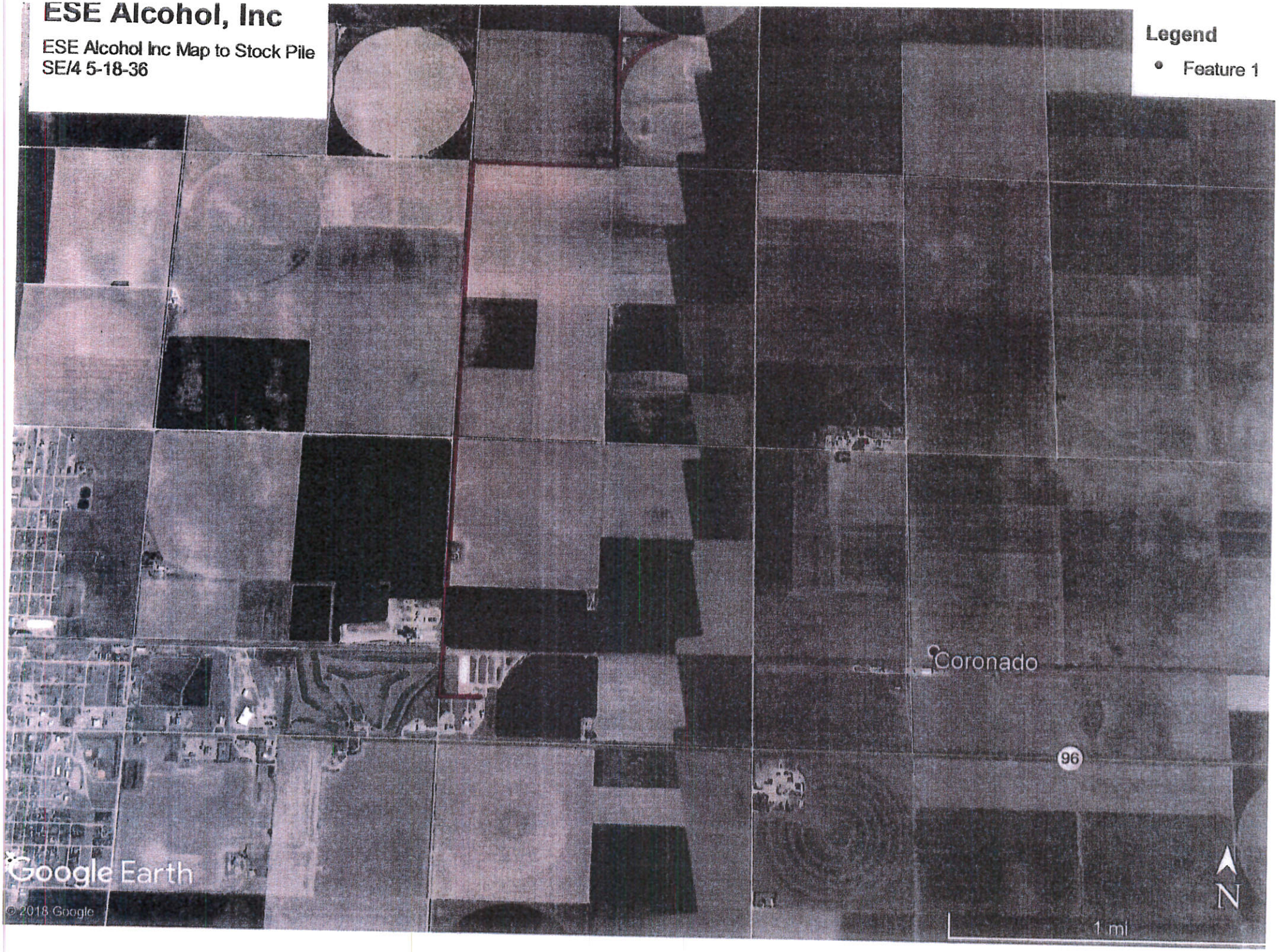
ESE Alcohol, Inc
Process Water Irrigation Sites
W/2 20-18-36 & SW/4 17-18-36
Coron
96
14
15
Q

Supplemental Condition No. D-4 Mash Solids Land Application Requirements

a. Mash solids are stored at a single central stockpile location in a manner consistent with our current permit.
b. Mash solids are not stockpiled at any land application site.
c. Mash solids are incorporated within 24 hours after land application unless no-till methods of farming are being utilized.
d. We do not farm saturated, frozen, or snow covered ground and thus do not apply mash solids during these periods of time.
e. Mash solids are applied utilizing hi-tech manure spreader equipment that is GPS equipped.
f. The off-site stockpile location has not changed and meets the permit requirements.

ESE Alcohol, Inc

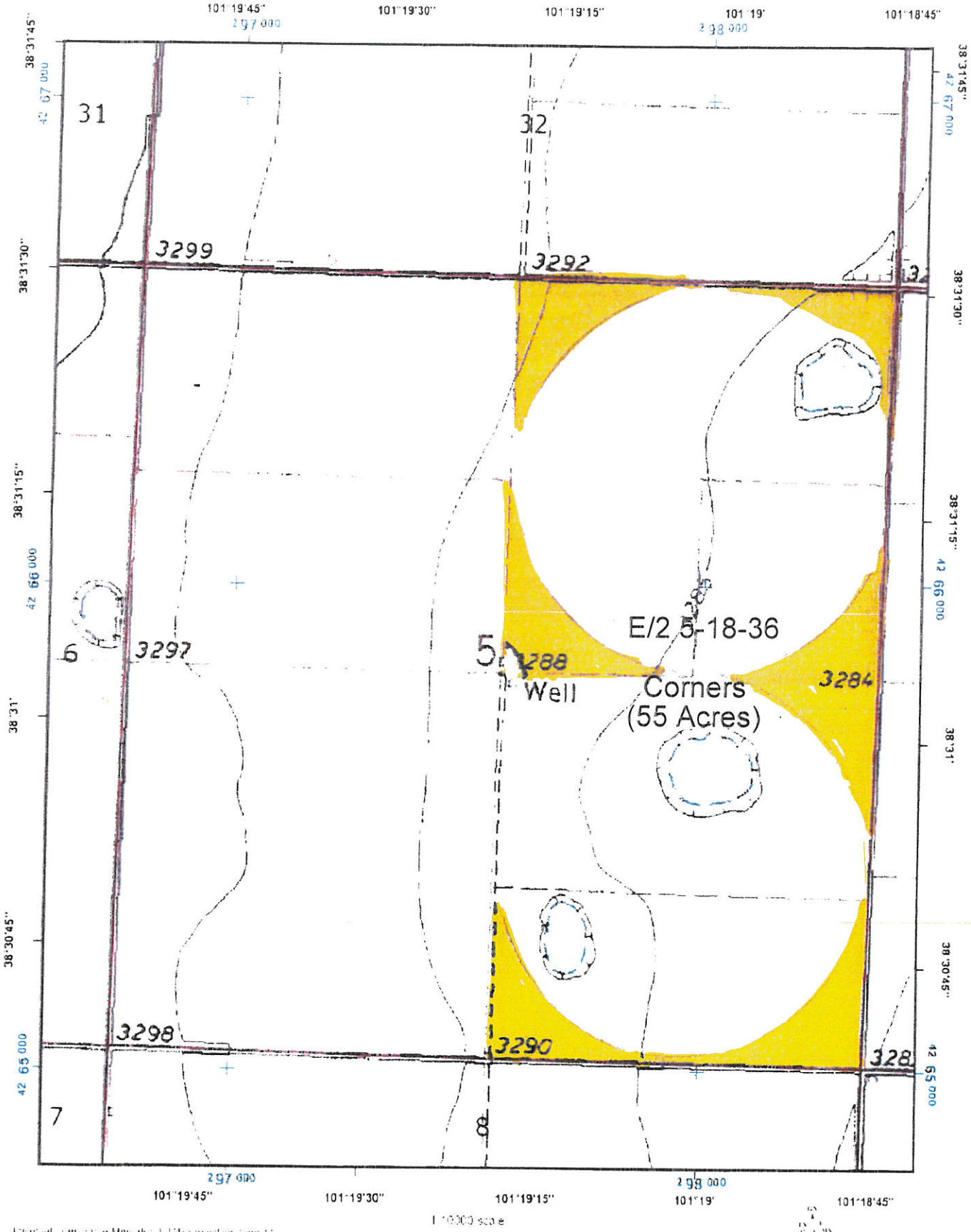
ESE Alcohol Inc Map to Stock Pile
SE/4 5-18-36



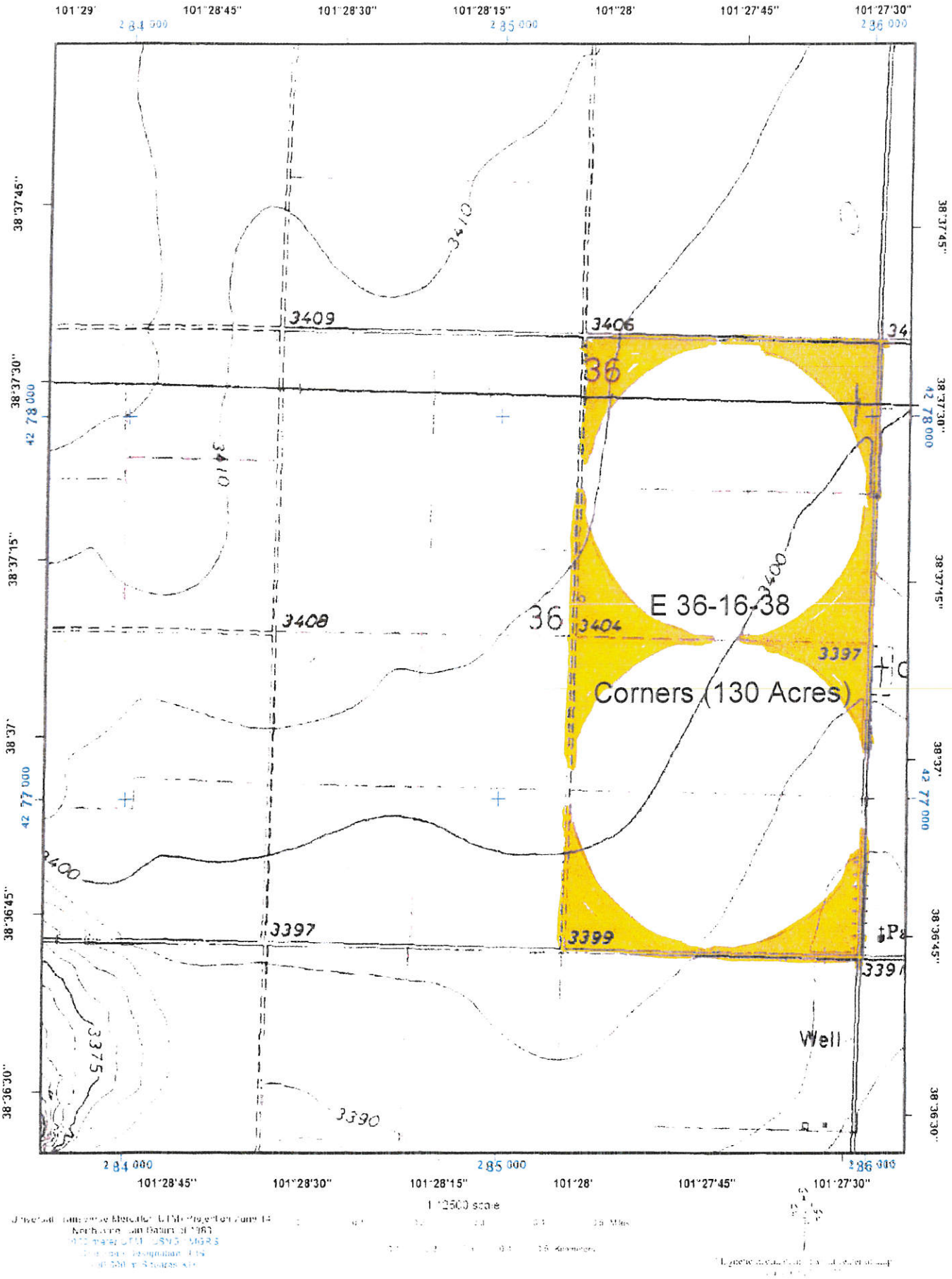
CALENDAR YEAR -------- 2018
BIO-SOLIDS APPLIED

DATE		TRACT	LEGAL DESCRIPTION	ACRES	TONS APPLIED	TONS/ACRE	PHYSICAL LOCATION	CROP & HARVEST YEAR
06/12/2018	Gary	6 & 7	E/ 5-18-36	55	186	3.40	Tailwater Pit/Gma-Corners	2019 Wheat
06/18/2018	Gary	17 & 18	E/ 36-16-38	130	533	4.1	Parks Church-Corners	2019 Wheat
06/18/2018	Gary	54	N/4 13-16-37	160	487.3	3	Dean Wiegers-N/4 thru' 1 mi	2019 Wheat
06/09/2018	Gary	98	NW/4 36-17-37	105	421	4	Lindberg-excl N 53 A (Corn)	2019 Wheat
Sept 2018	Gary	85 & 86	S/4 36-17-37	155	1,240	8	Townsend	2019 Corn
Sept 2018	Gary	99	N/4 36-17-37	105	720	6.86	Townsend-S/4 thru' 1 mi	2019 Corn
Sept 2018	Gary	54	N/2-N/2 13-16-37	160	1,110	6.94	Dean Wiegers	2019 Corn
Sept 2018	Gary	19	NW/4 32-16-37	92	1,050	11.41	Krenzels	2019 Corn
TOTALS				962	5,747.3	5.96		

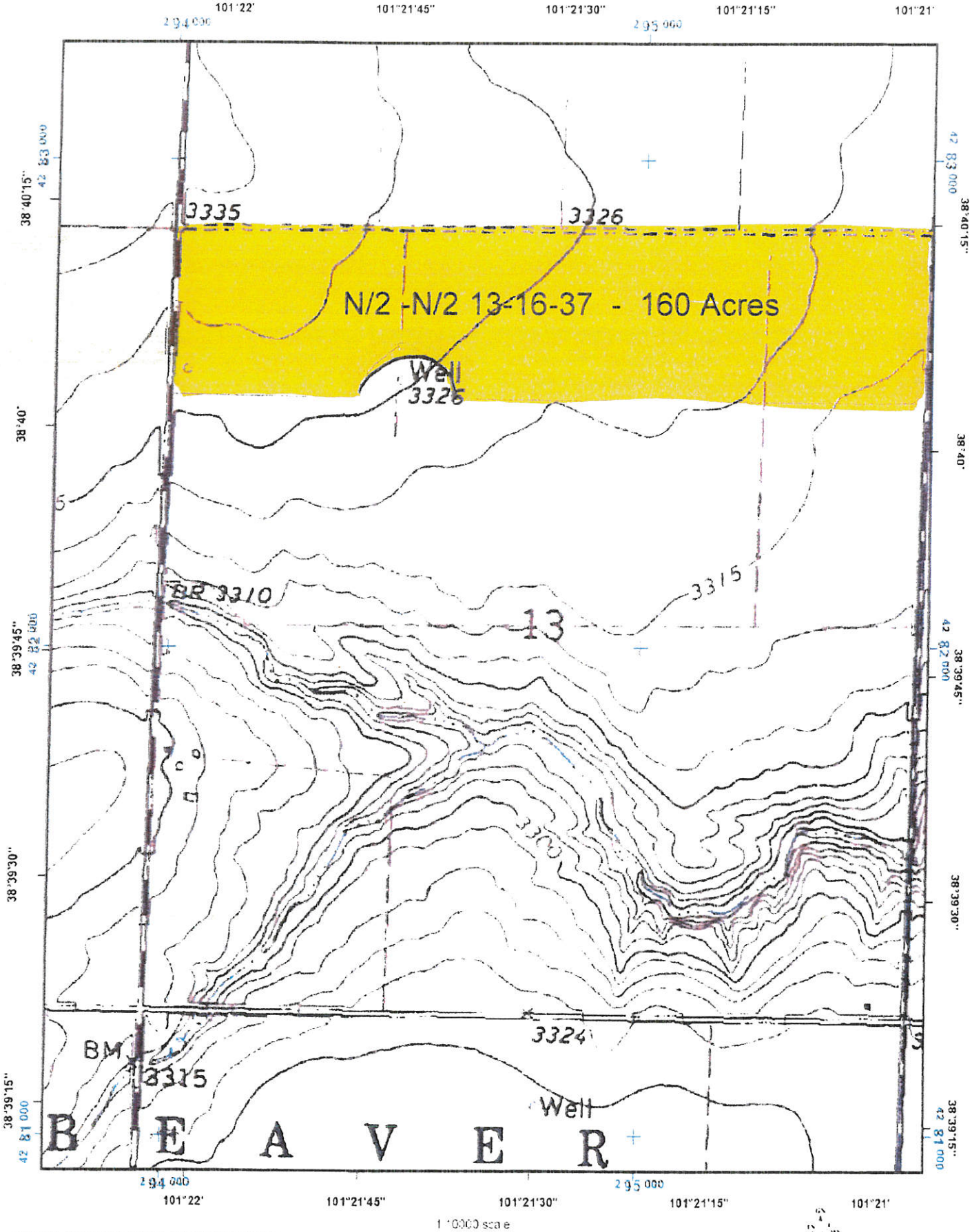
Tract #6; #7 NE/4 & SE4 05-18-36 Coronado Cemetery, Wichita Co.



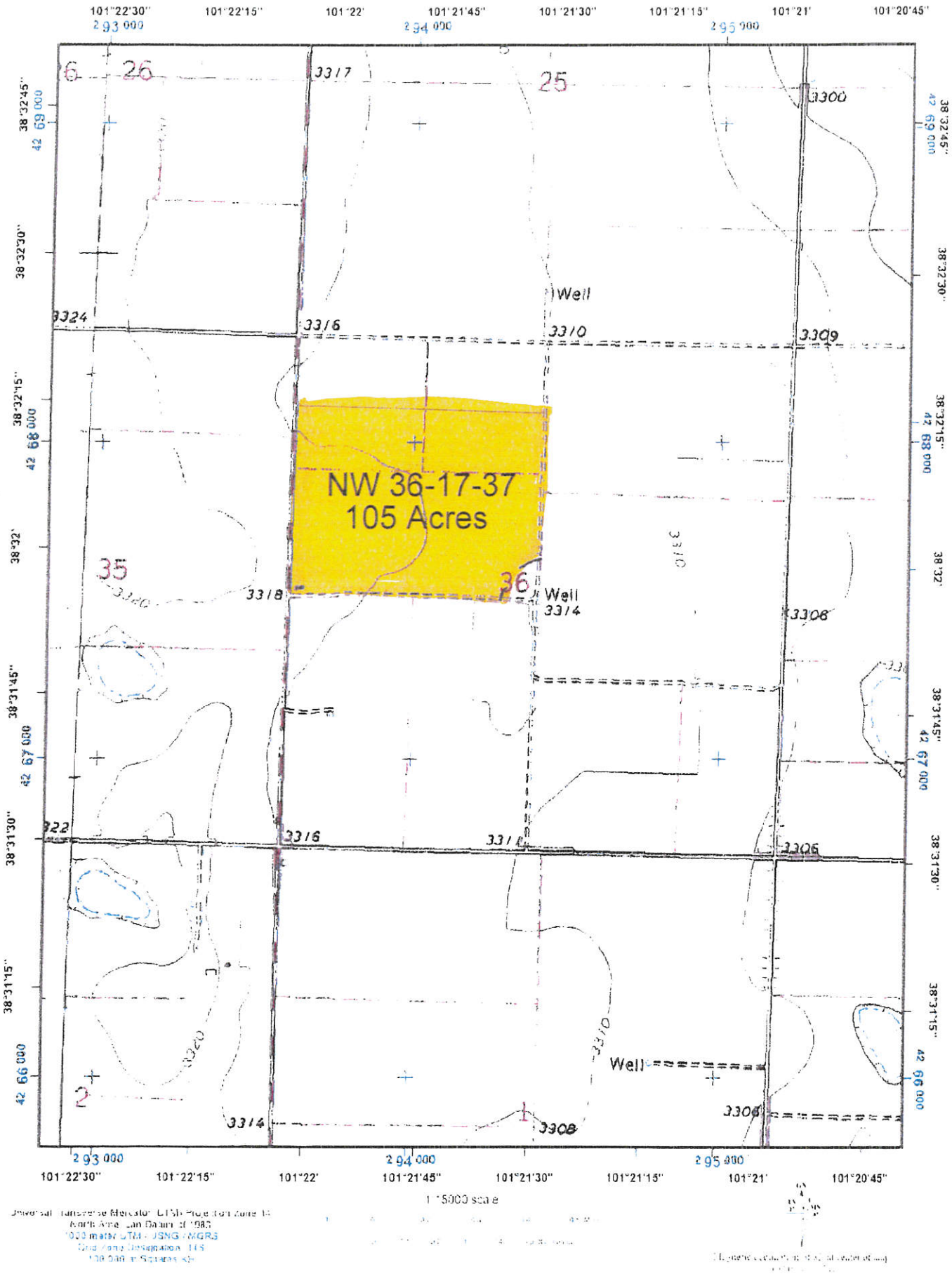
Tract(s) #17; #18 NE/4 & SE/4 36-16-38 Russell Springs 3, Wichita Co.



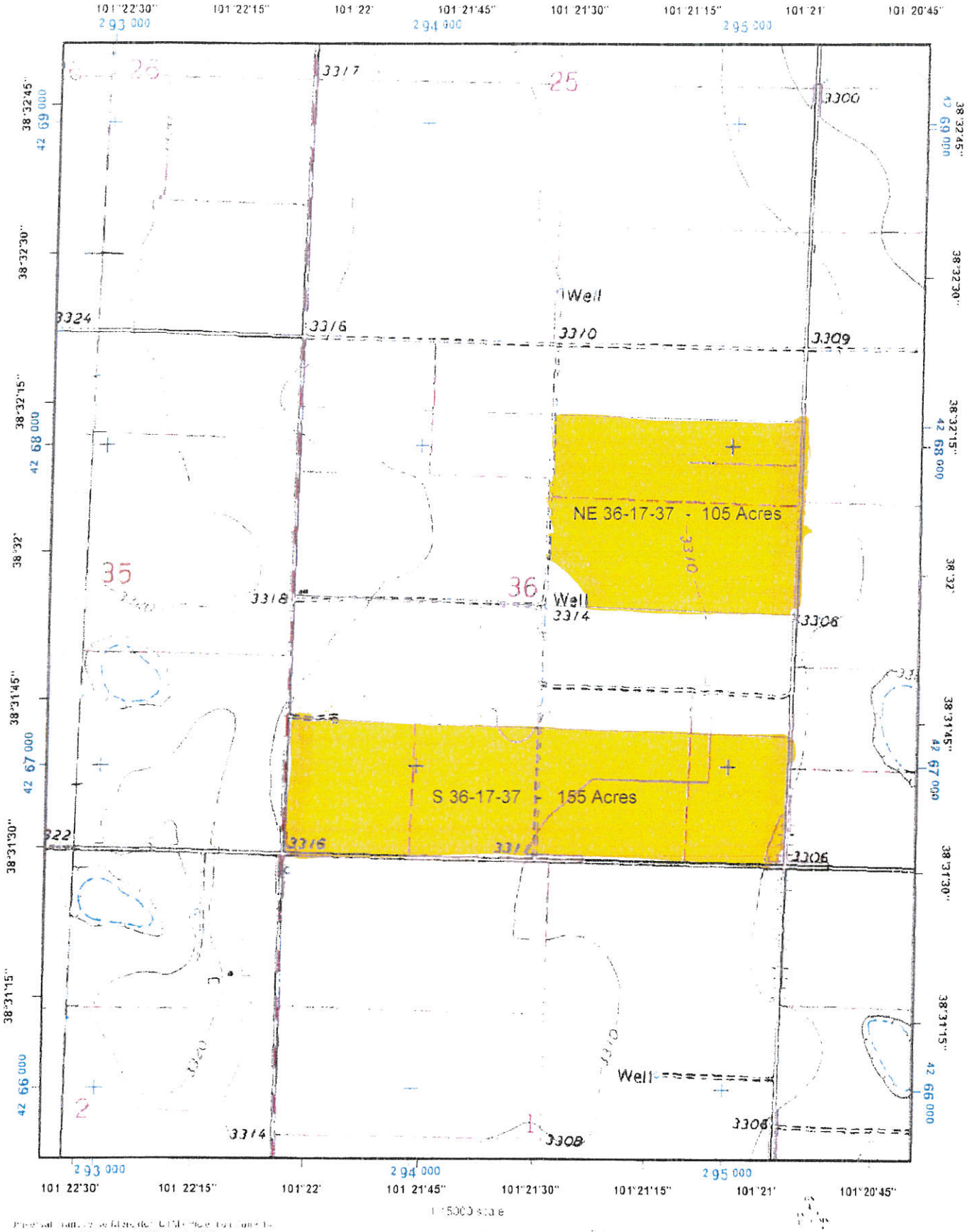
Tract(s) #54; #55 N/2 of N/2 & S/2 o N/2 13-16-37 Russell Springs 3 NE, Wichita Co.



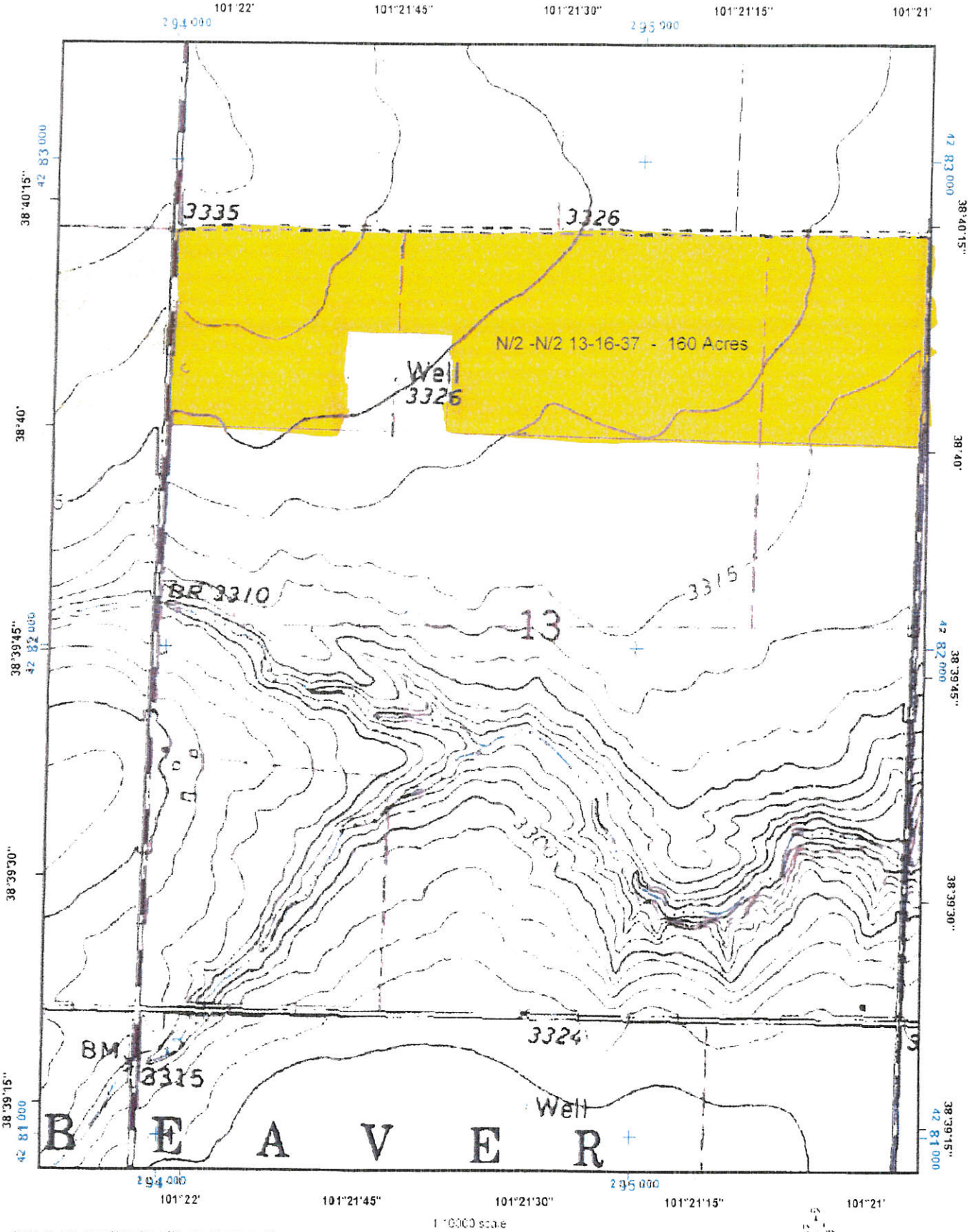
Tract(s) #85; #86; #98; #99 SW/4 & SE4 36-17-37 Coronado Cemetery, Wichita Co.



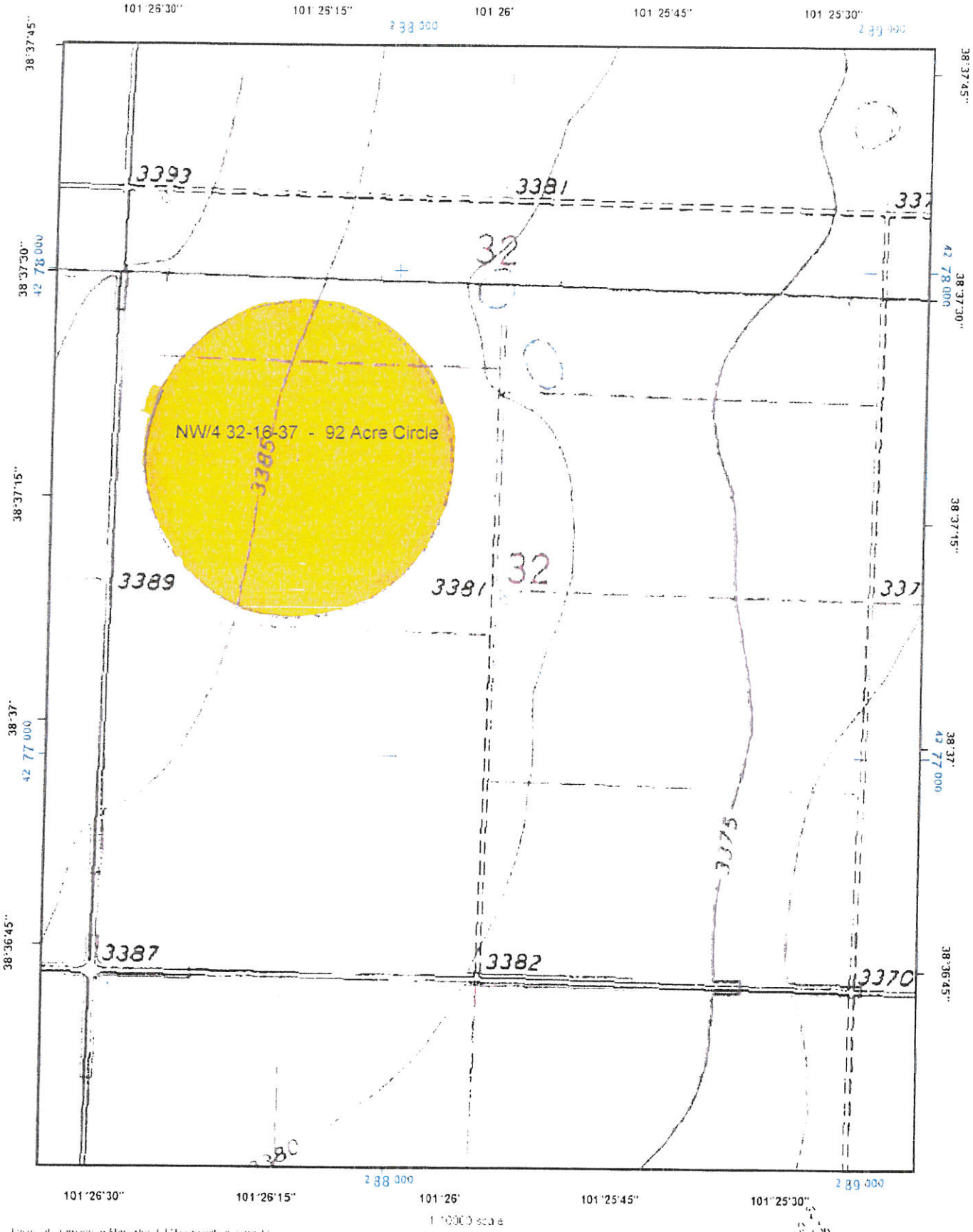
Tract(s) #85; #86; #98; #99 SW/4 & SE4 36-17-37 Coronado Cemetery, Wichita Co.



Tract(s) #54; #55 N/2 of N/2 & S/2 o N/2 13-16-37 Russell Springs 3 NE, Wichita Co.



Tract(s) #19; #20 NW/4 & SW/4 32-16-37 Russell Springs 3, Wichita Co.



ESE ALCOHOL, INC
PO BOX 848
LEOTI, KS 67861
SWD

MONITORING REPORT
KDHE - DIVISION OF ENVIRONMENT
BUREAU OF WATER - TECHNICAL SERVICES SECTION
FORBES FIELD, BUILDING 283
TOPEKA, KS 66620-001
ATTN: PERMITS & COMPLIANCE

DUE QUARTERLY JAN 28TH APRIL 28TH JULY 28TH AND OCT 28TH FOR A YEAR THEN ANNUALLY THEREAFTER

ISSUE DATE 10/01/2010
EXPIRATION DATE 09/30/2015

TELEPHONE NO (620) 375-4904

EPA = TARGET RATE
MCL = MAXIMUM CONTAMINATE LEVEL
NAS =NATIONAL ACADEMY OF SCIENCES
NSDWR = NATIONAL SECONDARY DRINKING WATER REGULATIONS

BIO-SOLID NUTRIENTS

KANSAS PERMIT # I-UA26-NP01

KANSAS PERMIT # I-UA26-NP01

BIO SOLID NUTRIENTS — **REPORTING PERIOD 04/28/2018**

TESTED BY PACE ANALYTICAL SERVICES, INC.

	TOTAL SOLIDS %	TKN	NH3N AMMONIUM	NO3 NITRATE	TOTAL NITROGEN	TOTAL PHOSPHOROUS (P)	TOTAL PHOSPHATE (P205)	TOTAL POTASSIUM (K)	POTASH (K20)	CHLORDIE	ELECTRICAL CONDUCTIVITY	SODIUM	SULPHATE	pH
quantitative level	0.50%	1,210 mg/kg	48.7 mg/kg	13.1 mg/kg	1.0 mg/kg	CALC mg/kg	CALC mg/kg	CALC mg/kg	CALC mg/kg	241 mg/kg	1.0 mmhos/cm	90.3 mg/kg	241 mg/kg	0.10 s.u.
04/16/2019	59.3	50,800	5,400	ND	50,800	2,037	4,668	2,237	2,695	1,330	16,400	919	924	4.3

American Agricultural Laboratory, Inc.

700 West D St. / P.O. Box 370 / McCook, Nebraska 69001

Office: 308-345-3670 / FAX: 308-345-7880 / www.AmAgLab.com

"Analysis You Can Grow With"

DATE	5/3/2019
Submitted By	SKYLER JAMES
Address	1202 COLLEGE
City, State, Zip	SCOTT CITY KS 67871

Re: Nutrient availability from manure application the first crop year after application

Name:	ESE ALCOHOL
Sample ID:	MASH
Lab Number:	29608

Nutrient	% Availability 1st Year	Lbs/ton (as received basis)
Organic N	25%	9.88
Ammonium-N	95%	0.82
Nitrate-N	100%	0.02
Phosphorus (as P_2O_5)	70%	4.81
Potassium (as K_2O)	90%	3.25
Calcium (as Ca)	55%	1.10
Magnesium (as Mg)	55%	0.88
Sodium (as Na)	90%	0.18
Chloride (as Cl)	100%	1.00
Sulfur (as S)	40%	0.96
Zinc (as Zn)	40%	0.05
Iron (as Fe)	40%	0.95
Manganese (as Mn)	40%	0.02
Copper (as Cu)	40%	0.01
Boron (as B)	40%	0.01

% Availability 1st year is an estimation of nutrient availability based on published information for feedlot manure.
Lbs/ton (as received basis) assumes the manure is broadcast and incorporated into the soil immediately after application.

Please contact us if you have any questions. Thanks.

Sincerely,

American Agricultural Laboratory, Inc.

700 West D Street / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

SOLID MANURE NUTRIENT REPORT

SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

Account Number: 38042

Date Sampled:
Date Received: 04/26/2019
Date Reported: 05/02/2019

Lab Number: 29608

Name: ESE ALCOHOL
Sample ID: MASH

Constituent Analyzed	Results	lbs per ton (as received basis)	Method
Moisture	66.20 %		105 C 5HR
Solids	33.80 %		105 C 5HR
Ash	19.03 %		AOAC 942.05
C : N Ratio	6.2 :1		
pH	6.17 s.u.		SM 4500 B
Electrical Conductivity	13.69 mmhos/cm		SM 4500 B
Soluble Salts	0.59 %	11.8	SM 4500 B
Total Nitrogen (N)	2.02 %	40.4	AOAC 984.13
Organic Nitrogen (N)	1.98 %	39.6	TN-NH4-NO3
Ammonium-N (N)	0.0431 %	0.86	SM 4500 H
Nitrate-N (N)	0.0008 %	0.02	EPA 353.2
Phosphorus (P)	0.15 %	3.0	AOAC 985.01
Phosphorus (P2O5)		6.9	
Potassium (K)	0.15 %	3.0	AOAC 985.01
Potassium (K2O)		3.6	
Calcium (Ca)	0.10 %	2.0	AOAC 985.01
Magnesium (Mg)	0.08 %	1.6	AOAC 985.01
Sodium (Na)	0.01 %	0.2	AOAC 985.01
Chloride (Cl)	0.05 %	1.0	LACHAT12117071A
Sulfur (S)	0.12 %	2.4	AOAC 985.01
Zinc (Zn)	57.1 mg/kg	0.11	AOAC 985.01
Iron (Fe)	1190.5 mg/kg	2.38	AOAC 985.01
Manganese (Mn)	27.6 mg/kg	0.06	AOAC 985.01
Copper (Cu)	16.5 mg/kg	0.03	AOAC 985.01
Boron (B)	6.3 mg/kg	0.01	AOAC 985.01

BY _____

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: ESE ALCOHOL MASH SOLIDS
Pace Project No.: 60300161

Sample: MASH SOLIDS **Lab ID: 60300161001** Collected: 04/16/19 10:40 Received: 04/17/19 16:10 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Potassium	**5370**	mg/kg	90.3	1	04/26/19 12:00	04/29/19 13:18	7440-09-7	
Sodium	**919**	mg/kg	90.3	1	04/26/19 12:00	04/29/19 13:18	7440-23-5	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**59.3**	%	0.50	1		04/22/19 15:14		
2540G Total Percent Solids	Analytical Method: SM 2540G							
Total Solids	**40.7**	%	0.10	1		04/22/19 15:14		
9045 pH Soil	Analytical Method: EPA 9045							
pH at 25 Degrees C	**4.3**	Std. Units	0.10	1		04/19/19 12:19		
9050 Specific Conductance	Analytical Method: EPA 9050							
Specific Conductance	**16400**	umhos/cm	1.0	1		04/23/19 09:59		
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation							
Nitrogen	**50800**	mg/kg	1.0	1		04/29/19 15:02	7727-37-9	
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**5440**	mg/kg	48.7	20		04/19/19 14:42	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2							
Nitrogen, Kjeldahl, Total	**50800**	mg/kg	1210	10		04/24/19 10:25	7727-37-9	M1
9056 IC Anions	Analytical Method: EPA 9056 Preparation Method: EPA 9056							
Chloride	**1330**	mg/kg	241	10	04/22/19 14:00	04/22/19 21:03	16887-00-6	
Sulfate	**924**	mg/kg	241	10	04/22/19 14:00	04/22/19 21:03	14808-79-8	
9056 IC Anions	Analytical Method: EPA 9056 Preparation Method: EPA 9056							
Nitrate as N	ND	mg/kg	24.3	10	04/23/19 11:09	04/23/19 22:17	14797-55-8	
Nitrite as N	ND	mg/kg	24.3	10	04/23/19 11:09	04/23/19 22:17	14797-65-0	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Supplemental Condition No. 6 Soil Monitoring Requirements

The Farm Summary document identifies 110 tracts of farm ground that could be utilized for application purposes. All irrigation sites utilized are tested. The Bio-Solids Applied document lists 11 tracts that were utilized in 2018. Twenty percent of the 11 solids sites would mean 3 solid sites need to be tested; however our permit requires a minimum of 5 solid sites be tested. We therefore tested 5 solid sites along with the irrigation sites utilized.

Before and After Soil Test Results

Lab Date	Field	pH	Exchangeable NH4-N		Nitrate-N 0-6		Nitrate-N 6-24		Bray P1	M3 P	Extractable K	Extractable Na	Extractable Na	EC
			ppm	lbs/A	ppm	Lbs/A	ppm	Lbs/A	ppm	ppm	ppm	% of Cations	ppm	mmhos
7/11/2017	NE4-18-36	7.2	1.7	3.1	6	11	1.7	9	28	35	692	0	10	1.02
12/19/2018	NE4-18-36	6.7	5.7	10.3	24	43	10.2	55	30	39	676	0	15	1
8/1/2017	01 NE36-16-3 N	7	2.1	3.8	6.5	12	2.3	12	14	20	755	1	33	0.88
12/20/2018	01 NE36-16-3 N	6.6	1	1.8	10.7	19	5.4	29	18	24	806	1	39	0.52
8/1/2017	01 NE36-16-3 S	7	2.1	3.8	6.6	12	1.5	8	20	26	645	1	39	0.92
12/20/2018	01 NE36-16-3 S	7.3	1.3	2.3	8.8	16	4	22	22	27	719	1	42	1.1
11/20/2017	SE33-17-36	6.9	2.4	4.3	10.7	19	3.3	18	28	30	608	1	37	0.8
12/19/2018	SE33-17-36	7.5	1.8	3.2	16.1	29	6.4	35	27	36	789	1	25	1.22
11/20/2017	08 NE5-18-36	6.7	1.9	3.4	9.8	18	4.4	24	54	54	614	1	40	1.04
12/19/2018	08 NE5-18-36	6.4	4.2	7.6	24.2	44	6.8	37	42	54	713	1	31	0.98

Nutrient Balance for Nitrogen: Mash Solid

Field		Crop	Yield goal	Units	Available N	Recommended additional N	Mash applied	Lbs N from mash	Fertilizer N needed	Net soil change	Crop use
						lbs/a	Tons/a	lbs/a	lbs/a	lbs/a	lbs/a
NE4-18-36		Corn	120	bu	23.1	120.9	7.5	122.5725	-2	85.2	35.7
01 NE36-16-38	N	Corn	220	bu	27.8	236.2	12	196.116	40	22	214.2
01 NE36-16-38	S	Corn	220	bu	23.8	240.2	12	196.116	0	16.5	179.616
SE33-17-36		Corn	220	bu	41.3	222.7	9.56	156.23908	0	25.9	130.33908
08 NE5-18-36		Corn	160	bu	45.4	146.6	9.83	160.65169	-14	43.2	103.4

Mash analysis	2/17/2017		
	Lbs/ton	% available	lbs/ton to credit
Nitrate	0.01	100%	0.01
Ammonium	9.37	90%	8.433
Organic N	31.6	25%	7.9
Total	**40.98**		**16.343**

Lab Date	Field		xchangeable NH4-I		Nitrate-N 0-6		Nitrate-N 6-24		Total available
			ppm	lbs/A	ppm	Lbs/A	ppm	Lbs/A	
7/11/2017	NE4-18-36		1.7	3.1	6	11	1.7	9	23.1
12/19/2018	NE4-18-36		5.7	10.3	24	43	10.2	55	108.3
8/1/2017	01 NE36-16-38	N	2.1	3.8	6.5	12	2.3	12	27.8
12/20/2018	01 NE36-16-38	N	1	1.8	10.7	19	5.4	29	49.8
8/1/2017	01 NE36-16-38	S	2.1	3.8	6.6	12	1.5	8	23.8
12/20/2018	01 NE36-16-38	S	1.3	2.3	8.8	16	4	22	40.3
11/20/2017	SE33-17-36		2.4	4.3	10.7	19	3.3	18	41.3
12/19/2018	SE33-17-36		1.8	3.2	16.1	29	6.4	35	67.2
11/20/2017	08 NE5-18-36		1.9	3.4	9.8	18	4.4	24	45.4
12/19/2018	08 NE5-18-36		4.2	7.6	24.2	44	6.8	37	88.6

Nutrient Balance for Phosphorous: Mash Solid

Field	Crop	Yield goal	Units	PPM phos	Recommended p2o5	Mash applied	Lbs p2o5 from mash	Fertilizer p2o5 needed	Net soil change	Net soil change
					lbs/a	Tons/a	lbs/a	lbs/a	ppm	lbs/a
NE4-18-36	Corn	120	bu	28	20	7.5	50.4	0	2	3.68
01 NE36-16-38 N	Corn	220	bu	14	55	12	80.64	0	4	7.36
01 NE36-16-38 S	Corn	220	bu	20	40	12	80.64	0	2	3.68
SE33-17-36	Corn	220	bu	28	25	9.56	64.2432	0	-1	-1.84
08 NE5-18-36	Corn	160	bu	54	0	9.83	66.0576	0	-12	-22.08

Mash analysis	2/17/2017		
	Lbs/ton	% available	lbs/ton to credit
p2o5	9.6	70%	6.72
P	4.2		
Total	**9.6**		**6.72**

Lab Date	Field	Bray P1
		ppm
7/11/2017	NE4-18-36	28
12/19/2018	NE4-18-36	30
8/1/2017	01 NE36-16-38 N	14
12/20/2018	01 NE36-16-38 N	18
8/1/2017	01 NE36-16-38 S	20
12/20/2018	01 NE36-16-38 S	22
11/20/2017	SE33-17-36	28
12/19/2018	SE33-17-36	27
11/20/2017	08 NE5-18-36	54
12/19/2018	08 NE5-18-36	42

Mash Applications and Sample Dates

Location	Field	Acres	Tons/Acre	Crop	Sample taken Date	Mash Date	Sample/lab Date
Leta's	NE/4 4-18-36	160	7.5	2018 Corn	7/11/2017	Fall 2017	12/19/2018
Parks Church	N-NE/4 36-16-38	41	12	2018 Corn	8/1/2017	Fall 2017	12/20/2018
Parks Church	S-NE/4 36-16-38	41	12	2018 Corn	8/1/2017	Fall 2017	12/20/2018
Farm	SE/4 33-17-36	92	9.56	2018 Corn	11/20/2017	End Nov 2017	12/19/2018
Tailwater Pit/Ggma	NE/4 5-18-36	120	9.83	2018 Corn	11/20/2017	End Nov 2017	12/19/2018

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 08/10/2018 DATE REPORTED: 08/14/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2552249	02 SE36-16-38	1 N	0-6	6.5	6.7			N	0.66	2.2	9.9	18	18				22
2552250	02 SE36-16-38	1.1 N	6-24								2.8	15					
2552251	02 SE36-16-38	2 S	0-6	7.4				N	0.98	2.3	12.4	22	22				30
2552252	02 SE36-16-38	2.1 S	6-24								4.2	23					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2552249	10	816	2460	537	35	0.9	16.3	9.7	0.9	0.8	22.0	86	14	55	20	10	1
2552250																	
2552251	10	687	2670	482	41	1.4	10.0	7.7	0.8	1.1	19.3	100	0	69	21	9	1
2552252																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2552249	2.88	1.50	1.02	0.69	1	0					15.5	28	3.9	7.0		
2552250																
2552251	4.11	1.73	0.93	0.54	1	0					15.5	28	3.4	6.1		
2552252																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2552249	02 SE36-16-38	1													
2552250	02 SE36-16-38	1.1													
2552251	02 SE36-16-38	2													
2552252	02 SE36-16-38	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 08/10/2018 DATE REPORTED: 08/14/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2552253	03 NW32-16-37	1 N	0-6	6.8	6.8			N	0.78	2.5	10.0	18	43				52
2552254	03 NW32-16-37	1.1 N	6-24								2.7	15					
2552255	03 NW32-16-37	2 S	0-6	7.2				L	1.20	2.4	11.4	21	47				53
2552256	03 NW32-16-37	2.1 S	6-24								3.0	16					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2552253	11	914	2760	621	28	1.7	15.7	11.4	1.2	1.3	23.4	91	9	58	22	10	1
2552254																	
2552255	10	966	2830	497	21	1.7	13.4	9.0	1.1	1.3	20.9	100	0	68	20	12	0
2552256																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2552253	3.47	1.78	0.66	0.41	1	0					13.4	24	4.9	8.8		
2552254																
2552255	6.08	2.49	0.68	0.33	1	0					14.3	26	2.9	5.2		
2552256																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2552253	03 NW32-16-37	1													
2552254	03 NW32-16-37	1.1													
2552255	03 NW32-16-37	2													
2552256	03 NW32-16-37	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 08/21/2018 DATE REPORTED: 08/24/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2553359	E36-16-38 CORNERS	1	0-6	7.1				N	1.30	2.2	17.7	32	45				49
2553360	E36-16-38 CORNERS	1.1	6-24								4.0	22					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2553359	6	950	2610	461	19	0.9	11.1	3.7	0.9	0.8	19.4	100	0	67	20	13	0
2553360																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2553359	6.00	2.46	0.50	0.24	1	0					8.7	16	1.3	2.3		
2553360																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2553359	E36-16-38 CORNERS	1													
2553360	E36-16-38 CORNERS	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 08/21/2018 DATE REPORTED: 08/24/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2553361	N36-17-37	1 SE	0-6	6.5	6.9			N	0.70	1.9	14.4	26	66				98
2553362	N36-17-37	1.1	6-24								5.8	31					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2553361	8	922	2130	398	17	1.3	13.0	5.0	1.0	1.0	17.4	94	6	61	19	14	0
2553362																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2553361	2.43	1.11	0.33	0.25	1	0					5.6	10	1.1	2.0		
2553362																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2553361	N36-17-37	1													
2553362	N36-17-37	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 08/21/2018 DATE REPORTED 08/24/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2553363	NW5-17-37 CORNERS	1	0-6	7.5				H	1.24	2.0	23.9	43		15			36
2553364	NW5-17-37 CORNERS	1.1	6-24								12.7	69					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2553363	8	966	3670	502	17	1.2	6.9	2.8	1.0	1.2	25.1	100	0	73	17	10	0
2553364																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2553363	4.77	1.52	0.30	0.17	1	0					7.1	13	1.7	3.1		
2553364																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2553363	NW5-17-37 CORNERS	1													
2553364	NW5-17-37 CORNERS	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 08/21/2018 DATE REPORTED 08/24/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1 1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2553365	S36-17-37	1 CORNERS	0-6	7.9				H	1.02	2.0	27.5	50		24			84
2553366	S36-17-37	1.1	6-24								13.4	72					
2553367	S36-17-37	2 W	0-6	7.4				H	1.22	2.1	17.5	32		17			47
2553368	S36-17-37	2.1	6-24								5.2	28					
2553369	S36-17-37	3 E	0-6	7.7				H	1.16	2.2	25.1	45		11			44
2553370	S36-17-37	3.1	6-24								12.0	65					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2553365	9	1108	3470	376	23	1.7	4.5	1.7	0.8	1.5	23.4	100	0	75	13	12	0
2553366																	
2553367	7	757	2770	501	27	1.9	7.9	2.8	0.9	1.3	20.1	100	0	68	21	10	1
2553368																	
2553369	8	853	3440	551	22	1.9	5.4	1.9	0.9	1.6	24.1	100	0	72	19	9	0
2553370																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2553365	4.94	1.34	0.26	0.15	1	0					10.3	19	0.9	1.6		
2553366																
2553367	4.81	2.28	0.71	0.38	1	0					9.8	18	0.8	1.4		
2553368																
2553369	4.46	1.78	0.37	0.21	1	0					9.6	17	1.1	2.0		
2553370																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2553365	S36-17-37	1													
2553366	S36-17-37	1.1													
2553367	S36-17-37	2													
2553368	S36-17-37	2.1													
2553369	S36-17-37	3													
2553370	S36-17-37	3.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING

DATE RECEIVED: 08/21/2018 DATE REPORTED: 08/24/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2553371	W32-16-37 CORNERS	1	0-6	7.1				N	1.04	2.1	17.2	31	50				68
2553372	W32-16-37 CORNERS	1.1	6-24								2.9	16					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2553371	8	1012	2610	471	19	1.4	9.9	3.5	0.9	1.1	19.7	100	0	67	20	13	0
2553372																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2553371	4.39	1.86	0.31	0.18	1	0					7.7	14	1.0	1.8		
2553372																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2553371	W32-16-37 CORNERS	1													
2553372	W32-16-37 CORNERS	1.1													

Analysis By: American Ag. Lab

Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 08/24/2018 DATE REPORTED: 08/29/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2553886	04 SW32-16-37	1 N	0-6	7.2				M	1.34	2.3	19.8	36	44				60
2553887	04 SW32-16-37	1.1	6-24								14.6	79					
2553888	04 SW32-16-37	2 S	0-6	7.0				N	1.42	2.4	24.2	44	41				58
2553889	04 SW32-16-37	2.1	6-24								13.1	71					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2553886	8	940	3450	611	30	2.0	14.1	5.9	1.2	1.6	24.9	100	0	69	20	10	1
2553887																	
2553888	8	912	2640	504	35	2.2	18.6	6.1	1.2	1.4	19.9	100	0	66	21	12	1
2553889																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2553886	6.32	2.77	0.98	0.46	1	0					5.1	9	2.0	3.6		
2553887																
2553888	5.90	2.68	0.85	0.41	1	0					26.1	47	2.1	3.8		
2553889																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2553886	04 SW32-16-37	1													
2553887	04 SW32-16-37	1.1													
2553888	04 SW32-16-37	2													
2553889	04 SW32-16-37	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 10/10/2018 DATE REPORTED: 10/12/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1 1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2559455	09 SE5-18-36	1	0-6	7.4				M	1.10	2.4	8.4	15	11				21
2559456	09 SE5-18-36	1.1	6-24								5.6	30					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2559455	15	804	3230	601	46	0.8	7.8	2.1	0.6	0.8	23.4	100	0	69	21	9	1
2559456																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2559455	4.91	2.54	1.23	0.64	1	0					10.3	19	2.6	4.7		
2559456																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2559455	09 SE5-18-36	1													
2559456	09 SE5-18-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 10/10/2018 DATE REPORTED: 10/12/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2559457	NE33-17-36	1	0-6	6.4	6.8			N	0.64	2.3	6.3	11	30				40
2559458	NE33-17-36	1.1	6-24								2.2	12					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2559457	10	664	2440	596	35	0.9	19.4	5.0	1.0	0.7	21.0	90	10	57	24	8	1
2559458																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2559457	2.33	1.37	1.26	0.93	1	0					10.1	18	2.4	4.3		
2559458																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2559457	NE33-17-36	1													
2559458	NE33-17-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 10/16/2018 DATE REPORTED 10/18/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2560149	N 13-16-37	1N	0-6	7.0				N	0.96	2.2							
2560150	SW 33-17-36		0-6	7.4				M	1.10	2.2							

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2560149																	
2560150																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2560149																
2560150																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2560149	N 13-16-37	1N													
2560150	SW 33-17-36														

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 12/19/2018 DATE REPORTED 12/21/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2584737	06 NW33-17-36	1	0-6	7.1				N	0.70	2.5	9.0	16	36				49
2584738	06 NW33-17-36	1.1	6-24								2.9	16					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2584737	4	597	1980	478	31	1.1	15.0	2.9	0.6	0.5	15.5	100	0	63	26	10	1
2584738																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2584737	4.89	2.80	0.84	0.43	1	0					4.8	9	3.2	5.8		
2584738																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2584737	06 NW33-17-36	1													
2584738	06 NW33-17-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 12/19/2018 DATE REPORTED 12/21/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2584739	07 SW33-17-36	1 W	0-6	7.3				N	0.76	2.7	6.8	12	27				46
2584740	07 SW33-17-36	1.1	6-24								2.8	15					
2584741	07 SW33-17-36	2 E	0-6	7.8				H	1.04	2.3	7.1	13		11			38
2584742	07 SW33-17-36	2.1	6-24								5.2	28					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2584739	6	738	2530	605	38	1.4	8.8	1.8	0.8	0.9	19.7	100	0	63	26	10	1
2584740																	
2584741	6	806	3040	529	34	1.6	8.0	1.3	0.9	1.0	21.8	100	0	70	20	9	1
2584742																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2584739	3.73	2.08	0.78	0.46	1	0					6.4	12	2.1	3.8		
2584740																
2584741	2.90	1.32	0.66	0.45	1	0					5.6	10	1.4	2.5		
2584742																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2584739	07 SW33-17-36	1													
2584740	07 SW33-17-36	1.1													
2584741	07 SW33-17-36	2													
2584742	07 SW33-17-36	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 12/19/2018 DATE REPORTED 12/21/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1 1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2584743	08 NE5-18-36	1	0-6	6.4	6.8			N	0.98	2.8	24.2	44	42				54
2584744	08 NE5-18-36	1.1	6-24								6.8	37					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2584743	8	713	2010	530	31	0.8	21.8	6.7	0.8	0.5	18.4	89	11	54	24	10	1
2584744																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2584743	3.74	2.42	0.78	0.44	1	0					7.0	13	4.2	7.6		
2584744																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2584743	08 NE5-18-36	1													
2584744	08 NE5-18-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 12/19/2018 DATE REPORTED 12/21/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2584745	SE33-17-36	1	0-6	7.5				M	1.22	2.3	16.1	29	27				36
2584746	SE33-17-36	1.1	6-24								6.4	35					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2584745	6	789	2730	526	25	0.8	8.2	1.9	0.5	0.6	20.2	100	0	67	22	10	1
2584746																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2584745	4.39	2.08	0.59	0.33	1	0					4.7	8	1.8	3.2		
2584746																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2584745	SE33-17-36	1													
2584746	SE33-17-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 12/20/2018 DATE REPORTED: 12/26/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2585203	01 NE36-16-38	1 N	0-6	6.6	6.9			N	0.52	2.4	10.7	19	18				24
2585204	01 NE36-16-38	1.1	6-24								5.4	29					
2585205	01 NE36-16-38	2 S	0-6	7.3				L	1.10	2.5	8.8	16	22				27
2585206	01 NE36-16-38	2.1	6-24								4.0	22					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2585203	8	806	2030	505	39	0.7	8.5	2.1	0.5	0.5	17.6	94	6	57	24	12	1
2585204																	
2585205	7	719	2570	550	42	0.7	10.7	2.4	0.5	0.6	19.5	100	0	66	24	9	1
2585206																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2585203	2.02	1.31	0.75	0.58	1	0					5.8	10	1.0	1.8		
2585204																
2585205	4.86	2.62	0.93	0.48	1	0					7.6	14	1.3	2.3		
2585206																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2585203	01 NE36-16-38	1													
2585204	01 NE36-16-38	1.1													
2585205	01 NE36-16-38	2													
2585206	01 NE36-16-38	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 12/20/2018 DATE REPORTED: 12/26/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2585207	05 NW5-17-37	1 N	0-6	7.6				M	1.06	2.3	8.1	15		11			29
2585208	05 NW5-17-37	1.1	6-24								11.6	63					
2585209	05 NW5-17-37	2 S	0-6	7.6				H	0.84	2.3	9.3	18		6			20
2585210	05 NW5-17-37	2.1	6-24								12.1	65					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc Ca ppm	NH4OAc Mg ppm	NH4OAc Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2585207	6	775	3100	555	50	0.7	5.8	1.6	0.5	0.7	22.3	100	0	69	21	9	1
2585208																	
2585209	8	793	2760	509	30	0.6	3.9	1.4	0.5	0.8	20.2	100	0	68	21	10	1
2585210																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE Mg me/L	SOLUBLE Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2585207	3.78	1.96	0.81	0.48	1	0					5.0	11	1.0	1.8		
2585208																
2585209	3.16	1.62	0.71	0.46	1	0					5.3	10	0.8	1.4		
2585210																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2585207	05 NW5-17-37	1													
2585208	05 NW5-17-37	1.1													
2585209	05 NW5-17-37	2													
2585210	05 NW5-17-37	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 02/20/2019 DATE REPORTED 02/25/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1 1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2597198	N 13-16-37	1 N	0-6	6.9	6.9			N	0.62	2.4	20.5	37	69				93
2597199	N 13-16-37	1.1	6-24								19.8	107					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2597198	5	953	2470	439	17	2.1	12.4	6.1	0.9	0.9	19.5	95	5	63	19	13	0
2597199																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2597198	4.31	2.05	0.92	0.52	1	0					4.7	8	14.5	26.1		
2597199																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2597198	N 13-16-37	1													
2597199	N 13-16-37	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 02/20/2019 DATE REPORTED: 02/25/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2597200	N 13-16-37	2 S	0-6	7.2				N	0.38	2.1	6.9	12	47				61
2597201	N 13-16-37	2.1	6-24								5.4	29					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2597200	2	858	2490	412	13	1.0	10.5	3.0	0.7	0.7	18.1	100	0	69	19	12	0
2597201																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2597200	5.06	2.05	0.29	0.15	1	0					4.5	8	2.0	3.6		
2597201																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2597200	N 13-16-37	2													
2597201	N 13-16-37	2.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 02/20/2019 DATE REPORTED: 02/25/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2597202	S36-17-37	1 N	0-6	7.7				M	0.88	2.1	10.9	20		13			36
2597203	S36-17-37	1.1	6-24								5.0	27					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2597202	3	752	2860	501	14	1.7	7.2	2.7	0.8	1.1	20.5	100	0	71	20	9	0
2597203																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2597202	5.79	4.79	0.42	0.18	1	0					3.3	6	2.1	3.8		
2597203																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2597202	S36-17-37	1													
2597203	S36-17-37	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 03/22/2019 DATE REPORTED 03/27/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2600456	04 SW32-16-37	1	0-6								17.8	32					
2600457	04 SW32-16-37	1.1	6-24								13.7	74					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2600456																	
2600457																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2600456																
2600457													4.0	7.2		

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2600456	04 SW32-16-37	1													
2600457	04 SW32-16-37	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 03/22/2019 DATE REPORTED: 03/27/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2600458	09 SE5-18-36	1	0-6								11.4	21					
2600459	09 SE5-18-36	1.1	6-24								8.1	44					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	NH4OAc (Exchangeable) Ca ppm	NH4OAc (Exchangeable) Mg ppm	NH4OAc (Exchangeable) Na ppm	DTPA Zn ppm	DTPA Fe ppm	DTPA Mn ppm	DTPA Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	% SATURATION H	% SATURATION Ca	% SATURATION Mg	% SATURATION K	% SATURATION Na
2600458																	
2600459																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	SOLUBLE (SAT. EXT.) Mg me/L	SOLUBLE (SAT. EXT.) Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	PARTICLE SIZE ANALYSIS SILT %	PARTICLE SIZE ANALYSIS CLAY %	PARTICLE SIZE ANALYSIS SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2600458																
2600459													4.1	7.4		

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2600458	09 SE5-18-36	1													
2600459	09 SE5-18-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME: GARY BERNING DATE RECEIVED: 03/22/2019 DATE REPORTED: 03/27/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2600460	NE33-17-36	1	0-6								11.9	21					
2600461	NE33-17-36	1.1	6-24								8.5	46					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2600460																	
2600461																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2600460																
2600461													4.3	7.7		

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2600460	NE33-17-36	1													
2600461	NE33-17-36	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED 03/22/2019 DATE REPORTED 03/27/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1 1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2600462	NW5-17-37 CORNERS	1	0-6								12.9	23					
2600463	NW5-17-37 CORNERS	1.1	6-24								8.4	45					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2600462																	
2600463																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2600462													10.6	19.1		
2600463																

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2600462	NW5-17-37 CORNERS	1													
2600463	NW5-17-37 CORNERS	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME GARY BERNING DATE RECEIVED: 03/22/2019 DATE REPORTED: 03/27/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2600464	SEC33-17-36 CORNERS	1	0-6								15.8	28					
2600465	SEC33-17-36 CORNERS	1.1	6-24								18.1	98					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2600464																	
2600465																	

LAB NUMBER	SOLUBLE (SAT EXT) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2600464																
2600465													11.0	19.8		

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2600464	SEC33-17-36 CORNERS	1													
2600465	SEC33-17-36 CORNERS	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 37871

NAME GARY BERNING DATE RECEIVED: 03/22/2019 DATE REPORTED: 03/27/2019

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1:1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2600466	W32-16-37 CORNERS	1	0-6								18.2	33					
2600467	W32-16-37 CORNERS	1.1	6-24								15.6	84					

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2600466																	
2600467																	

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2600466																
2600467													13.2	23.8		

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2600466	W32-16-37 CORNERS	1													
2600467	W32-16-37 CORNERS	1.1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab

Soil Test Trends NW20-18-36

Date	Field_ID	ph	nh4 ppm	nh4 lbs	NO3 ppm	NO3lbs	Bray_P1_ppm	K_ppm	Na_ppm	Na_Sat_pct	Soluble_Salts	
6/20/2011	NW 20 18 36	7.3	5.9	10.6	16.7	30	8	704	17	0	1.12	
4/29/2013	NW 20 18 36	7	3.3	5.9	7.1	13	13	786	22	0	0.74	
7/9/2013	NW 20 18 36	7.8	4.7	8.5	3.6	6	7	523	32	1	0.62	0-6 in
8/23/2013	NW 20 18 36	7	5	9	27.1	49	57	891	49	1	1.54	
9/18/2014	NW 20 18 36	7.35	3.7	6.65	40.05	72	82	790	69	1	1.64	
7/14/2015	NW 20 18 36	7.4	4.3	7.7	8.4	15	89	821	46	1	0.96	
7/13/2017	NW 20 18 36	7.5	0.4	0.7	1.6	3	88	854	32	1	0.82	

6/20/2011	NW 20 18 36	7.8	5.2	28.1	3.8	21	2	586	25	1	1.12	
4/29/2013	NW 20 18 36	7.9	3.1	16.7	7.4	40	1	568	22	0	0.9	
7/9/2013	NW 20 18 36	6.7	4.4	23.8	12.8	69	13	701	24	1	0.9	
8/23/2013	NW 20 18 36	7.7	5.3	28.6	14.3	77	15	597	34	1	1.36	6-24 in
9/18/2014	NW 20 18 36	7.9	3	16.2	31.2	168.5	7	493.5	52.5	1	1.38	
7/14/2015	NW 20 18 36	8	3.9	21.1	7.5	41	2	514	41	1	0.96	
7/13/2017	NW 20 18 37	8.2	1.2	6.5	1.8	10	3	511	48	1	0.76	

Soil Test Trends SW20-18-36

date	Field_ID	ph	NH4 ppm	NH4 lb	no3 ppm	no3 lb	Bray_P1_ppm	K ppm	Na ppm	NA sat %	Salt	**0-6 inch**
6/20/2011	SW 20 18 36	7.2	4.6	8.3	10.3	19	7	746	19	0	1.06	
4/29/2013	SW 20 18 36	6.8	3.7	6.7	21.8	39	16	821	13	0	1.18	
9/17/2013	SW 20 18 36	7.4	1.7	3.1	7	13	31	761	44	1	1.12	
7/23/2014	SW 20 18 36	7.5	5.1	9.2	5.1	9	54	870	61	1	1.12	
7/14/2016	SW 20 18 36	7.2	2.2	4	10.5	19	82	874	32	1	1.4	
7/16/2018	SW20 18 36	6.9	1.5	2.7	3.3	6	97	889	64	1	1.34	

6/20/2011	SW 20 18 36	7.9	3.6	19.4	3.8	21	4	598	26	1	0.96	**6-24 inch**
4/29/2013	SW 20 18 36	7.8	3.8	20.5	7.9	43	1	559	21	0	1	
9/17/2013	SW 20 18 36	8	1	5.4	6.8	37	1	580	28	0	1.24	
7/23/2014	SW 20 18 36	8.1	3.5	18.9	7.3	39	1	484	37	1	1.08	
7/14/2016	SW 20 18 36	8.1	3.1	16.7	3.7	20	1	490	29	1	1.14	
7/16/2018	SW20 18 36	7.8	1.6	8.6	5.7	31	24	564	56	1	1.44	

American Agricultural Laboratory, Inc.

210 East 1st / PO Box 370 / McCook, Nebraska 69001
Office: 308-345-3670 / FAX: 308-345-7880
www.AmAgLab.com

38042
SKYLER JAMES
CROP QUEST
1202 COLLEGE
SCOTT CITY KS 67871

NAME: ESE ALCOHOL DATE RECEIVED: 07/16/2018 DATE REPORTED: 07/18/2018

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH 1 : 1 Soil	pH Buffer Woodruff	LIME REC T/A 60% ECCE Legume	LIME REC T/A 60% ECCE Non Legume	EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA) ppm	NITRATE-N (FIA) lbs/A	PHOSPHORUS P1 ppm	PHOSPHORUS Bicarb ppm	PHOSPHORUS P2 ppm	PHOSPHORUS M2 ppm	PHOSPHORUS M3 ppm
2550282	SW20 18 36 CORNERS	1	0-6	7.0				L	0.90	1.9	3.9	7	16	9	109	20	22
2550283	SW20 18 36 CORNERS	1	6-24	7.8				H	1.30	1.6	7.4	40	9	4	59	14	16
2550284	SW20 18 36	1	0-6	6.9	6.9			N	1.34	1.9	3.3	6	97	64	206	99	102
2550285	SW20 18 36	1	6-24	7.8				H	1.44	1.6	5.7	31	24	15	106	32	34
2550286	SW17 18 36	1	0-6	6.4	6.7			N	1.30	1.9	22.8	41	197	121	333	198	200
2550287	SW17 18 36	1	6-24	7.8				H	1.50	1.6	11.1	60	49	63	142	98	104

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable) K ppm	Ca ppm	Mg ppm	Na ppm	DTPA Zn ppm	Fe ppm	Mn ppm	Cu ppm	BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION BASE	H	Ca	Mg	K	Na
2550282	5	726	2690	421	44	0.2	5.1	4.7	0.7	0.9	19.0	100	0	71	18	10	1
2550283	4	558	3460	533	53	0.1	4.2	1.9	0.8	1.3	23.4	100	0	74	19	6	1
2550284	6	889	2450	525	64	0.4	7.0	3.0	0.8	1.0	20.2	95	5	61	22	11	1
2550285	9	564	3130	545	56	0.2	4.8	1.7	0.9	1.3	21.9	100	0	71	21	7	1
2550286	4	1029	2070	515	59	0.8	25.1	9.9	1.2	1.0	20.5	85	15	50	21	13	1
2550287	7	656	2820	548	120	0.3	11.2	2.7	1.0	1.7	20.9	100	0	68	22	8	2

LAB NUMBER	SOLUBLE (SAT. EXT.) Ca me/L	Mg me/L	Na me/L	SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE	CHLORIDE ppm	CHLORIDE lbs/A	EXCH. NH4-N ppm	EXCH. NH4-N lbs/A	ALUMINUM ppm	TOTAL N %
2550282	1.83	0.77	0.89	0.78	1	0	23	60	17	SILT LOAM	7.3	13	3.1	5.6	0.1	0.122
2550283	2.52	0.92	0.44	0.34	1	0	23	58	19	SILT LOAM	6.8	37	1.4	7.6	0.1	0.097
2550284	2.08	0.97	0.99	0.80	1	0	21	60	19	SILT LOAM	20.6	37	1.5	2.7	0.1	0.125
2550285	3.03	1.32	1.21	0.82	1	0	19	62	19	SILT LOAM	21.5	116	1.6	8.6	0.1	0.097
2550286	3.05	1.85	1.39	0.89	1	0	21	60	19	SILT LOAM	13.6	24	2.1	3.8	0.1	0.109
2550287	2.31	1.11	2.52	1.93	2	0	25	58	17	SILT LOAM	16.6	90	1.1	5.9	0.1	0.087

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N lbs/A	P2O5 lbs/A	K2O lbs/A	S lbs/A	Zn lbs/A	MgO lbs/A	Fe lbs/A	Mn lbs/A	Cu lbs/A	B lbs/A	Cl lbs/A
2550282	SW20 18 36 CORNERS	1													
2550283	SW20 18 36 CORNERS	1													
2550284	SW20 18 36	1													
2550285	SW20 18 36	1													
2550286	SW17 18 36	1													
2550287	SW17 18 36	1													

Analysis By: American Ag. Lab Recommendations By: American Ag Lab