

CLOSURE REPORT

LOVINGTON PADDOCK #33

NMOCD 1RP#1225

COMPANY # 4323

EPI-REF: 200059

UL-I (NE $\frac{1}{4}$ OF THE SE $\frac{1}{4}$) OF SECTION 36 T16S R36E

~5.8 MILES SOUTHEAST OF LOVINGTON

LEA COUNTY, NEW MEXICO

LATITUDE: N 32° 52' 33.37"

LONGITUDE: W 103° 18' 02.44"

MARCH 2007

PREPARED BY:

ENVIRONMENTAL PLUS, INC.

2100 AVENUE O

EUNICE, NEW MEXICO 88231

PREPARED FOR:

Chevron





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1.0 PROJECT SYNOPSIS

Site Specific:

- ◆ **Company Name:** Chevron USA, Inc.
- ◆ **Facility Name:** Lovington Paddock #33
- ◆ **Project Reference:** 200059
- ◆ **Company Contacts:** Larry Williams
- ◆ **Site Location:** WGS84 N32° 52' 33.37"; W103° 18' 02.44"
- ◆ **Legal Description:** Unit Letter-I (NE¼ of the SE¼), Section 36, T16S, R36E
- ◆ **General Description:** Approximately 5.8-miles southeast of Lovington, New Mexico
- ◆ **Elevation:** 3,824-ft amsl
- ◆ **Land Ownership:** City of Lovington
- ◆ **EPI Personnel:** Project Consultant –Jason Stegemoller

Release Specific:

- ◆ **Product Released:** Produced water
- ◆ **Volume Released:** Unknown **Volume Recovered:** Unknown
- ◆ **Time of Occurrence:** Unknown **Time of Discovery:** November 28, 2005
- ◆ **Release Source:** Corrosion of a flowline
- ◆ **Initial Surface Area Affected:** ~ 16,300 square feet

Remediation Specific:

- ◆ **Final Vertical extent of contamination:** Chloride impacted soil exists to 10-feet bgs near the point of release.
- ◆ **Depth to Ground Water:** Approximately 64-ft bgs
- ◆ **Water wells within 1,000-ft:** None
- ◆ **Private domestic water sources within 200-ft:** None
- ◆ **Surface water bodies within 1,000-ft:** None
- ◆ **NMOCD Site Ranking Index:** 10 points
- ◆ **Remedial goals for Soil:** TPH – 1,000 mg/Kg; BTEX – 50 mg/Kg; Benzene – 10 mg/Kg; Chloride residuals may not be capable of impacting groundwater above NMWQCC groundwater standards of 250 mg/L.
- ◆ **RCRA Waste Classification:** Exempt
- ◆ **Remediation Option Selected:** a) Impacted soil from the release area was excavated and disposed off site by another contractor; b) backfilled excavation with clean topsoil and caliche; c) graded and contoured site area to allow natural drainage; d) disturbed area will be seeded with a blend preferred by the property owner.
- ◆ **Disposal Facility:** Unknown
- ◆ **Volume disposed:** Unknown
- ◆ **Project Completion Date:** March 9, 2006



2.0 SITE AND RELEASE INFORMATION

- 2.1 **Describe the land use and pertinent geographic features within 1,000 feet of the site.**
Land surrounding the area is rangeland and utilized for livestock grazing as well as oilfield operations.
- 2.2 **Identify and describe the source or suspected source(s) of the release.**
Corrosion of a flowline.
- 2.3 **What is the volume of the release? (if known):** unknown **barrels of:** Produced water
- 2.4 **What is the volume recovered? (if any):** none **barrels**
- 2.5 **When did the release occur? (if known):** November 28, 2005
- 2.6 **Geological Description**
The United States Geological Survey (USGS) Ground-Water Report 6, "Geology and Ground-water Conditions in Southern Lea County, New Mexico," A. Nicholson and A. Clebsch, 1961, describes the near surface geology of southern Lea County as "an intergrade of the Quaternary Alluvium (QA) sediments, i.e., fine to medium sand, with the mostly eroded Cenozoic Ogallala (CO) formation. Typically, the QA and CO formations in the area are capped by a thick interbed of caliche that was encountered between 5' and 10' bgs."
- 2.7 **Ecological Description**
The area is typical of the Upper Chihuahuan Desert Biome consisting primarily of sandy soil covered with short semi-arid grasses, interspersed with Honey Mesquite and forbs. Mammals represented include Orrd's and Merriam's Kangaroo Rats, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Mule Deer, Bobcat, Red Fox and Coyote. Reptiles, amphibians and birds are numerous and typical of the area. A survey of Listed, Threatened or Endangered species was not conducted.
- 2.8 **Area Groundwater**
The unconfined groundwater aquifer at this site is projected to be ~64 feet (ft) bgs based on water depth data obtained from the New Mexico State Engineers Office and United States Geological Survey data base (reference *Table 1*).
- 2.9 **Area Water Wells**
No area water wells exist within a 1,000-foot radius of the site (reference *Table 1* and *Figure 2*).
- 2.10 **Area Surface Water Features**
No surface water features exist within a 1,000-foot radius of the site (reference *Figure 2*).



3.0 NMOCD SITE RANKING

Contaminant delineation and remedial work done at this site indicate chemical parameters of the soil and physical parameters of the groundwater were characterized consistent with the characterization and remediation/abatement goals and objectives set forth in the following New Mexico Oil Conservation Division (NMOCD) publications:

- ◆ *Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)*
- ◆ *Unlined Surface Impoundment Closure Guidelines (February, 1993)*
- ◆ *Pit and Below-Grade Tank Guidelines (November, 2004)*

Acceptable thresholds for contaminants/constituents of concern (CoC) were determined based on the NMOCD Ranking Criteria as follows:

- ◆ *Depth to Groundwater (i.e., distance from the lower most acceptable concentration to groundwater);*
- ◆ *Wellhead Protection Area (i.e., distance from fresh water supply wells);*
- ◆ *Distance to Surface Water Body (i.e., horizontal distance to all down gradient surface water bodies).*

Based on the proximity of the site to protectable area water wells, surface water bodies, and depth to groundwater from the lower most contamination, the NMOCD ranking score for the site is ten (10) points with the soil remedial goals highlighted in the Site Ranking table presented below:

1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water	
Depth to GW <50 feet: 20 points	If <1,000' from water source, or; <200' from private domestic water source: 20 points	<200 horizontal feet: 20 points	
Depth to GW 50 to 99 feet: 10 points		200-1,000 horizontal feet: 10 points	
Depth to GW >100 feet: 0 points	If >1,000' from water source, or; >200' from private domestic water source: 0 points	>1,000 horizontal feet: 0 points	
Site Rank (1+2+3) = 10 + 0 + 0 = 10 points			
Total Site Ranking Score and Acceptable Remedial Goal Concentrations			
Ranking Score	20 or >	10	0
Benzene¹	10 ppm	10 ppm	10 ppm
BTEX¹	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1,000 ppm	5,000 ppm

¹ A field soil vapor headspace measurement of 100 ppm can be substituted in lieu of laboratory analyses for benzene and BTEX.



4.0 EXCAVATED SOIL INFORMATION

4.1 Was soil excavated for off-site treatment or disposal? **Yes** **No**

Date excavated: Unknown

Total volume removed: Unknown

4.2 Indicated soil treatment type:

<input type="checkbox"/>	<i>Disposal</i>
<input type="checkbox"/>	<i>Land Treatment</i>
<input type="checkbox"/>	<i>Composting/Biopiling</i>
<input checked="" type="checkbox"/>	<i>Other (Unknown)</i>

Name and location of treatment/disposal facility:

Unknown



5.0 **SAMPLING INFORMATION**

5.1 ***Briefly describe the field screening methods used to distinguish contaminated from uncontaminated soil.***

Organic Vapor Concentrations – A portion of each soil boring soil sample was inserted into a polyethylene bag to allow volatilization of organic vapors. After allowed to equilibrate to ~70° F, the soil sample was analyzed for organic vapor concentrations utilizing to a MiniRae® Photo-ionization Detector (PID) equipped with a 10.6 electron volt (eV) lamp and calibrated for benzene response.

Chloride Concentrations – A La Motte Chloride Test Kit (titration method) was utilized for field chloride concentration analyses.

5.2 ***Briefly describe the soil analytical sampling and handling procedures used.***

Core soil samples from the soil borings were collected utilizing a trailer mounted auger.

Upon collection of each sample, a portion was immediately placed in a laboratory provided container, labeled and set on ice for transport to an independent laboratory for quantification of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and total xylenes (BTEX constituents), chloride and sulfate concentrations.

5.3 ***Discuss sample locations and provide rationale for their locations.***

On November 30, 2005, two (2) soil borings (SB-1 and SB-2) were advanced throughout the release area to approximately 15-ft bgs to delineate the vertical extent of impacted soil. Soil samples were collected initially at 2-foot bgs, 5-foot bgs and then at 5-foot intervals thereafter to TD of each respective soil boring. The soil boring locations were chosen to provide the best representative examples of soil throughout the release area (reference *Figure 4*).



6.0 ANALYTICAL RESULTS

6.1 *Describe the vertical and horizontal extent and magnitude of soil contamination.*

Laboratory analyses of the soil samples collected from SB-1 and SB-2 indicated benzene, BTEX and TPH concentrations were ND at or above laboratory MDL. Chloride concentrations ranged from 16 mg/Kg (SB-1 @ 15-foot bgs) to 816 mg/Kg (SB-1 @ 2-foot bgs) (reference *Table 2* and *Figure 4*).

6.2 *Is surface soil contamination present at the site (i.e., soil in the uppermost two feet that is visibly stained, contaminated at greater than 10 ppm (PID) or hydrocarbon saturated)?*

yes *no*

If yes, attach a site map identifying extent(s) of surface soil contamination.



7.0 **DISCUSSION**

7.1 *Discuss the risks associated with the remaining soil contamination:*

Soil impacted above NMOCD remedial thresholds remain in situ at a depth of ~10 feet bgs. Benzene, TPH and BTEX constituent concentrations were ND at or above laboratory MDL. Laboratory analytical results indicated chloride impacted soil exists above the groundwater vadose zone. However, as chloride concentrations diminish with depth of soil and depth to groundwater is approximately sixty-four (64) feet bgs, contaminants remaining in situ may not be capable of impacting groundwater above NMWQCC groundwater standards of 250 mg/L.

7.2 *Discuss the risks associated with the impacted groundwater:*

Groundwater is not impacted.

7.3 *Discuss other concerns not mentioned above:* Not applicable



8.0 CONCLUSIONS AND RECOMMENDATIONS

- 8.1 *Recommendation for the site:*
- Site Closure*
 - Additional Groundwater Monitoring*
 - Corrective Action*

- 8.2 *Base the recommendation above on Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993). Describe below how you applied the policy to support your recommendation. If closure is recommended, please summarize significant site investigative events and describe how site specific risk issues have been adequately addressed or minimized to acceptable low risk levels.*

Impacted soils were excavated and transported for disposal by another contractor. The excavation was backfilled with caliche around the well head to rebuild the well pad. The remaining excavation was backfilled with topsoil, contoured for natural drainage and will be seeded with a blend preferred by the property owner.

- 8.3 *If additional groundwater monitoring is recommended, indicate the proposed monitoring schedule and frequency. Conduct quarterly monitoring until the NMOCD responds to this report.*

Not Applicable

- 8.4 *If corrective action is recommended, provide a conceptual approach.*

Not applicable

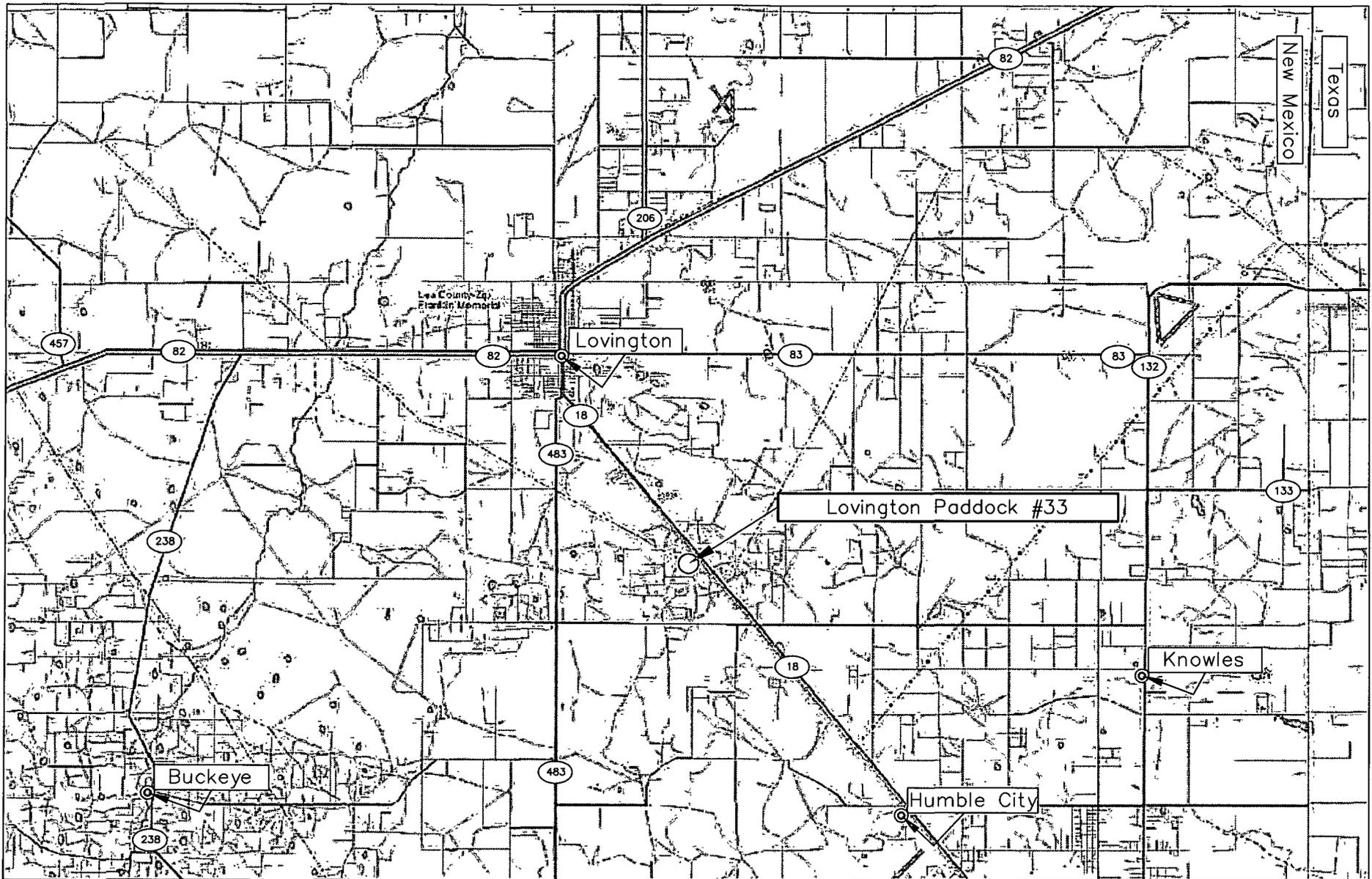


Figure 1
 Area Map
 Chevron Corporation
 Lovington Paddock #33

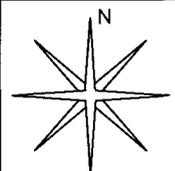
Lea County, New Mexico
 NE 1/4 of the SE 1/4, Sec. 36, T16S, R36E
 N 32°52' 33.37" W 103°18' 02.44"
 Elevation: 3,824 feet amsl

DWG By: Daniel Dominguez
 October 2006

REVISED:



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 1 of 1



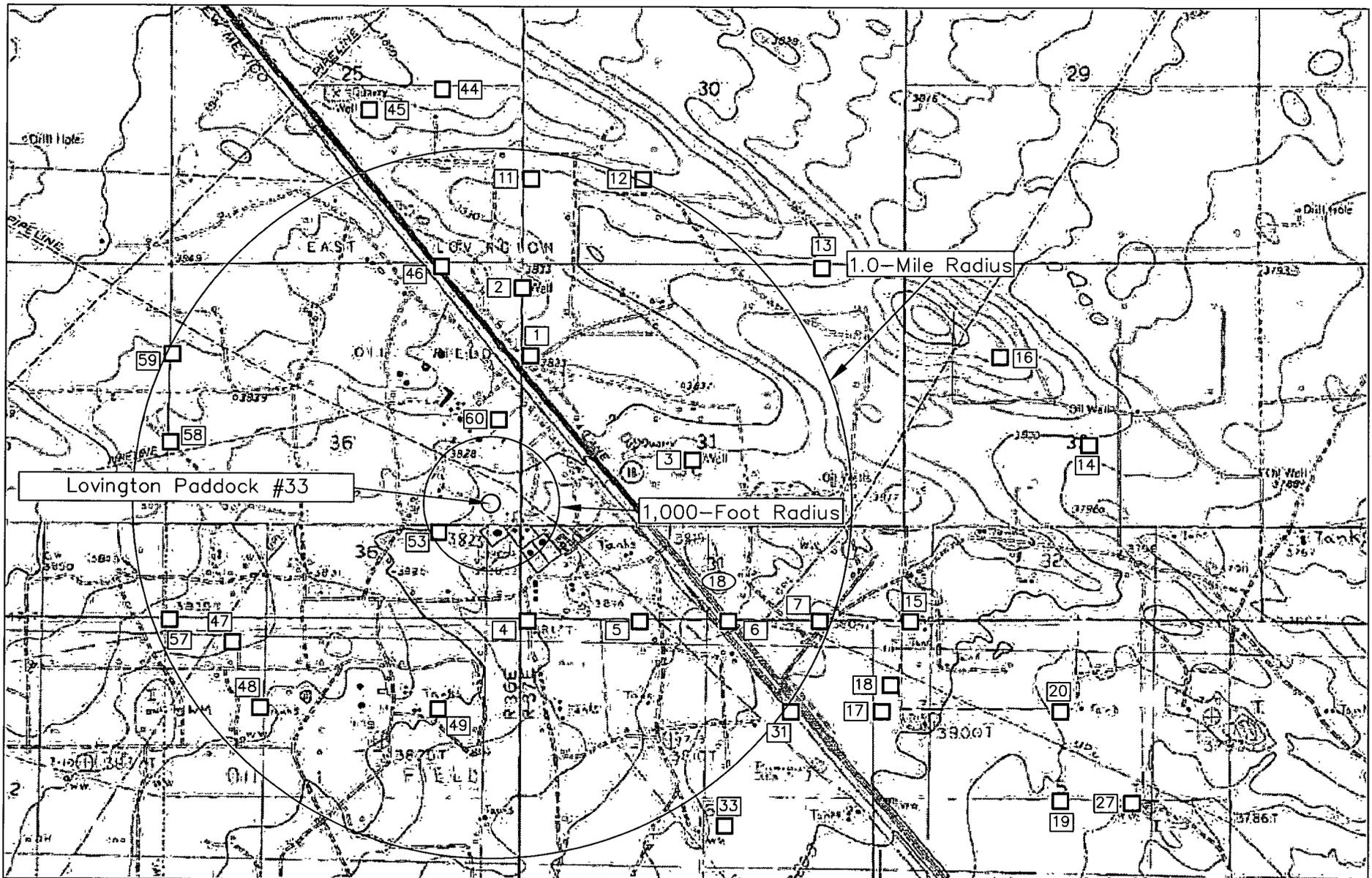
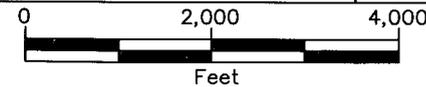


Figure 2
 Site Location Map
 Chevron Corporation
 Lovington Paddock #33

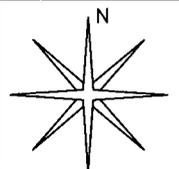
Lea County, New Mexico
 NE 1/4 of the SE 1/4, Sec. 36, T16S, R36E
 N 32° 52' 33.37" W 103° 18' 02.44"
 Elevation: 3,824 feet amsl

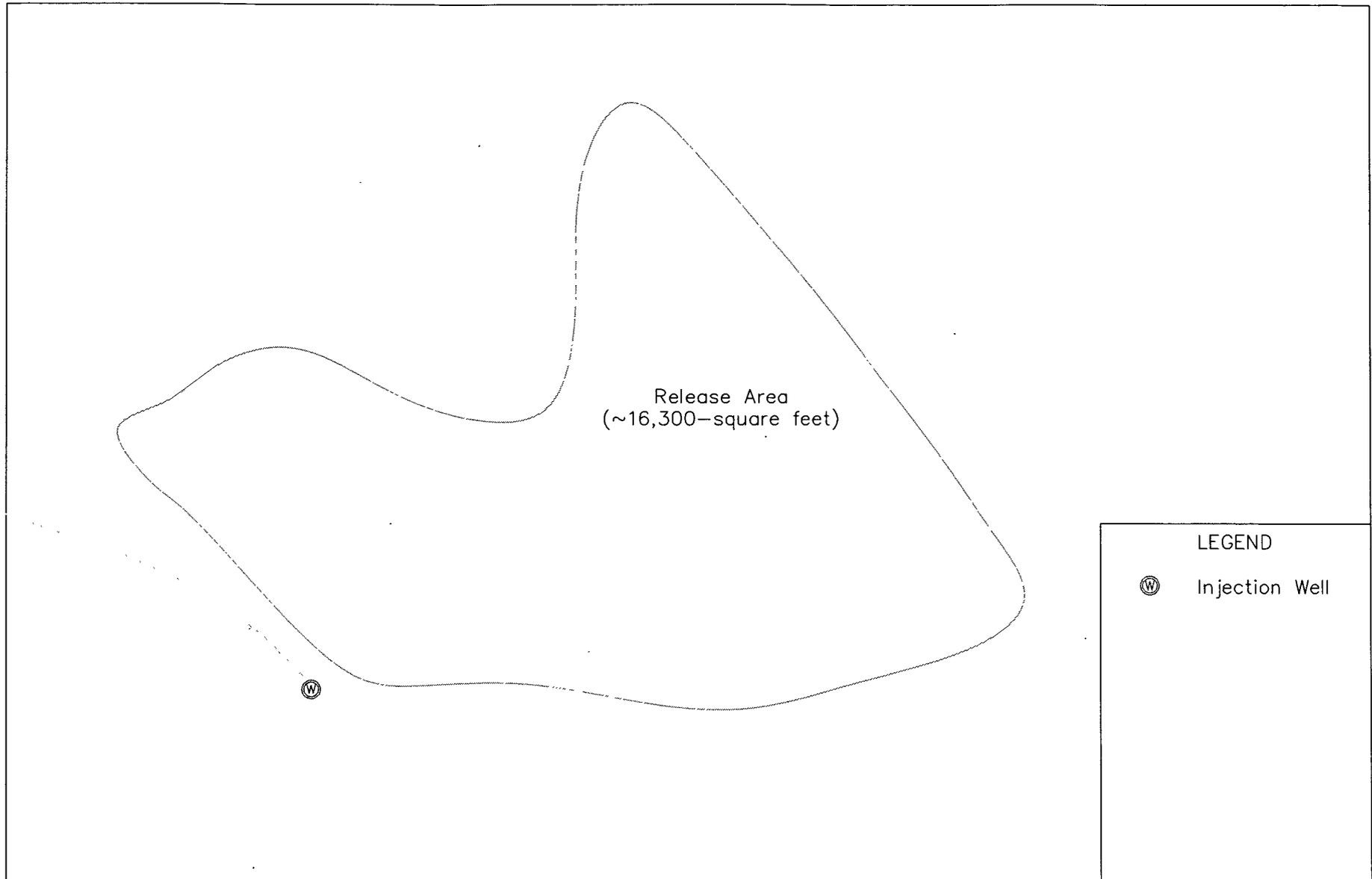
DWG By: Daniel Dominguez
 October 2006

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LEGEND

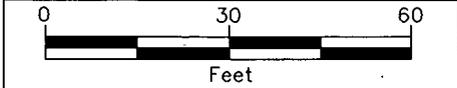
Ⓜ Injection Well

Figure 3
 Site Map
 Chevron Corporation
 Lovington Paddock #33

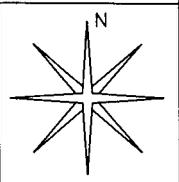
Lea County, New Mexico
 NE 1/4 of the SE 1/4, Sec. 36, T16S, R36E
 N 32°52' 33.37" W 103°18' 02.44"
 Elevation: 3,824 feet amsl

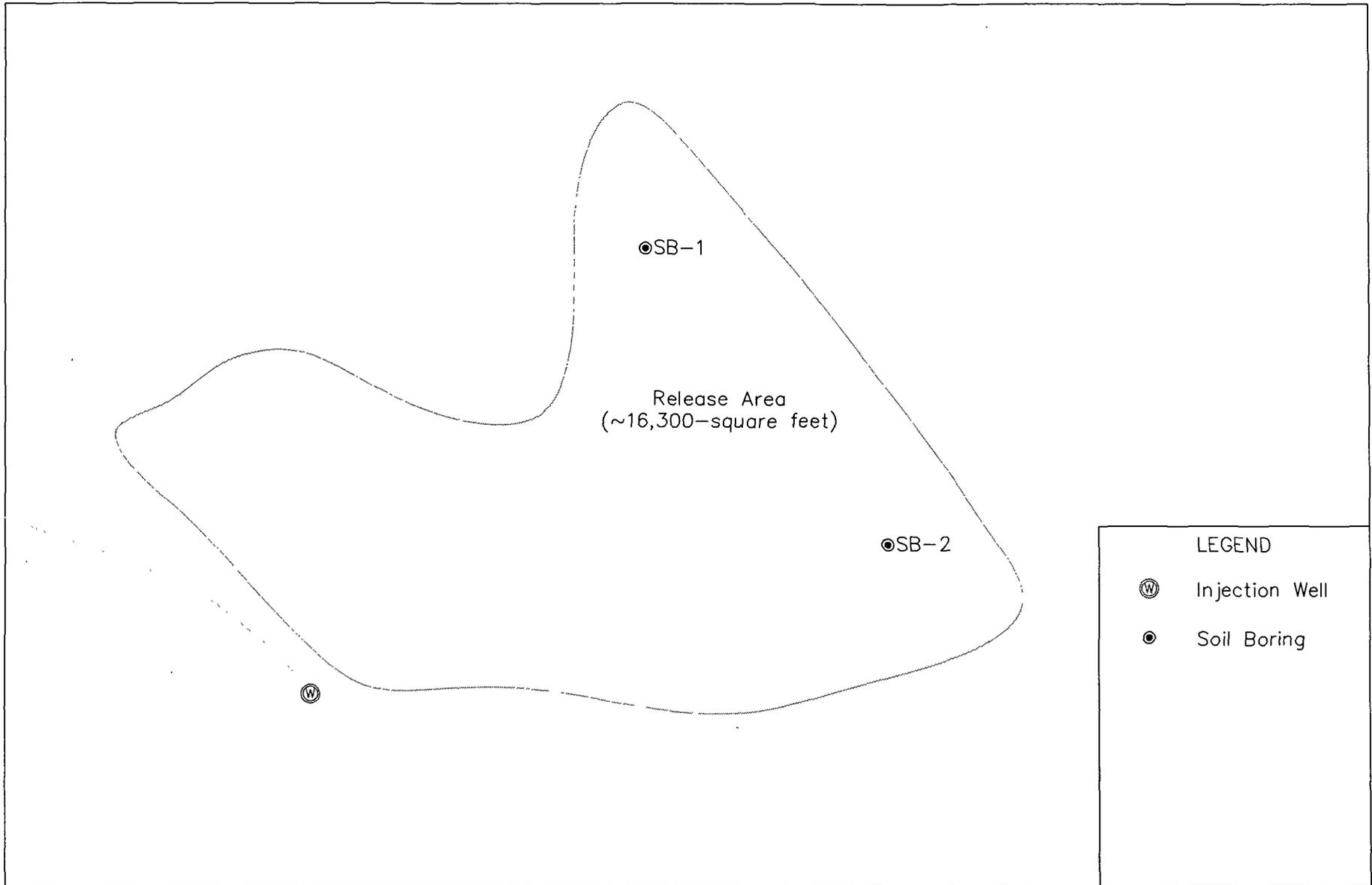
DWG By: Daniel Dominguez
 October 2006

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LEGEND

- Ⓜ Injection Well
- Soil Boring

Figure 4
 Soil Boring Map
 Chevron Corporation
 Lovington Paddock #33

Lea County, New Mexico
 NE 1/4 of the SE 1/4, Sec. 36, T16S, R36E
 N 32°52' 33.37" W 103°18' 02.44"
 Elevation: 3,824 feet amsl

DWG By: Daniel Dominguez
 October 2006

0 30 60
 Feet

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 1 of 1

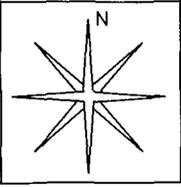


TABLE 1
WELL INFORMATION REPORT*

Chevron USA - Lovington Paddock #33 (Ref #200059)

Map Number	Well Number	Diversion ^A	Owner	Use	Twsp	Rng	Sec q q q				Latitude	Longitude	Date Measured	Depth to Water
														(ft bgs)
53	L 01350 APPRO	3	PARKER DRILLING CO.	PRO	16S	36E	36	4	2		N 32° 52' 29 34"	W 103° 18' 11 51"	12-Jan-52	55
56	L 01438 APPRO	0	SKELLY OIL CO	PRO	16S	36E	36	4	3		N 32° 52' 16 34"	W 103° 18' 27.14"	08-May-52	45
57	L 01557 APPRO	3	WARREN BRADSHAW	PRO	16S	36E	36	3	3	4	N 32° 52' 16 39"	W 103° 18' 58 25"	26-Aug-52	45
	L 01567	3	MAGNOLIA PETROLEUM COMPANY	PRO	16S	36E	36				N 32° 52' 16 39"	W 103° 18' 58 25"		40
58	L 04058 (EXPLORE)	0	CITY OF LOVINGTON	MUN	16S	36E	36	1	3	2	N 32° 52' 42 43"	W 103° 18' 58.08"		
59	L 04058 S-25				16S	36E	36	1	4	2	N 32° 52' 55 45"	W 103° 18' 58"	13-Apr-00	88
60	L 04058 S26				16S	36E	36	2	4	4	--	--	29-Oct-05	88
44	L 02313	3	H T. MONTIETH	STK	16S	36E	25	2	4		N 32° 53' 34 52"	W 103° 18' 11.18"		
45	USGS # 9				16S	36E	25	3	2	2			01-Apr-81	65 38
46	L 02300	3	MAKIN DRILLING COMPANY	PRO	16S	36E	25	4	4	4	N 32° 53' 8 46"	W 103° 18' 11 27"		
47	USGS # 10				17S	36E	1	1	1	2			01-May-92	83
48	L 01584	3	LEE DRILLING CO	PRO	17S	36E	1	1	2		N 32° 52' 3 36"	W 103° 18' 42 66"	29-Sep-52	48
49	L 02508	97	GPM GAS CORPORATION	IND	17S	36E	1	2	2	2	N 32° 52' 3.26"	W 103° 18' 11 56"		
1	L 02041	3	THE TEXAS COMPANY	PRO	16S	37E	31	1	1		N 32° 52' 55 27"	W 103° 17' 55 8"	04-Mar-53	50
2	USGS # 1				16S	37E	31	1	1	1			17-Mar-76	70 94
3	USGS # 2				16S	37E	31	3	2	2			17-Mar-76	61 93
4	L 02561	3	SKELLY OIL CO	DOM	16S	37E	31	3	3	3	N 32° 52' 16 29"	W 103° 17' 56 04"	03-Mar-54	50
	L 01220 APPRO	3	J R SHARP DRILLING CO	PRO	16S	37E	31	3	3		N 32° 52' 16 29"	W 103° 17' 56 04"	18-Sep-51	55
5	L 10652	3	BOC GASES	SAN	16S	37E	31	3	4	4	N 32° 52' 16 3"	W 103° 17' 36 89"	10-Apr-97	72
6	L 01435 APPRO	3	SHARP DRILLING CO	PRO	16S	37E	31	4	3	3	N 32° 52' 16 31"	W 103° 17' 21 37"		
7	L 02078	3	SHARP DRILLING CO	PRO	16S	37E	31	4	4		N 32° 52' 16 32"	W 103° 17' 5 86"	25-Mar-53	50
10	L 02619	3	GULF OIL CORPORATION	PRO	16S	37E	29	1	2	3	N 32° 53' 47 24"	W 103° 16' 34 47"	06-Aug-54	44
11	L 02595	3	MORAN DRILLING CO	STK	16S	37E	30	3	1	3	N 32° 53' 21 24"	W 103° 17' 55 68"	15-Jul-54	48
12	L 05898	0	ROBINSON BROTHERS DRILLING CO	PRO	16S	37E	30	3	2	3	N 32° 53' 21 26"	W 103° 17' 36.36"	01-Apr-66	60
13	L 05735	0	CACTUS DRILLING COMPANY	PRO	16S	37E	30	4	4		N 32° 53' 8 28"	W 103° 17' 5 47"	20-Aug-65	46
14	L 02236	3	PARKER DRILLING CO	PRO	16S	37E	32	2	3		N 32° 52' 42 28"	W 103° 16' 19 26"		
15	L 02487	3	LEE DRILLING CO.	PRO	16S	37E	32	3	3		N 32° 52' 16 32"	W 103° 16' 50 16"	07-Feb-54	35
	L 05516	0	CACTUS DRILLING COMPANY	PRO	16S	37E	32				N 32° 52' 16 32"	W 103° 16' 50 16"	01-Jan-65	45
16	L 05516 (1) EXP	0	TEXACO PRODUCING INC	PRO	16S	37E	32	1	2	3	N 32° 52' 55 27"	W 103° 16' 34 59"		
17	L 01107 APPRO	3	PARKER DRILLING CO	PRO	17S	37E	5	1	1	1	N 32° 52' 3 13'	W 103° 16' 55 01"	16-Apr-51	38
	L 01398 APPRO	3	PARKER DRILLING CO	PRO	17S	37E	5	1	1		N 32° 52' 3 13"	W 103° 16' 55 01"	14-Mar-52	50
18	USGS # 5				17S	37E	5	1	3	3			05-Jan-83	53 25
19	L 11225	0	CHESAPEAKE OPERATING	PRO	17S	37E	5	2	3	4	N 32° 51' 49 94"	W 103° 16' 24.04"	10-Jul-01	70
20	L 01288 APPRO	3	PARKER DRILLING CO	PRO	17S	37E	5	2	1		N 32° 52' 3 15"	W 103° 16' 24 09"	28-Oct-51	40
27	USGS # 7				17S	37E	5	4	1	2			19-Jan-96	57 65
31	L 01604 APPRO	3	SKELLY OIL CO	PRO	17S	37E	6	2	2	1	N 32° 52' 3.15"	W 103° 17' 10.53"	27-Oct-52	
33	USGS # 8				17S	37E	6	4	1	1			31-Jan-91	61.64
37	L 00449 S 2				17S	37E	6	4			--	--		

TABLE 1
WELL INFORMATION REPORT*

Chevron USA - Lovington Paddock #33 (Ref #200059)

Map Number	Well Number	Diversion ^A	Owner	Use	Twsp	Rng	Sec q q q				Latitude	Longitude	Date Measured	Depth to Water (ft bgs)
8	USGS # 3				16S	37E	29	1	1	4			21-Feb-91	49.16
9	USGS # 4				16S	37E	29	2	2	2			17-Mar-76	34.39
21	L 02549	210.6	KYLE HAHN	IRR	17S	37E	5	3	1	1	N 32° 51' 36.93"	W 103° 17' 10.57"		
22	L 02784	3	FORRESTER & CARR DRI	PRO	17S	37E	5	3	3	1	N 32° 51' 23.84"	W 103° 16' 54.96"	17-Feb-55	60
	L 09552	3	IVAN WHITE	DOM	17S	37E	5	3			N 32° 51' 23.84"	W 103° 16' 54.96"	02-Jul-85	65
	L 09581	0	JOHN PARKER	DOM	17S	37E	5	3			N 32° 51' 23.84"	W 103° 16' 54.96"	12-Nov-84	70
	L 10015	3	MARIO SANDOVAL	DOM	17S	37E	5	3			N 32° 51' 23.84"	W 103° 16' 54.96"	05-Aug-88	70
	L 09677	3	ALVA M & ILA MERLE SELMAN	DOM	17S	37E	5	3			N 32° 51' 23.84"	W 103° 16' 54.96"	07-May-85	68
23	L 09649	3	P M SEWALL	DOM	17S	37E	5	3	1		N 32° 51' 36.93"	W 103° 16' 54.98"	18-Jun-85	65
24	L 10143	3	WILLIAM T. LEE	STK	17S	37E	5	3	2		N 32° 51' 36.88"	W 103° 16' 39.49"	26-Aug-90	55
	L 10324	3	SANDOVAL MARIO M	DOM	17S	37E	5	3	2	2	N 32° 51' 36.88"	W 103° 16' 39.49"	29-Apr-93	70
	L 09719	3	WILLIAM T. & JO ANN	DOM	17S	37E	5	3	2		N 32° 51' 36.88"	W 103° 16' 39.49"	09-Jul-85	70
25	L 10894	3	JOHN DAVIS	DOM	17S	37E	5	3	4		N 32° 51' 23.76"	W 103° 16' 39.46"	09-Sep-98	76
	L 07611	3	JACK E. RUGGS	SAN	17S	37E	5	3	4		N 32° 51' 23.76"	W 103° 16' 39.46"	23-Sep-76	60
26	USGS # 6				17S	37E	5	3	4	4			26-Jan-96	56.73
28	L 11644	3	PATRICK WHITMAN	DOM	17S	37E	5	4	1	1	N 32° 51' 36.82"	W 103° 16' 24"	08-Jun-04	61
29	L 09581 CLW				17S	37E	5	4	3	1	N 32° 51' 23.69"	W 103° 16' 23.95"		
30	L 09365	0	DAVID V. ROUECHE	DOM	17S	37E	5	4	4	3	N 32° 51' 23.61"	W 103° 16' 8.45"	31-Oct-83	64
32	L 02474	3	LEE DRILLING CO.	PRO	17S	37E	6	3	1		N 32° 51' 37.04"	W 103° 17' 10.55"	14-Jan-54	40
	L 02474 APPRO				17S	37E	6	3	1		N 32° 51' 37.04"	W 103° 17' 10.55"	14-Jan-54	40
34	L 00449	442.8	J. LYNN WALKER	IRR	17S	37E	6	4	2	1	N 32° 51' 37"	W 103° 17' 25.99"		
35	L 00449 EXPLORE				17S	37E	6	4			N 32° 51' 23.92"	W 103° 17' 25.96"	11-May-05	118
36	L 00449 EXPLORE 2				17S	37E	6	4	2	1	N 32° 51' 36.97"	W 103° 17' 10.48"	20-May-05	101
38	L 02194 APPRO	3	EXPLORATION DRILLING	PRO	17S	37E	6	4			N 32° 51' 23.92"	W 103° 17' 10.54"		
39	L 11773	3	J LYNN WALKER	DOM	17S	37E	6	4	2	2	N 32° 51' 36.97"	W 103° 17' 10.78"	29-May-06	
40	L 02507	3	WARREN & BRADSHAW EXPLORATION	PRO	16S	36E	25	1	1		N 32° 53' 47.69"	W 103° 18' 57.76"	09-Mar-54	52
41	L 00338 ETAL EXPL	276.887	WINFRED L. STROOPE	IRR	16S	36E	25	1	2	4	N 32° 53' 47.64"	W 103° 18' 42.22"	14-Mar-02	100
42	L 00338 & L 901 S	27	DAIRY FARMERS OF AMERICA, INC.	IRR	16S	36E	25	2	1	4	N 32° 54' 13.8"	W 103° 18' 26.67"		
43	L 00338 & L 901 S	281.1	DAIRY FARMERS OF AMERICA, INC.	IRR	16S	36E	25	2	1	4	N 32° 53' 47.59"	W 103° 18' 26.68"		
50	L 02119	3	AMERADA PETROLEUM CORPORATION	PRO	17S	36E	1	3	4	1	N 32° 51' 24.05"	W 103° 18' 42.56"		
51	L 02331	3	J.P. (BUM) GIBBONS INC.	PRO	17S	36E	1	4	4		N 32° 51' 23.99"	W 103° 18' 11.48"	02-Sep-53	48
52	L 02331 APPRO				17S	36E	1	4			N 32° 51' 24.02"	W 103° 18' 27.02"	02-Sep-53	48
54	L 10633	1643.4	KENNETH IVAN GOFF	IRR	17S	36E	1	4	2	2	N 32° 49' 39.48"	W 103° 18' 26.91"	19-Apr-01	80
	L 10633 S				17S	36E	1	4	2	4	N 32° 49' 39.48"	W 103° 18' 26.91"	30-Apr-01	80
	L 10633 S2				17S	36E	1	4	4	2	N 32° 49' 39.48"	W 103° 18' 26.91"	25-Apr-01	120
55	L 10633 S3				17S	36E	1	4	4	4	N 32° 51' 23.99"	W 103° 18' 11.48"	10-May-01	80
	L 10633 S4				17S	36E	1	4	4	1	N 32° 51' 23.99"	W 103° 18' 11.48"	05-Jul-04	110

* = Data obtained from the New Mexico Office of the State Engineer Website (http://waters.ose.state.nm.us/~001/WATERS/wr_RegisServlet1) and USGS Database.

Shaded well information indicates well location not shown on Figure 2

^A = in acre feet per annum

IND = Industrial

STK = 72-12-1 Livestock Watering

DOM = 72-12-1 Domestic one household

PRO = 72-12-1 Prospecting or development of natural resource

(quarters are 1=NW, 2=NE, 3=SW, 4=SE)

(quarters are biggest to smallest - X Y arc in Feet - UTM arc in Meters)

SAN = 72-12-1 Sanitary in conjunction with a commercial use

MUN = Municipal - City or county supplied water

IRR = Irrigation

TABLE 2

Summary of Soil Boring Soil Sample Field Analyses and Laboratory Analytical Results

Chevron USA - Lovington Paddock #33 (EPI Ref. #200059)

Soil Boring	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/L)
SB-1	2	In situ	30-Nov-05	1.5	560	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	816
	5	In situ	30-Nov-05	0.7	480	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	752
	10	In situ	30-Nov-05	0.3	400	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	272
	15	In situ	30-Nov-05	0.4	160	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	16
SB-2	2	In situ	30-Nov-05	2.4	240	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	432
	5	In situ	30-Nov-05	2.3	400	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	576
	10	In situ	30-Nov-05	1.2	160	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	16
	15	In situ	30-Nov-05	0.6	160	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	16
NMOCD Remedial Thresholds				100		10				50			1,000	250 ²

Bolded values are in excess of NMOCD Remediation Threshold Goals

¹ *Estimated value concentration below Laboratory Limits*

² *Not Analyzed*

² *Chloride residuals may not be capable of impacting local groundwater above the NMWQCC Standard of 250 mg/L*



Photo #1: Lease sign.

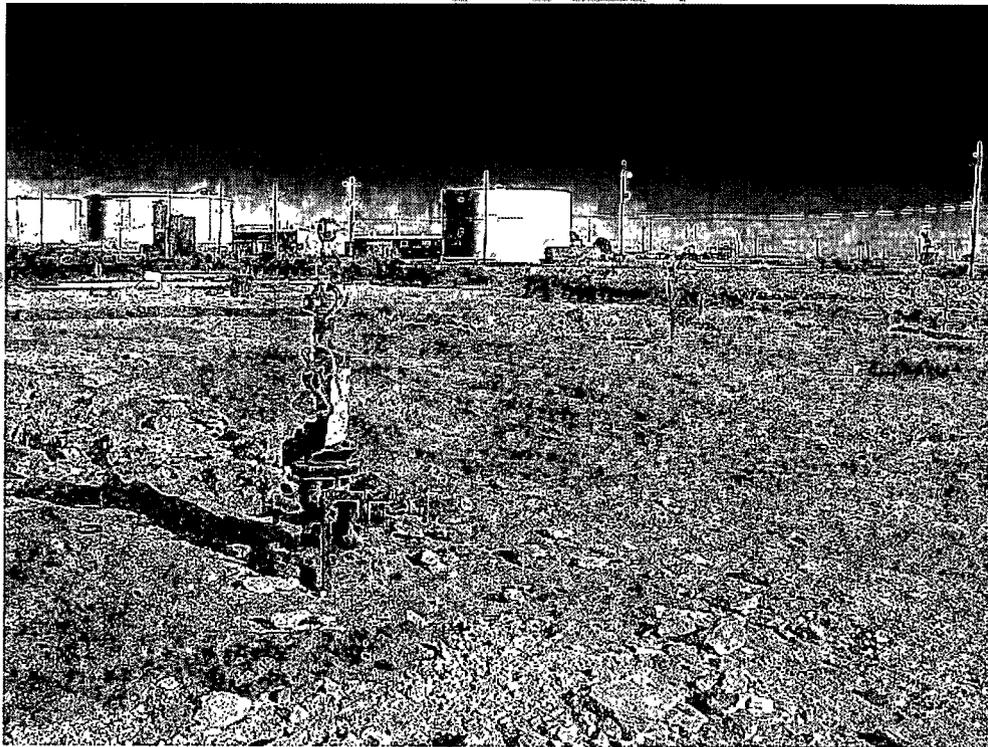


Photo #2: Release area, looking westerly.



Photo #3: Looking westerly at excavated release area.

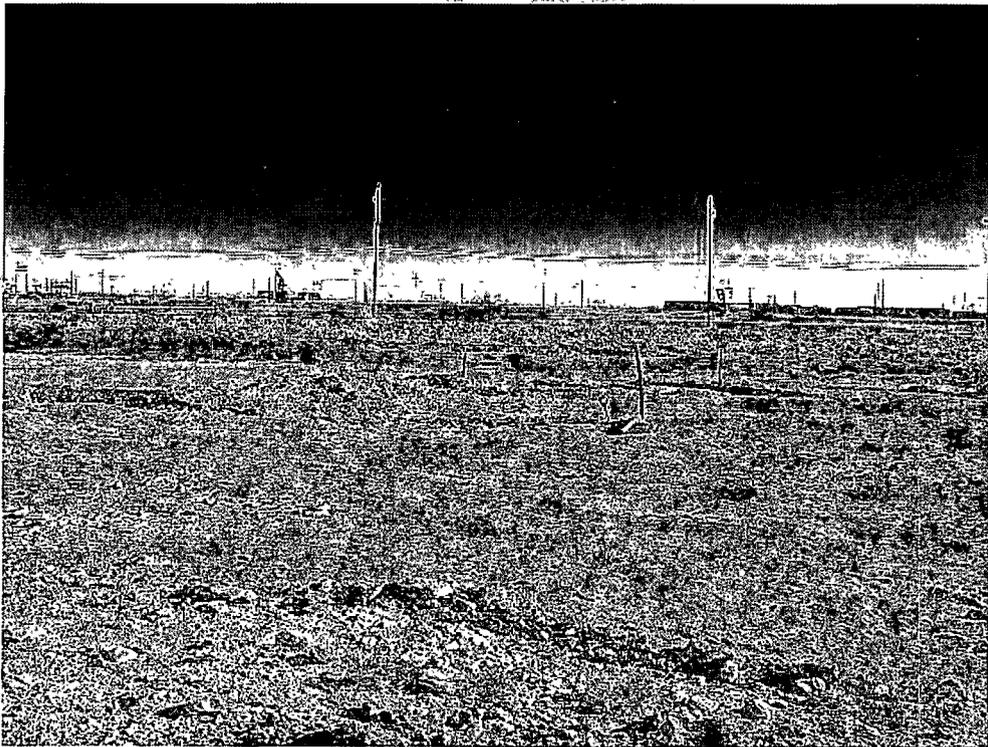


Photo #4: Looking easterly at excavated release area.

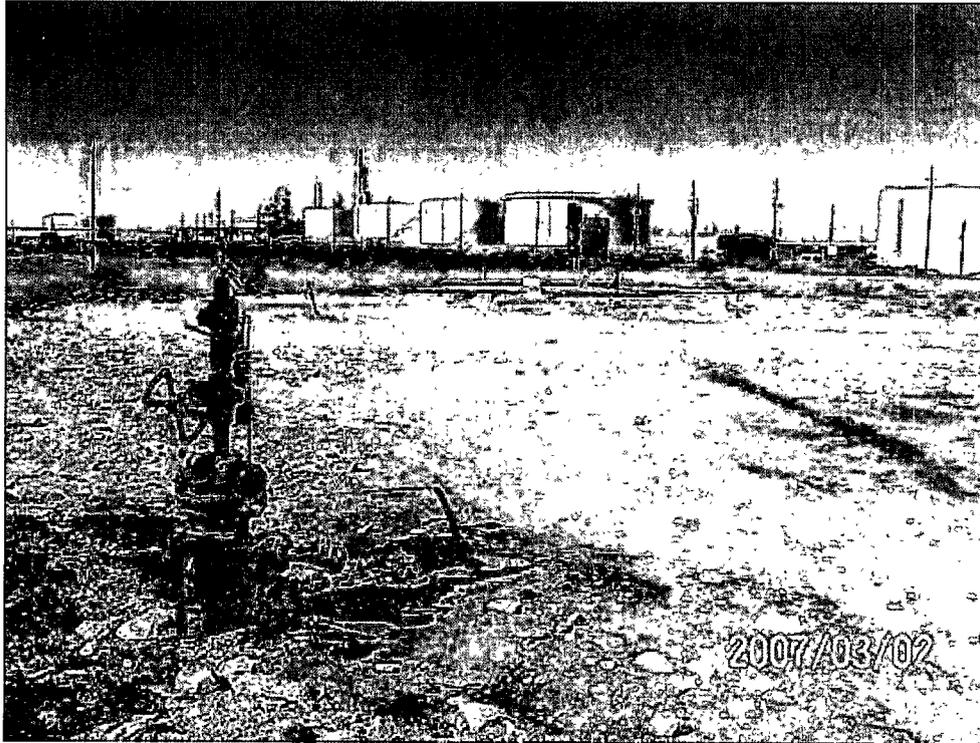


Photo #5: Closed site.

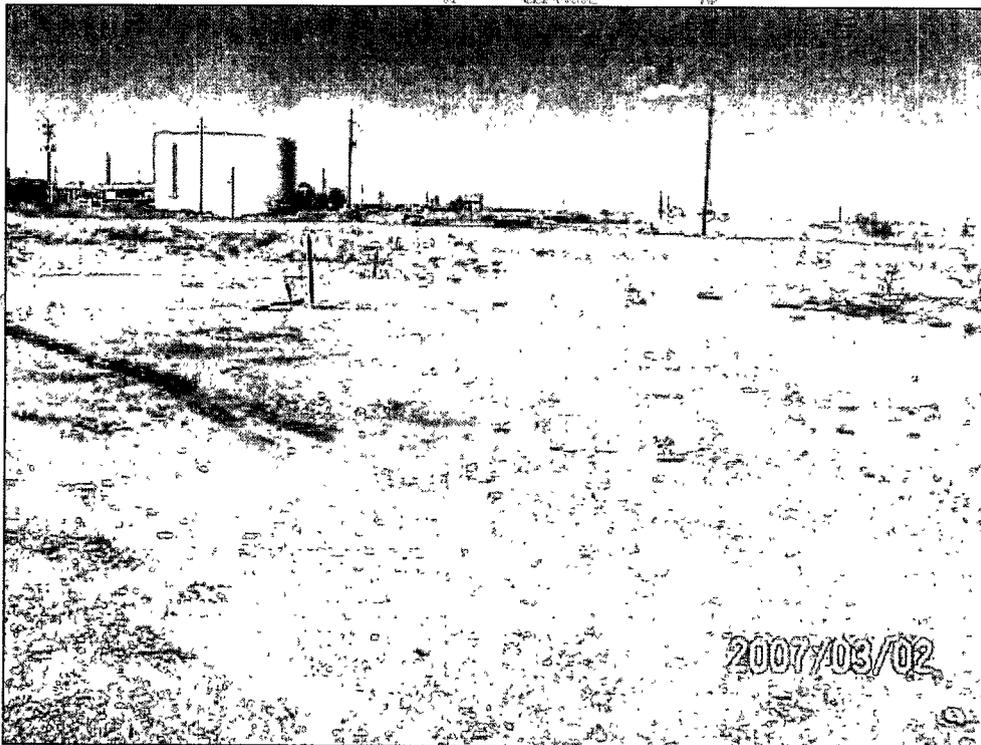


Photo #6: Closed site.



Photo #7: Closed site.



Photo #8: Closed site.



PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

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

**ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.**

ATTN: IAIN OLNESS
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

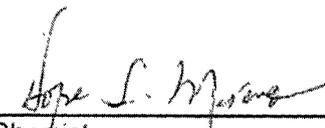
Receiving Date: 12/05/05
Reporting Date: 12/08/05
Project Owner: CHEVRON USA (200059)
Project Name: PADDOCK #33
Project Location: UL-I, SEC. 36, T 16 S, R 36 E

Sampling Date: 11/30/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl (mg/L)	SO ₄ (mg/L)
ANALYSIS DATE:		12/06/05	12/07/05
H10477-1	SB-1 (2')	816	118
H10477-2	SB-1 (5')	752	230
H10477-3	SB-1 (10')	272	163
H10477-4	SB-1 (15')	16	42
H10477-5	SB-2 (2')	432	52
H10477-6	SB-2 (5')	576	<1
H10477-7	SB-2 (10')	16	36
H10477-8	SB-2 (15')	16	4
Quality Control		1000	49.3
True Value QC		1000	50.0
% Recovery		100	98.6
Relative Percent Difference		0	0.7

METHODS: Cl: Std. Methods 4500-Cl⁻B; SO₄: EPA 600/375.4

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



Chemist

12-08-05

Date

H10477

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 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 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.



**ARDINAL
LABORATORIES**

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

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

**ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.**

ATTN: IAIN OLNES

P.O. BOX 1558

EUNICE, NM 88231

FAX TO: (505) 394-2601

Receiving Date: 12/05/05

Reporting Date: 12/09/05

Project Owner: CHEVRON USA (200059)

Project Name: PADDOCK #33

Project Location: UL-1, SEC. 36, T 16 S, R 36 E

Sampling Date: 11/30/05

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: NF

Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C ₈ -C ₁₀) (mg/Kg)	DRO (>C ₁₀ -C ₂₈) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		12/07/05	12/07/05	12/06/05	12/06/05	12/06/05	12/06/05
H10477-1	SB-1 (2')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-2	SB-1 (5')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-3	SB-1 (10')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-4	SB-1 (15')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-5	SB-2 (2')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-6	SB-2 (5')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-7	SB-2 (10')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10477-8	SB-2 (15')	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		790	814	0.090	0.094	0.094	0.286
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		98.8	102	90.1	93.5	94.2	95.3
Relative Percent Difference		5.8	1.0	1.7	5.2	1.3	1.0

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.


Burgess J. A. Cooke, Ph. D.

12/9/05
Date

H10477

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.

Log Of Test Borings

(NOTE - Page 1 of 1)



ENVIRONMENTAL PLUS, INC.
CONSULTING AND
REMEDIAL CONSTRUCTION
EUNICE, NEW MEXICO
505-394-3481

Project Number: 200059

Project Name: Chevron - Lovington Paddock #33

Location: UL-I, Section 36, Township 16 South, Range 36 East

Boring Number: SB-1

Surface Elevation: 3,823-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Description
								Start Date: 11-30-05 Time: 1400 hrs Completion Date: 11-30-05 Time: 1435 hrs
1410	SS	12	dry	1.5	560		2'	SOIL, rocky, brown
1415	SS	12	dry	0.7	480		5'	CALICHE
1420	SS	12	dry	.3	400		10'	CALICHE/Sand mix
1430	SS	12	dry	.4	160		15'	SAND, light brown
								End of Soil Boring at 15' bgs

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Drilling Method:
-	-	-	-	-	-	Straub
-	-	-	-	-	-	Backfill Method: Bentonite
-	-	-	-	-	-	Field Representative: GB

Log Of Test Borings

(NOTE - Page 1 of 1)



ENVIRONMENTAL PLUS, INC.
CONSULTING AND
REMEDIAL CONSTRUCTION
EUNICE, NEW MEXICO
505-394-3481

Project Number: 200059

Project Name: Chevron - Lovington Paddock #33

Location: UL-I, Section 36, Township 16 South, Range 36 East

Boring Number: SB-2

Surface Elevation: 3,823-feet amsl

Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	Chloride Analysis (mg/Kg)	U.S.C.S. Symbol	Depth (feet)	Start Date: <u>11-30-05</u> Time: <u>1435 hrs</u> Completion Date: <u>11-30-05</u> Time: <u>1630 hrs</u> Description
1440	SS	12	dry	2.4	240		2'	2' CALICHE/Rock
1445	SS	12	dry	2.3	400		5'	5' CALICHE/Rock
1450	SS	12	dry	1.2	160		10'	10' SAND/Caliche, brownish mix
1500	SS	12	dry	.6	160		15'	15' SAND, light brown End of Soil Boring at 15' bgs

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Drilling Method: Straub
-	-	-	-	-	-	Backfill Method: Bentonite
-	-	-	-	-	-	Field Representative: GB



Incident Date:
Unknown

NMOCD Notified:
Unknown

Information and Metrics

Site: Lovington Paddock #33		Assigned Site Reference :NMOCD 1RP#1225; EPI #200059	
Company: Chevron			
Street Address:			
Mailing Address: P.O. Box 1949			
City, State, Zip: Eunice, New Mexico 88231			
Representative: Larry Williams			
Representative Telephone:			
Telephone:			
Fluid volume released (bbls): unknown		Recovered (bbls): none	
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)			
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)			
Leak, Spill, or Pit (LSP) Name: Lovington Paddock #33			
Source of contamination: Injection Well			
Land Owner, i.e., BLM, ST, Fee, Other: City of Lovington			
LSP Dimensions: Unknown			
LSP Area: ~16,300 ft ²			
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude: N 32° 52' 33.37"			
Longitude: W 103° 18' 02.44"			
Elevation above mean sea level: 3,824 feet			
Feet from South Section Line:			
Feet from East Section Line:			
Location- Unit or ¼: NE¼ of the SE¼		Unit Letter: I	
Location- Section: 36			
Location- Township: 16 South			
Location- Range: 36 East			
Surface water body within 1000 ' radius of site: none			
Domestic water wells within 1000' radius of site: none			
Agricultural water wells within 1000' radius of site: none			
Public water supply wells within 1000' radius of site: none			
Depth from land surface to groundwater (DG): ~64 feet			
Depth of contamination (DC): ~10 feet			
Depth to groundwater (DG - DC = DtGW): ~54 feet			
1. Groundwater		2. Wellhead Protection Area	
If Depth to GW <50 feet: 20 points		If <1000' from water source, or; <200' from private domestic water source: 20 points	
If Depth to GW 50 to 99 feet: 10 points		If >1000' from water source, or; >200' from private domestic water source: 0 points	
If Depth to GW >100 feet: 0 points			
		3. Distance to Surface Water Body	
		<200 horizontal feet: 20 points	
		200-1000 horizontal feet: 10 points	
		>1000 horizontal feet: 0 points	
Site Rank (1+2+3) = 10+0+0=10			
Total Site Ranking Score and Acceptable Concentrations			
Parameter	>19	10-19	0-9
Benzene ¹	10 ppm	10 ppm	10 ppm
BTEX ¹	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1,000 ppm	5,000 ppm
¹ 100 ppm field VOC headspace measurement may be substituted for lab analysis			

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR Initial Report Final Report

Name of Company: Chevron	Contact: Larry Williams
Address: P.O. Box 1949 Eunice, NM 88231	Telephone No.:
Facility Name: Lovington Paddock #33	Facility Type: Injection well

Surface Owner: City of Lovington	Mineral Owner: State of New Mexico	API No.:
---	---	-----------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	36	16S	36E					Lea

Latitude: N 32° 52' 33.37" **Longitude:** W 103° 18' 02.44"

NATURE OF RELEASE

Type of Release: produced water	Volume of Release: unknown	Volume Recovered: none
Source of Release: Injection well	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: unknown
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? unknown	
By Whom? unknown	Date and Hour: unknown	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse: Not Applicable	

If a Watercourse was Impacted, Describe Fully.* Not Applicable

Depth to Groundwater: ~64 feet

Describe Cause of Problem and Remedial Action Taken.* An unknown amount of produced water was released when a flowline failed. Zero (0) barrels of fluid were recovered. Approximately 16,300 square feet of surface area was affected by the release. Impacted soil from the release area was excavated and disposed off site by another contractor.

Describe Area Affected and Cleanup Action Taken.* Initial Site Assessment on the release area was conducted by EPI on 11/28/05. Soil borings were advanced and work continued from 3/6/06 through 3/9/06. Based on laboratory analytical data taken from the soil borings, most of the impacted soil in the bottom of the excavation was removed. EPI backfilled the excavation with clean topsoil and caliche around the well head. The disturbed area was contoured for natural drainage and will be seeded with a blend preferred by the property owner.

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

Signature:	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: Larry Williams	Approved by District Supervisor:		
Title: HES Champion	Approval Date:	Expiration Date:	
E-mail Address: larry.williams@chevron.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date:	Phone:		

* Attach Additional Sheets If Necessary

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
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State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
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Form C-141
Revised October 10, 2003
Submit 2 Copies to appropriate
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with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR Initial Report Final Report

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Address: P.O. Box 1949 Eunice, NM 88231	Telephone No.:
Facility Name: Lovington Paddock #33	Facility Type: Injection well

Surface Owner: City of Lovington	Mineral Owner: State of New Mexico	API No.:
---	---	-----------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	36	16S	36E					Lea

Latitude: N 32° 52' 33.37" **Longitude:** W 103° 18' 02.44"

NATURE OF RELEASE

Type of Release: produced water	Volume of Release: unknown	Volume Recovered: none
Source of Release: Injection well	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: unknown
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? unknown	
By Whom? unknown	Date and Hour: unknown	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse: Not Applicable	

If a Watercourse was Impacted, Describe Fully.* Not Applicable

Depth to Groundwater: ~64 feet

Describe Cause of Problem and Remedial Action Taken.* An unknown amount of produced water was released when a flowline failed. Zero (0) barrels of fluid were recovered. Approximately 16,300 square feet of surface area was affected by the release. Impacted soil from the release area was excavated and disposed off site by another contractor.

Describe Area Affected and Cleanup Action Taken.* Initial Site Assessment on the release area was conducted by EPI on 11/28/05. Two (2) soil borings were advanced on 11/30/05. Based on laboratory analytical data taken from the soil borings, most of the impacted soil in the bottom of the excavation was removed. From 3/06/06 through 3/09/06, EPI backfilled the excavation with clean topsoil and caliche around the well head. The disturbed area was contoured for natural drainage and will be seeded with a blend preferred by the property owner.

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Signature:	OIL CONSERVATION DIVISION	
Printed Name: Larry Williams	Approved by District Supervisor: <i>ENUNDO ENG</i>	
Title: HES Champion	Approval Date: 6.27.07	Expiration Date: -
E-mail Address: larry.williams@chevron.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date:	Phone:	

* Attach Additional Sheets If Necessary