

Results of Directional Survey

DD

API number:	30-025-41008		
OGRID:		Operator:	CONOCOPHILLIPS COMPANY
		Property:	RUBY FEDERAL # 12

surface	ULSTR:	K	18	T 17S	R 32E
				1330 FSL	1705 FWL

BH Loc	ULSTR:	N	18	T 17S	R 32E
6924 MD		6897.2	TVD	867 FSL	1614 FWL

Top Perf/OH	ULSTR:	K	18	T 17S	R 32E
5390 MD		5372.1	TVD	1027 FSL	1649 FWL

Bot Perf/OH	ULSTR:	N	18	T 17S	R 32E
6329 MD		6305.0	TVD	922 FSL	1628 FWL

	MD	N/S	E/W	VD
	5374	-301.16	-55.98	5356.2
TOP PERFS/OH	5390	-302.85	-56.19	5372.11
	5464	-310.65	-57.16	5445.69
	6270	-401.24	-75.54	6246.36
BOT PERFS/OH	6329	-407.72	-77.13	6304.99
	6360	-411.13	-77.97	6335.79

NEXT TO LAST	6871	-459.50	-89.55	6844.32
LAST READING	6924	-463.22	-90.66	6897.18
TD	6924	-463.22	-90.66	6897.18

Surface Location	1330 FS	1705 FW
Projected BHL	867 FS	1614 FW
Location of		
Top Perfs/OH	1027 FS	1649 FW
Bottom Perfs/OH	922 FS	1628 FW

SUMMARY of Subsurface Locations

Surface Location	K-18-17S-32E	1330 FS	1705 FW	Vert. Depth
Top Perfs/OH	K-18-17S-32E	1027 FS	1649 FW	5372.11
Bottom Perfs/OH	N-18-17S-32E	922 FS	1628 FW	6304.99
Projected TD	N-18-17S-32E	867 FS	1614 FW	6897.18

DEC 02 2013



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

HOBBS OCD

JUL 17 2013

ConocoPhillips

Ruby Federal No. 12
Lea County, NM

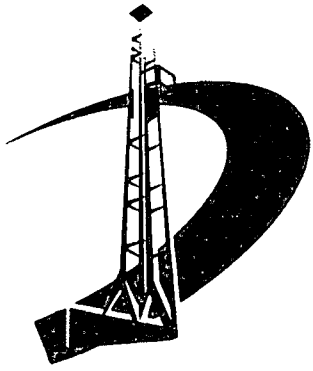
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May 28, 2013

Job Number LNM 5103913

Survey Completion Report

(COPY)



PRODIRECTIONAL

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

May 28, 2013

ConocoPhillips

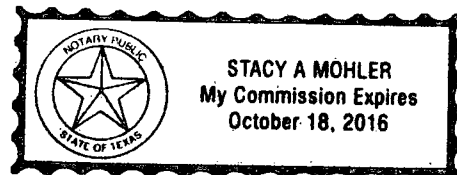
Ruby Federal No. 12
Lea County, NM

This is to certify surveys from 731' MD to a depth of 6,924' MD are true and correct MWD surveys. These surveys were taken from 05/17/2013 through 05/22/2013.

Sincerely,

John Jordan

Well Planning



Stacy A. Mohler
5/28/13



ConocoPhillips

Lea County, NM

Ruby Federal

No. 12

OH

Survey: ProDirectional

Survey Completion Report

28 May, 2013





Professional Directional
Survey Report



Company: ConocoPhillips
Project: Lea County, NM
Site: Ruby Federal
Well: No. 12
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well No. 12
TVD Reference: WELL @ 3965.00usft (Original Well Elev)
MD Reference: WELL @ 3965.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Project Lea County, NM

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site Ruby Federal

Site Position: Northing: 665,437.81 usft Latitude: 32° 49' 41.500 N
From: Map Easting: 666,996.38 usft Longitude: 103° 47' 22.871 W
Position Uncertainty: 3.30 usft Slot Radius: 13-3/16 " Grid Convergence: 0.29 °

Well No. 12

Well Position +N/-S 0.00 usft Northing: 666,414.63 usft Latitude: 32° 49' 51.454 N
+E/-W 0.00 usft Easting: 661,229.96 usft Longitude: 103° 48' 30.392 W
Position Uncertainty 3.30 usft Wellhead Elevation: usft Ground Level: 3,952.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/24/2013	7.50	60.66	48,757

Design OH

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	191.13

Survey Program Date 5/24/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
731.00	6,924.00	Pro MWD (OH)	MWD	MWD - Standard



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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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	666,414.63	661,229.96
731.00	0.30	135.10	731.00	1.07	-1.36	1.35	1.91	135.10	666,413.27	661,231.31
895.00	0.30	140.80	894.99	1.58	-1.99	1.93	2.77	135.98	666,412.64	661,231.89
1,074.00	0.70	78.10	1,073.99	1.45	-2.13	3.29	3.92	122.91	666,412.50	661,233.25
1,253.00	0.40	79.30	1,252.98	0.79	-1.79	4.98	5.29	109.77	666,412.84	661,234.94
1,432.00	1.00	64.10	1,431.97	-0.38	-0.99	6.99	7.06	98.06	666,413.64	661,236.95
1,611.00	1.60	117.30	1,610.92	-0.62	-1.45	10.62	10.72	97.80	666,413.18	661,240.58
1,701.00	0.90	114.10	1,700.90	-0.11	-2.32	12.38	12.60	100.61	666,412.31	661,242.34
1,791.00	0.40	283.00	1,790.90	0.03	-2.54	12.72	12.97	101.28	666,412.09	661,242.68
1,880.00	0.60	266.50	1,879.90	0.14	-2.50	11.95	12.21	101.79	666,412.13	661,241.91
1,970.00	0.80	257.40	1,969.89	0.51	-2.66	10.87	11.19	103.76	666,411.97	661,240.83
2,059.00	0.70	270.40	2,058.88	0.86	-2.79	9.72	10.11	106.03	666,411.84	661,239.68
2,149.00	0.30	285.90	2,148.88	0.95	-2.72	8.94	9.35	106.94	666,411.91	661,238.90
2,239.00	0.20	243.10	2,238.88	1.02	-2.73	8.58	9.00	107.66	666,411.90	661,238.54
2,328.00	0.30	193.80	2,327.88	1.35	-3.03	8.38	8.91	109.86	666,411.60	661,238.34
2,417.00	0.90	294.50	2,416.87	1.42	-2.96	7.69	8.24	111.08	666,411.67	661,237.65
2,507.00	1.00	282.10	2,506.86	1.25	-2.51	6.28	6.76	111.76	666,412.12	661,236.24
2,597.00	1.50	239.80	2,596.84	2.01	-2.93	4.49	5.37	123.14	666,411.70	661,234.45
2,687.00	2.50	212.70	2,686.79	4.62	-5.18	2.42	5.71	155.00	666,409.45	661,232.38
2,776.00	3.70	207.20	2,775.66	9.18	-9.37	0.05	9.37	179.67	666,405.26	661,230.01
2,866.00	4.40	200.40	2,865.43	15.38	-15.19	-2.48	15.39	189.26	666,399.44	661,227.48
2,955.00	4.80	195.90	2,954.14	22.46	-21.97	-4.69	22.46	192.04	666,392.66	661,225.27
3,045.00	5.70	195.90	3,043.77	30.66	-29.89	-6.94	30.68	193.08	666,384.74	661,223.02
3,134.00	7.20	190.50	3,132.20	40.65	-39.62	-9.17	40.67	193.03	666,375.01	661,220.79
3,224.00	7.20	190.30	3,221.49	51.93	-50.72	-11.21	51.94	192.46	666,363.91	661,218.75
3,313.00	6.60	190.60	3,309.85	62.62	-61.23	-13.14	62.63	192.12	666,353.40	661,216.82
3,403.00	6.60	190.30	3,399.25	72.96	-71.40	-15.02	72.97	191.88	666,343.23	661,214.94



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Survey Report



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Wellbore: OH
Design: OH

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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)
3,492.00	7.70	187.20	3,487.56	84.02	-82.35	-16.68	84.02	191.45	666,332.28	661,213.28
3,582.00	8.00	186.20	3,576.71	96.28	-94.56	-18.12	96.28	190.84	666,320.07	661,211.84
3,672.00	7.90	193.60	3,665.85	108.70	-106.80	-20.25	108.70	190.73	666,307.83	661,209.71
3,761.00	7.60	195.10	3,754.04	120.68	-118.43	-23.22	120.68	191.09	666,296.20	661,206.74
3,851.00	7.60	194.70	3,843.25	132.56	-129.93	-26.28	132.56	191.43	666,284.70	661,203.68
3,941.00	7.30	194.50	3,932.49	144.20	-141.22	-29.22	144.21	191.69	666,273.41	661,200.74
4,030.00	7.40	193.90	4,020.76	155.57	-152.26	-32.01	155.59	191.87	666,262.37	661,197.95
4,120.00	7.40	194.80	4,110.01	167.15	-163.49	-34.89	167.17	192.05	666,251.14	661,195.07
4,210.00	7.10	192.50	4,199.29	178.49	-174.52	-37.57	178.52	192.15	666,240.11	661,192.39
4,299.00	7.10	191.30	4,287.60	189.49	-185.29	-39.84	189.52	192.13	666,229.34	661,190.12
4,389.00	6.90	189.00	4,376.93	200.46	-196.08	-41.77	200.48	192.03	666,218.55	661,188.19
4,478.00	6.30	189.60	4,465.34	210.68	-206.17	-43.42	210.70	191.89	666,208.46	661,186.54
4,568.00	6.20	188.70	4,554.81	220.47	-215.85	-44.98	220.48	191.77	666,198.78	661,184.98
4,658.00	6.10	187.50	4,644.29	230.10	-225.39	-46.34	230.11	191.62	666,189.24	661,183.62
4,747.00	6.10	189.70	4,732.79	239.55	-234.74	-47.76	239.55	191.50	666,179.89	661,182.20
4,837.00	6.10	185.80	4,822.28	249.09	-244.21	-49.04	249.09	191.36	666,170.42	661,180.92
4,926.00	6.10	185.80	4,910.77	258.50	-253.62	-50.00	258.50	191.15	666,161.01	661,179.96
5,016.00	5.80	186.50	5,000.29	267.80	-262.90	-51.00	267.80	190.98	666,151.73	661,178.96
5,106.00	6.00	187.10	5,089.81	277.02	-272.08	-52.09	277.03	190.84	666,142.55	661,177.87
5,195.00	6.50	187.80	5,178.28	286.69	-281.69	-53.35	286.70	190.73	666,132.94	661,176.61
5,285.00	6.20	187.90	5,267.73	296.63	-291.55	-54.71	296.64	190.63	666,123.08	661,175.25
5,374.00	6.30	187.10	5,356.20	306.30	-301.16	-55.98	306.32	190.53	666,113.47	661,173.98
5,464.00	5.90	187.10	5,445.69	315.84	-310.65	-57.16	315.86	190.43	666,103.98	661,172.80
5,553.00	6.30	191.50	5,534.19	325.28	-319.97	-58.70	325.31	190.40	666,094.66	661,171.26
5,643.00	6.70	190.50	5,623.61	335.47	-329.97	-60.64	335.50	190.41	666,084.66	661,169.32
5,733.00	6.80	192.60	5,712.99	346.05	-340.34	-62.76	346.07	190.45	666,074.29	661,167.20
5,822.00	6.60	189.50	5,801.38	356.43	-350.52	-64.75	356.45	190.47	666,064.11	661,165.21



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5,912.00	6.70	189.80	5,890.77	366.85	-360.80	-66.50	366.87	190.44	666,053.83	661,163.46
6,002.00	6.60	191.60	5,980.17	377.27	-371.04	-68.43	377.30	190.45	666,043.59	661,161.53
6,091.00	6.70	192.70	6,068.57	387.57	-381.11	-70.60	387.60	190.50	666,033.52	661,159.36
6,181.00	6.70	194.90	6,157.95	398.06	-391.31	-73.11	398.08	190.58	666,023.32	661,156.85
6,270.00	6.50	192.60	6,246.36	408.28	-401.24	-75.54	408.29	190.66	666,013.39	661,154.42
6,360.00	6.50	195.00	6,335.79	418.45	-411.13	-77.97	418.46	190.74	666,003.50	661,151.99
6,450.00	6.20	192.10	6,425.23	428.39	-420.81	-80.31	428.40	190.80	665,993.82	661,149.65
6,539.00	6.00	193.60	6,513.73	437.85	-430.03	-82.41	437.85	190.85	665,984.60	661,147.55
6,629.00	5.70	192.90	6,603.26	447.01	-438.95	-84.51	447.02	190.90	665,975.68	661,145.45
6,719.00	5.40	194.30	6,692.84	455.71	-447.42	-86.56	455.71	190.95	665,967.21	661,143.40
6,808.00	4.50	192.60	6,781.51	463.38	-454.88	-88.35	463.38	190.99	665,959.75	661,141.61
6,871.00	4.20	196.60	6,844.32	468.15	-459.50	-89.55	468.15	191.03	665,955.13	661,140.41
6,924.00	4.20	196.60	6,897.18	472.01	-463.22	-90.66	472.01	191.07	665,951.41	661,139.30