

DEC 26 2007  
OCD-ARTESIA

Form C- 144  
June 1, 2004

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

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

For drilling and production facilities, submit to appropriate NMOCD District Office.  
For downstream facilities, submit to Santa Fe office

**Pit or Below-Grade Tank Registration or Closure**

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☒

Type of action: Registration of a pit or below-grade tank ☐ Closure of a pit or below-grade tank ☒

2AP-25

Operator: <u>Chevron USA Inc</u> <u>OGREA # 4323</u>				
Address: <u>Box 1949, Eunice, NM 88231</u>	Telephone: <u>(505) 394-1237</u>	e-mail address: <u>BillyAnderson@chevron.com</u>		
Facility or well name: <u>Marquardt Federal #6</u>	# <u>30-015-28561</u>	U/L or Qtr/Qtr <u>E</u> Sec <u>1</u> T <u>25S</u> R <u>26E</u>		
County: <u>Eddy</u>	Latitude <u>N 32 deg 16120'</u>	Longitude <u>W 104 deg 25424'</u> NAD: 1927 <input checked="" type="checkbox"/> 1983 <input type="checkbox"/>		
Surface Owner: Federal <input checked="" type="checkbox"/> State <input type="checkbox"/> Private <input type="checkbox"/> Indian <input type="checkbox"/>				
<table border="1"> <tr> <td> <b>Pit</b>  Type: Drilling <input checked="" type="checkbox"/> Production <input type="checkbox"/> Disposal <input type="checkbox"/>  Workover <input type="checkbox"/> Emergency <input type="checkbox"/>  Lined <input checked="" type="checkbox"/> Unlined <input type="checkbox"/>  Liner type: Synthetic <input checked="" type="checkbox"/> Thickness <u>20</u> mil Clay <input type="checkbox"/>  Pit Volume <u>7000</u> bbl </td> <td> <b>Below-grade tank</b>  Volume: _____ bbl Type of fluid: _____  Construction material: _____  Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not. _____ </td> </tr> </table>			<b>Pit</b> Type: Drilling <input checked="" type="checkbox"/> Production <input type="checkbox"/> Disposal <input type="checkbox"/> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input checked="" type="checkbox"/> Unlined <input type="checkbox"/> Liner type: Synthetic <input checked="" type="checkbox"/> Thickness <u>20</u> mil Clay <input type="checkbox"/> Pit Volume <u>7000</u> bbl	<b>Below-grade tank</b> Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not. _____
<b>Pit</b> Type: Drilling <input checked="" type="checkbox"/> Production <input type="checkbox"/> Disposal <input type="checkbox"/> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input checked="" type="checkbox"/> Unlined <input type="checkbox"/> Liner type: Synthetic <input checked="" type="checkbox"/> Thickness <u>20</u> mil Clay <input type="checkbox"/> Pit Volume <u>7000</u> bbl	<b>Below-grade tank</b> Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not. _____			
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet	(20 points)		
	50 feet or more, but less than 100 feet	(10 points) > 70 Feet		
	100 feet or more	( 0 points)		
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes	(20 points)		
	No	( 0 points)		
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet	(20 points)		
	200 feet or more, but less than 1000 feet	(10 points)		
	1000 feet or more	( 0 points)		
<b>Ranking Score (Total Points)</b>		<b>10</b>		

**If this is a pit closure:** (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☒ offsite ☐ If offsite, name of facility \_\_\_\_\_. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☒ Yes ☐ If yes, show depth below ground surface \_\_\_\_\_ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

**Additional Comments:** One half of the burial pit will be excavated, and samples will be collected below the liner. When laboratory results report chloride concentrations at approximately 2,000 mg/kg, the excavated half of the pit will be lined with a 20 mil plastic liner. At that time, the other half of the pit will be excavated and placed on the plastic. Samples will be collected below the liner, as previously described. When laboratory results report chloride concentrations at approximately 2,000 mg/kg, the excavated contents of the first half of the pit will be placed on the plastic. The entire contents of the pit will be completely encapsulated and capped with a 20 mil liner, and covered with 3 feet of topsoil to grade. The surface will be contoured and re-seeded with BLM #4 mixture. Sample results will be submitted with the final C144 form.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒ a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: December 17, 2007

Printed Name/Title: Billy A. Anderson, HES Specialist

Signature Billy A. Anderson

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:

Printed Name/Title

Signature

Signed By White

Date: JAN 07 2008

SEE ATTACHED  
STIPULATIONS

**Bratcher, Mike, EMNRD**

---

**From:** Bratcher, Mike, EMNRD  
**Sent:** Tuesday, January 08, 2008 12:30 PM  
**To:** 'billyanderson@chevron.com'  
**Cc:** 'Cindy Crain'  
**Subject:** Marquardt Fed 003/Marquardt Fed 006

Mr. Billy Anderson  
Chevron USA Inc.  
PO Box 1949  
Eunice NM 88231

Reference: Marquardt Federal 003 K-12-25s-26e API: 30-015-23137 (OCD Tracking: 2RP-24) Marquardt  
Federal 006 E-1-25s-26e API: 30-015-28561 (OCD Tracking: 2RP-25)

Dear Mr. Anderson,

The New Mexico Oil Conservation Division District 2 Office (OCD) is in receipt of a form C-144, analytical data, and a proposal for excavation and trench burial of closed drilling pit contents at the above referenced sites. The project is part of Bureau of Land Management (BLM) required site reclamation. The well bores at these sites are currently plugged. The OCD lists the responsible party (operator of record) as Chevron USA, Inc. OGRID number, 4323. The proposal was formulated by your agent, Ocotillo Environmental.

The closure proposals are approved as presented with the following stipulations:

- Notify the OCD 48 hours prior to commencement of activities.
- Notify the OCD 48 hours prior to obtaining samples where analyses of samples obtained are to be submitted to OCD.
- Submit a closure report to OCD upon satisfactory completion of project.
- Like approval by BLM.

Please be advised that this approval does not relieve the operator or responsible party of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to ground water, human health or the environment. In addition, this approval does not relieve the operator or responsible party of responsibility for compliance with any other federal, state, local laws and/or regulations.

If I can be of assistance, please contact me.

Sincerely,

*Mike Bratcher*  
NMOCD District II  
Office (575)748-1283x108  
Cell (575)626-0857

1/8/2008

DEC 26 2007

OCD-ARTESIA

Dirt Work • On-Site Remediation • Soil Testing • Excavation

December 17, 2007

Mr. Bob Ballard  
United States Department of the Interior  
Bureau of Land Management  
620 E. Greene St.  
Carlsbad, NM 88220-6292

**Re: Remediation and Reclamation Workplan  
Chevron Marquardt Federal #6  
Unit Letter E, Section 1, T25S, R26E  
Eddy County, New Mexico  
Lat. N 32° 16120', Long. W 104° 25424'**

Dear Mr. Ballard:

Attached please find a Remediation and Reclamation Workplan for the Chevron Marquardt Federal #6 reserve pit. The site is located in Unit Letter E, Section 1, Township 25 South, Range 26 East, Eddy County, New Mexico. Upon approval of the plan by your office, Chevron will begin reclamation activities. This Workplan replaces the Reclamation Workplan dated September 25, 2007.

If you have any questions or need additional information, please do not hesitate to call me at (505) 441-7244 or email me at [Cindy.Crain@gmail.com](mailto:Cindy.Crain@gmail.com).

Sincerely,  
*Ocotillo Environmental, LLC*



Cindy K. Crain, P.G.  
Environmental Manager

cc: Bill Anderson, Chevron  
Mike Bratcher, OCD, Artesia

December 17, 2007

Mr. Bob Ballard  
United States Department of the Interior  
Bureau of Land Management  
620 E. Greene St.  
Carlsbad, NM 88220-6292

**Re: Remediation and Reclamation Workplan  
Marquardt Federal #6  
Unit Letter E, Section 1, T25S, R26E  
Eddy County, New Mexico  
Lat. N 32° 16120', Long. W 104° 25424'**

Dear Mr. Ballard:

Chevron MidContinent Alaska (Chevron) has retained Ocotillo Environmental, LLC (Ocotillo) to conduct soil reclamation activities at the Marquardt Federal #6 old reserve pit location. The abandoned well and pit are located in the southwest quarter (SW/4) of the northwest quarter (NW/4), Section 1, Township 25 South, Range 26 East, Eddy County, New Mexico (Site). A letter from the Bureau of Land Management (BLM) was received by Chevron on July 30, 2007, requesting that soil samples be collected at the site and a reclamation plan be submitted if the samples "came back high greater than 3000 mg/l". On September 25, 2007, a Reclamation Workplan was submitted to the BLM and approved on October 22, 2007. The Workplan was subsequently submitted to the New Mexico Oil Conservation Division (NMOCD) in Artesia, New Mexico, also on October 22, 2007, for approval. Approval of the plan was denied by the NMOCD on December 13, 2007, and a new workplan for the encapsulation of the entire pit contents was requested. The following information is redundant of the September 25, 2007 Reclamation Workplan, and the proposed remediation and reclamation has been changed in order to satisfy the requirements of both the BLM and the NMOCD. Figure 1 shows the site location.

On August 16, 2007, Ocotillo collected soil samples (SS-1 through SS-5) at the site from five (5) locations at a depth of 0 to 6 inches below ground surface (bgs). The soil samples were placed in clean glass sample jars and submitted under chain of custody control to Cardinal Laboratories (Cardinal) of Hobbs, New Mexico for chloride analysis. Figure 2 shows the sample locations and the chloride results. Table 1 reports a summary of the laboratory analyses. Laboratory results and chain of custody documentation are included in Appendix A.

Referring to Table 1, all samples reported chloride concentrations above 3,000 mg/kg, with the exception of sample SS-2 (2,415 mg/kg) located at the northwest corner of the site.

On September 17, 2007, Ocotillo installed four (4) soil borings at the site (BH-1, BH-2, BH-3 and BH-4) using an air rotary drilling rig, in order to determine the vertical extent of chloride impact. The rig was operated by Scarborough Drilling of Lamesa, Texas. All soil borings were drilled to a depth of approximately 22 feet bgs. Soil samples were collected at a depth of five (5) feet bgs and every five (5) feet thereafter, to the total depth of 22 feet bgs.

Mr. Bob Ballard  
Page 2  
December 17, 2007

Samples were placed in clean glass sample jars and submitted to Cardinal for laboratory analysis of chlorides. Figure 2 shows the boring locations. Table 1 reports a summary of the laboratory analyses. Laboratory results and chain of custody documentation are included in Appendix A. Boring logs are included in Appendix B.

Referring to Table 1, the laboratory results reported chloride concentrations less than 3,000 mg/kg in borings BH-3 (2,160 mg/kg) and BH-4 (2,060 mg/kg) at a depth of 5 to 7 feet bgs. Samples from borings BH-1 and BH-2 reported chloride concentrations below 3,000 mg/kg at a depth of 10 to 12 feet bgs (1,090 mg/kg and 176 mg/kg, respectively).

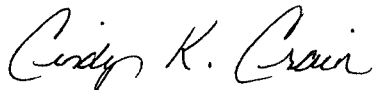
**Proposed Remediation and Reclamation**

As discussed with Mike Bratcher, of the NMOCD in Artesia, depth to groundwater at the Marquardt Federal #3 site has been proven to be greater than 70 feet below ground surface. A soil boring was drilled at the Marquardt Federal #1 located in Section 1, Township 25 South, Range 26 East, to a depth of 70 feet bgs, and allowed to remain open in order to measure a depth to groundwater. Groundwater was never observed in the borehole. The elevation of the Marquardt Federal #1 is 3,288 feet above mean sea level (AMSL) and the elevation of the Marquardt Federal #6 is 3,360 feet AMSL.

Chevron proposes to close the Marquardt Federal #6 reserve pit in accordance with New Mexico State Rule 50. The entire contents of the reserve pit will be excavated and buried in place, encapsulated in a 20 mil plastic liner. Soil samples will be collected below the liner, and the laboratory results will be submitted to the NMOCD with the final C144 form, for closure of the reserve pit. The pit contents will be buried at least three (3) feet below ground surface and covered with clean soil from the pit located immediately north of the Marquardt Federal #3 site. Upon completion of backfilling, the area will be contoured to surface conditions and re-seeded with BLM #4 mixture. The area will be watered periodically to promote re-vegetation of the site. An initial C144 form is included in Appendix C, for approval by the NMOCD.

Chevron plans to begin reclamation activities as soon as approval is granted by both the BLM and the NMOCD. A final report will be submitted to the BLM following reclamation completion, and a final report and C144 form will be submitted to the NMOCD. If you have any questions or need additional information, please call Mr. Bill Anderson at (505) 394-1237 or myself at (505) 441-7244. We may also be reached by email at [billyanderson@chevron.com](mailto:billyanderson@chevron.com) or [Cindy.Crain@gmail.com](mailto:Cindy.Crain@gmail.com).

Sincerely,  
***Ocotillo Environmental, LLC***



Cindy K. Crain, P.G.  
Environmental Manager

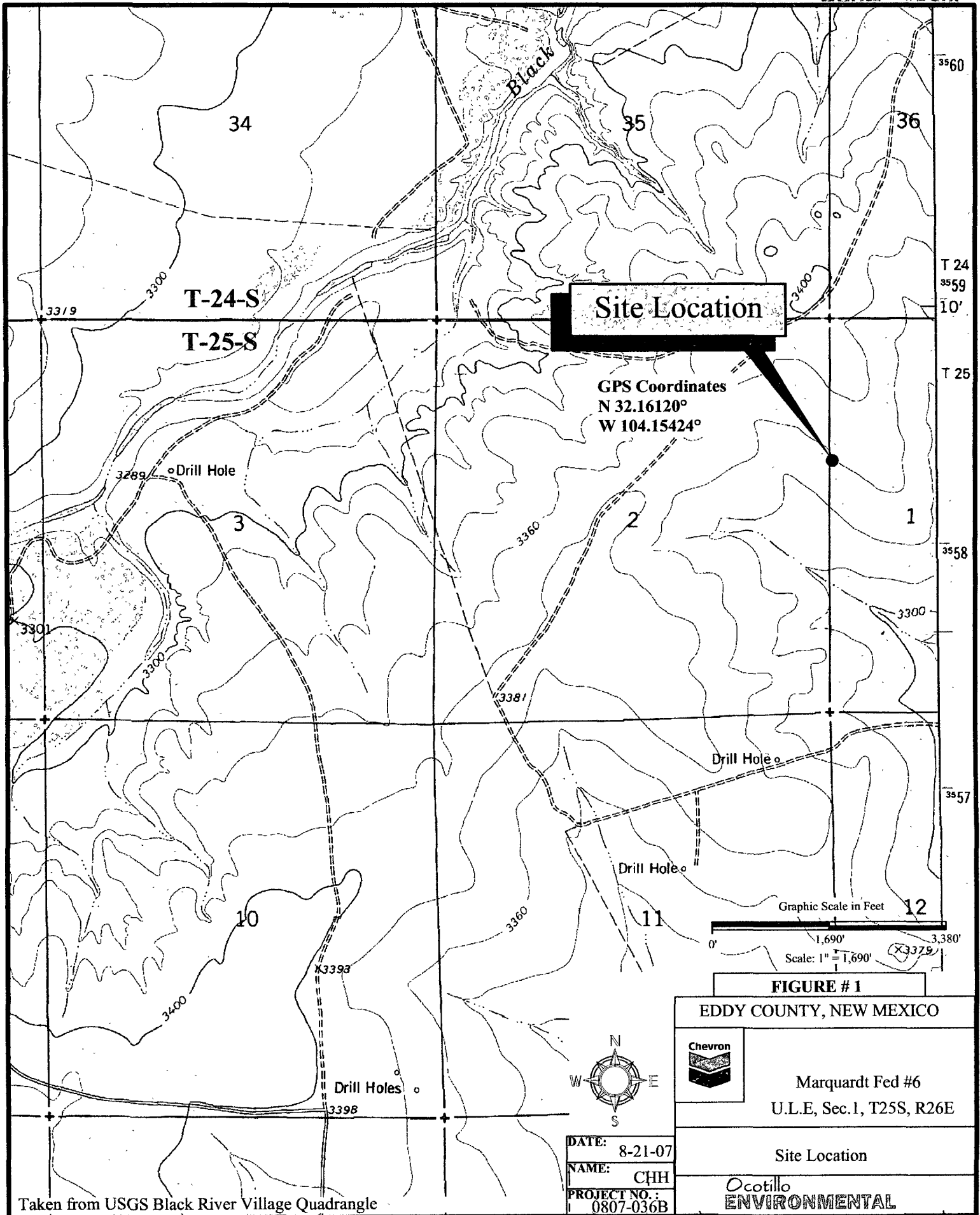
Cc: Bill Anderson, Chevron

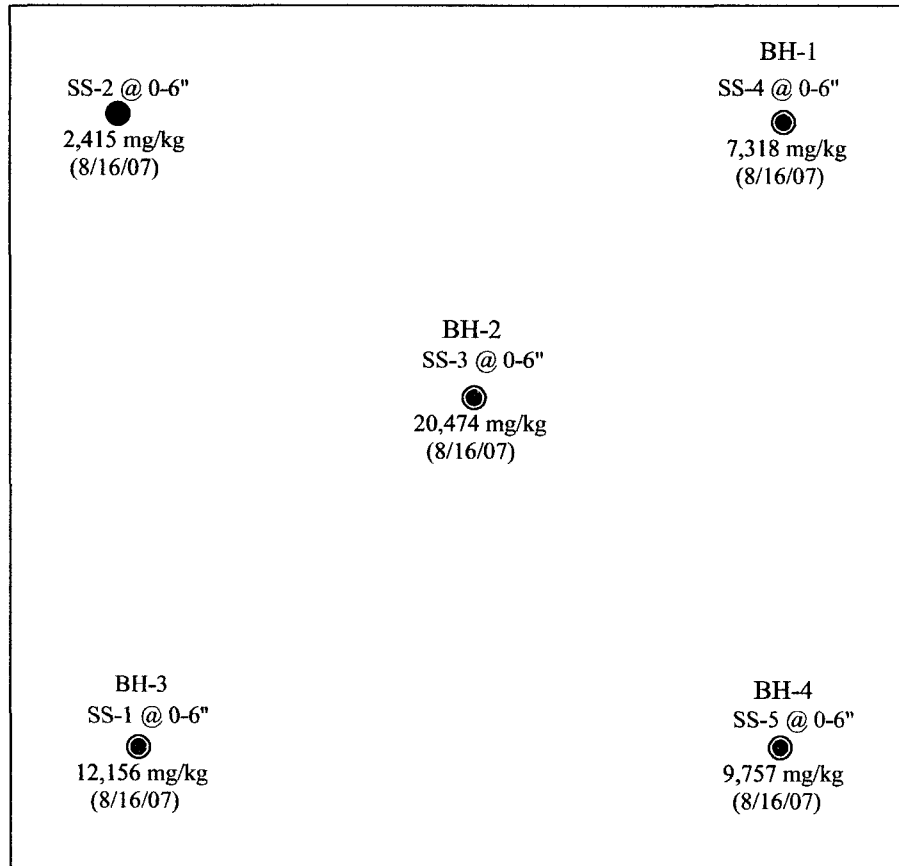
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## FIGURES

DEC 26 2007

OCD-ARIZONA





Sample Location GPS Coordinates		
BH-3	N32.16096°	W104.25450°
SS-2	N32.16136°	W104.25446°
BH-2	N32.16120°	W104.25424°
BH-1	N32.16133°	W104.25397°
BH-4	N32.16090°	W104.25403°

SS-1 @ 0-6"

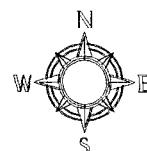
12,156 mg/kg  
(8/16/07)

Surface soil sample location, with depth (inches bgs), chloride concentration (mg/kg) and sample date.

BH-1

Bore hole sample locations drilled 9-17-07.

# LEGEND



DATE: 9-23-07  
NAME: CHH  
PROJECT NO.: 0807-036B

Graphic Scale in Feet  
0' 50' 100'  
Scale: 1" = 50'

## FIGURE # 2

EDDY COUNTY, NEW MEXICO



Marquardt Fed #6  
U.L.E, Sec.1, T25S, R26E

Site Drawing with Boring  
and Sample Locations

Ocotillo  
ENVIRONMENTAL

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## TABLE

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**Table 1:**  
**Summary of Laboratory Analysis of Soil Samples**  
**Chevron MidContinent Alaska, Marquardt Federal #6**  
**Section 12, Township 25 South, Range 26 East**  
**Eddy County, New Mexico**

Sample Date	Soil Sample Number	Sample Depth (feet BGS)	Chloride (mg/kg)
BLM Standard			3,000
8/16/07	SS-1	0-6"	12,156
9/17/07	BH-3	5-7	2,160
9/17/07	BH-3	10-12	768
9/17/07	BH-3	15-17	208
9/17/07	BH-3	20-22	224
8/16/07	SS-2	0-6"	2,415
8/16/07	SS-3	0-6"	20,474
	BH-2	5-7	3,170
	BH-2	10-12	176
	BH-2	15-17	112
	BH-2	20-22	96
8/16/07	SS-4	0-6"	7,318
9/17/07	BH-1	5-7	10,200
9/17/07	BH-1	10-12	1,090
9/17/07	BH-1	15-17	576
9/17/07	BH-1	20-22	176
8/16/07	SS-5	0-6"	9,757
9/17/07	BH-4	5-7	2,060
9/17/07	BH-4	10-12	2,080
9/17/07	BH-4	15-17	192
9/17/07	BH-4	20-22	128

Notes:

1. BGS: Depth in feet below ground surface
2. mg/kg: Milligrams per kilogram

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## **APPENDIX A**

### **Laboratory Data and Chain-of-Custody Documentation**

**PLEASE NOTE: Liability and Damages.** Cardinal, its officers and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other claim, whether arising in writing and requested by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, profits, or goodwill arising from the analyses, or damages arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

(505) 383-2326 FAX (505) 393-2476 (325) 873-7001 FAX (325) 873-7020

e:	Ortilla Environmental	116	BILL T
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### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

† Cardinal cannot accept verbal changes. Please fax written changes to 508-393-2476

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PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

DEC 26 2007  
OCD-ARTESIA

ANALYTICAL RESULTS FOR  
OCOTILLO ENVIRONMENTAL, LLC  
ATTN: CINDY CRAIN  
P.O. BOX 1816  
HOBBS, NM 88241  
FAX TO: (432) 272-0304

Receiving Date: 09/19/07  
Reporting Date: 09/20/07  
Project Number: 0807-036B  
Project Name: MARQUARDT FED #6  
Project Location: EDDY CO., NM

Analysis Date: 09/20/07  
Sampling Date: 09/17/07  
Sample Type: SOIL  
Sample Condition: INTACT  
Sample Received By: HM  
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl <sup>-</sup> (mg/Kg)
H13330-1	BH-1 (5-7')	10,200
H13330-2	BH-1 (10-12')	1,090
H13330-3	BH-1 (15-17')	576
H13330-4	BH-1 (20-22')	176
H13330-5	BH-2 (5-7')	3,170
H13330-6	BH-2 (10-12')	176
H13330-7	BH-2 (15-17')	112
H13330-8	BH-2 (20-22')	96
H13330-9	BH-3 (5-7')	2,160
H13330-10	BH-3 (10-12')	768
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods 4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Kristen Supeto  
Chemist

9/20/07  
Date

H13330 OCO

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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Analysis Date: 09/20/07  
Sampling Date: 09/17/07  
Sample Type: SOIL  
Sample Condition: INTACT  
Sample Received By: HM  
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl <sup>-</sup> (mg/Kg)
H13330-11	BH-3 (15-17')	208
H13330-12	BH-3 (20-22')	224
H13330-13	BH-4 (5-7')	2,060
H13330-14	BH-4 (10-12')	2,080
H13330-15	BH-4 (15-17')	192
H13330-16	BH-4 (20-22')	128
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

4500-CIB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Barbara Neophote  
Chemist

Date 9/20/07

H13330 OCO

**PLEASE NOTE:** Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

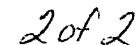
[illegible]

**PLEASE NOTE:** Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <i>Cindy Crain</i>		Date: <i>1/19/07</i>	Received By: <i>Dore S. M...</i>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:
		Time: <i>1040</i>		Fax Result: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:
Relinquished By:		Date:	Received By:	REMARKS:
		Time:		
Delivered By: (Circle One) <i>UPS</i> - UPS - Bus - Other:			Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	CHECKED BY: (Initials) <i>DSM</i>
Fax to (432) 272-0304 email to <i>Cindy.Crain@gmail.com</i>				

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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <i>Cindy Crain</i>		Date: <i>9/19/07</i>	Received By: <i>Dore L. Means</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:
		Time: <i>1:40</i>		Fax Result: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:
Relinquished By:		Date:	Received By:	REMARKS:  <i>Fax to (432) 272-0304</i> <i>email to Cindy.Crain@gmail.com</i>
		Time:		
Delivered By: (Circle One) <i>Sampler</i> • UPS • Bus • Other:			Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) <i>HSM</i>

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

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**APPENDIX B**  
**Soil Boring Logs**

Client: Chevron MidContinent Alaska

Project: Marquardt Federal #6

Project No.: 0807-036B

Location: UL-E, Sec. 1, T25S, R26E, Eddy Co., NM

DEC 26 2007

Log: BH-1

Page: 1 of 1

Geologist: C. Crain

Depth	Symbol	Description	Sample Number	Sample Type	Sample Recovery	Field Chloride ppm		Analytical Data
						500	1500	
0		Ground Surface						
0		<b>Clayey Sand</b> Reddish brown clayey sand, poorly sorted, fine grained, dry						0 - 6" sample collected 8/16/07 Chloride: 7,318 mg/kg
5			1	SS	2		2500	5 - 7' bgs Chloride: 10,200 mg/kg
10		<b>Caliche</b> Pinkish white quartz sand, non-indurated, dry	2	SS	2		1500	10 - 12' bgs Chloride: 1,090 mg/kg
15		<b>Clayey Sand</b> Light brown clayey sand, fine grained, poorly sorted, dry	3	SS	2		1000	15 - 17' bgs Chloride: 576 mg/kg
20			4	SS	2		300	20 - 22' bgs Chloride: 176 mg/kg
25		TD @ 22' bgs						
30								
35								
40								

**Ocotillo Environmental, LLC**

2125 French Drive  
Hobbs, NM 88240  
(505) 393-6371

Drill Method: Air Rotary

Drill Date: 9/17/07

Hole Size: 4"

Elevation: NA

Checked by: CKC

Drilled by: Scarborough Drlg.

Client: Chevron MidContinent Alaska

Project: Marquardt Federal #6

Project No.: 0807-036B

Location: UL-E, Sec. 1, T25S, R26E, Eddy Co., NM

Log: BH-2

Page: 1 of 1

Geologist: C. Crain

Depth	Symbol	Description	Sample Number	Sample Type	Sample Recovery	Field Chloride ppm	Analytical Data
						500 1500	
0		Ground Surface					
0		<b>Clayey Sand</b> Reddish brown clayey sand, poorly sorted, fine grained, dry					0 - 6" sample collected 8/16/07 Chloride: 20,474 mg/kg
5			1	SS	2		5 - 7' bgs Chloride: 3,170 mg/kg
10		<b>Caliche</b> Pinkish white quartz sand, non-indurated, dry	2	SS	2	400	10 - 12' bgs Chloride: 176 mg/kg
15			3	SS	2	250	15 - 17' bgs Chloride: 112 mg/kg
20			4	SS	2	250	20 - 22' bgs Chloride: 96 mg/kg
25		TD @ 22' bgs					
30							
35							
40							

## Ocotillo Environmental, LLC

2125 French Drive  
Hobbs, NM 88240  
(505) 393-6371

Drill Method: Air Rotary

Drill Date: 9/17/07

Hole Size: 4"

Elevation: NA

Checked by: CKC

Drilled by: Scarborough Drlg.

DEC 26 2007

OCD-ARTESIA

Client: Chevron MidContinent Alaska

Log: BH-3

Project: Marquardt Federal #6

Page: 1 of 1

Project No.: 0807-036B

Geologist: C. Crain

Location: UL-E, Sec. 1, T25S, R26E, Eddy Co., NM

Depth	Symbol	Description	Sample Number	Sample Type	Sample Recovery	Field Chloride ppm	Analytical Data
						500 1500	
0		Ground Surface					
0		<b>Clayey Sand</b> Reddish brown clayey sand, poorly sorted, fine grained, dry					0 - 6" sample collected 8/16/07 Chloride: 12,156 mg/kg
5			1	SS	2	2000	5 - 7' bgs Chloride: 2,160 mg/kg
10		<b>Caliche</b> Pinkish white quartz sand, non-indurated, dry	2	SS	2	500	10 - 12' bgs Chloride: 768 mg/kg
15		Damp at 17'					
15		Dry at 20'	3	SS	2	400	15 - 17' bgs Chloride: 208 mg/kg
20			4	SS	2	500	20 - 22' bgs Chloride: 224 mg/kg
25		TD @ 22' bgs					
30							
35							
40							

## Ocotillo Environmental, LLC

2125 French Drive  
Hobbs, NM 88240  
(505) 393-6371

Drill Method: Air Rotary

Elevation: NA

Drill Date: 9/17/07

Checked by: CKC

Hole Size: 4"

Drilled by: Scarborough Drlg.

DEC 26 2007

OCD-ARTESIA

Client: Chevron MidContinent Alaska

Project: Marquardt Federal #6

Project No.: 0807-036B

Location: UL-E, Sec. 1, T25S, R26E, Eddy Co., NM

Log: BH-4

Page: 1 of 1

Geologist: C. Crain

Depth	Symbol	Description	Sample Number	Sample Type	Sample Recovery	Field Chloride ppm 500 1500	Analytical Data
0		Ground Surface					
0		<b>Clayey Sand</b> Reddish brown clayey sand, poorly sorted, fine grained, dry					0 - 6" sample collected 8/16/07 Chloride: 9,757 mg/kg
5			1	SS	2	1500	5 - 7' bgs Chloride: 2,060 mg/kg
10		<b>Caliche</b> Pinkish white quartz sand, non-indurated, dry	2	SS	2	800	10 - 12' bgs Chloride: 2,080 mg/kg
15			3	SS	2	300	15 - 17' bgs Chloride: 192 mg/kg
20			4	SS	2	300	20 - 22' bgs Chloride: 128 mg/kg
25		TD @ 22' bgs					
30							
35							
40							

## Ocotillo Environmental, LLC

2125 French Drive  
Hobbs, NM 88240  
(505) 393-6371

Drill Method: Air Rotary

Drill Date: 9/17/07

Hole Size: 4"

Elevation: NA

Checked by: CKC

Drilled by: Scarborough Drlg.

## **APPENDIX C**

### **Initial C144 Form**