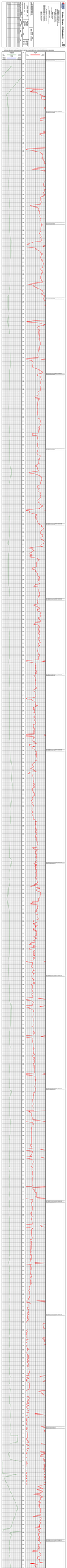

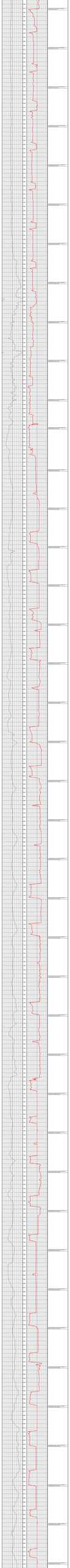

ENSIGN
Directional Services

Rohn State LD04-64HN

MD
5":100'

Company: Noble Energy Inc
Well Name: Rohn State LD04-64HN
UWI or LSD: 05-123-37463
Rig Id: Helmerich 273
State: Colorado
County/Parish: Weld
Country: USA
Survey Company: Ensign Directional
Job number: 207-273-15
Directional Driller 1 Kody Wood
Directional Driller 2 Jamie Sheets
MWD 1 Tyler Teague
MWD 2 Bill Mercer

Log measurements: 500
Depth measured from: KB
Maximum temperature: 206.6

	Depth	Date
Start:	1223 ft	08/10/2013
End:	9476 ft	08/13/2013

Casing	Depth	Size
Surface:	1212	9.625
Intermediate:	6033	7

Mud Type:
Density:
Viscosity:
Rm: **Rmf:** **Rmc:**

Elevations
KB: 4731
GL: 4707
DF: 4731

Run	Bit Size	Offsets		Depths		Dates	
		Gamma	Survey	Start	End	Start	End
1	8.75	58.61	53.61	1223	6043	08/10/2013	08/11/2013
2	6.125	59.98	54.98	6043	9476	08/12/2013	08/13/2013
3							
4							
5							
6							
7							
8							
9							
10							

Ensign Directional uses its best efforts to provide its customers with accurate information and interpretations in conjunction with services performed but will not be held liable or responsible for the accuracy of such information or interpretation.

#21 MD(4972.00) Inc(0.4) Azm(305.4) TVD(4971.14)
VS(5.10) NS(2.06) EW(-5.16)

#22 MD(5067.00) Inc(8.1) Azm(282.7) TVD(5065.81)
VS(11.85) NS(3.73) EW(-11.97)

#23 MD(5162.00) Inc(15.6) Azm(279.5) TVD(5158.72)
VS(30.89) NS(7.31) EW(-31.13)

#24 MD(5256.00) Inc(18.7) Azm(277.6) TVD(5248.53)
VS(58.16) NS(11.39) EW(-58.54)

#25 MD(5351.00) Inc(26.6) Azm(270.2) TVD(5336.15)
VS(94.50) NS(13.48) EW(-94.97)

#26 MD(5446.00) Inc(35.4) Azm(267.7) TVD(5417.51)
VS(143.37) NS(12.45) EW(-143.83)

#27 MD(5541.00) Inc(45.5) Azm(268.1) TVD(5489.70)
VS(204.93) NS(10.22) EW(-205.34)

#28 MD(5636.00) Inc(56.1) Azm(267.6) TVD(5549.66)
VS(278.44) NS(7.44) EW(-278.80)

#29 MD(5731.00) Inc(59.6) Azm(267.0) TVD(5600.21)
VS(358.85) NS(3.64) EW(-359.13)

#30 MD(5825.00) Inc(65.0) Azm(267.7) TVD(5643.89)
VS(442.03) NS(-0.19) EW(-442.24)

#31 MD(5920.00) Inc(74.7) Azm(267.0) TVD(5676.57)
VS(531.10) NS(-4.33) EW(-531.22)

#32 MD(5988.00) Inc(79.8) Azm(265.1) TVD(5691.58)
VS(597.35) NS(-8.91) EW(-597.36)

#33 MD(6090.00) Inc(87.8) Azm(263.3) TVD(5702.59)
VS(698.42) NS(-19.16) EW(-698.16)

#34 MD(6183.00) Inc(88.5) Azm(262.8) TVD(5705.59)
VS(790.99) NS(-30.41) EW(-790.43)

#35 MD(6276.00) Inc(89.3) Azm(264.9) TVD(5707.37)
VS(883.69) NS(-40.45) EW(-882.86)

#36 MD(6369.00) Inc(91.0) Azm(267.7) TVD(5707.13)
VS(976.62) NS(-46.53) EW(-975.65)

#37 MD(6464.00) Inc(91.3) Azm(270.0) TVD(5705.22)
VS(1071.59) NS(-48.44) EW(-1070.60)

#38 MD(6558.00) Inc(89.7) Azm(270.2) TVD(5704.40)
VS(1165.53) NS(-48.27) EW(-1164.59)

#39 MD(6653.00) Inc(91.4) Azm(269.9) TVD(5703.49)
VS(1260.47) NS(-48.19) EW(-1259.59)

#40 MD(6748.00) Inc(90.3) Azm(269.9) TVD(5702.08)
VS(1355.42) NS(-48.35) EW(-1354.57)

#41 MD(6843.00) Inc(88.0) Azm(269.0) TVD(5703.49)
VS(1450.38) NS(-49.27) EW(-1449.55)

#42 MD(6938.00) Inc(89.8) Azm(268.1) TVD(5705.31)
VS(1545.36) NS(-51.67) EW(-1544.50)

#43 MD(7032.00) Inc(91.6) Azm(267.7) TVD(5704.17)
VS(1639.35) NS(-55.11) EW(-1638.43)

#44 MD(7127.00) Inc(90.7) Azm(268.8) TVD(5702.26)
VS(1734.32) NS(-58.01) EW(-1733.36)

#45 MD(7222.00) Inc(89.0) Azm(267.4) TVD(5702.51)
VS(1829.32) NS(-61.16) EW(-1828.30)

#46 MD(7317.00) Inc(90.5) Azm(267.2) TVD(5702.92)
VS(1924.30) NS(-65.64) EW(-1923.19)

#47 MD(7411.00) Inc(89.1) Azm(268.8) TVD(5703.25)
VS(2018.30) NS(-68.92) EW(-2017.13)

#48 MD(7506.00) Inc(90.6) Azm(268.1) TVD(5703.50)
VS(2113.29) NS(-71.49) EW(-2112.09)

#49 MD(7601.00) Inc(89.4) Azm(270.2) TVD(5703.50)
VS(2208.27) NS(-72.90) EW(-2207.07)

#50 MD(7695.00) Inc(90.1) Azm(270.0) TVD(5703.91)
VS(2302.22) NS(-72.73) EW(-2301.07)

#51 MD(7790.00) Inc(90.9) Azm(270.9) TVD(5703.08)
VS(2397.14) NS(-71.99) EW(-2396.06)

#52 MD(7885.00) Inc(89.8) Azm(270.6) TVD(5702.50)
VS(2492.05) NS(-70.74) EW(-2491.05)

#53 MD(7980.00) Inc(89.4) Azm(270.6) TVD(5703.16)
VS(2586.96) NS(-69.75) EW(-2586.04)

#54 MD(8075.00) Inc(91.5) Azm(270.9) TVD(5702.42)
VS(2681.86) NS(-68.51) EW(-2681.03)

#55 MD(8169.00) Inc(90.9) Azm(270.0) TVD(5700.45)
VS(2775.77) NS(-67.77) EW(-2775.00)

#56 MD(8264.00) Inc(91.0) Azm(268.1) TVD(5698.87)
VS(2870.74) NS(-69.34) EW(-2869.97)

#57 MD(8359.00) Inc(91.3) Azm(267.0) TVD(5696.97)
VS(2965.72) NS(-73.40) EW(-2964.86)

#58 MD(8454.00) Inc(90.9) Azm(267.6) TVD(5695.14)
VS(3060.69) NS(-77.88) EW(-3059.74)

#59 MD(8550.00) Inc(89.1) Azm(267.7) TVD(5695.14)
VS(3156.68) NS(-81.81) EW(-3155.66)

#60 MD(8644.00) Inc(89.2) Azm(266.9) TVD(5696.54)
VS(3250.65) NS(-86.24) EW(-3249.54)

#61 MD(8739.00) Inc(89.8) Azm(267.2) TVD(5697.37)
VS(3345.63) NS(-91.13) EW(-3344.41)

#62 MD(8833.00) Inc(91.9) Azm(267.9) TVD(5695.97)
VS(3439.61) NS(-95.15) EW(-3438.31)

#63 MD(8928.00) Inc(89.9) Azm(267.4) TVD(5694.48)
VS(3534.59) NS(-99.04) EW(-3533.21)

#64 MD(9023.00) Inc(89.1) Azm(267.0) TVD(5695.31)
VS(3629.57) NS(-103.68) EW(-3628.09)

#65 MD(9118.00) Inc(90.5) Azm(267.0) TVD(5695.64)
VS(3724.54) NS(-108.65) EW(-3722.96)

#66 MD(9212.00) Inc(88.0) Azm(267.4) TVD(5696.87)
VS(3818.51) NS(-113.25) EW(-3816.83)

#67 MD(9307.00) Inc(89.1) Azm(266.9) TVD(5699.28)
VS(3913.46) NS(-117.97) EW(-3911.68)

BIT PROJ 9476 INC 92.80
AZM 268.40 TVD 5694.67

#68 MD(9421.00) Inc(92.8) Azm(268.4) TVD(5697.39)
VS(4027.42) NS(-122.64) EW(-4025.55)