

## Results of Directional Survey

API number:	30-025-41396	DD
OGRID:	Operator:	CONOCOPHILLIPS COMPANY
	Property:	MCA UNIT # 510

surface	ULSTR:	I	22	T	17S	R	32E
					2055	FSL	1310
							FEL

BH Loc	ULSTR:	I	22	T	17S	R	32E
4334	MD		4333.4	TVD	2091	FSL	1295
							FEL

Top Perf/OH	ULSTR:	I	22	T	17S	R	32E
3782	MD		3781.6	TVD	2077	FSL	1292
							FEL

Bot Perf/OH	ULSTR:	I	22	T	17S	R	32E
4059	MD		4058.5	TVD	2084	FSL	1294
							FEL

	MD	N/S	E/W	VD
	3759	21.60	17.89	3758.62
TOP PERFS/OH	<b>3782</b>	22.17	17.78	3781.61
	4235	33.44	15.68	4234.47
	3759	21.60	17.89	3758.62
BOT PERFS/OH	<b>4059</b>	29.06	16.50	4058.53
	4235	33.44	15.68	4234.47

NEXT TO LAST	4281	34.59	15.53	4280.46
LAST READING	4334	35.88	15.42	4333.44
TD	<b>4334</b>	35.88	15.42	4333.44

Surface Location	2055	FS	1310	FE
Projected BHL	2091	FS	1295	FE
Location of				
Top Perfs/OH	2077	FS	1292	FE
Bottom Perfs/OH	2084	FS	1294	FE

### SUMMARY of Subsurface Locations

Surface Location	I-22-17S-32E	2055	FS	1310	FE	Vert. Depth
Top Perfs/OH	I-22-17S-32E	2077	FS	1292	FE	3781.61
Bottom Perfs/OH	I-22-17S-32E	2084	FS	1294	FE	4058.53
Projected TD	I-22-17S-32E	2091	FS	1295	FE	4333.44

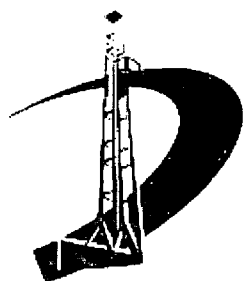
Accepted for Record Only

MAR 10 2014

HOBBS OCD

FEB 25 2014

RECEIVED



**PRO DIRECTIONAL**

P.O. Box 750, Conroe, TX 77305 Phone: 936-441-7266

# **ConocoPhillips**

MCA Unit Well No. 510

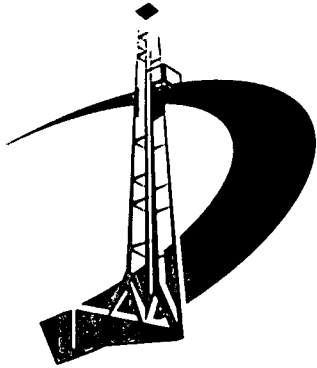
Lea County, NM

December 10, 2013

Job Number LNM 5107413

## ***Survey Completion Report***

**ORIGINAL**



# PRO DIRECTIONAL

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P.O. Box 750, Conroe, TX 77305 Phone: 936-441-7266 Fax: 936-441-7268

*December 10, 2013*

## **ConocoPhillips**

MCA Unit Well No. 510  
Lea County, NM

This is to certify surveys from **903'** MD to a depth of **4,334'** MD are true and correct MWD surveys. These surveys were taken from **11/24/2013** through **11/27/2013**.

Sincerely,

John Jordan

Well Planning



## **ConocoPhillips**

**Lea County, NM**

**MCA Unit Well**

**No. 510**

**OH**

**Survey: ProDirectional**

## **Survey Report**

**10 December, 2013**



<b>Company:</b>	Conoco Phillips	<b>Local Co-ordinate Reference:</b>	Well No. 510
<b>Project:</b>	Lea County, N.M.	<b>TVD Reference:</b>	WELL @ 4008.00usft (Original Well Elev)
<b>Site:</b>	MCA Unit	<b>MD Reference:</b>	WELL @ 4008.00usft (Original Well Elev)
<b>Well:</b>	No. 510	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Well_Planner1

<b>Project</b>	Lea County, N.M.		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		

<b>Site</b>	MCA Unit				
<b>Site Position:</b>		<b>Northing:</b>	656,769.90 usft	<b>Latitude:</b>	32° 48' 15.158 N
<b>From:</b>	Map	<b>Easting:</b>	677,918.00 usft	<b>Longitude:</b>	103° 45' 15.436 W
<b>Position Uncertainty:</b>	3.30 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.31 °

<b>Well</b>	No. 510					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	661,925.70 usft	<b>Latitude:</b>	32° 49' 6.095 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	679,380.50 usft	<b>Longitude:</b>	103° 44' 57.968 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,995.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/10/2013	7.41	60.64	48,701

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	0.00	

<b>Survey Program</b>	<b>Date</b>	12/10/2013		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
903.00	4,334.00	Survey #1 (OH)	MWD	MWD - Standard

Company: Conoco Phillips  
Project: Lea County, N.M.  
Site: MCA Unit  
Well: No. 510  
Wellbore: OH  
Design: OH

Local Co-ordinate Reference: Well No. 510  
TVD Reference: WELL @ 4008.00usft (Original Well Elev)  
MD Reference: WELL @ 4008.00usft (Original Well Elev)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Well\_Planner1

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	Build (°/100usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
903.00	0.30	262.00	903.00	-0.33	0.03	-0.33	-2.34	2.36	262.00	0.03
<b>ProDirectional MWD</b>										
1,380.00	0.20	158.00	1,379.99	-1.27	-0.02	-1.27	-3.27	3.51	248.68	0.08
1,856.00	1.00	87.50	1,855.97	-1.86	0.17	-1.86	1.20	2.21	147.33	0.20
2,331.00	1.20	72.60	2,330.88	-0.20	0.04	-0.20	10.08	10.08	91.11	0.07
2,806.00	0.90	42.60	2,805.80	4.04	-0.06	4.04	17.35	17.82	76.90	0.13
3,282.00	1.10	355.10	3,281.74	11.34	0.04	11.34	19.49	22.55	59.81	0.17
3,759.00	1.40	348.00	3,758.62	21.60	0.06	21.60	17.89	28.05	39.63	0.07
4,235.00	1.50	350.70	4,234.47	33.44	0.02	33.44	15.68	36.93	25.12	0.03
4,281.00	1.40	355.20	4,280.46	34.59	-0.22	34.59	15.53	37.92	24.18	0.33
4,334.00	1.40	355.20	4,333.44	35.88	0.00	35.88	15.42	39.06	23.26	0.00
<b>PTB @ 4,334' MD</b>										

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
903.00	903.00	-0.33	-2.34	ProDirectional MWD
4,334.00	4,333.44	35.88	15.42	PTB @ 4,334' MD