

Results of Directional Survey

DD

API number:	30-025-40657			
OGRID:		Operator:	CONOCOPHILLIPS COMPANY	
		Property:	RUBY FEDERAL	# 57

surface	ULSTR:	N	18	T 17S	R 32E
				330 FSL	2652 FWL

5312

BH Loc	ULSTR:	O	18	T 17S	R 32E
6947	MD	6934.4	TVD	415 FSL	2321 FEL
					2991 FWL

Top Perf/OH	ULSTR:	N	18	T 17S	R 32E
5355	MD	5346.1	TVD	386 FSL	2425 FEL
					2887 FWL
Bot Perf/OH	ULSTR:	O	18	T 17S	R 32E
6600	MD	6588.0	TVD	408 FSL	2341 FEL
					2971 FWL

	MD	N/S	E/W	VD
	5329	55.86	233.20	5320.12
TOP PERFS/OH	5355	56.44	234.82	5346.06
	5419	57.88	238.81	5409.92
	6583	77.40	318.18	6571.04
BOT PERFS/OH	6600	77.72	319.29	6588.00
	6645	78.57	322.23	6632.90

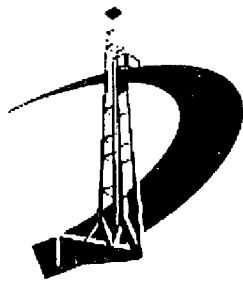
NEXT TO LAST	6894	83.63	336.39	6881.44
LAST READING	6947	84.66	338.87	6934.37
TD	6947	84.66	338.87	6934.37

Surface Location	330	FS	2652	FW
Projected BHL	415	FS	2991	FW
Location of				
Top Perfs/OH	386	FS	2887	FW
Bottom Perfs/OH	408	FS	2971	FW

SUMMARY of Subsurface Locations

Surface Location	N-18-17S-32E	330	FS	2652	FW	Vert. Depth
Top Perfs/OH	N-18-17S-32E	386	FS	2887	FW	5346.06
Bottom Perfs/OH	O-18-17S-32E	408	FS	2971	FW	6588.00
Projected TD	O-18-17S-32E	415	FS	2991	FW	6934.37

AUG 27 2013



PRODIRECTIONAL

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

HOBBS OCD

JUL 17 2013

ConocoPhillips

RECEIVED

Ruby Federal No. 57

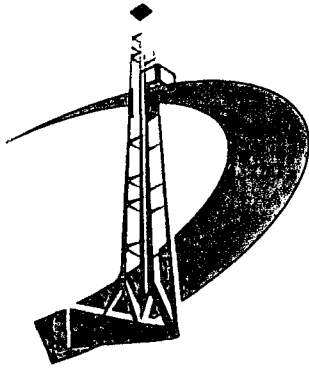
Lea County, NM

July 10, 2013

Job Number LNM 5103813

Survey Completion Report

ORIGINAL



PRODIRECTIONAL

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

July 10, 2013

ConocoPhillips

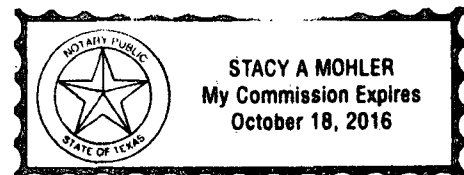
Ruby Federal No. 57
Lea County, NM

This is to certify surveys from 759' MD to a depth of 6,947' MD are true and correct MWD surveys. These surveys were taken from 05/09/2013 through 05/13/2013.

Sincerely,

John Jordan

Well Planning



Stacy A. Mohler
7/11/13



ConocoPhillips

Lea County, N.M.

Ruby Federal

No. 57

OH

Survey: ProDirectional

Survey Completion Report

10 July, 2013





Professional Directional
Survey Report



Company: Conoco Phillips
Project: Lea County, N.M.
Site: Ruby Federal
Well: No. 57
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well No. 57
TVD Reference: WELL @ 3961.00usft (Original Well Elev)
MD Reference: WELL @ 3961.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Project	Lea County, N.M.		
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	Ruby Federal		
Site Position:		Northing:	665,418.70 usft
From:	Map	Easting:	662,182.70 usft
Position Uncertainty:	3.30 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 41.553 N
		Longitude:	103° 48' 19.284 W
		Grid Convergence:	0.29 °

Well		No. 57				
Well Position	+N/-S	0.00 usft	Northing:	665,418.70 usft	Latitude:	32° 49' 41.553 N
	+E/-W	0.00 usft	Easting:	662,182.70 usft	Longitude:	103° 48' 19.284 W
Position Uncertainty	3.30 usft	Wellhead Elevation:	usft	Ground Level:	3,961.00 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	7/10/2013	0.00	0.00	0

Design	OH			
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	76.68

Survey Program	Date 7/10/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
759.00	6,947.00	Survey #1 (OH)	MWD	MWD - Standard



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Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V: Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	665,418.70	662,182.70
759.00	0.30	282.40	759.00	-1.79	0.43	-1.94	1.99	282.40	665,419.13	662,180.76
ProDirectional First MWD Survey										
848.00	0.20	292.00	848.00	-2.13	0.53	-2.31	2.37	283.03	665,419.23	662,180.39
1,027.00	0.40	214.90	1,026.99	-2.85	0.14	-2.96	2.96	272.70	665,418.84	662,179.74
1,206.00	0.40	153.90	1,205.99	-3.18	-0.93	-3.04	3.18	252.93	665,417.77	662,179.66
1,386.00	0.40	92.30	1,385.99	-2.43	-1.52	-2.14	2.63	234.52	665,417.18	662,180.56
1,565.00	1.10	69.60	1,564.97	-0.12	-0.95	0.10	0.95	174.17	665,417.75	662,182.80
1,744.00	1.60	74.50	1,743.92	4.08	0.32	4.12	4.13	85.59	665,419.02	662,186.82
1,923.00	0.90	108.60	1,922.88	7.77	0.54	7.86	7.87	86.09	665,419.24	662,190.56
2,102.00	0.90	127.30	2,101.86	9.85	-0.76	10.31	10.33	94.24	665,417.94	662,193.01
2,192.00	1.20	31.30	2,191.85	10.96	-0.39	11.36	11.37	91.95	665,418.31	662,194.06
2,281.00	2.20	54.00	2,280.81	13.19	1.41	13.22	13.30	83.90	665,420.11	662,195.92
2,371.00	2.30	58.80	2,370.74	16.51	3.36	16.17	16.51	78.24	665,422.06	662,198.87
2,460.00	3.20	62.40	2,459.64	20.61	5.44	19.90	20.63	74.71	665,424.14	662,202.60
2,550.00	4.70	71.90	2,549.42	26.72	7.75	25.63	26.77	73.17	665,426.45	662,208.33
2,640.00	4.60	74.50	2,639.12	34.00	9.86	32.61	34.07	73.18	665,428.56	662,215.31
2,729.00	4.00	76.40	2,727.87	40.67	11.54	39.07	40.74	73.54	665,430.24	662,221.77
2,819.00	3.60	81.50	2,817.67	46.63	12.70	44.91	46.67	74.21	665,431.40	662,227.61
2,909.00	3.10	76.20	2,907.52	51.88	13.70	50.07	51.91	74.70	665,432.40	662,232.77
2,999.00	4.20	72.80	2,997.34	57.60	15.25	55.58	57.64	74.65	665,433.95	662,238.28
3,088.00	4.60	70.90	3,086.07	64.40	17.38	62.07	64.46	74.35	665,436.08	662,244.77
3,178.00	4.20	77.90	3,175.81	71.29	19.26	68.70	71.35	74.34	665,437.96	662,251.40
3,267.00	4.00	80.60	3,264.58	77.64	20.45	74.95	77.69	74.74	665,439.15	662,257.65
3,357.00	4.20	76.30	3,354.35	84.07	21.74	81.25	84.11	75.02	665,440.44	662,263.95
3,447.00	4.10	74.10	3,444.12	90.58	23.40	87.54	90.62	75.03	665,442.10	662,270.24
3,536.00	4.10	71.30	3,532.89	96.93	25.29	93.62	96.97	74.88	665,443.99	662,276.32



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Well: No. 57
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well No. 57
TVD Reference: WELL @ 3961.00usft (Original Well Elev)
MD Reference: WELL @ 3961.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
3,626.00	4.00	71.70	3,622.66	103.26	27.31	99.65	103.32	74.67	665,446.01	662,282.35
3,715.00	4.60	78.10	3,711.41	109.92	29.02	106.09	109.98	74.70	665,447.72	662,288.79
3,805.00	5.40	78.90	3,801.07	117.76	30.58	113.77	117.81	74.96	665,449.28	662,296.47
3,894.00	4.90	80.80	3,889.71	125.73	31.99	121.63	125.77	75.26	665,450.69	662,304.33
3,984.00	5.30	79.50	3,979.35	133.72	33.37	129.52	133.74	75.55	665,452.07	662,312.22
4,074.00	5.00	81.00	4,068.99	141.78	34.74	137.48	141.80	75.82	665,453.44	662,320.18
4,164.00	4.90	80.40	4,158.66	149.53	35.99	145.14	149.54	76.07	665,454.69	662,327.84
4,253.00	5.00	76.20	4,247.32	157.20	37.55	152.65	157.21	76.18	665,456.25	662,335.35
4,343.00	5.10	79.80	4,336.97	165.12	39.19	160.40	165.12	76.27	665,457.89	662,343.10
4,433.00	4.70	81.00	4,426.65	172.79	40.48	167.98	172.79	76.45	665,459.18	662,350.68
4,522.00	4.50	78.70	4,515.36	179.91	41.73	175.00	179.91	76.59	665,460.43	662,357.70
4,612.00	4.80	80.80	4,605.06	187.20	43.03	182.18	187.20	76.71	665,461.73	662,364.88
4,702.00	4.50	79.70	4,694.77	194.48	44.26	189.37	194.48	76.84	665,462.96	662,372.07
4,791.00	4.20	75.40	4,783.51	201.22	45.71	195.96	201.22	76.87	665,464.41	662,378.66
4,881.00	4.30	78.40	4,873.26	207.89	47.22	202.46	207.89	76.87	665,465.92	662,385.16
4,970.00	3.90	73.10	4,962.03	214.25	48.77	208.62	214.25	76.84	665,467.47	662,391.32
5,060.00	3.90	72.50	5,051.83	220.35	50.58	214.47	220.35	76.73	665,469.28	662,397.17
5,150.00	4.30	74.80	5,141.60	226.78	52.38	220.64	226.78	76.64	665,471.08	662,403.34
5,239.00	4.20	75.00	5,230.35	233.37	54.10	227.01	233.37	76.60	665,472.80	662,409.71
5,329.00	4.00	73.20	5,320.12	239.80	55.86	233.20	239.80	76.53	665,474.56	662,415.90
5,419.00	3.60	66.90	5,409.92	245.72	57.88	238.81	245.72	76.38	665,476.58	662,421.51
5,508.00	4.10	75.40	5,498.72	251.65	59.78	244.45	251.66	76.26	665,478.48	662,427.15
5,598.00	4.00	75.90	5,588.50	258.01	61.35	250.61	258.01	76.24	665,480.05	662,433.31
5,688.00	4.10	77.60	5,678.27	264.36	62.81	256.80	264.37	76.26	665,481.51	662,439.50
5,777.00	4.10	75.50	5,767.05	270.72	64.29	262.99	270.73	76.26	665,482.99	662,445.69
5,867.00	4.20	75.90	5,856.81	277.24	65.90	269.30	277.24	76.25	665,484.60	662,452.00
5,957.00	4.10	74.90	5,946.57	283.75	67.54	275.60	283.76	76.23	665,486.24	662,458.30



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
6,046.00	4.10	79.70	6,035.35	290.10	68.93	281.80	290.11	76.25	665,487.63	662,464.50
6,136.00	4.00	74.80	6,125.12	296.45	70.33	288.00	296.46	76.28	665,489.03	662,470.70
6,225.00	4.10	74.00	6,213.90	302.73	72.02	294.05	302.74	76.24	665,490.72	662,476.75
6,315.00	4.10	79.20	6,303.67	309.16	73.51	300.31	309.17	76.24	665,492.21	662,483.01
6,404.00	4.00	80.30	6,392.45	315.44	74.63	306.49	315.45	76.31	665,493.33	662,489.19
6,494.00	3.70	75.20	6,482.24	321.48	75.90	312.39	321.48	76.34	665,494.60	662,495.09
6,583.00	4.00	75.70	6,571.04	327.45	77.40	318.18	327.46	76.33	665,496.10	662,500.88
6,645.00	3.80	72.10	6,632.90	331.66	78.57	322.23	331.67	76.30	665,497.27	662,504.93
6,719.00	3.80	74.00	6,706.74	336.55	80.00	326.92	336.56	76.25	665,498.70	662,509.62
6,808.00	3.30	66.80	6,795.57	342.02	81.82	332.11	342.04	76.16	665,500.52	662,514.81
6,894.00	2.90	67.40	6,881.44	346.61	83.63	336.39	346.63	76.04	665,502.33	662,519.09
6,947.00	2.90	67.40	6,934.37	349.26	84.66	338.87	349.28	75.97	665,503.36	662,521.57

PTB @ 6,947' MD, 6,934.37' MD

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
759.00	759.00	0.43	-1.94	ProDirectional First MWD Survey
6,947.00	6,934.37	84.66	338.87	PTB @ 6,947' MD, 6,934.37' MD