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Work Plan

Cimarex Energy Company: Glycerin 10 Federal Com #001
|30-015-36359|2RP-3407|

September 5, 2017

Prepared By:

TALON/LPE

408 W. Texas Avenue

Artesia, New Mexico 88210

Prepared For:

Cimarex Energy Company

600 N Marienfeld Ste. 600

Midland, TX 79701

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

Subject: **Soil Assessment and Remediation Work Plan**
Cimarex Energy Co.
Glycerin 10 Federal Com #001 |30-015-36359|2RP-3407|

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 Glycerin 10 Federal Com #001 is located approximately thirty-five (35) miles northeast of Artesia, New Mexico. The legal location for this facility is Unit Letter A, Section 10, Township 16 South and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude are 32.06587 North and -103.68969 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 Simona-bippus complex with 0 to 5 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. The ground water in the project vicinity is approximately 110-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 and the recommended guideline for Total Chlorides is 1,000 mg/kg.

Incident Description

On November 11, 2015, the fire tube on the heater treater developed a hole due to corrosion. This resulted in the release of approximately 15bbls of produced water and 5bbls of crude oil. All of the fluid remained in the berms of the battery. A vacuum truck was mobilized to the site to recover standing fluid. Approximately 14bbls of produced water and 4bbls of crude oil were recovered.

On April 24, 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	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	22.9	32*	7.7	0.79	2.513	0.164	5.439	0.560	1.45
S-1	1	--	--	709	7.6	6.60	7.719	0.852	57.214	1.967	1.42
S-1	2	--	--	283	7.9	3.35	3.672	0.313	26.663	1.169	0.98
S-1	3	249	2,570	64*	8.3	0.99	0.461	0.031	8.609	0.467	0.22
S-2	0	1.52	8,770	176*	7.4	1.36	5.214	0.462	7.914	0.688	2.51
S-2	1	<0.300	157	80*	8.3	0.97	0.812	0.034	10.116	0.290	0.36

(*) Laboratory Chloride Confirmation

(--) Analyte Not Tested

On-site Soil Remediation

The project objective will be to minimize remediation and site restoration expenses by reducing the hydrocarbon concentrations in the soil below established regulatory action limits. On-site remediation of the impacted material will reduce or eliminate the need for additional trucking and offsite disposal costs.

The hydrocarbon impacted soil will be excavated and mechanically aerated with a soil shredder. The production rate of the shredder is highly dependent upon the site and soil conditions. However typical production rates of 40-60 cubic yards per hour can be expected.

The impacted material will be loaded into the hopper with a backhoe or loader. The material will then be processed through a series of conveyors and screens to break up the soil into smaller particles. The material will be ejected from the shredder in a wide flat stream onto the shredding belt. As the material exits the shredder a series of spray bars will apply a relatively even coating of the selected remedial solution (a hydrogen peroxide solution in this case). The treated material will accumulate in elongated stockpiles behind the shredder. For optimal results, the stockpiles should be left in place undisturbed for 3-5 days when chemical oxidants are applied and 14-21 days for microbial compounds.

Proposed Remedial Actions

- The area in the vicinity of sample location S-1 will be hand excavated to a depth of 3-feet BGS.
- The impacted area in the vicinity of sample location S-2 will be hand excavated to a depth of 1-foot BGS.
- A soil shredder will be used to aerate and treat the soil with a 33% hydrogen peroxide solution to oxidize the hydrocarbons. A soil sample will be taken from approximately every 100-yards of treated soil. The soil samples will be analyzed for TPH and BTEX.
- Once the laboratory results indicate that TPH, BTEX concentrations from the two respective excavation areas are below NMOCD RRAL's the results will be forwarded to NMOCD and BLM for review and permission to backfill the excavation with the treated soil.
- The backfilled area will be backfilled and contoured to match the surrounding location.

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

Glycerine 10 Fed #1

Cimarex Energy Co.

- Legend**
- Feature 1
 - Impacted Area



80 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-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 09342			ED	4	4	3	19	16S	29E	582737	3640640*	7142	220	110	110

Average Depth to Water: 110 feet

Minimum Depth: 110 feet

Maximum Depth: 110 feet

Record Count: 1

Basin/County Search:

County: Eddy

UTM NAD83 Radius Search (in meters):

Easting (X): 588223

Northing (Y): 3645213

Radius: 7500

*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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-41
Revised August 8, 2011

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

Release Notification and Corrective Action

NAB1532356189

OPERATOR		<input checked="" type="checkbox"/> Initial Report	<input type="checkbox"/> Final Report
Name of Company	Cimarex Energy 1102683	Contact	Christine Alderman
Address	600 N Marienfeld Ste 600 Midland TX	Telephone No.	432-853-7059
Facility Name	Glycerin 10 Fed Com 1	Facility Type	production
Surface Owner	BLM	Mineral Owner	
		API No.	30-015-36359

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	10	16S	29E	825	N	330	E	Eddy

Latitude 32.06587 Longitude -103.68969

NATURE OF RELEASE

Type of Release	Produced water/crude	Volume of Release	15 bbls PW/5 bbls crude	Volume Recovered	14 bbls PW/4 bbls crude
Source of Release	heater treater	Date and Hour of Occurrence	11/11/2015	Date and Hour of Discovery	11/11/2015
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Mike Bratcher/ Shelly Tucker		
By Whom?	Christine Alderman	Date and Hour	11/19/2015 11:30 am		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			
If a Watercourse was Impacted, Describe Fully.*					
Describe Cause of Problem and Remedial Action Taken.* The fire tube on the heater treater developed a hole due to corrosion					
Describe Area Affected and Cleanup Action Taken.* All fluids were contained within a dirt berm. Samples will be collected and a work plan will be developed.					

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 19 2015

RECEIVED

NOV 19 2015

RECEIVED

NM OIL CONSERVATION
ARTESIA DISTRICT

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: <i>Christine Alderman</i>	OIL CONSERVATION DIVISION	
Printed Name: Christine Alderman	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: ESH Supervisor	Approval Date: 11/19/15	Expiration Date: N/A
E-mail Address: calderman@cimarex.com	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines <input type="checkbox"/>	
Date: 11/19/2015 Phone: 432-853-7059	SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 12/20/15	

* Attach Additional Sheets If Necessary

2RP-3407

APPENDIX IV

LABORATORY RESULTS



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

May 02, 2017

SHELDON HITCHCOCK

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: GLYCERIN 10 FED #1

Enclosed are the results of analyses for samples received by the laboratory on 04/26/17 14:35.

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 accredited 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

Lab Director/Quality Manager

Analytical Results For:

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

 Received: 04/26/2017
 Reported: 05/02/2017
 Project Name: GLYCERIN 10 FED #1
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/24/2017
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S-1 0' (H701116-01)

BTEx 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/29/2017	ND	1.87	93.4	2.00	0.114		
Toluene*	<0.050	0.050	04/29/2017	ND	1.93	96.5	2.00	0.819		
Ethylbenzene*	<0.050	0.050	04/29/2017	ND	1.94	97.1	2.00	0.802		
Total Xylenes*	<0.150	0.150	04/29/2017	ND	5.79	96.5	6.00	0.883		
Total BTEx	<0.300	0.300	04/29/2017	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 115 % 72-148

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	04/28/2017	ND	416	104	400	3.92		

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	04/27/2017	ND	198	99.1	200	1.29	
DRO >C10-C28	22.9	10.0	04/27/2017	ND	195	97.3	200	2.64	

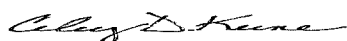
Surrogate: 1-Chlorooctane 90.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 93.4 % 34.7-157

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 04/26/2017
 Reported: 05/02/2017
 Project Name: GLYCERIN 10 FED #1
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/24/2017
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S-1 3' (H701116-02)
BTEX 8021B

mg/kg

Analyzed By: BF

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	3.57	1.00	04/30/2017	ND	1.87	93.4	2.00	0.114	
Toluene*	67.4	1.00	04/30/2017	ND	1.93	96.5	2.00	0.819	
Ethylbenzene*	75.5	1.00	04/30/2017	ND	1.94	97.1	2.00	0.802	
Total Xylenes*	103	3.00	04/30/2017	ND	5.79	96.5	6.00	0.883	
Total BTEX	249	6.00	04/30/2017	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 127 % 72-148

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	04/28/2017	ND	416	104	400	3.92	

TPH 8015M

mg/kg

Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	750	50.0	04/27/2017	ND	198	99.1	200	1.29	
DRO >C10-C28	1820	50.0	04/27/2017	ND	195	97.3	200	2.64	

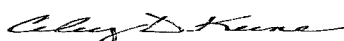
Surrogate: 1-Chlorooctane 127 % 28.3-164

Surrogate: 1-Chlorooctadecane 102 % 34.7-157

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

 Received: 04/26/2017
 Reported: 05/02/2017
 Project Name: GLYCERIN 10 FED #1
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/24/2017
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S-2 0' (H701116-03)

BTX 8021B		mg/kg	Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2017	ND	1.87	93.4	2.00	0.114	
Toluene*	0.201	0.050	04/29/2017	ND	1.93	96.5	2.00	0.819	
Ethylbenzene*	0.400	0.050	04/29/2017	ND	1.94	97.1	2.00	0.802	
Total Xylenes*	0.922	0.150	04/29/2017	ND	5.79	96.5	6.00	0.883	
Total BTX	1.52	0.300	04/29/2017	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 119 % 72-148

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	04/28/2017	ND	416	104	400	3.92	
TPH 8015M		mg/kg	Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	04/27/2017	ND	198	99.1	200	1.29	
DRO >C10-C28	8770	50.0	04/27/2017	ND	195	97.3	200	2.64	

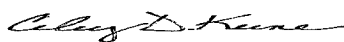
Surrogate: 1-Chlorooctane 91.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 285 % 34.7-157

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* = Accredited Analyte

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

 Received: 04/26/2017
 Reported: 05/02/2017
 Project Name: GLYCERIN 10 FED #1
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 04/24/2017
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Tamara Oldaker

Sample ID: S-2 1' (H701116-04)

BTEX 8021B			mg/kg		Analyzed By: BF				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2017	ND	1.87	93.4	2.00	0.114	
Toluene*	<0.050	0.050	04/29/2017	ND	1.93	96.5	2.00	0.819	
Ethylbenzene*	0.058	0.050	04/29/2017	ND	1.94	97.1	2.00	0.802	
Total Xylenes*	<0.150	0.150	04/29/2017	ND	5.79	96.5	6.00	0.883	
Total BTEX	<0.300	0.300	04/29/2017	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 118 % 72-148

Chloride, SM4500CI-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	04/28/2017	ND	416	104	400	3.92	

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	04/27/2017	ND	198	99.1	200	1.29	
DRO >C10-C28	157	10.0	04/27/2017	ND	195	97.3	200	2.64	

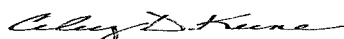
Surrogate: 1-Chlorooctane 88.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.6 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

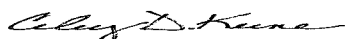
Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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

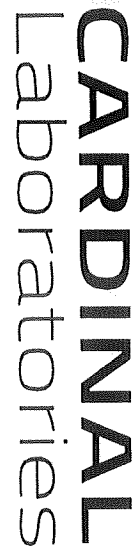
Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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



Phone Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #:
Fax Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Fax #:
REMARKS:			

Report generated for:
Sheldon Hitchcock
Talon/LPE: Glycerin 10 Fed #1
408 W Texas Ave
Artesia, NM 88210

Outside TX County
Laboratory Number: 485233
Customer Sample ID: S-1 0'
Crop Grown: NO CROP GIVEN

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>

Sample received on: 4/28/2017
Printed on: 5/15/2017
Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.
pH	8.6	(5.8)	-	Mod. Alkaline						
Conductivity	178	(-)	umho/cm	None				CL*		Fertilizer Recommended
Nitrate-N	6	(-)	ppm**							
Phosphorus	2	(0)	ppm							
Potassium	92	(0)	ppm							
Calcium	32,008	(180)	ppm							
Magnesium	345	(50)	ppm							
Sulfur	53	(13)	ppm							
Sodium	118	(-)	ppm							
Iron										
Zinc										
Manganese										
Copper										
Boron										
Limestone Requirement										
Detailed Salinity Test (Saturated Paste Extract)										
	pH	7.7								
	Conductivity	0.79	mmhos/cm							
	Sodium	58	ppm							2.513 meq/L
	Potassium	6	ppm							0.164 meq/L
	Calcium	109	ppm							5.439 meq/L
	Magnesium	7	ppm							0.560 meq/L
	SAR	1.45								
	SSP	28.96								

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

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>

Report generated for:
Sheldon Hitchcock
Talon/LPE: Glycerin 10 Fed #1
408 W Texas Ave
Artesia, NM 88210

Outside TX County
Laboratory Number: 485234
Customer Sample ID: S-1 1'

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Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.
pH	8.9	(5.8)	-	Strongly Alkaline						
Conductivity	1,340	(-)	umho/cm	Moderate						
Nitrate-N	5	(-)	ppm**	CL*						
Phosphorus	1	(0)	ppm							
Potassium	107	(0)	ppm							
Calcium	31,403	(180)	ppm							
Magnesium	234	(50)	ppm							
Sulfur	44	(13)	ppm							
Sodium	800	(-)	ppm							
Iron										
Zinc										
Manganese										
Copper										
Boron										
Limestone Requirement										
				Detailed Salinity Test (Saturated Paste Extract)						
				pH		7.6				
				Conductivity		6.60 mmhos/cm				
				Sodium		177 ppm		7.719 meq/L		
				Potassium		23 ppm		0.582 meq/L		
				Calcium		1147 ppm		57.214 meq/L		
				Magnesium		24 ppm		1.967 meq/L		
				SAR		1.42				
				SSP		11.44				

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Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.
pH	8.8	(5.8)	-	Strongly Alkaline						
Conductivity	670	(-)	umho/cm	Slight						
Nitrate-N	5	(-)	ppm**	CL*						
Phosphorus	1	(0)	ppm							
Potassium	101	(0)	ppm							
Calcium	31,192	(180)	ppm							
Magnesium	304	(50)	ppm							
Sulfur	38	(13)	ppm							
Sodium	455	(-)	ppm							
Iron										
Zinc										
Manganese										
Copper										
Boron										
Limestone Requirement										

Detailed Salinity Test (Saturated Paste Extract)			
pH	7.9		
Conductivity	3.35 mmhos/cm		
Sodium	84 ppm	3.672 meq/L	
Potassium	12 ppm	0.313 meq/L	
Calcium	534 ppm	26.663 meq/L	
Magnesium	14 ppm	1.169 meq/L	
SAR	0.98		
SSP	11.54		

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Laboratory Number: 485236
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Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	9.2	(5.8)	-	Strongly Alkaline							
Conductivity	248	(-)	umho/cm	None				CL*		Fertilizer Recommended	
Nitrate-N	5	(-)	ppm**								
Phosphorus	1	(0)	ppm								
Potassium	91	(0)	ppm								
Calcium	31,214	(180)	ppm								
Magnesium	310	(50)	ppm								
Sulfur	28	(13)	ppm								
Sodium	264	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											
Detailed Salinity Test (Saturated Paste Extract)											
pH				8.3							
Conductivity				0.99 mmhos/cm							
Sodium				11 ppm 0.461 meq/L							
Potassium				1 ppm 0.031 meq/L							
Calcium				173 ppm 8.609 meq/L							
Magnesium				6 ppm 0.467 meq/L							
SAR				0.22							
SSP				4.82							

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Outside TX County
Laboratory Number: 485237
Customer Sample ID: S-2 0'

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Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.
pH	8.3	(5.8)	-	Mod. Alkaline						
Conductivity	316	(-)	umho/cm	None						
Nitrate-N	5	(-)	ppm**	CL*						
Phosphorus	1	(0)	ppm							
Potassium	62	(0)	ppm							
Calcium	30,982	(180)	ppm							
Magnesium	303	(50)	ppm							
Sulfur	44	(13)	ppm							
Sodium	127	(-)	ppm							
Iron										
Zinc										
Manganese										
Copper										
Boron										
Limestone Requirement										
				Detailed Salinity Test (Saturated Paste Extract)						
				pH		7.4				
				Conductivity		1.36 mmhos/cm				
				Sodium		120 ppm		5.214 meq/L		
				Potassium		18 ppm		0.462 meq/L		
				Calcium		159 ppm		7.914 meq/L		
				Magnesium		8 ppm		0.688 meq/L		
				SAR		2.51				
				SSP		36.52				

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pH	9.3	(5.8)	-	Strongly Alkaline						
Conductivity	224	(-)	umho/cm	None				CL*		Fertilizer Recommended
Nitrate-N	5	(-)	ppm**							
Phosphorus	1	(0)	ppm							
Potassium	137	(0)	ppm							
Calcium	30,369	(180)	ppm							
Magnesium	280	(50)	ppm							
Sulfur	31	(13)	ppm							
Sodium	448	(-)	ppm							
Iron										
Zinc										
Manganese										
Copper										
Boron										
Limestone Requirement										
Detailed Salinity Test (Saturated Paste Extract)										
pH	8.3									
Conductivity	0.97		mmhos/cm							
Sodium	19		ppm							0.812 meq/L
Potassium	1		ppm							0.034 meq/L
Calcium	203		ppm							10.116 meq/L
Magnesium	4		ppm							0.290 meq/L
SAR	0.36									
SSP	7.22									

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