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TALON LPE

Work Plan
Cimarex Energy Company: Pintail 23 Federal Com #008H (Revision 2)
|30-015-38657|2RP-4006|

April 12, 2017

Prepared By:

TALON/LPE
408 W. Texas Avenue
Artesia, New Mexico 88210

Prepared For:

Cimarex Energy Company

Ms. Christine Alderman
Cimarex Energy Company
600 N. Marienfeld Ste. 600
Midland, TX 79701

Subject: **Soil Assessment and Remediation Work Plan**
Cimarex Energy Co.
Pintail 23 Fed Com #008H |30-015-38657|2RP-4006|

Dear Ms. Alderman,

Cimarex Energy Company (Cimarex) has contracted Talon/LPE (Talon) to perform soil sampling and remediation services at the above referenced location. The results of our soil assessment and proposed remediation activities consist of the following.

Site Information

The Cimarex Pintail 23 Fed Com #8H is located approximately twenty-five (25) miles south of Carlsbad, New Mexico. The legal location for this facility is Unit Letter M, Section 23, Township 25S South and Range 26 East in Eddy County, New Mexico. More specifically the latitude and longitude are 32.1087494 North and -104.2693253 West. A site plan is presented in Appendix I.

According to the soil survey provided by the United States Department of Agriculture Natural Resources Conservation Service, the soil in this area is made up of the Reagan-Gypsum land complex with 0 to 3 percent slopes. Drainage courses in this area are normally dry.

Ground Water and Site Ranking

According to the New Mexico Office of the State Engineer database, the ground water in this area is approximately 35-feet below ground surface (BGS). The referenced ground water data is presented in Appendix II. Therefore the ranking for this site is a **20** based on the following:

Depth to ground water	<50’
Wellhead Protection Area	>1000’
Distance to surface water body	>1000’

Based upon the site ranking of **20**, NMOCD Recommended Remedial Action Levels (RRAL’s) are 50 mg/kg for BTEX, 10 mg/kg for Benzene, 100 mg/kg for TPH and the recommended guideline for Total Chlorides is 1,000 mg/kg.

Incident Description and Initial Remedial Actions

On November 20, 2016 a 2-inch threaded fitting on a water line failed due to corrosion. This resulted in a release of approximately 50bbls of produced water. Approximately 2bbls of produced water were recovered. The fluid from this release impacted the pasture east of the location measuring approximately 280-feet by 120-feet. On December 2, 2016, Talon mobilized personnel to the site to perform an initial site assessment and to collect soil samples within the impacted area. The soil samples were analyzed TPH, BTEX, total chlorides, and detailed salinity. The analytical results from the soil analysis are summarized in the table below.

Laboratory Results

See Appendix IV for complete report of laboratory results.

Sample ID	Depth ft	BTEX mg/kg	TPH mg/kg	Chloride mg/kg	pH	EC mmhos/cm	Sodium meq/L	Potassium meq/L	Calcium meq/L	Magnesium meq/L	SAR
S-1	0	<0.300	<10.0	11,627	7.2	100.5	928.49	16.33	167.26	17.86	96.51
S-1	1	--	--	10,635	7.2	73.6	13109.00	373.00	4224.00	165.00	53.86
S-1	2	--	--	3,899	7.2	39.3	64.01	0.57	34.05	23.50	11.94
S-1	3	--	--	1,063	7.5	7	16.51	0.30	47.13	4.76	3.24
S-1	4	--	--	2,410	7.4	18.3	50.34	0.41	131.15	11.09	5.97
S-1	5	--	--	1,489	7.6	12.47	44.45	0.36	74.68	5.72	7.14
S-1	6	--	--	921	7.7	4.67	8.55	0.30	39.94	3.34	1.84
S-1	7	--	--	128*	7.8	2.86	6.16	0.72	31.29	1.78	1.52
S-2	0	<0.300	<10.0	5,246	7	62.8	471.31	5.11	159.55	8.14	51.47
S-2	1	--	--	141	7.4	4.88	13.70	0.39	37.93	1.36	3.09
S-2	2	--	--	64*	--	--	--	--	--	--	--
S-3	0	<0.300	<10.00	4,537	7.1	47.7	391.09	3.18	178.71	5.32	40.77
S-3	1	--	--	212	7.6	5.16	14.34	0.42	38.89	1.51	3.19
S-3	2	--	--	128*	7.6	4.4	13.46	0.36	33.46	1.13	3.24
S-4	0	<0.300	<10.00	8,720	7.2	86.7	734.56	13.13	205.89	10.49	70.62
S-4	1	--	--	5,246	7.3	33.1	166.12	1.54	190.31	6.58	16.74
S-4	2	--	--	141	7.9	3.39	7.61	0.34	30.56	1.25	1.91
S-4	3	--	--	144*	7.9	2.7	4.50	0.32	29.66	1.38	1.14
S-5	0	<0.300	<10.00	5,884	7.4	40.4	348.43	3.50	176.69	5.33	36.52
S-5	1	--	--	921	7.8	6.23	30.01	0.73	32.44	1.73	7.26
S-5	2	--	--	141	7.8	2.86	6.08	0.37	30.09	0.86	1.55
S-5	3	--	--	80*	8	2.8	5.96	0.36	22.91	3.38	1.65

(--) Analyte Not Tested
(*) Laboratory Chloride Confirmation

Proposed Remedial Actions

- The impacted area in the vicinity of sample location S-1 will be excavated to a depth of 6-feet BGS.
- The impacted area in the vicinity of sample locations S-2, S-3, and S-5 will be excavated to a depth of 1-foot BGS.
- The impacted area in the vicinity of sample location S-4 will be excavated to a depth of 2-feet BGS.
- All of the excavated soil will be treated with gypsum (CASO4) in order to replace sodium on the soil cation exchange complex. The soil will then be put into a leaching basin (described below) at a thickness of 2-feet. The soil will be flushed with fresh water to remove the chloride and sodium. The leachate generated from this process will be recovered and transported to an SWD for disposal.
- The location will be downsized per BLM interim reclamation guidelines. Prior to downsizing, surface samples will be taken from the proposed downsize area and analyzed for total chlorides to insure that the total chloride concentration is below NMOCD RRAL's.
- Should the laboratory chloride analysis indicate that the soil within the proposed downsize area is suitable, the caliche will be utilized to backfill the bottom of the excavation within the remediation area.
- The remaining sidewalls of the excavated area will be sloped in order to allow for safe ingress/egress of personnel, livestock and wildlife.
- Quarterly sampling of the soil within the leaching basin will be carried out. Samples will be taken from 3 locations longitudinally across the leaching basin at depths of 1 and 2 feet below soil surface. The soil samples will be analyzed for detailed salinity and total chlorides.
- Once laboratory results indicate that the soil has been remediated in accordance with NMOCD and BLM guidelines, the soil will be used to complete the backfill of the excavated area, contoured to match the surrounding terrain, and seeded with BLM #1 seed mixture.

Leak Detection Construction

Due to the shallow groundwater in the vicinity of this site NMOCD has requested that leak detection system be installed beneath the leaching basin. Based on site conditions it is our determination that the most practicable and reliable leak detection system will consist of the following design. A basin will be constructed utilizing earthen berms. A 20-mil poly liner will be installed to encapsulate the basin and 0.5-feet of gravel will be installed in the bottom of the basin to allow any potential fluid to flow downgradient to a collection point. Perforated PVC pipe will be installed at the collection point. The collection point will be inspected for the presence of water during the quarterly sampling events. Should water be detected, NMOCD and BLM will be notified.

Leaching Basin Construction

The soil leaching basin will be constructed north of the impacted area and east of the tank battery. The basin will be constructed with earthen berms and lined with a 40-mil poly liner (padded with felt). Once the liner is installed a gravel bed with 4-inch perforated drainage pipes will be placed within the lined berms. The gravel and drainage pipes will extend to a sump constructed at the down gradient end of the leaching basin. The sump will be contained with a 20-mil poly liner and welded to the liner on the leaching basin. A layer of geotextile will be placed over the gravel bed in order to prevent soil particles from filling the pore spaces in the gravel, while simultaneously allowing for movement of water into the gravel bed. Once the water enters the gravel bed it will flow down gradient into the sump for recovery.

Should you have any questions or if further information is required, please do not hesitate to contact our office at (575)-746-8768

Respectfully submitted,

TALON/LPE

Sheldon L. Hitchcock
Project Manager

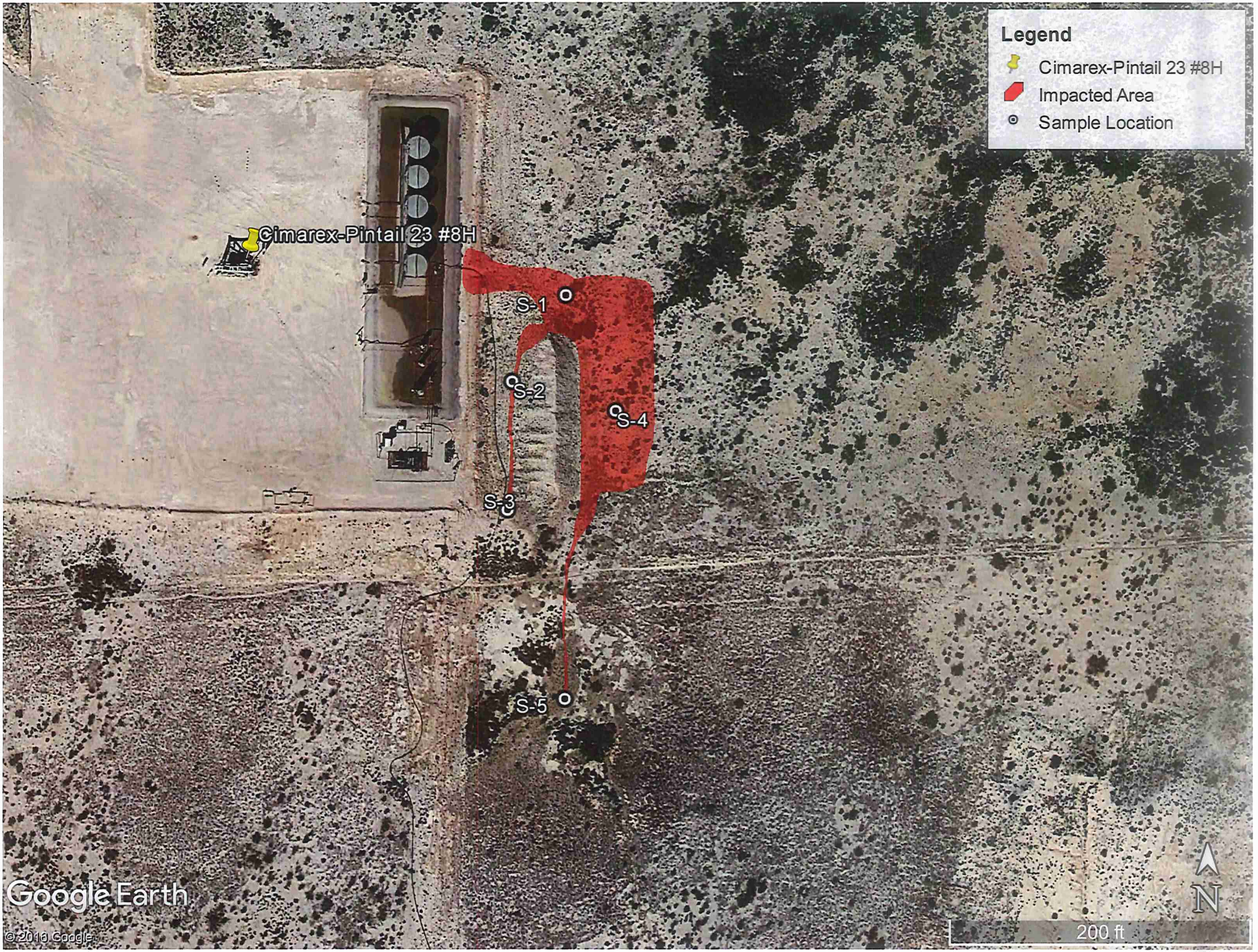
David J. Adkins
District Manager

Attachments

Appendix I	Site Plan
Appendix II	Groundwater Data
Appendix III	Initial C-141
Appendix IV	Laboratory Results

APPENDIX I

SITE PLAN


Legend
Cimarex-Pintail 23 #8H
Impacted Area
Sample Location
Cimarex-Pintail 23 #8H
S-1
S-2
S-3
S-4
S-5
Google Earth
© 2018 Google
N
200 ft

APPENDIX II

GROUNDWATER DATA

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW###### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03655 POD3	CUB	ED	1	4	4	22	25S	26E	568458	3553019	465			
C 02220	CUB	ED	3	1	2	26	25S	26E	569598	3552352*	862	35		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 2

Basin/County Search:

County: Eddy

UTMNAD83 Radius Search (in meters):

Easting (X): 568890 **Northing (Y):** 3552845 **Radius:** 1000

***UTM location was derived from PLSS - see Help**

APPENDIX III

INITIAL C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1632841630

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Cimarex Energy 162683	Contact Christine Alderman
Address 600 N Marienfeld Ste 600 Midland TX	Telephone No. 432-853-7059
Facility Name Pintail 23 #8H	Facility Type production

Surface Owner	Mineral Owner	API No. 30-015-38657

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	23	25S	26E	250	S	800	W	Eddy

Latitude_32.10874_Longitude -104.26932

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 50 bbls	Volume Recovered 2 bbls
Source of Release piping	Date and Hour of Occurrence 11/20/2016	Date and Hour of Discovery 11/20/2016
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Shelly Tucker/Heather Patterson/Mike Bratcher	
By Whom? Christine Alderman	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.

Describe Cause of Problem and Remedial Action Taken.
A 2" threaded fitting corroded and failed.

Describe Area Affected and Cleanup Action Taken.
The affected area was pasture area and was approximately 2' wide by 25' long. We will delineate and submit a work plan to remediate.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Christine Alderman	OIL CONSERVATION DIVISION
Printed Name: Christine Alderman	Approved by Environmental Specialist:
Title: ESH Supervisor	Approval Date: 11/22/16 Expiration Date: N/A
E-mail Address: calderman@cimarex.com	Conditions of Approval: Attached ☑
Date: 11/21/2016 Phone: 432-853-7059	

* Attach Additional Sheets If Necessary

2RP-4006

APPENDIX IV

LABORATORY RESULTS

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

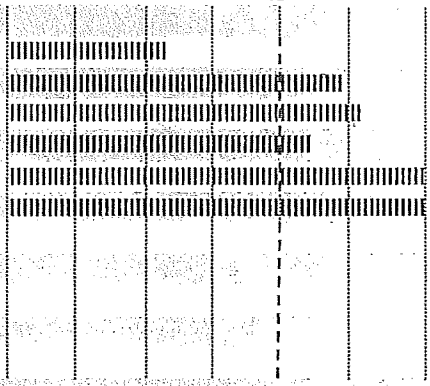
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472168
Customer Sample ID: S-1 0
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.8	(5.8)	-	Mod. Alkaline	
Conductivity	6,450	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	13	(50)	ppm		50 lbs P2O5/acre
Potassium	396	(125)	ppm		0 lbs K20/acre
Calcium	17,808	(180)	ppm		0 lbs Ca/acre
Magnesium	200	(50)	ppm		0 lbs Mg/acre
Sulfur	5,410	(13)	ppm		0 lbs S/acre
Sodium	9,748	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.2	
Conductivity	100.50 mmhos/cm	
Sodium	21337 ppm	928.486 meq/L
Potassium	638 ppm	16.328 meq/L
Calcium	3352 ppm	167.258 meq/L
Magnesium	217 ppm	17.861 meq/L
SAR	96.51	
SSP	82.17	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

**New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html**

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

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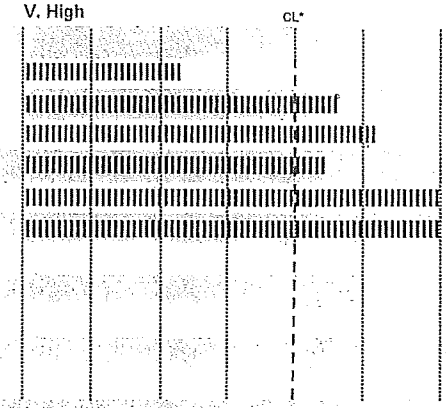
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472169
Customer Sample ID: S-1 1
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.6	(5.8)	-	Mod. Alkaline	
Conductivity	6,360	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	14	(50)	ppm		50 lbs P2O5/acre
Potassium	300	(125)	ppm		0 lbs K20/acre
Calcium	17,185	(180)	ppm		0 lbs Ca/acre
Magnesium	190	(50)	ppm		0 lbs Mg/acre
Sulfur	1,648	(13)	ppm		0 lbs S/acre
Sodium	8,413	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.2	
Conductivity	73.60 mmhos/cm	
Sodium	13109 ppm	570.431 meq/L
Potassium	373 ppm	9.552 meq/L
Calcium	4224 ppm	210.772 meq/L
Magnesium	165 ppm	13.524 meq/L
SAR	53.86	
SSP	70.92	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates. http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

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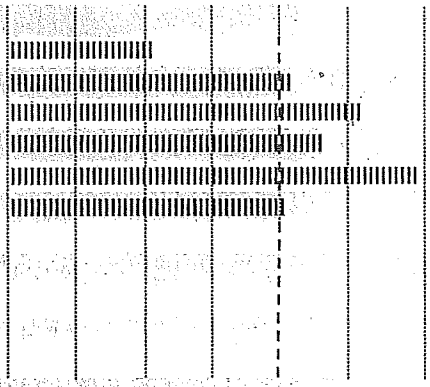
Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472170
Customer Sample ID: S-1 2
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.7	(5.8)	-	Mod. Alkaline	
Conductivity	4,710	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	12	(50)	ppm		50 lbs P2O5/acre
Potassium	163	(125)	ppm		0 lbs K20/acre
Calcium	21,931	(180)	ppm		0 lbs Ca/acre
Magnesium	325	(50)	ppm		0 lbs Mg/acre
Sulfur	597	(13)	ppm		0 lbs S/acre
Sodium	1,068	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.2	
Conductivity	39.30 mmhos/cm	
Sodium	1472 ppm	64.049 meq/L
Potassium	22 ppm	0.569 meq/L
Calcium	682 ppm	34.053 meq/L
Magnesium	286 ppm	23.496 meq/L
SAR	11.94	
SSP	52.43	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472171
Customer Sample ID: S-1 3
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	2,010	(-)	umho/cm	High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	5	(50)	ppm		60 lbs P2O5/acre
Potassium	129	(125)	ppm		0 lbs K20/acre
Calcium	36,367	(180)	ppm		0 lbs Ca/acre
Magnesium	225	(50)	ppm		0 lbs Mg/acre
Sulfur	758	(13)	ppm		0 lbs S/acre
Sodium	329	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.5	
Conductivity	7.00 mmhos/cm	
Sodium	379 ppm	16.505 meq/L
Potassium	12 ppm	0.303 meq/L
Calcium	945 ppm	47.134 meq/L
Magnesium	58 ppm	4.763 meq/L
SAR	3.24	
SSP	24.02	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472172
Customer Sample ID: S-1 4
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	3,300	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	8	(50)	ppm		55 lbs P2O5/acre
Potassium	65	(125)	ppm		55 lbs K20/acre
Calcium	31,150	(180)	ppm		0 lbs Ca/acre
Magnesium	187	(50)	ppm		0 lbs Mg/acre
Sulfur	5,027	(13)	ppm		0 lbs S/acre
Sodium	654	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.4	
Conductivity	18.30 mmhos/cm	
Sodium	1157 ppm	50.335 meq/L
Potassium	16 ppm	0.411 meq/L
Calcium	2628 ppm	131.147 meq/L
Magnesium	135 ppm	11.087 meq/L
SAR	5.97	
SSP	26.08	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

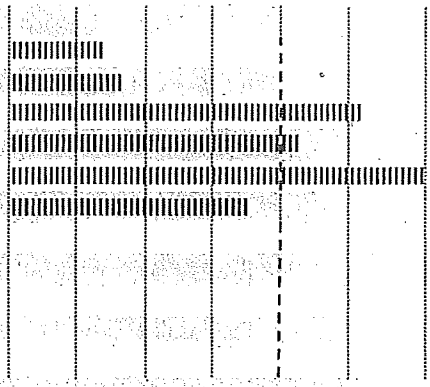
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472173
Customer Sample ID: S-1 5
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.1	(5.8)	-	Mod. Alkaline	
Conductivity	2,230	(-)	umho/cm	High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	7	(50)	ppm		55 lbs P2O5/acre
Potassium	37	(125)	ppm		80 lbs K20/acre
Calcium	28,799	(180)	ppm		0 lbs Ca/acre
Magnesium	135	(50)	ppm		0 lbs Mg/acre
Sulfur	5,242	(13)	ppm		0 lbs S/acre
Sodium	770	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.6	
Conductivity	12.47 mmhos/cm	
Sodium	1021 ppm	44.446 meq/L
Potassium	14 ppm	0.355 meq/L
Calcium	1437 ppm	71.684 meq/L
Magnesium	70 ppm	5.716 meq/L
SAR	7.14	
SSP	36.37	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates. http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
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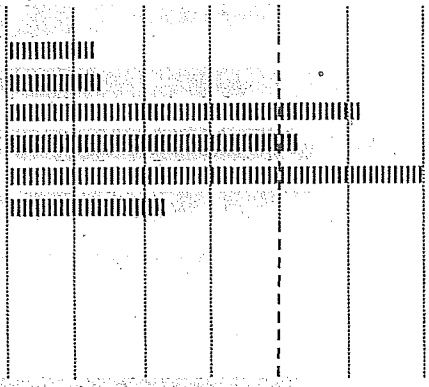
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472174
Customer Sample ID: S-1 6
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.2	(5.8)	-	Mod. Alkaline	
Conductivity	1,580	(-)	umho/cm	High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	6	(50)	ppm		60 lbs P2O5/acre
Potassium	30	(125)	ppm		90 lbs K20/acre
Calcium	30,974	(180)	ppm		0 lbs Ca/acre
Magnesium	128	(50)	ppm		0 lbs Mg/acre
Sulfur	5,234	(13)	ppm		0 lbs S/acre
Sodium	153	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.7	
Conductivity	4.67 mmhos/cm	
Sodium	197 ppm	8.554 meq/L
Potassium	12 ppm	0.298 meq/L
Calcium	800 ppm	39.935 meq/L
Magnesium	41 ppm	3.340 meq/L
SAR	1.84	
SSP	16.41	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
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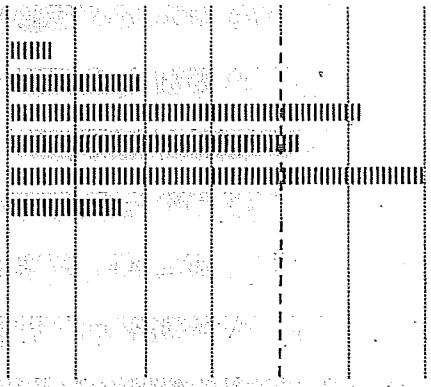
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472175
Customer Sample ID: S-1 7
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.1	(5.8)	-	Mod. Alkaline	
Conductivity	1,430	(-)	umho/cm	Moderate	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	4	(50)	ppm		60 lbs P2O5/acre
Potassium	46	(125)	ppm		75 lbs K20/acre
Calcium	32,453	(180)	ppm		0 lbs Ca/acre
Magnesium	112	(50)	ppm		0 lbs Mg/acre
Sulfur	5,053	(13)	ppm		0 lbs S/acre
Sodium	82	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.8	
Conductivity	2.86 mmhos/cm	
Sodium	142 ppm	6.164 meq/L
Potassium	11 ppm	0.272 meq/L
Calcium	627 ppm	31.292 meq/L
Magnesium	22 ppm	1.783 meq/L
SAR	1.52	
SSP	15.60	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

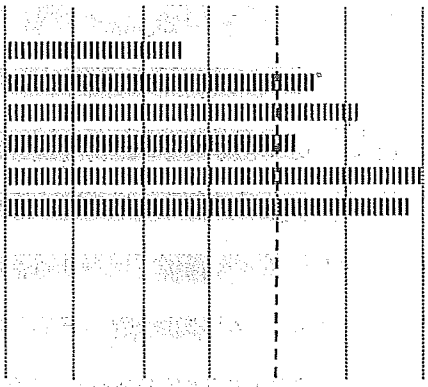
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472176
Customer Sample ID: S-2 0
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.5	(5.8)	-	Slightly Alkaline	
Conductivity	6,190	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	16	(50)	ppm		45 lbs P2O5/acre
Potassium	288	(125)	ppm		0 lbs K20/acre
Calcium	18,367	(180)	ppm		0 lbs Ca/acre
Magnesium	139	(50)	ppm		0 lbs Mg/acre
Sulfur	6,112	(13)	ppm		0 lbs S/acre
Sodium	6,440	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.0	
Conductivity	62.80 mmhos/cm	
Sodium	10831 ppm	471.314 meq/L
Potassium	200 ppm	5.110 meq/L
Calcium	3197 ppm	159.552 meq/L
Magnesium	99 ppm	8.141 meq/L
SAR	51.47	
SSP	73.17	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472177
Customer Sample ID: S-2 1
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	2,050	(-)	umho/cm	High	
Nitrate-N	2	(-)	ppm**		55 lbs N/acre
Phosphorus	11	(50)	ppm		50 lbs P2O5/acre
Potassium	228	(125)	ppm		0 lbs K20/acre
Calcium	16,092	(180)	ppm		0 lbs Ca/acre
Magnesium	125	(50)	ppm		0 lbs Mg/acre
Sulfur	2,026	(13)	ppm		0 lbs S/acre
Sodium	375	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.4	
Conductivity	4.88 mmhos/cm	
Sodium	315 ppm	13.697 meq/L
Potassium	15 ppm	0.389 meq/L
Calcium	760 ppm	37.934 meq/L
Magnesium	17 ppm	1.362 meq/L
SAR	3.09	
SSP	25.66	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
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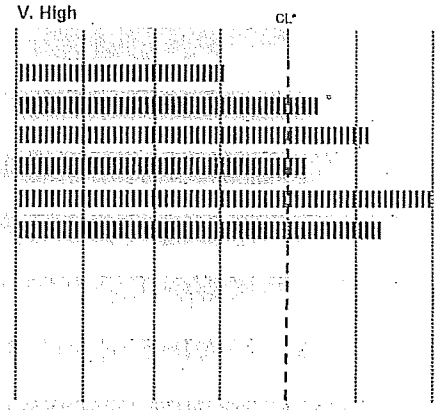
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472178
Customer Sample ID: S-3 0
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	5,270	(-)	umho/cm	V. High	
Nitrate-N	1	(-)	ppm**		55 lbs N/acre
Phosphorus	22	(50)	ppm		35 lbs P2O5/acre
Potassium	230	(125)	ppm		0 lbs K20/acre
Calcium	18,063	(180)	ppm		0 lbs Ca/acre
Magnesium	134	(50)	ppm		0 lbs Mg/acre
Sulfur	6,000	(13)	ppm		0 lbs S/acre
Sodium	4,211	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.1	
Conductivity	47.70 mmhos/cm	
Sodium	8987 ppm	391.094 meq/L
Potassium	124 ppm	3.183 meq/L
Calcium	3581 ppm	178.707 meq/L
Magnesium	65 ppm	5.316 meq/L
SAR	40.77	
SSP	67.63	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472179
Customer Sample ID: S-3 1
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.8	(5.8)	-	Mod. Alkaline	
Conductivity	2,140	(-)	umho/cm	High	
Nitrate-N	2	(-)	ppm**	CL*	55 lbs N/acre
Phosphorus	12	(50)	ppm		50 lbs P2O5/acre
Potassium	246	(125)	ppm		0 lbs K20/acre
Calcium	15,240	(180)	ppm		0 lbs Ca/acre
Magnesium	148	(50)	ppm		0 lbs Mg/acre
Sulfur	2,336	(13)	ppm		0 lbs S/acre
Sodium	422	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.6	
Conductivity	5.16 mmhos/cm	
Sodium	329 ppm	14.335 meq/L
Potassium	16 ppm	0.418 meq/L
Calcium	779 ppm	38.890 meq/L
Magnesium	18 ppm	1.512 meq/L
SAR	3.19	
SSP	25.99	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472180
Customer Sample ID: S-3 2
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.1	(5.8)	-	Mod. Alkaline	
Conductivity	1,520	(-)	umho/cm	Moderate	
Nitrate-N	0	(-)	ppm**	CL*	55 lbs N/acre
Phosphorus	7	(50)	ppm		55 lbs P2O5/acre
Potassium	45	(125)	ppm		75 lbs K20/acre
Calcium	20,117	(180)	ppm		0 lbs Ca/acre
Magnesium	58	(50)	ppm		0 lbs Mg/acre
Sulfur	6,142	(13)	ppm		0 lbs S/acre
Sodium	171	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.6	
Conductivity	4.40 mmhos/cm	
Sodium	309 ppm	13.459 meq/L
Potassium	14 ppm	0.362 meq/L
Calcium	671 ppm	33.459 meq/L
Magnesium	14 ppm	1.129 meq/L
SAR	3.24	
SSP	27.80	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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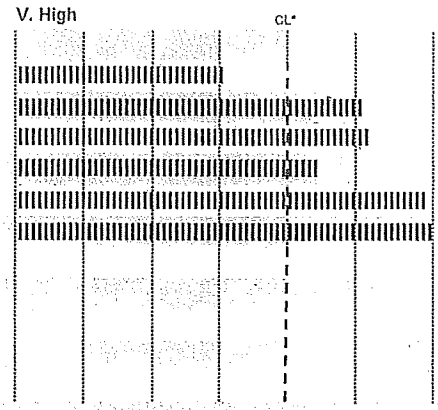
Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472181
Customer Sample ID: S-4 0
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.7	(5.8)	-	Mod. Alkaline	
Conductivity	6,250	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	29	(50)	ppm		25 lbs P2O5/acre
Potassium	453	(125)	ppm		0 lbs K20/acre
Calcium	10,009	(180)	ppm		0 lbs Ca/acre
Magnesium	195	(50)	ppm		0 lbs Mg/acre
Sulfur	893	(13)	ppm		0 lbs S/acre
Sodium	8,505	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.2	
Conductivity	86.70 mmhos/cm	
Sodium	16880 ppm	734.556 meq/L
Potassium	513 ppm	13.131 meq/L
Calcium	4126 ppm	205.893 meq/L
Magnesium	128 ppm	10.485 meq/L
SAR	70.62	
SSP	76.19	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

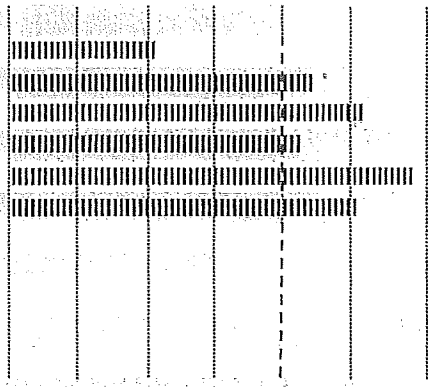
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472182
Customer Sample ID: S-4 1
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.8	(5.8)	-	Mod. Alkaline	
Conductivity	4,600	(-)	umho/cm	V. High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	13	(50)	ppm		50 lbs P2O5/acre
Potassium	239	(125)	ppm		0 lbs K20/acre
Calcium	16,225	(180)	ppm		0 lbs Ca/acre
Magnesium	169	(50)	ppm		0 lbs Mg/acre
Sulfur	472	(13)	ppm		0 lbs S/acre
Sodium	2,809	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.3	
Conductivity	33.10 mmhos/cm	
Sodium	3817 ppm	166.117 meq/L
Potassium	60 ppm	1.541 meq/L
Calcium	3814 ppm	190.312 meq/L
Magnesium	80 ppm	6.576 meq/L
SAR	16.74	
SSP	45.57	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

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Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

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Soil Analysis Report

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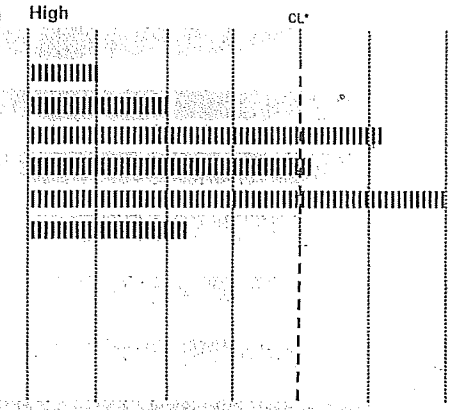
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472183
Customer Sample ID: S-4 2
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.1	(5.8)	-	Mod. Alkaline	
Conductivity	1,560	(-)	umho/cm	High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	5	(50)	ppm		60 lbs P2O5/acre
Potassium	51	(125)	ppm		70 lbs K20/acre
Calcium	27,898	(180)	ppm		0 lbs Ca/acre
Magnesium	86	(50)	ppm		0 lbs Mg/acre
Sulfur	5,899	(13)	ppm		0 lbs S/acre
Sodium	181	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.9	
Conductivity	3.39 mmhos/cm	
Sodium	175 ppm	7.612 meq/L
Potassium	13 ppm	0.341 meq/L
Calcium	612 ppm	30.560 meq/L
Magnesium	15 ppm	1.245 meq/L
SAR	1.91	
SSP	19.15	

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Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

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http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472184
Customer Sample ID: S-4 3
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.1	(5.8)	-	Mod. Alkaline	
Conductivity	1,550	(-)	umho/cm	High	
Nitrate-N	0	(-)	ppm**		55 lbs N/acre
Phosphorus	6	(50)	ppm		60 lbs P2O5/acre
Potassium	44	(125)	ppm		75 lbs K20/acre
Calcium	28,274	(180)	ppm		0 lbs Ca/acre
Magnesium	93	(50)	ppm		0 lbs Mg/acre
Sulfur	5,819	(13)	ppm		0 lbs S/acre
Sodium	50	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.9	
Conductivity	2.70 mmhos/cm	
Sodium	103 ppm	4.499 meq/L
Potassium	12 ppm	0.319 meq/L
Calcium	594 ppm	29.657 meq/L
Magnesium	17 ppm	1.376 meq/L
SAR	1.14	
SSP	12.55	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Conductivity: Salinity levels are becoming elevated, monitor levels or remove salts with 10-15 inches of clean leach water.
Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

Potassium: Split apply potassium fertilizer if recommendation is for more than 75 lbs K2O per acre.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates. http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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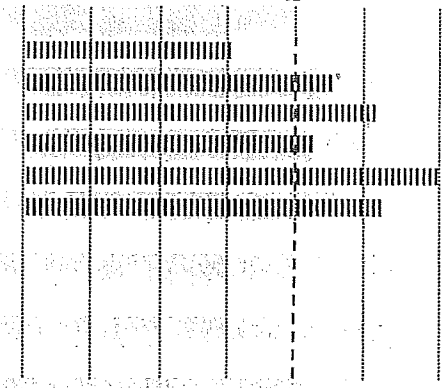
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472185
Customer Sample ID: S-5 0
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	4,530	(-)	umho/cm	V. High	
Nitrate-N	1	(-)	ppm**		55 lbs N/acre
Phosphorus	27	(50)	ppm		30 lbs P2O5/acre
Potassium	295	(125)	ppm		0 lbs K20/acre
Calcium	7,534	(180)	ppm		0 lbs Ca/acre
Magnesium	130	(50)	ppm		0 lbs Mg/acre
Sulfur	1,234	(13)	ppm		0 lbs S/acre
Sodium	3,897	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.4	
Conductivity	46.40 mmhos/cm	
Sodium	8007 ppm	348.427 meq/L
Potassium	137 ppm	3.502 meq/L
Calcium	3541 ppm	176.694 meq/L
Magnesium	65 ppm	5.327 meq/L
SAR	36.52	
SSP	65.25	

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Nitrogen: Apply an additional 70 lbs/A of nitrogen for each subsequent heavy graze down.

New online fertilizer calculators have been placed on the laboratory's website to determine appropriate fertilizers to purchase and determine their application rates.
http://soiltesting.tamu.edu/webpages/calculator.html

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

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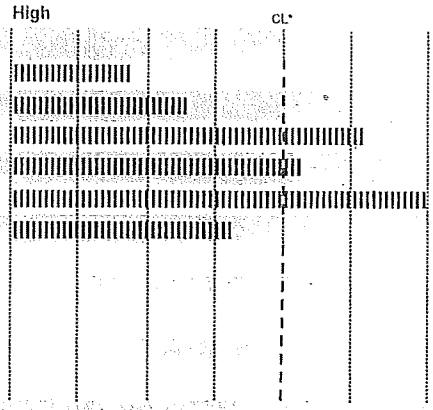
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472186
Customer Sample ID: S-5 1
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.3	(5.8)	-	Mod. Alkaline	
Conductivity	1,780	(-)	umho/cm	High	
Nitrate-N	1	(-)	ppm**		55 lbs N/acre
Phosphorus	9	(50)	ppm		55 lbs P2O5/acre
Potassium	59	(125)	ppm		60 lbs K20/acre
Calcium	32,480	(180)	ppm		0 lbs Ca/acre
Magnesium	134	(50)	ppm		0 lbs Mg/acre
Sulfur	5,519	(13)	ppm		0 lbs S/acre
Sodium	524	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.8	
Conductivity	6.23 mmhos/cm	
Sodium	690 ppm	30.005 meq/L
Potassium	28 ppm	0.726 meq/L
Calcium	650 ppm	32.438 meq/L
Magnesium	21 ppm	1.730 meq/L
SAR	7.26	
SSP	46.23	

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Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, and S/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP; and B/hot water by ICP.

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472187
Customer Sample ID: S-5 2
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.2	(5.8)	-	Mod. Alkaline	
Conductivity	1,420	(-)	umho/cm	Moderate	
Nitrate-N	1	(-)	ppm**		55 lbs N/acre
Phosphorus	4	(50)	ppm		60 lbs P2O5/acre
Potassium	10	(125)	ppm		105 lbs K20/acre
Calcium	18,208	(180)	ppm		0 lbs Ca/acre
Magnesium	68	(50)	ppm		0 lbs Mg/acre
Sulfur	7,037	(13)	ppm		0 lbs S/acre
Sodium	61	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)		
pH	7.8	
Conductivity	2.86 mmhos/cm	
Sodium	140 ppm	6.084 meq/L
Potassium	14 ppm	0.365 meq/L
Calcium	603 ppm	30.090 meq/L
Magnesium	10 ppm	0.856 meq/L
SAR	1.55	
SSP	16.27	

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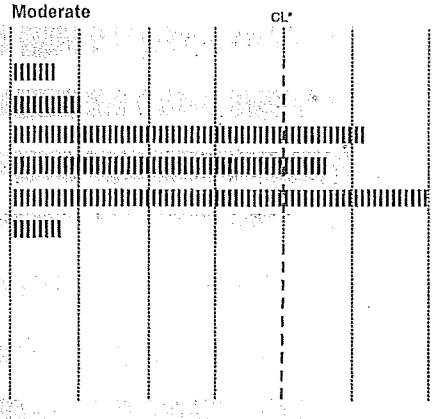
Report generated for:
Sheldon Hitchcock
Talon/LPE (Pintail 23-8)
408 W Texas Ave
Artesia, NM 88210

Sample received on: 12/13/2016
Printed on: 12/21/2016
Area Represented: not provided

Outside TX County
Laboratory Number: 472188
Customer Sample ID: S-5 3
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS, GRAZING

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.3	(5.8)	-	Mod. Alkaline	
Conductivity	1,510	(-)	umho/cm	Moderate	
Nitrate-N	1	(-)	ppm**		55 lbs N/acre
Phosphorus	4	(50)	ppm		60 lbs P2O5/acre
Potassium	15	(125)	ppm		105 lbs K20/acre
Calcium	16,303	(180)	ppm		0 lbs Ca/acre
Magnesium	324	(50)	ppm		0 lbs Mg/acre
Sulfur	6,730	(13)	ppm		0 lbs S/acre
Sodium	44	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	8.0	
Conductivity	2.80 mmhos/cm	
Sodium	137 ppm	5.964 meq/L
Potassium	14 ppm	0.361 meq/L
Calcium	459 ppm	22.906 meq/L
Magnesium	41 ppm	3.378 meq/L
SAR	1.65	
SSP	18.29	

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CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 15, 2016

SHELDON HITCHCOCK

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: PINTAIL 23 FED #8

Enclosed are the results of analyses for samples received by the laboratory on 12/08/16 14:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
SHELDON HITCHCOCK
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/08/2016	Sampling Date:	12/02/2016
Reported:	12/15/2016	Sampling Type:	Soil
Project Name:	PINTAIL 23 FED #8	Sampling Condition:	Cool & Intact
Project Number:	701162.078.01	Sample Received By:	Jodi Henson
Project Location:	M-23-25S-26E		

Sample ID: S-1 0' (H602747-01)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2016	ND	1.96	97.8	2.00	10.2	
Toluene*	<0.050	0.050	12/13/2016	ND	2.00	100	2.00	10.6	
Ethylbenzene*	<0.050	0.050	12/13/2016	ND	1.95	97.7	2.00	10.5	
Total Xylenes*	<0.150	0.150	12/13/2016	ND	5.99	99.8	6.00	11.0	
Total BTEX	<0.300	0.300	12/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PIL *119 %* *73.6-140*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2016	ND	190	95.0	200	1.17	
DRO >C10-C28	<10.0	10.0	12/09/2016	ND	204	102	200	0.506	

Surrogate: 1-Chlorooctane *75.6 %* *35-147*

Surrogate: 1-Chlorooctadecane *65.8 %* *28-171*

Sample ID: S-1 7' (H602747-02)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	12/13/2016	ND	400	100	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
SHELDON HITCHCOCK
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/08/2016	Sampling Date:	12/02/2016
Reported:	12/15/2016	Sampling Type:	Soil
Project Name:	PINTAIL 23 FED #8	Sampling Condition:	Cool & Intact
Project Number:	701162.078.01	Sample Received By:	Jodi Henson
Project Location:	M-23-25S-26E		

Sample ID: S-2 0' (H602747-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2016	ND	1.96	97.8	2.00	10.2	
Toluene*	<0.050	0.050	12/13/2016	ND	2.00	100	2.00	10.6	
Ethylbenzene*	<0.050	0.050	12/13/2016	ND	1.95	97.7	2.00	10.5	
Total Xylenes*	<0.150	0.150	12/13/2016	ND	5.99	99.8	6.00	11.0	
Total BTEX	<0.300	0.300	12/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *119 %* *73.6-140*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2016	ND	190	95.0	200	1.17	
DRO >C10-C28	<10.0	10.0	12/09/2016	ND	204	102	200	0.506	

Surrogate: 1-Chlorooctane *67.3 %* *35-147*

Surrogate: 1-Chlorooctadecane *63.5 %* *28-171*

Sample ID: S-2 2' (H602747-04)

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	12/13/2016	ND	400	100	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
SHELDON HITCHCOCK
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/08/2016	Sampling Date:	12/02/2016
Reported:	12/15/2016	Sampling Type:	Soil
Project Name:	PINTAIL 23 FED #8	Sampling Condition:	Cool & Intact
Project Number:	701162.078.01	Sample Received By:	Jodi Henson
Project Location:	M-23-25S-26E		

Sample ID: S-3 0' (H602747-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2016	ND	1.96	97.8	2.00	10.2	
Toluene*	<0.050	0.050	12/13/2016	ND	2.00	100	2.00	10.6	
Ethylbenzene*	<0.050	0.050	12/13/2016	ND	1.95	97.7	2.00	10.5	
Total Xylenes*	<0.150	0.150	12/13/2016	ND	5.99	99.8	6.00	11.0	
Total BTEX	<0.300	0.300	12/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *118 %* *73.6-140*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2016	ND	190	95.0	200	1.17	
DRO >C10-C28	<10.0	10.0	12/09/2016	ND	204	102	200	0.506	

Surrogate: 1-Chlorooctane *73.0 %* *35-147*

Surrogate: 1-Chlorooctadecane *73.1 %* *28-171*

Sample ID: S-3 2' (H602747-06)

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	12/13/2016	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
SHELDON HITCHCOCK
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/08/2016	Sampling Date:	12/02/2016
Reported:	12/15/2016	Sampling Type:	Soil
Project Name:	PINTAIL 23 FED #8	Sampling Condition:	Cool & Intact
Project Number:	701162.078.01	Sample Received By:	Jodi Henson
Project Location:	M-23-25S-26E		

Sample ID: S-4 0' (H602747-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2016	ND	1.96	97.8	2.00	10.2	
Toluene*	<0.050	0.050	12/13/2016	ND	2.00	100	2.00	10.6	
Ethylbenzene*	<0.050	0.050	12/13/2016	ND	1.95	97.7	2.00	10.5	
Total Xylenes*	<0.150	0.150	12/13/2016	ND	5.99	99.8	6.00	11.0	
Total BTEX	<0.300	0.300	12/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *119 %* *73.6-140*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2016	ND	190	95.0	200	1.17	
DRO >C10-C28	<10.0	10.0	12/09/2016	ND	204	102	200	0.506	

Surrogate: 1-Chlorooctane *68.8 %* *35-147*

Surrogate: 1-Chlorooctadecane *68.8 %* *28-171*

Sample ID: S-4 3' (H602747-08)

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	12/13/2016	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
SHELDON HITCHCOCK
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/08/2016	Sampling Date:	12/02/2016
Reported:	12/15/2016	Sampling Type:	Soil
Project Name:	PINTAIL 23 FED #8	Sampling Condition:	Cool & Intact
Project Number:	701162.078.01	Sample Received By:	Jodi Henson
Project Location:	M-23-25S-26E		

Sample ID: S-5 0' (H602747-09)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2016	ND	1.96	97.8	2.00	10.2	
Toluene*	<0.050	0.050	12/13/2016	ND	2.00	100	2.00	10.6	
Ethylbenzene*	<0.050	0.050	12/13/2016	ND	1.95	97.7	2.00	10.5	
Total Xylenes*	<0.150	0.150	12/13/2016	ND	5.99	99.8	6.00	11.0	
Total BTEX	<0.300	0.300	12/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *118 %* *73.6-140*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/09/2016	ND	190	95.0	200	1.17	
DRO >C10-C28	<10.0	10.0	12/09/2016	ND	204	102	200	0.506	

Surrogate: 1-Chlorooctane *69.8 %* *35-147*

Surrogate: 1-Chlorooctadecane *65.4 %* *28-171*

Sample ID: S-5 3' (H602747-10)

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	12/13/2016	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Talon/LPE		**BILL TO**	
Project Manager: Sheldon Hitchcock		**P.O. #:**	
Address: 408 W. Texas Ave.		**Company:** Cimarex	
City: Artesia	**State:** NM **Zip:** 88210	**Attn:** Christine Alderman	
Phone #: 575-746-8768	**Fax #:** 575-746-8905	**Address:**	
Project #: 701162.078.01	**Project Owner:** Cimarex	**City:**	
Project Name: Pintail 23 Fed #8		**State:** **Zip:**	
Project Location: M-23-25S-26E		**Phone #:**	
Sampler Name: Sheldon Hitchcock		**Fax #:**	

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	**Sample I.D.**	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH	BTEX	Chlorides										
H600747																										
1	S-10'	G	1			✓					✓		12/2/16	2:45	✓	✓											
2	S-17'	G	1			✓					✓		12/2/16	2:50			✓										
3	S-20'	G	1			✓					✓		12/2/16	3:00	✓	✓											
4	S-22'	G	1			✓					✓		12/2/16	3:05			✓										
5	S-30'	G	1			✓					✓		12/2/16	3:30	✓	✓											
6	S-32'	G	1			✓					✓		12/2/16	3:35			✓										
7	S-40'	G	1			✓					✓		12/2/16	4:00	✓	✓											
8	S-43'	G	1			✓					✓		12/2/16	4:10			✓										
9	S-50'	G	1			✓					✓		12/2/16	4:30	✓	✓											
10	S-53'	G	1			✓					✓		12/7/16	3:30			✓										

Relinquished By: Sheldon Hitchcock	**Date:** 12/8/16 **Time:** 14:00	**Received By:** Jodi Henson	**Phone Result:** ☐ Yes ☐ No **Add'l Phone #:**
Relinquished By:	**Date:** **Time:**	**Received By:**	**Fax Result:** ☐ Yes ☐ No **Add'l Fax #:**
			REMARKS:

Delivered By: (Circle One) Sampler - UPS - Bus - Other: #75 3.5°C

Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)†

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326