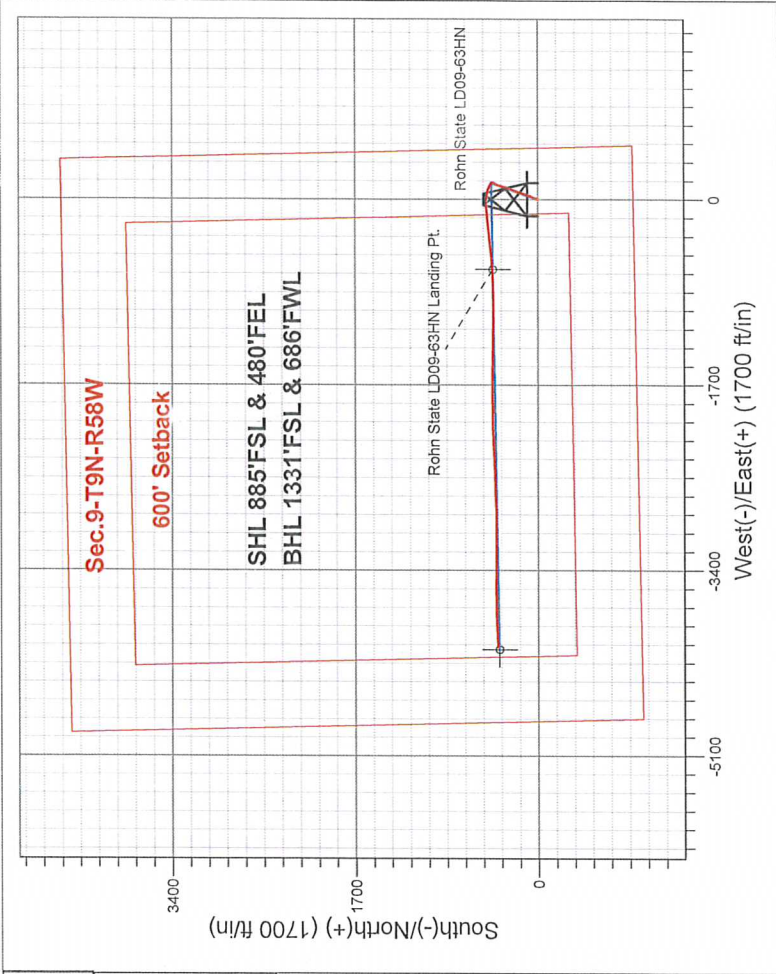


Noble Energy Inc.- Weld County, CO (Grid North)

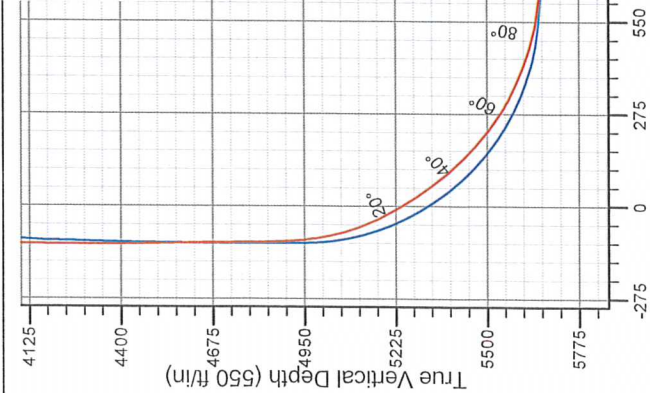
Well Name: Rohn State LD09-63HN					
Surface Location: Rohn State LD09-63HN Pad Sec.9-T9N-R58W					
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone					
Ground Elevation: 4716.0					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1524274.16	3453852.73	40.761010	-103.861610
H&P 273 RKB - 24' WELL @ 4740.0ft (H&P 273 RKB - 24')					

FINAL SURVEY

Projected Bottom Hole Location
9610'MD 5660'TVD 373'N & 4101'W of SHL
90.9 degree Incl @ 266.8 degree AZM



ENSIGN
Directional



Vertical Section at 275.20° (550 ft/in)

Rohn State LD09-63HN Pad Sec.9-T9N-R58W Rohn State LD09-63HN	ANNOTATIONS
7:28, November 18 2013 Wellbore #1	No annotation data is available.

- LEGEND
- Rohn State LD09-63HN, Wellbore #1, Plan A - Rev 1 V0
 - Wellbore #1



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

SEC.9-T9N-R58W

Rohn State LD09-63HN Pad Sec.9-T9N-R58W

Rohn State LD09-63HN

Wellbore #1

Design: Wellbore #1

Standard Survey Report

18 November, 2013

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Rohn State LD09-63HN
Project:	SEC.9-T9N-R58W	TVD Reference:	WELL @ 4740.0ft (H&P 273 RKB - 24')
Site:	Rohn State LD09-63HN Pad Sec.9-T9N-R58W	MD Reference:	WELL @ 4740.0ft (H&P 273 RKB - 24')
Well:	Rohn State LD09-63HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.9-T9N-R58W, Weld County, CO		
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		Rohn State LD09-63HN Pad Sec.9-T9N-R58W			
Site Position:		Northing:	1,524,274.18 ft	Latitude:	40.761010
From:	Lat/Long	Easting:	3,453,852.73 ft	Longitude:	-103.861610
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	1.06 °

Well	Rohn State LD09-63HN					
Well Position	+N/-S	0.0 ft	Northing:	1,524,274.16 ft	Latitude:	40.761010
	+E/-W	0.0 ft	Easting:	3,453,852.73 ft	Longitude:	-103.861610
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,716.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/23/2013	8.09	67.41	53,172

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	275.20	

Survey Program	Date 11/15/2013				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
361.0	1,194.0	Survey #1 (Wellbore #1)	Flexi-Shot	VES Flexi-Shot Tool	
1,282.0	9,610.0	Survey #2 (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	
361.0	0.80	71.00	361.0	0.8	2.4	-2.3	0.22	0.22	0.00	
712.0	0.50	117.20	712.0	0.9	6.1	-6.0	0.17	-0.09	13.16	
1,194.0	0.20	191.40	1,194.0	-0.9	7.8	-7.8	0.10	-0.06	15.39	
1,282.0	0.90	263.00	1,282.0	-1.1	7.0	-7.1	0.98	0.80	81.36	
1,375.0	1.20	263.00	1,374.9	-1.3	5.4	-5.5	0.32	0.32	0.00	
1,468.0	0.90	281.40	1,467.9	-1.3	3.7	-3.8	0.48	-0.32	19.78	
1,560.0	2.40	26.70	1,559.9	0.6	3.8	-3.8	3.02	1.63	114.46	
1,651.0	4.10	19.00	1,650.7	5.4	5.7	-5.2	1.92	1.87	-8.46	
1,744.0	5.70	20.40	1,743.4	12.8	8.4	-7.2	1.73	1.72	1.51	
1,839.0	7.30	22.50	1,837.8	22.8	12.4	-10.3	1.70	1.68	2.21	

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Rohn State LD09-63HN
Project:	SEC.9-T9N-R58W	TVD Reference:	WELL @ 4740.0ft (H&P 273 RKB - 24')
Site:	Rohn State LD09-63HN Pad Sec.9-T9N-R58W	MD Reference:	WELL @ 4740.0ft (H&P 273 RKB - 24')
Well:	Rohn State LD09-63HN	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)
1,934.0	8.80	17.80	1,931.9	35.3	16.9	-13.7	1.72	1.58	-4.95
2,029.0	10.20	23.70	2,025.5	49.9	22.5	-17.9	1.79	1.47	6.21
2,123.0	11.40	21.10	2,117.9	66.2	29.2	-23.1	1.38	1.28	-2.77
2,218.0	10.90	21.10	2,211.1	83.4	35.8	-28.1	0.53	-0.53	0.00
2,313.0	12.10	18.60	2,304.2	101.2	42.2	-32.9	1.37	1.26	-2.63
2,408.0	12.10	18.30	2,397.1	120.1	48.5	-37.5	0.07	0.00	-0.32
2,503.0	12.00	18.10	2,490.0	138.9	54.7	-41.9	0.11	-0.11	-0.21
2,598.0	11.80	17.90	2,582.9	157.6	60.8	-46.3	0.21	-0.21	-0.21
2,693.0	11.50	17.90	2,676.0	175.8	66.7	-50.5	0.32	-0.32	0.00
2,787.0	11.20	17.60	2,768.1	193.4	72.3	-54.5	0.33	-0.32	-0.32
2,882.0	10.20	17.00	2,861.5	210.3	77.6	-58.2	1.06	-1.05	-0.63
2,977.0	10.40	21.60	2,955.0	226.3	83.2	-62.4	0.89	0.21	4.84
3,072.0	11.90	20.70	3,048.2	243.4	89.8	-67.4	1.59	1.58	-0.95
3,167.0	12.10	20.60	3,141.1	261.9	96.8	-72.7	0.21	0.21	-0.11
3,262.0	12.30	19.20	3,233.9	280.8	103.6	-77.8	0.38	0.21	-1.47
3,356.0	12.30	18.30	3,325.8	299.7	110.0	-82.5	0.20	0.00	-0.96
3,451.0	12.30	16.30	3,418.6	319.1	116.1	-86.7	0.45	0.00	-2.11
3,546.0	12.60	16.50	3,511.4	338.7	121.8	-90.7	0.32	0.32	0.21
3,641.0	10.50	14.80	3,604.4	357.0	127.0	-94.1	2.24	-2.21	-1.79
3,736.0	8.70	22.50	3,698.1	372.0	132.0	-97.7	2.32	-1.89	8.11
3,831.0	7.50	22.90	3,792.2	384.4	137.1	-101.8	1.26	-1.26	0.42
3,925.0	6.90	24.40	3,885.4	395.2	141.8	-105.5	0.67	-0.64	1.60
4,021.0	6.20	25.70	3,980.8	405.1	146.5	-109.2	0.75	-0.73	1.35
4,115.0	4.80	17.00	4,074.4	413.4	149.8	-111.8	1.73	-1.49	-9.26
4,210.0	1.80	16.70	4,169.2	418.7	151.4	-112.9	3.16	-3.16	-0.32
4,305.0	1.80	17.60	4,264.1	421.5	152.3	-113.5	0.03	0.00	0.95
4,400.0	1.80	8.60	4,359.1	424.4	153.0	-113.9	0.30	0.00	-9.47
4,495.0	3.20	340.30	4,454.0	428.4	152.3	-112.9	1.92	1.47	-29.79
4,590.0	1.80	298.30	4,548.9	431.6	150.1	-110.4	2.33	-1.47	-44.21
4,685.0	1.20	317.50	4,643.9	433.0	148.1	-108.3	0.82	-0.63	20.21
4,780.0	0.50	292.00	4,738.9	433.9	147.1	-107.2	0.82	-0.74	-26.84
4,873.0	0.40	324.00	4,831.9	434.3	146.5	-106.5	0.29	-0.11	34.41
4,967.0	4.90	299.20	4,925.8	436.5	142.8	-102.7	4.83	4.79	-26.38
5,062.0	12.70	302.20	5,019.6	444.1	130.4	-89.6	8.22	8.21	3.16
5,157.0	20.40	293.60	5,110.6	456.3	106.3	-64.6	8.48	8.11	-9.05
5,252.0	28.50	286.30	5,197.0	469.3	69.3	-26.6	9.09	8.53	-7.68
5,347.0	32.60	279.50	5,278.8	479.9	22.3	21.2	5.64	4.32	-7.16
5,442.0	38.20	267.70	5,356.3	483.0	-32.4	76.0	9.28	5.89	-12.42
5,537.0	46.10	263.10	5,426.7	477.7	-95.8	138.7	8.92	8.32	-4.84
5,632.0	50.40	264.40	5,490.0	470.0	-166.3	208.1	4.64	4.53	1.37
5,727.0	58.70	265.40	5,545.0	463.1	-243.3	284.2	8.78	8.74	1.05
5,821.0	66.00	264.50	5,588.6	455.8	-326.2	366.1	7.81	7.77	-0.96
5,916.0	72.10	263.10	5,622.6	446.2	-414.3	453.0	6.57	6.42	-1.47
5,986.0	77.60	263.00	5,640.8	438.0	-481.4	519.1	7.86	7.86	-0.14
6,064.0	83.30	266.10	5,653.8	430.7	-557.9	594.6	8.29	7.31	3.97
6,150.3	84.74	266.68	5,662.8	425.3	-643.5	679.4	1.79	1.67	0.67
Rohn State LD09-63HN Landing Pt.									
6,154.0	84.80	266.70	5,663.1	425.1	-647.2	683.1	1.79	1.67	0.66
6,247.0	86.20	268.10	5,670.4	420.9	-739.8	774.9	2.13	1.51	1.51
6,340.0	88.00	268.80	5,675.1	418.4	-832.7	867.2	2.08	1.94	0.75
6,435.0	91.00	268.40	5,675.9	416.1	-927.6	961.5	3.19	3.16	-0.42
6,530.0	93.70	269.80	5,672.0	414.6	-1,022.5	1,055.9	3.20	2.84	1.47
6,624.0	94.10	270.00	5,665.7	414.4	-1,116.3	1,149.3	0.48	0.43	0.21

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Rohn State LD09-63HN
Project:	SEC.9-T9N-R58W	TVD Reference:	WELL @ 4740.0ft (H&P 273 RKB - 24')
Site:	Rohn State LD09-63HN Pad Sec.9-T9N-R58W	MD Reference:	WELL @ 4740.0ft (H&P 273 RKB - 24')
Well:	Rohn State LD09-63HN	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)	
6,719.0	92.90	271.60	5,659.9	415.8	-1,211.1	1,243.8	2.10	-1.26	1.68	
6,814.0	90.40	272.10	5,657.1	418.8	-1,306.0	1,338.6	2.68	-2.63	0.53	
6,909.0	88.90	271.40	5,657.7	421.7	-1,401.0	1,433.4	1.74	-1.58	-0.74	
7,004.0	88.60	270.50	5,659.8	423.3	-1,496.0	1,528.1	1.00	-0.32	-0.95	
7,099.0	89.30	270.90	5,661.5	424.5	-1,590.9	1,622.8	0.85	0.74	0.42	
7,193.0	89.40	270.70	5,662.6	425.8	-1,684.9	1,716.5	0.24	0.11	-0.21	
7,288.0	89.30	268.90	5,663.7	425.4	-1,779.9	1,811.1	1.90	-0.11	-1.89	
7,383.0	89.50	268.80	5,664.6	423.5	-1,874.9	1,905.5	0.24	0.21	-0.11	
7,478.0	90.40	269.60	5,664.7	422.2	-1,969.9	2,000.0	1.27	0.95	0.84	
7,573.0	90.00	268.90	5,664.4	421.0	-2,064.9	2,094.5	0.85	-0.42	-0.74	
7,668.0	90.00	268.10	5,664.4	418.5	-2,159.8	2,188.8	0.84	0.00	-0.84	
7,762.0	89.30	267.20	5,665.0	414.6	-2,253.7	2,282.0	1.21	-0.74	-0.96	
7,857.0	89.30	266.70	5,666.1	409.6	-2,348.6	2,376.0	0.53	0.00	-0.53	
7,952.0	89.50	266.70	5,667.1	404.1	-2,443.4	2,470.0	0.21	0.21	0.00	
8,047.0	90.50	268.60	5,667.1	400.2	-2,538.4	2,564.2	2.26	1.05	2.00	
8,142.0	90.70	268.40	5,666.1	397.7	-2,633.3	2,658.5	0.30	0.21	-0.21	
8,236.0	91.20	268.10	5,664.6	394.8	-2,727.3	2,751.8	0.62	0.53	-0.32	
8,331.0	91.80	267.70	5,662.1	391.4	-2,822.2	2,846.0	0.76	0.63	-0.42	
8,426.0	90.70	269.50	5,660.0	389.0	-2,917.1	2,940.3	2.22	-1.16	1.89	
8,521.0	90.70	269.30	5,658.9	388.1	-3,012.1	3,034.9	0.21	0.00	-0.21	
8,615.0	90.00	270.40	5,658.3	387.8	-3,106.1	3,128.4	1.39	-0.74	1.17	
8,710.0	90.60	270.40	5,657.8	388.5	-3,201.1	3,223.1	0.63	0.63	0.00	
8,805.0	91.00	270.40	5,656.5	389.1	-3,296.1	3,317.8	0.42	0.42	0.00	
8,900.0	89.80	270.90	5,655.8	390.2	-3,391.1	3,412.5	1.37	-1.26	0.53	
8,994.0	88.80	270.20	5,656.9	391.1	-3,485.0	3,506.1	1.30	-1.06	-0.74	
9,089.0	89.30	270.20	5,658.5	391.4	-3,580.0	3,600.8	0.53	0.53	0.00	
9,184.0	88.20	268.60	5,660.6	390.5	-3,675.0	3,695.3	2.04	-1.16	-1.68	
9,279.0	88.90	268.90	5,663.0	388.4	-3,769.9	3,789.6	0.80	0.74	0.32	
9,374.0	90.40	267.20	5,663.6	385.1	-3,864.9	3,883.9	2.39	1.58	-1.79	
9,468.0	90.90	267.20	5,662.5	380.6	-3,958.8	3,977.0	0.53	0.53	0.00	
9,540.0	90.90	266.80	5,661.4	376.8	-4,030.7	4,048.2	0.56	0.00	-0.56	
9,610.0	90.90	266.80	5,660.3	372.9	-4,100.5	4,117.5	0.00	0.00	0.00	

Rohn State LD09-63HN BHL 1320'FSL & 660'FWL

Checked By: _____ Approved By: _____ Date: _____