

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

Well Name: **Rohn State LD09-67HN**

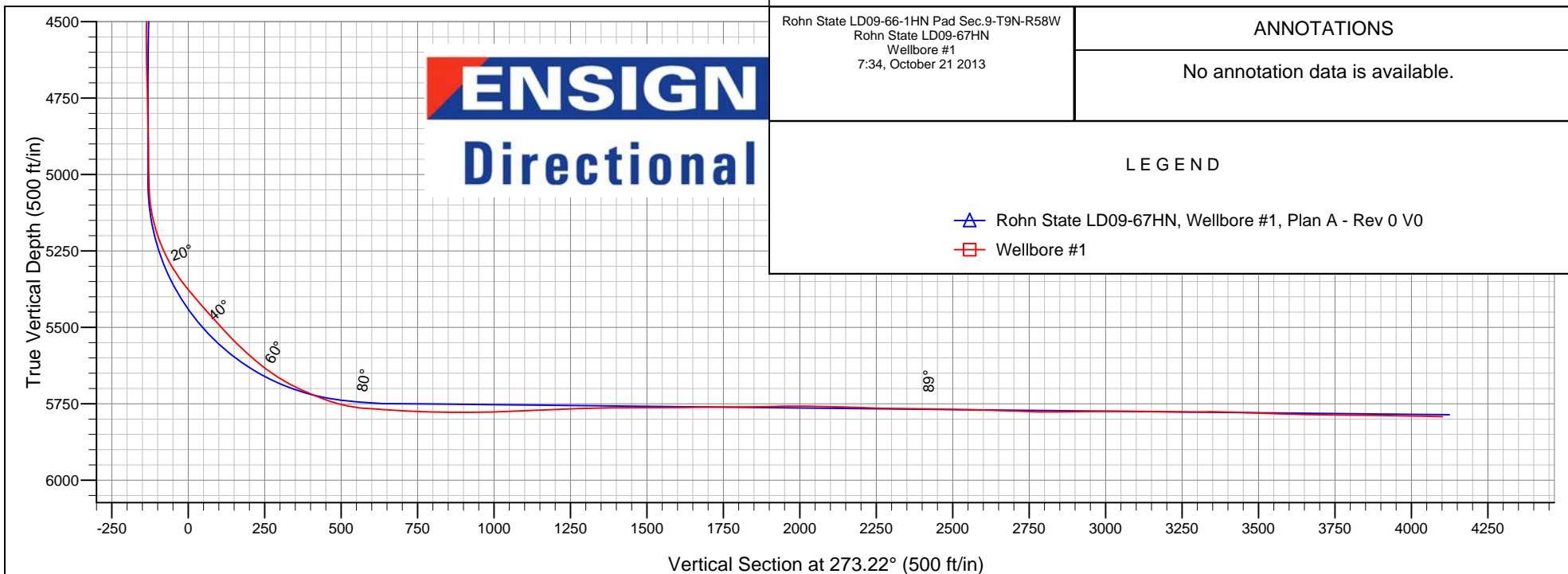
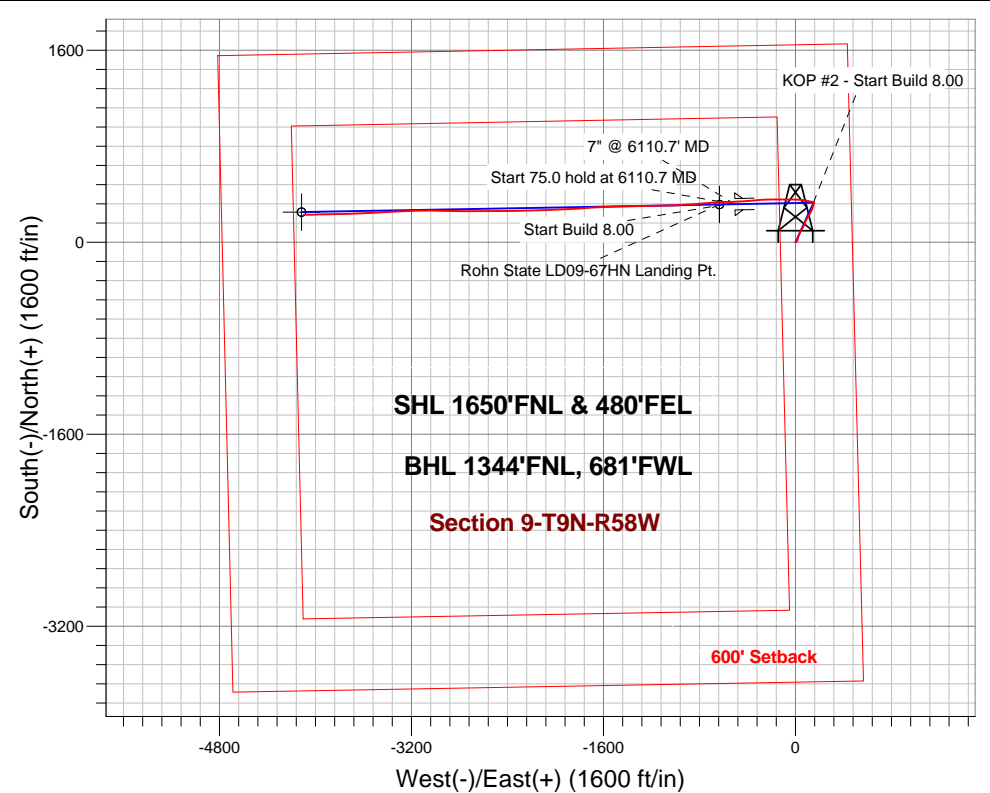
Surface Location: Rohn State LD09-66-1HN Pad Sec.9-T9N-R58W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4729.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1527049.50	3453779.28	40.768630	-103.861690	
H&P 273 RKB - 24' WELL @ 4753.0ft (H&P 273 RKB - 24')						

FINAL SURVEY

Projected Bottom Hole Location
9687' MD 5792' TVD 231' N & 4095' W of SHL
88.9 degree Incl @ 269.1 degree AZM





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

SEC.9-T9N-R58W

Rohn State LD09-66-1HN Pad Sec.9-T9N-R58W

Rohn State LD09-67HN

Wellbore #1

Design: Wellbore #1

Standard Survey Report

21 October, 2013

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Rohn State LD09-67HN
Project:	SEC.9-T9N-R58W	TVD Reference:	WELL @ 4753.0ft (H&P 273 RKB - 24')
Site:	Rohn State LD09-66-1HN Pad Sec.9-T9N-R58W	MD Reference:	WELL @ 4753.0ft (H&P 273 RKB - 24')
Well:	Rohn State LD09-67HN	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)
1,825.0	7.70	12.80	1,823.3	37.0	21.1	-19.0	1.28	1.26	1.47
1,920.0	7.00	13.90	1,917.5	48.8	23.9	-21.1	0.75	-0.74	1.16
2,015.0	7.80	24.80	2,011.7	60.3	28.0	-24.6	1.70	0.84	11.47
2,109.0	7.20	23.20	2,104.9	71.5	33.0	-28.9	0.68	-0.64	-1.70
2,204.0	6.50	22.50	2,199.2	81.9	37.4	-32.7	0.74	-0.74	-0.74
2,299.0	6.20	31.10	2,293.6	91.3	42.1	-36.9	1.05	-0.32	9.05
2,394.0	8.10	32.50	2,387.9	101.3	48.3	-42.6	2.01	2.00	1.47
2,489.0	8.40	30.80	2,481.9	112.9	55.5	-49.1	0.41	0.32	-1.79
2,584.0	8.50	30.90	2,575.9	124.9	62.7	-55.5	0.11	0.11	0.11
2,679.0	7.70	21.80	2,669.9	136.8	68.6	-60.8	1.59	-0.84	-9.58
2,773.0	7.30	20.60	2,763.1	148.3	73.1	-64.6	0.46	-0.43	-1.28
2,868.0	6.30	20.60	2,857.5	158.8	77.0	-68.0	1.05	-1.05	0.00
2,963.0	5.00	15.50	2,952.0	167.7	80.0	-70.4	1.47	-1.37	-5.37
3,058.0	5.70	21.60	3,046.6	176.0	82.8	-72.8	0.95	0.74	6.42
3,153.0	6.80	32.20	3,141.0	185.2	87.5	-77.0	1.67	1.16	11.16
3,341.0	7.80	31.10	3,327.5	205.5	100.1	-88.3	0.54	0.53	-0.59
3,436.0	8.60	31.80	3,421.5	217.1	107.1	-94.8	0.85	0.84	0.74
3,531.0	9.60	30.40	3,515.3	229.9	114.9	-101.8	1.08	1.05	-1.47
3,626.0	8.20	27.90	3,609.2	242.8	122.1	-108.2	1.53	-1.47	-2.63
3,721.0	7.30	27.10	3,703.3	254.1	128.0	-113.5	0.95	-0.95	-0.84
3,815.0	5.30	26.50	3,796.8	263.3	132.6	-117.6	2.13	-2.13	-0.64
3,910.0	5.50	23.60	3,891.3	271.4	136.4	-120.9	0.36	0.21	-3.05
4,005.0	5.80	19.50	3,985.9	280.1	139.8	-123.9	0.53	0.32	-4.32
4,100.0	6.50	16.70	4,080.3	289.8	143.0	-126.5	0.80	0.74	-2.95
4,195.0	5.50	18.50	4,174.8	299.3	146.0	-128.9	1.07	-1.05	1.89
4,290.0	5.40	10.50	4,269.4	308.0	148.2	-130.7	0.81	-0.11	-8.42
4,384.0	5.40	19.30	4,363.0	316.5	150.5	-132.5	0.88	0.00	9.36
4,479.0	4.70	24.60	4,457.6	324.3	153.6	-135.1	0.88	-0.74	5.58
4,574.0	2.20	9.00	4,552.4	329.6	155.5	-136.7	2.79	-2.63	-16.42
4,669.0	1.70	305.50	4,647.4	332.2	154.7	-135.7	2.21	-0.53	-66.84
4,764.0	1.60	299.20	4,742.3	333.7	152.3	-133.3	0.22	-0.11	-6.63
4,858.0	1.20	303.40	4,836.3	334.9	150.4	-131.3	0.44	-0.43	4.47
4,953.0	0.90	294.10	4,931.3	335.7	148.9	-129.7	0.36	-0.32	-9.79
4,970.0	0.90	283.90	4,948.3	335.8	148.6	-129.5	0.94	0.00	-60.00
5,065.0	1.30	276.30	5,043.3	336.1	146.8	-127.7	0.45	0.42	-8.00
5,160.0	12.00	279.80	5,137.5	337.9	136.0	-116.8	11.27	11.26	3.68
5,255.0	22.10	283.00	5,228.2	343.6	108.8	-89.3	10.67	10.63	3.37
5,349.0	32.40	278.60	5,311.7	351.4	66.5	-46.7	11.16	10.96	-4.68
5,444.0	40.30	271.40	5,388.1	356.0	10.5	9.5	9.44	8.32	-7.58
5,539.0	41.60	270.90	5,459.9	357.2	-51.7	71.7	1.41	1.37	-0.53
5,634.0	43.90	270.70	5,529.7	358.1	-116.2	136.2	2.43	2.42	-0.21
5,729.0	48.40	269.80	5,595.4	358.4	-184.7	204.6	4.79	4.74	-0.95
5,823.0	55.80	266.30	5,653.2	355.7	-258.7	278.3	8.40	7.87	-3.72
5,918.0	65.20	265.30	5,699.9	349.7	-341.1	360.2	9.94	9.89	-1.05
6,013.0	69.80	266.00	5,736.2	343.0	-428.6	447.2	4.89	4.84	0.74
6,094.0	79.20	266.80	5,757.9	338.1	-506.4	524.6	11.64	11.60	0.99
6,157.0	86.20	269.60	5,765.9	336.2	-568.8	586.8	11.95	11.11	4.44
6,221.0	86.54	267.33	5,769.9	334.5	-632.7	650.5	3.58	0.54	-3.55
Rohn State LD09-67HN Landing Pt.									
6,250.0	86.70	266.30	5,771.6	332.9	-661.6	679.2	3.58	0.54	-3.55
6,343.0	87.70	266.00	5,776.2	326.6	-754.3	771.4	1.12	1.08	-0.32
6,437.0	89.90	265.40	5,778.1	319.6	-848.0	864.6	2.43	2.34	-0.64

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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)
6,532.0	90.70	265.60	5,777.6	312.1	-942.7	958.7	0.87	0.84	0.21
6,627.0	92.30	267.90	5,775.1	306.7	-1,037.5	1,053.1	2.95	1.68	2.42
6,722.0	92.70	269.80	5,771.0	304.8	-1,132.4	1,147.7	2.04	0.42	2.00
6,817.0	92.20	269.60	5,766.9	304.3	-1,227.3	1,242.4	0.57	-0.53	-0.21
6,911.0	90.60	268.40	5,764.6	302.7	-1,321.2	1,336.2	2.13	-1.70	-1.28
7,006.0	91.00	268.60	5,763.3	300.2	-1,416.2	1,430.8	0.47	0.42	0.21
7,101.0	89.90	268.60	5,762.6	297.9	-1,511.1	1,525.5	1.16	-1.16	0.00
7,196.0	90.50	267.00	5,762.2	294.2	-1,606.1	1,620.1	1.80	0.63	-1.68
7,291.0	90.50	265.80	5,761.4	288.3	-1,700.9	1,714.4	1.26	0.00	-1.26
7,386.0	90.60	266.50	5,760.5	281.9	-1,795.7	1,808.7	0.74	0.11	0.74
7,481.0	91.20	267.40	5,759.0	276.8	-1,890.5	1,903.1	1.14	0.63	0.95
7,576.0	90.00	268.10	5,758.0	273.1	-1,985.4	1,997.6	1.46	-1.26	0.74
7,671.0	88.50	267.70	5,759.3	269.6	-2,080.4	2,092.2	1.63	-1.58	-0.42
7,765.0	87.80	267.50	5,762.3	265.7	-2,174.2	2,185.7	0.77	-0.74	-0.21
7,860.0	88.80	269.30	5,765.1	263.1	-2,269.1	2,280.3	2.17	1.05	1.89
7,955.0	89.50	269.80	5,766.5	262.3	-2,364.1	2,375.1	0.91	0.74	0.53
8,050.0	89.00	269.80	5,767.8	262.0	-2,459.1	2,470.0	0.53	-0.53	0.00
8,145.0	88.50	269.80	5,769.8	261.6	-2,554.1	2,564.8	0.53	-0.53	0.00
8,240.0	87.90	269.10	5,772.8	260.7	-2,649.0	2,659.5	0.97	-0.63	-0.74
8,334.0	88.30	269.60	5,775.9	259.7	-2,743.0	2,753.2	0.68	0.43	0.53
8,429.0	90.70	271.60	5,776.8	260.7	-2,838.0	2,848.1	3.29	2.53	2.11
8,525.0	90.80	271.10	5,775.5	262.9	-2,933.9	2,944.1	0.53	0.10	-0.52
8,620.0	90.20	270.50	5,774.7	264.3	-3,028.9	3,039.0	0.89	-0.63	-0.63
8,715.0	88.90	268.90	5,775.4	263.8	-3,123.9	3,133.8	2.17	-1.37	-1.68
8,810.0	89.40	267.90	5,776.8	261.1	-3,218.9	3,228.4	1.18	0.53	-1.05
8,904.0	90.80	267.90	5,776.7	257.7	-3,312.8	3,322.0	1.49	1.49	0.00
8,999.0	87.80	267.00	5,777.8	253.4	-3,407.7	3,416.5	3.30	-3.16	-0.95
9,094.0	88.10	266.70	5,781.2	248.2	-3,502.5	3,510.9	0.45	0.32	-0.32
9,189.0	88.30	267.00	5,784.2	243.0	-3,597.3	3,605.3	0.38	0.21	0.32
9,284.0	89.30	267.40	5,786.2	238.4	-3,692.1	3,699.7	1.13	1.05	0.42
9,378.0	89.50	269.80	5,787.2	236.1	-3,786.1	3,793.4	2.56	0.21	2.55
9,473.0	89.10	268.60	5,788.3	234.7	-3,881.1	3,888.1	1.33	-0.42	-1.26
9,568.0	89.10	268.90	5,789.8	232.7	-3,976.1	3,982.8	0.32	0.00	0.32
9,617.0	88.90	269.10	5,790.7	231.8	-4,025.0	4,031.7	0.58	-0.41	0.41
9,687.0	88.90	269.10	5,792.0	230.7	-4,095.0	4,101.5	0.00	0.00	0.00
Rohn State LD09-67HN BHL 1320'FNL, 660'FWL									

Checked By: _____ Approved By: _____ Date: _____