

Noble Energy Inc.- Weld County, CO (Grid North)

Well Name: **Cannon W15-68-1HN**

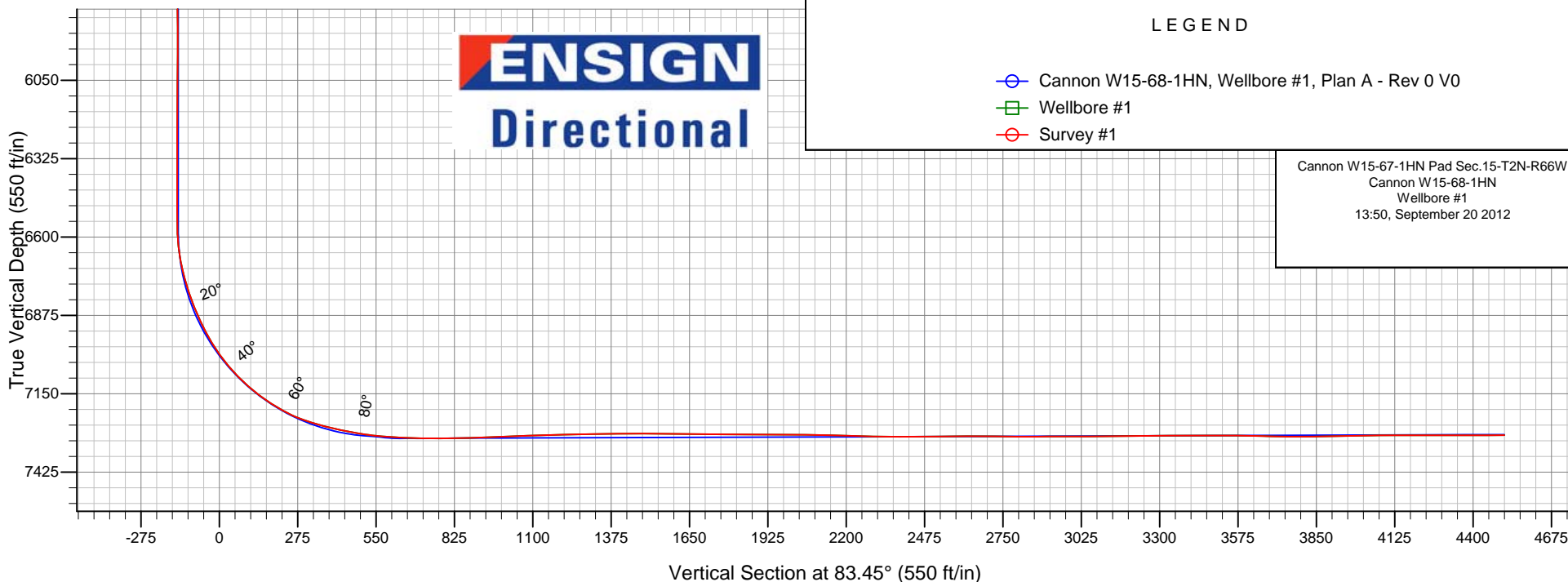
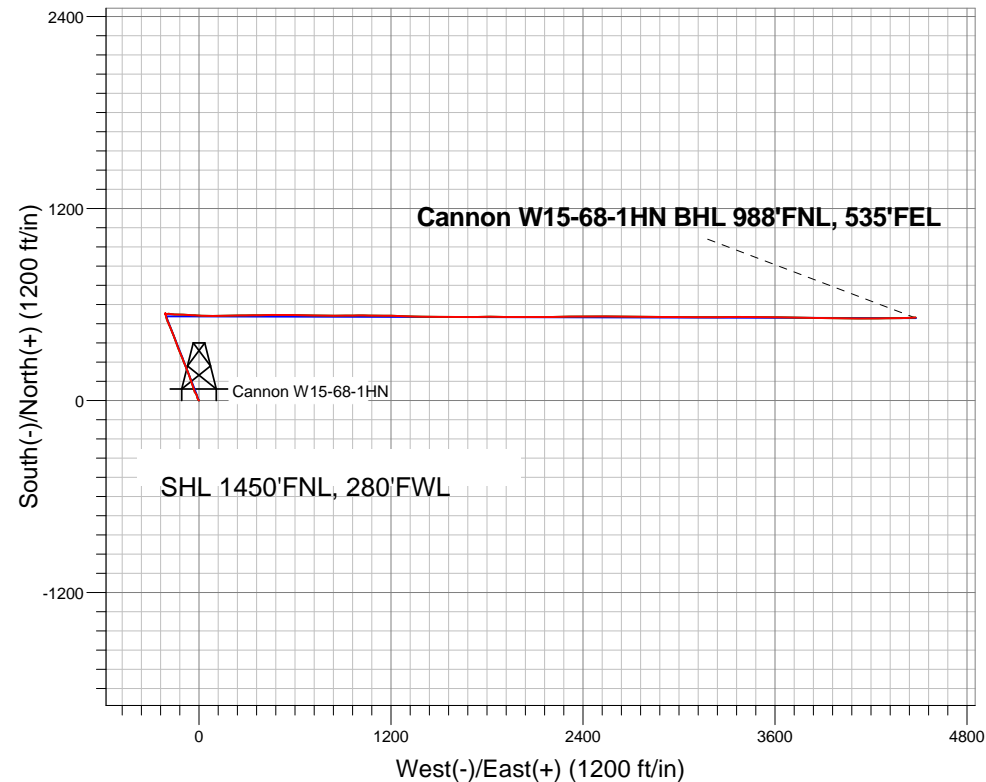
Surface Location: Cannon W15-67-1HN Pad Sec.15-T2N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4971.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1295191.52	3203588.16	40.141400	-104.771780	
Original Well Elev WELL @ 4984.0ft (Original Well Elev)						

FINAL SURVEY

Projected Bottom Hole Location
11737' MD 7296.4' TVD 517' N & 4480' E
of SHL
90.7 degree Incl @ 80.2 degree AZM





Noble Energy Inc.- Weld County, CO (Grid North)

Sec.15-T2N-R66W

Cannon W15-67-1HN Pad Sec.15-T2N-R66W

Cannon W15-68-1HN

Wellbore #1

Survey: Survey #1

Standard Survey Report

20 September, 2012

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Cannon W15-68-1HN
Project:	Sec.15-T2N-R66W	TVD Reference:	WELL @ 4984.0ft (Original Well Elev)
Site:	Cannon W15-67-1HN Pad Sec.15-T2N-R66W	MD Reference:	WELL @ 4984.0ft (Original Well Elev)
Well:	Cannon W15-68-1HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
1,946.0	9.00	328.70	1,943.0	48.8	-23.8	-18.1	1.28	1.21	-2.86
2,038.0	7.90	341.30	2,034.0	60.9	-29.6	-22.4	2.33	-1.20	13.70
2,130.0	8.90	343.60	2,125.1	73.7	-33.6	-25.0	1.15	1.09	2.50
2,221.0	10.60	344.00	2,214.7	88.5	-37.9	-27.6	1.87	1.87	0.44
2,316.0	11.80	340.30	2,307.9	106.1	-43.6	-31.2	1.47	1.26	-3.89
2,411.0	13.20	339.70	2,400.7	125.4	-50.6	-36.0	1.48	1.47	-0.63
2,506.0	15.10	339.90	2,492.8	147.2	-58.6	-41.5	2.00	2.00	0.21
2,601.0	14.90	340.30	2,584.6	170.3	-67.0	-47.1	0.24	-0.21	0.42
2,696.0	13.80	338.50	2,676.6	192.3	-75.3	-52.9	1.25	-1.16	-1.89
2,791.0	14.70	337.10	2,768.7	214.0	-84.1	-59.2	1.01	0.95	-1.47
2,886.0	15.40	338.70	2,860.4	236.8	-93.4	-65.8	0.86	0.74	1.68
2,981.0	16.40	338.20	2,951.8	261.0	-103.0	-72.5	1.06	1.05	-0.53
3,076.0	16.00	337.30	3,043.0	285.6	-113.0	-79.7	0.50	-0.42	-0.95
3,171.0	15.50	339.40	3,134.4	309.5	-122.5	-86.4	0.80	-0.53	2.21
3,266.0	14.90	336.20	3,226.1	332.6	-131.9	-93.1	1.09	-0.63	-3.37
3,361.0	15.60	341.00	3,317.8	355.9	-141.0	-99.5	1.52	0.74	5.05
3,456.0	14.60	340.60	3,409.5	379.2	-149.1	-104.9	1.06	-1.05	-0.42
3,551.0	14.20	339.40	3,501.5	401.4	-157.2	-110.4	0.53	-0.42	-1.26
3,646.0	14.10	338.00	3,593.6	423.1	-165.6	-116.3	0.38	-0.11	-1.47
3,740.0	12.30	335.90	3,685.1	442.8	-174.0	-122.4	1.98	-1.91	-2.23
3,835.0	10.60	338.30	3,778.2	460.2	-181.4	-127.7	1.86	-1.79	2.53
3,930.0	10.70	337.30	3,871.6	476.4	-188.0	-132.4	0.22	0.11	-1.05
4,025.0	7.50	335.30	3,965.4	490.2	-194.0	-136.8	3.38	-3.37	-2.11
4,121.0	6.10	341.30	4,060.7	500.7	-198.3	-139.9	1.63	-1.46	6.25
4,216.0	6.20	338.50	4,155.2	510.3	-201.8	-142.2	0.33	0.11	-2.95
4,311.0	4.70	348.50	4,249.7	518.9	-204.4	-143.9	1.86	-1.58	10.53
4,406.0	2.60	350.60	4,344.5	524.8	-205.6	-144.3	2.21	-2.21	2.21
4,501.0	1.50	355.00	4,439.5	528.2	-206.0	-144.4	1.17	-1.16	4.63
4,596.0	0.50	13.50	4,534.5	529.8	-206.0	-144.2	1.09	-1.05	19.47
4,691.0	0.80	355.00	4,629.5	530.9	-206.0	-144.1	0.38	0.32	-19.47
4,786.0	1.60	345.50	4,724.4	532.8	-206.4	-144.2	0.86	0.84	-10.00
4,881.0	0.80	298.60	4,819.4	534.4	-207.3	-145.0	1.27	-0.84	-49.37
4,976.0	1.10	316.90	4,914.4	535.4	-208.5	-146.1	0.45	0.32	19.26
5,071.0	0.40	122.00	5,009.4	535.9	-208.8	-146.3	1.57	-0.74	173.79
5,166.0	0.30	124.90	5,104.4	535.6	-208.4	-145.9	0.11	-0.11	3.05
5,261.0	0.40	3.60	5,199.4	535.8	-208.1	-145.7	0.64	0.11	-127.68
5,356.0	0.40	346.40	5,294.4	536.4	-208.2	-145.6	0.13	0.00	-18.11
5,451.0	0.80	6.30	5,389.4	537.4	-208.2	-145.5	0.47	0.42	20.95
5,546.0	0.90	343.60	5,484.4	538.8	-208.3	-145.5	0.37	0.11	-23.89
5,641.0	0.90	3.80	5,579.4	540.2	-208.5	-145.5	0.33	0.00	21.26
5,736.0	1.20	301.10	5,674.4	541.5	-209.3	-146.2	1.18	0.32	-66.00
5,831.0	0.80	11.00	5,769.3	542.7	-210.0	-146.7	1.25	-0.42	73.58
5,926.0	0.70	23.30	5,864.3	543.8	-209.7	-146.3	0.20	-0.11	12.95
6,021.0	1.00	187.90	5,959.3	543.6	-209.5	-146.2	1.77	0.32	173.26
6,117.0	0.40	231.10	6,055.3	542.5	-209.9	-146.7	0.79	-0.63	45.00
6,212.0	0.30	261.00	6,150.3	542.3	-210.4	-147.2	0.22	-0.11	31.47
6,307.0	0.80	189.60	6,245.3	541.6	-210.8	-147.6	0.80	0.53	-75.16
6,402.0	0.30	182.10	6,340.3	540.7	-210.9	-147.8	0.53	-0.53	-7.89
6,497.0	0.50	159.70	6,435.3	540.0	-210.8	-147.8	0.26	0.21	-23.58
6,592.0	0.10	76.20	6,530.3	539.7	-210.5	-147.6	0.52	-0.42	-87.89
6,639.0	1.70	77.80	6,577.3	539.8	-209.8	-146.9	3.40	3.40	3.40
6,687.0	5.60	89.40	6,625.2	540.0	-206.8	-143.8	8.23	8.13	24.17
6,734.0	9.50	88.00	6,671.8	540.2	-200.6	-137.7	8.31	8.30	-2.98
6,782.0	13.60	87.30	6,718.8	540.6	-191.0	-128.1	8.55	8.54	-1.46

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Site:	Cannon W15-67-1HN Pad Sec.15-T2N-R66W	MD Reference:	WELL @ 4984.0ft (Original Well Elev)
Well:	Cannon W15-68-1HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
6,829.0	16.60	95.20	6,764.2	540.2	-178.8	-116.0	7.73	6.38	16.81
6,877.0	20.00	97.00	6,809.7	538.6	-163.8	-101.3	7.18	7.08	3.75
6,924.0	23.00	94.00	6,853.5	537.0	-146.7	-84.5	6.80	6.38	-6.38
6,972.0	25.00	91.40	6,897.3	536.1	-127.2	-65.2	4.71	4.17	-5.42
7,066.0	32.30	91.90	6,979.8	534.8	-82.2	-20.6	7.77	7.77	0.53
7,161.0	41.00	93.60	7,055.9	531.9	-25.6	35.3	9.22	9.16	1.79
7,256.0	48.60	92.20	7,123.3	528.6	41.2	101.3	8.07	8.00	-1.47
7,351.0	57.20	88.40	7,180.5	528.4	116.9	176.4	9.60	9.05	-4.00
7,398.0	60.10	90.00	7,205.0	528.9	157.0	216.3	6.82	6.17	3.40
7,447.0	65.50	88.00	7,227.4	529.7	200.6	259.7	11.60	11.02	-4.08
7,494.0	71.40	88.40	7,244.6	531.1	244.3	303.2	12.58	12.55	0.85
7,542.0	75.40	89.60	7,258.3	531.9	290.2	349.0	8.67	8.33	2.50
7,589.0	76.00	89.60	7,269.9	532.2	335.8	394.3	1.28	1.28	0.00
7,637.0	78.20	89.40	7,280.7	532.6	382.6	440.8	4.60	4.58	-0.42
7,684.0	81.10	89.10	7,289.1	533.2	428.8	486.8	6.20	6.17	-0.64
7,698.0	81.20	88.90	7,291.3	533.4	442.6	500.6	1.58	0.71	-1.43
7,748.0	85.00	88.90	7,297.3	534.4	492.2	550.0	7.60	7.60	0.00
7,792.0	85.20	91.70	7,301.0	534.2	536.1	593.5	6.36	0.45	6.36
7,840.0	87.40	91.40	7,304.1	532.9	584.0	640.9	4.63	4.58	-0.63
7,844.7	87.50	91.33	7,304.3	532.8	588.7	645.6	2.60	2.13	-1.49
Cannon W15-68-1HN Landing Pt.									
7,887.0	88.40	90.70	7,305.8	532.0	630.9	687.5	2.60	2.13	-1.49
7,936.0	89.60	90.80	7,306.7	531.4	679.9	736.1	2.46	2.45	0.20
7,983.0	90.60	90.30	7,306.6	530.9	726.9	782.7	2.38	2.13	-1.06
8,031.0	91.50	90.70	7,305.7	530.5	774.9	830.3	2.05	1.88	0.83
8,126.0	91.30	90.10	7,303.4	529.8	869.9	924.6	0.67	-0.21	-0.63
8,221.0	93.00	89.10	7,299.9	530.5	964.8	1,019.0	2.08	1.79	-1.05
8,316.0	91.40	90.70	7,296.2	530.7	1,059.7	1,113.3	2.38	-1.68	1.68
8,412.0	91.50	90.70	7,293.8	529.5	1,155.7	1,208.5	0.10	0.10	0.00
8,507.0	90.90	91.70	7,291.8	527.5	1,250.6	1,302.6	1.23	-0.63	1.05
8,602.0	90.70	91.70	7,290.5	524.7	1,345.6	1,396.6	0.21	-0.21	0.00
8,697.0	90.20	90.70	7,289.7	522.7	1,440.5	1,490.8	1.18	-0.53	-1.05
8,792.0	89.30	90.30	7,290.1	521.9	1,535.5	1,585.1	1.04	-0.95	-0.42
8,887.0	88.90	90.10	7,291.6	521.5	1,630.5	1,679.4	0.47	-0.42	-0.21
8,982.0	89.80	89.40	7,292.7	521.9	1,725.5	1,773.8	1.20	0.95	-0.74
9,077.0	89.70	90.10	7,293.1	522.4	1,820.5	1,868.2	0.74	-0.11	0.74
9,173.0	90.00	90.10	7,293.4	522.2	1,916.5	1,963.6	0.31	0.31	0.00
9,268.0	89.30	90.00	7,293.9	522.1	2,011.5	2,057.9	0.74	-0.74	-0.11
9,363.0	88.70	90.50	7,295.6	521.7	2,106.5	2,152.3	0.82	-0.63	0.53
9,458.0	88.10	89.10	7,298.3	522.0	2,201.5	2,246.6	1.60	-0.63	-1.47
9,553.0	89.20	90.00	7,300.5	522.8	2,296.4	2,341.1	1.50	1.16	0.95
9,648.0	90.40	88.20	7,300.8	524.3	2,391.4	2,435.6	2.28	1.26	-1.89
9,743.0	90.70	89.80	7,299.9	525.9	2,486.4	2,530.2	1.71	0.32	1.68
9,839.0	90.10	90.50	7,299.2	525.7	2,582.4	2,625.5	0.96	-0.63	0.73
9,935.0	89.30	91.00	7,299.7	524.4	2,678.4	2,720.7	0.98	-0.83	0.52
10,029.0	89.60	91.00	7,300.6	522.8	2,772.4	2,813.9	0.32	0.32	0.00
10,124.0	90.80	90.50	7,300.3	521.5	2,867.3	2,908.1	1.37	1.26	-0.53
10,219.0	90.00	90.30	7,299.7	520.9	2,962.3	3,002.4	0.87	-0.84	-0.21
10,314.0	90.00	90.50	7,299.7	520.2	3,057.3	3,096.7	0.21	0.00	0.21
10,409.0	90.80	89.40	7,299.0	520.3	3,152.3	3,191.1	1.43	0.84	-1.16
10,504.0	90.90	90.10	7,297.6	520.7	3,247.3	3,285.5	0.74	0.11	0.74
10,600.0	90.10	90.00	7,296.7	520.6	3,343.3	3,380.9	0.84	-0.83	-0.10
10,694.0	90.00	89.30	7,296.7	521.2	3,437.3	3,474.3	0.75	-0.11	-0.74

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10,789.0	89.50	90.50	7,297.1	521.4	3,532.3	3,568.7	1.37	-0.53	1.26
10,884.0	88.90	91.50	7,298.4	519.7	3,627.3	3,662.9	1.23	-0.63	1.05
10,979.0	89.00	91.00	7,300.1	517.6	3,722.2	3,757.0	0.54	0.11	-0.53
11,074.0	91.20	91.00	7,300.0	516.0	3,817.2	3,851.2	2.32	2.32	0.00
11,169.0	91.10	90.80	7,298.1	514.5	3,912.2	3,945.3	0.24	-0.11	-0.21
11,264.0	90.70	91.00	7,296.6	513.0	4,007.2	4,039.5	0.47	-0.42	0.21
11,359.0	90.20	90.00	7,295.8	512.2	4,102.2	4,133.8	1.18	-0.53	-1.05
11,454.0	90.00	90.00	7,295.7	512.2	4,197.2	4,228.2	0.21	-0.21	0.00
11,549.0	89.90	88.90	7,295.7	513.1	4,292.2	4,322.7	1.16	-0.11	-1.16
11,644.0	90.00	88.90	7,295.8	514.9	4,387.1	4,417.2	0.11	0.11	0.00
11,681.0	90.70	88.20	7,295.6	515.8	4,424.1	4,454.1	2.68	1.89	-1.89
11,737.0	90.70	88.20	7,294.9	517.6	4,480.1	4,509.9	0.00	0.00	0.00
Cannon W15-68-1HN BHL 990'FNL, 535'FEL									

Checked By: _____	Approved By: _____	Date: _____
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