

### LINN ENERGY

2130 W. Bender Blvd. Hobbs, NM 88241 Phone 575.738.1739

# H.E. West B #83 (2RP-2032)

## Corrective Action Plan

API No. 3001528483

Release Date: Unknown

Unit Letter D, Section 4, Township 17S, Range 31E



CONSULTING & SAFETY

PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

**April 4<sup>th</sup>, 2014** 

#### Mike Bratcher

New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau – District 2 811 S. First St. Artesia, NM 88210

> RE: Corrective Action Plan Linn Energy – H.E. West B #83 (2RP-2032) UL/D sec. 4 T17S R31E API No. 3001528483

Mr. Bratcher:

Linn Energy (Linn) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

#### **Background and Previous Work**

The site is located approximately 6.8 miles northeast of Loco Hills, New Mexico at UL/D sec. 4 T17S R31E. This site is in an area of no known groundwater.

A total of 4,180 square feet of pasture land was affected by a release of 12 barrels of oil. None of this fluid was recovered. An initial C-141 was written for this release, which was received by NMOCD on October 30<sup>th</sup>, 2013. NMOCD approved the initial C-141 on October 31<sup>st</sup>, 2013 (Appendix A).

Another environmental company had control of the remediation process for this site prior to RECS obtaining it on August 27<sup>th</sup>, 2013. The previous company sampled the site at the surface and with depth and representative samples were taken to a commercial laboratory for analysis (Figure 1). SP-4 through SP-8 returned laboratory chloride values near or at non-detectable levels at the surface and with depth (Appendix B). Gasoline Range Organics (GRO) returned values of non-detect at all points and all depths. Diesel Range Organics (DRO) were below regulatory standards at all samples and at all depths except in SP-4, where the surface DRO value was 7,210 mg/kg, which dropped to 3,320 mg/kg at 2 ft bgs and at SP-7, where the surface DRO value was 5,880 mg/kg, which dropped to 405 mg/kg at 2 ft bgs.

RECS personnel were on site beginning on September 3<sup>rd</sup>, 2013. The site was GPS mapped and two samples, SP-1 and SP-2 were sampled at the surface and with depth to replace the samples taken by the previous environmental company. The previous company took sample points at such impractical depths that it was impossible to tell at what depths contamination dropped below regulatory standards. Representative samples from SP-1 and SP-2 were taken to a

commercial laboratory for analysis. SP-1 returned laboratory chloride values below regulatory standards starting at 1 ft bgs and SB-2 returned laboratory chloride values below regulatory standards starting at 6 inches bgs. GRO values were non-detect in both sample points and at all depth, except for SP-2 at 1 ft, where the GRO value was 106 mg/kg. DRO values in SP-1 and SP-2 were below regulatory standards. BTEX readings in both SP-1 and SP-2 were non-detect at all depths.

Photo documentation for the site can be found in Appendix C.

#### **Corrective Action Plan**

Based on the laboratory sampling data, the areas around SP-1, SP-2, SP-5 and SP-6 will be scraped down 6 inches (Figure 2). The areas around SP4, SP-7 and SP-8 will be scraped down 1 foot. The excavated soils will be evaluated for use as backfill and any soils that do not meet regulatory standards of chlorides below 1,000 mg/kg and TPH below 1,000 mg/kg will be disposed of at a NMOCD approved facility. The remaining soil will be blended on site to serve as backfill. Clean soil will be imported to the site as needed to replace any soils taken for disposal. A sample of the blended backfill will be taken to a commercial laboratory for analysis to verify the constituents are below regulatory standards. The scraped will be backfilled with the blended soil and contoured to the surrounding location. Soil amendments will be added as necessary and the site will be seeded with a blend of native vegetation. Vegetation acts as an infiltration barrier for the site, since plants capture water through their roots thereby reducing the amount of water traveling through the vadose zone to groundwater.

Once these activities have been completed, a report detailing these actions will be submitted to NMOCD and BLM with a request for 'remediation termination' and site closure.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer Project Scientist

JC.We

RECS

(575) 441-0431

Attachments:

Figure 1 – Initial Sampling Data

Figure 2 – Proposed Corrective Actions

Appendix A – Initial C-141

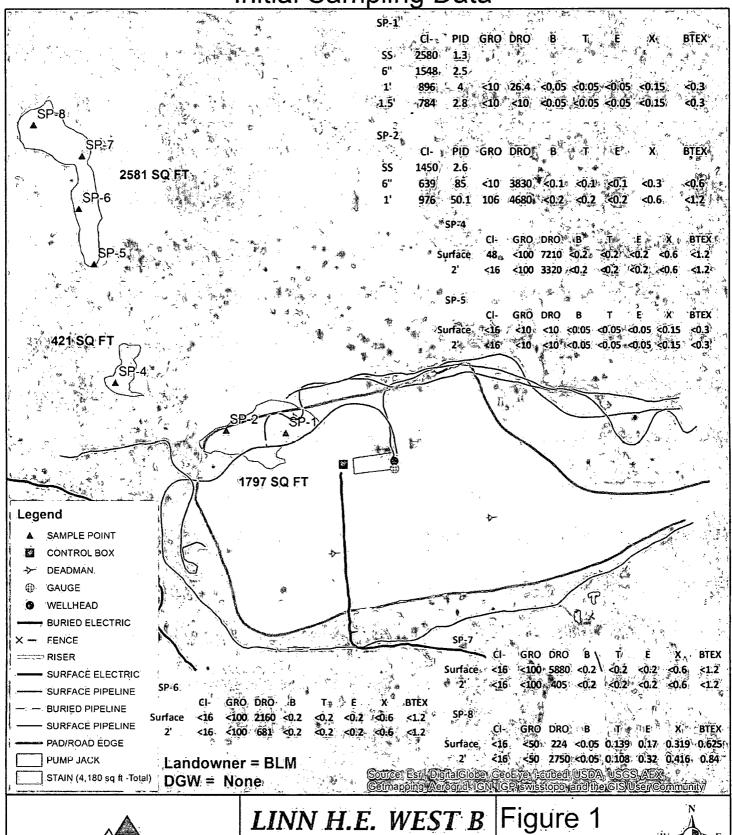
Appendix B – Initial Sampling Labs

Appendix C – Photo Documentation



RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

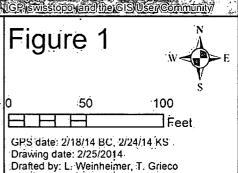
Initial Sampling Data



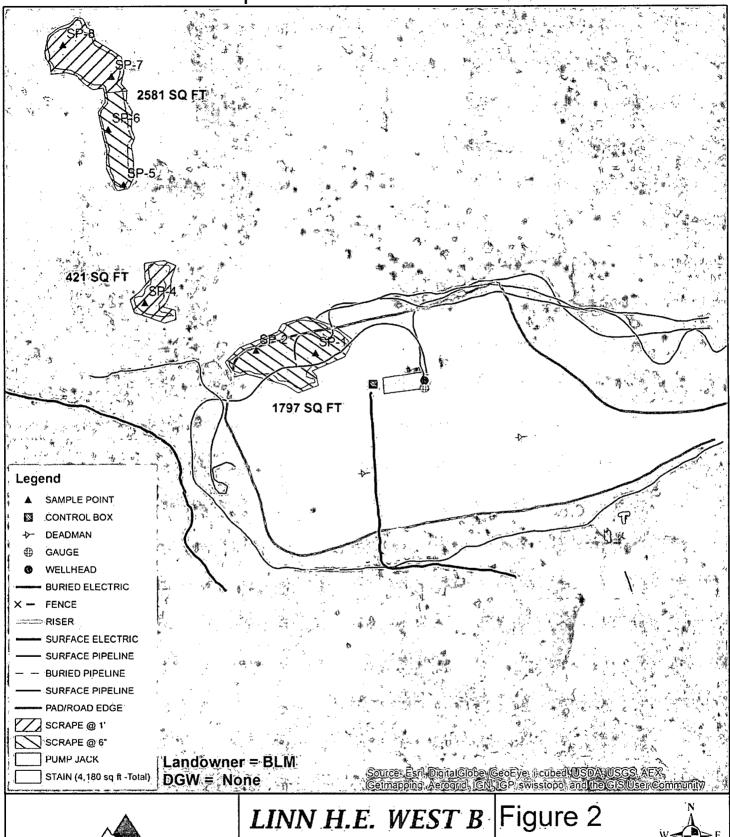


## FEDERAL #083

2RP-2032 LEGALS: UL/ D SEC. 4 T17S - R31E EDDY COUNTY, NM



### **Proposed Corrective Actions**

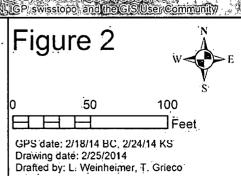




## FEDERAL #083

2RP-2032

LEGALS: UL/ D SEC. 4 T17S - R31E EDDY COUNTY, NM





RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

| <u>District | 1</u>
1525 N., French Dr., Hobbs, NM, 88240 |
District | H. |
District III. |
1000 Rio Brosos Road, Azice; NM, 87410 |
District IV |
1220 S3St. Francis Dr., Santa Fel, NM, 87505

## State of New Mexico. Energy Minerals and Natural Resources OFF 8 0, 2013

Form C-14] -Revised August 8/2011

Qil Conservation Division 1220 South St. Francis Dr.

Santa Fe, NM 87505

NMOCONARTE Simple with 1945 29 NMAC.

Release Notification	n and Corrective Action
MJMW1330436821	OPERATOR L'A India Report L'Establiste
·	Contact Brian Wall
	Telephone: Nos. 1(806) 367-0645
"Surface Owner, BEM" Mineral Owner	7APUNO2 33001528483
, , , , , , , , , , , , , , , , , , , ,	NOF RELEASE /South Liner,   Feet Transition   Least/West Line   County
Omicognet   Section   Township,   Range   Steel   Township,   Range   To	
#Lätjfüde <u>\$2°52'3.417'N</u>	] រត្សាថ្នាំលែងe <u> </u>
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Source of Release, Unknown	Date and Hour of Occurrence Unknown: Unknown:
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ByWhoin?	Darcand Hours
Was a Watercourse Renched?	allPyES, Nolunic Impacting the Watergourse
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irelesise L Poscribe Ayen Allebied and Cleanup Action Taken.* The site will be assessed verifically and horizontally and a Corrective Act	lease of 12 bhlstof oi). On Augustell 2013; ກໍ່ຕ້າຮຸດັກກຸດປະຈັບ ຈຳກະ ໃຕ້ ກຸຮຮອຮຣັງໂດ.  lease of 12 bhlstof oi). On Augustell 2013; ກໍ່ຕ້າຮຸດັກກຸດປະຈັບ ວ່າ ຊຳກີ ໃຕ້ ກຸຮຮອຮຣັງໂດ.  lease of 12 bhlstof oi). On Augustell 2013; ກໍ່ຕ້າຮຸດັກກຸດປະຈັດ ເປັນ ເປັນ ເປັນ ເປັນ ເປັນ ເປັນ ເປັນ ເປັນ
ູກ້ອຼຊົນໃຫຼກຸ່ງຕົກຮູ້ຢູ່ໄປຕໍ່ຂໍາກີເທັກຮູ້ ກໍ່ຮູ້ ກໍ່ຮັບເກົາຮູ້ປູ ໃດ ກໍ່ຮູ້ກໍ່ທາຍສູກປູກຕໍ່ກໍ່ເກີໄຊຮູ້ຮູ້ສະສຸກຄຸ ກ່ຽນໄປກໍ່ເຮົາກໍ່ຮູ້ມີໃຕ້ ພວງໃຫ້ຮູ້ຮູ້ກໍ່ກ່າວເກົາຮູ້ທີ່ 2 The ກ່ອວຮູ້ກໍ່ເຄົາຮູ້ອີປະຊຸດ C.1 4 ກໍ່ເຈົ້າຄວາມກໍ່ຮູ້ຢ Dishoold ທີ່ກໍ່ຮູ້ກໍ່ຄຸ້ງຂໍາຄາດທີ່ຄະນາຄວັນຮູ້ໃນກໍ່ໄຮບໍ່ກ່ວວ່າເປັດຄຸ້ນຄຸ້ງຕັ້ນກໍ່ກຸ່ນຮູ້ເທື່ອຄໍາຂໍ້ສຸກຄຸ້ນ ກະກາຮີບໍ່ກໍ່ຄື	ottifications and perform corrective actions Torreleases which may entaineer le NMOCD interest as Final Report Edgestagnetieve the operator of habitis ។ le contamination that page a Lingsis to ground water; surface water, human health locs not relieve the operator of responsibility for compliance with any other
Signatures Tived B. Wall	OIL CONSERVATION DIVISION
Printed Name: Brian Wall,	Approved by Environmental spesiglised By Miller Bloodie
ไม่ได้เล็บได้เลียงเลียงก็ Foreinan III	Αρρασναυριά ΘCT: 3 1/2013 (Expiration Dates
IE-mail Address: 1B wall@finnearryycom	Conditions of Approvat:
Ren	nediation per OCD Rule & Guidelines, &
Date: APholic: (806) 367:0645 fike: APholic: (806) 367:0645 fike: Attach Additional Shour IF Necessary	PROPOSAL NO LATERITHAN:

Appendix B
Initial Sampling Labs

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



August 12, 2013

**GARY WINK** 

LINN ENERGY

RR1, BOX 24 B

KINGFISHER, OK 73750

RE: H. E. WEST B #83

Enclosed are the results of analyses for samples received by the laboratory on 08/06/13 16:05.

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. 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



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

Received: Reported: 08/06/2013

08/12/2013

Project Name:

H. E. WEST B #83 Project Number: NONE GIVEN

Project Location:

MALJAMAR, NM

Sampling Date:

08/01/2013

Sampling Type:

Soil

Sampling Condition: Sample Received By: Cool & Intact

Jodi Henson

Sample ID: SP 1 @ SURFACE (H301837-01)

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS			_		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	< 0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	< 0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<0.300	0.300	08/09/2013	ND					
Surrogate: Dibromofluoromethane	101	% 61.3-14	2						
Surrogate: Toluene-d8	95.1	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	99.2	% 65.7-14	11						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP			week die		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	08/08/2013	ND	416	104	400	0.00	
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	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	125	10.0	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	94.1	% 65.2-14	0						
Surrogate: I-Chlorooctadecane	115	% 63.6-15	4						

#### Cardinal Laboratories

\*=Accredited Analyte

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Celeg D. Keene



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

Received:

08/06/2013

Sampling Date:

08/01/2013

Reported:

08/12/2013

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

MALJAMAR, NM

Sample Received By:

Jodi Henson

#### Sample ID: SP 1 @ 4' (H301837-02)

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	< 0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<0.300	0.300	08/09/2013	ND					
Surrogate: Dibromofluoromethane	99.7	% 61.3-14	2						
Surrogate: Toluene-d8	94.5	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	96.0	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	/kg	Analyze						
Analyte	Result	Reporting Limit	Analyzed .	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	08/08/2013	ND	416	104	400	0.00	
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	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	<10.0	10.0	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	98.9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	120	% 63.6-15	4						

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\*=Accredited Analyte

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Celey D. Keine



LINN ENERGY **GARY WINK** RR1, BOX 24 B

KINGFISHER OK, 73750 (405) 375-6693 Fax To:

Received:

08/06/2013

Sampling Date:

08/01/2013

Reported:

RTEV 8260B

08/12/2013

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

MALJAMAR, NM

Sample ID: SP 2 @ SURFACE (H301837-03)

BTEX 8260B	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	0.285	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	0.408	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	0.834	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	1.53	1.20	08/09/2013	ND .					
Surrogate: Dibromofluoromethane	99.5	% 61.3-14	2						
Surrogate: Toluene-d8	95.3	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	103	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1100	16.0	08/08/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	13500	100	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	91.5	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	360	% 63.6-15	4						

Analyzed By: MS

Cardinal Laboratories \*=Accredited Analyte

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Celey & Keine



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

Received:

08/06/2013

08/12/2013

Sampling Date:

08/02/2013

Reported:

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Project Location:

MALJAMAR, NM

Jodi Henson

Sample ID: SP 2 @ 5' (H301837-04)

**BTEX 8260B** Analyzed By: MS mg/kg

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	98.0	% 61.3-14	2						
Surrogate: Toluene-d8	95.4	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	118	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	08/08/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<200	200	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	7600	200	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	97.0	% 65.2-14	0			,			

Surrogate: 1-Chlorooctadecane 253 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keine



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750

Fax To:

(405) 375-6693

Received:

08/06/2013

Sampling Date:

08/02/2013

Reported:

08/12/2013

Sampling Type:

Soil

Project Name:

Sampling Condition:

Cool & Intact

Project Number:

H. E. WEST B #83 NONE GIVEN

Project Location:

MALJAMAR, NM

Sample Received By:

Jodi Henson

#### Sample ID: SP 3 @ SURFACE (H301837-05)

BTEX 8260B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	101	% 61.3-14	2						
Surrogate: Toluene-d8	94.7	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	103	% 65.7-14	I						
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	08/08/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	'kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	5510	100	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	92.4	% 65.2-14	0	•					
Surrogate: 1-Chlorooctadecane	227	% 63.6-15	4						

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\*=Accredited Analyte

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Celey D. Keine



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

Received:

08/06/2013

Sampling Date:

08/02/2013

Reported:

08/12/2013

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

MALJAMAR, NM

Sample ID: SP 3 @ 2' (H301837-06)

BTEX 8260B	mg,	/kg	Analyze	d By: MS				·	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	< 0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	98.2	% 61.3-14	2						· · · · · · · · · · · · · · · · · · ·
Surrogate: Toluene-d8	96.9	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	106	% 65.7-14	1						
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	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS			·		S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	2450	100	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	92.1	% 65.2-14	0	-					
Surrogate: 1-Chlorooctadecane	170	% 63.6-15	4						

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Celey D. Keene



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Received: Reported:

DTEV 02600

08/06/2013

08/12/2013

H. E. WEST B #83

Project Name: Project Number:

NONE GIVEN

Project Location:

MALJAMAR, NM

Sampling Date:

Sampling Type: Sampling Condition: Soil

Sample Received By:

Cool & Intact

Jodi Henson

08/02/2013

#### Sample ID: SP 4 @ SURFACE (H301837-07)

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS		· ·			<del></del>
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	97.4	% 61.3-14	2						
Surrogate: Toluene-d8	97.2	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	120	% 65.7-14	1						•
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg.	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/09/2013	ND	184	92.1	200	8.72	
DRO >C10-C28	7210	100	08/09/2013	ND	190	95.0	200	11.6	
Surrogate: 1-Chlorooctane	109	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	243	% 63.6-15	4						

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LINN ENERGY
GARY WINK
RR1, BOX 24 B
KINGFISHER OK, 73750
Fax To: (405) 375-6693

Received: Reported: 08/06/2013

08/12/2013

Project Name: Project Number: H. E. WEST B #83 NONE GIVEN

Project Location:

MALJAMAR, NM

Sampling Date:

08/02/2013

Sampling Type:

Soil

Sampling Condition:

Cool & Intact

Sample Received By:

Jodi Henson

#### Sample ID: SP 4 @ 2' (H301837-08)

BTEX 8260B	mg/	kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	98.3	% 61.3-14	2			· · · · · · · · · · · · · · · · · · ·			
Surrogate: Toluene-d8	95.1	% 71.3-12	9	,					
Surrogate: 4-Bromofluorobenzene	142	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	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/09/2013	ND	191	95.5	200	0.596	
DRO >C10-C28	3320	100	08/09/2013	ND	204	102	200	0.0598	
Surrogate: 1-Chlorooctane	107 5	% 65.2-14	0			-			
Surrogate: 1-Chlorooctadecane	181	63.6-15	4						

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Received: Reported: 08/06/2013

08/12/2013

H. E. WEST B #83

Project Name: Project Number: Project Location:

NONE GIVEN

MALJAMAR, NM

Sampling Date:

08/02/2013

Sampling Type:

Soil

Sampling Condition:

Cool & Intact

Sample Received By: Jodi Henson

Sample ID: SP 5 @ SURFACE (H301837-09)

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	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<0.300	0.300	08/09/2013	ND					
Surrogate: Dibromofluoromethane	97.5	% 61.3-14	2						
Surrogate: Toluene-d8	96.0	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	98.5	% 65.7-14	1						
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
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	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	<10.0	10.0	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	99.3	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	121	% 63.6-15	4				٠		

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LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750

Fax To:

(405) 375-6693

Received:

08/06/2013

Sampling Date:

08/02/2013

Reported:

08/12/2013

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

MALJAMAR, NM

Sample Received By:

Jodi Henson

Sample ID: SP 5 @ 2' (H301837-10)

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	< 0.050	0.050	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	< 0.150	0.150	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<0.300	0.300	08/09/2013	ND					
Surrogate: Dibromofluoromethane	99.4	% 61.3-14	2						
Surrogate: Toluene-d8	95.5	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	98.1	% 65.7-14	I						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
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	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	<10.0	10.0	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	97.3	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	120	% 63.6-15	4						

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LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

08/06/2013

Reported: 08/12/2013

Project Name: H. E. WEST B #83 Project Number: NONE GIVEN

Project Location: MALJAMAR, NM Sampling Date:

08/02/2013

Sampling Type: Soil

Cool & Intact

Sampling Condition:

Sample Received By:

Jodi Henson

#### Sample ID: SP 6 @ SURFACE (H301837-11)

Received:

BTEX 8260B	mg/kg		Analyze	Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	99.8	% 61.3-14	2						
Surrogate: Toluene-d8	96.0	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	97.8	% 65.7-14	1						
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	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	2160	100	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	91.6	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	213	% 63.6-15	4						

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LINN ENERGY
GARY WINK
RR1, BOX 24 B
KINGFISHER OK, 73750
Fax To: (405) 375-6693

Received:

08/06/2013

Reported:

08/12/2013

Project Name: Project Number: H. E. WEST B #83 NONE GIVEN

Project Location:

MALJAMAR, NM

Sampling Date:

Soil

Sampling Type: Sampling Condition:

Cool & Intact

08/02/2013

Sample Received By:

Jodi Henson

Sample ID: SP 6 @ 2' (H301837-12)

BTEX 8260B	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	98.6	% 61.3-14	12						
Surrogate: Toluene-d8	95.8	% 71.3-12	29						
Surrogate: 4-Bromofluorobensene	99.1	% 65.7-14	1]						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					`
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	681	100	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	95.6	% 65.2-14	10	M					•
Surrogate: 1-Chlorooctadecane	180	% 63.6-15	14						

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Celey D. Keena



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

Received: Reported: 08/06/2013

08/12/2013

Project Name: Project Number: H. E. WEST B #83 NONE GIVEN

Project Location:

MALJAMAR, NM

Sampling Date:

08/02/2013

Sampling Type:

Soil

Sampling Condition:

Cool & Intact

Sample Received By:

Jodi Henson

#### Sample ID: SP 7 @ SURFACE (H301837-13)

BTEX 8260B	mg,	/kg	Analyze	ed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	<0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND					
Surrogate: Dibromofluoromethane	97.2	% 61.3-14	12						
Surrogate: Toluene-d8	97.2	% 71.3-12	19			•			
Surrogate: 4-Bromofluorobenzene	99.4	% 65.7-14	11						
Chloride, SM4500CI-B	mg	/kg	Analyze	ed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	ed By: MS				··-	S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	5880	100	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	87.7	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	282	% 63.6-15	4						
Surrogate: I-Chlorooctadecane	282	% 63.6-15	4						

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\*=Accredited Analyte

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Celeg D. Keene



LINN ENERGY GARY WINK RR1, BOX 24 B KINGFISHER OK, 73750

Fax To:

(405) 375-6693

Received:

08/06/2013

Sampling Date:

08/02/2013

Reported:

08/12/2013

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

MALJAMAR, NM

Sample ID: SP 7 @ 2' (H301837-14)

BTEX 8260B	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	08/09/2013	ND	2.36	118	2.00	1.28	
Toluene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.44	
Ethylbenzene*	<0.200	0.200	08/09/2013	ND	2.18	109	2.00	1.12	
Total Xylenes*	< 0.600	0.600	08/09/2013	ND	6.44	107	6.00	1.13	
Total BTEX	<1.20	1.20	08/09/2013	ND.					
Surrogate: Dibromofluoromethane	97.9	% 61.3-14	2						
Surrogate: Toluene-d8	96.1	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	99.7	% 65.7-14	1						
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
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	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	405	10.0	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	98.3	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	128	% 63.6-15	4						

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\*=Accredited Analyte

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Celeg & Keine



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750

Fax To: (405) 375-6693

Received:

08/06/2013

Reported:

08/12/2013

Project Name: Project Number: H. E. WEST B #83 NONE GIVEN

Project Location:

MALJAMAR, NM

Sampling Date:

Sampling Type:

08/02/2013

Soil

Sampling Condition:

Cool & Intact

Sample Received By:

Jodi Henson

#### Sample ID: SP 8 @ SURFACE (H301837-15)

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	08/10/2013	ND	2.17	108	2.00	3.04	
Toluene*	0.139	0.050	08/10/2013	ND	1.97	98.7	2.00	2.03	
Ethylbenzene*	0.167	0.050	08/10/2013	ND	1.97	98.5	2.00	2,23	
Total Xylenes*	0.319	0.150	08/10/2013	ND	5.82	97.0	6.00	2.41	
Total BTEX	0.625	0.300	08/10/2013	ND .					
Surrogate: Dibromofluoromethane	97.8	% 61.3-14	2			-			
Surrogate: Toluene-d8	94.1	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	98.7	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	•
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	<50.0	50.0	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	224	50.0	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	93.9	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	129	% 63.6-15	4						

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\*=Accredited Analyte

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Celeg & Keine



LINN ENERGY **GARY WINK** RR1, BOX 24 B KINGFISHER OK, 73750 Fax To: (405) 375-6693

Received:

08/06/2013

Sampling Date:

08/02/2013

Reported:

08/12/2013

Sampling Type:

Soil

Project Name:

H. E. WEST B #83

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

MALJAMAR, NM

Sample ID: SP 8 @ 2' (H301837-16)

BTEX 8260B	mg,	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/10/2013	ND	2.17	108	2.00	3.04	
Toluene*	0.108	0.050	08/10/2013	ND	1.97	98.7	2.00	2.03	
Ethylbenzene*	0.316	0.050	08/10/2013	ND	1.97	98.5	2.00	2.23	
Total Xylenes*	0.416	0.150	08/10/2013	ND	5.82	97.0	6.00	2.41	
Total BTEX	0.840	0.300	08/10/2013	ND					
Surrogate: Dibromofluoromethane	99.6	% 61.3-14	2						
Surrogate: Toluene-d8	95.0	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	162	% 65.7-14	1		$\hat{}$				
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/09/2013	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	08/10/2013	ND	183	91.3	200	3.63	
DRO >C10-C28	2750	50.0	08/10/2013	ND	189	94.4	200	3.98	
Surrogate: 1-Chlorooctane	105	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	168	% 63.6-15	4						

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Celey D. Keine



#### **Notes and Definitions**

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey & Keine



101 East Marland, Hobbs, NM 88240 (FTE) 200 0200 EAV (FTE) 202 2476

(5/5) 353-2326 FMA (5/5) 353-2476		
Company Name: Linn Energy	BILLTO	ANALYSIS REQUEST
Project Manager: (aaru wink)	P.O. #:	
Address:	Company:	
City: State: Zip:	Attn:	
Phone #: Fax #:	Address:	
Project #: Project Owner:	City:	
Project Name: H.E. WeS+ R #83	State: Zip:	
Project Location: Maljamal	Phone #:	
Sampler Name: Van el lockhart	Fax #:	
FOR LAB USE ONLY MATRIX	PRESERV. SAMPLING	
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Lab I.D. Sample I.D. 방향 및 결심 및	ASE TOOL	
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H301837	DATE TIME	
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3 592@ suf G! V	V 8-1-13 12:56 3 2	
4 5 7 2 6 5	V 8-2-13 8:04 > 2 V & 2-13 8:04 > 2	
5 5 P 3 @ surf 5 1 V	V 8-2-13 9:20 3 3	
	8-2-1310:00 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
7 SP9@ suf 3 1 V	V 8-2-1310:06 3 2	
9 5 P 5@ 5 w/s @ 1 1	V 8-2-1310:48 > >	
10 3 P 5 @ 2 / G \ V	8-2-13 10:57 > 5	
PLEASE NOTE: Liability and Damages, Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract	or fort, shall be limited to the amount paid by the client for the	المناف المستحدد المناف المستحدد

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 30 days after completion of the applicable service. In no event shall Candinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries,

affiliates of successors arising out of or related to the performance of	r services hereunder by C	ardinal, regardless of whether su	on claim is based upon any or i	ne above stateu re	asons or unterwise.		<u> </u>					
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Sampler - UPS - Bus - Other:	- 14	Yes Wes	¥ <sup>Yes</sup> /	171						·		
		No	NO	71			<u> </u>					_
† Cardinal cannot accept verbal c	hanges. Please	fax written change	es to (575) 393-232	<b>t</b> ::.						11.		
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<sup>†</sup> Cardinal cannot accept verbal changes, Please fax written changes to (575) 393-2326



101 East Marland, Hobbs, NM 88240

111.	(575) 393-2326 FAX (575) 393-247	0				<u> </u>	
Company Name:			BILL TO		ANALYSIS	REQUEST	1
Project Manager			P.O. #:				4:1.7 :
Address:	<u> </u>		Company:				
City:	State:	Zip:	Attn:				
Phone #:	Fax #:		Address:				
Project #:	Project Owner	:	City:				
Project Name: /	1 E West B #83		State: Zip:				
Project Location	: Malgamar		Phone #:				
Sampler Name:	Vaniel Lockhart		Fax#:				
FOR LAB USE ONLY		MATRIX	PRESERV. SAMPLING	0			
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H301837	-D/-60 0						
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	5P6@2'	61 1	V 8-2-13 11:08	VVV			
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14	SP702'	61 V	V 8-2-13 1-35	VVV			<u>.:.                                    </u>
15	5P8@ surf	61 1	V 8-2-13 1.38	VVV			
16	578@71	61 1	1 5-2-131:48	VVV			
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affiliates of successors arising out of or related to the performance to	or services hereusiver by Cardinal, regards	ess of whether such claim is based upon any of the abuye	Stated reasons of otherwise.			
Relinquished By:	Date Receive	ed By:	Phone Result:	☐ Yes ☐ No	Add'l Phone #:	
	JIBII J 1r	h	Fax Result:	☐ Yes: ☐ No	Add'l Fax #:	
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Delivered By: (Circle One)		Sample Condition CHECKED/B	Y: /		· · · · · · · · · · · · · · · · · · ·	gerij Hijerija Hijer
		Cool Intact (Mittale)	オピルト	m(a) allup	rsi-ied +si	1500
Sampler - UPS - Bus - Other:	-107 00	Yes Yes			12:11 Ca : 31	9 CON 1
Complete C. C. Bud Ciner.	16.04	No No				
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March 05, 2014

JACOB KAMPLAIN
RICE ENVIRONMENTAL CONSULTING & SAFETY LLC
419 W. CAIN
HOBBS, NM 88240

RE; H. E. WEST B FEDERAL #083

Enclosed are the results of analyses for samples received by the laboratory on 03/04/14 16:30.

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/ga/lab-accred-certif.html">www.tceq.texas.gov/field/ga/lab-accred-certif.html</a>.

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.

Celeg D. Keene

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 JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Analyzed Ry: MS

Received:

03/04/2014

Sampling Date:

03/04/2014

Reported:

RTFY 9260B

03/05/2014

Sampling Type:

Soil

Project Name:

H. E. WEST B FEDERAL #083

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Project Location:

LINN ENERGY

ma/ka

Sample Received By:

Jodi Henson

#### Sample ID: POINT 1 @ 1' (H400660-01)

Analyzed 03/05/2014 03/05/2014 03/05/2014 03/05/2014 03/05/2014	Method Blank  ND  ND  ND  ND  ND  ND	BS 2.24 2.33 2.28 6.91	% Recovery 112 117 114 115	True Value QC 2.00 2.00 2.00 6.00	RPD 0.979 0.332 2.39 1.92	Qualifier
03/05/2014 03/05/2014 03/05/2014	ND ND ND	2.33 2.28	117 114	2.00 2.00	0.332 2.39	
03/05/2014	ND ND	2.28	114	2.00	2.39	
03/05/2014	ND					
		6.91	115	6.00	1.92	
03/05/2014	ND					
					•	
Analyze	d By: AP					
Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
03/05/2014	ND	416	104	400	3.92	
Analyze	d By: ms					
Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
03/05/2014	ND	208	104	200	7.01	
03/05/2014	ND	204	102	200	6.86	
	Analyzed 03/05/2014 Analyze	03/05/2014 ND  Analyzed By: ms  Analyzed Method Blank 03/05/2014 ND	Analyzed Method Blank BS 03/05/2014 ND 416  Analyzed By: ms  Analyzed Method Blank BS 03/05/2014 ND 208	Analyzed Method Blank BS % Recovery 03/05/2014 ND 416 104  Analyzed By: ms  Analyzed Method Blank BS % Recovery 03/05/2014 ND 208 104	Analyzed Method Blank BS % Recovery True Value QC 03/05/2014 ND 416 104 400  Analyzed By: ms  Analyzed Method Blank BS % Recovery True Value QC 03/05/2014 ND 208 104 200	Analyzed Method Blank BS % Recovery True Value QC RPD 03/05/2014 ND 416 104 400 3.92  Analyzed By: ms  Analyzed Method Blank BS % Recovery True Value QC RPD 03/05/2014 ND 208 104 200 7.01

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Celey D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To: (575) 397-1471

Received:

03/04/2014

Sampling Date:

03/04/2014

Reported:

03/05/2014

Sampling Type:

Soil

Project Name:

H. E. WEST B FEDERAL #083

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

LINN ENERGY

Sample ID: POINT 1 @ 1.5' (H400660-02)

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	03/05/2014	ND	2.24	112	2.00	0.979	
Toluene*	<0.050	0.050	03/05/2014	ND	2.33	117	2.00	0.332	
Ethylbenzene*	<0.050	0.050	03/05/2014	ND	2.28	114	2.00	2.39	
Total Xylenes*	<0.150	0.150	03/05/2014	ND	6.91	115	6.00	1.92	
Total BTEX	<0.300	0.300	03/05/2014	ND					
Surrogate: Dibromofluoromethane	97.1	% 61.3-14	2						
Surrogate: Toluene-d8	103	% 71.3-12	9						
Surrogate: 4-Bromofluorobenzene	102	% 65.7-14	1						
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	784	16.0	03/05/2014	ND	416	104	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	03/05/2014	ND	208	104	200	7.01	
DRO >C10-C28	<10.0	10.0	03/05/2014	ND	204	102	200	6.86	
Surrogate: 1-Chlorooctane	101 :	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	102	% 63.6-15	4						

Cardinal Laboratories \*=Accredited Analyte

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Celey D. Keine



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

03/04/2014

Sampling Date:

03/04/2014

Reported:

03/05/2014

Sampling Type:

Soil

Project Name:

H. E. WEST B FEDERAL #083

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

LINN ENERGY

Sample ID: POINT 2 @ 6" (H400660-03)

BTEX 8260B	mg,	'kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.100	0.100	03/05/2014	ND	2.24	112	2.00	0.979	
Toluene*	<0.100 0.100		03/05/2014	ND	2.33	117	2.00	0.332	
Ethylbenzene*	<0.100 0.100		03/05/2014	ND	2.28	114	2.00	2.39	
Total Xylenes*	<0.300		03/05/2014	ND	6.91	115	6.00	1.92	
Total BTEX <0.600		0.600	03/05/2014	ND					
Surrogate: Dibromofluoromethane	99.3	% 61.3-14	2						
Surrogate: Toluene-d8	urrogate: Toluene-d8 103 % 71.3-12								
Surrogate: 4-Bromofluorobenzene	187	% 65.7-14	1						
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					-
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>639</b> 16.0		03/05/2014	ND	416	104	400	3.92	
TPH 8015M	mg,	/kg	Analyze	d By: ms					S-06
Analyte	Result	Result Reporting Limit		Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
GRO C6-C10	<100	100	03/05/2014	ND	208	104	200	7.01	
DRO >C10-C28	<b>8 3830</b> 100		03/05/2014	ND	204	102	200	6.86	
Surrogate: 1-Chlorooctane	83.7 % 65.2-1-		10	, ,					2
Surrogate: 1-Chlorooctadecane	192	% 63.6-15	14						

#### Cardinal Laboratories

\*=Accredited Analyte

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Celeg D. Keene



RICE ENVIRONMENTAL CONSULTING & SAFETY JACOB KAMPLAIN 419 W. CAIN . HOBBS NM, 88240

Fax To:

(575) 397-1471

Received:

03/04/2014

Sampling Date:

03/04/2014

Reported:

03/04/2014

Sampling Type:

Soil

Project Name:

H. E. WEST B FEDERAL #083

Sampling Condition:

Cool & Intact

Project Number:

NONE GIVEN

Sample Received By:

Jodi Henson

Project Location:

LINN ENERGY

Sample ID: POINT 2 @ 1' (H400660-04)

BTEX 8260B	mg,	/kg	Analyze	d By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	03/05/2014	ND	2.24	112	2.00	0.979		
Toluene*	<0.200 0.200		03/05/2014	ND	2.33	117	2.00	0.332		
Ethylbenzene*	<0.200	0.200	03/05/2014	ND	2.28	114	2.00	2.39		
Total Xylenes*	<0.600	0.600	03/05/2014	ND	6.91	115	6.00	1.92		
Total BTEX		1.20	03/05/2014	ND						
Surrogate: Dibromofluoromethane	99.0 % 61.3-1-		2							
Surrogate: Toluene-d8	99.5 % 71.3-12		9							
Surrogate: 4-Bromofluorobenzene	171	% 65.7-14	1.							
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	976	16.0	03/05/2014	ND 416		104	400	3.92		
TPH 8015M	mg	/kg	Analyze	d By: ms					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<b>106</b> 100 <b>*4680</b> 100		03/05/2014	ND	208	104	200	7.01		
DRO >C10-C28			03/05/2014	ND	204	102	200	6.86		
Surrogate: 1-Chlorooctane	135 % 65.2-1-		0			·· · · · · · · · · · · · · · · · · · ·			·········	
Surrogate: 1-Chlorooctadecane 301 %		% 63.6-15	4							

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\*=Accredited Analyte

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Celecy D. Keine



#### **Notes and Definitions**

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene





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101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

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Project #: Project Owner:							l	City:					Σ		$\pm$	1/8									
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Project Location: H.E. West B Federal #083					F	Phone #:							<u>₩</u>	'											
Sampler Name:	Chris Flores							F	ax	#:				] 은	<b>TPH 8015 M</b>	BT	Texas TPH	Complete Cations/Anions						ļ	
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affiliates or successors arisin	erdinal be liable for Incidental or consequental damages, inc ng out of or related to the performance of services hereunde	r by Cardin	al, rega	ardless	of whe	ether s	uch cla	ns, los ilm is i	ss of u	use, or l	oss of any of	profits incurred by the above stated r	easons or otherw	so.		·					· ·				
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Sampler - UPS - Bus - Other:

Cool Intact
Ves Yes
No No.

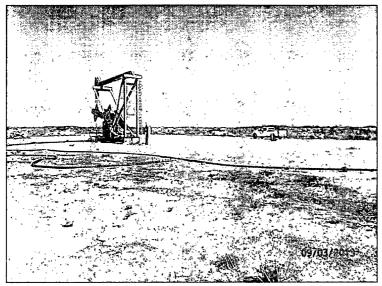
<sup>†</sup> Cardinal cannot accept verbal changes. Please fax written changes to 505-393-24/5

# Appendix C Photo Documentation

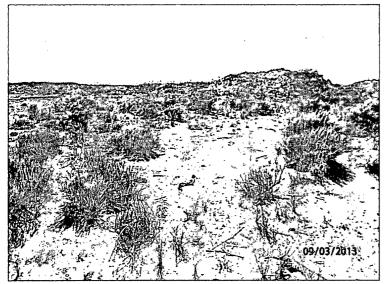
RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

### Linn H.E. West B Federal #83

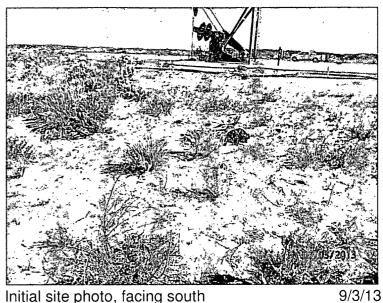
Unit Letter D, Section 4, T17S, R31E



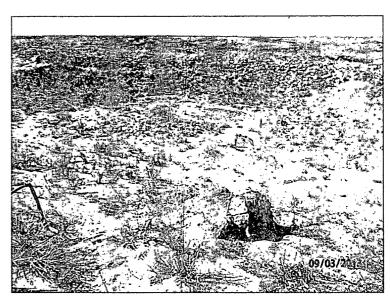
Initial site photo, facing east 9/3/13



Initial site photo, facing northwest 9/3/13

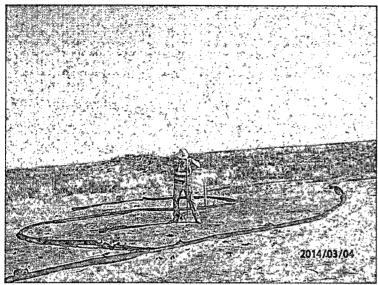


Initial site photo, facing south



Initial site photo, facing south

9/3/13



Hand auguring for depth, facing northeast

3/4/1