

Results of Directional Survey

API number:	30-025-41398	DD
OGRID:		Operator: CONOCOPHILLIPS COMPANY
		Property: MCA UNIT # 512

surface	ULSTR:	K	27	T 17S	R 32E
				2185 FSL	2470 FWL

BH Loc	ULSTR:	K	27	T 17S	R 32E
4362	MD	4361.2	TVD	2249 FSL	2479 FWL

Top Perf/OH	ULSTR:	K	27	T 17S	R 32E
3936	MD	3913.9	TVD	2241 FSL	2484 FWL

Bot Perf/OH	ULSTR:	K	27	T 17S	R 32E
4116	MD	4109.4	TVD	2245 FSL	2482 FWL

	MD	N/S	E/W	VD
	3786	54.11	15.27	3785.33
TOP PERFS/OH	3936	56.10	14.00	3913.88
	3996	56.89	13.49	3965.30
	3996	56.89	13.49	3965.30
BOT PERFS/OH	4116	59.50	11.98	4109.43
	4145	60.13	11.61	4144.26

NEXT TO LAST	4317	63.03	9.75	4316.23
LAST READING	4362	63.65	9.28	4361.22
TD	4362	63.65	9.28	4361.22

Surface Location	2185	FS	2470	FW
Projected BHL	2249	FS	2479	FW
Location of				
Top Perfs/OH	2241	FS	2484	FW
Bottom Perfs/OH	2245	FS	2482	FW

SUMMARY of Subsurface Locations

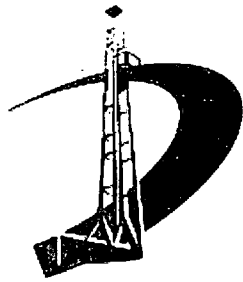
Surface Location	K-27-17S-32E	2185	FS	2470	FW	Vert. Depth
Top Perfs/OH	K-27-17S-32E	2241	FS	2484	FW	3913.88
Bottom Perfs/OH	K-27-17S-32E	2245	FS	2482	FW	4109.43
Projected TD	K-27-17S-32E	2249	FS	2479	FW	4361.22

MAR 06 2014

HOBBS OCD

JAN 0 6

RECEIVED



PRODIRECTIONAL

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

HOBBS OCD

JAN 0 6 2014

RECEIVED

ConocoPhillips

MCA Unit Well No. 512

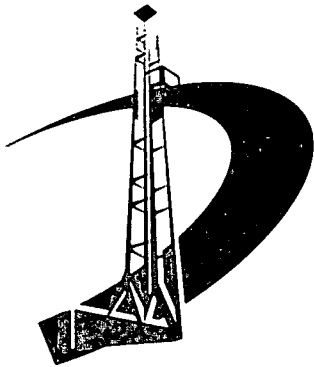
Lea County, NM

October 11, 2013

Job Number LNM 5106613

Survey Completion Report

ORIGINAL



PRODIRECTIONAL

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

October 11, 2013

ConocoPhillips

MCA Unit Well No. 512

Lea County, NM

This is to certify surveys from **1,098'** MD to a depth of **4,362'** MD are true and correct MWD surveys. These surveys were taken from **10/09/2013** through **10/11/2013**.

Sincerely,

John Jordan

Well Planning



ConocoPhillips

Lea County, New Mexico

MCA Unit Well

No. 512

Original Hole

Survey: ProDirectional

Standard Survey Report

11 October, 2013



Company:	ConocoPhillips	Local Co-ordinate Reference:	Well MCA Unit Well No. 512
Project:	Lea County, New Mexico	TVD Reference:	RKB=3974+13 @ 3987.00usft (Original Well Elev)
Site:	MCA Unit	MD Reference:	RKB=3974+13 @ 3987.00usft (Original Well Elev)
Well:	MCA Unit Well No. 512	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Ddatabase

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

Site	MCA Unit				
Site Position:		Northing:	656,769.90 usft	Latitude:	32.80421053
From:	Map	Easting:	677,918.00 usft	Longitude:	-103.75428770
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well	MCA Unit Well No. 512					
Well Position	+N/-S	0.00 usft	Northing:	656,769.90 usft	Latitude:	32.80421053
	+E/-W	0.00 usft	Easting:	677,918.00 usft	Longitude:	-103.75428770
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,974.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	8/10/2013	7.57	60.63	48,775

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

Survey Program	Date 10/11/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
1,098.00	4,362.00	MWD (Original Hole)	MWD	MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,098.00	1.00	35.60	1,097.94	7.79	5.58	7.79	0.09	0.09	0.00
Professional Directional Ltd MWD surveys									
1,276.00	1.00	44.20	1,275.92	10.17	7.56	10.17	0.08	0.00	4.83
1,456.00	0.90	49.00	1,455.89	12.22	9.73	12.22	0.07	-0.06	2.67
1,635.00	1.00	45.50	1,634.87	14.24	11.90	14.24	0.06	0.06	-1.96
1,814.00	1.20	47.40	1,813.83	16.60	14.40	16.60	0.11	0.11	1.06
1,993.00	1.10	38.20	1,992.80	19.22	16.84	19.22	0.12	-0.06	-5.14
2,172.00	1.40	38.80	2,171.76	22.27	19.27	22.27	0.17	0.17	0.34

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well MCA Unit Well No. 512
Project:	Lea County, New Mexico	TVD Reference:	RKB=3974+13 @ 3987.00usft (Original Well Elev)
Site:	MCA Unit	MD Reference:	RKB=3974+13 @ 3987.00usft (Original Well Elev)
Well:	MCA Unit Well No. 512	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Ddatabase

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,352.00	1.60	29.10	2,351.69	26.18	21.87	26.18	0.18	0.11	-5.39
2,531.00	1.20	36.00	2,530.64	29.88	24.19	29.88	0.24	-0.22	3.85
2,711.00	1.30	3.00	2,710.60	33.45	25.40	33.45	0.40	0.06	-18.33
2,890.00	1.60	350.00	2,889.54	37.94	25.07	37.94	0.25	0.17	-7.26
3,069.00	1.20	342.90	3,068.49	42.19	24.09	42.19	0.24	-0.22	-3.97
3,248.00	1.50	314.80	3,247.44	45.63	21.88	45.63	0.40	0.17	-15.70
3,428.00	1.20	319.20	3,427.39	48.72	18.97	48.72	0.18	-0.17	2.44
3,607.00	1.00	329.00	3,606.36	51.48	16.94	51.48	0.15	-0.11	5.47
3,786.00	1.00	326.00	3,785.33	54.11	15.27	54.11	0.03	0.00	-1.68
3,966.00	1.10	328.60	3,965.30	56.89	13.49	56.89	0.06	0.06	1.44
4,145.00	1.30	331.10	4,144.26	60.13	11.61	60.13	0.12	0.11	1.40
4,317.00	1.00	322.50	4,316.23	63.03	9.75	63.03	0.20	-0.17	-5.00
4,362.00	1.00	322.50	4,361.22	63.65	9.28	63.65	0.00	0.00	0.00

Survey projected to 4362 MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,098.00	1,097.94	7.79	5.58	Professional Directional Ltd MWD surveys
4,362.00	4,361.22	63.65	9.28	Survey projected to 4362 MD