

Project: SEC.24-T5N-R67W
Site: Phillips PC N24-29 Pad Sec.24-T5N-R67W
Well: Phillips PC N24-29D
Plan: Wellbore #1

Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips PC N24-29 Pad Sec.24-T5N-R67W
Well: Phillips PC N24-29D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Phillips PC N24-29D
TVD Reference: WELL @ 4963.0ft (Original Well Elev)
MD Reference: WELL @ 4963.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

Project	SEC.24-T5N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Phillips PC N24-29 Pad Sec.24-T5N-R67W

Site Position:		Northing:	1,385,893.28ft	Latitude:	40.390850
From:	Lat/Long	Easting:	3,181,411.08ft	Longitude:	-104.848720
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.42 °

Well	Phillips PC N24-29D				
Well Position	+N/-S	0.0 ft	Northing:	1,385,893.26 ft	Latitude:
	+E/-W	0.0 ft	Easting:	3,181,411.08 ft	Longitude:
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:
					4,950.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/3/2011	8.92	67.03	53,129

Design Wellbore #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
-----------------	-----	---------------	--------	----------------------	-----

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	59.93

Survey Program Date 7/5/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
596.0	7,664.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
596.0	0.80	318.60	596.0	3.1	-2.8	-0.8	0.13	0.13	0.00
682.0	1.40	359.30	682.0	4.6	-3.2	-0.4	1.10	0.70	47.33
767.0	1.90	8.60	766.9	7.1	-3.0	1.0	0.67	0.59	10.94
853.0	3.10	16.00	852.8	10.7	-2.1	3.5	1.44	1.40	8.60
938.0	4.30	21.80	937.7	15.9	-0.3	7.7	1.48	1.41	6.82
1,024.0	5.10	34.00	1,023.4	22.0	3.0	13.7	1.48	0.93	14.19
1,110.0	6.50	41.10	1,108.9	28.9	8.4	21.7	1.83	1.63	8.26
1,195.0	8.30	49.60	1,193.2	36.5	16.2	32.3	2.47	2.12	10.00
1,281.0	9.60	54.70	1,278.2	44.6	26.8	45.6	1.77	1.51	5.93
1,366.0	11.50	58.30	1,361.7	53.2	39.8	61.1	2.36	2.24	4.24
1,452.0	12.50	63.70	1,445.9	61.8	55.4	78.9	1.75	1.16	6.28
1,537.0	12.90	61.50	1,528.8	70.4	72.0	97.6	0.74	0.47	-2.59

Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.24-T5N-R67W
 Site: Phillips PC N24-29 Pad Sec.24-T5N-R67W
 Well: Phillips PC N24-29D
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Phillips PC N24-29D
 TVD Reference: WELL @ 4963.0ft (Original Well Elev)
 MD Reference: WELL @ 4963.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Database: Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,623.0	13.50	58.90	1,612.5	80.2	89.0	117.2	0.98	0.70	-3.02
1,708.0	13.50	61.90	1,695.2	90.0	106.3	137.1	0.82	0.00	3.53
1,794.0	13.60	59.20	1,778.8	99.9	123.8	157.2	0.74	0.12	-3.14
1,880.0	13.10	59.60	1,862.4	110.0	140.9	177.1	0.59	-0.58	0.47
1,966.0	13.40	62.60	1,946.2	119.5	158.2	196.8	0.87	0.35	3.49
2,051.0	12.70	66.10	2,029.0	127.8	175.5	215.9	1.24	-0.82	4.12
2,137.0	13.30	66.10	2,112.8	135.7	193.2	235.1	0.70	0.70	0.00
2,222.0	14.10	66.40	2,195.3	143.8	211.6	255.1	0.94	0.94	0.35
2,308.0	13.40	65.30	2,278.9	152.1	230.2	275.5	0.87	-0.81	-1.28
2,393.0	13.00	58.10	2,361.6	161.3	247.3	294.8	1.99	-0.47	-8.47
2,479.0	12.50	57.40	2,445.5	171.4	263.4	313.8	0.61	-0.58	-0.81
2,563.0	11.90	61.50	2,527.6	180.5	278.6	331.5	1.25	-0.71	4.88
2,648.0	11.40	59.10	2,610.9	189.0	293.5	348.7	0.82	-0.59	-2.82
2,734.0	12.90	55.20	2,694.9	198.8	308.7	366.8	1.99	1.74	-4.53
2,819.0	13.50	56.20	2,777.7	209.7	324.7	386.1	0.76	0.71	1.18
2,905.0	13.40	55.20	2,861.3	221.0	341.3	406.1	0.29	-0.12	-1.16
2,991.0	12.00	53.40	2,945.2	232.0	356.6	424.9	1.69	-1.63	-2.09
3,076.0	12.80	53.40	3,028.2	242.9	371.3	443.0	0.94	0.94	0.00
3,162.0	12.60	60.10	3,112.1	253.3	387.1	461.9	1.73	-0.23	7.79
3,247.0	12.70	59.40	3,195.1	262.6	403.1	480.5	0.22	0.12	-0.82
3,333.0	12.00	63.20	3,279.1	271.5	419.3	498.9	1.25	-0.81	4.42
3,419.0	12.10	62.40	3,363.2	279.7	435.2	516.8	0.23	0.12	-0.93
3,505.0	12.00	62.20	3,447.3	288.0	451.1	534.7	0.13	-0.12	-0.23
3,590.0	11.40	61.00	3,530.5	296.2	466.3	552.0	0.76	-0.71	-1.41
3,676.0	12.10	64.30	3,614.7	304.3	481.8	569.4	1.13	0.81	3.84
3,761.0	11.60	63.30	3,697.9	312.0	497.5	586.9	0.64	-0.59	-1.18
3,847.0	10.80	63.20	3,782.3	319.5	512.4	603.5	0.93	-0.93	-0.12
3,933.0	12.10	69.20	3,866.6	326.3	528.0	620.5	2.05	1.51	6.98
4,018.0	12.40	74.10	3,949.6	332.0	545.1	638.1	1.27	0.35	5.76
4,104.0	13.30	68.20	4,033.5	338.2	563.2	656.9	1.85	1.05	-6.86
4,190.0	12.80	65.40	4,117.3	345.8	581.1	676.1	0.94	-0.58	-3.26
4,275.0	11.10	63.40	4,200.4	353.4	596.9	693.7	2.06	-2.00	-2.35
4,361.0	10.70	55.70	4,284.9	361.6	610.9	709.9	1.75	-0.47	-8.95
4,447.0	11.40	54.30	4,369.3	371.1	624.4	726.3	0.87	0.81	-1.63
4,532.0	11.20	48.90	4,452.6	381.4	637.5	742.8	1.27	-0.24	-6.35
4,618.0	10.40	50.90	4,537.1	391.8	649.8	758.7	1.03	-0.93	2.33
4,703.0	9.70	54.90	4,620.8	400.7	661.6	773.4	1.16	-0.82	4.71
4,789.0	6.70	65.90	4,705.9	407.0	672.1	785.6	3.92	-3.49	12.79
4,875.0	5.70	82.80	4,791.4	409.5	680.9	794.5	2.41	-1.16	19.65
4,960.0	3.10	95.10	4,876.2	409.9	687.4	800.3	3.24	-3.06	14.47
5,046.0	1.20	135.00	4,962.1	409.0	690.4	802.4	2.69	-2.21	46.40
5,084.0	1.04	144.25	5,000.1	408.5	690.9	802.5	0.63	-0.41	24.32
TARGET BHL 75°FNL & 1305°FNL									
5,131.0	0.90	159.60	5,047.1	407.8	691.2	802.5	0.63	-0.30	32.68
5,217.0	0.30	280.40	5,133.1	407.2	691.2	802.2	1.26	-0.70	140.47
5,346.0	0.80	284.60	5,262.1	407.5	690.0	801.3	0.39	0.39	3.26
5,474.0	1.30	297.50	5,390.1	408.4	687.9	799.9	0.43	0.39	10.08
5,602.0	1.70	313.10	5,518.0	410.3	685.2	798.6	0.44	0.31	12.19
5,731.0	1.80	305.70	5,647.0	412.8	682.2	797.2	0.19	0.08	-5.74
5,859.0	1.50	260.50	5,774.9	413.7	678.9	794.8	1.01	-0.23	-35.31
5,988.0	0.80	153.70	5,903.9	412.6	677.6	793.2	1.47	-0.54	-82.79
6,116.0	0.70	236.80	6,031.9	411.4	677.4	792.3	0.78	-0.08	64.92
6,244.0	0.90	262.80	6,159.9	410.8	675.7	790.6	0.32	0.16	20.31
6,373.0	1.20	285.70	6,288.9	411.1	673.4	788.8	0.40	0.23	17.75

Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.24-T5N-R67W
Site: Phillips PC N24-29 Pad Sec.24-T5N-R67W
Well: Phillips PC N24-29D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Phillips PC N24-29D
TVD Reference: WELL @ 4963.0ft (Original Well Elev)
MD Reference: WELL @ 4963.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,501.0	1.60	280.30	6,416.8	411.8	670.4	786.5	0.33	0.31	-4.22
6,630.0	1.10	277.90	6,545.8	412.3	667.4	784.1	0.39	-0.39	-1.86
6,758.0	1.50	288.80	6,673.8	413.0	664.6	782.0	0.37	0.31	8.52
6,886.0	1.00	298.30	6,801.7	414.0	662.0	780.3	0.42	-0.39	7.42
7,015.0	1.20	299.00	6,930.7	415.2	659.8	779.1	0.16	0.16	0.54
7,143.0	1.40	289.70	7,058.7	416.4	657.2	777.4	0.23	0.16	-7.27
7,159.4	1.40	289.95	7,075.1	416.5	656.8	777.1	0.04	0.00	1.55
TARGET CIRCLE 75'FNL & 1305'FWL									
7,272.0	1.40	291.70	7,187.6	417.5	654.2	775.4	0.04	0.00	1.55
7,400.0	0.70	309.30	7,315.6	418.6	652.2	774.1	0.60	-0.55	13.75
7,529.0	0.40	290.70	7,444.6	419.2	651.1	773.6	0.27	-0.23	-14.42
7,614.0	0.40	182.90	7,529.6	419.1	650.8	773.2	0.76	0.00	-126.82
7,664.0	0.40	182.90	7,579.6	418.7	650.8	773.0	0.00	0.00	0.00
HARD LINES 75'N OF BHL									

Checked By: _____ Approved By: _____ Date: _____