



Whole Earth Environmental, Inc.

2103 Arbor Cove
Katy, Tx. 77494
281.394.2050
whearth@msn.com

HOBBS OGD

JAN 11 2012

RECEIVED

January 7, 2012

NMOCD
1625 No. French Dr.
Hobbs, NM 88241

Attn: Geoffrey Leking

Reference: 1RP-2751

Dear Mr. Leking:

Enclosed, please find a copy of our remediation protocol for the Chaparral Energy WDQSU-12 spill located in Unit Letter F, Section 30, Township 24S, Range 38E.

The attached laboratory analytical report from Cardinal indicates that the affected area meets NMOCD clean-up standards at a distance sufficient to protect against groundwater impact. Our protocol describes the excavation and commercial disposal of the highly contaminated soils to a depth of 5' followed by the installation of a geo-synthetic liner and backfill with fresh topsoils.

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

Warmest personal regards,

Mike Griffin
President
Whole Earth Environmental, Inc.

BOTH DOX
NEED DATE
STAMP



Executive Summary

1RP-2751

Location

The site is located approximately seven miles northeast of the City of Jal, Lea County, New Mexico on fee 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.

Spill Event

The seep of approximately 200 barrels of saltwater from was discovered on August 31, 2011. The breach occurred due to a buried failed coupling seal. The line has been subsequently replaced. Approximately 160 barrels of fluid were recovered by vacuum truck & removed to disposal.

Investigation Activities

The area was initially investigated with a Geonics EM-38 electromagnetic survey device and it was determined that the spill area encompassed an area 5,300 square feet. The site was initially bored by Atkins Engineering to a total depth of 75' below ground surface at which point the chloride concentrations matched background.

Remediation Activities

We propose to excavate and commercially dispose of all soils within the deeply affected area to a minimum depth of 5' below ground surface and installing a geotextile liner. Any superficially impacted soils will be tested and either commercially disposed of or will be mixed and blended with fresh soils to achieve the NMOCD closure standards.



Exhibit Index

WDSQU-#12 1RP-2751

1. Initial C-141
2. Depth to Ground Water Info
3. NMOCD Assessment Ranking
4. Satellite Zoom In
5. EM38 Site Survey
6. Bore Sites Sat. View
7. Bore Logs
8. Excavation Dimensions
9. Broken Sleeve
10. Split Spoon @ 60'

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 E. Presley
Address: 701 CEDAR LAKE BLVD. OKLAHOMA CITY, OKLAHOMA 73114-7806	Telephone No.: (405) 426-4091 X 1491
Facility Name: WDQSU #12 @ SAT. #1	Facility Type: INJECTION HEADER

Surface Owner: BILL GROBE	Mineral Owner	Lease No.:
---------------------------	---------------	------------

LOCATION OF RELEASE APL # 30-025-12271-00-00

Unit Letter F	Section 30	Township 24S	Range 38E	Feet from the 2352	North/South Line NORTH	Feet from the 1488	East/West Line WEST	County LEA
------------------	---------------	-----------------	--------------	-----------------------	---------------------------	-----------------------	------------------------	---------------

Latitude: 32.18916

Longitude: -103.10335

NATURE OF RELEASE

Type of Release: PRODUCE WATER	Volume of Release: 200BBLs	Volume Recovered: 160
Source of Release: 2" VICTAULIC F/G > TO STEEL LINE	Date and Hour of Occurrence: 8-31-11	Date and Hour of Discovery: 8-31-11
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? WEE Inc. was contacted for initial investigation of site, Roy R. Rascon called Geoffrey Leking for notification of leak	
By Whom? Roy R. Rascon WEE INC.	Date and Hour: unknown	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

High pressure Victaulic connection rusted over period of time, rubber seal blew out. Located source isolated and vacuumed water up and dispose of properly

Describe Area Affected and Cleanup Action Taken.*

CLEAN UP ACTION: Whole Earth Environmental Inc. has been contracted to delineate and sample site. Various samples will be sent to Cardinal Labs in Hobbs. Site will be closed in accordance to NMOCD regulations.

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.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Derek E. Presley

Title: Safety Specialist

E-mail Address: derek.presley@chaparralenergy.com

Date:

10/30/11

Phone: (405) 426-4091 X 1491

ENV. ENGINEER:
Approved by District Supervisor:

Approval Date: 11/3/11

Expiration Date: 01/3/12

Conditions of Approval: SUBMIT NECESSARY PAPERWORK FOR G.W. INVESTIGATION WHEN

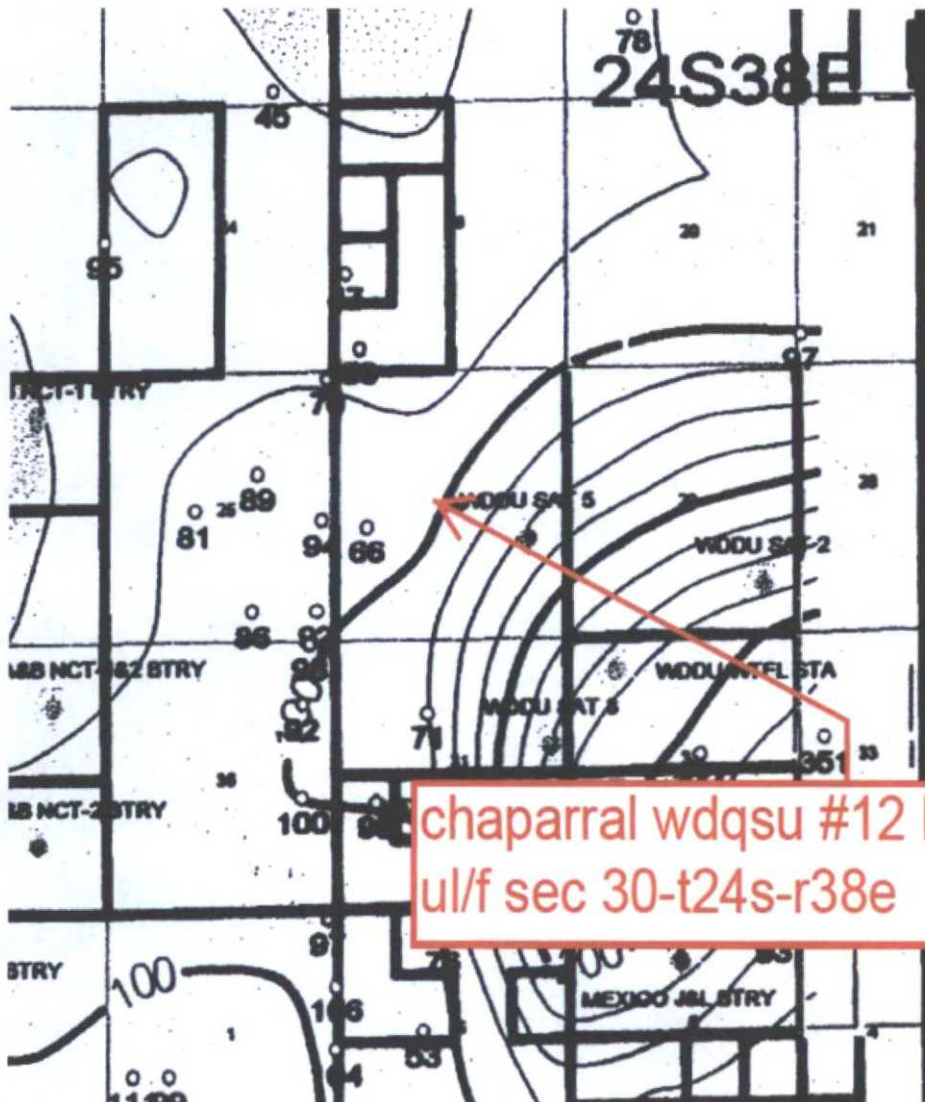
Attached ☐

IRP-11-11-2751

VERIFIED.

* Attach Additional Sheets If Necessary

CHAPARRAL ENERGY LLC
WDQSU #12 LEAK @ SATELLITE #1 INJECTION HEADER #1
UL/F SEC 30 - T24S - R38E
LEAK SOURCE GPS LAT. & LON WGS84
N32.18916 / W103.10335
DEPTH TO GW: +/- 70'bgs
INFO FROM CHEVRON/TEXACO DEPTH TO GROUNDWATER MAP



chaparral wdqsu #12 leak @ sat. #1
ul/f sec 30-t24s-r38e

SITE ASSESSMENT CRITERIA (NMOCD)

CHAPARRAL ENERGY LLC.

WDQSU #12 @ SAT. #1

UL/F SEC 30 - T24S - R38E

GPS LAT & LON WGS84 N32.18916 / W104.1033

DTW: +/- 70'BGS according to Cheron Texaco water data map for Lea Co.

DEPTH TO GROUND WATER

(Vertical distance from contaminants to seasonal high water elevation of ground water.)

Less than 50' BGS (20 points)

50' to 99' BGS (10 points)

Greater than 100' BGS (0 points)

10

WELLHEAD PROTECTION AREA

(Less than 200' from a private domestic water source, or; less than 1000' from all other water sources)

YES (20 points)

NO (0 points)

0

DISTANCE TO SURFACE WATER BODY

(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals, and ditches)

Less than 200' (20 points)

200' to 1000' (10 points)

Greater than 1000' (0 points)

0

RANKING SCORE TOTAL POINTS

0

CLEAN - UP TARGET CONCENTRATIONS FOR "SITE CLOSURE"

IF RANKING SCORE IS:	> 19	10 - 19	0 - 9
BENZENE (ppm)*	10	10	10
BTEX (ppm)*	50	50	50
TPH (ppm)**	100	1000	5000

*A field vapor headspace measurement of 100 ppm may be substituted for a laboratory analysis.

** The contaminant concentration for TPH is the concentration above background levels.

CHAPARRAL
WDQSU #12 @ SAT #2 LEAK
1RP-2751

WDQSU #12 @ Sat #1

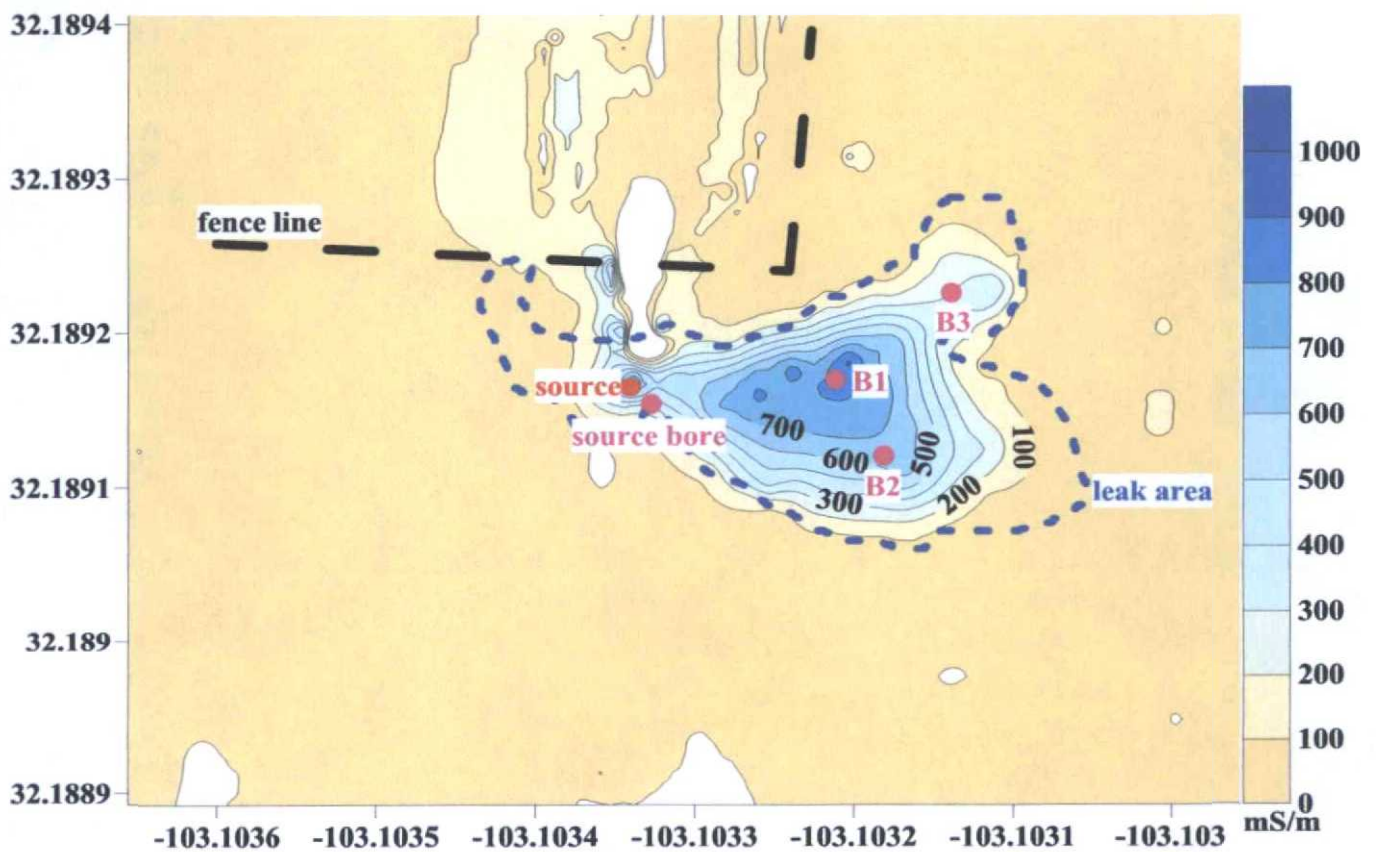
1RP-2751 Chaparral WDQSU #12 Leak PR-158

©2011 Google

Page 7
Google earth

101
LEAK
ON
SPRAY

9-22-11
CHAPARRAL ENERGY LLC.
WDQSU #12 LEAK @ SATELLITE #1
UL/F SEC 30 - T24S - R38E
GPS LAT & LON WGS84
N32.18916 / W103.1033
DEPTH TO GW: +/- 70'BGS
EM38 Site Survey Map



CHAPARRAL WDQSU #12
BORE SITES WITHIN LEAK AREA

source

B1

B2

B3

IRP-2751 Chaparral WDQSU #12 Leak PR-158

©2011 Google

Page 9

Google earth

Imagery Date 11/14/2011 1996

32° 11.350' N 109° 16.193' W elev 3121 ft

Eye alt 3406 ft



Log of Boring Chapparral WDQSU # 12 @Sat #1 Source

Whole Earth Environmental, Inc.
2103 Arbor Cove
Katy TX 77494

Contact: Mike Griffin

Job#: WEWD121.MWD.11

Date : 10/27/11
Boring Location : 32°11.350, 103°06.199
Site Location : NE Jal, NM
Auger Type : 3¼ Hollow
Logged By : M. Bates

Depth in Feet	GRAPHIC	USCS	Sample	DESCRIPTION
0				Silty sand, brown, loose, damp
5		SP		
10		SP		Sand and caliche, tan, loose, damp
15		SP		Sand and caliche, tan, loose, damp
20				Sandy and gravel, tan, loose, damp
25				
30				
35				
40				
45				

Total Depth 40'
(AEA TH-4)

Bentonite Seal

01-09-2012 C:\Users\Paddy\Documents\Whole Earth\Chapparral WDQSU # 12 @Sat #1\Source.bor



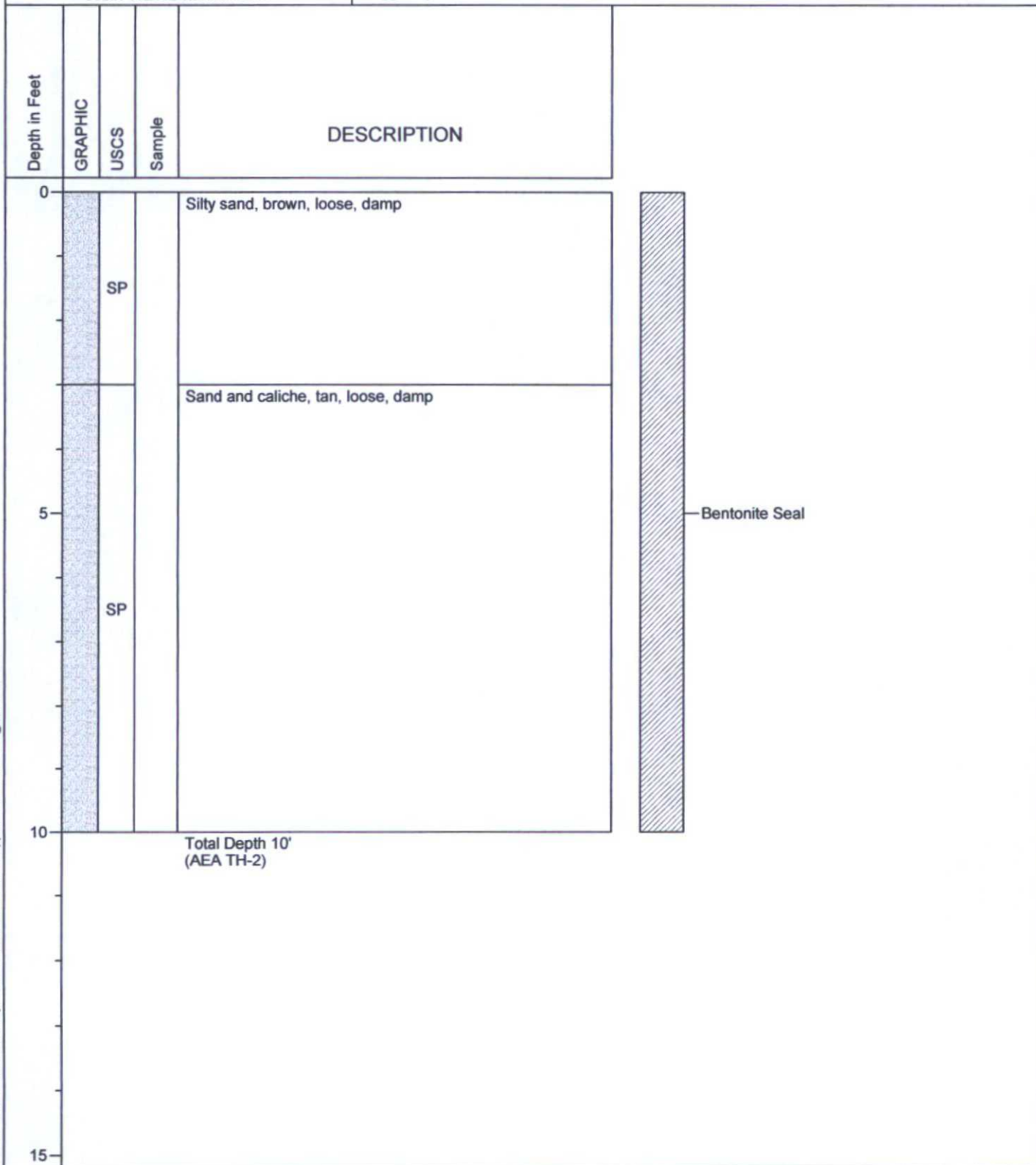
Log of Boring Chapparral WDQSU # 12 @Sat #1 B1

Whole Earth Environmental, Inc.
2103 Arbor Cove
Katy TX 77494

Contact: Mike Griffin

Job#: WEWD121.MWD.11

Date : 10/27/11
Boring Location : 32°11.350, 103°06.191
Site Location : NE Jal, NM
Auger Type : 3¼ Hollow
Logged By : M. Bates



01-09-2012 C:\Users\Paddy\Documents\Whole Earth\Chapparral WDQSU # 12 @Sat #1\1.bor

Whole Earth Environmental, Inc.
2103 Arbor Cove
Katy TX 77494

Contact: Mike Griffin

Job#: WEWD121.MWD.11

Date : 10/27/11
Boring Location : 32°11.347, 103°06.139
Site Location : NE Jal, NM
Auger Type : 3¼ Hollow
Logged By : M. Bates

Depth in Feet	GRAPHIC	USCS	Sample	DESCRIPTION
0		SP		Silty sand, brown, loose, damp
5				Sand and caliche, tan, loose, damp
10				
15		SP		
20				
25				Sandy clay, tan, loose, dry
30		CL		
35				Sandy clay, tan, loose, moist
40				
45				
50				
55		CL		
60				
65				
70				Sand, reddish tan, loose, wet
75		SP		
80				Total Depth 75' (AEA TH-1)



Bentonite Seal



Log of Boring Chapparral WDQSU # 12 @Sat #1 B3

Whole Earth Environmental, Inc.
2103 Arbor Cove
Katy TX 77494

Contact: Mike Griffin

Job#: WEWD121.MWD.11

Date : 10/27/11
Boring Location : 32°11.355, 103°06.186
Site Location : NE Jal, NM
Auger Type : 3¼ Hollow
Logged By : M. Bates

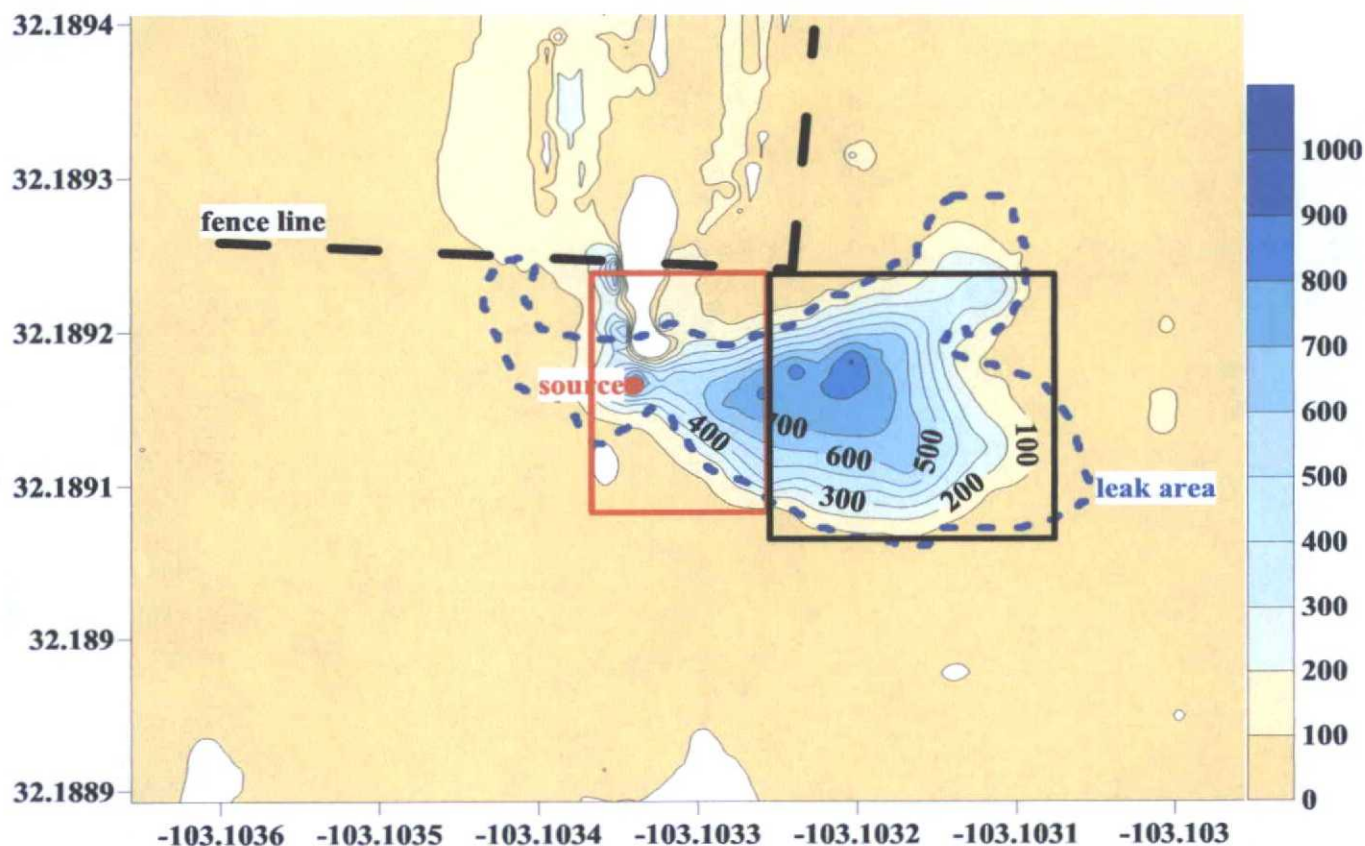
Depth in Feet	GRAPHIC	USCS	Sample	DESCRIPTION
0				Silty sand, brown, loose, damp
		SP		
5				Sand and caliche, tan, loose, damp
10				
		SP		
15				Total Depth 15' (AEA TH-3)
20				



Bentonite Seal

01-09-2012 C:\Users\Paddy\Documents\Whole Earth\Chapparral WDQSU # 12 @Sat #1\B3.bor

**CHAPARRAL ENERGY LLC.
WDQSU #12 @ SATELLITE #1
UL/F SEC 30 - T24S - R38E
GPS LAT & LON WQS84
N32.18916 / W103.1033
DEPTH TO GW: +/- 70'BGS
EXCAVATION DIMENSIONS
RED BOX 33'X51'X5' = 312CYDS
BLACK BOX 60'X60'X5' = 667CYDS**



All efforts will be made to minimize the extent of the excavation by following the outline of the leak area, starting at the edges, and samples being pulled various locations to ensure minimal excavation and haul off of material.







Field & Laboratory Analytical Data With Lithological Descriptions

1. Field Titration & Lithological Descriptions
2. Cardinal Labs H102375 Deep Boring Results

WEE INC. CL- FIELD TITRATION RESULTS

LOCATION: CHAPPAREL WDQSU #12

10/26/2011

SAMPLE PT	DEPTH	TIME	SOIL	WATER	CF	AGNO3	CL-	PID	SOIL LITHOLOGY
SOURCE	0>1'	1132	10	32.5	3.25	1	6498	N/A	7.5YR-3/3 dark brown sandy sand damp
	5'	1157	10	32.7	3.27	0.35	2288	N/A	7.5YR-8/1 white sandy sand damp
	10'	1204	10	32.2	3.22	0.3	1931	N/A	7.5YR-8/1 white sandy sand damp
	15'	1209	10	33.8	3.38	0.66	4460	N/A	7.5YR-1/2 white sandy sand damp
	20'	1217	10	34.5	3.45	1.31	9036	N/A	10YR-8/3 very pale brown rocky sandy sand damp
	25'	1227	10	32.4	3.24	1.57	10170	N/A	7.5YR-6/4 light brown sandy sand damp
	30'	1236	10	31.7	3.17	0.08	507	N/A	5YR-6/4 light reddish brown clay sandy sand damp
	35'	1247	10	30.9	3.09	0.04	247	N/A	2.5YR-5/8 red sandy sand damp
	40'	1256	10.1	31.2	3.09	0.04	247	N/A	2.5YR-5/8 red sandy sand damp
BORE 1	0>1'	131	10	32.2	3.22	1.51	9721	N/A	7.5YR-3/3 dark brown sandy sand damp
	5'	140	10	32.4	3.24	0.04	259	N/A	7.5YR-8/1 white sandy sand damp
	10'	147	10	31	3.10	0.04	248	N/A	7.5YR-8/2 pinkish white rocky sandy sand damp

10/26/2011

SAMPLE PT	DEPTH	TIME	SOIL	WATER	CF	AGNO3	CL-	PID	SOIL LITHOLOGY
BORE 2	0>1'	207	10	32.6	3.26	0.89	5801	N/A	7.5YR-3/3 dark brown sandy sand damp
	5'	229	10	34.7	3.47	0.14	971	N/A	7.5YR-8/2 pinkish white rocky sandy sand damp
	10'	234	10	31.2	3.12	0.17	1060	N/A	7.5YR-8/2 pinkish white rocky sandy sand damp
	15'	240	10	31.4	3.14	0.24	1507	N/A	7.5YR-8/2 pinkish white rocky sandy sand damp
	20'	254	10	31.3	3.13	0.49	3066	N/A	7.5YR-8/2 pinkish white rocky sandy sand damp
	25'	307	10	30.4	3.04	0.5	3039	N/A	5YR-7/4 pink rocky sandy sand damp
	30'	321	10	31	3.10	0.55	3409	N/A	5YR-6/4 light reddish brown clay sandy sand damp
	35'	330	10	32.5	3.25	0.39	2534	N/A	2.5YR-5/4 reddish brown clay sandy sand damp
	40'	339	10	31.5	3.15	0.27	1700	N/A	2.5YR-7/3 light reddish brown sandy sand damp
	45'	354	10	29.4	2.94	0.22	1293	N/A	5YR-6/4 light reddish brown clay sandy sand damp
	50'	413	10	29.6	2.96	0.19	1124	N/A	5YR-7/4 pink sandy sand damp
	55'	439	10	28.1	2.81	0.27	1517	N/A	5YR-6/4 light reddish brown sandy sand damp
	60'	519	10	31.5	3.15	0.17	1071	N/A	5YR-6/4 light reddish brown sandy sand damp

10/27/2011

BORE 2	65'	953	10	32	3.20	0.07	448	N/A	5YR-5/1 gray sandy silty clay moist
	70'	1035	10.2	28.7	2.81	0.04	225	N/A	5YR-5/8 yellowish red sandy sand wet
	75'	1103	10.1	31.6	3.13	0.03	188	N/A	5YR-5/8 yellowish red sandy sand wet

10/27/2011

BORE 3	0>1'	1148	10	27.5	2.75	0.74	4069	N/A	7.5YR-3/4 dark brown sandy sand damp
	5'	1156	10	30	3.00	0.36	2159	N/A	7.5YR-8/1 white sandy sand damp
	10'	1203	10	31.9	3.19	0.04	255	N/A	7.5YR-8/1 white sandy sand damp
	15'	1218	10.1	27	2.67	0.05	267	N/A	7.5YR-8/1 white sandy sand damp

November 08, 2011

ROY R. RASCON

WHOLE EARTH ENVIRONMENTAL, INC.

2103 ARBOR COVE

KATY, TX 77494

RE: CHAPARRAL WDQSU #12

Enclosed are the results of analyses for samples received by the laboratory on 11/02/11 14:20.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

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 (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:

WHOLE EARTH ENVIRONMENTAL, INC.
ROY R. RASCON
2103 ARBOR COVE
KATY TX, 77494
Fax To: (281) 394-2051

Received: 11/02/2011
Reported: 11/08/2011
Project Name: CHAPARRAL WDQSU #12
Project Number: NONE GIVEN
Project Location: JAL, NM

Sampling Date: 10/26/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Hope S. Moreno

Sample ID: SOURCE 0 > 1' (H102375-01)

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	11/03/2011	ND	2.21	111	2.00	4.71	
Toluene*	<0.050	0.050	11/03/2011	ND	2.19	110	2.00	4.32	
Ethylbenzene*	<0.050	0.050	11/03/2011	ND	2.15	108	2.00	5.08	
Total Xylenes*	<0.150	0.150	11/03/2011	ND	6.62	110	6.00	3.99	

Surrogate: 4-Bromofluorobenzene (PIL) 105 % 64.4-134

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8960	16.0	11/04/2011	ND	448	112	400	3.64	

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	11/06/2011	ND	201	100	200	8.28	
DRO >C10-C28	17.9	10.0	11/06/2011	ND	234	117	200	7.59	

Surrogate: 1-Chlorooctane 150 % 55.5-154

Surrogate: 1-Chlorooctadecane 189 % 57.6-158

Sample ID: SOURCE 25' (H102375-02)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12600	16.0	11/04/2011	ND	448	112	400	3.64	

Cardinal Laboratories

*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHOLE EARTH ENVIRONMENTAL, INC.
ROY R. RASCON
2103 ARBOR COVE
KATY TX, 77494
Fax To: (281) 394-2051

Received: 11/02/2011
Reported: 11/08/2011
Project Name: CHAPARRAL WDQSU #12
Project Number: NONE GIVEN
Project Location: JAL, NM

Sampling Date: 10/26/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Hope S. Moreno

Sample ID: SOURCE 40' (H102375-03)

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	11/03/2011	ND	2.21	111	2.00	4.71	
Toluene*	<0.050	0.050	11/03/2011	ND	2.19	110	2.00	4.32	
Ethylbenzene*	<0.050	0.050	11/03/2011	ND	2.15	108	2.00	5.08	
Total Xylenes*	<0.150	0.150	11/03/2011	ND	6.62	110	6.00	3.99	

Surrogate: 4-Bromofluorobenzene (PIL) 105 % 64.4-134

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	11/04/2011	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/06/2011	ND	201	100	200	8.28	
DRO >C10-C28	<10.0	10.0	11/06/2011	ND	234	117	200	7.59	

Surrogate: 1-Chlorooctane 144 % 55.5-154

Surrogate: 1-Chlorooctadecane 185 % 57.6-158

Cardinal Laboratories

*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHOLE EARTH ENVIRONMENTAL, INC.
ROY R. RASCON
2103 ARBOR COVE
KATY TX, 77494
Fax To: (281) 394-2051

Received: 11/02/2011
Reported: 11/08/2011
Project Name: CHAPARRAL WDQSU #12
Project Number: NONE GIVEN
Project Location: JAL, NM

Sampling Date: 10/26/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Hope S. Moreno

Sample ID: B1 10' (H102375-04)

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	11/03/2011	ND	2.21	111	2.00	4.71	
Toluene*	<0.050	0.050	11/03/2011	ND	2.19	110	2.00	4.32	
Ethylbenzene*	<0.050	0.050	11/03/2011	ND	2.15	108	2.00	5.08	
Total Xylenes*	<0.150	0.150	11/03/2011	ND	6.62	110	6.00	3.99	

Surrogate: 4-Bromofluorobenzene (PIL) 102 % 64.4-134

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	11/04/2011	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/06/2011	ND	201	100	200	8.28	
DRO >C10-C28	<10.0	10.0	11/06/2011	ND	234	117	200	7.59	

Surrogate: 1-Chlorooctane 141 % 55.5-154

Surrogate: 1-Chlorooctadecane 179 % 57.6-158

Cardinal Laboratories

*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHOLE EARTH ENVIRONMENTAL, INC.
ROY R. RASCON
2103 ARBOR COVE
KATY TX, 77494
Fax To: (281) 394-2051

Received: 11/02/2011
Reported: 11/08/2011
Project Name: CHAPARRAL WDQSU #12
Project Number: NONE GIVEN
Project Location: JAL, NM

Sampling Date: 10/27/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Hope S. Moreno

Sample ID: B2 75' (H102375-05)

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	11/03/2011	ND	2.21	111	2.00	4.71	
Toluene*	<0.050	0.050	11/03/2011	ND	2.19	110	2.00	4.32	
Ethylbenzene*	<0.050	0.050	11/03/2011	ND	2.15	108	2.00	5.08	
Total Xylenes*	<0.150	0.150	11/03/2011	ND	6.62	110	6.00	3.99	

Surrogate: 4-Bromofluorobenzene (PIL) 103 % 64.4-134

Chloride, SM4500Cl-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	11/04/2011	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/06/2011	ND	201	100	200	8.28	
DRO >C10-C28	<10.0	10.0	11/06/2011	ND	234	117	200	7.59	

Surrogate: 1-Chlorooctane 149 % 55.5-154

Surrogate: 1-Chlorooctadecane 191 % 57.6-158

Cardinal Laboratories

*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

WHOLE EARTH ENVIRONMENTAL, INC.
ROY R. RASCON
2103 ARBOR COVE
KATY TX, 77494
Fax To: (281) 394-2051

Received: 11/02/2011
Reported: 11/08/2011
Project Name: CHAPARRAL WDQSU #12
Project Number: NONE GIVEN
Project Location: JAL, NM

Sampling Date: 10/27/2011
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Hope S. Moreno

Sample ID: B3 15' (H102375-06)

BTX 80218			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/03/2011	ND	2.21	111	2.00	4.71	
Toluene*	<0.050	0.050	11/03/2011	ND	2.19	110	2.00	4.32	
Ethylbenzene*	<0.050	0.050	11/03/2011	ND	2.15	108	2.00	5.08	
Total Xylenes*	<0.150	0.150	11/03/2011	ND	6.62	110	6.00	3.99	

Surrogate: 4-Bromofluorobenzene (PIL) 104 % 64.4-134

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	11/04/2011	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/06/2011	ND	201	100	200	8.28	
DRO >C10-C28	<10.0	10.0	11/06/2011	ND	234	117	200	7.59	

Surrogate: 1-Chlorooctane 141 % 55.5-154

Surrogate: 1-Chlorooctadecane 176 % 57.6-158

Cardinal Laboratories

*=Accredited Analyte

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



Caley 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

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




Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the 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 Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: 		Date: 11/2/11		Received By: Hope S. McGraw		Phone Result: Yes No Add'l Phone #:	
Time: 220						Fax Result: Yes No Add'l Fax #:	
Relinquished By:		Date:		Received By:		REMARKS: PLEASE E-MAIL TO: royr , mikeg elliottw, & elir@vadose.us	
		Time:					
Delivered By: (Circle One)		Sample Condition		CHECKED BY:			
Sampler - UPS - Bus - Other:		Cool <u>Intact</u>		(Initials)			
		Yes No Yes No		HS			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#26



**Remediation and Site Restoration Protocol
Chaparral Energy Co. LLC
WDQSU #12 @ Sat. 1
1RP-2751**

1.0 Purpose

This protocol is to provide a detailed outline of the steps to be employed in the remediation of a produced water & hydrocarbon release impact area in Jal, 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 or communicate with the 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 Chaparral 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 the required standard PPE (hardhat, safety glasses, and steel toed boots).

5.0 Remediation Procedure

The deeply impacted area will be excavated to a depth of 5'bgs. The excavated material will be transported to Parabo in Eunice and a bentonite geo-synthetic liner will be placed at the bottom of the excavation. The side walls and bottom will be sampled using a 5pt. composite method and field titrated for chlorides in accordance with WEQP-97. The area above the bentonite liner will be backfilled with soils obtained from the landowner.

6.0 Site Restoration Procedure

The site will be backfilled with clean soil backfilled, and re-contoured to match the surrounding contours area and reseeded with a seed mixture approved by the landowner.

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 excavation at the point of maximum soil removal
- Photographs of installation of geo-textile liner
- Photographs of the location at time of final closure
- Lab results
- Copies of this protocol and all testing procedures
- A copy of all material manifest sent to commercial disposal
- Photograph of the approved seed mixture bag used for seeding
- Field chloride titration results