

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

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C- 144  
June 1, 2004

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 ☒

Operator: Chevron MidContinent Alaska Telephone: (505) 394-1237 e-mail address: BillyAnderson@chevron.com  
Address: Box 1949, Eunice, NM 88231 30-015-23137  
Facility or well name: Marquardt Federal #3 #: 30-015-23137-4222224 U/L or Qtr/Qtr K Sec 12 T 25S R 26E  
County: Eddy Latitude N 32 deg 08.526' Longitude W 104 deg 14.974' NAD: 1927 ☒ 1983 ☐  
Surface Owner: Federal ☒ State ☐ Private ☐ Indian ☐

Pit	Below-grade tank	
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	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)
Ranking Score (Total Points)		10

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: The burial pit was excavated until a rock layer was encountered and excavation could not continue with a trackhoe. Samples were collected and submitted to a laboratory for chloride analyses. The bottom of the excavation was covered with a double-4 oz. felt liner. A 20 mil plastic liner was placed above the felt liner, and all stockpiled soil was encapsulated within the 20 mil liner, to a depth of 3' bgs. Clean soil was placed above the encapsulated material, from a depth of 3' bgs to surface. The surface soil was contoured to grade and re-seeded with BLM #4 seed mixture. A Remediation and Reclamation Report is submitted with this final C144, that provides all analytical documentation.

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: June 5, 2008

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:

Accepted for record  
NMOCD

Printed Name/Title \_\_\_\_\_

Signature \_\_\_\_\_

Signed By Mike Brannan

Date: JUN 16 2008

Final Closure

JUN 10 2008

OCD-ARTESIA

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

June 9, 2008

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

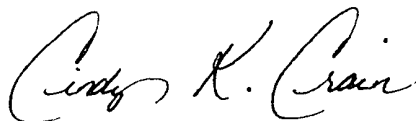
**RE: Remediation and Reclamation Reports  
Chevron MidContinent Alaska  
Marquardt Federal #3  
Marquardt Federal #6  
Eddy County, New Mexico**

Dear Mr. Ballard:

Attached please find the Remediation and Reclamation Reports for the Chevron MidContinent Alaska, Marquardt Federal #3 and Marquardt Federal #6 sites. The sites have been reclaimed to BLM standards and these final reports are also being submitted to the New Mexico Oil Conservation Division for approval of the pit closures.

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*



Cindy K. Crain, P.G.  
Environmental Manager

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

June 9, 2008

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 Report  
Marquardt Federal #3  
Unit Letter K, Section 12, T25S, R26E  
Eddy County, New Mexico  
Lat. N 32° 08.526', Long. W 104° 14.974'  
(2RP # 24)**

Dear Mr. Ballard:

Chevron MidContinent Alaska (Chevron) has retained Ocotillo Environmental, LLC (Ocotillo) to conduct soil reclamation activities at the Marquardt Federal #3 old reserve pit location. The abandoned well and pit are located in the northeast quarter (NE/4) of the southwest quarter (SW/4), Section 12, 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 16, 2007, requesting that soil samples be collected at the site and a reclamation plan 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. A Remediation and Reclamation Workplan, proposing encapsulation of the pit contents, was submitted to the BLM and the NMOCD on December 17, 2007, and approved by both agencies. Figure 1 shows the site location.

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 below ground surface (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 #3 is 3,305 feet AMSL.

#### **Remediation and Reclamation Activities**

On February 25, 2008, excavation of the pit contents was initiated at the Marquardt Federal #3 site. As the exact location of the pit was unknown, excavation began at the borehole locations BH-1 and BH-2, shown on Figure 2. Table 1 provides a summary of the chloride concentrations reported from soil samples collected at the surface and from soil borings installed during the initial investigation.

Excavation continued to the north, south, and west until blue plastic, marking the pit boundaries, was no longer evident. During the course of excavation, the lease road was re-routed along the north and west side of the pit area. Field chloride testing was conducted periodically in order to determine the necessary depth of excavation.

On March 11, 2008, soil samples (SS-1 through SS-9) were collected below the liner, at a depth of four (4) feet bgs at the west side of the pit (SS-6 and SS-7), sloping to a depth of nine (9) feet bgs to the east side of the excavated area (SS-1 and SS-2). Samples were collected in the center of the excavation at depths ranging from four (4) feet bgs (SS-4) to eight (8) feet bgs (SS-8). All soil samples were placed in clean glass sample jars and delivered under chain-of-custody control to Cardinal Laboratories (Cardinal), located in Hobbs, New Mexico, for chloride analysis. Figure 3 shows the sample locations. Table 2 provides a summary of the laboratory results. Appendix A provides laboratory documentation.

Referring to Table 2, samples collected from the southeast corner (SS-1), the west side (SS-6 and SS-7), and the south center (SS-8), reported chloride concentrations below 2,000 mg/kg.

In order to collect deeper samples with lower chloride concentrations, attempts were made to excavate the central and northeastern areas to greater depths. At a depth of approximately eight and a half (8.5) feet bgs, a compacted limestone layer was encountered, and further excavation with the trackhoe was not possible. Excavation continued toward the east until blue plastic, marking the eastern boundary of the pit, was no longer evident. A trackhoe and hammerhoe were used to excavate the center and eastern sides of the area to a total depth of approximately nine (9) feet bgs.

On March 19, 2008, soil samples (SS-10 through SS-13) were collected from the center and east sides of the excavated area at a depth of approximately nine (9) feet bgs. The samples were placed in clean glass sample jars and submitted to Cardinal for chloride analysis. Figure 3 shows the sample locations. Table 2 provides a summary of the laboratory results. Appendix A provides laboratory documentation.

Referring to Table 2, soil samples SS-10 through SS-13, reported chloride concentrations above 2,000 mg/kg. On March 24, 2008, I spoke with Mike Bratcher (NMOCD, Artesia) and reported the rock conditions and analytical data that we had received from the soil samples. Mr. Bratcher said that, given the nature of the rock conditions, closure would be approved.

Upon speaking with Mr. Bratcher, the entire pit area (160' x 160') was excavated to a depth of approximately nine (9) feet bgs, and a double, 4 ounce felt liner was installed at the bottom of the excavation on April 8, 2008. Following installation of the felt liner, the entire pit was lined with 20 mil plastic, allowing enough overhang to encapsulate all excavated soil. Stockpiled soil was placed back in the excavation, to a depth of approximately three (3) feet bgs, and completely encapsulated with 20 mil plastic. Soil removed from the west side of the excavation (from a depth of 4' bgs to 9' bgs) was used to backfill the remainder of the area, from a depth of three (3) feet bgs to surface. The surface was contoured to native conditions, and the

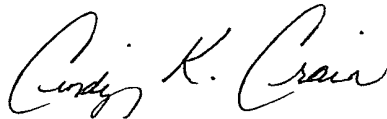
Mr. Bob Ballard  
Page 3  
June 9, 2008

entire area was re-seeded with BLM #4 mixture On May 15, 2008. The area will be watered periodically to promote re-vegetation of the site.

As all requirements of both the BLM and the NMOCD regarding closure and reclamation of the Marquardt Federal #3 site have been met, Chevron respectfully requests that closure of the site be granted by each agency. A final C144 form is included in Appendix B for approval by the NMOCD.

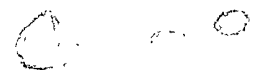
If you have any questions or need additional information, please call Mr. Bill Anderson at (505) 394-1237 or myself at (505) 441-7244. We may also be reached by email at [billyanderson@chevron.com](mailto:billyanderson@chevron.com) or [Cindy.Crain@gmail.com](mailto:Cindy.Crain@gmail.com).

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

A handwritten signature in cursive script, reading "Cindy K. Crain".

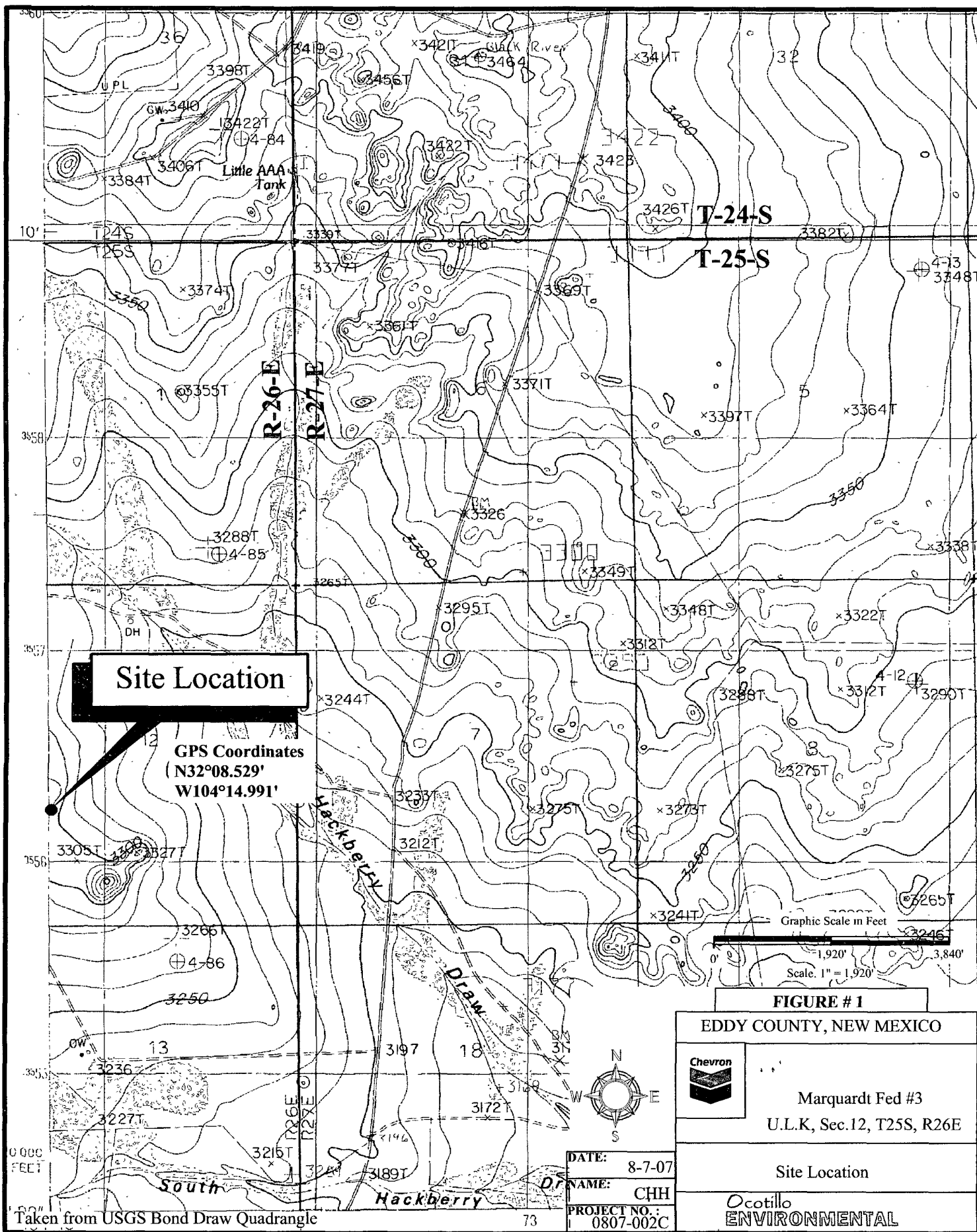
Cindy K. Crain, P.G.  
Environmental Manager

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

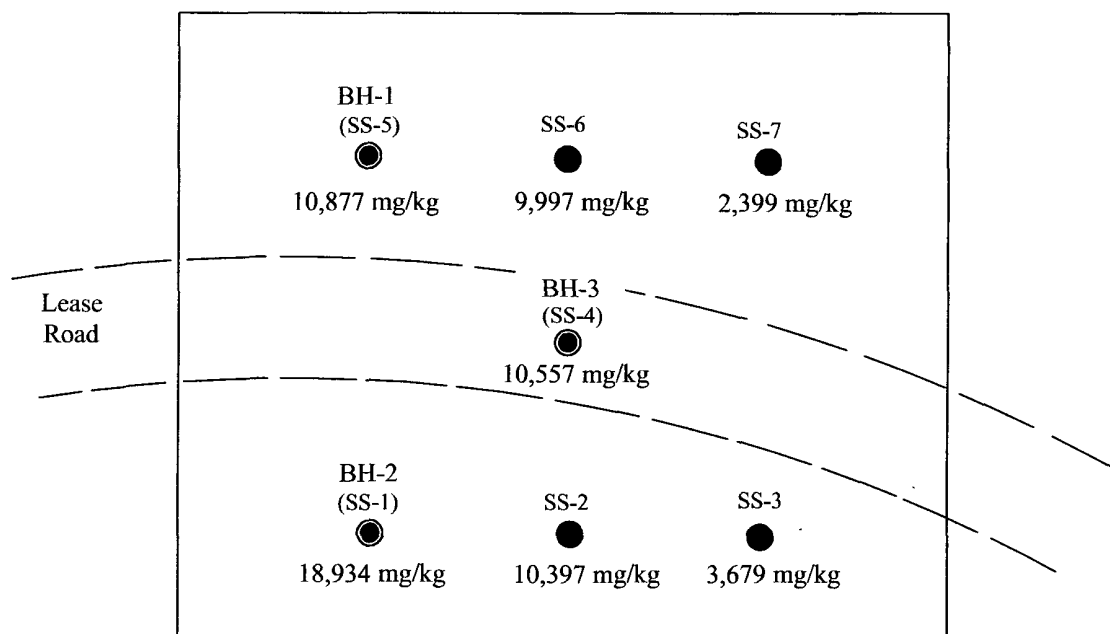
A handwritten mark consisting of a large 'C' followed by a smaller 'O' and a dot, possibly initials.

## FIGURES

0.00



SS-8 ●  
48 mg/kg

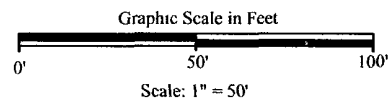


**Sample Location GPS Coordinates**

BH-2	N32°08.515'	W104°14.990'
SS-2	N32°08.523'	W104°14.984'
SS-3	N32°08.526'	W104°14.974'
BH-3	N32°08.529'	W104°14.991'
BH-1	N32°08.529'	W104°15.002'
SS-6	N32°08.537'	W104°14.996'
SS-7	N32°08.543'	W104°14.990'
SS-8	N32°08.557'	W104°15.023'

**LEGEND**

- SS-1 ● Surface soil sample location, taken on 7-31-07 with chloride concentration (mg/kg).  
18,934 mg/kg
- BH-1 ● Bore hole sample location, taken on 9-17-07.



**FIGURE # 2**

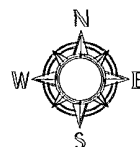
EDDY COUNTY, NEW MEXICO



Marquardt Fed #3  
U.L.K, Sec.12, T25S, R26E

Site Drawing with Boring  
and Sample Locations

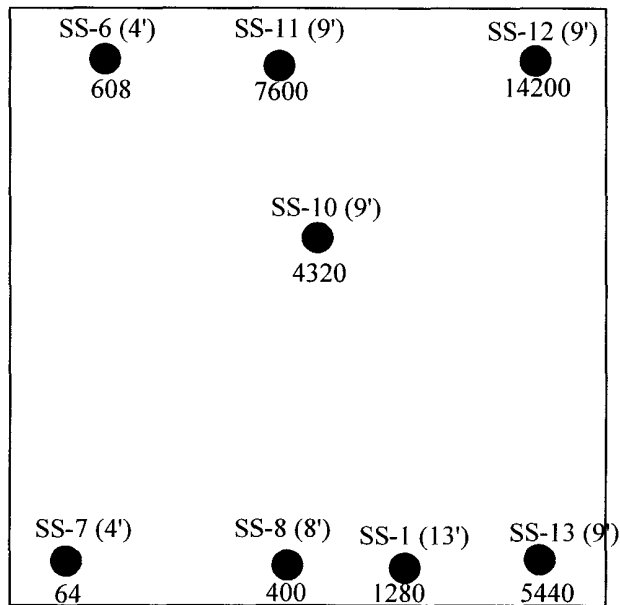
Ocotillo  
ENVIRONMENTAL



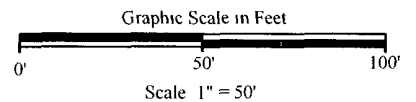
DATE: 9-23-07  
NAME: CHH  
PROJECT NO.: 0807-002C



Lease  
Road



SS-1	N 32.14207° W 104.24973°
SS-6	N 32.14213° W 104.25017°
SS-7	N 32.14188° W 104.25002°
SS-8	N 32.14198° W 104.24995°
SS-10	N 32.14215° W 104.24992°
SS-11	N 32.14219° W 104.25010°
SS-12	N 32.14232° W 104.24998°
SS-13	N 32.14208° W 104.24976°



**FIGURE #3**

Eddy County, New Mexico



Chevron Marquardt  
Federal #3

U.L.K, Sec.12, T25S, R26E

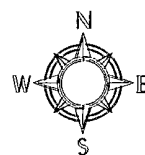
Site Drawing With Soil Sample  
Locations in Excavated Area

Ocotillo  
ENVIRONMENTAL

## Legend

SS-6 (4') Soil Sample Location With  
Depth (feet bgs) and Chloride  
Concentration (mg/kg)

● 608



DATE: 5-18-08  
NAME: MAC  
PROJECT NO.: 0807-002C

## TABLES

**Table 1:**  
**Summary of Laboratory Analysis of Soil Samples from Soil Borings and Surface**  
**Chevron MidContinent Alaska, Marquardt Federal #3**  
**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
7/31/07	SS-1	0-6"	18,934
9/17/07	BH-2	5-7	3,490
9/17/07	BH-2	10-12	1,120
9/17/07	BH-2	15-17	688
9/17/07	BH-2	20-22	144
7/31/07	SS-2	0-6"	10,397
7/31/07	SS-3	0-6"	3,679
7/31/07	SS-4	0-6"	10,557
9/17/07	BH-3	5-7	4,560
9/17/07	BH-3	10-12	5,680
9/17/07	BH-3	15-17	1,340
9/17/07	BH-3	20-22	2,370
9/17/07	BH-3	25-27	352
7/31/07	SS-5	0-6"	10,877
9/17/07	BH-1	5-7	8,800
9/17/07	BH-1	10-12	3,520
9/17/07	BH-1	15-17	1,710
9/17/07	BH-1	20-22	1,010
7/31/07	SS-6	0-6"	9,997
7/31/07	SS-7	0-6"	2,399
7/31/07	SS-8	0-6"	48

Notes:

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

**Table 2:**  
**Summary of Laboratory Analysis of Soil Samples from Excavation**  
**Chevron MidContinent Alaska, Marquardt Federal #3**  
**Section 12, Township 25 South, Range 26 East**  
**Eddy County, New Mexico**

Sample Date	Soil Sample Number	Sample Depth (feet BGS)	Sample Location	Chloride (mg/kg)	Soil Status
3/11/08	SS-1	9	South	1,280	<i>in situ</i>
3/11/08	SS-2	9	North	3,840	<i>in situ</i>
3/11/08	SS-3	7	Center	8,400	excavated
3/19/08	SS-10	9	Center	4,320	<i>in situ</i>
3/11/08	SS-4	4	North	7,440	excavated
3/11/08	SS-9	7	North	5,760	excavated
3/19/08	SS-11	9	North	7,600	<i>in situ</i>
3/11/08	SS-5	6	South	3,120	excavated
3/11/08	SS-8	8	South	400	excavated
3/11/08	SS-6	4	West	608	excavated *
3/11/08	SS-7	4	West	64	excavated *
3/19/08	SS-12	9	East	14,200	<i>in situ</i>
3/19/08	SS-13	9	East	5,440	<i>in situ</i>

Notes:

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

\* Soil excavated from a depth of 4' to 9' bgs was used as backfill from 3' bgs to surface

## **APPENDIX A**

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



# ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

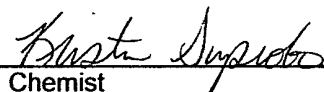
Receiving Date: 03/12/08  
Reporting Date: 03/13/08  
Project Owner: CHEVRON  
Project Name: MARQUARDT FED #3  
Project Location: EDDY CO., NM

Analysis Date: 03/12/08  
Sampling Date: 03/11/08  
Sample Type: SOIL  
Sample Condition: INTACT  
Sample Received By: ML  
Analyzed By: KS

LAB NO.	SAMPLE ID	Cl <sup>-</sup> (mg/kg)
H14434-1	SS-1	1,280
H14434-2	SS-2	3,840
H14434-3	SS-3	8,400
H14434-4	SS-4	7,440
H14434-5	SS-5	3,120
H14434-6	SS-6	608
H14434-7	SS-7	64
H14434-8	SS-8	400
H14434-9	SS-9	5,760
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods	4500-Cl <sup>-</sup> B
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Note: Analyses performed on 1:4 w:v aqueous extracts.

  
Chemist

03/13/08  
Date

H14434 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. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



# CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240  
(505) 393-2326 Fax (505) 393-2476

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page \_\_\_\_ of \_\_\_\_

Company Name: <u>Deetillo Environmental</u>				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>															
Project Manager: <u>Lindy Crain</u>				P.O. #:																			
Address: <u>PO Box 1816</u>				Company: <u>Deetillo</u>																			
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>				Attn:																			
Phone #: <u>(505) 441-7244</u> Fax #: <u>(432) 272-0304</u>				Address: <u>Same</u>																			
Project #: _____ Project Owner: <u>Chevron</u>				City:																			
Project Name: <u>Marquardt Fed # 3</u>				State: _____ Zip: _____																			
Project Location: <u>Cdph, Co, NM</u>				Phone #:																			
Sampler Name: <u>Lindy Crain</u>				Fax #:																			
FOR LAB USE ONLY						MATRIX		PRESERV.		SAMPLING													
Lab I.D.		Sample I.D.		(GIRAB OR (C)OMP. # CONTAINERS		GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER :		ACID/BASE: ICE / COOL OTHER :		DATE TIME													
H14434-1		SS-1		6						3/11/08 1309		✓											
-2		SS-2		6						" 1312		✓											
-3		SS-3		6						" 1315		✓											
-4		SS-4		6						" 1320		✓											
-5		SS-5		6						" 1324		✓											
-6		SS-6		6						" 1340		✓											
-7		SS-7		6						" 1350		✓											
-8		SS-8		6						" 1358		✓											
-9		SS-9		6						" 1403		✓											

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

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: <u>Lindy Crain</u>		Date: <u>3/12/08</u>		Received By: <u>Misty LeBut</u>		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Phone #:	
Relinquished By: _____		Time: <u>1113</u>		Received By: _____		Fax Result: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Delivered By: (Circle One) <u>Sampler</u> - UPS - Bus - Other:		Date: _____		Temp. _____		Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials) <u>MCB</u>	
		Time: _____				REMARKS: <u>Fax to (432) 272-0304</u>			

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



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

Analysis Date: 03/20/08  
Sampling Date: 03/19/08  
Sample Type: SOIL  
Sample Condition: INTACT  
Sample Received By: ML  
Analyzed By: HM

METHOD: Standard Methods	4500-CfB
--------------------------	----------

Lee J. Mirone  
Chemist

02-41-08  
Date

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**APPENDIX B**

**FINAL C144 FORM**