

**CORRESPONDENCE**

**MISC.**

**RECEIVED**

MAR 26 2004

24 March 2004

Oil Conservation Division  
1220 S. Saint Francis Drive  
Santa Fe, NM 87505

New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
Attn: Bill Olson, Hydrologist  
1220 South Saint Francis Street  
Santa Fe, New Mexico 87505-3491

Re: Case # 1R0053  
Monarch White "A" State #1

Dear Bill:

This letter is to inform you and the State of New Mexico that on 27 February 2004 both monitoring wells located next to the abandon Monarch White "A" State # 1-15 tank battery have been plugged and abandon by Atkins Engineering Associates, Inc., the same company that installed the wells. Attached are two Log of Boring forms on which is a description of how each well was plugged as well as a schematic diagram of each well bore and the plugging materials used. According to Atkins Engineering, this operation is in accordance with state requirements.

Should you require anything further, please contact me at the address below or call me at (405)478-8770 ext 1130.

Sincerely,



Robert C. Lang IV, REM, CEA  
Environmental, Health & Safety Manager

CC: NMOCD - Hobbs, NM  
Well file



Atkins Engineering Associates, Inc.  
P.O. Box 3156  
Roswell, New Mexico 88202-3156

## LOG OF BORING Monarch White "A" State 1 MW-2

(Page 1 of 1)

Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, OK 73114

Contact: Robert Lang

Job#: CHAPARRL.PLG.04

Date : 02/27/04

Drill Start : 0845

Drill End : 1035

Boring Location : 130' SE of MW-1

Site Location

: T10S, R32E, Sec. 15

: (Lea County)

Auger Type

: Hollow Stem

Logged By

: Mort Bates

Depth in Feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab No.	PID ppm-v	Well: MW-2
0				Was not able to pull casing from the well. The casing was grouted in place.			Soil backfill Concrete plug
5				Well was plugged inside the casing with 3/8" bentonite chips from 64.69 ft. back to 4 ft. below land surface. At 4 ft. to 2 ft. below land surface, the casing was filled with concrete. The casing was cut off at 2 ft. below land surface and a 1 ft. concrete cap was placed from 1 to 2 ft. below land surface, with 1 ft. of soil coverage.			2" Casing
10							Hydrated 3/8" Bentonite chips
15							
20							
25							
30							
35							
40							
45							
50							
55							
60							
65				Total depth inside of 2" casing 64.69'			Fill (formation sand)
70				Total depth of casing 67'			

Atkins Engineering Associates, Inc.  
P.O. Box 3156  
Roswell, New Mexico 88202-3156

# LOG OF BORING Monarch White "A" State 1 MW-1

(Page 1 of 1)

Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, OK 73114

Contact: Robert Lang

Job#: CHAPARRAL.PLG.04

Date : 02/27/04  
Drill Start : 0845  
Drill End : 1035  
Boring Location : SE corner of pit

Site Location : T10S, R32E, Sec. 15  
(Lea County)  
Auger Type : Hollow Stem  
Logged By : Mort Bates

Depth in Feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab No.	PID ppm-v	Well: MW-1
0				Was not able to pull casing from the well. The casing was grouted in place.			Soil backfill Concrete plug
5				Well was plugged inside the casing with 3/8" bentonite chips from 65.66 ft. back to 4 ft. below land surface. At 4 ft. to 2 ft. below land surface, the casing was filled with concrete. The casing was cut off at 2 ft. below land surface and a 1 ft. concrete cap was placed from 1 to 2 ft. below land surface, with 1 ft. of soil coverage.			2" Casing
10							Hydrated 3/8" Bentonite chips
15							
20							
25							
30							
35							
40							
45							
50							
55							
60							
65				Total depth inside of 2" casing 65.66'			Fill (formation sand)
70				Total depth of well 71'			
75							



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Jóanna Prukop**  
Cabinet Secretary

**Lori Wrotenbery**

Director

**Oil Conservation Division**

February 3, 2004

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114-7806

**RE: CASE #1R0053  
MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (Chaparral) October 14, 2003 correspondence titled "CASE #1R0053, REMEDIATION PROJECT, MONARCH WHITE "A" STATE #1-15, SEC. 15-T10S-R32E, LEA COUNTY, NEW MEXICO". This document contains the results of Chaparral's recent ground water monitoring at the White "A" State #1 former unlined pit site and requests closure of the remediation and monitoring actions at the site.

Final closure for the above-referenced pit site is approved on the condition that the site monitor wells be plugged and abandoned by cutting the casing off below ground surface and filling the casing annulus from bottom to top with a cement grout containing 3-5 % bentonite. Please be aware that OCD approval does not relieve Chaparral of responsibility if remaining contaminants pose a future threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve Chaparral of responsibility for compliance with any other federal, state, tribal or local laws and regulations.

If you have any questions, please call me at (505) 476-3491.

Sincerely,

William C. Olson  
Hydrologist  
Environmental Bureau

cc: Chris Williams, OCD Hobbs District Supervisor  
Cody Morrow, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

RECEIVED

14 October 2003

OCT 16 2003

OIL CONSERVATION  
DIVISION

New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
Attn: William C. Olson, Hydrologist  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

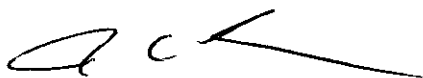
Re: Case #1R0053  
Remediation Project  
Monarch White "A" State #1-15  
Sec. 15-T10S-R32E  
Lea County, New Mexico

Dear Mr. Olson:

Per our conversation last July I have found the Monarch White "A" State #1-15 remediation file. Enclosed is a copy of the letter and the attachments sent to you by Mike Griffin back in November 2002 asking that this remediation project be closed and the monitoring wells plugged and abandon. I have attached three tables to outline the progress of the project since the old overflow pit was dug out and closed. We believe the objective has been achieved, the groundwater is clean and protected from any future pollution and having the two monitoring wells remain open is more of a threat to the water table than is the pit we cleaned up. Accordingly, we request your permission to close this project.

Should you require anything further please let us know.

Sincerely,



Robert C. Lang IV, REM, CEA  
Environmental, Health & Safety Manager

cc: Mike Griffin, Whole Earth Environmental, Inc.  
Chris Williams, NMOCD Hobbs District Supervisor

### **BTEX Testing**

Date	Well #	Benzene	Toluene	Ethyl-Benzene	m,p,o Xylene
13 Jan 01	A	<0.001	<0.001	<0.001	<0.001
13 Jan 01	B	<0.001	<0.001	<0.001	<0.001
5 Jan 02	A	<0.001	<0.001	<0.001	<0.001
5 Jan 02	B	<0.001	<0.001	<0.001	<0.001
Threshold	Limit	0.100	0.750	0.750	0.620

All results are in mg/l.

### **Anion, Cation and TDS Testing**

Date	Well#	Ca	K	Mg	Na	Carb.	Bi-Carb	Sulfate	TDS
23 Jan 02	A	114	3.89	12.5	124	<0.100	162	145	855
23 Jan 02	B	116	3.98	12.8	67.0	<0.100	140	256	940

All results are in mg/l.

### **Chlorides in Water**

Date	Well A	Well B
13 Jan 01	NT	NT
5 Jan 02	NT	NT
23 Jan 02	160	71.0
30 Mar 02	137	71.0
6 Jun 02	84.2	70.9
29 Oct 02	65.0	70.9
Threshold Limit	250	250

All results are in mg/l.



**Whole Earth Environmental, Inc.**

19606 San Gabriel Houston, Tx. 77084

Tel: 281.492.7077 Fax: 281.646.8996

whearth@iameerica.net

New Mexico Oil Conservation Division  
1220 South St. Francis Dr.  
Sante Fe NM 87505

November 16, 2002

Attn: Bill Olson

Dear Bill:

Attached, please find a copy of your letter of transmittal dated January 3<sup>rd</sup>, 2002 along with four quarters of laboratory analytical results along with the associated chain of custody documents for Chaparral Energy White State "A" No. 1 near Tatum, New Mexico.

We've now run four consecutive quarters in which the chloride concentrations within the well bores fall far below NMWQCC standards. We now request that we be allowed to plug the wells in anticipation of final closure of this project.

Thank you for your earliest attention to our request.

Warmest personal regards,

Mike Griffin

Cc: Bob Lang  
Chaparral Energy  
(attachments)





## NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

JERRY E. JOHNSON

Governor

Jennifer A. Salisbury

Cabinet Secretary

Lori Wrotenbery

Director

Oil Conservation Division

May 21, 2001

**CERTIFIED MAIL**

**RETURN RECEIPT NO. 5051-4393**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114-7806

RE: CASE #1R0053  
REMEDATION PROJECT  
MONARCH WHITE "A" STATE #1

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) January 18, 2001 correspondence titled "MONARCH CORPORATION, WHITE "A" STATE #1, SEC. 15-T10S-R32E, LEA COUNTY, NEW MEXICO". This document contains the results of CEI's recent ground water monitoring at the White "A" State #1 facility and requests closure of the remediation and monitoring actions at the site.

The sampling results show that concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) in ground water have been below New Mexico Water Quality Control Commission (WQCC) standards. However, the 2000 and 2001 sampling results do not contain the analytical results of the total dissolved solids, (TDS) and cation and anion sampling of ground water from the monitor wells as required in the OCD's August 16, 1999 approval of the ground water monitoring plan. Please submit this required information to the OCD Santa Fe Office by June 21, 2001 with a copy provided to the OCD Hobbs District Office.

The OCD defers comment on CEI's closure request until the OCD has reviewed this information.

Therefore, at this time the OCD cannot approve the final closure of the site. The OCD requires that Chaparral continue sampling ground water from the monitor wells for TDS and major cations and anions according to the OCD's August 16, 1999 monitoring plan approval. The OCD will reconsider issuing final closure approval upon receipt of sampling results of 4 consecutive sampling events where chloride and TDS are below WQCC standards.

If you have any questions, please call me at (505) 476-3491.

Sincerely,



William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.



**To: Bob Lang / Chaparral**

**From: Mike Griffin / Whole Earth Environmental**

**Date: January 18, 2000**

**Subject: Monitor Well testing Results**

Enclosed, please find a copy of the test results from samples taken from the White State "A" monitor wells. The "A" sample was taken from the monitor well nearest the pit site, "B" came from the well located down-gradient.

Ten liters of fluid were bailed from each well prior to sample collection. The bailed water was placed within the Burro Pipeline disposal system for subsequent re-injection.

We need one more sample to be taken this time next year. If the sample results show BTEX concentrations falling within the NMWQCC standards, we may apply for final closure.

Please forward these results to:

NMOCD  
2040 South Pacheco St.  
Sante Fe, NM 87505

Attn: Bill Olson

AND

NMOCD  
P.O. Box 1980  
Hobbs, NM 88241

Attn: Donna Williams

If you've any questions or comments, please do not hesitate to call.

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 1-281-846-8996


Sample Type: Water  
Sample Condition: Intact/ Iced/HCl  
Project #: Chaparral MW  
Project Name: None Given  
Project Location: Tatum, N.M.

Sampling Date: 01/13/00  
Receiving Date: 01/18/00  
Analysis Date: 01/17/00

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
22858	A	<0.001	<0.001	<0.001	<0.001	<0.001
22859	B	<0.001	<0.001	<0.001	<0.001	<0.001

% IA	94	90	89	88	87
% EA	90	86	86	94	85
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8021B.5030

  
Raland K. Tuttle

1-17-00  
Date

# CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Phone #: (800) 854-4358

M. G. A. n

1821-1822

**Company Name & Address:**

## Whole Earth Environ.

५२१/५२३

**Project Name:**

Chaparral MW

12/23/2013

**Adjuvant is important**

Tatom, Van

FIELD CODE	# CONTAINERS	Volume/Amount	PRESERVATIVE METHOD		DATE	TIME
			MATERN			
L33 # 337			WATER			
			SOIL			
			AIR			
			SUBSTANCE			
			OTHER			
			ICE			
			OTHER			
			OTHER			
			OTHER			
			OTHER			

FIELD CODE

25052

22858 | A

1-13 2:50

228591 R

1-13-2-42

**Redemptio**

Date:

**संज्ञा**

**Refused by:**

REMARKS

**Reflections**

三

世

**Received by:**

Received by:

**Relinquished by:**

## Index

**Index**

**Received by Laboratory:**



**To: Bob Lang / Chaparral Energy**

**From: Mike Griffin / Whole Earth Environmental**

**Date: January 13, 2001**

**Subject: White "A" State # 1 Monitor Well Test Results**

Attached, please find a copy of the chain of custody and laboratory analytical results for the above site. As you will note, all concentrations fall into the non-detect range and thus should qualify for final closure.

We will be drilling at least one monitor well within the next few months within the Tatum area (probably around the end of the first quarter). We would like to coordinate the plugging of the monitor wells with the new drilling to save you some money. I'll call you for final authority as we get closer to the date.

Thanks again for the opportunity of working with you.

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. ELLIOT WERNER  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8996

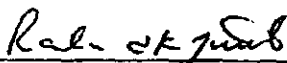
Sample Type: Water  
Sample Condition: Intact/ Iced/ HCl/ 2.8 deg. C  
Project #: None Given  
Project Name: Chaparral  
Project Location: None Given

Sampling Date: 01/05/01  
Receiving Date: 01/10/01  
Analysis Date: 01/11/01

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
36130	#1	<0.001	<0.001	<0.001	<0.001	<0.001
36131	#2	<0.001	<0.001	<0.001	<0.001	<0.001

%IA	87	87	86	91	88
%EA	86	87	87	93	91
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: EPA SW 846-8021B, 5030

  
Raiaud K. Tuttle

1-11-01  
Date

12800 West 1.20 East  
Odessa, Texas 79763

**Phone: 916-563-1800**  
**Fax: 916-563-1713**

### CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

**Project Manager:**

ELLIOT WELNER

**Project Name:**

# CHAPARAL

**Company Name**

# Whole Earth Ery

**Project #:**

**Company Address.**

**Project Loc:**

City/State/Zip:

**PO#:**

Telephone No.:

Fax No:

**Sampler Signature:**

[illegible]

**Special Instructions:**

Relinquished by:

Date	Time
------	------

**Received by:**

Date	Time
------	------

**सिमा**

Reinholdsen 166.

Date	Time
10/10/11	11:00am

100

[illegible]

2008年12月15日

James Morrison

11





**12600 West I-20 East  
Odessa, Texas 79763**

**Project Name: White "A" State # 1**

**Project 3:**

**Project Loc:** Tatum, NM

**POE:**

**Company Name** Whole Earth Environmental, Inc.

**Company Address: 19606 San Gabriel**

City/State/Zip: Houston, Tx. 77084

**Telephone No:** 800.854.4358

Fax No: 281.646.8996

**Sampler Signature:**

[illegible]

# ENVIRONMENTAL LAB OF I, LTD.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8996

Sample Type: Water  
Sample Condition: Intact/ Iced/ 1.0 deg. C  
Project Name: White "A" State #1  
Project #: None Given  
Project Location: Tatum, NM

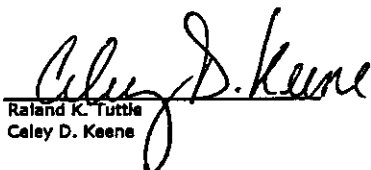
Sampling Date: 01/23/02  
Receiving Date: 01/30/02  
Analysis Date: 01/31/02

ELT#	FIELD CODE	Ca mg/L	K mg/L	Mg mg/L	Na mg/L
0202S09-01	North	114	3.89	12.5	124
0202S09-02	South	116	3.98	12.8	67.0

REPORT LIMIT	0.010	0.050	0.001	0.010
--------------	-------	-------	-------	-------

QUALITY CONTROL	1.95	1.83	2.18	1.78
TRUE VALUE	2.00	2.00	2.00	2.00
% INSTRUMENT ACCURACY	98	92	109	89
SPIKED AMOUNT	1.00	1.00	1.00	1.00
ORIGINAL SAMPLE	<0.010	<0.050	<0.001	<0.010
SPIKE	0.980	0.863	1.15	0.846
SPIKE DUP	0.963	0.868	1.14	0.846
% EXTRACTION ACCURACY	96	87	114	85
BLANK	<0.010	<0.050	<0.001	<0.010
RPD	1.68	0.64	0.87	0.04

METHODS: SW 846-6010B

  
Raland K. Tuttle  
Caley D. Keene

  
Date

# ENVIRONMENTAL

## LAB OF I, LTD.

"Don't Treat Your Soil Like Dirt!"

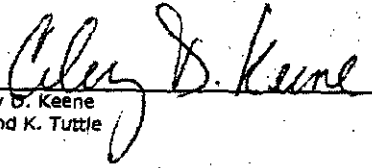
WHOLE EARTH ENVIRONMENTAL  
ATTN: MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8996

Sample Type: Water  
Sample Condition: Intact/ Iced/ 1.0 deg C  
Project Name: White "A" State #1  
Project #: None Given  
Project Location: Tatum, NM

Sampling Date: 01/23/02  
Receiving Date: 01/30/02  
Analysis Date: See Below

ELT#	FIELD CODE	Carbonate mg/L	Bicarbonate mg/L	Chloride mg/L	Sulfate mg/L	TDS mg/L
0202509-01	North	<0.100	162	160	145	855
0202509-02	South	<0.100	140	71.0	256	940
REPORT LIMIT		0.100	2.00	5.00	0.500	5.00
QUALITY CONTROL		0.020	0.020	5050	50.6	NA
TRUE VALUE		0.020	0.020	5000	50.0	NA
% INSTRUMENT ACCURACY		100	100	101	101	NA
SPIKED AMOUNT		NA	NA	1000	NA	NA
ORIGINAL SAMPLE		NA	NA	2320	NA	NA
SPIKE		NA	NA	3330	NA	NA
SPIKE DUP		NA	NA	3350	NA	NA
% EXTRACTION ACCURACY		NA	NA	101	NA	NA
BLANK		<0.100	<2.00	<5.00	<0.500	<5.00
RPD		0.29	0.29	0.90	0.78	4.80
ANALYSIS DATE		01/30	01/30	02/01	02/05	01/30

METHODS: EPA 375.4, 310.1, 160.1, SW 846-9253

  
Caley D. Keene  
Randall K. Tuttle

  
Date

**Phone: 915-563-1800**  
**Fax: 915-563-1713**

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

**Project Manager:**

**Project Name: Quarterly Sampling**

**Company Name Whole Earth Environmental, Inc.**

**Project #:**

**Company Address:** 19808 San Gabriel

**Project Loc:** Tatum, New Mexico

City/State/Zip: Houston, Tx. 77084

**PO#**

**Telephone No: (800) 854-4358**

**Fax No: (281) 646-8996**

**Sampler Signature:**

[illegible]

# ENVIRONMENTAL LAB OF TEXAS

## ANALYTICAL REPORT

MIKE GRIFFIN  
WHOLE EARTH  
19606 SAN GABRIEL  
HOUSTON, TX 77084

Order#: G0202999  
Project:  
Project Name: Quarterly Sampling  
Location: Tatum, New Mexico

Lab ID: 0202999-01  
Sample ID: North

### Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	137	mg/L	1	5.00	9253	04/09/2002	SB

Lab ID: 0202999-02  
Sample ID: South

### Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	71.0	mg/L	1	5.00	9253	04/09/2002	SB

Approval:

*Roland K. Tuttle*  
Roland K. Tuttle, Lab Director, QA Officer  
Cecily D. Koene, Org. Tech. Director  
Jeanne McMurrey, Inorg. Tech. Director  
Sandra Biezugbe, Lab Tech.  
Sara Molina, Lab Tech.

*4-11-02*  
Date

RL = Reporting Limit N/A = Not Applicable

Page 1 of 1

ENVIRONMENTAL LAB OF TEXAS I, LTD.

12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

**Phone: 918-563-1800**  
**Fax: 918-563-1713**

### CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Name: Choprasal

**Project #:**

Project Loc: Tatavua

201

**Fax No:** 281.646.8996

**Sampler Signature:**

[illegible]

# ENVIRONMENTAL LAB OF TEXAS

## ANALYTICAL REPORT

MIKE GRIFFIN  
WHOLE EARTH  
19606 SAN GABRIEL  
HOUSTON, TX 77084

Order#: G0203566  
Project:  
Project Name: Chaparral  
Location: Tatum

Lab ID: 0203566-01  
Sample ID: North

### Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	84.2	mg/L	1	5.00	9253	6/11/02	SB

Lab ID: 0203566-02  
Sample ID: South

### Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	70.9	mg/L	1	5.00	9253	6/11/02	SB

Approval: Roland K. Tuttle 6-17-02  
Roland K. Tuttle, Lab Director, QA Officer Date  
Celey D. Keene, Org. Tech. Director  
Jeanne McMurrey, Inorg. Tech. Director  
Sandra Biezmgbe, Lab Tech.  
Sara Molina, Lab Tech.

**12600 West I-20 East  
Odessa, Texas 79763**

**12600 West I-20 East  
Odessa, Texas 79763**

### CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

**Project Name: "White "A"**

**Project #:**

Project Loc: Tatum, NM

第 2 章

**Fax No:** 281.646.8996

### Sampling Strategy:

[illegible]



---

# ENVIRONMENTAL LAB OF TEXAS

## SAMPLE WORK LIST

WHOLE EARTH  
19606 SAN GABRIEL  
HOUSTON, TX 77084  
281-646-8996

Order#: G0204928  
Project: None Given  
Project Name: White "A"  
Location: Tatum, NM

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0204928-01	#1	WATER	10/29/02 17:10	11/5/02 13:00	8 oz Jar	Ice
	<u>Lab Testing:</u> Chloride	Rejected: No		Temp: 18 C		
0204928-02	#2	WATER	10/29/02 17:20	11/5/02 13:00	8 oz Jar	Ice
	<u>Lab Testing:</u> Chloride	Rejected: No		Temp: 18 C		

---

# ENVIRONMENTAL LAB OF TEXAS

## ANALYTICAL REPORT

MIKE GRIFFIN  
WHOLE EARTH  
19606 SAN GABRIEL  
HOUSTON, TX 77084

Order#: G0204928  
Project: None Given  
Project Name: White "A"  
Location: Tatum, NM

Lab ID: 0204928-01  
Sample ID: #1

### Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	65.0	mg/L	1	5.00	9253	11/5/02	SB

Lab ID: 0204928-02  
Sample ID: #2

### Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	70.9	mg/L	1	5.00	9253	11/5/02	SB

Approval:

*Raland K. Tuttle*  
Raland K. Tuttle, Lab Director, QA Officer  
Celey D. Keene, Org. Tech. Director  
Jeanne McMurrey, Inorg. Tech. Director  
Sandra Biczugbe, Lab Tech.  
Sara Molina, Lab Tech.

Date

11-07-02

RL = Reporting Limit N/A = Not Applicable

Page 1 of 1

ENVIRONMENTAL LAB OF TEXAS I, LTD.

12600 West I-20 East, Odessa, TX 79765 Ph: 915-563-1800

**Olson, William**

---

**From:** Olson, William  
**Sent:** Wednesday, May 01, 2002 12:58 PM  
**To:** 'Bob Lang'  
**Subject:** RE: Monarch (Chaparral Energy) White "A" State #1, Sec. 15-10S-32E, Lea County, NM

Bob,

It would be better to send the results in an annual report. Glad to see the recent chloride results are looking good. If you have any questions let me know.

Sincerely,

William C. Olson  
New Mexico Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505  
(505) 476-3491  
=====

-----Original Message-----

**From:** Bob Lang [mailto:bobl@chaparralenergy.com]  
**Sent:** Wednesday, May 01, 2002 8:58 AM  
**To:** Bill Olson (E-mail)  
**Subject:** Monarch (Chaparral Energy) White "A" State #1, Sec. 15-10S-32E, Lea County, NM

Bill,

I'm not sure if you want the quarterly water tests every quarter or just wait until the end of the year and send it all in at once. I have the chloride test results on this well in hand for January and April 2002. If you want to see the full Analytical Report I can mail them to you now, or email them to you or wait until December. Your call.

Just for the record, January's Chloride readings were:

MW#1 (North)	160 mg/l
MW#2 (South)	71.0 mg/l

April's were:

MW#1 (North)	137 mg/l
MW#2 (South)	71.0 mg/l

Bob Lang  
Environmental, Health & Safety Manager  
(405) 478-8770 Ext. 1130 (O)  
(405) 478-4162 (F)

bobl@chaparralenergy.com <mailto:bobl@chaparralenergy.com>



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenbery**  
Director  
**Oil Conservation Division**

January 3, 2002

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. 7000-1670-0012-5357-8154**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114-7806

**RE: CASE #1R0053**  
**REMEDIATION PROJECT**  
**MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (Chaparral) July 23, 2001 correspondence titled "MONARCH CORPORATION, WHITE STATE "A" #1, SEC. 15-T10S-R32E, LEA COUNTY, NEW MEXICO". This document contains the results of Chaparral's recent ground water monitoring at the White "A" State #1 facility and requests closure of the remediation and monitoring actions at the site.

Ground water in monitor well MW-1 was originally contaminated with chloride in excess of New Mexico Water Quality Control Commission (WQCC) standards. The OCD's August 16, 1999 ground water monitoring plan approval allowed Chaparral to submit the site for closure when the concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) and chloride in ground water are below WQCC standards for 4 consecutive sampling events. While the sampling results show that concentrations of BTEX in ground water have been below New Mexico WQCC standards for 4 consecutive sampling events, Chaparral has provided only one set of chloride and total dissolved solids (TDS) sampling results showing concentrations in ground water below WQCC standards.

Therefore, at this time the OCD cannot approve the final closure of the site. The OCD requires that Chaparral continue sampling ground water from the monitor wells for TDS and major cations and anions according to the OCD's August 16, 1999 monitoring plan approval. The OCD will reconsider issuing final closure approval upon receipt of sampling results of 4 consecutive sampling events where chloride and TDS are below WQCC standards.

If you have any questions, please call me at (505) 476-3491.

Sincerely,

A handwritten signature in black ink, appearing to read 'Will Olson', written in a cursive style.

William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

# Chaparral Energy, Inc

701 Cedar Lake Blvd. ♦ Oklahoma City, OK 73114-7806  
(405) 478-8770 ♦ Fax: (405) 478-1947

OIL CONSERVATION DIV.  
01 JUL 27 PM 1:20

July 23, 2001

New Mexico Oil Conservation Division  
Attn: Mr. Bill Olson  
1220 St. Francis Drive  
Santa Fe, NM 87505

Re: Monarch Corporation  
White State "A" #1  
Sec. 15-T10S-R32E  
Lea County, NM

Dear Sir:

Enclosed with this letter is a copy of the Chain of Custody form and the laboratory analysis report for the two monitoring wells located at the captioned site. It appears all parameters are under OCD limits and these monitoring wells can now be plugged and abandoned.

Would you please authorize us to plug these wells? Should you have any questions or other concerns, please contact the undersigned.

Sincerely,



Robert C. Lang IV, REM, CEA  
Environmental, Health & Safety Manager

Enclosure

CC: Hobbs, NM Office NMOCI

**12800 West I-20 East  
Odessa, Texas 79763  
Phone: 915-563-1800  
Fax 915-563-1713**

**Project Name: Chaparral White State A**

### Project 2:

**Project Loc:** Tatum, NM

**PO#:**

**Fax No: (281) 648-8898**

M. D. M.

Analyze For:

[illegible]

**Special instructions:**

**Relinquished by: /**

Date	Time
------	------

Received by:

**ଡାଟ**

Time

Relinquished by:

Date	Time
------	------

10

**Call**

卷一百一十五

100

100

12

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"


WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77064  
FAX: 281-646-8996  
FAX: 505-397-3591 (motel)

Sample Type: Water  
Sample Condition: Intact/ 25 deg C  
Project #: None Given  
Project Name: Chaparral White State A  
Project Location: Tatum, N.M.

Sampling Date: 07/05/01  
Receiving Date: 07/07/01  
Analysis Date: 07/13/01

ELT#	FIELD CODE	Ca mg/L	K mg/L	Mg mg/L	Na mg/L
0101099-01	North	115	5.33	13.5	148
0101099-02	South	127	4.05	14.2	43.9
REPORT LIMIT		0.01	0.05	0.001	0.01
QUALITY CONTROL		5.00	4.95	5.01	5.00
TRUE VALUE		5.00	5.00	5.00	5.00
% INSTRUMENT ACCURACY		100	99	100	100
SPIKED AMOUNT		2.00	2.00	2.00	2.00
ORIGINAL SAMPLE		<0.01	<0.05	<0.001	<0.01
SPIKE		2.00	1.76	2.10	2.02
SPIKE DUP		1.98	1.76	2.09	1.98
% EXTRACTION ACCURACY		100	88	105	101
BLANK		<0.01	<0.05	<0.001	<0.01
RPD		1.00	0.00	0.36	2.00

METHODS: SW846-6010B

  
Roland K. Tuttle

7-13-01  
Date



# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8995  
FAX: 505-397-3591 (motel)

Sample Type: Water  
Sample Condition: Intact/ 25 deg. C  
Project #: None Given  
Project Name: Chaparral White State A  
Project Location: Tatum, N.M.

Sampling Date: 07/05/01  
Receiving Date: 07/07/01  
Analysis Date: See Below

ELT#	FIELD CODE	TDS mg/L	Conductivity uS/cm	Chloride mg/L	Sulfate mg/L	Carbonate mg/l	Bicarbonate mg/l
0101099-01	North	911	1427	213	274	<0.10	174
0101099-02	South	671	976	59	253	<0.10	144

REPORTING LIMIT	10.0	N/A	10.0	0.5	0.10	2.00
QUALITY CONTROL	N/A	1439	5140	41.8	0.0205	0.0205
TRUE VALUE	N/A	1413	5000	50.0	0.0200	0.0200
% IA	N/A	102	103	84	103	103
RPD	1.32	1.1	0.0	13.6	0.57	0.57
BLANK	<10.0	8.0	<10.0	<0.5	<0.10	<2.00
ANALYSIS DATE	7/10/01	7/07/01	7/09/01	7/11/01	7/10/01	7/10/01

METHODS: EPA 375.4, 310.0, 160.1, 120.1, SW846-9253,

  
Raiaud K. Tuttle

7-13-01  
Date

**Olson, William**

**From:** Olson, William  
**Sent:** Monday, June 18, 2001 9:53 AM  
**To:** 'Mike @ Whole Earth'  
**Subject:** RE: Case # 1R0053

The below extension request is approved.

-----  
**From:** Mike @ Whole Earth [SMTP:whearth@lamerica.net]  
**Sent:** Friday, June 15, 2001 8:29 AM  
**To:** Bill Olson  
**Cc:** bob Lang  
**Subject:** Case # 1R0053

Bill,

We are in receipt of your letter of May 21st regarding this site and request an extension to your request for additional testing on the monitor wells.

We plan to be in the Tatum area around the first of July and will have a complete addendum to the closure request to you by July 15th.

Thank you in advance for your flexibility.

Mike Griffin



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenbery**  
Director  
**Oil Conservation Division**

May 21, 2001

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. 5051-4393**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114-7806

**RE: CASE #1R0053**  
**REMEDATION PROJECT**  
**MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) January 18, 2001 correspondence titled "MONARCH CORPORATION, WHITE "A" STATE #1, SEC. 15-T10S-R32E, LEA COUNTY, NEW MEXICO". This document contains the results of CEI's recent ground water monitoring at the White "A" State #1 facility and requests closure of the remediation and monitoring actions at the site.

The sampling results show that concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) in ground water have been below New Mexico Water Quality Control Commission (WQCC) standards. However, the 2000 and 2001 sampling results do not contain the analytical results of the total dissolved solids, (TDS) and cation and anion sampling of ground water from the monitor wells as required in the OCD's August 16, 1999 approval of the ground water monitoring plan. Please submit this required information to the OCD Santa Fe Office by June 21, 2001 with a copy provided to the OCD Hobbs District Office.

The OCD defers comment on CEI's closure request until the OCD has reviewed this information.

If you have any questions, please call me at (505) 476-3491.

Sincerely,

A handwritten signature in black ink, appearing to read "Will Olson". The signature is fluid and cursive, with the first name "Will" and last name "Olson" clearly distinguishable.

William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

# *Chaparral Energy, Inc*

701 Cedar Lake Blvd. ♦ Oklahoma City, OK 73114-7806

(405) 478-8770

♦ Fax: (405) 478-1947

18 January 2001

New Mexico Oil Conservation Division  
Attn: Mr. Bill Olson  
2040 South Pacheco Street  
Santa Fe, New Mexico 87504

Re: Monarch Corporation  
White "A" State #1  
Sec. 15-T10S-R32E  
Lea County, New Mexico

Dear Sir:

Enclosed with this letter is a copy of the final laboratory analysis report for the captioned well. Once again the groundwater from both monitoring wells is non-detect for BTEX. It is our understanding this result complies with all requirements set forth by your office. Chaparral Energy, Inc. now requests permission to bring this project to final closure by plugging and abandoning the monitoring wells and cleaning up what little surface disturbance remains.

Should you require anything further, please contact the undersigned.

Sincerely,

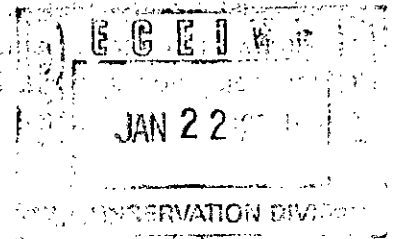


Robert C. Lang IV, REM, CEA  
Environmental, Health & Safety Manager

RCL/me

Encl.

cc: Hobbs, NM Office, NMOCD



# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. ELLIOT WERNER  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8996

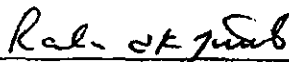
Sample Type: Water  
Sample Condition: Intact/ Iced/ HCl/ 2.8 deg. C  
Project #: None Given  
Project Name: Chaparral  
Project Location: None Given

Sampling Date: 01/05/01  
Receiving Date: 01/10/01  
Analysis Date: 01/11/01

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
36130	#1	<0.001	<0.001	<0.001	<0.001	<0.001
36131	#2	<0.001	<0.001	<0.001	<0.001	<0.001

%IA	87	87	86	91	88
%EA	86	87	87	93	91
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: EPA SW 846-8021B, 5030

  
Raiand K. Tuttle

1-11-01  
Date

**Environmental Lab of Texas, Inc.**

**12800 West I-20 East  
Odessa, Texas 79763**

### CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

FIELD CODE		Date Sampled	Time Sampled	No. of Containers	Preservative							Matrix				Analyze For:									
					Ice	HNO <sub>3</sub>	HCl	NaOH	H <sub>2</sub> SO <sub>4</sub>	None	Other (Specify)	Water	Sedge	Soil	Other (Specify)	TOS / CL / SAR / EC	TPH 418 1	TPH TX 1005/1006	TPH 8015M GRC/DRO	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 80218/5030	Standard TAT	RUSH TAT (Pre-Schedule)
# 1		1/5/01	8:00am	2	✓		✓					✓													
# 2		1/5/01	8:10am	2	✓																				

Special Instructions:

Relinquished by: *[Signature]*

Relinquished at: *[Signature]*

Received by: *[Signature]*

Received by ELOF: *[Signature]*

Date: 1/10/01

Time: 11:00am

Date: 01-10-01

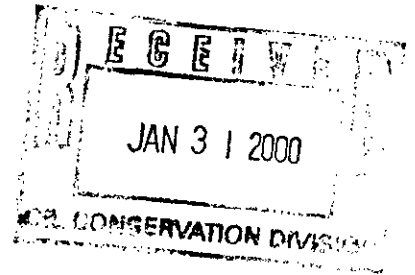
Time: 11:00

Sample Concentration: *0.3*

Temperature Upon Receipt: *3.3°C*

Laboratory Certificate: *0.3°C*

**Chaparral Energy, Inc.**  
701 Cedar Lake Boulevard  
Oklahoma City, Oklahoma 73114-7806  
(405) 478-8770 (O) (405) 478-1947 (F)



26 January 2000

State of New Mexico  
Oil Conservation Division  
Attn: Bill Olsen  
2040 South Pacheco Street  
Santa Fe, New Mexico 87504

Re: Monarch Corporation  
White "A" State #1  
Sec. 15-T10S-R32E  
Lea County, New Mexico

Dear Sir:

On behalf of Monarch Corporation, I am forwarding a copy of the results of the laboratory analysis completed on the two water samples drawn from the groundwater monitoring wells at the captioned lease. Sample "A" was taken from the monitoring well nearest the pit site, "B" came from the well located down-gradient. BTEX was non-detect in each sample. It remains our understanding that should BTEX be non-detect this time next year we may apply for final closure.

Should you have any questions or concerns, please contact the undersigned.

Sincerely,

  
Robert C. Lang IV, REM, CEA  
Environmental & Special Projects Engineer

RCL/me

cc: Hobbs, NM Office, NMOCD



# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 1-281-846-8996

Sample Type: Water  
Sample Condition: Intact/ Iced/HCl  
Project #: Chaparral MW  
Project Name: None Given  
Project Location: Tatum, N.M.

Sampling Date: 01/13/00  
Receiving Date: 01/16/00  
Analysis Date: 01/17/00

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
22858	A	<0.001	<0.001	<0.001	<0.001	<0.001
22859	B	<0.001	<0.001	<0.001	<0.001	<0.001

% IA	94	90	89	88	87
% EA	90	86	86	94	85
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8021B.5030

  
Raland K. Tuttle

1-17-00  
Date





STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

August 16, 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. Z-274-520-693**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114

**RE: REMEDIATION PROJECT  
MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) June 16, 1999 correspondence and another undated correspondence which was received by the OCD on May 20, 1999. These documents, which were submitted on behalf of CEI by their consultant Whole Earth Environmental, Inc., contain the results of CEI's recent ground water monitoring and a long term ground water plan for the White "A" State #1 facility.

The above referenced ground water monitoring plan is approved with the following conditions:

1. During each sampling event ground water from all monitor wells shall be purged, sampled and analyzed for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX), total dissolved solids (TDS) and cations and anions using EPA approved methods and quality assurance/quality control (QA/QC) procedures.
2. All wastes generated shall be disposed of at an OCD approved facility.
3. CEI shall submit the results of the ground water quality monitoring in a comprehensive annual report. The report shall be submitted to the OCD Santa Fe Office by April 1, 2000 with a copy provided to the OCD Hobbs District Office and shall include:
  - a. A description of all monitoring procedures and activities which have occurred including conclusions and recommendations.
  - b. A map showing the location of pits, spills, monitor wells, boreholes and any other pertinent site features.

- c. Summary tables of all past and present ground water quality sampling results including copies of all recent laboratory analytical data sheets and associated QA/QC data.
  - d. Tables listing the water table elevation in each monitor well during each sampling event.
  - e. The disposition of all wastes generated.
4. CEI shall notify the OCD at least 1 week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and split samples.

Please be advised that OCD approval does not limit CEI to the proposed plan should the activities fail to adequately monitor contamination related to CEI's activities, or if contamination exists which is outside the scope of the plan. In addition, OCD approval does not relieve CEI of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

Bill Olson - OCD  
Z 274 520 693

US Postal Service  
**Receipt for Certified Mail**  
No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

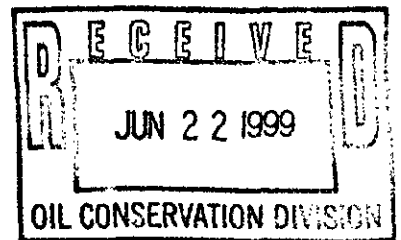
Sent to			
Street & Number			
Post Office, State, & ZIP Code			
Postage	\$		
Certified Fee			
Special Delivery Fee			
Restricted Delivery Fee			
Return Receipt Showing to Whom & Date Delivered			
Return Receipt Showing to Whom, Date, & Post Office Address			
TOTAL Postage & Fees	\$		
Postmark	MAY 17 1999		

PS Form 3800, April 1995



**Whole Earth Environmental, Inc.**

19606 San Gabriel, Houston, Texas 77084  
281/492-7077 • Fax: 281/646-8996



June 16, 1999

New Mexico Oil Conservation Division  
2040 S. Pacheco  
Sante Fe, NM 87505

Attn: Bill Olson

Enclosed, please find a copy of the second quarter testing results of the monitoring well adjacent to the Chaparral Energy White "A" State # 1 remediation project.

We plan to do another sampling round in September and will pass the results promptly to you.

Warmest regards,

Mike Griffin  
President  
Whole Earth Environmental, Inc.

cc: Bob Lang / Chaparral Energy

# LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 1-281-646-8996


Receiving Date: 06/08/99  
Sample Type: Water  
Project Name: None Given  
Project #: Chaparral WM  
Project Location: None Given

Analysis Date: 06/08/99  
Sampling Date: 06/08/99  
Sample Condition: Iced/Intact

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
18302	C-2	<0.001	<0.001	<0.001	<0.001	<0.001

% IA	93	89	90	88	89
% EA	97	94	92	91	91
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020.5030

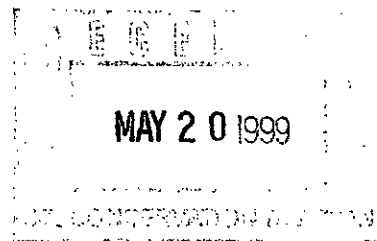
  
Raland K. Tuttle

6-9-99  
Date



**Whole Earth Environmental, Inc.**

19606 San Gabriel, Houston, Texas 77084  
281/492-7077 • Fax: 281/646-8996



Oil Conservation Division  
2040 South Pacheco  
Sante Fe, NM 87505

Attn: Bill Olson

Dear Bill:

Enclosed, please find a copy of a new plat map showing the location of the two monitoring wells located at White State "A" # 1 near Tatum. Both wells were constructed with bright white lid covers and are surrounded by a three foot circle of cement and are thus relatively easy to find once you've arrived at the dry hole marker.

Due to the low concentrations of BTEX and chlorides found within the monitor wells, we propose to conduct annual monitoring at the site for a period of four years. After four consecutive sampling events in which the BTEX and chloride levels test below WQCC standards, we will request final closure of the site.

Thank you again for your prompt review of the closure report.

Warmest personal regards,

Mike Griffin  
President

Whole Earth Environmental, Inc.

CC: Bob Lang / Chaparral Energy  
Donna Williams / OCD, Hobbs

enclosures



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

May 4, 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. Z-274-520-648**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114

**RE: REMEDIATION PROJECT  
MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) March 2, 1999 "MONARCH WHITE "A" STATE #1 REMEDIATION PROJECT". This document contains the results of CEI's remediation of unlined pits at the White "A" State #1 facility and the investigation of potential ground water contamination at the site.

The soil remediation work conducted to date is satisfactory. However, the report does not contain a map showing the locations of the site monitoring wells in relation to all the pits and other site features. In addition, the report does not contain a work plan for investigation of the extent of ground water contamination resulting from CEI's activities as required in the OCD's December 2, 1998 approval of the remediation plan. Please submit this information to the OCD Santa Fe Office by July 2, 1999 with a copy provided to the OCD Hobbs District Office.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

A handwritten signature in black ink, appearing to read "Will Olson".

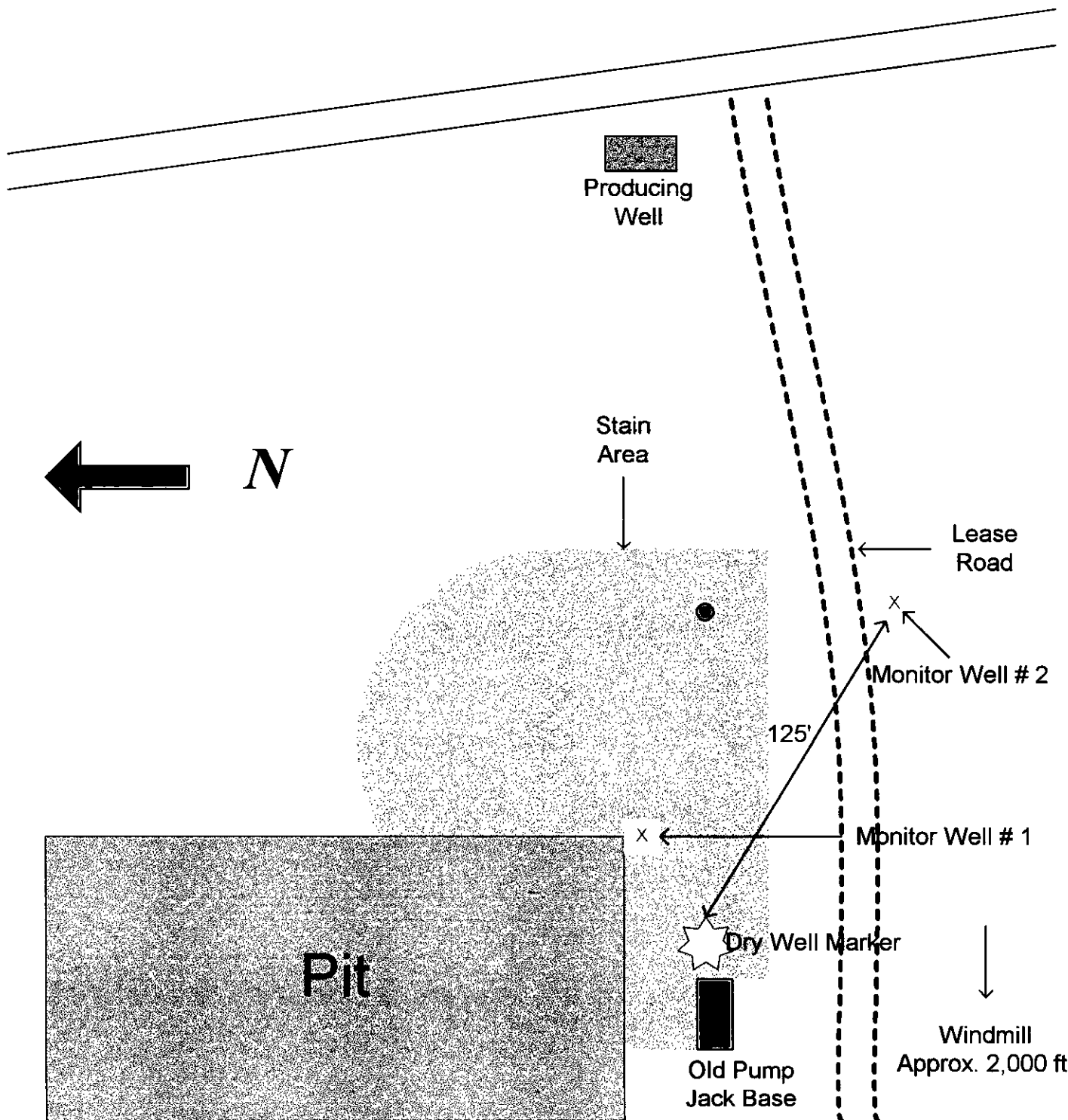
William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.



**Monarch White "A"**  
**State # 1**  
**Overall View**

↑  
Windmill  
Approx. 900 ft.





STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

May 4, 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. Z-274-520-648**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114

**RE: REMEDIATION PROJECT  
MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) March 2, 1999 "MONARCH WHITE "A" STATE #1 REMEDIATION PROJECT". This document contains the results of CEI's remediation of unlined pits at the White "A" State #1 facility and the investigation of potential ground water contamination at the site.

The soil remediation work conducted to date is satisfactory. However, the report does not contain a map showing the locations of the site monitoring wells in relation to all the pits and other site features. In addition, the report does not contain a work plan for investigation of the extent of ground water contamination resulting from CEI's activities as required in the OCD's December 2, 1998 approval of the remediation plan. Please submit this information to the OCD Santa Fe Office by July 2, 1999 with a copy provided to the OCD Hobbs District Office.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

Z 274 520 648

US Postal Service  
**Receipt for Certified Mail**  
No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, April 1995



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

December 2, 1998

**CERTIFIED MAIL**  
**RETURN RECEIPT NO. Z-274-520-579**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114

**RE: REMEDIATION WORK PLAN  
MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) November 3, 1998 "MONARCH CORPORATION, WHITE "A" STATE #1, SEC 15-T10S-R32E, LEA COUNTY, NEW MEXICO". This document contains CEI's proposed remediation plan for an unlined pit at the White "A" State #1 facility.

The above referenced remediation plan is **approved** with the following conditions:

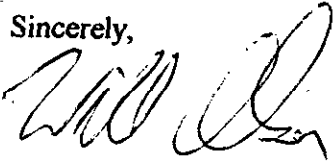
1. CEI will sample and analyze soils from the base of the excavated areas and those blended and returned to the excavations for chloride concentrations using EPA approved methods.
2. The final report will be submitted to the OCD Santa Fe Office with a copy provided to the OCD Hobbs District Office. The final report on the remedial actions will include a work plan for investigation of the extent of ground water contamination resulting from CEI's activities.

Please be advised that OCD approval does not relieve CEI of liability if the proposed work plan fails to adequately remediate contamination related to CEI's activities. In addition, OCD approval does not relieve CEI of responsibility for compliance with any other state, federal or local laws and regulations.

Mr. Robert C. Lang  
December 2, 1998  
Page 2

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson  
Hydrologist  
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

Z 274 520 579

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, April 1995

3 November 1998

State of New Mexico  
Oil Conservation Division  
Attn: Bill Olsen  
2040 South Pacheco Street  
Santa Fe, New Mexico 87504

Re: Monarch Corporation  
White "A" State #1  
Sec. 15-T10S-R32E  
Lea County, New Mexico

Dear Sir:

On behalf of Monarch Corporation, I am forwarding a copy of QP-46A from Whole Earth Environmental, Inc. It is our understanding you have discussed this at length with Mr. Mike Griffin and the two of you are in agreement as to the contents of this protocol. With this in mind, we are prepared to start remediation as soon as we received permission from the State of New Mexico and from Monarch.

Should you have any questions or concerns, please contact the undersigned.

Sincerely,



Robert C. Lang IV, REM, CEA  
Environmental & Special Projects Engineer

RCL/me

✓ cc: Hobbs, NM Office, NMOCD



---

**Pit Remediation Protocol  
Chaparral Energy  
Tatum Pit Closure Project**

---

**1.0 Purpose**

This protocol is provide a detailed outline of the steps to be employed in the remediation and final closure of the Chaparral Energy White "A" State # 1 pit.

**2.0 Scope**

This protocol is site specific for the above stated site.

**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 cognizant personnel within Chaparral to review this protocol and make any requested modifications or alterations prior to submittal to the State of New Mexico Oil Conservation Division.

3.1.2 Changes to this protocol will be documented and submitted for final review by Chaparral prior to submittal to the Oil Conservation Division.

**3.2 Oil Conservation Division Review**

3.2.1 Upon client approval, this protocol and associated modeling results will be submitted to the New Mexico Oil Conservation Division for review and comment. Recommended changes will be reviewed by the client prior to implementation.

3.2.2 Any recommended changes effecting costs will require a revised quotation to be issued to the client for approval prior to the commencement of any on-site remediation activity.

**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 must be wearing sleeved shirts, steel-toed boots, and long pants.* Each vehicle must be equipped with two-way communication capabilities.

**4.4** Prior to any excavation, the area shall be surveyed with a line finder. If lines are discovered within the area to be excavated, they shall be marked with pin flags on either side of the line at maximum five-foot intervals. The area will be photographed prior to any excavation or fluid removal.

**4.5** Each pit area will be swept with a Ludlam 2350 to determine if NORM is present in concentrations greater than  $40\mu\text{r} / \text{hr}$ .

## **5.0 Fluid Removal**

Prior to any excavation, the pit fluids shall be removed by vacuum truck and transported to the Gandy / Marley, Inc. Landfarm. A shipping manifest and O.C.D. Form C-117-A shall be prepared for each waste load.

## **6.0 Compaction & Coring**

**6.1** Soils which are highly saturated with hydrocarbons, (>20% generally), will be excavated and transported to the Gandy / Marley, Inc. Landfarm. A shipping manifest and O.C.D. Form C-117-A shall be prepared for each waste load. Care will be taken to insure that these soils remain within the truck during transport.

**6.2** Atkins Engineering Associates, Inc. will drill a monitor well immediately adjacent to the southeast corner of the pit center using a continuous core sampler. The monitor well will be cased and screened in accordance with OCD guidelines. Whole Earth will collect water samples in accordance with our procedures WEQP-76 & WEQP-77. Confirmation samples will be analyzed by Environmental Labs of Texas for BTEX and DRO using EPA Methods 8020, 5030 and 8015m.

**6.3** If the monitor well indicates the presence of "free product", two additional monitor wells will be drilled, cased and sampled in accordance with paragraph 6.2 of this protocol. The location of the two additional wells will be a minimum distance of 100' down gradient from the initial monitoring well and at a lateral distance of 50' from a continuation of the initial monitoring well and pit center.

- 6.4 If free product is discovered within the initial monitoring well, a recovery well will be drilled and developed in the approximate pit center at the completion of all remediation and surface reclamation activities.

## **7.0 Modeling**

7.1 Whole Earth will model the migration potential of the plume on VADSAT using the results of the field screen analyses. If the results reflect a zero percentage probability of the plume impacting ground water, the OCD will be immediately notified and excavation operations begun.

7.2 The confirmation samples will be modeled upon receipt to verify a zero percentage probability. All modeling data will be included within the final closure documentation.

## **8.0 Excavation & Remediation**

8.1 The site shall be excavated to the maximum contaminant concentrations specified in paragraph 8.2 of this protocol. All excavated material will be deposited immediately adjacent to the pit site.

8.2 The bottom of the pit and all four side walls will be tested for TPH and Benzene concentrations using WEQP-06 and WEQP-19. Excavation will continue until such concentrations are <10,000 ppm TPH, <10 ppm benzene and <50 ppm total BTEX or until the maximum practical depth that may be obtained using conventional excavation equipment is reached. Confirmation samples will be collected and analyzed as described in 6.3 of this protocol.

8.3 Upon reaching the required depth and side wall concentrations, the bottom of the pit will be made as smooth as possible with excavation equipment. Sand will be deposited in the bottom of the pit to a minimum thickness of 6".

8.4 A polyethylene liner of a minimum thickness of 30 mils will be spread atop the sand to the pit edge and an additional 6" of sand deposited above it.

8.5 The excavated materials will be mixed and blended with additional topsoils obtained from the area immediately adjacent to the pit until the hydrocarbon concentrations fall below the maximum limits as described in Paragraph 8.2 of this protocol. The remediated materials will then be replaced into the excavated area, compacted and the surface contoured to provide for positive drainage.



**8.6** The top six feet of the excavation shall be covered in remediated materials having a maximum TPH concentration of <1,000 ppm and benzene concentrations of <2 ppm. The area will be seeded with a mixture of local grasses.

## **7.0 Documentation & Reporting**

**7.1** At the conclusion of the pit remediation project, Whole Earth will prepare a closure report to include the following information:

- A plat map of the location showing the exact location of the pit, the dimensions prior to excavation and the actual excavated dimensions.
- Photographs of the pit prior to excavation, at the point of maximum excavation and after final closure
- Field Sampling Report to include the side wall and pit bottom TPH, BTEX and chloride concentrations after excavation.
- Field Sampling Report to include TPH, BTEX and chloride concentrations of all remediated materials deposited into the pit.
- Daily calibration records of each testing instrument
- Shipping manifests and OCD Form C-117-A
- Risk assessment model and supporting documentation
- M.S.D.S. and permeability certification of liner materials



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

October 6, 1998

**CERTIFIED MAIL**

**RETURN RECEIPT NO. Z-274-520-565**

Mr. Robert C. Lang  
Chaparral Energy, Inc.  
701 Cedar Lake Blvd.  
Oklahoma City, Oklahoma 73114

**RE: REMEDIATION WORK PLAN  
MONARCH WHITE "A" STATE #1**

Dear Mr. Lang:

The New Mexico Oil Conservation Division (OCD) has reviewed Chaparral Energy Inc.'s (CEI) June 23, 1998 "CHAPARRAL ENERGY, MONARCH WHITE "A" STATE #1 REMEDIATION PROJECT" and June 1, 1998 "MONARCH CORPORATION WHITE "A" STATE #1, SEC 15-T10S-R32E, LEA COUNTY, NEW MEXICO". These documents contain the results of soil and ground water samples taken at the site of an unlined pit at the White "A" State #1 facility. The document also contains a proposed remediation plan and proposed alternate soil remediation standards for the site.

Below is the OCD's review of this document:

1. The proposed soil remediation standard of 100,000 mg/l of total petroleum hydrocarbons is not supported by either the model or the current state of contamination at the site. The model does not use actual site data for input to the model but uses a variety of input data assumptions. Some of these assumptions are inaccurate such as the unsaturated zone thickness and others are unknown. In addition, the model fails to accurately predict the current state of ground water contamination existing at the site. The OCD will consider the use of a model for contaminant migration only if actual site characteristics are used and if the model is calibrated and validated by predicting actual site contaminant concentrations in soil and ground water.
2. The document assumes that the contaminants in the pit are not leachable based upon a toxic characteristic leaching procedure (TCLP) laboratory analysis of the pit wastes. This is an inappropriate use of these analyses. The TCLP method is used only to determine if a waste is characteristically hazardous for disposal purposes under United States Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) hazardous waste regulations and is not intended for determining if contamination can leach into ground water. In addition, the site ground water analyses show that contamination has already leached from the pit and contaminated ground water in excess of New Mexico Water Quality Control Commission ground water standards.

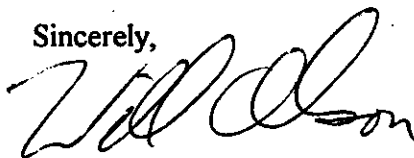
Mr. Robert C. Lang  
October 6, 1998  
Page 2

3. The soil analytical methods used for determining the benzene, toluene, ethylbenzene and xylene (BTEX) concentrations in soil are not acceptable analytical methods. The methods which were used measure BTEX which has volatilized into the headspace of a ziplock bag and not the concentration of BTEX in the soil. The OCD only accepts EPA approved laboratory methods for determining BTEX contaminant concentrations in soil. This was not an EPA approved method. Since the field analytical methods used at the site do not measure the concentration of BTEX in soil, the results have little scientific value.
4. The proposed ground water investigation plan does not contain proposed well construction information, a map showing proposed monitor well locations nor a complete ground water sampling and analysis program based on potential pit contaminants.

Based upon the above deficiencies, CEI's proposed remediation plan and proposed soil remediation standards are denied. The OCD requires that CEI submit a new soil and ground water investigation and remediation plan to the OCD by November 13, 1998. The plan will be submitted to the OCD Santa Fe Office with a copy provided to the OCD Hobbs District Office

If you have any questions, please call me at (505) 827-7154.

Sincerely,



William C. Olson  
Hydrologist  
Environmental Bureau

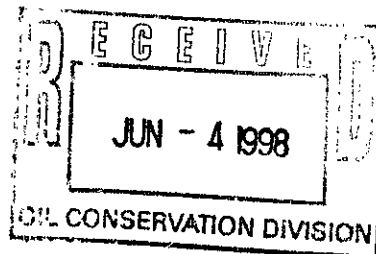
xc: Chris Williams, OCD Hobbs District Supervisor  
Mike Matush, NM State Land Office  
Mike Griffin, Whole Earth Environmental, Inc.

Z 274 520 565	
US Postal Service	
<b>Receipt for Certified Mail</b>	
No Insurance Coverage Provided.	
Do not use for International Mail (See reverse)	
Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
<b>TOTAL Postage &amp; Fees</b>	<b>\$</b>
Postmark or Date	

PS Form 3800, April 1995

1 June 1998

State of New Mexico  
Oil Conservation Division  
Attn: Bill Olsen  
2040 South Pacheco Street  
Santa Fe, New Mexico 87504



Re: Monarch Corporation  
White "A" State #1  
Sec 15-T10S-R32E  
Lea County, New Mexico

Dear Sir:

Chaparral Energy, Inc., on behalf of Monarch Corporation, had Whole Earth Environmental, Inc. drill a monitoring well at the captioned location in order to ascertain the extent, if any, of contamination to the soil and groundwater. Enclosed is a copy of their report. Notice of this operation and the results were reported via telephone to Mr. Roger Anderson on 1 May 1998 with a follow up letter the same day.

Whole Earth Environmental, Inc. is in the process of developing plans to affect remediation of the site. As soon as further tests are completed, their recommendations will be forwarded to us and to the NMOCD.

Should you require anything further, please feel free to contact me at (405) 478-8770.

Sincerely,

A handwritten signature in dark ink, appearing to read "RCL".

Robert C. Lang IV, REM, CEA  
Environmental & Special Projects Engineer

RCL/me

cc: NMOCD Dist. 1 - Wayne Price



Whole Earth Environmental, Inc.

19606 San Gabriel, Houston, Texas 77084  
713/492-7077 Fax: 713/492-7077

April 29, 1998

Chaparral Energy  
701 Cedar Lake Blvd.  
Oklahoma City, OK 73114

Attn: Bob Lang

Enclosed, please find a project report for the drilling, installation and analysis of a monitoring well immediately adjacent to the White "A" State #1 pit site. Included within this report is the following:

- ❖ Driller's Log and well construction detail
- ❖ Environmental Laboratories of Tx. test results
- ❖ Chain of Custody form
- ❖ Plat maps of the location
- ❖ Field analytical results
- ❖ Photo detail of well installation & general site conditions
- ❖ Executive Summary

Because of the chloride content of the sampled water, you are required under Rule 116 of the NMOCD regulations to notify the OCD at the District and Sante Fe levels within twenty-four hours of your receipt of this report.

Thank you again for the opportunity of working with you on this very interesting project.

Warmest regards,

Mike Griffin  
President

Whole Earth Environmental, Inc.



## Site Profile

The site is situated approximately 5.5 miles north of the intersection of US Hwy. 380 and NM State Hwy. 156. The pit lies approximately 150 yards west of Hwy. 156 on gently rolling hills. The surrounding land is classified as semi-arid and is principally used for grazing cattle. There is no agricultural development within five miles of the pit.

The pit area is approximately 210' north to south and 125' east to west. The pit is surrounded with a well-maintained four-strand barbed wire fence. Access to the pit is through an unsecured gate at the southern perimeter. The pit topography is slightly indented to the surrounding terrain and appears to adequately contain any storm water runoff. There is no sign of recently stressed vegetation around the pit area.

There is an area of "hard pack" centered at the southeast corner of the pit. The surface contamination appears as patchy areas covered with a highly weathered, asphalt-like surface coating ranging in thickness from 2-8 cm. There is an abandoned steel reinforced cement pump jack base to the south of the pit and a cement separator base to the southeast of the location.

The pit appears to be uniformly covered with a mixture of "gin trash" and manure to a depth of at least 2' bgl. This mixture is quite "spongy" is likely to bog down any non-tracked equipment brought onto location. Several surface seeps were observed ranging in size from 1-6 sq. ft. The seeps reveal an extremely viscous (almost brittle in 36°F temperatures) asphaltine compound to be emerging from the pit.

There are no power lines within the immediate area and no posted pipeline crossings within 200 feet of the location.

**Monarch White "A"**  
**State # 1**  
**Overall View**

↑  
Windmill  
Approx. 900 ft.

Producing  
Well

← **N**

Stain  
Area

Lease  
Road

**Pit**

Old Pump  
Jack Base

↓  
Windmill  
Approx. 2,000 ft.



## **Driller's Log**

This section contains the Driller's Log and well construction details for Monitor Well # 1.



<b>Atkins Engineering Associates, Inc.</b> P.O. Box 3156 Roswell, New Mexico 88202			<b>LOG OF BORING Monarch Corporation MW-1</b> <div style="text-align: right;">(Page 1 of 2)</div>		
<b>Chaparral Energy, Inc.</b> 701 Cedar Lake Boulevard Oklahoma City, OK 73114			Date : 4-27-98 Drill Start : 8:40 A.M. Drill End : 5:30 P.M. Boring Location : SE corner of pit	Site Location : White "A" State #1, Sec. 15 T10S, R22E, Lea County Auger Type : Hollow Stem Logged By : Mort Bates	
Contact: Mr. Mike Griffin-Whole Earth Job #98192					

Depth in feet	GRAPHIC	USCS	Samples	DESCRIPTION	
0				Caliche Rock w/Silty Clay, Brown, Firm, Damp	Well: MW-1 Elev.:  
				Caliche Clay, Tan, Firm, Dry	
5		1		Caliche Rock, White, Hard, Dry	
10		2		Caliche Rock w/Clay, Tan, Firm, Dry	
				Caliche Rock, White, Hard, Dry	
15		3		Caliche Rock w/Clay, Tan, Firm, Damp	
20		4		Caliche w/Clay, Tan, Firm, Damp	
25		5	Silty Sandy Clay, Reddish-Tan, Firm, Damp		
30		6			
35		7			
40					

D:\29-1928 c:\mch-48\ch-48\1\new 1.bor

<b>Atkins Engineering Associates, Inc.</b> P.O. Box 3156 Roswell, New Mexico 88202			<b>LOG OF BORING Monarch Corporation MW-1</b> (Page 2 of 2)		
<b>Chaparral Energy, Inc.</b> 701 Cedar Lake Boulevard Oklahoma City, OK 73114			Date : 4-27-88 Drill Start : 8:40 A.M. Drill End : 5:30 P.M. Boring Location : SE corner of pit		Site Location : White "A" State #1, Sec. 19 : T10S, R32E, Lea County Auger Type : Hollow Stem Logged By : Mori Bates
Contact: Mr. Mike Griffin-Whole Earth Job #98192					

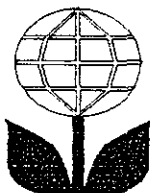
Depth in feet	GRAPHIC	USCS	Samples	DESCRIPTION	
40		CL			<div style="text-align: center;">Well: MW-1 Elev.:</div> <div style="position: absolute; top: 10%; left: 10%;">Backfill w/Drill Cuttings</div> <div style="position: absolute; top: 15%; left: 10%;">2" Schedule 40 PVC Casing</div> <div style="position: absolute; top: 35%; left: 10%;">Seal</div> <div style="position: absolute; top: 65%; left: 10%;">6" Sand Pack</div> <div style="position: absolute; top: 80%; left: 10%;">2" .020 PVC Screen</div>
45				Silty Sandy Clay, Tan, Firm, Damp	
50		CL			
55				WL @ 55.83	
56		CL		Sandy Clay, Tan, Loose, Moist	
57				Sandy Clay, Tan, Firm, Saturated	
60					
65		CL			
70					
71				TD = 71 FT	
75					
80					

04/29/88 c:\atkins\mhw\mhw1.mw-1.log



## **Field Analyses**

This section contains the procedures, calibration methods and results of testing the first 30' of depth of soils within the monitor well for TPH and BTEX concentrations. Further testing below the 30' horizon was deemed to be unproductive due to the extremely low concentrations encountered.



# Whole Earth Environmental Field Test Analytical Results

Facility Name	<u>White "A" State # 1</u>	Date of Collection	<u>4/27/98</u>
Pit Type	<u>Emergency Overflow</u>	Date of Analysis	<u>4/27/98</u>
Client	<u>Chaparral Energy</u>	Analysist	<u>M. Griffin</u>
TPH Analyzer S/N	<u>01152</u>	VOC Analyzer S/N	<u>N/A</u>
Chromatograph S/N	<u>3714</u>	E.C. Analyzer S/N	<u>3659251</u>

Analysis: TPH (418.1)

Analysis: BTEX

Analysis: Chlorides

Analysis:

Sample Location: Monitor Well # 1

	5' bgl	10' bgl	15' bgl	20' bgl	25' bgl	30' bgl	Water
TPH (1)	56	12	22	ND	ND	ND	N/A
E.C. <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	28.8
	N/A	N/A	N/A	N/A	N/A	N/A	16,300
Benzene <sup>(1)</sup>	ND	0.5	1.2	ND	0.5	ND	N/A
Toluene <sup>(1)</sup>	ND	ND	0.7	0.6	ND	0.3	N/A
Ethylbenzene <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	N/A
Xylene <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	N/A

Notes: 1. Results shown in mg / L (ppm)

2. Results Shown in mmhos / cm

Technician: \_\_\_\_\_



## **Laboratory Analyses**

This section contains the Chain of Custody form, analytical results and QC data from Environmental Labs of Texas for water samples obtained from Monitor Well # 1.

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 1-281-646-8996

Receiving Date: 04/28/98  
Sample Type: Water  
Project: Chaparral Energy  
Project #: White A State #1  
Project Location: Tatum, New Mexico

Analysis Date: 04/28/98  
Sampling Date: 04/27/98  
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYL BENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L	DRO C10-C28 mg/L
14288	1	0.002	0.002	<0.001	<0.001	<0.001	<3

% IA	101	100	99	99	103	103
% EA	102	100	98	97	101	**
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<3

METHODS: SW 846-8020,5030,8015

  
Michael R. Fowler

4-29-98  
Date

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8996

RECEIVING DATE: 04/28/98  
SAMPLE TYPE: Water  
PROJECT #: White A State #1  
PROJECT NAME: Chaparral Energy  
PROJECT LOCATION: Tatum, New Mexico

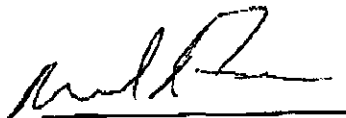
ANALYSIS DATE: 04/28/98  
SAMPLING DATE: 04/27/98  
SAMPLE CONDITION: INTACT

ELT#	FIELD CODE	Chloride mg/L
14288	1	2.785

QUALITY CONTROL  
TRUE VALUE  
% PRECISION

4.998  
5.000  
100

Methods: SW 846-9252

  
Michael R. Fowler

4-29-98  
Date

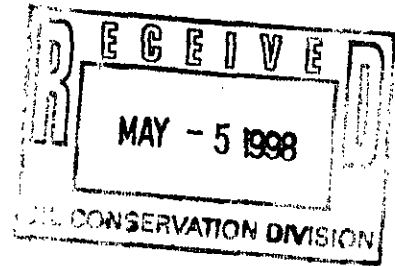
### CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

[illegible]



1 May 1998

State of New Mexico  
Oil Conservation Division  
Attn: Roger Anderson, Environmental Bureau Chief  
2040 South Pacheco Street  
Santa Fe, New Mexico 87504



Re: Monarch Corporation  
White "A" State #1  
Sec 15-T10S-R32E  
Lea County, New Mexico

Dear Sir:

On 27 April 1998, after earlier notifying your District 1 office of our intent, Chaparral Energy, Inc., on behalf of Monarch Corporation, had Whole Earth Environmental supervise the drilling of a monitoring well at the southeast corner (down gradient side) of an old sludge pit the state wants remediated. Atkins Engineering was hired to do the actual drilling and they drilled to a total depth of 70 feet, encountering water at a depth of 55.8 feet. Solid core samples were taken on five-foot intervals to a depth of 30 feet with no field detectable presence of TPH or BTEX. Water samples were taken and properly delivered to Environmental Labs of Texas for analysis. BTEX and TPH concentrations are within the NM water quality standards, but Total Chlorides were found to be 2,765 ppm (see attached laboratory reports).

Whole Earth Environmental, Inc. is in the process of developing plans to affect remediation to New Mexico's standards. As soon as their recommendations are in they will be forwarded to you.

Should you have any questions about what has been done, please feel free to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Lang IV".

Robert C. Lang IV, REM, CEA  
Environmental & Special Projects Engineer

cc: NMOCD District 1

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 1-281-646-8996

Receiving Date: 04/28/98  
Sample Type: Water  
Project: Chaparral Energy  
Project #: White A State #1  
Project Location: Tatum, New Mexico

Analysis Date: 04/28/98  
Sampling Date: 04/27/98  
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L	DRO C10-C28 mg/L
14288	1	0.002	0.002	<0.001	<0.001	<0.001	<3

% IA	101	100	99	99	103	103
% EA	102	100	98	97	101	**
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<3

METHODS: SW 846-8020,5030,8015

  
Michael R. Fowler

4-29-98  
Date

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL  
ATTN: MR. MIKE GRIFFIN  
19606 SAN GABRIEL  
HOUSTON, TEXAS 77084  
FAX: 281-646-8996

RECEIVING DATE: 04/28/98  
SAMPLE TYPE: Water  
PROJECT #: White A State #1  
PROJECT NAME: Chaparral Energy  
PROJECT LOCATION: Tatum, New Mexico

ANALYSIS DATE: 04/28/98  
SAMPLING DATE: 04/27/98  
SAMPLE CONDITION: INTACT

ELT#	FIELD CODE	Chloride mg/L
14288	1	2.785

QUALITY CONTROL	4.998
TRUE VALUE	5.000
% PRECISION	100

Methods: SW 846-9252

  
Michael R. Fowler

4-29-98  
Date

**Environmental Lab of Texas, Inc.** 12600 West L-20 East Odessa, Texas 79763  
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

[illegible]

**Olson, William**

---

**From:** Price, Wayne  
**Sent:** Friday, May 01, 1998 10:40 AM  
**To:** Roger Anderson  
**Cc:** Bill Olson; Chris Williams  
**Subject:** Chaparral Energy White "A" ST #1 Pit Closure

NMOCD District I received verbal notification from Robert Lang of Groundwater impact.

NMOCD instructed them to notify NMOCD SF with verbal and written & CC district.

**Olson, William**

---

**From:** Price, Wayne  
**Sent:** Friday, May 01, 1998 10:40 AM  
**To:** Roger Anderson  
**Cc:** Bill Olson; Chris Williams  
**Subject:** Chaparral Energy White "A" ST #1 Pit Closure

NMOCD District I received verbal notification from Robert Lang of Groundwater impact.

NMOCD instructed them to notify NMOCD SF with verbal and written & CC district.



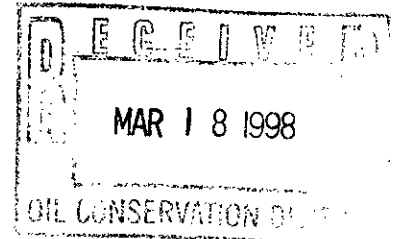
STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

March 13, 1998

POST OFFICE BOX 1880  
HOBBS, NEW MEXICO 88241-1880  
(505) 383-6161

Mr. Robert C. Lang  
Chaparral Energy, Inc. (CEI)  
701 Cedar Lake Blvd.  
Oklahoma City, OK 73114



Re: Pit Closure  
White "A" State #1  
Sec 15-Ts10s-R32e  
Lea County, NM

Dear Mr. Lang:

New Mexico Oil Conservation Division (NMOCD) is in receipt of the letter and attached "Sludge Pit Remediation Prognosis". **Please note your plan is hereby approved with the following additional conditions:**

1. The Monitor well shall be located as close as possible to the pit and located down-gradient. Please note the burden of locating the down-gradient direction will be upon CEI. NMOCD reserves the right to require additional monitor wells if deemed necessary.
2. CEI will be required to install, develop, and purge for sampling, the monitor well pursuant to NMOCD guidelines. Please call this office prior to drilling for guidance on this manner.
3. CEI will be required to perform the following analysis on the first initial set of samples of the groundwater using EPA methods; BTEX (8020), general chemistry such as TDS, PH, Major Cations & Anions, etc., WQCC metals. Please note TPH is not a requirement, therefore it will be CEI's option.
4. **Upon discovery of ground water contamination CEI must notify both the NMOCD Environmental Bureau and the District office within 24 hours.**
5. At the end of the one year project (item #11) but no later than March 15, 1999 CEI will provide to NMOCD a progress and/or closure report to include a detail summary of all the work performed such as; Included shall be the analytical results of representative samples of the pit area, both surface and subsurface, the analyticals of the remediated soils, sludges, etc, shall be BTEX (8020) and TPH(418.1). Manifest of all waste disposed of off-site, pictures, findings, conclusions, recommendations etc. Also CEI must fill out in detail a pit closure form.

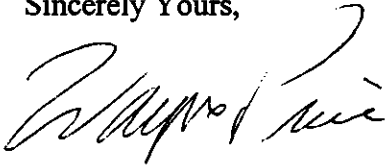
6. The results of the monitor well sampling shall be sent to the NMOCD District office within 30 days of the results being issued by the lab. Please note CEI must seek approval before closing the monitor well. NMOCD will evaluate and determine a long term monitoring program if deemed necessary. NMOCD will notify CEI of its determination.

**Please note CEI must demonstrate at some time during or after the one year period the vertical extent of the contamination and closure information as per the guidelines.**

**CEI is hereby ordered to start this remediation project within 60 days of receipt of this letter.**

If you require any further information or assistance please do not hesitate to call (505-393-6161) or write this office.

Sincerely Yours,



Wayne Price-Environmental Engineer

cc: Chris Williams-NMOCD District I Supervisor  
Bill Olson-Environmental Bureau, Santa Fe, NM



October 10, 1997

Mr. Ron Brown  
Monarch Corporation (MC)  
701 Cedar Lake Blvd.  
Oklahoma City, OK 73114  
405-478-8770

Re: Pit Closure  
White "A" State #1  
Sec. 15-Ts10s-R32e  
Lea Co., New Mexico

Dear Mr. Brown:

New Mexico Oil Conservation Division (NMOCD) is in receipt of the pit assessment and pit closure form submitted by MC dated August 21, 1997. **Your request for a two year extension using the same remediation technology is hereby denied for the following reasons:**

1. As of to date MC has yet to properly define the vertical extent of the contamination pursuant to the NMOCD guidelines.
2. MC's technology of using "gin trash" has apparently not worked. The surface of the pit is unstable, the sludge still remains in the pit and appears that new leaching is taking place.
3. MC's report indicates that sample area #1 had "no hard bottom".
4. MC's pit closure report indicates that your ranking score for this project is 40 which requires a clean-up standard of 100 ppm for TPH. Your soil analysis report show values as high as 130,850 ppm.

**Therefore you are hereby ordered to perform one of the two options listed below:**

1. Remove the major source of contamination by excavation and remediate on or off-site, or dispose of at an approved NMOCD facility. The excavated area shall be backfilled with remediated soil that meets NMOCD guidelines or clean material. Bottom hole samples shall be taken that include TPH, BTEX., and chlorides; or, (see attached list of NMOCD District I permitted disposal facilities.)
2. Provide to the NMOCD for approval a known and proven risk assessment method that will demonstrate any contaminates left on site will not be a future threat to public health, ground water, and/or the environment. Risk assessments of this type will require monitor wells to be installed for long term monitoring.

**Due to the depth of shallow ground water in the area the NMOCD is concerned any additional time might cause the ground waters of the State to be impacted. Therefore, please provide to the NMOCD within 60 days of receipt of this letter a new work plan for NMOCD approval.**

If you require any further information or assistance please do not hesitate to call (505-393-6161) or write this office.

Sincerely Yours,

Wayne Price-Environmental Engineer  
cc: Chris Williams-NMOCD District I Supervisor  
Roger Anderson-Environmental Bureau Chief, Santa Fe, NM



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE  
RECEIVED  
96 DE 11 11 8 52

December 26, 1996

POST OFFICE BOX 1880  
HOBBS, NEW MEXICO 88241-1880  
(505) 393-6161

Chaparral Energy, Inc. (CEI)  
10701 N. Broadway Extension  
Oklahoma City, Ok 73114

Re: WHITE "A" STATE SLUDGE PIT RECLAMATION  
SECTION 15-Ts10S-R32E  
LEA COUNTY, NEW MEXICO

Attention: Mr. Ron Brown

New Mexico Oil Conservation Division (NMOCD) approved a pit closure work plan for the above referenced site on October 31, 1995. The submitted plan was approved contingent upon certain approval conditions which included a commitment for CEI to provide a closure report for NMOCD approval.

Please find enclosed our standard pit closure form to be submitted to our office for approval. In order for the NMOCD to properly evaluate your closure please provide all the information requested on the form.

Sincerely yours,

Wayne Price-Environmental Engineer

cc: ~~Bill Olson-NMOCD Environmental Bureau-Santa Fe~~  
~~Jerry Sexton-District I Supervisor~~  
Gary Wink-Field Rep. II

attachments: - "PIT CLOSURE FORM"



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

OIL CONSERVATION DIVISION  
RECEIVED  
95 NOV 2 AM 8 52

POST OFFICE BOX 1980  
HOBBS, NEW MEXICO 88241-1980  
(505) 393-6161

October 31, 1995

Chaparral Energy, Inc.  
10701 N. Broadway Extension  
Oklahoma City, Ok 73114

Re: WHITE "A" STATE SLUDGE PIT RECLAMATION  
SECTION 15-Ts10S-R32E  
LEA COUNTY, NEW MEXICO

Attention: Mr. Ron Brown

The New Mexico Oil Conservation Division (NMOCD) District I office is in receipt of Chaparral Energy, Inc. (CEI) Sludge Pit Reclamation plan (attached) submitted for the above referenced facility.

The submitted plan is hereby approved contingent upon the OCD Approval Conditions attached hereto.

Please note the NMOCD recommends voluntary compliance on this matter and urges CEI to inform this office of any problems associated with this project that might cause the remedial actions to deviate from the approved plan.

Please notify our office by contacting Mr. Gary Wink (Head Field Supervisor) at 505-393-6161 when you plan to begin this project.

It is our recommendation that your final report should be no later than one year from today, which would be on October 31, 1996.

If you have any questions or need assistance please do not hesitate to call or write.

Sincerely yours,

Wayne Price-Environmental Engineer

cc: Bill Olson-NMOCD Environmental Bureau-Santa Fe  
Jerry Sexton-District I Supervisor  
Gary Wink-Field Rep. II

attachments: 1- CEI'S SLUDGE PIT RECLAMATION PLAN  
2-"OCD APPROVAL CONDITIONS"  
3-"PIT CLOSURE FORM"



**WHITE "A" STATE  
SLUDGE PIT RECLAMATION  
SECTION 15-10S-32E  
LEA COUNTY, NEW MEXICO**

1. Haul in 15 loads of cotton spurs, and 1 load of milo stubble, large round bails.
2. Spread out this material about 6" thick covering the pit in 10' square working areas.
3. Haul in 370 yards of cow manure.
4. Spread the manure about 1' thick over the spurs and stubble in the 10' square working areas.
5. With the use of a backhoe, mix the spurs, stubble and manure into the sludge. This should solidify the pit enough to drive the backhoe out onto the pit to keep stirring farther out. May have to use a track hoe for the middle of the pit.
6. Spread Johnson grass seed over pit.
7. Water pit with 1/2" water per week for four months.
8. Have State of New Mexico Conservation Division okay the finished pit closure.

**RECEIVED**

**OCT 20 1995**

**UCC HUBBS  
OFFICE**

WhiteSta.SPR

**OCD APPROVAL CONDITIONS**  
**FOR**  
**RCRA EXEMPT**  
**UNLINED PIT CLOSURES**

1. The following closure actions will be performed in accordance with OCD's February 1993 "SURFACE IMPOUNDMENT CLOSURE GUIDELINES":
  - a. Vertical and horizontal extent of contamination will be determined either prior to, during or upon completion of remedial actions.
  - b. Contaminated soils will be remediated to the OCD's recommended levels or a risk assessment will be provided which shows that an alternate cleanup level is protective of surface water, ground water, human health and the environment.
  - c. Final soil contaminant concentrations will be determined upon completion of remedial actions.
  - d. Soil samples for verification of completion of remedial actions will be sampled and analyzed for benzene, toluene, ethylbenzene, xylene and total petroleum hydrocarbons.
2. All wastes removed from a specific site will be disposed of at an OCD approved facility.
3. The OCD Santa Fe Office's Environmental Bureau Chief and the OCD Hobbs District Office will be notified within 24 hours of the discovery of ground water contamination related to a pit closure.
4. Upon completion of all closure activities, a completed OCD "Pit Remediation and Closure Report" form containing the results of all pit closure and soil remediation activities will be submitted to the OCD for approval. The report will include the concentrations and application rates of any materials or additives used to enhance bioremediation of the contaminants and the final concentrations of any soils landfarmed onsite or the final disposition of soils removed from the site. To simplify the approval process, the OCD requests that the final pit closure reports be submitted only upon completion of all closure activities including onsite remediation or landfarming of contaminated soils.
5. All original documents will be submitted to the OCD Hobbs Office for approval with copies provided to the OCD Santa Fe Office.
6. OCD approval does not relieve you of liability should closure activities determine that contamination exists which is beyond the scope of the work plan or if the closure activities fail to adequately remediate contamination related to your activities. In addition, OCD approval does not relieve you of responsibility for compliance with other federal, state or local laws and regulations.

**Chaparral Energy, Inc.**

(405) 749-9992 FAX (405) 749-9996

10701 N. Broadway Extension • Oklahoma City, OK 73114

June 2, 1995

State of New Mexico  
Environment Department - Air Quality Section  
P.O. Box 26110  
Santa Fe, New Mexico 87501

Attn: Mr. Mike Snyder

Re: Application for an Open-Burning Permit

Gentlemen:

Enclosed is an Application for an Open-Burning Permit. The purpose of the application is to allow Chaparral Energy, Inc. to burn off the contents of a small sludge pit which has been in existence at an oil well site since 1964. Please note that this is a one-time operation after which this pit will be back-filled with dirt. Also, it should be noted that when Chaparral Energy, Inc. assumed operations of the oil lease, this sludge pit was already in existence and Chaparral has not dumped any additional materials into the pit. Chaparral is attempting to restore this pit to comply with New Mexico Oil Conservation Division regulations, and burning off this excess sludge is the only feasible and practical method to initiate restoration of the pit. If you have any additional questions, please call either Mark Fischer or Dan Fischer at (405) 749-9992.

Respectfully,

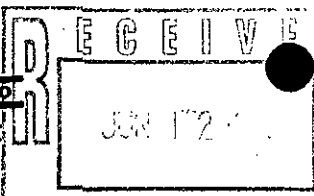


Mark A. Fischer

DWF/db

Enclosure

BPermit.ltr



## APPLICATION FOR AN OPEN-BURNING PERMIT

Name of Applicant OIL CONSERVATION DIVISION  
Chaparral Energy, Inc.Telephone (405) 749-9992Address 10701 N. Broadway Extension, Oklahoma City, OK 73114Date(s) burning requested 6/12/95 through 6/16/95Exact location and direction to site 330' FEL & 660' FNL of Sec. 15-10S-32E, Lea Co., N.M. 16 miles  
West of Tatum, N.M., 6 miles North on west side of blacktop.Type and quantity of material to be burned 155 cu. yards of oilfield pit sludge, low gravity oil and  
paraffin.Method of ignition and how burning will be maintained and controlled Mix small area inside pit containing sludge  
with diesel and start fire. Fire should be self sustained as low gravity oil heats and thins.  
The fire will be contained within the dirt burn walls surrounding the pit.Why is burning necessary? To effectively and cost efficiently eliminate a significant amount of pit  
sludge which will allow further reclamation and restoration of the pit site.List alternatives to burning and reasons why alternatives to burning are not feasible See attached.

I herewith make application to the Environmental Improvement Division for an open-burning permit under the requirements of Air Quality Control Regulation 301, Sub-section F. I agree to meet all conditions set forth by the Environmental Improvement Division.

Signed Mark A. Fischer  
ApplicantDate 6/1/95

This application has been received by the Environmental Improvement Division and is for the following reasons:

☐ APPROVED☒ DENIEDPer AQCR 301 E. 2. + G. 1.

This permit is approved for the following dates: \_\_\_\_\_  
and is subject to the following conditions:

1. All burning must take place during the time period of three hours after sunrise to one hour before sunset.
2. The wind direction at the site of burning must be such that the smoke will generally be carried away from public roads and areas of human habitation.
3. All burning will cease when atmospheric conditions are such that an air stagnation advisory is issued for your area by the U.S. Weather Service.
4. All material to be burned shall be as dry as possible and amount of dirt must be minimized on material being burned.
5. No natural or synthetic rubber products or petroleum products shall be burned.
6. All applicable restrictions, codes and ordinances (e.g., fire codes or ordinances), whether temporary or permanent, of other governmental bodies must be complied with.
7. Other conditions: \_\_\_\_\_

The Division reserves the right to cancel this permit at any time if the public interest so warrants it. If such action occurs, an alternative method of disposal must be used. The holder of this permit is therefore cautioned and charged that he/she, and he/she alone, assumes full responsibility to exercise the utmost care and judgment before setting any fires. The Environmental Improvement Division hereby disclaims any and all liability of itself or it's agents that might be incurred by petitioner's acts.

Signed Michael Schaefer ENV. Scientist  
Name and TitleDist. No. \_\_\_\_\_ Date 6/8/95

**ATTACHMENT TO APPLICATION FOR AN OPEN-BURNING PERMIT**

Alternatives to burning and reasons why alternatives to burning are not feasible:

1. Mix sludge with clean caliche, then load and haul resulting product to an approved waste disposal site.
  - a) Based on conversations with environmental firms, the resulting product is simply stored at an approved site, but is never completely degraded into an environmentally safe substance.
  - b) The estimated cost for this method to fully restore this pit is \$100,000 which makes this an unfeasible option.
2. Mix the sludge with clean caliche, fertilizer and an anaerobic bacteria, then spread the resulting product in a thin layer over open ground. Keep this area wet and periodically turn and re-spread the product which will eventually degrade into an environmentally safe byproduct.
  - a) The large quantity of sludge which has accumulated since 1964, when this pit was initially used as a waste pit, makes this an unfeasible option. It is estimated that approximately six acres of land will be required to spread the resulting product thin enough to biodegrade. The surface owner of the surrounding property is not willing to allow the use of this acreage for this purpose. Also, an adequate supply of water is not available for this large of an area.
  - b) The estimated cost for this method to fully restore this pit is \$40,000 which also makes this an unfeasible option.
3. Hauling the pit sludge to an oil reclaiming facility is not an option because over time, dirt and gravel has become mixed with the sludge which prevents effective processing of the heavy oil. Also, the thickness of the material precludes any method of transporting the material.



**AIR POLLUTION CONTROL  
BUREAU  
OF  
THE NEW MEXICO ENVIRONMENT  
DEPARTMENT**

\*\*\*\*\*

**WE HAVE MOVED**

**OUR NEW ADDRESS IS**

**2048 GALISTEO  
SANTA FE, NEW MEXICO 87505**

**OUR NEW PHONE NUMBERS ARE**

**VOICE NUMBER: (505) 827-1494**

**FAX NUMBER: (505) 827-1523**

**ELECTRONIC BBS: (505) 827-1522**