



Whole Earth Environmental, Inc.
2103 Arbor Cove Katy, Tx. 77494
281-394-2050
mikeg@vadose.us

February 22, 2012

NMOCD
1625 North French Dr.
Hobbs, NM 88240

Attn: Geoffrey Leking

Reference: 1RP-2781

Dear Mr. Leking:

Enclosed please find a copy of our remediation protocol for the Chaparral Energy Yates State #2 Leak located in Unit Letter H, Section 15, Township 12S, Range 38E.

The attached laboratory analytical report from Cardinal indicates that the affected area cleans up at a maximum depth of 15' below ground surface. Our protocol describes the excavation and commercial disposal of the highly contaminated soils to a depth of 4' below ground surface followed by the installation of a geo-synthetic liner and backfill with fresh caliche.

Thank you for your guidance and personal attention to this project.

Warmest personal regards,

Mike Griffin
President
Whole Earth Environmental, Inc.

25' GW

Reviewed
Geoffrey Leking
Env. Specialist
NMOCD-DIST 1
4/9/12

Pls Excavate to 5'
take confirmatory
samples for TPH
then line & backfill



**Executive Summary
Chaparral Energy, LLC
Yates State No. 2
Spill Remediation Report**

Location

The site is located approximately two and a half miles northwest of the Bronco, Tx. on New Mexico state lands. The primary land use is grazing of cattle however extensive oil and gas operations are prevalent in the area. the area is semi-arid with a net precipitation / evaporation amount of -73" per year. The legal description of the site Unit Letter E, sec. 16, T-12S, R38E.

Site History

On January 30, 2012 a cable on the rod rotator broke up high and wrapped up around a 1" nipple on the well head, the nipple was broken on the upstroke of the pump jack and broke the nipple. The unit continued to pump allowing the escape of produce water and oil onto the location.

Site Investigation

Whole Earth Environmental ran an EM38 survey in the vertical mode (0>5') and then advanced a series of three bores and found the majority of the contamination to be superficial, however the area immediately adjacent to the wellhead had elevated chlorides to a total depth of 10' below ground surface.

Remediation

The brine contaminated soils will be excavated to a depth of 4' below ground surface and transported to the Gandy-Marley commercial disposal. The excavated materials will be replaced with fresh caliche and compacted in place after laying a geo-synthetic liner at the base of the excavation; the site will then be replicated to the previous pad density.



Exhibit Index

Chaparral Yates State No. 2

1. NMOCD signed Initial C-141
2. Satellite View of Location – Zoom out
3. Satellite View of Location - Zoom in
4. EM38 Survey
5. Bore locations
6. Bore Ortho
7. Photos

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
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Chaparral Energy LLC.	Contact: Derek Presely
Address: 701 Cedar Lake Blvd. Oklahoma City, OK 73114	Telephone No.: (405) 426-4091 X 1491
Facility Name: Yates State #2	Facility Type: oil well active

Surface Owner: STATE	Mineral Owner:	Lease No.:
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LOCATION OF RELEASE

Unit Letter: H	Section 16	Township 12S	Range 38E	Feet from the 2310'	North/South Line NORTH	Feet from the 330'	East/West Line EAST	County LEA
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Latitude: N33.2796459383444 Longitude: W103.09452468313

NATURE OF RELEASE

DEPTH TO GROUND WATER: 8' > 20' BGS

Type of Release: oil & produce water	Volume of Release: 15bbls	Volume Recovered: 10bbls
Source of Release: cable on rod rotator broke up high, wrapped up around 1" nipple on pumping "T", on upstroke broke 1" nipple and continued to pump	Date and Hour of Occurrence: 1-30-12 5:00am	Date and Hour of Discovery: 1-30-12 5:00am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? ETNM will set up C-141 and report to Geoffery Leking @ NMOCD Hobbs & NMSLO on return of signed initial C-141	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Water course was Impacted, Describe Fully.*

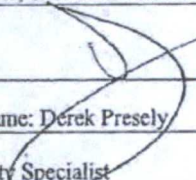

Describe Cause of Problem and Remedial Action Taken.*

Leak was caused when cable on rod rotator broke up high, wrapped up around 1" nipple on pumping "T", on upstroke broke 1" nipple and continued to pump. Pump jack shut down and repaired broken nipple, Chaparral Energy Crew headed to site to perform surface clean up.

Describe Area Affected and Cleanup Action Taken.* leak area centralized on well pad just south of pump jack, an area of approx. 20'W x 60'L about 1200sqft affected.

CLEAN UP ACTION: Earth Technologies of New Mexico contracted to delineate and setup cleanup plan for Chaparral

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 		OIL CONSERVATION DIVISION	
Printed Name: Derek Presely		Approved by <u>ENV SPECIALIST:</u> 	
Title: Safety Specialist		Approval Date: <u>02/01/12</u>	Expiration Date: <u>04/01/12</u>
E-mail Address: derek.presely@chaparralenergy.com		Conditions of Approval: <u>SUBMIT FINAL</u>	
Date: 1-31-12	Phone: (575) 396-3221	<u>C-141 BY 04/01/12</u>	Attached <input type="checkbox"/> <u>IRP-2-12-2781</u>

* Attach Additional Sheets If Necessary



N

125

Bledsoe Hwy

Tatum

206

380

Bronco, Tx.

Chopped Tater 81-82

Farm-to-Market Rd 769

©2012 Google
Image ©2012 GeoEye
Image ©2012 DigitalGlobe

Google earth

Imagery Date: 3/31/2008

lat 33.252855° lon -103.169297° elev 3894 ft

Eye alt 21.38 mi



Chaparral Yates St. 62

© 2012 Google
Texas Orthoimagery Program

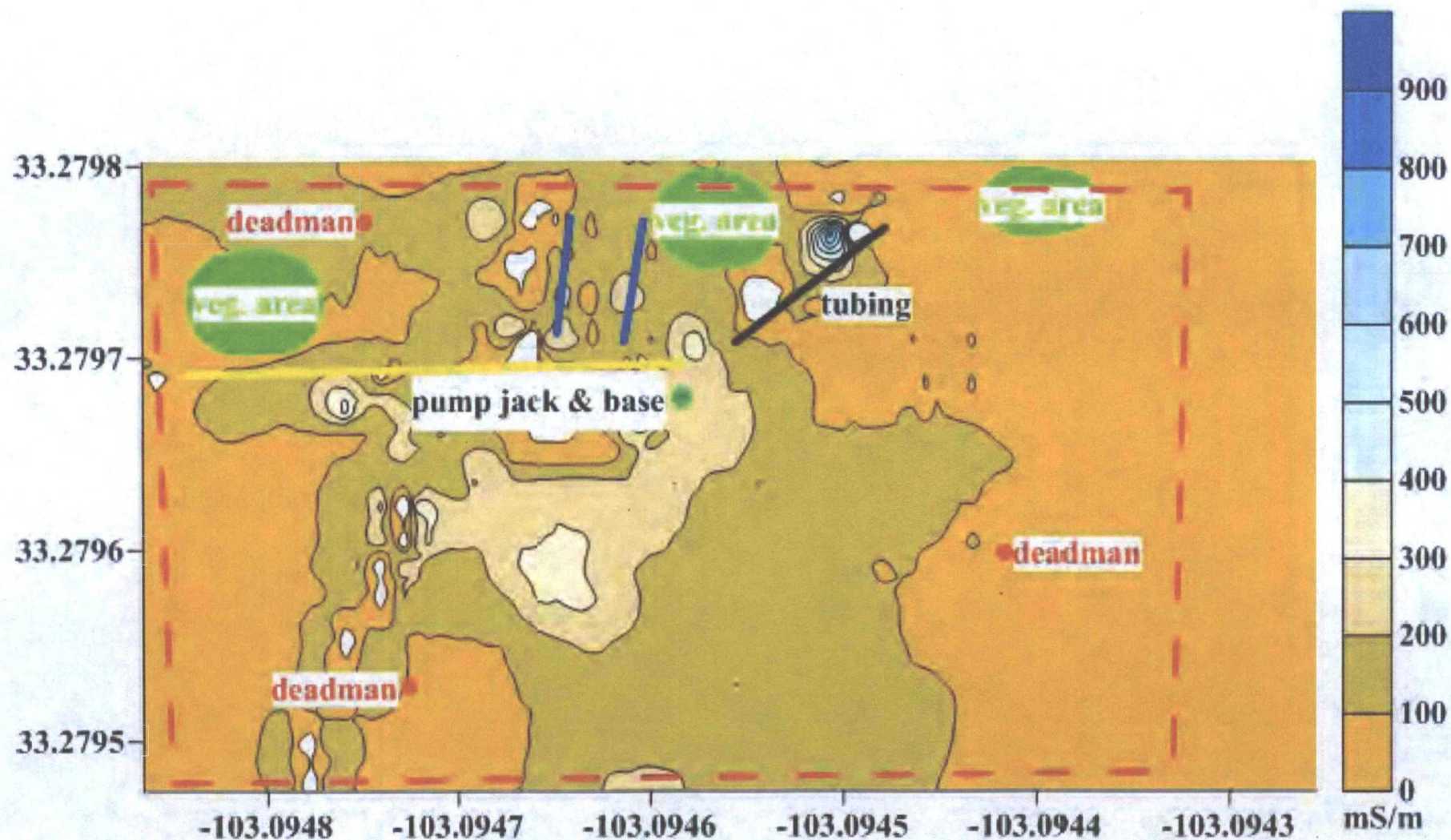
Google earth

Imagery Date 3/31/2008 1996

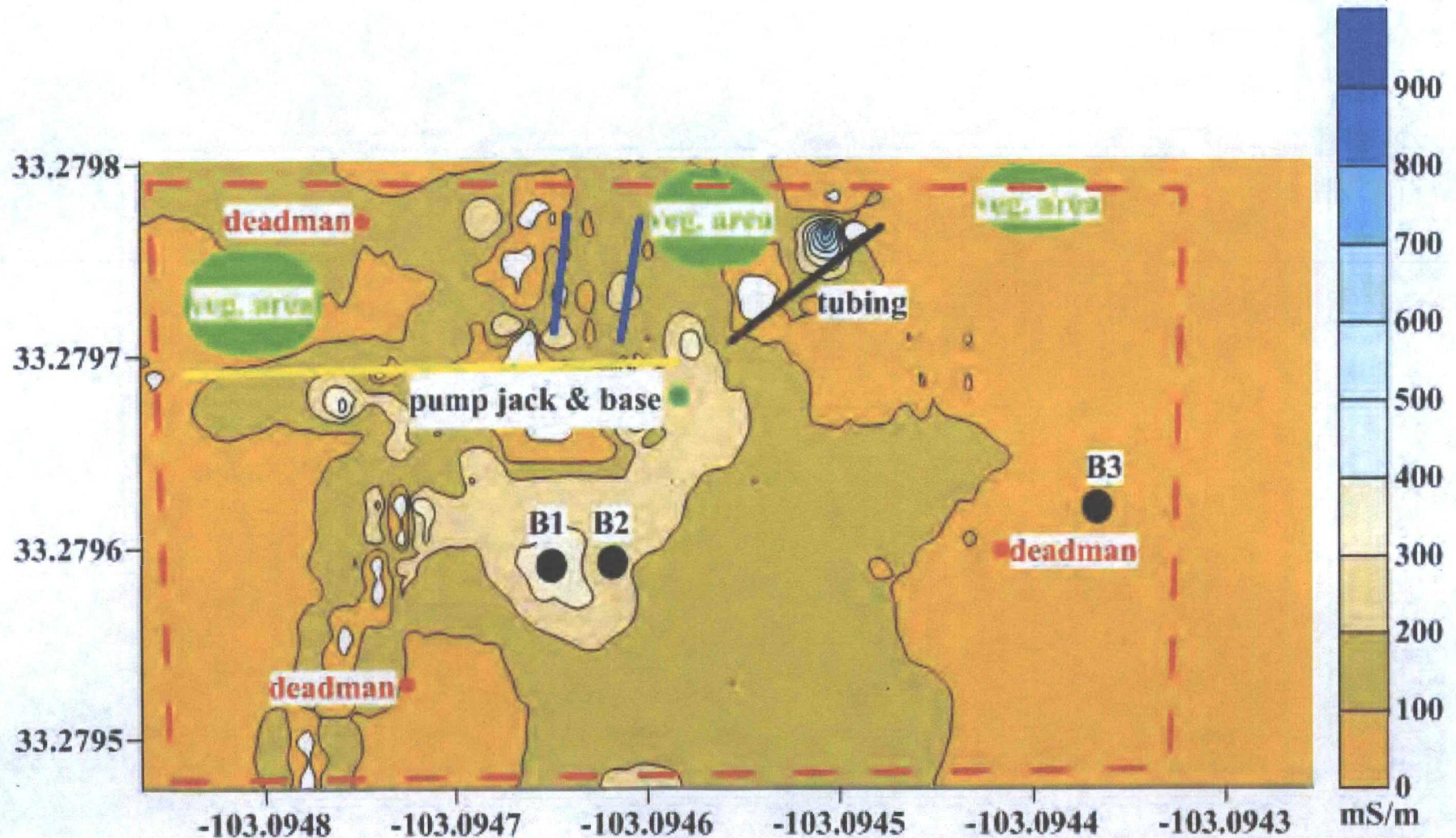
lat 33.279569° lon -103.094438° elev 3841 ft

Eye alt 4760 ft

Chaparral Energy LLC.
Yates State #2
API#30-025-30255
UL/H Sec-16 - T12S - R38E
2310' FNL & 330' FEL
GPS Lat & Lon WGS84
N33.2796459383444 / W103.09452468313
Depth to GW: 8' > 20'
2-1-12 EM38 Survey Vertical



Chaparral Energy LLC.
Yates State #2
API#30-025-30255
UL/H Sec-16 - T12S - R38E
2310' FNL & 330' FEL
GPS Lat & Lon WGS84
N33.2796459383444 / W103.09452468313
Depth to GW: 8' > 20'
2-1-12 EM38 Survey Vertical
Bore Sites



EARTH TECHNOLOGIES OF NEW MEXICO

CL- FIELD TITRATION RESULTS

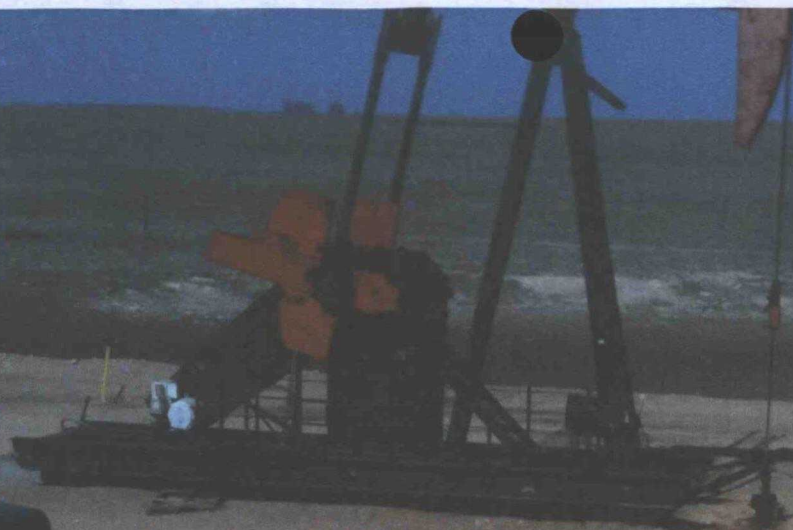
LOCATION: CHAPARRAL YATES STATE #2

2/15/2012

Sample pt.	TIME	DEPTH	SOIL	WATER	CF	AGNO3	CL-	PID	SOIL LITHOLOGY
B1	850	Surface	10.1	27.1	2.68	0.66	3541	1163.0	5YR-6/4 light reddish brown rocky sandy sand damp
	907	5'	10.6	26.5	2.50	0.4	2499	45.0	5YR-2.5/1 black clay wet
	940	10'	10	31	3.10	0.18	1116	19.6	5YR-2.5/1 black clay wet
	959	15'	10.4	25	2.40	0.05	240	13.4	5YR-4/3 reddish brown clayish sandy sand damp
	1032	20'	10.1	30.6	3.03	0.04	242	9.4	5YR-4/3 reddish brown clayish sandy sand damp
B2	1048	Surface	10.5	23.9	2.28	1.08	4915	511.0	5YR-6/4 light reddish brown rocky sandy sand damp
	1100	5'	10.2	27.5	2.70	0.19	1024	36.3	5YR-2.5/1 black clay wet
	1123	10'	10.3	27.6	2.68	0.04	214	12.7	5YR-2.5/1 black clay wet
	1141	15'	10.2	26.3	2.58	0.03	155	10.3	5YR-4/3 reddish brown clayish sandy sand damp
B3	1200	Surface	10	24.4	2.44	0.05	244	3.5	5YR-7/4 pink lightly rocky sandy sand dry
	1218	5'	10	25.5	2.55	0.06	306	5.4	5YR-6/1 gray rocky sandy sand dry
	1241	10'	10.4	26.2	2.52	0.02	101	4.7	5YR-8/2 pinkish white sandy sand damp



viewing bore sites
from top of battery
walkway



B1

B2





Laboratory Analytical Results

This section contains a copies of the laboratory analytical results and chain of custody.

February 21, 2012

ROY RASCON

EARTH TECHNOLOGIES OF NEW MEXICO

904 WEST HUMBLE

HOBBS, NM 88240

RE: CHAPARRAL YATES STATE #2

Enclosed are the results of analyses for samples received by the laboratory on 02/15/12 15:50.

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 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:

EARTH TECHNOLOGIES OF NEW MEXICO
ROY RASCON
904 WEST HUMBLE
HOBBS NM, 88240
Fax To: NONE

Received: 02/15/2012
Reported: 02/21/2012
Project Name: CHAPARRAL YATES STATE #2
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 02/15/2012
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: B 1 SURFACE (H200413-01)

BTEX 8021B	mg/kg	Analyzed By: AP						S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	02/18/2012	ND	1.87	93.6	2.00	2.03	
Toluene*	8.71	0.500	02/18/2012	ND	2.03	102	2.00	2.02	
Ethylbenzene*	16.4	0.500	02/18/2012	ND	2.08	104	2.00	0.853	
Total Xylenes*	49.8	1.50	02/18/2012	ND	6.51	109	6.00	0.719	

Surrogate: 4-Bromofluorobenzene (PIL) 162 % 64.4-134

Chloride, SM4500Cl-B	mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4960	16.0	02/18/2012	ND	400	100	400	3.92	

Sample ID: B 1 @ 15' (H200413-02)

Chloride, SM4500Cl-B	mg/kg	Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	02/18/2012	ND	400	100	400	3.92	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

EARTH TECHNOLOGIES OF NEW MEXICO
ROY RASCON
904 WEST HUMBLE
HOBBS NM, 88240
Fax To: NONE

Received: 02/15/2012
Reported: 02/21/2012
Project Name: CHAPARRAL YATES STATE #2
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 02/15/2012
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: B 1 @ 20' (H200413-03)

Chloride, SM4500CI-B			mg/kg							
			Analyzed By: HM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	02/18/2012	ND	400	100	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	02/16/2012	ND	174	87.1	200	4.78		
DRO >C10-C28	<10.0	10.0	02/16/2012	ND	169	84.3	200	12.1		
Surrogate: 1-Chlorooctane	88.8 %	55.5-154								
Surrogate: 1-Chlorooctadecane	102 %	57.6-158								

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

EARTH TECHNOLOGIES OF NEW MEXICO
ROY RASCON
904 WEST HUMBLE
HOBBS NM, 88240
Fax To: NONE

Received: 02/15/2012
Reported: 02/21/2012
Project Name: CHAPARRAL YATES STATE #2
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 02/15/2012
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: B 2 SURFACE (H200413-04)

BTX 8021B		mg/kg	Analyzed By: AP					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	02/18/2012	ND	1.87	93.6	2.00	2.03	
Toluene*	6.46	0.500	02/18/2012	ND	2.03	102	2.00	2.02	
Ethylbenzene*	13.0	0.500	02/18/2012	ND	2.08	104	2.00	0.853	
Total Xylenes*	39.7	1.50	02/18/2012	ND	6.51	109	6.00	0.719	

Surrogate: 4-Bromofluorobenzene (PIL) 153 % 64.4-134

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6240	16.0	02/18/2012	ND	400	100	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	820	50.0	02/16/2012	ND	174	87.1	200	4.78	
DRO >C10-C28	4060	50.0	02/16/2012	ND	169	84.3	200	12.1	

Surrogate: 1-Chlorooctane 81.9 % 55.5-154

Surrogate: 1-Chlorooctadecane 88.3 % 57.6-158

Sample ID: B 2 @ 15' (H200413-05)

Chloride, SM4500CI-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	02/18/2012	ND	400	100	400	3.92	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 EARTH TECHNOLOGIES OF NEW MEXICO
 ROY RASCON
 904 WEST HUMBLE
 HOBBS NM, 88240
 Fax To: NONE

 Received: 02/15/2012
 Reported: 02/21/2012
 Project Name: CHAPARRAL YATES STATE #2
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 02/15/2012
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: B 3 SURFACE (H200413-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	02/18/2012	ND	400	100	400	3.92	

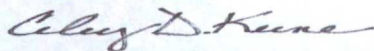
Sample ID: B 3 @ 10' (H200413-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	02/18/2012	ND	400	100	400	3.92	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: ET OF NM		P.O. #:		BILL TO		ANALYSIS REQUEST																													
Project Manager: Roy Rascon		Company:																																	
Address:		Attn:																																	
City:		State:		Zip:																															
Phone #:		Fax #:		Address:																															
Project #:		Project Owner:		City:																															
Project Name: Chaparral Yates State #2		State:		Zip:																															
Project Location:		Phone #:																																	
Sample Name: E. Rascon		Fax #:																																	
FOR LAB USE ONLY		MATRIX		PRESERV		SAMPLING																													
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE / COOL		OTHER:		DATE		TIME		CI-		8015M		BTEX*	
H1200413		B1 Surface		G		1		X		1		1		1		1		1		1		1		1		1		1		1		1			
-1		B1 @ 15'		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			
2		B1 @ 20'		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			
3		B2 Surface		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			
4		B2 @ 15'		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			
5		B3 Surface		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			
6		B3 @ 10'		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			
7		B3 @ 10'		1		1		1		1		1		1		1		1		1		1		1		1		1		1		1			

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Relinquished By: **ET of NM** Date: **2-15-12** Received By: **WALL MURDER** Time: **3:50**

Relinquished By: **ET of NM** Date: **2-15-12** Received By: **WALL MURDER** Time: **3:50**

Delivered By: (Circle One) **50** Sample Condition: ☒ Cool ☒ Intact ☐ Yes ☐ No ☐ Yes ☐ No

Sampler - UPS - Bus - Other: **50** CHECKED BY: **WALL MURDER**

REMARKS: *** Added as per log. all 12 cl**



Remediation Protocol

This section contains a copy of PR-161, the proposed remediation protocol for the Chaparral
Yates State No. 2



**Remediation and Site Restoration Protocol
Chaparral Energy Co. LLC.
Yates State #2
1RP-2781**

1.0 Purpose

This protocol is to provide a detailed outline of the steps to be employed in the remediation of a produce water & hydrocarbon release impact area near Bronco, Tx. in Lea County, New Mexico.

2.0 Scope

This protocol is site specific for the above project.

3.0 Preliminary

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

3.1 Client Review

3.1.1 Whole Earth shall meet with appointed personnel within Chaparral Energy Co. LLC. to review this protocol and make any requested modifications or alterations.

3.1.2 Changes to this protocol will be documented and submitted for final review by Chaparral Energy Co. LLC. prior to the initiation of actual fieldwork.

3.1.3 Upon client approval, this protocol and supporting documentation will be submitted to the Hobbs district office of the NMOCD for approval.

4.0 Safety

4.1 Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety related issues with the appropriate Targa Midstream Services LLC. personnel, sub-contractors and exchange phone numbers.

4.2 A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.

4.3 Anyone allowed on to location will be wearing standard PPE, and Fire Retardant Clothing or Coveralls. Each vehicle must be equipped with two way communication capabilities.

5.0 Remediation Procedure

5.1 The area impacted by the produce water and oil spill will be excavated to depth of 4' below ground surface, and set a geo-textile liner at the bottom of the excavation. Using the dimensions from the previously run EM-38 Survey, the excavated dimensions should be approximately 20' x 60'. The excavated materials will be transported to Gandy / Marley facility near Caprock, NM and be replaced with fresh caliche.

6.0 Site Restoration Procedure

6.1 the site will backfilled and compacted with fresh caliche and re-contoured to match the surrounding elevation.

7.0 Closure Report

At the conclusion of the project, Whole Earth shall prepare a closure report which contains the following minimum information:

- Photographs of the location prior to remediation
- Photographs of all excavations at the point of maximum soil removal
- Photographs of the location at time of final closure
- Lab results
- Copies of this protocol and all testing procedures
- Field CL- titration results
- Disposal record of all manifest ticket numbers, volume amount of load, and date of disposal
- Copies of this protocol and all testing procedures