District I 1625 N. French Dr., Hobbs, NM 88240 District II
1301 W. Grand Avenue, Artesia, NM 88210 District III

1000 Rio Brazos Road, Aztec, NM 87410 ot IV St. Francis Dr., Santa Fe, NM 87505

## State of New Mexico HOBBS OCD Minerals and Natural Resources

Form C-141 Revised October 10, 2003

JUL 17 2012 Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

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

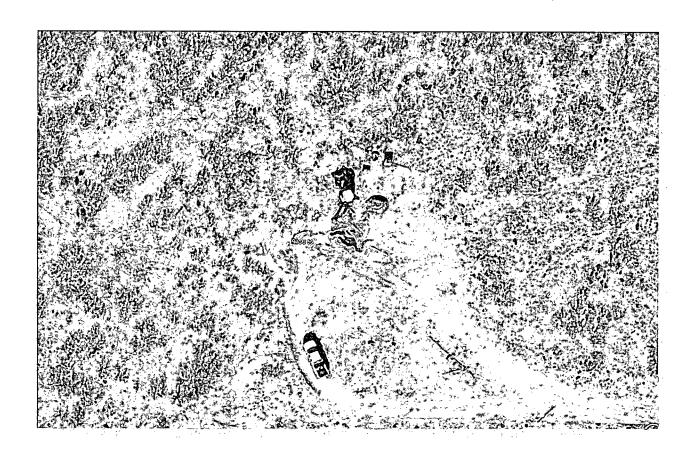
# Release Notification and Corrective Action

						OPERA7	ΓOR	☐ I	nitial Report	$\boxtimes$	Final Report			
Name of Co	mpany: Li	inn Operatin	g			Contact: Bri	an Wall							
		nder, Hobbs,		40			No.: 575-738-17	39						
Facility Nan	ne: MGU	#53				Facility Typ	e: Injection							
Surface Ow:	ner Privat	e		Mineral C	)wner	er: API No.: 3002500497								
Surface Ow.	iici. riivat	.6		WillerarC	WIICI.			AFI	No 300230	0497				
				LOCA	ATIO	N OF REI	LEASE							
Unit Letter	Section	Township	Range	Feet from the		/South Line	Feet from the	East/West Li	ne County					
E	10	17S	32E	1980	]	North	610	West		Lea	ı			
						···		l						
			Latitu	ude: 35.850918	662847	4 Longitud	e: -103.7609374	452841						
				NAT	שמוזי	OF RELI	FACE							
Type of Relea	aca: Produc	ed Water		NAI	UKE	Volume of		Volum	ne Recovered:	0				
Source of Rel						+	our of Occurrence		and Hour of D		<del>,</del>			
		8				12/26/13-0			/13-0800		•			
Was Immedia	ate Notice C					If YES, To	Whom?							
		$\boxtimes$	Yes	No 🗌 Not Re	equired	M-Burton ·	BLM, Geoffrey	Leking - NMC	CD					
By Whom? T							our 12/30/2013-1							
Was a Watero	course Reac		, k7			If YES, Vo	lume Impacting t	he Watercours	е.	·				
			Yes 🛚	] No										
Watercou	irse was Im	pacted, Descri	ibe Fully.	· .										
				ten.* : Release wa ed. See remediati				ed soils were re	emoved and dis	sposed o	of off-site. A			
regulations al public health should their o or the enviror	I operators or the envir operations h nment. In a	are required to conment. The ave failed to a	o report ar acceptance adequately OCD accep	is true and comp nd/or file certain r tee of a C-141 repo investigate and restance of a C-141	elease no ort by the emediate	otifications ar e NMOCD m e contaminati	nd perform correct arked as "Final R on that pose a thr	ctive actions for eport" does no eat to ground v	r releases whic t relieve the op vater, surface v	h may en erator of vater, hu	ndanger f liability ıman health			
							OIL CON	SERVATIO	<u>ON DIVISI</u>	<u>ON</u>				
Signature: 7	Frod RI	Wall				=								
Signature. 1	1000	VVUV				Ann wood by	District Supervis							
Printed Name	: Brian Wa	11				Approved to	Environde	Specialis-	•					
								·	_					
Title: Constru	uction Forei	man II				Approval Dat	e: 7-17 -14	Expirat	ion Date:					
ail Addre		linnenergy.co		-367-0645		Conditions of	Approval:		Attache	ed 🔲	3/5/			
		ets If Necess			<u> </u>					•	a 269324			
			=							-				
							1 11 11	- 7 901A		1170	14 19 835 <u>5</u> 1418 944 38			
							JUL	1 7 2014	1	DTO	14160 -			
										, ,-	118 944 38			





# Report LINN Energy – MGU 53 Corrective Action



**Prepared For:** 

**LINN Energy** 

2130 W. Bender Hobbs, NM 88240

Prepared By:

**Etech Environmental & Safety Solutions, Inc.** 

Date Prepared: Project Number: 253-4583-002

July 7, 2014





#### **General Information**

This section provides	general inform	ation about the opera	tor and the sit	e where the spil	l occurred.
<b>Date:</b> July 7, 2014					
Client: LINN Energy					
Site Name: Maljamar G	irayburg Unit (M	GU) 53	County: Lea		State: NM
Site Coordinates	Latitude:	32.850918668474°			
	Longitude:	-103.760937452841°			
Property Owner:	Private				
State Report No.:	7-14-3151				
Release Description :	and Assessmer	ıt.			
The information belo	w is related to	the spill (Date, Type, Cause	and Quantity) and	the area impac	ted.
Date of Spill(s): 08/	/14/13 & 12/26/	13			
Type of Spill:	Oil Produ	ced Water 🔲 Conde	ensate 🔲 C	ther (Specify):	
Cause of Spill:	Equipment Failu Other (List):	re Valve Failure	∠ Line Leak	Leaking 1	Tank Tank Overfill
Other Contributing Fac	tors or Commen	ts:		•	
Quantity Spilled: 11 bb	ls. Quantity Rec	overed: 9 bbls. To	otal Released: 2	bbls.	
Method of Recovery:	$oxed{oxed}$ Vacuum Truc	C Other (Specify):			
OCD Notified: X Yes	☐ No	C-141 Completed a	nd Submitted:	🛛 Yes 🗌 No	
Spill Area Impacted:	Inside Fire	<del></del>	uction Pad	☐ In Pasture	In Cultivated Land
	Other (List				
Total Square Footage I	mpacted: 3,000	Estimated Depth: 1	-5 <b>Volume</b>	(Cu. Yds): ~575	
Other Comments:					

#### Remediation Activity Summary

#### The following summarizes the activities used to remediate the spill.

On August 14, 2013 LINN Energy notified the Bureau of Land Management (BLM) and the New Mexico Oil Conservation Division (NMOCD) of a release that had occurred at the MGU 53 from a leak that had developed in an injection line connecting to the valve box located on the site. Following completion of repairs, an initial assessment was performed on the site by others. Samples were collected and determined there were impacts on the pad area of chlorides ranging from 496 to 22,400 mg/kg. While in the process of preparing to initiate corrective actions, a second release occurred on December 26, 2013 at the same site from the failure of a fitting near the valve box.

On February 17, 2014 a corrective action plan (CAP) was developed and submitted to and approved by the NMOCD and BLM. The CAP called for the excavation and disposal of soils impacted with chlorides greater than 500 mg/kg and total petroleum hydrocarbons greater than 1,000 mg/kg. Upon reaching corrective action levels, the excavation would be backfilled to surface with clean fill. A copy of the assessment map and corrective action plan are attached.

Excavation of the area began in March of 2014. Utilizing field screening while excavating, the excavated area resulted in a rough bowl-shaped excavation approximately 60 feet in diameter with a maximum depth of 4 feet in the center. Two injection lines; one running east to west to the well, and one running southeast to northwest to the valve box were uncovered which hampered excavation of the center of the impacted area. On March 14, 2014

LINN Energy MGU 53 Remediation Summary Report (Continued)

a sampling event was conducted of the area. The analytical results indicated the majority of the areas outside of the center of the excavation cleared with the exception of portion which though close, were slightly elevated.

Additional excavation was performed in the outer areas. In addition, a delineation trench was advanced to 14 feet in the center of the excavation. On May 15, 2014 a second sampling event was conducted. The analytical results indicated the areas outside of the center portion of the excavation were below corrective action levels. The sample collected at the bottom of the delineation retrench in the center of the excavation indicated the chloride levels were at 2,280 mg/kg and would require the use of a drilling rig to complete the vertical delineation.

With the concurrence of BLM and NMOCD, a liner was installed in the bottom of the excavation. Portions of the areas outside of the center of the excavation were backfilled to assist in creating a smaller confined area in the event a new release occurred. The liner was installed underneath the injection lines and sealed against the valve box. As the line was brought up the sides, it was seated back into the sidewalls. The lined area was then backfilled with clean fill and compacted.

On May 28, a soil boring was advanced through the center of the excavation area. Samples were screened on site in 1 foot internals, and then jarred in certified clean glass jars. Once the screening data determined the samples for the boring were clear for a minimum of 10 feet, the boring was terminated then plugged to surface with concrete. Samples were selected from 5 foot intervals and subject to laboratory analyses. The analytical results determined the vertical extent of the impact extended to 19-20 feet below ground level.

#### **Analytical Summary**

Results of analyses following remediation activities are as follows:

Total	Summary of Remediation Sampling Analytical Results Total Petroleum Hydrocarbons - [TPH (mg/kg)], Benzene, Toluene, Ethylbenzene, Xylene [BTEX mg/kg)], and Chlorides [Chl (mg/kg)]										
Date	Sample I.D.	Depth	GRO C6-C10	DRO C10-C28	Total TPH	(mg/kg)]	Т	E	х	Total	Chí
08/16/13	PT. 1	0-6"									22,400
08/16/13	PT. 1	1'									4,560
08/16/13	PT. 2.	0-6"									9,200
08/16/13	PT. 2	1'									10,800
08/16/13	PT. 3	0-6"								1	496
08/16/13	PT. 3	1'									4,560
03/14/14	SP1 Bottom	4'	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	2,440
03/14/14	SP 1 N. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	432
03/14/14	SP 1 W. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	848
03/14/14	SP 1 E. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	400
03/14/14	SP 2 Bottom	4′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	2,720
03/14/14	SP 2 \$. Wall	2′	<10.0	<28.7	28.7	<0.50	<0.50	<0.50	<0.150	<0.300	560
03/14/14	SP2 W. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	512
03/14/14	SP 2 E. Wall	2′	<10.0	11.0	11.0	<0.50	<0.50	<0.50	<0.150	<0.300	560
05/13/14	SP1 N. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	208
05/13/14	SP 2 Bottom	14'	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	2,280
05/13/14	SP2 E. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	>16.0
05/13/14	SP 2 W. Wall	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	64.0
05/13/14	SP 3 S. Wali	2′	<10.0	<10.0	<10.0	<0.50	<0.50	<0.50	<0.150	<0.300	160
06/03/14	Soil Boring (SB)	09-10'									2,000
06/03/14	Soil Boring (SB)	14-15'									560
06/03/14	Soil Boring (SB)	19-20'					_				448
06/03/14	Soil Boring (SB)	24-25'									224
06/03/14	Soil Boring (SB)	29-30'									112
06/03/14	Soil Boring (SB)	34-35'									80.0

<sup>\*</sup> Values in red indicate levels above corrective action levels.

LINN Energy MGU 53 Remediation Summary Report (Continued)

A review of the analytical data coupled with the installation of the liner has determined the remediation to the site is complete. Copies of analytical reports and photographs are attached.

Prepared by:

Project Manager

Etech Environmental & Safety Solutions, Inc.

And Holnes

## LINN Energy - MGU 53 Photograph Log

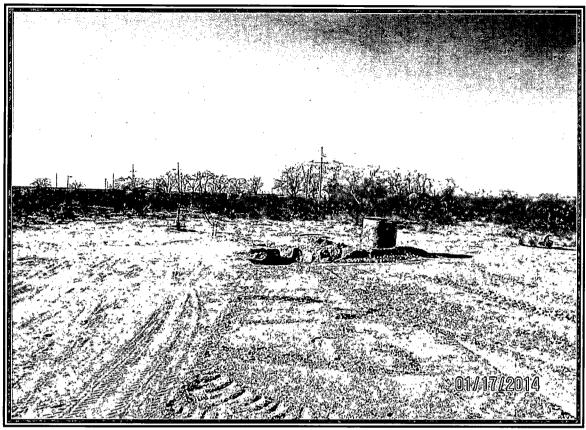


Photo 1: View of site following release and after lines had been repaired.

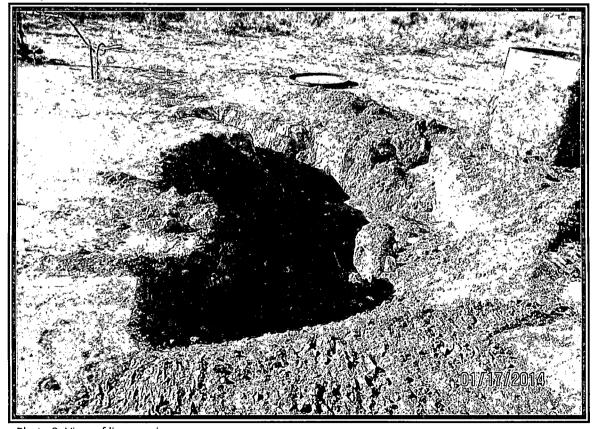


Photo 2: View of line repair area.

## LINN Energy - MGU 53 Photograph Log

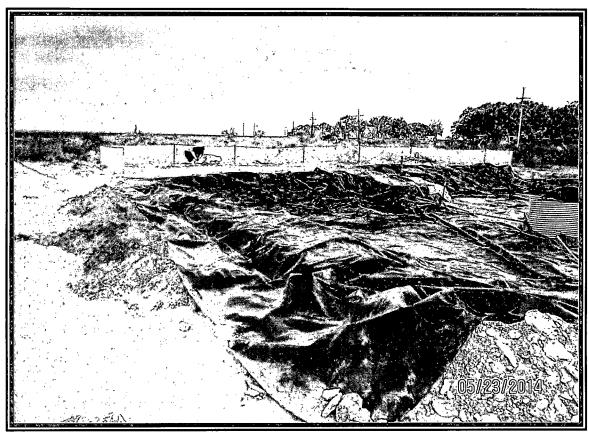


Photo 3: View of liner installation.

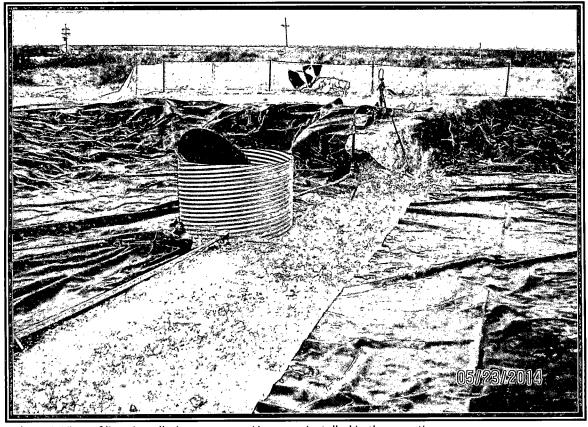


Photo 4: View of liner installation progress. Liner was installed in three sections.

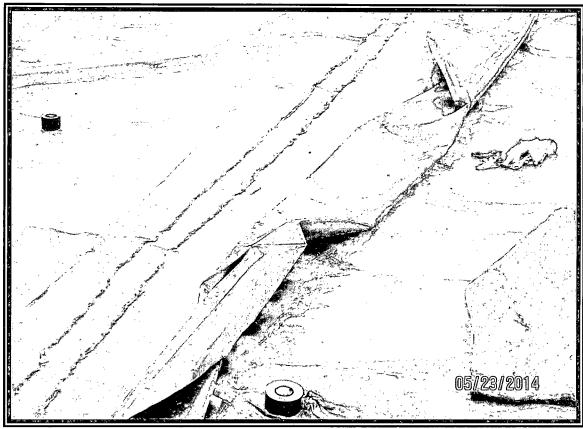


Photo 5: View of liner seam before overlapping and sealing. Two beads of flexible urethane adhesive are between the two layers. Then an out layer of industrial, waterproof adhesive tape is used to seal the edges.



Photo 6: View of finished seam. Note the pipe penetrations are sealed as well.

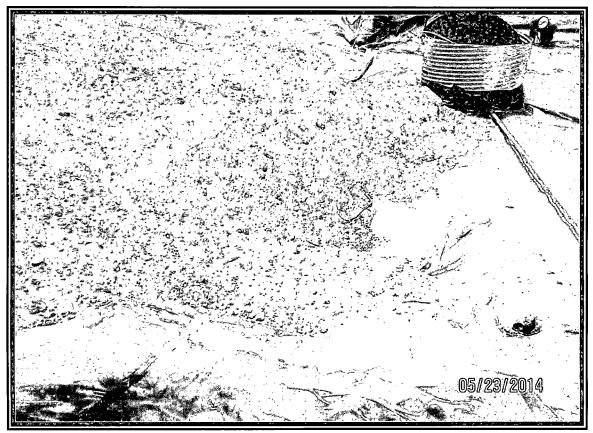
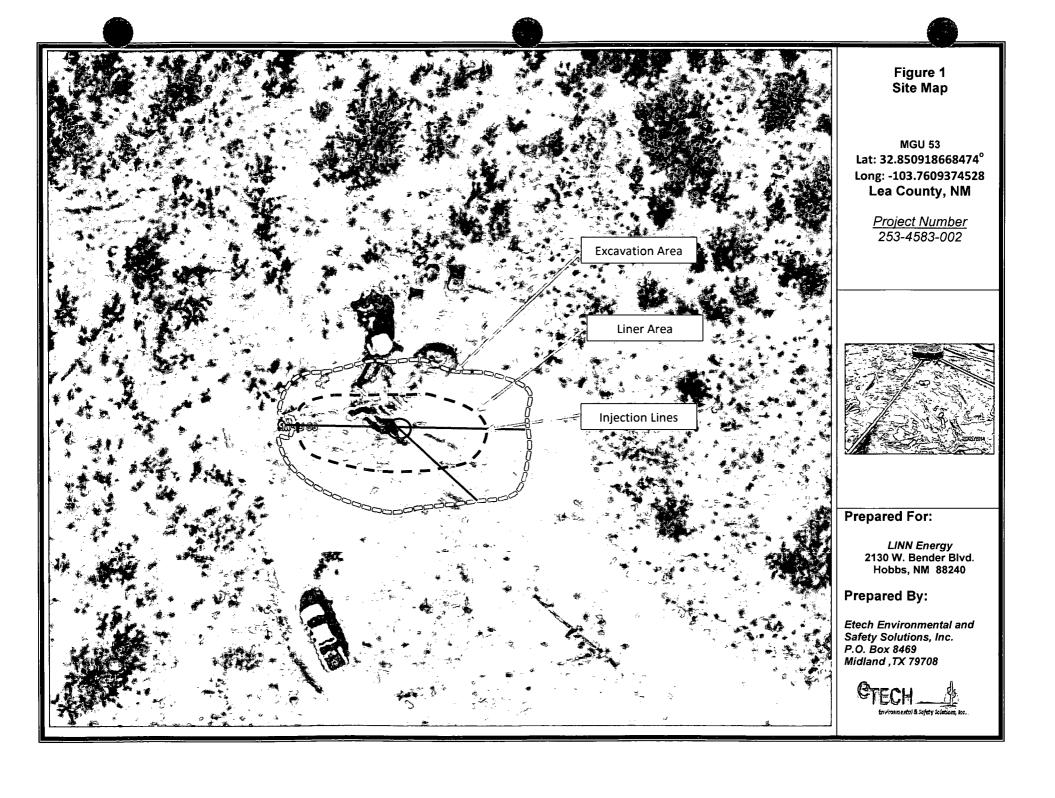


Photo 7: Lined area in the process of being backfilled.

Assessment Map & Corrective Action Plan





## Environmental & Safety Solutions, Inc.

#### Electronic Correspondence

February 17 2014

Mr. Geoffrey Leking
State of New Mexico
Oil Conservation Division
1625 N. French Dr,
Hobbs, New Mexico 88240
geoffreyr.leking@state.nm.us

Re: Corrective Action Plan

LINN Energy, Maljamar Grayburg Unit 53

API No.: 30-025-00497

Legal: E-10-17S-32E, 1980 FNL & 610 FWL, Lea Co., NM

GPS: N32.8509186628474, W103.760937452841

Depth to Groundwater: 75 feet

#### Dear Geoff:

Etech Environmental & Safety Solutions, Inc. (Etech) is pleased to submit the following corrective action plan on the aforementioned site for your review and approval.

#### Scope of Work

The scope of this project is for the remediation of a produced water/hydrocarbon impact. Completion of remediation will involve the following actions:

- 1. Placement of a one-call for utility location.
- 2. Excavation of impacted soils until the chloride levels are less than 500 mg/kg and/or hydrocarbon levels of less than 1,000 mg/kg are reached. The impacted area will be excavated to a depth where acceptable chloride and, or TPH levels are met, or to the existing liner put in place at the completion of the original spill. During the course of excavation soil samples will be screened on site to determine the progress of the remediation. Screening is achieved using a YSI chloride meter with a tolerance of +/-6% which is the same tolerance as laboratory titration methods.
- 3. Where pad areas or interior areas of tank batteries are excavated as reasonably feasible to remove the grossly impacted soil, they will be backfilled to within 6 inches of surface then backfilled to grade with compacted caliche. Any firewalls or containment berms removed during remediation will be reinstalled.

#### **Notifications and Special Conditions**

- 1. The OCD and BLM will be notified prior to the commencement of on-site operations.
- 2. The OCD and BLM will be notified prior to each sampling event to allow the opportunity to witness the sampling events. Splits will be made available if requested.
- 3. The OCD and BLM (if applicable) will be notified when the site is closed for final inspection prior to seeding.
- 4. A final report documenting the closure of the site will be submitted along with a final C-141.

Thank you for your assistance on this matter. Should you have any questions, require additional information, or have any additional stipulations for this site, please contact Mr. Brian Wall at (575) 738-1739 (Office) or via email at <a href="mailto:bwall@linnenergy.com">bwall@linnenergy.com</a> or myself at (432) 563-2200 (office) or via email at <a href="mailto:kit@etechenv.com">kit@etechenv.com</a>.

Respectfully:

Kit Prichard

**Environmental Professional** 

cc: Mike Burton, BLM Carlsbad District Office

# **Analytical Results**



June 10, 2014

FRED HOLMES

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: MGU #53

Enclosed are the results of analyses for samples received by the laboratory on 06/05/14 14:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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 <a href="https://www.tceq.texas.gov/field/qa/lab">www.tceq.texas.gov/field/qa/lab</a> 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)

1ethod EPA 524.4

Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

Celey & Keine

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



ETECH Environmental & Safety Solutions, Inc.

FRED HOLMES P. O. BOX 8469 MIDLAND TX, 79708

Fax To:

(432) 563-2213

Received: Reported: 06/05/2014

06/10/2014

Project Name: Project Number: MGU #53 253-4583-002

**Project Location:** 

Analyte

Analyte

Analyte

Analyte

MALJAMAR

Result

2000

Sampling Date:

06/03/2014

Sampling Type:

Soil

Sampling Condition:

Cool & Intact

Sample Received By:

Jodi Henson

Sample ID: 09-10' (H401716-01)

Chloride, SM4500Cl-B

mg/kg

Reporting Limit

16.0

Reporting Limit

Reporting Limit

16.0

Reporting Limit

16.0

Analyzed By: AP

Analyzed

06/10/2014

Analyzed

Method Blank

BS

416

% Recovery

104

True Value QC 400

RPD Qualifier

0.00

Sample ID: 14-15' (H401716-02)

Chloride, SM4500Cl-B

mg/kg

Analyzed By: AP

BS % Recovery

True Value QC

RPD

´``ride

Chloride

560

Result

448

Result

224

Result

16.0 06/10/2014 Method Blank ND

ND

ND

416

104

400

Qualifier

Sample ID: 19-20' (H401716-03)

Chloride, SM4500Cl-B

mg/kg

Analyzed By: AP

Analyzed

06/10/2014

Method Blank BS % Recovery

104

True Value QC

400

RPD

0.00

0,00

Qualifier

Chloride

Chloride

Sample ID: 24-25' (H401716-04)

Chloride, SM4500Cl-B

mg/kg

Analyzed By: AP

Analyzed

06/10/2014

Method Blank

ND

RS 416

416

% Recovery 104

True Value QC 400

RPD

0.00

Oualifier

Cardinal Laboratories

\*=Accredited Analyte

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ETECH Environmental & Safety Solutions, Inc.

**FRED HOLMES** P. O. BOX 8469

MIDLAND TX, 79708

Fax To:

(432) 563-2213

Received:

06/05/2014

Reported: Project Name: 06/10/2014 MGU #53

Project Number: Project Location: 253-4583-002

MALJAMAR

Sampling Date: Sampling Type:

06/03/2014

Sampling Condition: Sample Received By: Cool & Intact

Jodi Henson

Soil

Sample ID: 29-30' (H401716-05)

Chloride, SM4500CI-B

Chloride

mg/kg

Analyzed By: AP

Analyte

Result 112

Reporting Limit 16.0

Analyzed 06/10/2014 Method Blank ND

BS 416 % Recovery 104

True Value QC 400

Qualifier

Sample ID: 34-35' (H401716-06)

Chloride, SM4500Cl-B

mg/kg

80.0

Analyzed By: AP

Analyte ~ `ride

Result

Reporting Limit Analyzed 06/10/2014 16.0

Method Blank ND

BS 416 % Recovery 104

True Value QC 400

RPD

0.00

RPD

0.00

Qualifier

Cardinal Laboratories

\*=Accredited Analyte

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



#### **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

Cardinal Laboratories \*=Accredited Analyte

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A	
AF	RDINAL LABORATORIES
	101 East Marland, Hobbs, NM 88240

(505) 393-2326 Fax (505) 393-2476

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page \_ 1 \_ of \_ 1

Company Name	Etech Env. & Safety Solutions, Inc.				BILL TO ANALYSIS REQUEST														
Project Manage	r: Fred Holmes				P.O.	#: 25	3-4583-00	2											
Address: P.C	Address: P.O. Box 8469				Company:											-		l	
City: Midland	State: TX	Zip:		79708	Attn:												1	1	
Phone #: 432	-563-2200 Fax #:	432	-563	-2213	Addr	ess:											Ì	ł	1
Project #: 253	4583-002 Project Owner	:			City:												İ	į	
Project Name:	MGU 53				State	:	Zip:										- 1	[	Í
Project Location	n: Malajamar				Phon	ie #:												ł	}
Sampler Name:	S. Meyers				Fax #	t:												1	ł
FOR LABUSE ONLY			7	MATRIX	PI	RESERV	SAMPLII	4G											
Lab I.D. 1401716	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER WASTEWATER SOIL OIL SLUDGE	OTHER:	ICE / COOL OTHER:	DATE	TIME	ТРН (8015)	TPH Ext (TX 1005)	Chlorides								
1	09-10'	G	1	x			3-Jun	1100			X								
	14-15'	G	1	_   x			3-Jun	1103			x_								
3	19-20'	G	1	x			3-Jun	1106			_ <b>x</b> _	 							
4	24-25'	G	1	x			3-Jun	1109			×	 		ļ					
5	29-30'	G	1	x			3-Jun	1112			×	 							
6	34-35'	G	1	x			3-Jun	1115			×								
	39-40'	G	1	x			3-Jun	1118			×								
8	44-45'	G	1	x			3-Jun	1121			X								
<u> </u>	49-50'	G	1	_   x			3-Jun	1124	<u> </u>		×	 							
		ot		1 1 1			!												
PLEASE NOTE: Limbing of	nd Damages. Cardinal's liability and client's exclusive remedy for ar	ıy daim	arisin	g whather based in contract	or tort, sh	all be limited	to the amount paid	by the client for	the			 Ten	ns and Co	onditions:	Interest w	C) be ohon	ed on all a	counts mo	re tha

PLEASE NOTE: Liabiday and Damages. Cardinal's tability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoener shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collectors, including attorney's fees.

	affiliates or successors engine-out of or related to the performance of	of services herounder by Cardinal, recardless of whether such claim is based upon any of the above stated re	asons or otherwise.
	Sampler Relinquished: \	Date: / Received By:	Phone Result: D Yes D No  Add'l Phone #:
		10-5-14 /10 d M	Fax Result: 🖸 Yes 🔘 No   Add'l Fax #:
		Time:	REMARKS:
		1430 GUUSEN	Start @ 9-10' and analyze in sequence. If chlorides are less than 250 mg/kg
-	Relinquished By:	Date: Received By:	for 3 consecutive samples do not analyze any further.
		Time:	(
	Delivered By: (Circle One)	Temp. Sample Condition CHECKED BY:	
	Sampler - UPS - Bus - Other:	25.40 Cool Intact Iditals)	

<sup>†</sup> Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.





May 19, 2014

KIT PRICHARD

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: MGU #53

Enclosed are the results of analyses for samples received by the laboratory on 05/13/14 16:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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 <a href="https://www.tceq.texas.gov/field/qa/lab">www.tceq.texas.gov/field/qa/lab</a> 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)

1ethod EPA 524.4

Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

Celey & Keens

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



ETECH Environmental & Safety Solutions, Inc.

KIT PRICHARD P. O. BOX 8469 MIDLAND TX, 79708

(432) 563-2213 Fax To:

Received:

05/13/2014

Sampling Date:

05/13/2014

Reported:

05/19/2014

Sampling Type:

Soil

Project Name:

MGU #53

Sampling Condition: Sample Received By: \*\* (See Notes) Jodi Henson

Project Number:

NONE GIVEN

Project Location:

**NOT GIVEN** 

## Sample ID: SP 1 NORTH 2' (H401452-01)

BTEX 8260B	mg/	kg	Analyze	d By: ms				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2014	ND	1.85	92.4	2.00	5.18	
Toluene*	<0.050	0.050	05/15/2014	ND	1.73	86.5	2.00	7.75	
Ethylbenzene*	<0.050	0.050	05/15/2014	ND	1.61	80.7	2.00	8.03	
Total Xylenes*	<0.150	0.150	05/15/2014	ND	4.93	82.2	6.00	6.38	
Total BTEX	<0.300	0.300	05/15/2014	ND					
gate: Dibromofluoromethane	97.4	% 61.3-14	2						
gate: Toluene-d8	101 9	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	103 9	% 65.7-14	I						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Chloride	208	16.0	05/14/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: MS				_	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
GRO C6-C10	<10.0	10.0	05/17/2014	ND	216	108	200	11.3	
DRO >C10-C28	<10.0	10.0	05/17/2014	ND	238	119	200	12.0	
Surrogate: 1-Chlorooctane	107 9	65.2-14	0				<del></del>	-	
Surrogate: 1-Chlorooctadecane	104 9	% 63.6-15	4						

#### Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatspever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



ETECH Environmental & Safety Solutions, Inc.

KIT PRICHARD

P. O. BOX 8469

MIDLAND TX, 79708

Fax To:

(432) 563-2213

Received: Reported: 05/13/2014

(

05/19/2014 MGU #53

Project Name: Project Number: MGU #53 NONE GIVEN

Project Number.

Project Location:

NOT GIVEN

Sampling Date:

05/13/2014

Sampling Type:

Soil

Sampling Condition:

\*\* (See Notes)

Sample Received By:

Jodi Henson

## Sample ID: SP 2 BOTTOM 14' (H401452-02)

BTEX 8260B	mg,	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/15/2014	ND	1.85	92.4	2.00	5.18	
Toluene*	<0.050	0.050	05/15/2014	ND	1.73	86.5	2.00	7.75	
Ethylbenzene*	<0.050	0.050	05/15/2014	ND	1.61	80.7	2.00	8.03	
Total Xylenes*	<0.150	0.150	05/15/2014	ND	4.93	82.2	6.00	6.38	
Total BTEX	<0.300	0.300	05/15/2014	ND					
gate: Dibromofluoromethane	98.1	% 61.3-14	2						
gate: Toluene-d8	101	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	104	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2280	16.0	05/14/2014	ND	400	100	400	3.92	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2014	ND	216	108	200	11.3	
DRO >C10-C28	<10.0	10.0	05/17/2014	ND	238	119	200	12.0	
Surrogate: 1-Chlorooctane	119	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	115	% 63.6-15	4						

#### **Cardinal Laboratories**

\*=Accredited Analyte

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Celey D. Keena



ETECH Environmental & Safety Solutions, Inc.

KIT PRICHARD P. O. BOX 8469 MIDLAND TX, 79708

Fax To:

(432) 563-2213

Analyzed By: ms

Received:

BTEX 8260B

05/13/2014

Sampling Date:

05/13/2014

Reported:

05/19/2014

Sampling Type:

Soil

Project Name:

MGU #53

Sampling Condition:

\*\* (See Notes)

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

NOT GIVEN

#### Sample ID: SP 2 EAST 2' (H401452-03)

	1119	ng .	Analyzo	a by. III3					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2014	ND	2.08	104	2.00	2.35	
Toluene*	< 0.050	0.050	05/16/2014	ND	1.94	97.1	2.00	2.99	
Ethylbenzene*	<0.050	0.050	05/16/2014	ND	1.81	90.6	2.00	1.22	
Total Xylenes*	<0.150	0.150	05/16/2014	ND	5.49	91.5	6.00	1.16	
Total BTEX	<0.300	0.300	05/16/2014	ND					·
rgate: Dibromofluoromethane	99.0	% 61.3-14	2					_	
gate: Toluene-d8	102	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	99.1	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	05/14/2014	ND	400	100	400	3.92	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2014	ND	216	108	200	11.3	
DRO >C10-C28	<10.0	10.0	05/17/2014	ND	238	119	200	12.0	
Surrogate: 1-Chlorooctane	113 9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	113 9	% 63.6-15	4						

#### Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories,



ETECH Environmental & Safety Solutions, Inc. KIT PRICHARD P. O. BOX 8469

MIDLAND TX, 79708

Fax To: (432) 563-2213

Received:

05/13/2014

Sampling Date:

05/13/2014

Reported:

05/19/2014

Sampling Type:

Soil

Project Name:

MGU #53

Sampling Condition:

\*\* (See Notes)

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

**NOT GIVEN** 

Sample ID: SP 2 WEST 2' (H401452-04)

BTEX 8260B	mg,	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2014	ND	2.08	104	2.00	2.35	
Toluene*	<0.050	0.050	05/16/2014	ND	1.94	97.1	2.00	2.99	
Ethylbenzene*	<0.050	0.050	05/16/2014	ND	1.81	90.6	2.00	1.22	
Total Xylenes*	<0.150	0.150	05/16/2014	ND	5.49	91.5	6.00	1.16	
Total BTEX	<0.300	0.300	05/16/2014	ND					
rgate: Dibromofluoromethane	99.2	% 61.3-14	2						
gate: Toluene-d8	102	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	99.2	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	'kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	05/14/2014	ND	400	100	400	3.92	
TPH 8015M	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2014	ND	216	108	200	11.3	
DRO >C10-C28	<10.0	10.0	05/17/2014	ND	238	119	200	12.0	
Surrogate: 1-Chlorooctane	106	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	113	% 63.6-15	4						

#### Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and PLEASE NOTE: Locality and behalpes. Cardinals adouty and thems exclusive relieury in claim and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



ETECH Environmental & Safety Solutions, Inc.

KIT PRICHARD

P. O. BOX 8469

MIDLAND TX, 79708

Fax To:

(432) 563-2213

Received:

05/13/2014

Sampling Date:

05/13/2014

Reported: Project Name: 05/19/2014

Sampling Type:

Soil

MGU #53

Sampling Condition:

\*\* (See Notes)

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

**NOT GIVEN** 

#### Sample ID: SP 3 SOUTH 2' (H401452-05)

BTEX 8260B	mg,	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/16/2014	ND	2.08	104	2.00	2.35	
Toluene*	<0.050	0.050	05/16/2014	ND	1.94	97.1	2.00	2.99	
Ethylbenzene*	<0.050	0.050	05/16/2014	ND	1.81	90.6	2.00	1.22	
Total Xylenes*	<0.150	0.150	05/16/2014	ND	5.49	91.5	6.00	1.16	
Total BTEX	<0.300	0.300	05/16/2014	ND					
rgate: Dibromofluoromethane	97.0	% 61.3-14	2						
ogate: Toluene-d8	101	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	99.1	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	05/14/2014	ND	400	100	400	3.92	
TPH 8015M	mg,	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	05/17/2014	ND	216	108	200	11.3	
DRO >C10-C28	<10.0	10.0	05/17/2014	ND	238	119	200	12.0	
Surrogate: 1-Chlorooctane	105	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	105	% 63.6-15	4						

#### Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such visi based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



#### **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

Cardinal Laboratories \*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whistoever shall be deemed waived unless made in writing and received by Cardinal within thinty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratonies.



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name	ETECH		BILL TO	ANALYSIS REQUEST							
Project Manage	" KIT PLICHARD		P.O. #:								
Address:			Company:								
City:	State:	Zip:	Attn:								
Phone #:	Fax #:		Address:								
Project #:	Project Owner	: LINN	City:								
Project Name:	M6453		State: Zip:								
Project Location	n: LEA. County		Phone #:								
Sampler Name:	XDO		Fax #:								
FOR LAB USE OF LY		MATRIX	PRESERV SAMPLING								
Lab I.D. H40145/2	Sample I.D.	(G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL	OTHER: ACID/BASE: ICE / COOL OTHER:  BULL BULL	CHLORIDES PP7H ISTEX							
	SPI NORTH 8'	61	5113/14 /330								
	SPA BOTTOM 14'	61	6/13/14 1300								
		61	5/13/14 1430								
	SPD WEST D'	61	5/13/14 1400								
5	573 SOUTH a	611	5/13/14 1500								
		<u> </u>									
		┫╼╂═┼┈┼┈┼┈									
		┠╼╂╌┠┈╎┈┼┈┼									
		<b>┠═╂</b> ╌╂═┼═┼═┼═									
	to Damages. Caminal's RapSty and client's exclusive remedy for a		ct or ton, shall be limited to the amount paid by the chent to to received by Carsinal within 30 days after completion of 3								

	affiliates or successors arising out of as related to the bestormance of	services horeunder by Cardinal repartiess of whether such claim is based upon any of the above stated reasons of otherwise.	_
1	Relinguished By:	Date:   Reofived By:     Phone Result:	
1		5-13-14 ///   Fax Result:   Yes   No   Add'l Fax #:	
1		Time: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
4	H/ W/ ()	Time: 1610 MM AllMon Samples taken & brought Samples taken	
4	Relinquished By:	Date. (Pecceived by.	
ı	•	Time: Direitlex to lab.	
}		Time: directly to law.	
١			
ı	Delivered By: (Circle One)	Sample Condition   CHECKED/B/N	
ı	, (,	Cool Intact (Invitable)	
١	Sampler - UPS - Bus - Other:	711 110 Tyes Tyres / 4/44	
1		29.90 No No	



March 17, 2014

KIT PRICHARD

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: MGU #53

Enclosed are the results of analyses for samples received by the laboratory on 03/14/14 17:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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 <a href="https://www.tceq.texas.gov/field/qa/lab">www.tceq.texas.gov/field/qa/lab</a> 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)

1ethod EPA 524.4

Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

Celey & Keena

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



ETECH Environmental & Safety Solutions, Inc.

KIT PRICHARD

P. O. BOX 8469

MIDLAND TX, 79708

Fax To:

(432) 563-2213

Analyzed By: MS

Received:

03/14/2014

Reported:

03/17/2014 MGU #53

Project Name: Project Number:

NONE GIVEN

Project Location:

BTEX 8021B

**NOT GIVEN** 

74.3 %

63.6-154

Sampling Date:

03/14/2014

Sampling Type:

Soil

Sampling Condition:

\*\* (See Notes)

Sample Received By:

Celey D. Keene

#### Sample ID: SP 1 BOTTOM 4' (H400790-01)

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050	0.050	03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	ylenes* <0.150 0.150		03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0,300	0.300	03/17/2014	ND					
grogate: 4-Bromofluorobenzene (PIL	101 9	% 89.4-12	6						
ride, SM4500Cl-B	mg/	'kg	Analyze	d By: AP				<u></u>	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2440	16.0	03/17/2014	ND	448	112	400	7.41	
TPH 8015M	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	C6-C10 <10.0 10.0		03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	<10.0	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	76.9	% 65.2-14	0						

#### Cardinal Laboratories

Surrogate: 1-Chlorooctadecane

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whistoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for includental or consequential damages, including, without limitation, business, interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results related only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laborationies.



 ${\bf ETECH\ Environmental\ \&\ Safety\ Solutions,\ Inc.}$ 

KIT PRICHARD

P. O. BOX 8469 MIDLAND TX, 79708

Fax To:

(432) 563-2213

Received: Reported: 03/14/2014

03/17/2014

Project Name:

MGU #53

Project Number: Project Location:

NONE GIVEN

Sampling Date:

03/14/2014

Sampling Type:

Soil

Sampling Condition:

\*\* (See Notes)

Sample Received By:

Celey D. Keene

## Sample ID: SP 1 N. WALL 2' (H400790-02)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	ene* <0.050 0.		03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
`gate: 4-Bromofluorobenzene (PIL	100 9	% 89.4-12	6		_				
de, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	03/17/2014	ND	448	112	400	7.41	
TPH 8015M	mg/	kg	Analyze	d By: ms			· <u></u>		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	<10.0	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	105 9	% 65.2-14	0						*-
Surrogate: 1-Chlorooctadecane	104 9	% 63.6-15	4						

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Celeg & Keene



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MIDLAND TX, 79708

Fax To:

(432) 563-2213

Received:

03/14/2014

Sampling Date:

03/14/2014

Reported:

03/17/2014

Sampling Type:

Soil

Project Name:

MGU #53

Sampling Condition:

\*\* (See Notes)

Project Number:

NONE GIVEN

Sample Received By:

Celey D. Keene

Project Location:

NOT GIVEN

Sample ID: SP 1 W. WALL 2' (H400790-03)

BTEX 8021B	mg/	kg	Analyze	d By: MS			·		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050 0.050		03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050	0.050	03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
rgate: 4-Bromofluorobenzene (PIL	102 %	% 89.4-12	6						
de, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>848</b> 16.0		03/17/2014	ND	448	112	400	7.41	
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	<10.0	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	110 9	% 65.2-14	70						
Surrogate: 1-Chlorooctadecane	109 9	% 63.6-15	· 4						

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Fax To: (432) 563-2213

Received:

BTEX 8021B

03/14/2014

Sampling Date:

03/14/2014

Reported:

03/17/2014 MCU #E3

Sampling Type:

Soil

True Value QC

200

200

RPD

1.74

3.74

Qualifier

Project Name:

MGU #53

Sampling Condition:

\*\* (See Notes)

Project Number: Project Location:

Analyte

GRO C6-C10

DRO >C10-C28

NONE GIVEN

Reporting Limit

10.0

10.0

Sample Received By:

Celey D. Keene

Sample ID: SP 1 E. WALL 2' (H400790-04)

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050	0.050	03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
rgate: 4-Bromofluorobenzene (PIE	101 9	% 89.4-12	6						
.de, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	03/17/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: ms					

Analyzed

03/17/2014

03/17/2014

Method Blank

ND

ND

BS

218

204

% Recovery

109

102

**Analyzed By: MS** 

Surrogate: 1-Chlorooctane	106 %	65.2-140
Surrogate: 1-Chlorooctadecane	108 %	63.6-154

Result

<10.0

<10.0

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Celey & Keine

Celey D. Keene, Lab Director/Quality Manager



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Fax To:

(432) 563-2213

Received:

03/14/2014

Reported:

03/17/2014

Project Name:

MGU #53 NONE GIVEN

Project Number: Project Location:

NOT GIVEN

Sampling Date:

03/14/2014

Sampling Type:

Soil

Sampling Condition:

\*\* (See Notes)

Sample Received By:

Celey D. Keene

## Sample ID: SP 2 BOTTOM 4' (H400790-05)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050 0.050		03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050 0.050		03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050 0.050		03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	(ylenes* <0.150 0.150		03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
gogate: 4-Bromofluorobenzene (PIE	102 %	6 89.4-12	6						
ride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2720	16.0	03/17/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	<10.0	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	104 %	65.2-14	0	<u></u>					
Surrogate: 1-Chlorooctadecane	106 %	63.6-15	4						

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Fax To:

(432) 563-2213

Received:

03/14/2014

Reported:

03/17/2014

Project Name:

MGU #53

Project Number: Project Location:

NONE GIVEN

NOT GIVEN

Sampling Date:

03/14/2014

Sampling Type:

Soil

Sampling Condition: Sample Received By: \*\* (See Notes)

Celey D. Keene

#### Sample ID: SP 2 S. WALL 2' (H400790-06)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050 0.050		03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050	0.050	03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150 0.150		03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
Frogate: 4-Bromofluorobenzene (PIL	102 9	% 89.4-12	6						
ride, SM4500CI-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS 400	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	03/17/2014	ND		100	400	3.92	
TPH 8015M	mg/	'kg	Analyze	d By: ms		····			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	28.7	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	105 9	% 65.2-14	0	,			****		,
Surrogate: 1-Chlorooctadecane	105 9	% 63.6-15	4						

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Received:

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Sampling Date:

03/14/2014

Reported:

03/17/2014

Sampling Type:

Soil

Project Name:

MGU #53

Sampling Condition:

\*\* (See Notes)

Project Number: Project Location: NONE GIVEN NOT GIVEN

Sample Received By:

Celey D. Keene

Sample ID: SP 2 W. WALL 2' (H400790-07)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050 0.050		03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050	0.050	03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150	0.150	03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
rgate: 4-Bromofluorobenzene (PIL	101 9	% 89.4-12	26						
de, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	03/17/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: ms		_			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	<10.0	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	110 9	% 65.2-14	10					_	
Surrogate: 1-Chlorooctadecane	107 9	% 63.6-15	54						

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Fax To:

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Received:

03/14/2014

Reported:

03/17/2014

Project Name:

MGU #53 NONE GIVEN

Project Number: Project Location:

NOT GIVEN

Sampling Date:

03/14/2014

Sampling Type:

Soil

Sampling Condition:

\*\* (See Notes)

Sample Received By:

Celey D. Keene

## Sample ID: SP 2 E. WALL 2' (H400790-08)

BTEX 8021B	mg/	kg	Analyze	d By: MS		<u></u>			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/17/2014	ND	2.32	116	2.00	2.90	
Toluene*	<0.050	0.050	03/17/2014	ND	2.21	110	2.00	2.66	
Ethylbenzene*	<0.050	0.050	03/17/2014	ND	2.16	108	2.00	2.78	
Total Xylenes*	<0.150 0.150		03/17/2014	ND	6.27	104	6.00	2.30	
Total BTEX	<0.300	0.300	03/17/2014	ND					
rgate: 4-Bromofluorobenzene (PIL	101 9	89.4-12	6	<u> </u>		·		_	
de, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	03/17/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/17/2014	ND	218	109	200	1.74	
DRO >C10-C28	11.0	10.0	03/17/2014	ND	204	102	200	3.74	
Surrogate: 1-Chlorooctane	110 9	65.2-14	0						
Surrogate: 1-Chlorooctadecane	109 9	63.6~15	4						

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Celeg & Keine



#### **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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## **CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

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

Company Name	(373) 393-2326 FAX (375) 393-24	/ 6					Š.						Simen	<u>.</u>								ALLE				<del></del>
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Project Manage	r Kit pritchand					· .	_	.O. #	<u>:</u>	· ·			_			ľ	.			ŀ	. :					
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Phone #:	Fax #:	·.					Α	ddre	ss:								•								i	
Project #:	Project Own	er:					c	ity:																		:
Project Name:	MGU 53	٠.					s	tate:			Zip:			5			-								1	
Project Location	n: Eddy county	~					Р	hone	e #:					0						ŀ	1					
Sampler Name:	Terry Osbor	$\overline{\wedge}$					F	ax #:						S	\ \	<b>}</b> .										
FOR LAB USE ONLY			Т		MAT	RIX		PR	ESEF	₹V.	SAMPL	NG		`	^\											
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56	SP2 S. Wall 2'	$\bot$	Ш		1	_	_	_		┙			_		Ш	Ш							<u> </u>			
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DI EASE NOTE: Lieblijk o	nd Damagas. Cardinal's liability and client's exclusive remedy fo					- L		1 -1 -1-	0 5 - 1						<u> </u>					<u> L.</u>	<u> </u>	1	L			<u> </u>
analyses. All claims include	ng those for negligence and any other cause whatsoever shall t	e deeme	d waiv	ed unless r	nade in	writing	and rec	elved b	y Cardi	nal wi	ithin 30 days afte	r completion (	of the a	pplical	ble											
affiliates or successors arisi	ardinal be liable for incidental or consequental damages, includ ng out of or related to the performance of services hereunder by	Cardina	it umsu I, rega	diess of w	nethers	uch cla	im is ba	oruse, sed up	on any o	of the	onis incurred by above stated re	asons or other	rwise.		-										<u> </u>	
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August 26, 2013

HACK CONDER

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: MALJAMAR GRAYBURG UNIT #53

Enclosed are the results of analyses for samples received by the laboratory on 08/20/13 8:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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 <a href="https://www.tceq.texas.gov/field/qa/lab">www.tceq.texas.gov/field/qa/lab</a> 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.

Celey D. Keens

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



RICE ENVIRONMENTAL CONSULTING & SAFETY

HACK CONDER 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

08/20/2013

Sampling Date:

08/16/2013

Reported:

08/26/2013

Sampling Type:

Soil

Project Name:

MALJAMAR GRAYBURG UNIT #53

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

**NOT GIVEN** 

#### Sample ID: PT. 1 SURFACE (H301980-01)

Chloride, SM4500Cl-B	mg,	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	22400	16.0	08/22/2013	ND	416	104	400	3.92	

#### Sample ID: PT. 1 1' (H301980-02)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
- 'oride	4560	16.0	08/22/2013	ND	416	104	400	3.92	

#### Sample ID: PT. 2 SURFACE (H301980-03)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9200	16.0	08/22/2013	ND	416	104	400	3.92	

#### Sample ID: PT. 2 6" (H301980-04)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10800	16.0	08/22/2013	ND	416	104	400	3.92	

Cardinal Laboratories \*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whistoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



RICE ENVIRONMENTAL CONSULTING & SAFETY

HACK CONDER 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

08/20/2013

Sampling Date:

08/16/2013

Reported:

08/26/2013

Sampling Type:

Soil

Project Name:

MALJAMAR GRAYBURG UNIT #53

Reporting Limit

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

Analyte

**NOT GIVEN** 

#### Sample ID: PT. 3 SURFACE (H301980-05)

Chloride, SM4500CI-B

Analyzed By: AP

Analyzed

True Value QC

Qualifier

RPD

3.92

Chloride

Result 496

08/22/2013 16.0

Method Blank ND

BS 416 % Recovery 104

400

#### Sample ID: PT. 3 1' (H301980-06)

Chloride,	SM4500CI-B	
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mg/kg

Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Chloride	4560	16.0	08/22/2013	ND	416	104	400	3.92	

**Cardinal Laboratories** 

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Celey D. Keene, Lab Director/Quality Manager

Celey D. Keine

Page 3 of 5

\*=Accredited Analyte



#### **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

Cardinal Laboratories \*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whistoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, "ricluding, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Company Name:

Project Manager:

## **CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

ANALYSIS REQUEST

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

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P.O. #:

# **Soil Boring Log**



## **BORING LOG**

Drill Rig: Date Drilled: May 28, 2014 Logged By:

Boring Dia: 6 Inches Boring NumblaGU-53 Boring M. Hagan

Sample	Blow Counts	Completion	Depth Feet	Lithology	Description
	132 268 224 64 172		  - 5 -		Pit Fill-SAND and CALICHE: Light Redish Brown, 2.5YR 7/4, fine grained,moderately to well sorted, loose.
	144 944 1,576 1,468		- - - - 10 -		SAND and SANDy CALICHE: Redish Brown, 5YR 5/4, fine grained, well sorted, subangular, friable. SANDy CALICHE: White, 5YR 8/1, fine graioned SAND, subrounded, firm to soft.
	1,016 592 292		 		SANDy CALICHE: White, 5YR 8/1, fine grained SAND, subrounded, firm.
	420 460 420 460 500 312		- 15		CALICHE and SAND: Pinkish White, 5YR 8/2, firmand soft, calcareous. SAND; Light Redish Brown, 5YR 6/4, very fine to medium grained, moderately to poorly sorted, subangular, loose.
	312 312 312 284 224 200		20		
	172 148 172 148		— 25 —  		SAND: Redish Yellow, 5YR 6/6, very fine to fine graineded,
	128		- 30 <del>-</del> 		moderately sorted, subangular to rounded. Traces of GRAVEL: Mottled Grey, large and medium pebble.
			35 	   	
	ND		- 40		
			- 40		

**Completion Notes:** 

The boring was filled with concrete from its total depth of 50-feet below the ground's surface to the ground's surface.

Site:

MGU-53 Boring

Majamar, NM

Project No.:

Page

1

## Final C-141