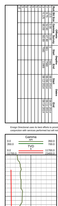

ENSIGN Directional Services

Tahoma E22-69HC

TVD
2":100'

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(0.6) 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)

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

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

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

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