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TALON LPE

Work Plan
Cimarex Energy Company: Oracle 21 Federal #004
|30-015-38597|2RP-4183|

Prepared For:

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

Prepared By:

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

May 2, 2018

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

Subject: **Soil Assessment and Remediation Work Plan**
Cimarex Energy Co.
Oracle 21 Federal #004
|30-015-38597|2RP-4183|

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 Oracle 21 Federal #004 is located approximately twenty-five (25) miles south of Carlsbad, New Mexico. The legal location for this facility is Unit Letter C, Section 21, Township 25S South and Range 26 East in Eddy County, New Mexico. More specifically the latitude and longitude are 32.1216621 North and -104.2998352 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 118-feet below ground surface (BGS). The referenced ground water data is presented in Appendix II. Therefore the ranking for this site is a **0** based on the following:

Depth to ground water	>100'
Wellhead Protection Area	>1000'
Distance to surface water body	>1000'

Based upon the site ranking of **0**, NMOCD Recommended Remedial Action Levels (RRAL's) are 50 mg/kg for BTEX, 10 mg/kg for Benzene, 5,000 mg/kg for TPH. The recommended guideline for Total Chlorides was 1,000 mg/kg at the time of this incident.

Incident Description and Initial Remedial Actions

On April 11, 2017, the Bureau of Land Management (BLM) conducted a controlled burn in the area of the Oracle 21 Fed #4. On April 20, 2017 a pumper turned on a transfer pump and noticed produced water spraying in the pasture. Further investigation revealed that the controlled burn conducted by BLM on April 11, 2017 melted the poly flowline. This resulted in the release of approximately 20bbls of produced water. No fluid was recovered.

On July 6, 2017, Talon mobilized personnel to conduct a site assessment and collect soil samples within the impacted area. The soil samples were analyzed for TPH, BTEX, total chlorides, and detailed salinity. The results of our 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	--	--	16*	--						
S-2	0	--	--	16*							
S-3	0	<0.300	<10.0	12,053	7.0	68.80	554.556	3.364	137.433	6.672	65.33
S-3	1	<0.300	<10.0	709	7.3	9.21	31.320	0.358	64.888	0.830	5.46
S-3	2	<0.300	<10.0	283	7.5	3.76	4.169	0.204	37.587	4.443	0.91
S-3	3	<0.300	<10.0	144*	7.6	3.93	6.620	0.291	35.903	4.047	1.48
S-4	0	--	--	32*	--	--	--	--	--	--	--
S-5	0	--	--	16	--	--	--	--	--	--	--
S-6	0	--	--	32							
S-7	0	--	--	16	--	--	--	--	--	--	--
S-8	0	--	--	16							
S-9	0	--	--	80	--	--	--	--	--	--	--
S-10	0	--	--	<16.0							
S-11	0	--	--	<16.0	--	--	--	--	--	--	--
S-12	0	--	--	<16.0							
S-13	0	--	--	<16.0	--	--	--	--	--	--	--
S-14	0	--	--	32							
S-15	0	--	--	16	--	--	--	--	--	--	--
S-16	0	<0.300	<10.0	7,799	7.3	29.80	249.065	2.549	106.777	5.138	33.30
S-16	1	--	--	2,127	7.6	18.09	111.215	2.269	63.103	28.315	16.45
S-16	2	--	--	709	7.6	7.94	29.552	2.187	36.619	17.283	5.69
S-16	3	--	--	48*	7.7	4.11	6.866	1.857	30.510	12.84	1.49

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-17	0	<0.300	<10.0	27,651	7.2	89.30	847.602	10.601	180.160	17.534	85.25
S-17	1	--	--	7,373	7.3	61.00	519.961	4.584	117.523	16.598	63.49
S-17	2	--	--	3,333	7.9	33.70	305.759	2.401	203.629	19.304	28.96
S-17	3	--	--	992	8.0	10.38	57.007	1.308	38.804	30.037	9.72
S-17	4	--	--	320*	8.1	7.15	22.404	1.287	31.102	33.804	3.93
S-17	8	--	--	96*	--	--	--	--	--	--	--
BG-1	0	--	--	70.9	7.7	2.67	1.266	0.743	33.261	1.729	0.30

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

Proposed Remedial Actions

- The impacted area in the vicinity of sample location S-3 will be excavated to a depth of 1-feet BGS.
- The impacted area in the vicinity of sample location S-16 will be excavated to a depth of 2-feet BGS.
- The impacted area in the vicinity of sample location S-17 will be excavated to a depth of 3-feet BGS. Chloride field titrations will be used to guide the excavation process.
- 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 hereafter) at a maximum thickness of 2.5-feet. The soil will be initially (and periodically) flushed with fresh water to remove the chloride and sodium content. The leachate generated from this process will be recovered and transported to an SWD for disposal.
- Quarterly sampling of the soil within the leaching basin will be carried out. Soil 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. If necessary, additional soil amendments may be applied.
- Once laboratory results indicate that the soil has been sufficiently remediated, upon BLM approval the soil will be used to backfill the excavated area.
- The excavation will be backfilled with the original soil, contoured to match the surrounding terrain, fertilized and seeded with the recommended BLM seed mixture.

Leaching Basin Construction

The soil leaching basin will be near the excavation or on a nearby Cimarex location. The basin will be constructed with earthen berms and lined with a 40-mil poly liner and 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 40-mil poly liner and welded to the liner on the leaching basin. A layer of geotextile fabric 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.

Closure

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

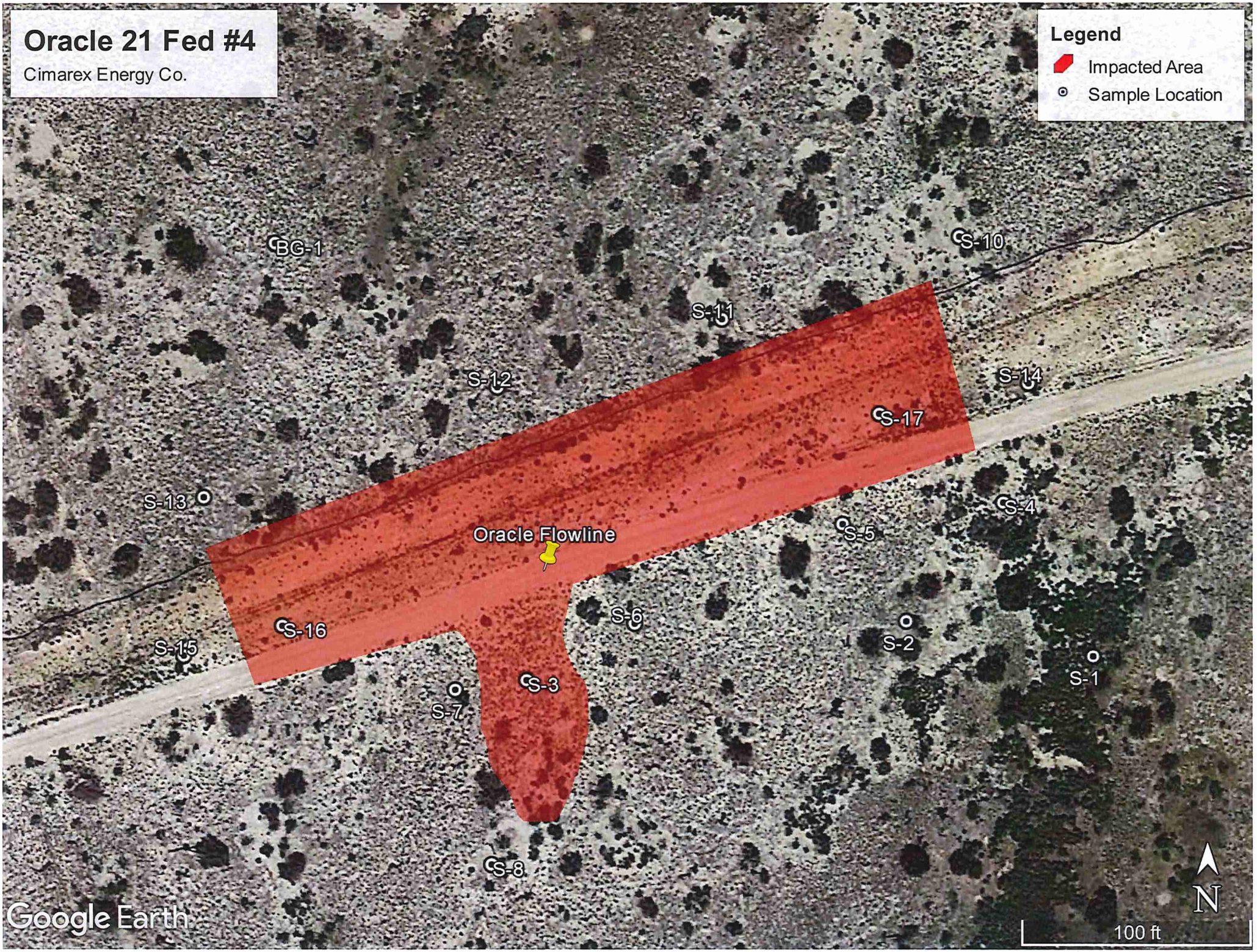
David J. Adkins
District Manager

Attachments

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

APPENDIX I

SITE PLAN


Oracle 21 Fed #4
Cimarex Energy Co.
Legend
Impacted Area
Sample Location
BG-1
S-10
S-11
S-12
S-14
S-17
S-13
S-4
S-5
Oracle Flowline
S-16
S-6
S-2
S-15
S-1
S-3
S-7
S-8
N
100 ft
Google Earth

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	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 01368	C	ED	1	1		22	25S	26E	567261	3554059*	1218	143	118	25

Average Depth to Water: **118 feet**

Minimum Depth: **118 feet**

Maximum Depth: **118 feet**

Record Count: 1

Basin/County Search:

County: Eddy

UTMNAD83 Radius Search (in meters):

Easting (X): 566043 **Northing (Y):** 3554059 **Radius:** 1500

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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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

NM OIL CONSERVATION ARTESIA DISTRICT APR 21 2017 RECEIVED

State of New Mexico
Energy Minerals and Natural Resources

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

NM OIL CONSERVATION ARTESIA DISTRICT APR 21 2017 RECEIVED

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

nAB1711542974

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 Oracle 21 Fed #4	Facility Type Production

Surface Owner BLM	Mineral Owner	API No. 30-015-38597

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	21	25S	26E	400	N	1980	W	Eddy

Latitude 32.1216621 Longitude -104.2998352

please see google earth map attachment for spill/pipeline location

NATURE OF RELEASE

Type of Release produced water	Volume of Release 20 bbls	Volume Recovered 0 bbls
Source of Release Poly flowline	Date and Hour of Occurrence 4/11/2017	Date and Hour of Discovery 4/20/2017
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom? Christine Alderman	Date and Hour 4/21/2017	e-mail 12:56pm
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.*
It appears that BLM did a controlled burn on 4/11/2017 and approximately 600' of 4" poly pipe was impacted by the fire. It was noticed on 4/20/2017 when the pumper turned on the transfer pump and he saw water shoot up in the pasture north of the location. He immediately turned the pump off and went to investigate and discover the burnt piping.

Describe Area Affected and Cleanup Action Taken.*
The pasture area north of the facility. An environmental consultant will be contacted and a work plan will be developed.

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: Crystal Weaver
Title: ESH Supervisor	Approval Date: 4/25/17 Expiration Date: N/A
E-mail Address: calderman@cimarex.com	Conditions of Approval: see attached Attached ☒
Date: Phone: 432-853-7059	

* Attach Additional Sheets If Necessary

2RP-4183

APPENDIX IV

LABORATORY RESULTS

TEXAS A&M AGRILIFE EXTENSION

Soil Analysis Report

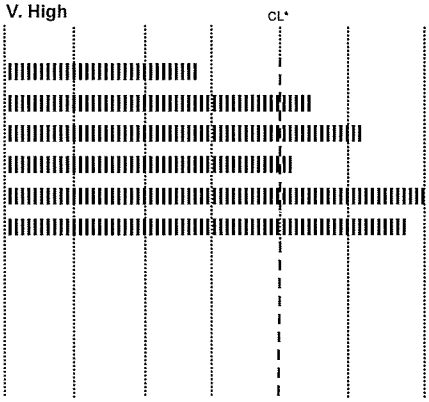
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489724
Customer Sample ID: S-3 0'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.8	(5.8)	-	Mod. Alkaline	
Conductivity	6,300	(-)	umho/cm	V. High	
Nitrate-N	2	(-)	ppm**		35 lbs N/acre
Phosphorus	18	(50)	ppm		35 lbs P2O5/acre
Potassium	250	(125)	ppm		0 lbs K20/acre
Calcium	19,358	(180)	ppm		0 lbs Ca/acre
Magnesium	85	(50)	ppm		0 lbs Mg/acre
Sulfur	6,270	(13)	ppm		0 lbs S/acre
Sodium	5,816	(-)	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	12744 ppm	554.556 meq/L
Potassium	132 ppm	3.364 meq/L
Calcium	2754 ppm	137.433 meq/L
Magnesium	81 ppm	6.672 meq/L
SAR	65.33	
SSP	78.99	

*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.

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

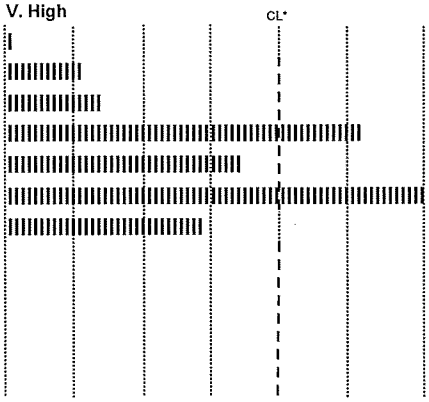
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489725
Customer Sample ID: S-3 1'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.0	(5.8)	-	Mod. Alkaline	
Conductivity	2,320	(-)	umho/cm	V. High	
Nitrate-N	2	(-)	ppm**		35 lbs N/acre
Phosphorus	6	(50)	ppm		45 lbs P2O5/acre
Potassium	27	(125)	ppm		30 lbs K20/acre
Calcium	15,439	(180)	ppm		0 lbs Ca/acre
Magnesium	41	(50)	ppm		5 lbs Mg/acre
Sulfur	6,414	(13)	ppm		0 lbs S/acre
Sodium	370	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.3	
Conductivity	9.21 mmhos/cm	
Sodium	720 ppm	31.320 meq/L
Potassium	14 ppm	0.358 meq/L
Calcium	1300 ppm	64.888 meq/L
Magnesium	10 ppm	0.830 meq/L
SAR	5.46	
SSP	32.16	

*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.

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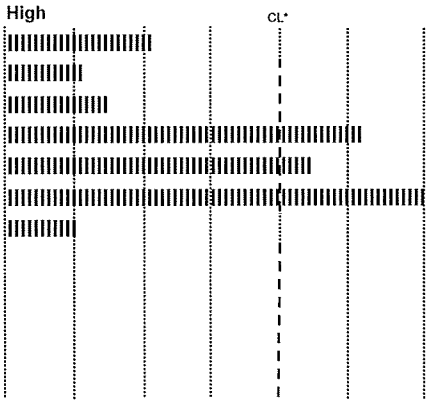
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489726
Customer Sample ID: S-3 2'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.0	(5.8)	-	Mod. Alkaline	
Conductivity	1,600	(-)	umho/cm	High	
Nitrate-N	17	(-)	ppm**		5 lbs N/acre
Phosphorus	6	(50)	ppm		45 lbs P2O5/acre
Potassium	33	(125)	ppm		25 lbs K20/acre
Calcium	21,607	(180)	ppm		0 lbs Ca/acre
Magnesium	182	(50)	ppm		0 lbs Mg/acre
Sulfur	6,078	(13)	ppm		0 lbs S/acre
Sodium	53	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.5	
Conductivity	3.76 mmhos/cm	
Sodium	96 ppm	4.169 meq/L
Potassium	8 ppm	0.204 meq/L
Calcium	753 ppm	37.587 meq/L
Magnesium	54 ppm	4.443 meq/L
SAR	0.91	
SSP	8.98	

*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.

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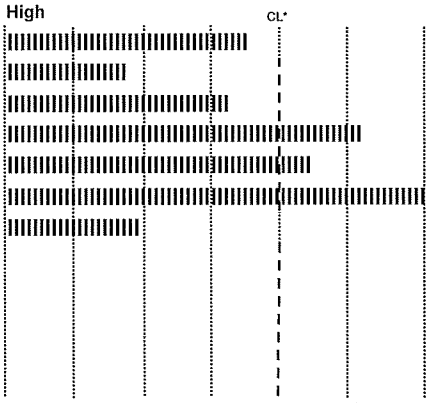
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489727
Customer Sample ID: S-3 3'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	1,670	(-)	umho/cm	High	
Nitrate-N	38	(-)	ppm**		0 lbs N/acre
Phosphorus	9	(50)	ppm		45 lbs P2O5/acre
Potassium	88	(125)	ppm		10 lbs K20/acre
Calcium	28,641	(180)	ppm		0 lbs Ca/acre
Magnesium	224	(50)	ppm		0 lbs Mg/acre
Sulfur	5,618	(13)	ppm		0 lbs S/acre
Sodium	92	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.6	
Conductivity	3.93 mmhos/cm	
Sodium	152 ppm	6.620 meq/L
Potassium	11 ppm	0.291 meq/L
Calcium	720 ppm	35.903 meq/L
Magnesium	49 ppm	4.047 meq/L
SAR	1.48	
SSP	14.13	

*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.

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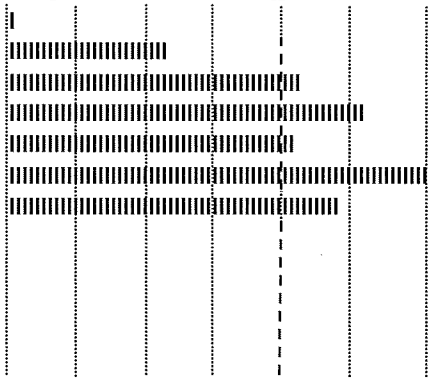
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489728
Customer Sample ID: S-16 0'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.9	(5.8)	-	Mod. Alkaline	
Conductivity	4,110	(-)	umho/cm	V. High	
Nitrate-N	3	(-)	ppm**		30 lbs N/acre
Phosphorus	15	(50)	ppm		35 lbs P2O5/acre
Potassium	223	(125)	ppm		0 lbs K20/acre
Calcium	17,711	(180)	ppm		0 lbs Ca/acre
Magnesium	80	(50)	ppm		0 lbs Mg/acre
Sulfur	6,052	(13)	ppm		0 lbs S/acre
Sodium	2,205	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)			
pH	7.3		
Conductivity	29.80	mmhos/cm	
Sodium	5724	ppm	249.065 meq/L
Potassium	100	ppm	2.549 meq/L
Calcium	2140	ppm	106.777 meq/L
Magnesium	62	ppm	5.138 meq/L
SAR	33.30		
SSP	68.51		

*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.

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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

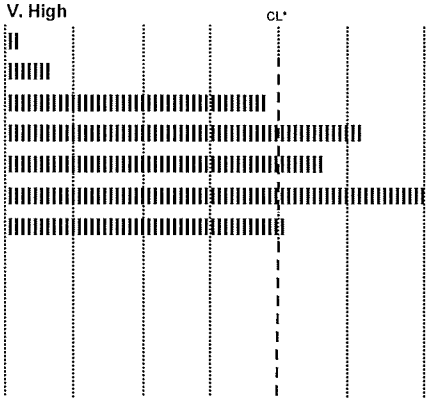
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489729
Customer Sample ID: S-16 1'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.3	(5.8)	-	Mod. Alkaline	
Conductivity	3,450	(-)	umho/cm	V. High	
Nitrate-N	3	(-)	ppm**		30 lbs N/acre
Phosphorus	4	(50)	ppm		50 lbs P2O5/acre
Potassium	115	(125)	ppm		0 lbs K20/acre
Calcium	25,173	(180)	ppm		0 lbs Ca/acre
Magnesium	319	(50)	ppm		0 lbs Mg/acre
Sulfur	6,198	(13)	ppm		0 lbs S/acre
Sodium	1,020	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)			
pH	7.6		
Conductivity	18.09	mmhos/cm	
Sodium	2556	ppm	111.215 meq/L
Potassium	89	ppm	2.269 meq/L
Calcium	1265	ppm	63.103 meq/L
Magnesium	344	ppm	28.315 meq/L
SAR	16.45		
SSP	54.28		

*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.

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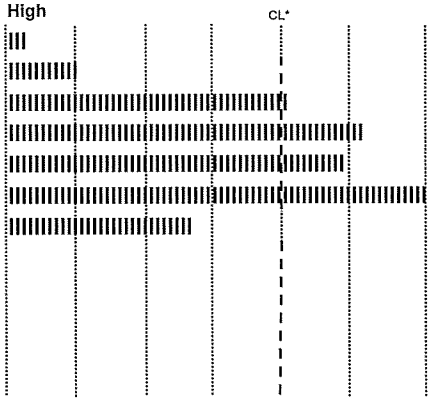
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489730
Customer Sample ID: S-16 2'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.3	(5.8)	-	Mod. Alkaline	
Conductivity	2,260	(-)	umho/cm	High	
Nitrate-N	4	(-)	ppm**		30 lbs N/acre
Phosphorus	5	(50)	ppm		50 lbs P2O5/acre
Potassium	142	(125)	ppm		0 lbs K20/acre
Calcium	27,385	(180)	ppm		0 lbs Ca/acre
Magnesium	377	(50)	ppm		0 lbs Mg/acre
Sulfur	5,921	(13)	ppm		0 lbs S/acre
Sodium	328	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.6	
Conductivity	7.94 mmhos/cm	
Sodium	679 ppm	29.552 meq/L
Potassium	86 ppm	2.187 meq/L
Calcium	734 ppm	36.619 meq/L
Magnesium	210 ppm	17.283 meq/L
SAR	5.69	
SSP	34.51	

*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.

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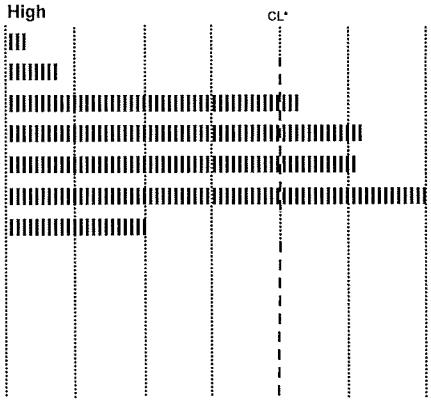
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489731
Customer Sample ID: S-16 3'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.1	(5.8)	-	Mod. Alkaline	
Conductivity	1,740	(-)	umho/cm	High	
Nitrate-N	4	(-)	ppm**		30 lbs N/acre
Phosphorus	4	(50)	ppm		50 lbs P2O5/acre
Potassium	206	(125)	ppm		0 lbs K20/acre
Calcium	29,762	(180)	ppm		0 lbs Ca/acre
Magnesium	432	(50)	ppm		0 lbs Mg/acre
Sulfur	5,552	(13)	ppm		0 lbs S/acre
Sodium	109	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.7	
Conductivity	4.11 mmhos/cm	
Sodium	158 ppm	6.866 meq/L
Potassium	73 ppm	1.857 meq/L
Calcium	611 ppm	30.510 meq/L
Magnesium	147 ppm	12.084 meq/L
SAR	1.49	
SSP	13.38	

*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.

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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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College Station, TX 77843-2478
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979-845-5958 (FAX)
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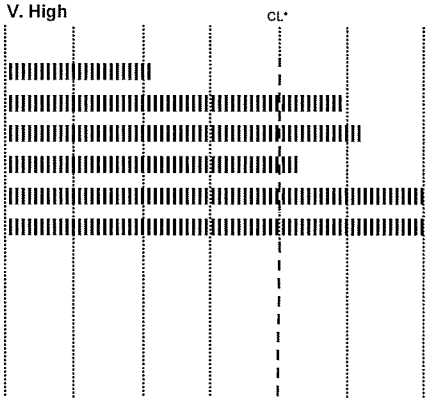
Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489732
Customer Sample ID: S-17 0'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.6	(5.8)	-	Slightly Alkaline	
Conductivity	7,360	(-)	umho/cm	V. High	
Nitrate-N	2	(-)	ppm**		35 lbs N/acre
Phosphorus	12	(50)	ppm		40 lbs P2O5/acre
Potassium	395	(125)	ppm		0 lbs K20/acre
Calcium	25,177	(180)	ppm		0 lbs Ca/acre
Magnesium	166	(50)	ppm		0 lbs Mg/acre
Sulfur	6,290	(13)	ppm		0 lbs S/acre
Sodium	8,997	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)			
pH	7.2		
Conductivity	89.30	mmhos/cm	
Sodium	19478	ppm	847.602 meq/L
Potassium	414	ppm	10.601 meq/L
Calcium	3610	ppm	180.160 meq/L
Magnesium	213	ppm	17.534 meq/L
SAR	85.25		
SSP	80.27		

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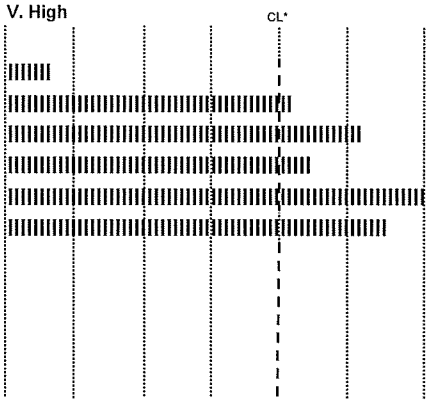
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489733
Customer Sample ID: S-17 1'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	7.7	(5.8)	-	Mod. Alkaline	
Conductivity	5,720	(-)	umho/cm	V. High	
Nitrate-N	2	(-)	ppm**		35 lbs N/acre
Phosphorus	4	(50)	ppm		50 lbs P2O5/acre
Potassium	151	(125)	ppm		0 lbs K20/acre
Calcium	18,255	(180)	ppm		0 lbs Ca/acre
Magnesium	200	(50)	ppm		0 lbs Mg/acre
Sulfur	6,398	(13)	ppm		0 lbs S/acre
Sodium	4,935	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.3	
Conductivity	61.00 mmhos/cm	
Sodium	11949 ppm	519.961 meq/L
Potassium	179 ppm	4.584 meq/L
Calcium	2355 ppm	117.523 meq/L
Magnesium	202 ppm	16.598 meq/L
SAR	63.49	
SSP	78.94	

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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

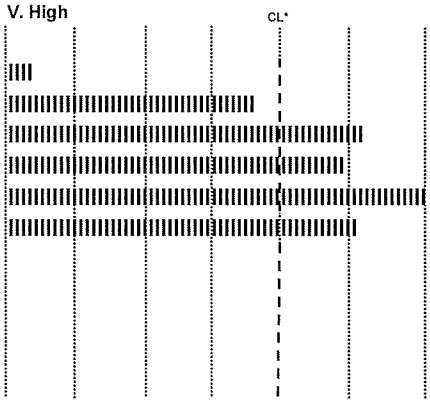
Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489734
Customer Sample ID: S-17 2'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.3	(5.8)	-	Mod. Alkaline	
Conductivity	5,140	(-)	umho/cm	V. High	
Nitrate-N	2	(-)	ppm**		35 lbs N/acre
Phosphorus	2	(50)	ppm		50 lbs P2O5/acre
Potassium	114	(125)	ppm		0 lbs K20/acre
Calcium	32,538	(180)	ppm		0 lbs Ca/acre
Magnesium	374	(50)	ppm		0 lbs Mg/acre
Sulfur	6,417	(13)	ppm		0 lbs S/acre
Sodium	2,892	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)			
pH	7.9		
Conductivity	33.70	mmhos/cm	
Sodium	7026	ppm	305.758 meq/L
Potassium	94	ppm	2.401 meq/L
Calcium	4081	ppm	203.629 meq/L
Magnesium	235	ppm	19.304 meq/L
SAR	28.96		
SSP	57.57		

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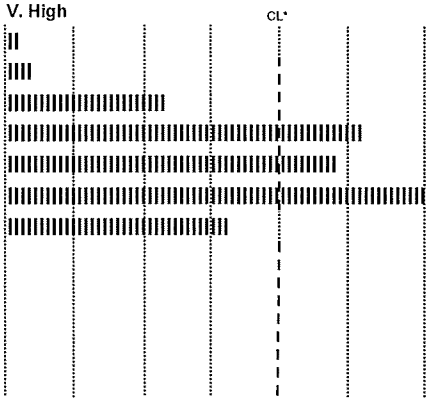
College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
Visit our website: http://soiltesting.tamu.edu

Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489735
Customer Sample ID: S-17 3'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.6	(5.8)	-	Mod. Alkaline	
Conductivity	2,600	(-)	umho/cm	V. High	
Nitrate-N	4	(-)	ppm**		30 lbs N/acre
Phosphorus	2	(50)	ppm		50 lbs P2O5/acre
Potassium	57	(125)	ppm		20 lbs K20/acre
Calcium	23,621	(180)	ppm		0 lbs Ca/acre
Magnesium	363	(50)	ppm		0 lbs Mg/acre
Sulfur	6,175	(13)	ppm		0 lbs S/acre
Sodium	557	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)			
pH	8.0		
Conductivity	10.38	mmhos/cm	
Sodium	1310	ppm	57.007 meq/L
Potassium	51	ppm	1.308 meq/L
Calcium	778	ppm	38.804 meq/L
Magnesium	365	ppm	30.037 meq/L
SAR	9.72		
SSP	44.83		

*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.

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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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College Station, TX 77843-2478
979-845-4816 (phone)
979-845-5958 (FAX)
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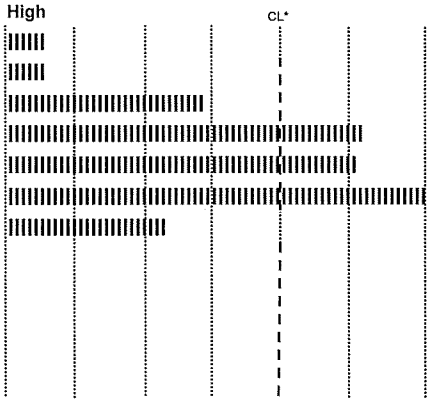
Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489736
Customer Sample ID: S-17 4'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.6	(5.8)	-	Mod. Alkaline	
Conductivity	1,900	(-)	umho/cm	High	
Nitrate-N	7	(-)	ppm**		25 lbs N/acre
Phosphorus	3	(50)	ppm		50 lbs P2O5/acre
Potassium	74	(125)	ppm		15 lbs K20/acre
Calcium	22,672	(180)	ppm		0 lbs Ca/acre
Magnesium	449	(50)	ppm		0 lbs Mg/acre
Sulfur	5,999	(13)	ppm		0 lbs S/acre
Sodium	192	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	8.1	
Conductivity	7.15 mmhos/cm	
Sodium	515 ppm	22.404 meq/L
Potassium	50 ppm	1.287 meq/L
Calcium	623 ppm	31.102 meq/L
Magnesium	411 ppm	33.804 meq/L
SAR	3.93	
SSP	25.29	

*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.

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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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College Station, TX 77843-2478
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979-845-5958 (FAX)
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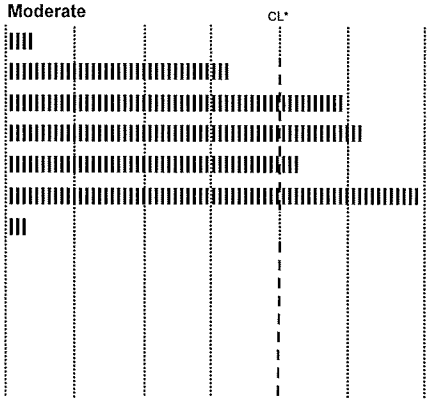
Report generated for:
Sheldon Hitchock
Talon/LPE Oracle 21 Fed #4
408 W Texas Ave
Artesia, NM 88210

Sample received on: 7/24/2017
Printed on: 8/10/2017
Area Represented: 1 acres

Outside TX County
Laboratory Number: 489737
Customer Sample ID: B6-1 0'
Crop Grown: BLUESTEM (ESTABLISHMENT)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Fertilizer Recommended
pH	8.0	(5.8)	-	Mod. Alkaline	
Conductivity	1,390	(-)	umho/cm	Moderate	
Nitrate-N	6	(-)	ppm**		25 lbs N/acre
Phosphorus	32	(50)	ppm		15 lbs P2O5/acre
Potassium	369	(125)	ppm		0 lbs K20/acre
Calcium	9,984	(180)	ppm		0 lbs Ca/acre
Magnesium	174	(50)	ppm		0 lbs Mg/acre
Sulfur	957	(13)	ppm		0 lbs S/acre
Sodium	16	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron					
Limestone Requirement					0.00 tons 100ECCE/acre



Detailed Salinity Test (Saturated Paste Extract)		
pH	7.7	
Conductivity	2.67 mmhos/cm	
Sodium	29 ppm	1.266 meq/L
Potassium	29 ppm	0.743 meq/L
Calcium	667 ppm	33.261 meq/L
Magnesium	21 ppm	1.729 meq/L
SAR	0.30	
SSP	3.42	

*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.

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.

921 N Bivins St
Amarillo, TX 79107-6806
806-467-0607
EIN: 75-2860189

Remit payment to:
P.O. Box 843
Amarillo, TX 79105-0843

Mike Shoemaker
Devon Energy Corporation
333 W Sheridan Ave
Oklahoma City, OK 73102

July 10, 2017
Invoice No: 25114

Invoice Total $590.54

WO/PO:
Project Manager: Kimberly Wilson

Project 700794.227.01 Devon Algerita 32 State Com 1

Professional Services through June 30, 2017

Personnel

		Hours	Rate	Amount	
Project Manager					
Wilson, Kimberly	6/21/2017	2.00	80.75	161.50	
Project management, logistics, travel, flag location for one call					
Wilson, Kimberly	6/26/2017	1.00	80.75	80.75	
Project Management - Logistics, coordination with NM OneCall regarding locating underground utilities on location					
Wilson, Kimberly	6/27/2017	1.00	80.75	80.75	
Project Management - Logistics, scheduling remediation activities with construction supervisior, coordination with drafter regarding site map					
Wilson, Kimberly	6/29/2017	1.00	80.75	80.75	
Project Management - Logistics, coordination with the OCD regarding file, documentation, photo search regarding initial release and open RP, to OCD for physical search, meeting with Mike Bratcher regarding remediation activities to begin					
Totals		5.00		403.75	
Total Personnel					**403.75**

Equipment

Equipment Truck				
6/21/2017	1125	1.0 Day @ 102.00	102.00	
Light Vehicle Mileage Rate				
6/21/2017	1125	72.0 Miles @ 0.7225	52.02	
Total Equipment			**154.02**	**154.02**

Taxes

NM Eddy County	5.875 % of 557.77	32.77	
Total Taxes		**32.77**	**32.77**

Total this Invoice **$590.54**

CARDINAL Laboratories

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

July 25, 2017

SHELDON HITCHCOCK

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: ORACLE 21 FED #4

Enclosed are the results of analyses for samples received by the laboratory on 07/20/17 15:05.

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:	07/20/2017	Sampling Date:	07/12/2017
Reported:	07/25/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	Cool & Intact
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-1 0' (H701896-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-2 0' (H701896-02)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-3 0' (H701896-03)

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	07/21/2017	ND	1.70	84.9	2.00	0.501	
Toluene*	<0.050	0.050	07/21/2017	ND	1.78	89.1	2.00	0.229	
Ethylbenzene*	<0.050	0.050	07/21/2017	ND	1.97	98.6	2.00	0.535	
Total Xylenes*	<0.150	0.150	07/21/2017	ND	5.90	98.4	6.00	0.304	
Total BTEX	<0.300	0.300	07/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *72-148*

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	07/24/2017	ND	183	91.6	200	1.25	
DRO >C10-C28	<10.0	10.0	07/24/2017	ND	189	94.3	200	0.539	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

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

Received:	07/20/2017	Sampling Date:	07/12/2017
Reported:	07/25/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	Cool & Intact
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-3 0' (H701896-03)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Surrogate: 1-Chlorooctane	*81.1 %*	*28.3-164*							
Surrogate: 1-Chlorooctadecane	*76.9 %*	*34.7-157*							

Sample ID: S-3 3' (H701896-04)

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	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-4 0' (H701896-05)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-5 0' (H701896-06)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	07/21/2017	ND	432	108	400	3.64	

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Analytical Results For:

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

Received:	07/20/2017	Sampling Date:	07/12/2017
Reported:	07/25/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	Cool & Intact
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-6 0' (H701896-07)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-7 0' (H701896-08)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-8 0' (H701896-09)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-9 0' (H701896-10)

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	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-10 0' (H701896-11)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/21/2017	ND	432	108	400	3.64	

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Analytical Results For:

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

Received:	07/20/2017	Sampling Date:	07/12/2017
Reported:	07/25/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	Cool & Intact
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-11 0' (H701896-12)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/21/2017	ND	432	108	400	3.64	

Sample ID: S-12 0' (H701896-13)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/21/2017	ND	448	112	400	0.00	

Sample ID: S-13 0' (H701896-14)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/21/2017	ND	448	112	400	0.00	

Sample ID: S-14 0' (H701896-15)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/21/2017	ND	448	112	400	0.00	

Sample ID: S-15 0' (H701896-16)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	07/21/2017	ND	448	112	400	0.00	

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Analytical Results For:

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

Received:	07/20/2017	Sampling Date:	07/12/2017
Reported:	07/25/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	Cool & Intact
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-16 0' (H701896-17)

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	07/21/2017	ND	1.70	84.9	2.00	0.501	
Toluene*	<0.050	0.050	07/21/2017	ND	1.78	89.1	2.00	0.229	
Ethylbenzene*	<0.050	0.050	07/21/2017	ND	1.97	98.6	2.00	0.535	
Total Xylenes*	<0.150	0.150	07/21/2017	ND	5.90	98.4	6.00	0.304	
Total BTEX	<0.300	0.300	07/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PIL *106 %* *72-148*

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	07/24/2017	ND	183	91.6	200	1.25	
DRO >C10-C28	<10.0	10.0	07/24/2017	ND	189	94.3	200	0.539	

Surrogate: 1-Chlorooctane *78.8 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *73.2 %* *34.7-157*

Sample ID: S-16 3' (H701896-18)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	07/21/2017	ND	448	112	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

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

Received:	07/20/2017	Sampling Date:	07/12/2017
Reported:	07/25/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	Cool & Intact
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-17 0' (H701896-19)

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	07/21/2017	ND	1.70	84.9	2.00	0.501	
Toluene*	<0.050	0.050	07/21/2017	ND	1.78	89.1	2.00	0.229	
Ethylbenzene*	<0.050	0.050	07/21/2017	ND	1.97	98.6	2.00	0.535	
Total Xylenes*	<0.150	0.150	07/21/2017	ND	5.90	98.4	6.00	0.304	
Total BTEX	<0.300	0.300	07/21/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID	*105 %*	*72-148*

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	07/24/2017	ND	183	91.6	200	1.25	
DRO >C10-C28	<10.0	10.0	07/24/2017	ND	189	94.3	200	0.539	

Surrogate: 1-Chlorooctane	*81.5 %*	*28.3-164*
Surrogate: 1-Chlorooctadecane	*77.3 %*	*34.7-157*

Sample ID: S-17 4' (H701896-20)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**320**	16.0	07/21/2017	ND	448	112	400	0.00	

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Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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: S. 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 #: 701162.092.01 Project Owner: Cimarex	City:
Project Name: Oracle 21 Fed #4	State: Zip:
Project Location: C-21-25S-26E	Phone #:
Sampler Name: S. Hitchcock	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER: None	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TPH	BTEX	Chlorides
H201896																	
1	S-1 0'	G	1			✓						✓	7/12/17	9:00			✓
2	S-2 0'	G	1			✓						✓		9:02			✓
3	S-3 0'	G	1			✓					✓			9:04	✓	✓	✓
4	S-3 3'	G	1			✓						✓		11:00			✓
5	S-4 0'	G	1			✓						✓		9:06			✓
6	S-5 0'	G	1			✓						✓		9:08			✓
7	S-6 0'	G	1			✓						✓		9:10			✓
8	S-7 0'	G	1			✓						✓		9:12			✓
9	S-8 0'	G	1			✓						✓		9:14			✓
10	S-9 0'	G	1			✓						✓		9:16			✓

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Relinquished By: Shadon Jones	Date: 7-19-17 Time: 1200	Received By: Jacob Laird	
Relinquished By: Jacob Laird	Date: 7-20-17 Time: 3:05	Received By: Tamara Oldaker	
Delivered By: (Circle One) 4.9° Sampler - UPS - Bus - Other: Corrected 5.1°C	Sample Condition: Cool: ☑ Yes ☐ No; Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) T.O. #75	

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

+ Cardinal cannot accept verbal changes. Please fax written changes to (575)

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: S. 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 #: 701162.092.01 Project Owner: Cimarex	City:
Project Name: Oracle 21 Fed #4	State: Zip:
Project Location: C-21-25S-26E	Phone #:
Sampler Name: S. Hitchcock	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER: None	SAMPLING: DATE	TIME	ANALYSIS REQUEST: TPH	BTEX	Chlorides
+701896																	
11	S-10 0'	G	1			X						X	7/12/17	10:00			X
12	S-11 0'	G	1			X						X		10:02			X
13	S-12 0'	G	1			X						X		10:04			X
14	S-13 0'	G	1			X						X		10:06			X
15	S-14 0'	G	1			X						X		10:08			X
16	S-15 0'	G	1			X						X		10:10			X
17	S-16 0'	G	1			X						X		10:12	X	X	
18	S-16 3'	G	1			X						X		11:30			X
19	S-17 0'	G	1			X						X		10:14	X	X	X
20	S-17 4'	G	1			X						X		12:30			X

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Relinquished By:	Date:	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time:		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date: 1-20-17	Received By: Tamara Oldaker	REMARKS:
	Time: 3:05		
Delivered By: (Circle One) 4.9°	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) TO #175	
Sampler - UPS - Bus - Other: Corrected 5.15°			

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2476

CARDINAL Laboratories

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

July 28, 2017

SHELDON HITCHCOCK

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: ORACLE 21 FED #4

Enclosed are the results of analyses for samples received by the laboratory on 07/25/17 16:30.

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:	07/25/2017	Sampling Date:	07/06/2017
Reported:	07/28/2017	Sampling Type:	Soil
Project Name:	ORACLE 21 FED #4	Sampling Condition:	** (See Notes)
Project Number:	701162.092.01	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- C-21-25S-26E		

Sample ID: S-17 8' (H701941-01)

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	07/26/2017	ND	432	108	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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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*=Accredited Analyte

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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: S. 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 #: 701162.092.01 Project Owner: Cimarex	City:
Project Name: Oracle 21 Fed #4	State: Zip:
Project Location: C-21-25S-26E	Phone #:
Sampler Name: S. Hitchcock	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER : None	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chlorides
H201941-1	S-17 8'	G	1			X						X	7/6/17	12:50	✓

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Relinquished By:	Date: 7-25-17	Received By:	
	Time: 14:15		
Relinquished By:	Date: 7-25-17	Received By:	
	Time: 4:30		
Delivered By: (Circle One) 18.3°C	Sample Condition: Cool: ☐ Yes ☑ No; Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) TC #75	
Sampler - UPS - Bus - Other: Corrected 18.5°C			

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: