



Electronic Correspondence

October 21, 2014

Dr. Tomas Oberding
State of New Mexico
Oil Conservation Division
1625 North French Dr.
Hobbs, NM 88240
tomas.oberding@state.nm.us

Re: Backfill Request
LINN Energy, Sinagua 18 Federal 2
API No.: 30-025-32694
Legal: Unit J, Section 18, T20S, R34E, 2041 FSL, 2171 FEL, Lea Co., NM
GPS: 32.5714830169451, -103.598153358334

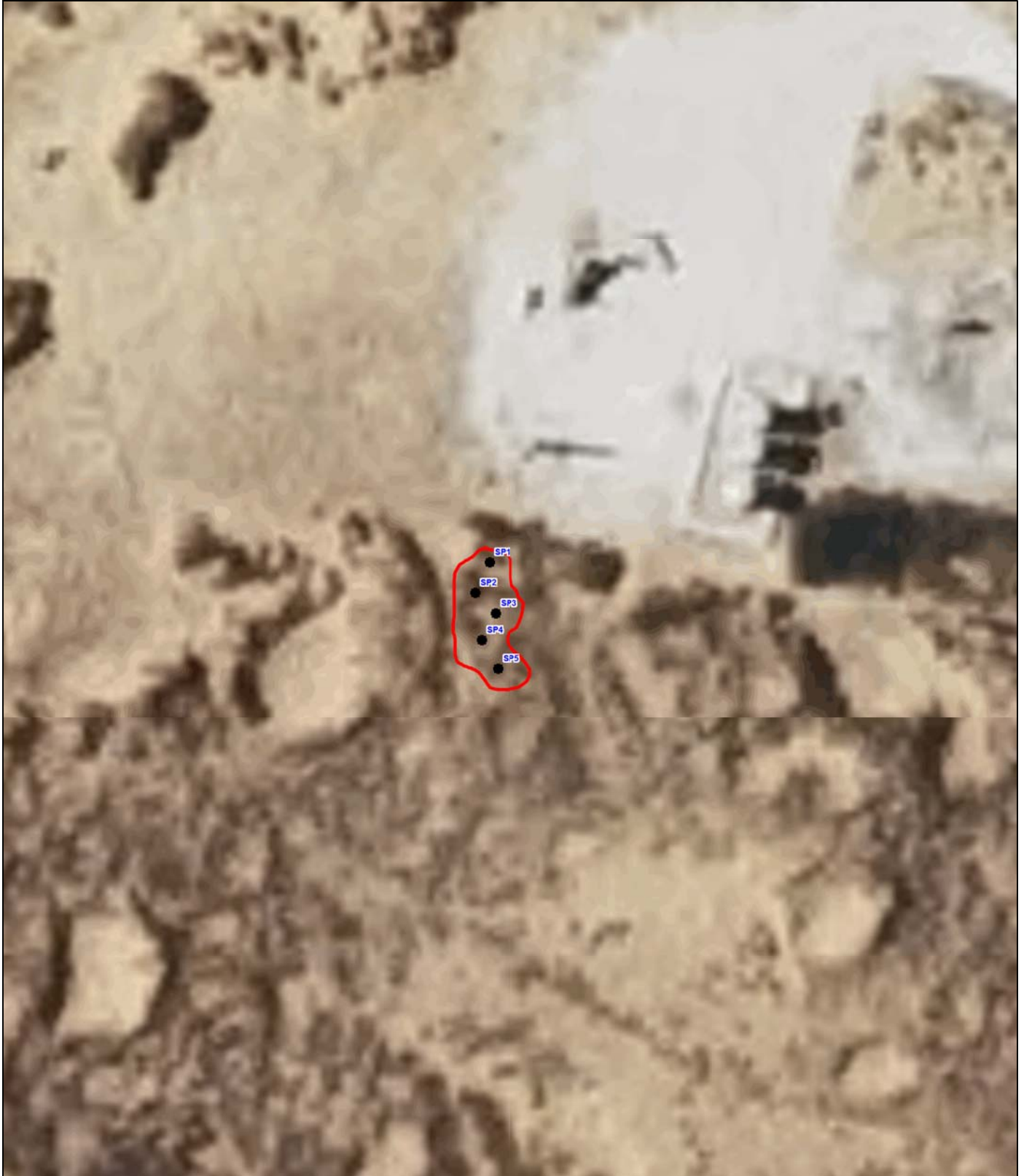
Dear Tomas & Jeff:

1. Attached is the sample points map and analytical data for the clearance sampling of the Sinagua 18 Federal 2.
2. Grab samples were collected from each corresponding sampling site at depth then placed in certified clean jars, labeled, and custody seals applied. Nitrile gloves were used and changed during each sample collection, as well as proper decontamination procedures.
3. Samples were preserved according to the requirements ASATM/EPA requirements. Normal Chain of Custody procedures were observed.
4. LINN Energy is requesting permission to backfill and close the site in accordance with the stipulations for the site.

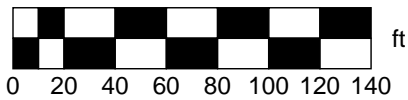
Thank you for your assistance.

A handwritten signature in blue ink, appearing to read "Kit Prichard", is written over a faint, light blue circular stamp or watermark.

Kit Prichard
Project Manager – Etech Environmental & Safety Solutions, Inc.



Scale 1:900



1" = 75.0 ft

Data Zoom 17-7

LINN Energy
Sinagua 18 Fed #2
Sample Points Map



MN (7.3° E)

Data use subject to license.

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www.delorme.com

September 03, 2014

KIT PRICHARD

ETECH Environmental & Safety Solutions, Inc.

P. O. BOX 8469

MIDLAND, TX 79708

RE: SINAGUA 18 FED COM #2

Enclosed are the results of analyses for samples received by the laboratory on 08/26/14 16:50.

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 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:

ETECH Environmental & Safety Solutions, Inc.
 KIT PRICHARD
 P. O. BOX 8469
 MIDLAND TX, 79708
 Fax To: (432) 563-2213

Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 1 BOTTOM 5' (H402624-01)

BTEX 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/02/2014	ND	1.71	85.6	2.00	10.8	
Toluene*	<0.050	0.050	09/02/2014	ND	1.58	78.9	2.00	10.1	
Ethylbenzene*	<0.050	0.050	09/02/2014	ND	1.76	87.8	2.00	11.2	
Total Xylenes*	<0.150	0.150	09/02/2014	ND	5.24	87.3	6.00	11.1	
Total BTEX	<0.300	0.300	09/02/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

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	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 92.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 115 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 1 N. WALL 2.5' (H402624-02)

BTX 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	09/02/2014	ND	1.71	85.6	2.00	10.8	
Toluene*	<0.050	0.050	09/02/2014	ND	1.58	78.9	2.00	10.1	
Ethylbenzene*	<0.050	0.050	09/02/2014	ND	1.76	87.8	2.00	11.2	
Total Xylenes*	<0.150	0.150	09/02/2014	ND	5.24	87.3	6.00	11.1	
Total BTX	<0.300	0.300	09/02/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-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	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 87.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

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P. O. BOX 8469
MIDLAND TX, 79708
Fax To: (432) 563-2213

Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 1 W. WALL 2.5' (H402624-03)

BTX 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	09/02/2014	ND	1.71	85.6	2.00	10.8	
Toluene*	<0.050	0.050	09/02/2014	ND	1.58	78.9	2.00	10.1	
Ethylbenzene*	<0.050	0.050	09/02/2014	ND	1.76	87.8	2.00	11.2	
Total Xylenes*	<0.150	0.150	09/02/2014	ND	5.24	87.3	6.00	11.1	
Total BTX	<0.300	0.300	09/02/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	126	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 100 % 65.2-140

Surrogate: 1-Chlorooctadecane 118 % 63.6-154

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 1 E. WALL 2.5' (H402624-04)

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	09/02/2014	ND	1.71	85.6	2.00	10.8	
Toluene*	<0.050	0.050	09/02/2014	ND	1.58	78.9	2.00	10.1	
Ethylbenzene*	<0.050	0.050	09/02/2014	ND	1.76	87.8	2.00	11.2	
Total Xylenes*	<0.150	0.150	09/02/2014	ND	5.24	87.3	6.00	11.1	
Total BTEx	<0.300	0.300	09/02/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	29.8	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 100 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 63.6-154

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 2 BOTTOM 5' (H402624-05)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/29/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99		
Total BTEX	<0.300	0.300	08/29/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	18.7	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 98.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 119 % 63.6-154

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 2 W. WALL 2.5' (H402624-06)

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	08/29/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99		
Total BTEX	<0.300	0.300	08/29/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

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	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 125 % 63.6-154

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Analytical Results For:

 ETECH Environmental & Safety Solutions, Inc.
 KIT PRICHARD
 P. O. BOX 8469
 MIDLAND TX, 79708
 Fax To: (432) 563-2213

 Received: 08/26/2014
 Reported: 09/03/2014
 Project Name: SINAGUA 18 FED COM #2
 Project Number: 253-5063-000
 Project Location: LEA COUNTY, NM

 Sampling Date: 08/26/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 2 E. WALL 2.5' (H402624-07)

BTX 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	08/29/2014	ND	1.87	93.4	2.00	3.17	
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09	
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50	
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99	
Total BTX	<0.300	0.300	08/29/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 98.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 121 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

ETECH Environmental & Safety Solutions, Inc.
KIT PRICHARD
P. O. BOX 8469
MIDLAND TX, 79708
Fax To: (432) 563-2213

Received: 08/26/2014
Reported: 09/03/2014
Project Name: SINAGUA 18 FED COM #2
Project Number: 253-5063-000
Project Location: LEA COUNTY, NM

Sampling Date: 08/26/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 3 BOTTOM 6.5' (H402624-08)

BTX 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	08/29/2014	ND	1.87	93.4	2.00	3.17	
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09	
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50	
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99	
Total BTX	<0.300	0.300	08/29/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-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	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 98.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

ETECH Environmental & Safety Solutions, Inc.
KIT PRICHARD
P. O. BOX 8469
MIDLAND TX, 79708
Fax To: (432) 563-2213

Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 3 W. WALL 3' (H402624-09)

BTX 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	08/29/2014	ND	1.87	93.4	2.00	3.17	
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09	
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50	
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99	
Total BTX	<0.300	0.300	08/29/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-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	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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 MIDLAND TX, 79708
 Fax To: (432) 563-2213

 Received: 08/26/2014
 Reported: 09/03/2014
 Project Name: SINAGUA 18 FED COM #2
 Project Number: 253-5063-000
 Project Location: LEA COUNTY, NM

 Sampling Date: 08/26/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 3 E. WALL 3' (H402624-10)

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	08/29/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99		
Total BTEx	<0.300	0.300	08/29/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	131	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 104 % 65.2-140

Surrogate: 1-Chlorooctadecane 133 % 63.6-154

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 4 BOTTOM 5' (H402624-11)

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	08/29/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99		
Total BTEX	<0.300	0.300	08/29/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	08/28/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 99.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 121 % 63.6-154

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 4 EAST 2.5' (H402624-12)

BTX 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	08/29/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99		
Total BTX	<0.300	0.300	08/29/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-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	08/29/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 117 % 63.6-154

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Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 4 WEST 2.5' (H402624-13)

BTX 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	08/29/2014	ND	1.87	93.4	2.00	3.17	
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09	
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50	
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99	
Total BTX	<0.300	0.300	08/29/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/29/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 97.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 118 % 63.6-154

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Received: 08/26/2014
Reported: 09/03/2014
Project Name: SINAGUA 18 FED COM #2
Project Number: 253-5063-000
Project Location: LEA COUNTY, NM

Sampling Date: 08/26/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 5 BOTTOM 5' (H402624-14)

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	08/29/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99		
Total BTEX	<0.300	0.300	08/29/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500CI-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	08/29/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 118 % 63.6-154

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Fax To: (432) 563-2213

Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 5 S. WALL 2.5' (H402624-15)

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	08/29/2014	ND	1.87	93.4	2.00	3.17	
Toluene*	<0.050	0.050	08/29/2014	ND	1.70	85.2	2.00	3.09	
Ethylbenzene*	<0.050	0.050	08/29/2014	ND	1.84	92.2	2.00	3.50	
Total Xylenes*	<0.150	0.150	08/29/2014	ND	5.50	91.7	6.00	2.99	
Total BTEX	<0.300	0.300	08/29/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

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	08/29/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 94.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 113 % 63.6-154

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 Fax To: (432) 563-2213

Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 5 W. WALL 2.5' (H402624-16)

BTX 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	08/30/2014	ND	1.87	93.4	2.00	3.17		
Toluene*	<0.050	0.050	08/30/2014	ND	1.70	85.2	2.00	3.09		
Ethylbenzene*	<0.050	0.050	08/30/2014	ND	1.84	92.2	2.00	3.50		
Total Xylenes*	<0.150	0.150	08/30/2014	ND	5.50	91.7	6.00	2.99		
Total BTX	<0.300	0.300	08/30/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-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	08/29/2014	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	08/28/2014	ND	180	89.9	200	0.125	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	189	94.6	200	3.50	

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 118 % 63.6-154

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 Fax To: (432) 563-2213

Received:	08/26/2014	Sampling Date:	08/26/2014
Reported:	09/03/2014	Sampling Type:	Soil
Project Name:	SINAGUA 18 FED COM #2	Sampling Condition:	Cool & Intact
Project Number:	253-5063-000	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 5 E. WALL 2.5' (H402624-17)

BTX 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	08/30/2014	ND	1.87	93.4	2.00	3.17	
Toluene*	<0.050	0.050	08/30/2014	ND	1.70	85.2	2.00	3.09	
Ethylbenzene*	<0.050	0.050	08/30/2014	ND	1.84	92.2	2.00	3.50	
Total Xylenes*	<0.150	0.150	08/30/2014	ND	5.50	91.7	6.00	2.99	
Total BTX	<0.300	0.300	08/30/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-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	08/29/2014	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	08/29/2014	ND	174	87.1	200	6.04	
DRO >C10-C28	<10.0	10.0	08/29/2014	ND	181	90.6	200	9.60	

Surrogate: 1-Chlorooctane 97.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 117 % 63.6-154

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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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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

Company Name: <u>Etech</u>		BILL TO		ANALYSIS REQUEST																															
Project Manager: <u>Kit Richard</u>		P.O. #: <u>253-5063-000</u>																																	
Address:		Company: <u>Lin Energy</u>																																	
City:		Attn:																																	
State:		Address:																																	
Zip:		City:																																	
Phone #:		Fax #:																																	
Project #: <u>253-5063-000</u>		Project Owner:																																	
Project Name: <u>Sinova 18</u>		State:																																	
Project Location: <u>Lea County NM</u>		City:																																	
Sample Name: <u>Ferry Osborn</u>		Phone #:																																	
Fax #:																																			
FOR LAB USE ONLY																																			
Lab I.D. <u>H402624</u>		Sample I.D.																																	
1		SP1 Bottom 5'		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME		chlorides		BTEx		TPH	
2		SP1 N. wall 2.5'																																	
3		SP1 W. wall 2.5'																																	
4		SP1 E. wall 2.5'																																	
5		SP2 Bottom 5'																																	
6		SP2 W. wall 2.5'																																	
7		SP2 E. wall 2.5'																																	
8		SP3 Bottom 6.5'																																	
9		SP3 West wall 3'																																	
10		SP3 E. wall 3'																																	
11		SP3																																	
Relinquished By: <u>[Signature]</u>		Date: <u>8-26-2014</u>		Time: <u>11:00 AM</u>		Received By: <u>[Signature]</u>		Date: <u>8-26-2014</u>		Time: <u>4:50</u>		Sample Condition		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		Checked By: <u>[Signature]</u>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Fax #:		REMARKS:													
Delivered By: (Circle One)		5.90c																																	
Sampler - UPS - Bus - Other:																																			

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

