

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

Well Name: **Rohn State LD04-65HN**

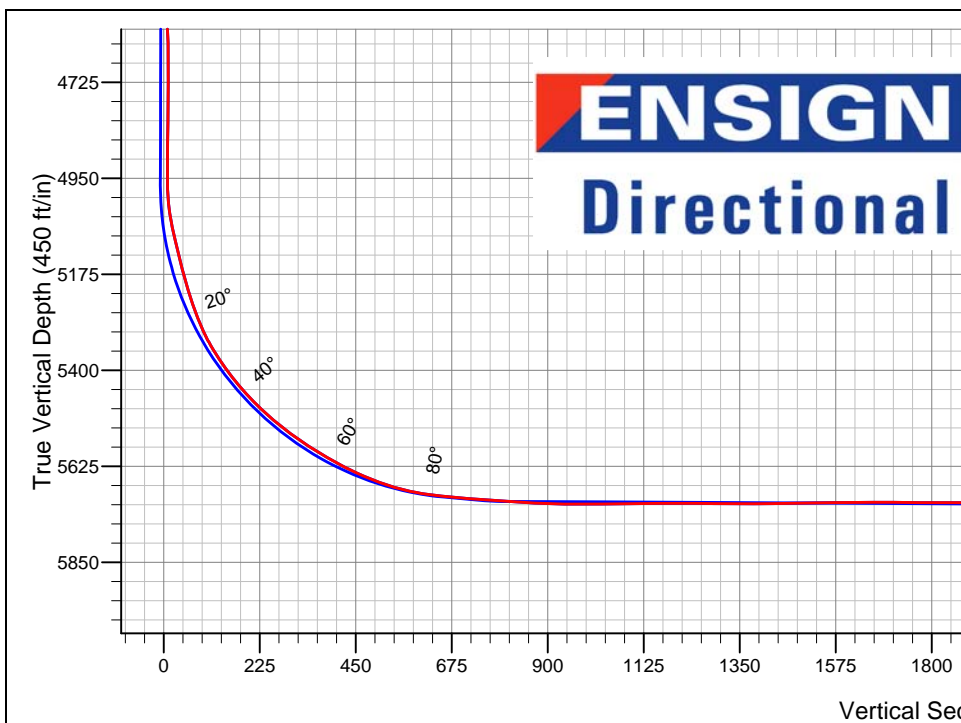
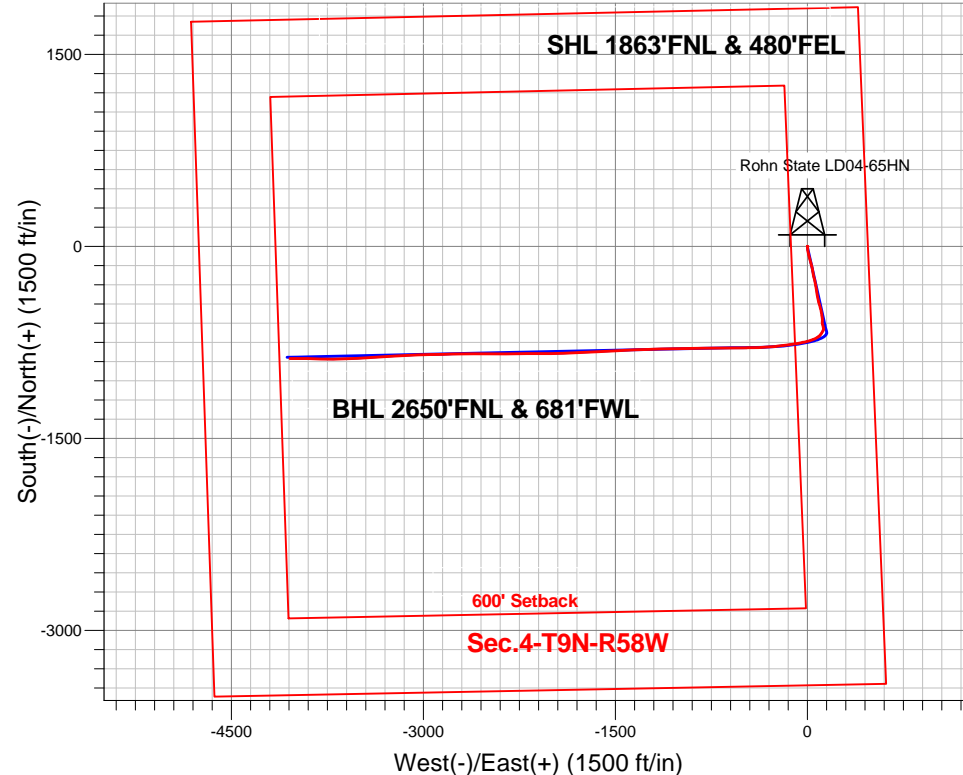
Surface Location: Rohn State LD04-65HN Pad Sec.4-T9N-R58W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4703.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1532122.17	3453596.92	40.782560	-103.862010	

H&P 273 RKB - 24' WELL @ 4727.0ft (H&P 273 RKB - 24')

FINAL SURVEY

Projected Bottom Hole Location
9648' MD 5717' TVD 875' S & 4043' W of SHL
90.7 degree Incl @ 270.0 degree AZM



Rohn State LD04-65HN Pad Sec.4-T9N-R58W
Rohn State LD04-65HN
Wellbore #1
13:43, July 31 2013

ANNOTATIONS

No annotation data is available.

LEGEND

- △ Rohn State LD04-65HN, Wellbore #1, Plan A - Rev 1 (Updated 7-22-13) V0
- Wellbore #1
- Survey #1

BHL 2650'FNL & 681'FWL



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

Sec.4-T9N-R58W

Rohn State LD04-65HN Pad Sec.4-T9N-R58W

Rohn State LD04-65HN

Wellbore #1

Survey: Survey #1

Standard Survey Report

31 July, 2013

Survey	Wellbore Data									
	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)
Main Survey	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	300.0	0.20	81.60	300.0	0.1	0.5	-0.5	0.07	0.07	0.00
	710.0	0.50	325.20	710.0	1.7	0.2	-0.5	0.15	0.07	-28.39
	1,155.0	1.40	118.20	1,155.0	0.7	3.9	-3.9	0.42	0.20	34.38
	1,281.0	1.00	271.90	1,280.9	0.0	4.1	-4.1	1.86	-0.32	121.98
	1,374.0	2.50	204.90	1,373.9	-1.8	2.5	-2.0	2.47	1.61	-72.04
	1,467.0	4.30	188.10	1,466.7	-7.1	1.1	0.4	2.19	1.94	-18.06
	1,562.0	5.60	177.90	1,561.4	-15.3	0.8	2.4	1.65	1.37	-10.74
	1,657.0	7.60	169.80	1,655.8	-26.1	2.1	3.4	2.32	2.11	-8.53
	1,752.0	9.30	170.30	1,749.7	-39.8	4.5	3.9	1.79	1.79	0.53
	1,847.0	11.00	163.60	1,843.2	-56.1	8.3	3.5	2.18	1.79	-7.05
	1,942.0	12.00	164.30	1,936.3	-74.3	13.6	2.2	1.06	1.05	0.74
	2,037.0	13.00	165.00	2,031.4	-92.6	18.9	1.1	0.74	0.74	0.29
	2,132.0	14.00	165.70	2,126.5	-110.9	24.2	0.0	0.42	0.42	0.00
	2,227.0	15.00	166.40	2,221.6	-129.2	29.5	-0.9	0.10	0.10	-0.36

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Rohn State LD04-65HN
Project:	Sec.4-T9N-R58W	TVD Reference:	WELL @ 4727.0ft (H&P 273 RKB - 24')
Site:	Rohn State LD04-65HN Pad Sec.4-T9N-R58W	MD Reference:	WELL @ 4727.0ft (H&P 273 RKB - 24')
Well:	Rohn State LD04-65HN	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)
2,036.0	12.80	165.90	2,028.1	-93.8	18.8	1.2	0.93	0.85	1.70
2,131.0	12.50	167.70	2,120.8	-114.1	23.5	0.8	0.52	-0.32	1.89
2,226.0	11.60	162.20	2,213.7	-133.2	28.6	-0.2	1.53	-0.95	-5.79
2,321.0	11.80	166.10	2,306.8	-151.7	33.9	-1.5	0.86	0.21	4.11
2,416.0	12.00	170.70	2,399.7	-170.9	37.8	-1.4	1.02	0.21	4.84
2,511.0	13.20	169.80	2,492.4	-191.3	41.3	-0.6	1.28	1.26	-0.95
2,605.0	13.20	169.10	2,584.0	-212.4	45.3	0.0	0.17	0.00	-0.74
2,700.0	12.50	167.10	2,676.6	-233.1	49.6	0.0	0.87	-0.74	-2.11
2,795.0	12.50	167.00	2,769.3	-253.1	54.2	-0.3	0.02	0.00	-0.11
2,890.0	11.40	165.90	2,862.3	-272.3	58.8	-0.8	1.18	-1.16	-1.16
2,985.0	10.30	167.00	2,955.6	-289.6	63.0	-1.3	1.18	-1.16	1.16
3,079.0	10.60	170.70	3,048.0	-306.4	66.3	-1.0	0.78	0.32	3.94
3,174.0	11.70	171.20	3,141.2	-324.5	69.2	-0.1	1.16	1.16	0.53
3,269.0	12.00	171.20	3,234.2	-343.8	72.2	1.0	0.32	0.32	0.00
3,364.0	12.60	172.20	3,327.0	-363.8	75.1	2.3	0.67	0.63	1.05
3,459.0	13.80	170.30	3,419.5	-385.3	78.4	3.6	1.34	1.26	-2.00
3,554.0	14.70	170.10	3,511.6	-408.3	82.4	4.5	0.95	0.95	-0.21
3,649.0	13.40	164.20	3,603.7	-430.8	87.4	4.2	2.03	-1.37	-6.21
3,744.0	10.40	162.00	3,696.7	-449.5	93.1	2.6	3.19	-3.16	-2.32
3,838.0	9.80	162.90	3,789.2	-465.2	98.1	1.0	0.66	-0.64	0.96
3,933.0	9.60	167.50	3,882.9	-480.7	102.2	0.2	0.84	-0.21	4.84
4,028.0	10.40	166.60	3,976.4	-496.8	105.9	-0.1	0.86	0.84	-0.95
4,123.0	10.60	169.80	4,069.8	-513.7	109.4	0.0	0.65	0.21	3.37
4,218.0	9.80	172.90	4,163.3	-530.3	111.9	1.0	1.02	-0.84	3.26
4,313.0	8.20	167.70	4,257.2	-545.0	114.4	1.6	1.89	-1.68	-5.47
4,407.0	8.30	169.60	4,350.2	-558.2	117.0	1.8	0.31	0.11	2.02
4,502.0	7.40	184.50	4,444.3	-571.0	117.8	3.7	2.33	-0.95	15.68
4,597.0	7.50	185.40	4,538.5	-583.3	116.7	7.3	0.16	0.11	0.95
4,692.0	7.20	177.50	4,632.7	-595.4	116.4	10.2	1.11	-0.32	-8.32
4,786.0	7.70	163.60	4,725.9	-607.4	118.4	10.7	1.98	0.53	-14.79
4,881.0	7.60	163.80	4,820.1	-619.5	122.0	9.7	0.11	-0.11	0.21
4,972.0	6.30	163.10	4,910.4	-630.1	125.1	8.8	1.43	-1.43	-0.77
5,019.0	10.80	168.40	4,956.9	-636.8	126.8	8.7	9.71	9.57	11.28
5,067.0	13.10	190.90	5,003.9	-646.6	126.6	10.8	10.73	4.79	46.88
5,114.0	16.30	207.90	5,049.3	-657.7	122.5	17.1	11.36	6.81	36.17
5,162.0	19.00	212.10	5,095.1	-670.2	115.2	26.9	6.22	5.63	8.75
5,209.0	18.40	212.10	5,139.6	-683.0	107.2	37.4	1.28	-1.28	0.00
5,256.0	19.30	225.20	5,184.1	-694.8	97.8	49.1	9.19	1.91	27.87
5,303.0	19.10	231.50	5,228.5	-705.0	86.2	62.5	4.43	-0.43	13.40
5,351.0	21.70	241.00	5,273.5	-714.2	72.3	78.0	8.76	5.42	19.79
5,398.0	26.50	247.70	5,316.4	-722.4	55.0	96.7	11.74	10.21	14.26
5,446.0	32.40	250.80	5,358.2	-730.7	32.9	120.0	12.69	12.29	6.46
5,493.0	36.30	253.10	5,397.0	-738.9	7.7	146.3	8.74	8.30	4.89
5,541.0	39.70	258.00	5,434.8	-746.2	-20.9	175.8	9.47	7.08	10.21
5,588.0	44.00	259.60	5,469.8	-752.3	-51.6	207.2	9.43	9.15	3.40
5,635.0	48.20	259.60	5,502.4	-758.4	-84.9	241.0	8.94	8.94	0.00
5,680.0	51.70	261.20	5,531.3	-764.1	-118.9	275.4	8.24	7.78	3.56
5,730.0	55.30	263.10	5,561.1	-769.6	-158.7	315.5	7.82	7.20	3.80
5,777.0	57.90	263.10	5,586.9	-774.3	-197.7	354.6	5.53	5.53	0.00
5,825.0	61.00	263.30	5,611.3	-779.2	-238.7	395.8	6.47	6.46	0.42
5,872.0	63.90	265.40	5,633.1	-783.3	-280.2	437.2	7.33	6.17	4.47
5,920.0	67.90	267.20	5,652.7	-786.1	-323.9	480.5	9.01	8.33	3.75
5,967.0	72.10	268.00	5,668.7	-788.0	-368.0	524.0	9.08	8.94	1.70

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Design:	Wellbore #1	Database:	Landmark

Survey									
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6,015.0	77.20	267.90	5,681.4	-789.6	-414.2	569.6	10.63	10.63	-0.21
6,085.0	84.00	270.00	5,692.9	-790.9	-483.2	637.4	10.15	9.71	3.00
6,184.0	85.70	269.60	5,701.8	-791.2	-581.8	733.9	1.76	1.72	-0.40
6,250.1	86.20	268.96	5,706.4	-792.1	-647.7	798.5	1.22	0.75	-0.97
Rohn State LD04-65HN - Landing Pt.									
6,277.0	86.40	268.70	5,708.2	-792.6	-674.6	824.9	1.22	0.75	-0.97
6,370.0	88.20	268.90	5,712.5	-794.5	-767.5	916.1	1.95	1.94	0.22
6,465.0	91.20	269.60	5,713.0	-795.8	-862.5	1,009.3	3.24	3.16	0.74
6,560.0	90.00	268.60	5,712.0	-797.3	-957.4	1,102.5	1.64	-1.26	-1.05
6,655.0	90.20	270.00	5,711.9	-798.4	-1,052.4	1,195.6	1.49	0.21	1.47
6,750.0	89.60	267.90	5,712.0	-800.2	-1,147.4	1,288.9	2.30	-0.63	-2.21
6,845.0	89.90	268.20	5,712.5	-803.4	-1,242.3	1,382.4	0.45	0.32	0.32
6,940.0	91.40	268.20	5,711.4	-806.4	-1,337.3	1,475.9	1.58	1.58	0.00
7,035.0	90.50	266.10	5,709.8	-811.1	-1,432.2	1,569.7	2.40	-0.95	-2.21
7,129.0	90.30	267.20	5,709.2	-816.6	-1,526.0	1,662.6	1.19	-0.21	1.17
7,224.0	89.30	267.70	5,709.5	-820.8	-1,620.9	1,756.3	1.18	-1.05	0.53
7,319.0	89.80	266.50	5,710.2	-825.6	-1,715.8	1,850.1	1.37	0.53	-1.26
7,414.0	90.60	267.90	5,709.9	-830.3	-1,810.6	1,943.9	1.70	0.84	1.47
7,508.0	89.70	267.70	5,709.7	-833.9	-1,904.6	2,036.5	0.98	-0.96	-0.21
7,603.0	89.20	269.40	5,710.6	-836.3	-1,999.5	2,129.9	1.87	-0.53	1.79
7,698.0	89.50	270.10	5,711.6	-836.7	-2,094.5	2,222.9	0.80	0.32	0.74
7,793.0	88.80	270.10	5,713.1	-836.6	-2,189.5	2,315.7	0.74	-0.74	0.00
7,888.0	87.60	268.90	5,716.0	-837.4	-2,284.5	2,408.8	1.79	-1.26	-1.26
7,982.0	89.00	269.30	5,718.8	-838.9	-2,378.4	2,501.0	1.55	1.49	0.43
8,077.0	89.20	269.60	5,720.3	-839.8	-2,473.4	2,594.1	0.38	0.21	0.32
8,172.0	89.90	271.40	5,721.1	-838.9	-2,568.4	2,686.8	2.03	0.74	1.89
8,267.0	87.90	269.40	5,722.9	-838.3	-2,663.4	2,779.5	2.98	-2.11	-2.11
8,362.0	88.50	268.40	5,725.9	-840.1	-2,758.3	2,872.8	1.23	0.63	-1.05
8,457.0	90.40	269.30	5,726.8	-842.0	-2,853.3	2,966.1	2.21	2.00	0.95
8,552.0	88.70	268.40	5,727.5	-843.9	-2,948.2	3,059.3	2.02	-1.79	-0.95
8,646.0	89.30	267.50	5,729.2	-847.3	-3,042.2	3,151.9	1.15	0.64	-0.96
8,741.0	90.60	267.20	5,729.3	-851.7	-3,137.1	3,245.6	1.40	1.37	-0.32
8,836.0	89.30	266.60	5,729.3	-856.8	-3,231.9	3,339.5	1.51	-1.37	-0.63
8,931.0	91.90	266.10	5,728.3	-862.8	-3,326.7	3,433.5	2.79	2.74	-0.53
9,026.0	92.40	266.60	5,724.8	-868.9	-3,421.4	3,527.4	0.74	0.53	0.53
9,121.0	92.20	267.30	5,721.0	-873.9	-3,516.2	3,621.1	0.77	-0.21	0.74
9,215.0	90.80	268.00	5,718.5	-877.8	-3,610.1	3,713.8	1.67	-1.49	0.74
9,310.0	90.40	270.10	5,717.5	-879.4	-3,705.1	3,807.0	2.25	-0.42	2.21
9,405.0	89.70	271.40	5,717.4	-878.1	-3,800.1	3,899.6	1.55	-0.74	1.37
9,500.0	89.60	271.20	5,718.0	-876.0	-3,895.1	3,992.1	0.24	-0.11	-0.21
9,593.0	90.70	270.00	5,717.8	-875.0	-3,988.0	4,082.8	1.75	1.18	-1.29
9,648.0	90.70	270.00	5,717.1	-875.0	-4,043.0	4,136.6	0.00	0.00	0.00
Rohn State LD04-65HN BHL 2640'FNL, 660'FWL									

Checked By: _____ Approved By: _____ Date: _____