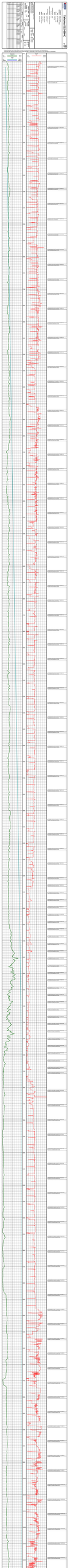

Tahoma E22-69HC

MD
2":100'

ENSIGN
Directional Services

Company: Noble Energy
Well Name: Tahoma E22-69HC
API: 05-123-38866
Rig Id: Precision 829
State: Colorado
County/Parish: Weld
Country: USA
Survey Company: Ensign Directional
Job number: PD829-207-17
DD1 Zach Gentry
DD2 Colby Hansen
DD3 Tony Callow
MWD1 Andrew Demrow
MWD2 Johnnie Kibel

Log measurements: Gama, ROP
Depth measured from:
Maximum temperature:

	Depth	**Date**
Start:	661 ft	06-08-2014
End:	11989 ft	06-14-2014

Casing	**Depth**	**Size**
Surface:	618	9 5/8
Intermediate:	7549	7

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

Elevations
KB: 16
GL: 4739
DF: 4755

Run	**Bit Size**	**Offsets Gamma**	**Offsets Survey**	**Depths Start**	**Depths End**	**Dates Start**	**Dates End**
1	13.5	0.00	0.00	0	661	06-07-2014	06-07-2014
2	8.75	52.90	47.90	661	7560	06-08-2014	06-11-2014
3	6.125	65.69	60.69	7560	11989	06-12-2014	06-14-2014
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.

#10 MD(1336.00) Inc(1.8) Azm(229.3) TVD(1335.88)
VS(0.31) NS(-9.18) EW(0.26)

#11 MD(1430.00) Inc(2.6) Azm(247.8) TVD(1429.81)
VS(3.51) NS(-10.95) EW(-2.84)

#12 MD(1523.00) Inc(3.6) Azm(249.8) TVD(1522.68)
VS(8.30) NS(-12.75) EW(-7.53)

#13 MD(1616.00) Inc(4.5) Azm(243.5) TVD(1615.44)
VS(14.46) NS(-15.39) EW(-13.54)

#14 MD(1710.00) Inc(5.9) Azm(237.7) TVD(1709.06)
VS(22.09) NS(-19.61) EW(-20.92)

#15 MD(1804.00) Inc(7.4) Azm(236.6) TVD(1802.42)
VS(31.57) NS(-25.53) EW(-30.06)

#16 MD(1898.00) Inc(8.0) Azm(236.2) TVD(1895.57)
VS(42.47) NS(-32.50) EW(-40.55)

#17 MD(1991.00) Inc(8.4) Azm(234.0) TVD(1987.62)
VS(53.79) NS(-40.09) EW(-51.42)

#18 MD(2085.00) Inc(7.9) Azm(232.1) TVD(2080.67)
VS(64.92) NS(-48.10) EW(-62.07)

#19 MD(2178.00) Inc(9.4) Azm(232.8) TVD(2172.61)
VS(76.51) NS(-56.62) EW(-73.17)

#20 MD(2272.00) Inc(9.8) Azm(232.3) TVD(2265.30)
VS(89.52) NS(-66.15) EW(-85.61)

#21 MD(2365.00) Inc(10.5) Azm(233.2) TVD(2356.84)
VS(103.15) NS(-76.06) EW(-98.66)

#22 MD(2459.00) Inc(10.1) Azm(233.6) TVD(2449.32)
VS(117.24) NS(-86.09) EW(-112.15)

#23 MD(2551.00) Inc(9.9) Azm(240.8) TVD(2539.93)
VS(131.14) NS(-94.73) EW(-125.55)

#24 MD(2641.00) Inc(9.7) Azm(239.4) TVD(2628.62)
VS(144.87) NS(-102.37) EW(-138.83)

#25 MD(2730.00) Inc(9.3) Azm(236.8) TVD(2716.40)
VS(157.79) NS(-110.12) EW(-151.30)

#26 MD(2820.00) Inc(9.2) Azm(235.8) TVD(2805.23)
VS(170.30) NS(-118.15) EW(-163.33)

#27 MD(2910.00) Inc(9.0) Azm(234.8) TVD(2894.09)
VS(182.48) NS(-126.25) EW(-175.04)

#28 MD(2999.00) Inc(8.3) Azm(233.7) TVD(2982.08)
VS(193.80) NS(-134.06) EW(-185.90)

#29 MD(3089.00) Inc(8.8) Azm(242.3) TVD(3071.08)
VS(205.55) NS(-141.11) EW(-197.23)

#30 MD(3178.00) Inc(9.1) Azm(235.6) TVD(3159.00)
VS(217.80) NS(-148.25) EW(-209.07)

#31 MD(3268.00) Inc(7.7) Azm(231.7) TVD(3248.04)
VS(228.86) NS(-156.01) EW(-219.67)

#32 MD(3358.00) Inc(8.0) Azm(235.5) TVD(3337.19)
VS(239.19) NS(-163.29) EW(-229.57)

#33 MD(3447.00) Inc(8.2) Azm(240.4) TVD(3425.31)
VS(250.20) NS(-169.94) EW(-240.19)

#34 MD(3537.00) Inc(6.9) Azm(236.0) TVD(3514.52)
VS(260.62) NS(-176.13) EW(-250.25)

#35 MD(3627.00) Inc(5.7) Azm(239.7) TVD(3603.98)
VS(269.27) NS(-181.41) EW(-258.59)

#36 MD(3716.00) Inc(6.5) Azm(234.0) TVD(3692.48)
VS(277.47) NS(-186.60) EW(-266.49)

#37 MD(3806.00) Inc(9.0) Azm(236.1) TVD(3781.65)
VS(287.84) NS(-193.52) EW(-276.45)

#38 MD(3895.00) Inc(9.7) Azm(235.6) TVD(3869.46)
VS(300.28) NS(-201.64) EW(-288.42)

#39 MD(3985.00) Inc(9.7) Azm(235.6) TVD(3958.18)
VS(313.30) NS(-210.21) EW(-300.93)

#40 MD(4074.00) Inc(8.9) Azm(234.8) TVD(4046.01)
VS(325.60) NS(-218.41) EW(-312.74)

#41 MD(4164.00) Inc(7.8) Azm(229.5) TVD(4135.05)
VS(336.40) NS(-226.39) EW(-323.07)

#42 MD(4254.00) Inc(8.7) Azm(232.9) TVD(4224.12)
VS(346.95) NS(-234.46) EW(-333.15)

#43 MD(4343.00) Inc(7.9) Azm(229.9) TVD(4312.19)
VS(357.47) NS(-242.46) EW(-343.19)

#44 MD(4433.00) Inc(8.4) Azm(237.0) TVD(4401.28)
VS(368.16) NS(-250.03) EW(-353.44)

#45 MD(4523.00) Inc(9.3) Azm(236.8) TVD(4490.21)
VS(380.21) NS(-257.59) EW(-365.04)

#46 MD(4612.00) Inc(7.9) Azm(234.7) TVD(4578.21)
VS(391.65) NS(-265.06) EW(-376.05)

#47 MD(4702.00) Inc(7.3) Azm(227.9) TVD(4667.42)
VS(401.38) NS(-272.47) EW(-385.34)

#48 MD(4792.00) Inc(5.5) Azm(230.7) TVD(4756.85)
VS(409.35) NS(-279.04) EW(-392.92)

#49 MD(4881.00) Inc(8.5) Azm(242.6) TVD(4845.18)
VS(418.83) NS(-284.77) EW(-402.06)

#50 MD(4971.00) Inc(9.5) Azm(236.8) TVD(4934.08)
VS(431.37) NS(-291.90) EW(-414.18)

#51 MD(5060.00) Inc(10.6) Azm(233.9) TVD(5021.71)
VS(444.65) NS(-300.74) EW(-426.94)

#52 MD(5150.00) Inc(10.2) Azm(237.6) TVD(5110.23)
VS(458.60) NS(-309.89) EW(-440.36)

#53 MD(5240.00) Inc(8.4) Azm(237.9) TVD(5199.05)
VS(471.36) NS(-317.65) EW(-452.66)

#54 MD(5330.00) Inc(9.0) Azm(242.5) TVD(5288.01)
VS(483.56) NS(-324.40) EW(-464.47)

#55 MD(5419.00) Inc(9.2) Azm(242.0) TVD(5375.89)
VS(496.40) NS(-330.95) EW(-476.93)

#56 MD(5509.00) Inc(9.3) Azm(240.8) TVD(5464.72)
VS(509.50) NS(-337.88) EW(-489.63)

#57 MD(5599.00) Inc(7.6) Azm(241.4) TVD(5553.74)
VS(521.45) NS(-344.27) EW(-501.20)

#58 MD(5688.00) Inc(8.0) Azm(241.6) TVD(5641.92)
VS(532.40) NS(-350.04) EW(-511.82)

#59 MD(5778.00) Inc(6.5) Azm(236.1) TVD(5731.20)
VS(542.48) NS(-355.86) EW(-521.56)

#60 MD(5868.00) Inc(5.4) Azm(232.0) TVD(5820.71)
VS(550.36) NS(-361.30) EW(-529.12)

#61 MD(5957.00) Inc(4.2) Azm(241.4) TVD(5909.40)
VS(556.77) NS(-365.44) EW(-535.28)

#62 MD(6047.00) Inc(3.6) Azm(230.2) TVD(5999.19)
VS(562.03) NS(-368.83) EW(-540.35)

#63 MD(6137.00) Inc(2.9) Azm(272.2) TVD(6089.06)
VS(566.58) NS(-370.55) EW(-544.79)

#64 MD(6226.00) Inc(2.8) Azm(290.6) TVD(6178.01)
VS(569.24) NS(-370.30) EW(-547.48)

#65 MD(6316.00) Inc(0.7) Azm(276.4) TVD(6268.00)
VS(570.21) NS(-370.07) EW(-548.47)

#66 MD(6361.00) Inc(0.7) Azm(271.9) TVD(6313.00)
VS(570.76) NS(-370.03) EW(-549.02)

#67 MD(6405.00) Inc(2.8) Azm(257.5) TVD(6356.98)
VS(572.09) NS(-370.26) EW(-550.33)

#68 MD(6450.00) Inc(6.4) Azm(270.0) TVD(6401.83)
VS(575.68) NS(-370.50) EW(-553.92)

#69 MD(6495.00) Inc(9.8) Azm(281.0) TVD(6446.37)
VS(581.89) NS(-369.76) EW(-560.19)

#70 MD(6540.00) Inc(11.8) Azm(287.3) TVD(6490.58)
VS(589.90) NS(-367.67) EW(-568.34)

#71 MD(6585.00) Inc(15.2) Azm(280.9) TVD(6534.33)
VS(599.92) NS(-365.18) EW(-578.53)

#72 MD(6629.00) Inc(19.7) Azm(277.7) TVD(6576.29)
VS(612.78) NS(-363.10) EW(-591.55)

#73 MD(6674.00) Inc(24.2) Azm(274.2) TVD(6618.02)
VS(629.37) NS(-361.40) EW(-608.27)

#74 MD(6719.00) Inc(27.3) Azm(271.8) TVD(6658.55)
VS(648.79) NS(-360.40) EW(-627.79)

#75 MD(6764.00) Inc(29.6) Azm(271.0) TVD(6698.11)
VS(670.15) NS(-359.88) EW(-649.22)

#76 MD(6809.00) Inc(32.5) Azm(270.0) TVD(6736.66)
VS(693.30) NS(-359.69) EW(-672.43)

#77 MD(6853.00) Inc(35.0) Azm(269.0) TVD(6773.24)
VS(717.71) NS(-359.91) EW(-696.87)

#78 MD(6898.00) Inc(39.1) Azm(268.6) TVD(6809.15)
VS(744.79) NS(-360.48) EW(-723.97)

#79 MD(6943.00) Inc(40.5) Azm(269.2) TVD(6843.72)
VS(773.57) NS(-361.03) EW(-752.77)

#80 MD(6988.00) Inc(44.1) Azm(270.1) TVD(6877.00)
VS(803.80) NS(-361.21) EW(-783.05)

#81 MD(7032.00) Inc(47.7) Azm(271.3) TVD(6907.62)
VS(835.31) NS(-360.81) EW(-814.64)

#82 MD(7077.00) Inc(52.1) Azm(271.0) TVD(6936.60)
VS(869.60) NS(-360.13) EW(-849.04)

#83 MD(7122.00) Inc(56.6) Azm(271.5) TVD(6962.82)
VS(906.03) NS(-359.32) EW(-885.59)

#84 MD(7166.00) Inc(61.8) Azm(271.3) TVD(6985.34)
VS(943.68) NS(-358.40) EW(-923.36)

#85 MD(7211.00) Inc(68.1) Azm(270.1) TVD(7004.38)
VS(984.31) NS(-357.92) EW(-964.10)

#86 MD(7256.00) Inc(73.0) Azm(269.2) TVD(7019.36)
VS(1026.66) NS(-358.18) EW(-1006.52)

#87 MD(7301.00) Inc(74.3) Azm(269.0) TVD(7032.03)
VS(1069.80) NS(-358.86) EW(-1049.69)

#88 MD(7346.00) Inc(75.7) Azm(267.9) TVD(7043.68)
VS(1113.24) NS(-360.04) EW(-1093.14)

#89 MD(7391.00) Inc(80.3) Azm(267.8) TVD(7053.03)
VS(1157.23) NS(-361.69) EW(-1137.12)

#90 MD(7435.00) Inc(86.1) Azm(267.5) TVD(7058.24)
VS(1200.89) NS(-363.48) EW(-1180.75)

#91 MD(7480.00) Inc(87.6) Azm(267.7) TVD(7060.71)
VS(1245.81) NS(-365.36) EW(-1225.64)

#92 MD(7510.00) Inc(87.6) Azm(267.5) TVD(7061.97)
VS(1275.78) NS(-366.62) EW(-1255.59)

#93 MD(7621.00) Inc(89.1) Azm(269.4) TVD(7065.16)
VS(1386.66) NS(-369.62) EW(-1366.50)

#94 MD(7710.00) Inc(89.2) Azm(271.6) TVD(7066.48)
VS(1475.43) NS(-368.84) EW(-1455.48)

#95 MD(7800.00) Inc(89.5) Azm(271.6) TVD(7067.51)
VS(1565.06) NS(-366.33) EW(-1545.44)

#96 MD(7890.00) Inc(88.2) Azm(272.5) TVD(7069.31)
VS(1654.61) NS(-363.11) EW(-1635.36)

#97 MD(7980.00) Inc(88.5) Azm(273.3) TVD(7071.90)
VS(1744.01) NS(-358.56) EW(-1725.20)

#98 MD(8069.00) Inc(88.1) Azm(273.5) TVD(7074.54)
VS(1832.32) NS(-353.28) EW(-1814.01)

#99 MD(8158.00) Inc(89.1) Azm(273.4) TVD(7076.72)
VS(1920.63) NS(-347.93) EW(-1902.82)

#100 MD(8248.00) Inc(89.5) Azm(272.0) TVD(7077.82)
VS(2010.09) NS(-343.69) EW(-1992.71)

#101 MD(8338.00) Inc(89.8) Azm(271.6) TVD(7078.37)
VS(2099.70) NS(-340.86) EW(-2082.66)

#102 MD(8427.00) Inc(90.7) Azm(270.2) TVD(7077.98)
VS(2188.43) NS(-339.46) EW(-2171.65)

#103 MD(8517.00) Inc(90.0) Azm(269.4) TVD(7077.43)
VS(2278.28) NS(-339.78) EW(-2261.65)

#104 MD(8607.00) Inc(90.1) Azm(269.3) TVD(7077.35)
VS(2368.16) NS(-340.86) EW(-2351.64)

#105 MD(8696.00) Inc(88.7) Azm(269.4) TVD(7078.28)
VS(2457.04) NS(-341.81) EW(-2440.63)

#106 MD(8786.00) Inc(89.5) Azm(268.5) TVD(7079.70)
VS(2546.94) NS(-343.46) EW(-2530.60)

#107 MD(8875.00) Inc(88.6) Azm(269.2) TVD(7081.17)
VS(2635.85) NS(-345.24) EW(-2619.57)

#108 MD(8965.00) Inc(87.7) Azm(267.5) TVD(7084.08)
VS(2725.75) NS(-347.83) EW(-2709.48)

#109 MD(9054.00) Inc(87.8) Azm(268.5) TVD(7087.57)
VS(2814.65) NS(-350.94) EW(-2798.36)

#110 MD(9144.00) Inc(89.8) Azm(269.7) TVD(7089.46)
VS(2904.53) NS(-352.35) EW(-2888.32)

#111 MD(9234.00) Inc(92.1) Azm(270.6) TVD(7087.96)
VS(2994.33) NS(-352.11) EW(-2978.30)

#112 MD(9324.00) Inc(92.3) Azm(270.5) TVD(7084.51)
VS(3084.03) NS(-351.25) EW(-3068.23)

#113 MD(9413.00) Inc(90.0) Azm(270.5) TVD(7082.72)
VS(3172.79) NS(-350.47) EW(-3157.20)

#114 MD(9503.00) Inc(89.9) Azm(269.5) TVD(7082.80)
VS(3262.62) NS(-350.47) EW(-3247.20)

#115 MD(9593.00) Inc(88.0) Azm(266.9) TVD(7084.45)
VS(3352.55) NS(-353.30) EW(-3337.13)

#116 MD(9682.00) Inc(89.0) Azm(268.0) TVD(7086.78)
VS(3441.50) NS(-357.26) EW(-3426.01)

#117 MD(9772.00) Inc(90.4) Azm(269.1) TVD(7087.25)
VS(3531.44) NS(-359.53) EW(-3515.97)

#118 MD(9862.00) Inc(90.4) Azm(268.7) TVD(7086.62)
VS(3621.36) NS(-361.26) EW(-3605.95)

#119 MD(9952.00) Inc(89.6) Azm(267.2) TVD(7086.62)
VS(3711.32) NS(-364.48) EW(-3695.89)

#120 MD(10041.00) Inc(89.2) Azm(266.8) TVD(7087.56)
VS(3800.31) NS(-369.14) EW(-3784.77)

#121 MD(10131.00) Inc(88.4) Azm(269.3) TVD(7089.44)
VS(3890.25) NS(-372.20) EW(-3874.69)

#122 MD(10220.00) Inc(88.7) Azm(270.5) TVD(7091.69)
VS(3979.06) NS(-372.36) EW(-3963.66)

#123 MD(10310.00) Inc(88.8) Azm(269.8) TVD(7093.66)
VS(4068.85) NS(-372.12) EW(-4053.63)

#124 MD(10400.00) Inc(88.8) Azm(269.2) TVD(7095.54)
VS(4158.71) NS(-372.91) EW(-4143.61)

#125 MD(10489.00) Inc(90.2) Azm(270.9) TVD(7096.32)
VS(4247.53) NS(-372.83) EW(-4232.60)

#126 MD(10579.00) Inc(90.2) Azm(271.8) TVD(7096.00)
VS(4337.20) NS(-370.71) EW(-4322.58)

#127 MD(10669.00) Inc(90.7) Azm(271.3) TVD(7095.30)
VS(4426.84) NS(-368.27) EW(-4412.54)

#128 MD(10759.00) Inc(90.8) Azm(271.0) TVD(7094.12)
VS(4516.53) NS(-366.47) EW(-4502.51)

#129 MD(10848.00) Inc(90.7) Azm(272.0) TVD(7092.95)
VS(4605.18) NS(-364.14) EW(-4591.47)

#130 MD(10938.00) Inc(90.9) Azm(271.5) TVD(7091.70)
VS(4694.79) NS(-361.39) EW(-4681.42)

#131 MD(11028.00) Inc(90.6) Azm(270.6) TVD(7090.52)
VS(4784.50) NS(-359.74) EW(-4771.40)

#132 MD(11117.00) Inc(90.5) Azm(270.0) TVD(7089.67)
VS(4873.29) NS(-359.27) EW(-4860.39)

#133 MD(11207.00) Inc(90.1) Azm(269.6) TVD(7089.19)
VS(4963.14) NS(-359.59) EW(-4950.39)

#134 MD(11296.00) Inc(90.3) Azm(270.6) TVD(7088.88)
VS(5051.96) NS(-359.43) EW(-5039.39)

#135 MD(11386.00) Inc(90.4) Azm(270.0) TVD(7088.33)
VS(5141.76) NS(-358.96) EW(-5129.39)

#136 MD(11476.00) Inc(89.7) Azm(268.4) TVD(7088.25)
VS(5231.65) NS(-360.22) EW(-5219.37)

#137 MD(11565.00) Inc(90.2) Azm(268.6) TVD(7088.33)
VS(5320.59) NS(-362.55) EW(-5308.34)

#138 MD(11655.00) Inc(89.4) Azm(267.6) TVD(7088.65)
VS(5410.55) NS(-365.53) EW(-5398.29)

#139 MD(11745.00) Inc(88.9) Azm(266.0) TVD(7089.98)
VS(5500.54) NS(-370.56) EW(-5488.14)

#140 MD(11834.00) Inc(90.8) Azm(266.4) TVD(7090.21)
VS(5589.53) NS(-376.45) EW(-5576.94)

#141 MD(11927.00) Inc(90.2) Azm(265.3) TVD(7089.40)
VS(5682.52) NS(-383.18) EW(-5669.69)