

1R - 187

# REPORTS

DATE:

7/17/1998

STATE OF NEW MEXICO  
P.O. Box 1940 Hobbs, NM  
Treasurer OD, Artesian, NM 88211  
AD Rio Grande Ad. Assn. NM 87410

State of New Mexico  
Energy, Minerals and Natural Resources Department

SUBMIT : COPY TO  
APPROPRIATE  
DISTRICT OFFICE  
AND 1 COPY TO  
SANTA FE OFFICE

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NM 87505  
PIT REMEDIATION AND CLOSURE REPORT

(Revised 3/9/94)

Operator: UMC/OCEAN ENERGY Telephone: (303) 573-4721  
Address: 410 17<sup>th</sup> St. Suite 1400, DENVER COLORADO 80202  
Facility or: CARISLE STATE Com #1  
Well Name \_\_\_\_\_  
Location: Unit or Qtr/Qtr Sec \_\_\_\_\_ Sec 1 T 16S R 3SE County LEA  
Pit Type: Separator \_\_\_\_\_ Dehydrator \_\_\_\_\_ Other Utility Pit  
Land Type: BLM \_\_\_\_\_, State  Fee \_\_\_\_\_, Other \_\_\_\_\_

Pit Location: Pit dimensions: length 30', width 10', depth 3'  
(attach diagram) Reference: wellhead , other \_\_\_\_\_  
Footage from reference: .5 mile  
Direction from reference: S Degrees 0 East North 0  
of 0 West South 180

Depth To Ground Water: Less than 50 feet (20 points)  
(Vertical distance from 50 feet to 99 feet (10 points)  
contaminants to seasonal Greater than 100 feet (0 Points) 10  
high water elevation of ground water)

Wellhead Protection Area: Yes (20 points)  
(Less than 200 feet from a private No (0 points) 0  
domestic water source, or; less than 1000 feet from all other water sources)

Distance To Surface Water: Less than 200 feet (20 points)  
horizontal distance to perennial 200 feet to 1000 feet (10 points)  
lakes, ponds, rivers, streams, creeks, Greater than 1000 feet (0 points) 0  
irrigation canals and ditches;

RANKING SCORE (TOTAL POINTS): 10



Date Remediation Started: April 29 1998 Date Completed: 5-31-98

Remediation Method: Excavation  (Check all appropriate sections) Landfarmed  Other   
Approx. cubic yards 4 yd<sup>3</sup> Insitu Bioremediation

Remediation Location: Onsite  Offsite   
(ie. landfarmed onsite, name and location of offsite facility)

General Description of Remedial Action: The mud + 1 foot of the pit bottom were excavated + stored at the SW corner of the Carlisle State Com #1 drilling reserve pit.

Ground Water Encountered: No  Yes  Depth                     

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)  
Sample location "Halliburton South Pit"  
Sample depth 3' below grade  
Sample date 5-29-98 Sample time 1000

Sample Results  
Benzene (ppm) 5.002  
Total BTEX (ppm) .009  
Field headspace (ppm) 10-12  
TPH 282

Ground Water Sample: Yes  No  (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF  
DATE 7-16-98  
SIGNATURE [Signature] PRINTED NAME AND TITLE PAT W. McCASLAND SAFETY + ENVIRONMENTAL DIRECTOR CANAWAY SAFETY Equipment Co., Inc.

# Final Remedial Action Report

*UMC/Ocean Energy:*

*Carlisle State Com #1*

*"Halliburton South Pit"*

*N.M.P.M. S15 T16S R35E*

*990' FNL & 2310' FWL*

*Lea County New Mexico*

*Submitted July 17, 1998*



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## 1 Introduction

At 3:30 AM on Friday March 20, 1998, during drilling of the UMC Petroleum Corporation Carlisle State Com #1 well at an estimated depth of 12,100 feet, a highly pressurized and uncontrollable flow of natural gas and natural gas liquids was encountered. The estimated volume was ~ 8 to 15 mmcf per day of sweet gas, i.e., 0.0 ppm H<sub>2</sub>S concentration. Although H<sub>2</sub>S was not a concern, initial responders were concerned that explosive levels of natural gas could migrate to nearby residences and possibly the City of Lovington, New Mexico located four miles east of the well. Consequently, residents within one mile of the well were evacuated, the site secured, the Lea County Sheriff Department, New Mexico State Police, Lovington Police and Fire Department, and the Local Emergency Planning Committee were notified, and the Incident Command System activated.

In an attempt to regain control of the well, it was decided to use a multiple weighted mud system to stifle the well flow. Because of the flammability hazards, i.e., condensate and natural gas, associated with area immediately surrounding the well where typically the pumping and mud storage equipment would be deployed, it was decided to deploy the equipment at a remote location. A permanently abandoned well location .5 mile due south of the Carlisle State Com #1 was chosen as the point of operation and deployment. The attempt to pump mud down the well bore failed and the operation halted, leaving approximately 3,000 barrels of multiple weighted muds distributed in six 500 barrel frac tanks. The majority of these muds were subsequently hauled off location for use elsewhere.

The "Halliburton South Pit," was excavated by the tank rental company so as to contain the rinsate that resulted when the residual tank mud was jetted out with fresh water prior to the tanks being removed from the location. This activity resulted in the unlined pit being partially filled with mud contaminated rinsate and is the subject of this report.

## 2 Site Information

### 2.1 Site History

This is the location of the Eidson 56-959 #1, drilled by Great Western Onshore, Inc. and permanently abandoned in March 1993. It is probable that the site was contaminated with Hydrocarbon and Chloride during these operations. It appears that the surrounding grassland, used for livestock grazing, was not impacted by the drilling of the Eidson 56-959 #1.

### 2.2 Legal Description

The legal description of the site is as follows:

Sec 15, T-16S, R35E 990 FWL & 2310 FWL

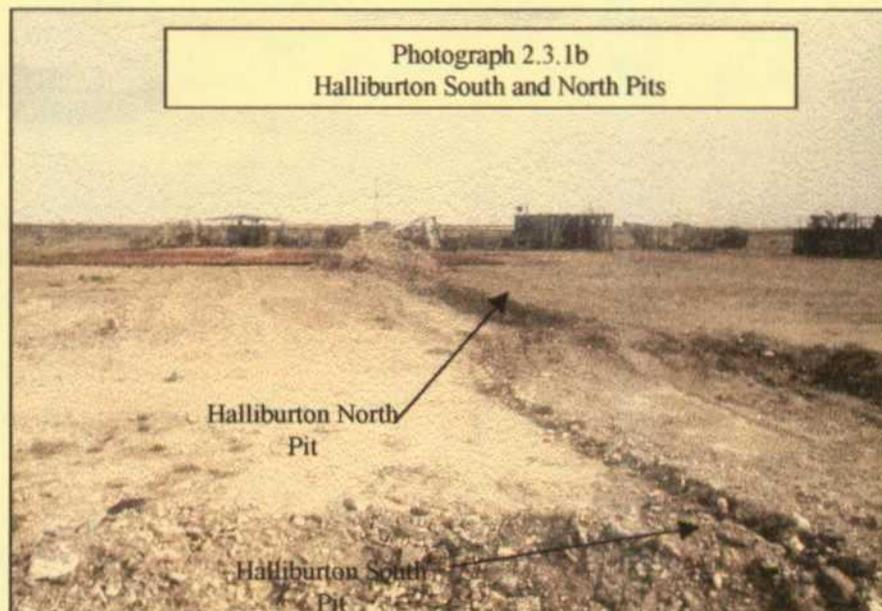
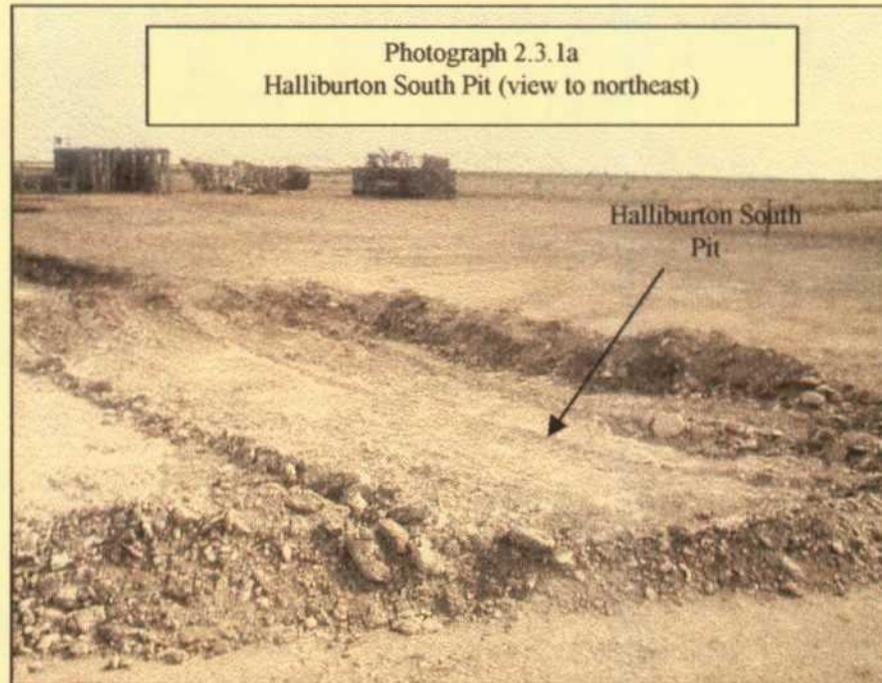
### 2.3 Site Characterization

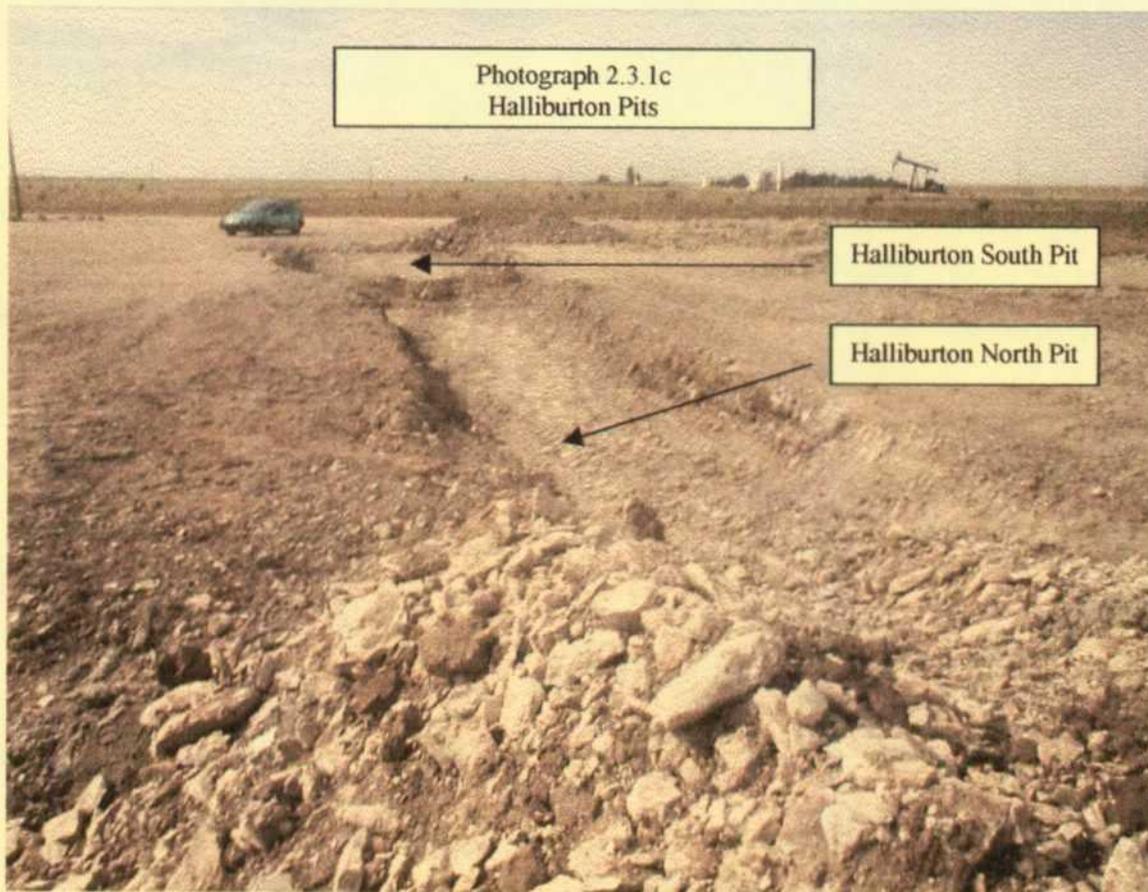
The site is typical of a permanently abandoned drill site, i.e., caliche pad and access road and dry hole marker, however the decommissioned drilling reserve pit area is not discernable. There was no observable environmental impact on this site by the effluent of the Carlisle State Com #1 well. Well control activities however resulted in the excavation and use of the "Halliburton South Pit." Another, almost identical pit, i.e., "Halliburton North Pit," is located

just north of the south pit and was used for the same purpose. The pits are not contiguous and are therefore treated as separate unlined pits requiring individual "Final Remedial Action Reports" and "NMOCD Pit Remediation and Closure Reports."

### 2.3.1 Halliburton South Pit Metrics

Photograph 2.3.1a shows the Halliburton South Pit looking northeast. Stored on the northern part of the location are various pieces of drilling rig equipment.





Photographs 2.3.1b & c illustrate the view of the unlined pits looking north and south, respectively.

**2.3.1.1 Pit Dimensions**

The Halliburton South Pit is approximately 30 feet long, 10 feet wide, and 2-3 feet deep.

**2.3.1.2 Location of Pit relative to the Carlisle State Com #1 wellbore and water sources**

Diagram 2.3.1.2 illustrates the spatial relationship of the Halliburton South Pit to the Carlisle State Com #1 wellbore and water wells in the area.

### UMC/Ocean Energy Carlisle State Com #1 Site Map July 13, 1998

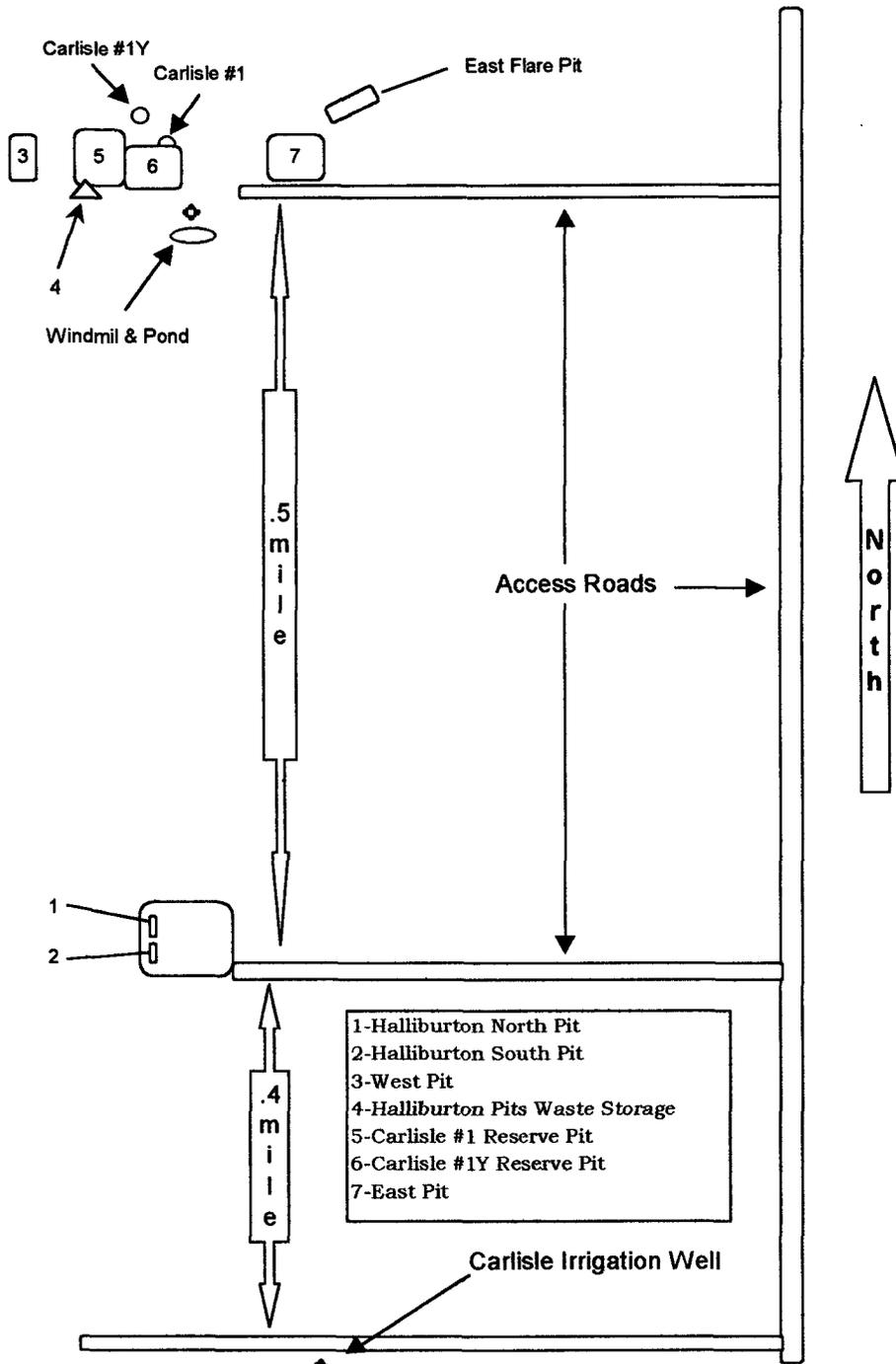


Diagram 2.3.1.2

**2.3.2 Depth to Ground Water (Points = 10)**

Depth to ground water, i.e., distance between the lower most contamination to uppermost vertical extent of the aquifer, at this location is approximated to be 50.5 feet. This distance was derived by subtracting the pit depth, 2.0 feet, from the approximated land surface to ground water surface of 52.5 feet. This approximation is based on area water well information supplied by the District II Office of the New Mexico State Engineer and is included as Attachment A. This approximation is also consistent with data collected by KEI for Tex New-Mex Pipeline Company at the Townsend Site, TNM-97-04, located 1.5 miles due east of the Halliburton South Pit location. These data are presented in Attachment B.

**2.3.3 Well Protection Area (Points = 0)**

The Halliburton South Pit is approximately .4 mile (2,112 feet) from the Carlisle Irrigation well located to the southeast and approximately .5 mile (2,640 feet) due south of the Carlisle Windmill and Pond which are adjacent to the Carlisle #1 drilling location. Each water source is >1,000 feet from the pit.

**2.3.4 Distance to Surface Water (Points = 0)**

The only perennial surface water body exists as the livestock watering pond associated with the windmill located due north .5 mile (2,640 feet) adjacent to the Carlisle State Com #1 drill site.

**2.4 Total Ranking Score and Recommended Remediation Action Levels**

The "Total Ranking Score" for the Halliburton South Pit is 10. According to Section IV, 2, b. of the New Mexico Oil Conservation Division, "Guidelines for Remediation of Leaks, Spills, and Releases," the remediation action levels for the following parameters should be achieved before closure of the pit will be granted.

<b>Remediation Action Levels</b>	
<b>Benzene</b> EPA Method 602/8020 Or Field Soil Vapor Headspace Measurement	10 ppm Or 100 ppm
<b>BTEX</b> EPA Method 602/8020 Or Field Soil Vapor Headspace Measurement	10 ppm Or 100 ppm
<b>Total Petroleum Hydrocarbon (TPH)</b> EPA Method 418.1 or 8015 modified	1000 ppm

**3 Remediation Process**

Remediation of the Halliburton South Pit involved excavation, waste storage, and sampling and analyses.

### 3.1 Excavation

Liquids were vacuumed from the surface and disposed of in an NMOCD approved facility. The pit contents were then allowed to dry out for approximately 10 days. At that point, a front-end loader and dump truck excavated the contents and bottom foot of the pit and hauled to the storage location.

### 3.2 Waste Storage

Approval was obtained from the NMOCD Hobbs, New Mexico field office to transport and store the waste at a location just outside the southwest corner of the Carlisle State Com #1 drilling reserve pit. This was necessary to allow time for waste characterization and classification and to determine appropriate disposition.

### 3.3 Sampling and Analyses

The NMOCD Hobbs field office waived the 48-hour notification requirement for bottom hole sampling of this pit. On May 29, 1998 the bottom hole samples were obtained and transmitted to the third party laboratory, i.e., Cardinal Laboratories, Hobbs, New Mexico, for analyses. The following summarizes the analytical results, the original analyses are submitted in Attachment C.

<b>Halliburton South Pit</b>			
Analytical Results Sample ID.# S52998HSP			
Sample Date: 5-29-98		Analytical Date: 5-29-98	
Parameter	Value	Units	Method
TPH	282.000	mg/Kg (ppm)	8015M
Benzene	<0.002	mg/Kg (ppm)	8260
Toluene	0.003	mg/Kg (ppm)	8260
Ethyl Benzene	<0.002	mg/Kg (ppm)	8260
Xylenes - Total	<0.006	mg/Kg (ppm)	8260
Chloride (5-11-98)	1778.000	mg/Kg (ppm)	325.3

## 4 Conclusion

The unlined Halliburton South Pit has been remediated to below the recommended remediation action levels and poses no reasonable risk to the environment or public. It is therefore concluded that the pit is ready for decommissioning and closure.

**ATTACHMENT A: Area Ground Water Information, District II State  
Engineer's Office**

*TS 105-100*

LOC: 16S.35E.09.21320  
 OTID 11117  
 ELEV: 4017.10  
 USE: U  
 DEPTH: 115  
 GEO. UNIT: 1210GLL

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL MS						
JAN 25, 1961	51.97	FEB 09, 1966	53.07	FEB 12, 1971	53.33	FEB 25, 1976	53.26
HIGHEST		51.97	JAN 25, 1961				
LOWEST		53.33	FEB 12, 1971				

SITE ID: 325548103273701  
 LOC: 16S.35E.09.342213  
 OTID 11118  
 ELEV: 4011.50  
 USE: I  
 DEPTH: 152  
 GEO. UNIT: 1210GLL

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL MS						
JAN 20, 1961	50.00	FEB 09, 1966	49.37	FEB 12, 1971	49.71	FEB 26, 1976	49.63
HIGHEST		49.37	FEB 09, 1966				
LOWEST		50.00	JAN 20, 1961				

SITE ID: 325553103272801  
 LOC: 16S.35E.09.411421  
 OTID 11119  
 ELEV: 4011.90  
 USE: U  
 DEPTH: 106  
 GEO. UNIT: 1210GLL

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL MS						
JAN 20, 1961	49.22	FEB 12, 1971	50.46	MAR 31, 1981	50.79	MAR 01, 1991	51.37
FEB 09, 1966	50.12	FEB 26, 1976	50.42	JAN 31, 1986	50.93		
HIGHEST		49.22	JAN 20, 1961				
LOWEST		51.37	MAR 01, 1991				

10DATE: 03/04/97

PROVISIONAL GROUNDWATER DATA LEA COUNTY, NH.

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SITE ID: 325542103265701  
 LOC: 16S.35E.10.33321  
 OTID 12666  
 ELEV: 4002.00  
 USE: U

DEPTH: 120  
GEO. UNIT: 1210GLL

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL MS	DATE	WATER LEVEL MS	DATE	WATER LEVEL MS	DATE	WATER LEVEL MS
FEB 16, 1971	50.36	MAR 31, 1981	50.60	MAR 01, 1991	51.33		
FEB 26, 1976	50.50	JAN 30, 1986	50.75				
	HIGHEST 50.36	FEB 16, 1971					
	LOWEST 51.33	MAR 01, 1991					

SITE ID: 325627103254401  
LOC: 165.35E.11.12111  
BTID 11120  
ELEV: 3988.00  
USE: I  
DEPTH: 80  
GEO. UNIT: 1210GLL

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL MS	DATE	WATER LEVEL MS	DATE	WATER LEVEL MS	DATE	WATER LEVEL MS
MAR 27, 1961	51.61	FEB 16, 1971	52.76	JAN 30, 1986	53.70		
MAR 02, 1966	53.17	FEB 26, 1976	52.42	MAR 01, 1991	53.31		
DEC 04, 1969	52.69	MAR 31, 1981	52.38	JAN 26, 1996	52.85 S		
	HIGHEST 51.61	MAR 27, 1961					
	LOWEST 53.70	JAN 30, 1986					

SITE ID: 325627103251301  
LOC: 165.35E.11.221113  
BTID 11121  
ELEV: 3981.00  
USE: I  
DEPTH: 90  
GEO. UNIT: 1210GLL

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL MS						
FEB 07, 1961	52.61	FEB 16, 1971	54.26	MAR 31, 1981	54.77	MAR 01, 1991	54.44
FEB 10, 1966	54.20	FEB 26, 1976	54.02	JAN 17, 1986	54.78		
	HIGHEST 52.61	FEB 07, 1961					
	LOWEST 54.78	JAN 17, 1986					

IQATE: 03/04/97

PROVISIONAL GROUNDWATER DATA LEA COUNTY, NM.

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SITE ID: 325556103252801  
LOC: 165.35E.11.411331  
BTID 11122  
ELEV: 3981.00  
USE: U  
DEPTH: 85

**ATTACHMENT B: GROUND WATER LEVEL MEASUREMENT  
REFERENCES**

TABLE III

SUMMARY OF GROUND WATER MONITORING  
 TEXAS - NEW MEXICO PIPE LINE COMPANY  
 TNM-97-04  
 LOVINGTON, NEW MEXICO

WELL NO.	DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
				Actual	Corrected	
MW-1	06/18/97	3,974.19	53.15	3921.04	—	—
	07/29/97	3,974.19	53.05	3921.14	—	—
MW-2	06/18/97	3,974.65	53.24	3921.41	—	—
	07/29/97	3,974.65	53.14	3921.51	—	—
MW-3	06/18/97	3,974.63	60.08	3914.55	3921.94	8.69
	06/23/97	3,974.63	60.08	3914.55	3921.96	8.72
	06/23/97	3,974.63	53.30	3921.33	3921.56	0.27
	06/23/97	3,974.63	53.78	3920.85	3921.71	1.01
	06/25/97	3,974.63	59.85	3914.78	3921.99	8.48
	06/25/97	3,974.63	55.50	3919.13	3921.72	3.05
	06/25/97	3,974.63	56.34	3918.29	3921.78	4.10
	06/25/97	3,974.63	53.29	3921.34	—	—
	06/27/97	3,974.63	59.99	3914.64	3921.96	8.61
	06/27/97	3,974.63	56.68	3917.95	3921.60	4.29
	07/01/97	3,974.63	59.99	3914.64	3921.96	8.61
	07/03/97	3,974.63	60.04	3914.59	3921.98	8.69
	07/03/97	3,974.63	55.22	3919.41	3921.75	2.75
	07/29/97	3,974.63	60.03	3914.60	3921.96	8.66
07/29/97	3,974.63	54.47	3920.16	3921.90	2.05	
MW-4	06/18/97	3,974.55	52.96	3921.59	—	—
	07/29/97	3,974.55	52.92	3921.63	—	—
MW-5	06/18/97	3,974.31	60.85	3913.46	3922.41	10.53
	06/23/97	3,974.31	58.09	3916.22	3922.08	6.89
	06/23/97	3,974.31	56.57	3917.74	3922.38	5.46
	06/23/97	3,974.31	59.18	3915.13	3921.32	7.28
	06/23/97	3,974.31	59.74	3914.57	3922.08	8.83
	06/23/97	3,974.31	54.91	3919.40	3921.88	2.92
	06/25/97	3,974.31	60.47	3913.84	3922.02	9.62
	06/25/97	3,974.31	58.47	3915.84	3921.99	7.24
	06/25/97	3,974.31	59.49	3914.82	3922.01	8.46
	06/25/97	3,974.31	53.42	3920.89	3921.94	1.23
	06/25/97	3,974.31	55.95	3918.36	3921.90	4.16
	06/25/97	3,974.31	58.50	3915.81	3922.02	7.30
	06/25/97	3,974.31	52.46	3921.85	3921.87	0.02
	06/25/97	3,974.31	51.81	3922.50	3922.50	0.00
	06/27/97	3,974.31	60.46	3913.85	3922.06	9.66
	06/27/97	3,974.31	57.47	3916.84	3922.00	6.07
	07/01/97	3,974.31	60.45	3913.86	3922.01	9.59
	07/01/97	3,974.31	56.40	3917.91	3921.94	4.74
	07/03/97	3,974.31	60.41	3913.90	3922.01	9.54
	07/03/97	3,974.31	57.53	3916.78	3921.98	6.12
07/29/97	3,974.31	60.19	3914.12	3922.02	9.29	
07/29/97	3,974.31	57.69	3916.62	3920.97	5.12	

**ATTACHMENT C: GROUND WATER DATA ORIGINAL LABORATORY  
REPORTS**



**ARDINAL  
LABORATORIES**

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

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

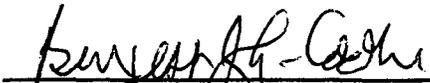
ANALYTICAL RESULTS FOR  
CALLAWAY SAFETY/UMC  
ATTN: PAT McCASLAND  
3229 INDUSTRIAL DRIVE  
HOBBS, NM 88240  
FAX TO: 505-392-4990

Receiving Date: 05/29/98  
Reporting Date: 06/01/98  
Project Number: NOT GIVEN  
Project Name: UMC CARLISLE STATE COM #1  
Project Location: 4 MILES WEST OF LOVINGTON, NM

Sampling Date: 05/29/98  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: GP  
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)	ALKANE RANGE	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		05/29/98	05/29/98	05/29/98	05/29/98	05/29/98	05/29/98
H3667-1	S52998HSP	282	C12-C28	<0.002	0.003	<0.002	<0.006
H3667-2	S52998CLFW1BL	15.9	C14-C26	<0.002	0.004	0.005	0.070
Quality Control		2862	-	0.102	0.102	0.101	0.306
True Value QC		3000	-	0.100	0.100	0.100	0.300
% Accuracy		95.4	-	102	102	101	102
Relative Percent Difference		3.5	-	2.1	7.4	9.2	4.9

METHODS: TPH - EPA SW-846 8015M; BTEX - EPA SW-846-8020

  
Burgess J. A. Cooke, Ph. D.

6/1/98  
Date

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