

PathFinder – a Schlumberger company

Survey Report

CONOCOPHILLIPS COMPANY
 RED HILLS WEST 16 STATE M #1
 ONOCOPHILLIPS CO COUNTY, MP
 API#: 30-025-41685 Rig: H&P 486
 PathFinder Office Supervisor: HAMISH SNELL
 PathFinder Field Engineers: C.WILLIAMS
 D.ANDERSSON

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 Tie-in Date: 06/16/2014
 Date Completed: 06/28/2014

Survey Horiz. Reference: WELLHEAD
 Ref Coordinates: LAT: 32.233.8086 N LON: 103.40.30.4282 W
 GRID Reference: NAD27 new mexico east Transverse Mercator
 Ref GRID Coord: X: 703950.2700 Y: 379890.3200
 North Aligned To: GRID NORTH
 Total Magnetic Correction: 6.90° EAST TO GRID
 Vertical Section Plane: 90.00
 Survey Vert. Reference: 0.00' Rotary Table To MSL

Survey Calculations by RX5 V6.05A using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
THE FOLLOWING ARE DDC MWD SURVEYS.										
112.00	0.20	328.70	112.01	0.00	-0.22	0.28 N	0.22 W	0.36@	321.24	0.00
236.00	0.30	281.40	236.01	124.00	-0.65	0.53 N	0.65 W	0.84@	308.86	0.18
328.00	0.50	235.10	328.00	92.00	-1.22	0.34 N	1.22 W	1.27@	285.78	0.40
422.00	1.00	223.90	421.99	94.00	-2.12	0.48 S	2.12 W	2.18@	257.24	0.55
514.00	0.90	209.40	513.98	92.00	-3.04	1.69 S	3.04 W	3.47@	240.90	0.28
605.00	1.00	205.50	604.97	91.00	-3.73	3.03 S	3.73 W	4.80@	230.91	0.13
696.00	1.10	221.00	695.95	91.00	-4.64	4.40 S	4.64 W	6.40@	226.51	0.33
791.00	0.90	228.20	790.94	95.00	-5.80	5.59 S	5.80 W	8.05@	226.04	0.25
886.00	1.60	222.20	885.92	95.00	-7.24	7.07 S	7.24 W	10.12@	225.70	0.75
966.00	2.10	217.10	965.88	80.00	-8.88	9.07 S	8.88 W	12.69@	224.40	0.66
1074.00	2.20	198.40	1073.80	108.00	-10.73	12.61 S	10.73 W	16.56@	220.38	0.65
1169.00	2.00	192.00	1168.74	95.00	-11.65	15.96 S	11.65 W	19.76@	216.12	0.32
1263.00	0.80	118.90	1262.71	94.00	-11.41	17.88 S	11.41 W	21.22@	212.54	2.05
1358.00	1.10	75.20	1357.70	95.00	-9.95	17.97 S	9.95 W	20.54@	208.97	0.80
1453.00	0.80	91.00	1452.69	95.00	-8.41	17.75 S	8.41 W	19.64@	205.34	0.42
1548.00	0.40	70.10	1547.68	95.00	-7.43	17.65 S	7.43 W	19.15@	202.83	0.47
1642.00	0.40	118.40	1641.68	94.00	-6.83	17.69 S	6.83 W	18.97@	201.12	0.35
1737.00	0.10	273.70	1736.68	95.00	-6.63	17.85 S	6.63 W	19.04@	200.37	0.52
1832.00	0.20	263.70	1831.68	95.00	-6.87	17.86 S	6.87 W	19.14@	201.05	0.11
1926.00	0.20	226.90	1925.68	94.00	-7.16	17.99 S	7.16 W	19.36@	201.69	0.13
2021.00	0.80	9.60	2020.68	95.00	-7.17	17.45 S	7.17 W	18.86@	202.33	1.02
2115.00	1.20	16.30	2114.66	94.00	-6.78	15.86 S	6.78 W	17.25@	203.15	0.44
2210.00	0.80	17.60	2209.65	95.00	-6.30	14.27 S	6.30 W	15.60@	203.82	0.42
2304.00	0.50	334.90	2303.64	94.00	-6.28	13.27 S	6.28 W	14.68@	205.31	0.59
2398.00	0.20	317.20	2397.64	94.00	-6.56	12.78 S	6.56 W	14.37@	207.18	0.34

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RED HILLS WEST 16 STATE M #1
ONOCOPHILLIPS CO COUNTY, MP
API#: 30-025-41685 Rig: H&P 486

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2492.00	0.60	338.30	2491.64	94.00	-6.86	12.20 S	6.86 W	14.00@	209.33	0.45
2587.00	0.60	355.30	2586.63	95.00	-7.08	11.25 S	7.08 W	13.29@	212.19	0.19
2682.00	0.60	325.20	2681.63	95.00	-7.40	10.34 S	7.40 W	12.72@	215.60	0.33
2776.00	0.10	307.20	2775.62	94.00	-7.75	9.89 S	7.75 W	12.56@	218.09	0.54
2871.00	0.30	296.20	2870.62	95.00	-8.04	9.73 S	8.04 W	12.62@	219.57	0.21
2966.00	0.20	17.80	2965.62	95.00	-8.21	9.46 S	8.21 W	12.53@	220.96	0.35
3060.00	0.20	39.70	3059.62	94.00	-8.06	9.18 S	8.06 W	12.21@	221.28	0.08
3155.00	0.20	66.30	3154.62	95.00	-7.80	8.98 S	7.80 W	11.90@	220.97	0.10
3250.00	0.60	67.30	3249.62	95.00	-7.19	8.72 S	7.19 W	11.31@	219.49	0.42
3345.00	0.70	45.20	3344.61	95.00	-6.32	8.12 S	6.32 W	10.29@	217.87	0.28
3439.00	0.60	64.20	3438.61	94.00	-5.47	7.51 S	5.47 W	9.29@	216.08	0.25
3533.00	0.10	63.90	3532.61	94.00	-4.95	7.26 S	4.95 W	8.78@	214.31	0.53
3627.00	0.20	7.00	3626.61	94.00	-4.86	7.06 S	4.86 W	8.57@	214.54	0.18
3722.00	0.30	1.10	3721.60	95.00	-4.83	6.64 S	4.83 W	8.21@	216.04	0.11
3817.00	0.10	52.20	3816.60	95.00	-4.76	6.34 S	4.76 W	7.93@	216.90	0.26
3912.00	0.40	90.00	3911.60	95.00	-4.37	6.29 S	4.37 W	7.66@	214.75	0.34
4006.00	0.40	133.90	4005.60	94.00	-3.80	6.52 S	3.80 W	7.55@	210.24	0.32
4101.00	0.60	102.60	4100.60	95.00	-3.08	6.86 S	3.08 W	7.52@	204.16	0.35
4195.00	0.90	127.00	4194.59	94.00	-2.01	7.41 S	2.01 W	7.68@	195.15	0.46
4290.00	1.00	108.40	4289.58	95.00	-0.62	8.12 S	0.62 W	8.14@	184.39	0.34
4385.00	0.50	120.90	4384.57	95.00	0.52	8.60 S	0.52 E	8.61@	176.55	0.55
4479.00	0.40	99.90	4478.57	94.00	1.19	8.86 S	1.19 E	8.94@	172.33	0.20
4533.00	0.40	103.60	4532.56	54.00	1.56	8.94 S	1.56 E	9.07@	170.09	0.05
4650.00	0.20	73.80	4649.56	117.00	2.16	8.98 S	2.16 E	9.23@	166.50	0.21
4744.00	0.20	16.10	4743.56	94.00	2.36	8.77 S	2.36 E	9.09@	164.96	0.21
4839.00	1.60	48.20	4838.55	95.00	3.39	7.73 S	3.39 E	8.44@	156.30	1.51
4933.00	3.00	59.40	4932.47	94.00	6.49	5.60 S	6.49 E	8.57@	130.82	1.56
5028.00	4.20	60.60	5027.28	95.00	11.66	2.63 S	11.66 E	11.95@	102.72	1.27

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5123.00	4.20	62.60	5122.03	95.00	17.78	0.68 N	17.78 E	17.79@	87.82	0.15
5217.00	4.30	62.40	5215.77	94.00	23.96	3.89 N	23.96 E	24.27@	80.77	0.11
5312.00	4.10	64.50	5310.51	95.00	30.18	7.01 N	30.18 E	30.98@	76.93	0.27
5407.00	4.00	64.60	5405.28	95.00	36.24	9.89 N	36.24 E	37.56@	74.74	0.10
5501.00	3.80	75.30	5499.06	94.00	42.21	12.09 N	42.21 E	43.91@	74.02	0.80
5596.00	4.00	74.50	5593.84	95.00	48.45	13.77 N	48.45 E	50.37@	74.13	0.22
5691.00	4.30	75.30	5688.59	95.00	55.09	15.56 N	55.09 E	57.24@	74.23	0.32
5786.00	4.60	75.90	5783.30	95.00	62.23	17.39 N	62.23 E	64.61@	74.39	0.32
5880.00	4.40	86.20	5877.01	94.00	69.48	18.55 N	69.48 E	71.92@	75.05	0.88
5975.00	4.60	86.00	5971.72	95.00	76.92	19.06 N	76.92 E	79.24@	76.09	0.21
6069.00	4.60	86.90	6065.42	94.00	84.44	19.52 N	84.44 E	86.67@	76.98	0.08
6164.00	4.40	87.70	6160.13	95.00	91.89	19.88 N	91.89 E	94.01@	77.79	0.22
6258.00	3.90	87.00	6253.88	94.00	98.68	20.19 N	98.68 E	100.73@	78.44	0.53
6353.00	3.40	87.20	6348.69	95.00	104.72	20.49 N	104.72 E	106.71@	78.93	0.53
6448.00	3.20	87.90	6443.53	95.00	110.19	20.73 N	110.19 E	112.12@	79.35	0.21
6542.00	3.00	89.70	6537.39	94.00	115.27	20.84 N	115.27 E	117.14@	79.75	0.24
6637.00	2.70	90.60	6632.27	95.00	119.99	20.83 N	119.99 E	121.78@	80.15	0.32
6731.00	2.50	90.50	6726.18	94.00	124.25	20.79 N	124.25 E	125.98@	80.50	0.21
6826.00	2.80	101.10	6821.08	95.00	128.60	20.32 N	128.60 E	130.20@	81.02	0.60
6921.00	3.10	91.80	6915.95	95.00	133.45	19.79 N	133.45 E	134.91@	81.56	0.59
7015.00	2.60	93.50	7009.83	94.00	138.12	19.58 N	138.12 E	139.50@	81.93	0.54
7110.00	2.40	96.90	7104.74	95.00	142.24	19.21 N	142.24 E	143.53@	82.31	0.26
7205.00	1.80	103.10	7199.68	95.00	145.67	18.64 N	145.67 E	146.86@	82.71	0.67
7299.00	1.60	103.40	7293.64	94.00	148.38	18.00 N	148.38 E	149.47@	83.08	0.21
7394.00	1.40	108.20	7388.61	95.00	150.78	17.33 N	150.78 E	151.77@	83.44	0.25
7488.00	1.20	112.70	7482.58	94.00	152.78	16.59 N	152.78 E	153.67@	83.80	0.24
7583.00	1.20	113.90	7577.56	95.00	154.60	15.80 N	154.60 E	155.41@	84.16	0.03
7678.00	1.10	115.80	7672.54	95.00	156.33	15.00 N	156.33 E	157.05@	84.52	0.11

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
7773.00	1.00	114.10	7767.53	95.00	157.91	14.27 N	157.91 E	158.55@	84.84	0.11
7867.00	1.00	120.60	7861.51	94.00	159.37	13.51 N	159.37 E	159.94@	85.15	0.12
7962.00	0.90	120.30	7956.50	95.00	160.72	12.72 N	160.72 E	161.23@	85.48	0.10
8056.00	0.90	117.80	8050.49	94.00	162.01	12.00 N	162.01 E	162.46@	85.76	0.04
8150.00	0.60	143.60	8144.48	94.00	162.96	11.26 N	162.96 E	163.35@	86.05	0.47
8244.00	0.90	213.70	8238.47	94.00	162.84	10.25 N	162.84 E	163.16@	86.40	0.95
8338.00	1.00	227.10	8332.46	94.00	161.83	9.08 N	161.83 E	162.09@	86.79	0.26
8432.00	1.00	226.10	8426.44	94.00	160.64	7.95 N	160.64 E	160.84@	87.17	0.02
8526.00	1.10	226.30	8520.43	94.00	159.40	6.76 N	159.40 E	159.54@	87.57	0.11
8620.00	1.00	216.00	8614.41	94.00	158.26	5.47 N	158.26 E	158.36@	88.02	0.23
8715.00	0.90	223.50	8709.40	95.00	157.26	4.26 N	157.26 E	157.32@	88.45	0.17
8810.00	0.70	224.90	8804.39	95.00	156.34	3.31 N	156.34 E	156.37@	88.79	0.21
8905.00	0.60	243.60	8899.39	95.00	155.48	2.67 N	155.48 E	155.51@	89.01	0.25
8999.00	0.70	275.60	8993.38	94.00	154.47	2.51 N	154.47 E	154.49@	89.07	0.39
9094.00	1.10	288.70	9088.37	95.00	153.03	2.86 N	153.03 E	153.06@	88.93	0.47
9189.00	1.60	290.10	9183.34	95.00	150.92	3.61 N	150.92 E	150.96@	88.63	0.53
9284.00	1.70	279.40	9278.30	95.00	148.28	4.29 N	148.28 E	148.35@	88.34	0.34
9379.00	1.90	264.40	9373.26	95.00	145.33	4.37 N	145.33 E	145.39@	88.28	0.54
9474.00	2.00	257.70	9468.20	95.00	142.14	3.86 N	142.14 E	142.19@	88.44	0.26
9569.00	2.20	257.00	9563.14	95.00	138.74	3.10 N	138.74 E	138.78@	88.72	0.21
9664.00	1.00	229.50	9658.10	95.00	136.34	2.15 N	136.34 E	136.35@	89.10	1.47
9758.00	0.80	216.60	9752.09	94.00	135.32	1.09 N	135.32 E	135.33@	89.54	0.30
9853.00	0.30	209.00	9847.08	95.00	134.80	0.34 N	134.80 E	134.81@	89.85	0.53
9948.00	0.30	203.80	9942.08	95.00	134.58	0.10 S	134.58 E	134.58@	90.04	0.03
10043.00	0.40	175.80	10037.08	95.00	134.51	0.66 S	134.51 E	134.51@	90.28	0.21
10138.00	0.70	188.10	10132.07	95.00	134.45	1.57 S	134.45 E	134.46@	90.67	0.34
10232.00	0.60	196.30	10226.07	94.00	134.23	2.61 S	134.23 E	134.26@	91.11	0.14
10326.00	0.50	170.30	10320.06	94.00	134.16	3.48 S	134.16 E	134.21@	91.49	0.28

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10420.00	0.60	168.10	10414.06	94.00	134.33	4.37 S	134.33 E	134.40@	91.86	0.11
10514.00	1.30	210.40	10508.05	94.00	133.89	5.77 S	133.89 E	134.02@	92.47	1.01
10608.00	2.50	223.60	10602.00	94.00	131.94	8.18 S	131.94 E	132.19@	93.55	1.35
10702.00	2.20	215.40	10695.92	94.00	129.48	11.13 S	129.48 E	129.96@	94.91	0.48
10796.00	1.70	210.60	10789.86	94.00	127.73	13.80 S	127.73 E	128.47@	96.17	0.56
10890.00	1.70	223.70	10883.82	94.00	126.05	16.01 S	126.05 E	127.07@	97.24	0.41
10985.00	1.60	231.20	10978.78	95.00	124.05	17.86 S	124.05 E	125.33@	98.19	0.25
11080.00	1.80	234.10	11073.74	95.00	121.80	19.57 S	121.80 E	123.37@	99.13	0.23
11175.00	2.00	228.80	11168.69	95.00	119.35	21.53 S	119.35 E	121.28@	100.23	0.28
11269.00	1.30	231.70	11262.65	94.00	117.28	23.27 S	117.28 E	119.56@	101.22	0.75
11364.00	1.00	220.70	11357.63	95.00	115.89	24.57 S	115.89 E	118.47@	101.97	0.39
11459.00	0.70	212.70	11452.62	95.00	115.04	25.69 S	115.04 E	117.87@	102.59	0.34
11551.00	0.00	0.70	11544.62	92.00	114.73	26.16 S	114.73 E	117.68@	102.84	0.76
11647.00	0.90	38.30	11640.61	96.00	115.20	25.57 S	115.20 E	118.00@	102.51	0.94
11741.00	0.60	54.10	11734.60	94.00	116.06	24.70 S	116.06 E	118.66@	102.01	0.38
11837.00	0.40	64.10	11830.60	96.00	116.77	24.26 S	116.77 E	119.26@	101.74	0.23
** TIED INTO DDC MWD SURVEY AT 11858'MD.										
11858.00	0.40	68.20	11851.60	21.00	116.90	24.20 S	116.90 E	119.38@	101.70	0.14
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
11958.00	0.26	151.10	11951.60	100.00	117.33	24.27 S	117.33 E	119.82@	101.69	0.45
12056.00	0.26	176.69	12049.60	98.00	117.45	24.69 S	117.45 E	120.02@	101.87	0.12
12151.00	0.26	175.84	12144.60	95.00	117.48	25.12 S	117.48 E	120.14@	102.07	0.00
12245.00	0.53	200.10	12238.59	94.00	117.35	25.74 S	117.35 E	120.14@	102.37	0.33
12340.00	0.53	216.56	12333.59	95.00	116.94	26.50 S	116.94 E	119.90@	102.77	0.16
12434.00	0.79	235.32	12427.58	94.00	116.14	27.22 S	116.14 E	119.29@	103.19	0.36
12529.00	0.70	225.16	12522.58	95.00	115.19	28.00 S	115.19 E	118.55@	103.66	0.17
12624.00	0.79	241.74	12617.57	95.00	114.21	28.72 S	114.21 E	117.76@	104.12	0.24
12720.00	1.23	234.55	12713.55	96.00	112.78	29.63 S	112.78 E	116.61@	104.72	0.48

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12814.00	1.32	238.67	12807.53	94.00	111.04	30.78 S	111.04 E	115.22@	105.49	0.14
12909.00	1.23	244.67	12902.51	95.00	109.18	31.79 S	109.18 E	113.71@	106.23	0.17
13004.00	1.32	253.74	12997.48	95.00	107.21	32.53 S	107.21 E	112.03@	106.88	0.23
13098.00	1.76	260.80	13091.45	94.00	104.74	33.06 S	104.74 E	109.84@	107.52	0.51
13193.00	1.76	272.61	13186.40	95.00	101.85	33.23 S	101.85 E	107.13@	108.07	0.38
13288.00	1.58	281.66	13281.36	95.00	99.11	32.90 S	99.11 E	104.42@	108.36	0.34
13382.00	1.67	282.09	13375.33	94.00	96.50	32.35 S	96.50 E	101.78@	108.53	0.10
13478.00	1.32	282.95	13471.29	96.00	94.05	31.81 S	94.05 E	99.29@	108.69	0.36
13572.00	1.23	294.03	13565.27	94.00	92.08	31.15 S	92.08 E	97.20@	108.69	0.28
13667.00	0.88	303.14	13660.25	95.00	90.53	30.34 S	90.53 E	95.48@	108.53	0.41
13762.00	0.35	343.62	13755.25	95.00	89.84	29.66 S	89.84 E	94.61@	108.27	0.69
13857.00	0.44	306.15	13850.25	95.00	89.46	29.17 S	89.46 E	94.10@	108.06	0.28
13952.00	0.88	281.85	13945.24	95.00	88.46	28.81 S	88.46 E	93.03@	108.04	0.54
14047.00	1.58	267.79	14040.22	95.00	86.43	28.71 S	86.43 E	91.08@	108.37	0.80
14141.00	1.32	250.46	14134.19	94.00	84.12	29.12 S	84.12 E	89.01@	109.09	0.54
14235.00	1.67	262.15	14228.16	94.00	81.74	29.67 S	81.74 E	86.96@	109.95	0.49
14330.00	1.85	268.05	14323.11	95.00	78.84	29.91 S	78.84 E	84.32@	110.78	0.27
14375.00	1.93	269.73	14368.09	45.00	77.35	29.94 S	77.35 E	82.94@	111.16	0.22

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder – a Schlumberger company and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.