Schafer K16-64-1HN

MD
1":100'

Company: Noble Energy Inc
Well Name: Schafer K16-64-1HN
UWI or LSD:
Rig Id: Precision 828
State: Colorado
County/Parish: Weld
Country: USA
Survey Company: Ensign Directional
Job number: 828-21
Company Man 1 Gary Stapleton
Directional Driller 1 Tyler Batchelder
Directional Driller 2 Matt Mason
MWD 1 Joel Alcala
MWD 2 Andrew Keohan

Log measurements:
Depth measured from: KB
Maximum temperature:

	Depth	Date
Start:	595 ft	10/31/2013
End:	11642 ft	11/07/2013

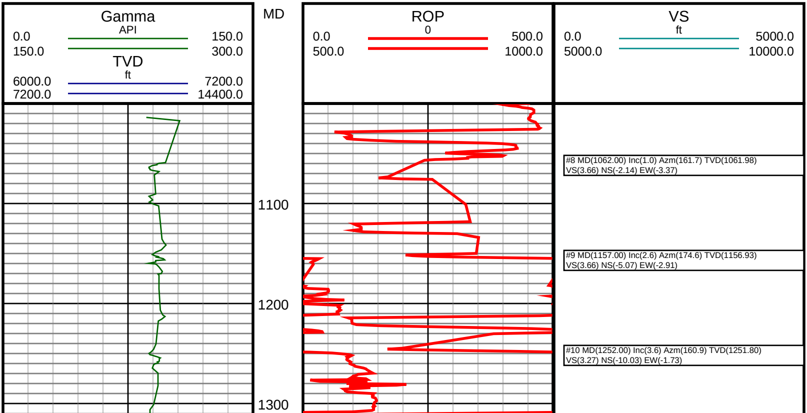
Casing	Depth	Size
Surface:	585	9.625
Intermediate:	7575	7

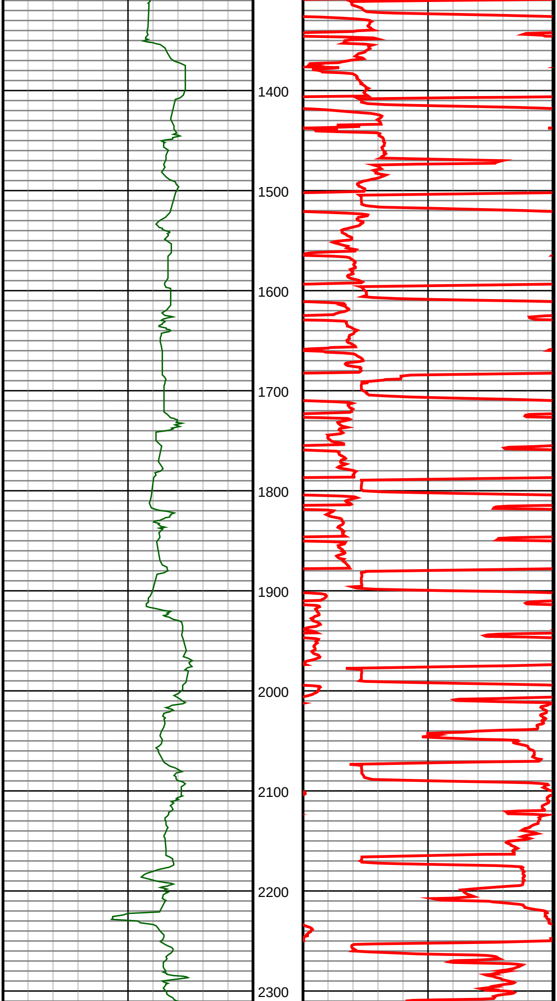
Mud Type:
Density:
Viscosity:
Rm: **Rmf:** **Rmc:**

Elevations
KB: 4760
GL: 4744
DF: 4760

Run	Bit Size	Offsets Gamma	Offsets Survey	Depths Start	Depths End	Dates Start	Dates End
1	8.75	58.67	53.67	595	4135	10/31/2013	11/2/2013
2	8.75	58.67	53.67	4135	7562	11/2/2013	11/4/2013
3	6.125	60.76	55.76	7585	11642	11/5/2013	11/07/2013
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.





#11 MD(1347.00) Inc(4.7) Azm(148.9) TVD(1346.55)
VS(1.27) NS(-16.18) EW(1.26)

#12 MD(1442.00) Inc(5.5) Azm(142.7) TVD(1441.17)
VS(-2.36) NS(-23.14) EW(6.03)

#13 MD(1537.00) Inc(6.2) Azm(137.5) TVD(1535.68)
VS(-7.37) NS(-30.54) EW(12.25)

#14 MD(1632.00) Inc(7.5) Azm(143.6) TVD(1630.00)
VS(-13.06) NS(-39.32) EW(19.40)

#15 MD(1727.00) Inc(7.7) Azm(142.0) TVD(1724.16)
VS(-19.02) NS(-49.32) EW(26.99)

#16 MD(1821.00) Inc(8.4) Azm(137.8) TVD(1817.24)
VS(-25.85) NS(-59.37) EW(35.48)

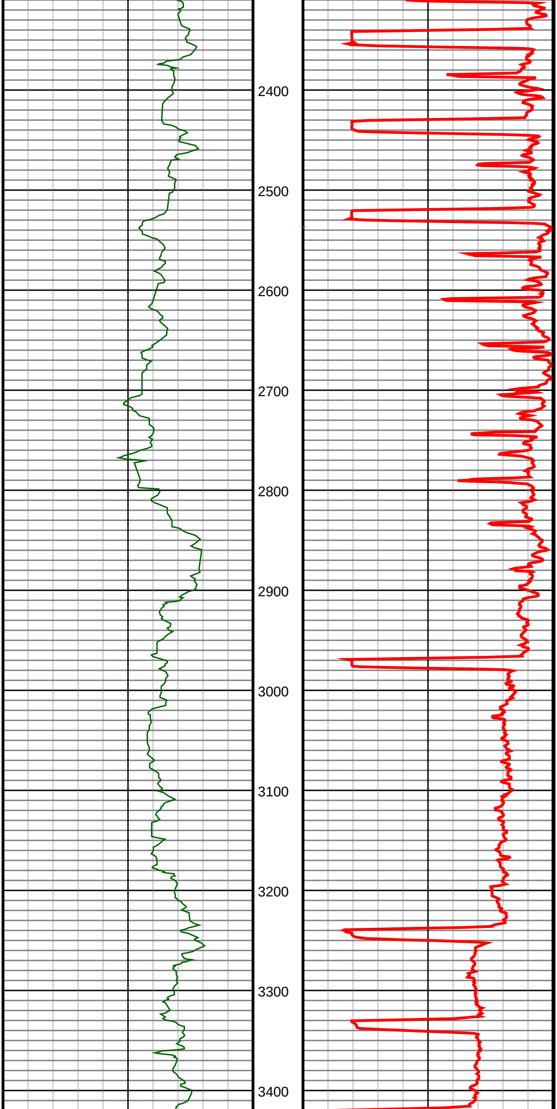
#17 MD(1916.00) Inc(9.5) Azm(134.0) TVD(1911.08)
VS(-34.38) NS(-69.96) EW(45.78)

#18 MD(2014.00) Inc(9.5) Azm(137.3) TVD(2007.74)
VS(-43.76) NS(-81.52) EW(57.09)

#19 MD(2104.00) Inc(10.5) Azm(142.6) TVD(2096.37)
VS(-51.80) NS(-93.49) EW(67.10)

#20 MD(2194.00) Inc(10.8) Azm(140.3) TVD(2184.82)
VS(-60.02) NS(-106.49) EW(77.47)

#21 MD(2284.00) Inc(10.3) Azm(137.7) TVD(2273.30)
VS(-68.76) NS(-118.93) EW(88.27)



#22 MD(2373.00) Inc(10.4) Azm(141.0) TVD(2360.85)
VS(-77.17) NS(-131.06) EW(98.68)

#23 MD(2463.00) Inc(11.3) Azm(143.8) TVD(2449.24)
VS(-85.28) NS(-144.49) EW(109.00)

#24 MD(2553.00) Inc(11.6) Azm(148.9) TVD(2537.45)
VS(-92.74) NS(-159.35) EW(118.88)

#25 MD(2643.00) Inc(11.7) Azm(147.7) TVD(2625.60)
VS(-99.78) NS(-174.82) EW(128.43)

#26 MD(2733.00) Inc(12.2) Azm(148.7) TVD(2713.65)
VS(-107.02) NS(-190.65) EW(138.25)

#27 MD(2823.00) Inc(12.2) Azm(146.8) TVD(2801.62)
VS(-114.55) NS(-206.74) EW(148.40)

#28 MD(2913.00) Inc(10.8) Azm(143.5) TVD(2889.81)
VS(-122.36) NS(-221.47) EW(158.62)

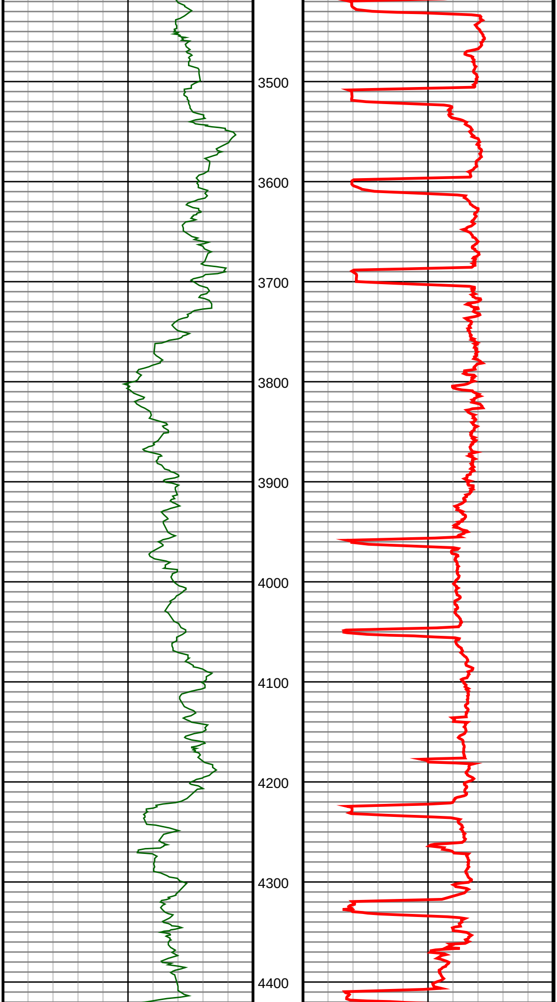
#29 MD(3002.00) Inc(12.1) Azm(145.6) TVD(2977.04)
VS(-130.24) NS(-235.87) EW(168.85)

#30 MD(3092.00) Inc(11.5) Azm(144.7) TVD(3065.13)
VS(-138.28) NS(-250.98) EW(179.37)

#31 MD(3182.00) Inc(10.4) Azm(142.6) TVD(3153.49)
VS(-146.14) NS(-264.76) EW(189.48)

#32 MD(3272.00) Inc(10.2) Azm(143.5) TVD(3242.04)
VS(-153.70) NS(-277.61) EW(199.16)

#33 MD(3362.00) Inc(10.5) Azm(144.3) TVD(3330.58)
VS(-161.09) NS(-290.68) EW(208.85)



#34 MD(3452.00) Inc(11.0) Azm(143.8) TVD(3419.00)
VS(-168.72) NS(-304.27) EW(218.54)

#35 MD(3542.00) Inc(11.0) Azm(144.5) TVD(3507.35)
VS(-176.50) NS(-318.19) EW(228.60)

#36 MD(3632.00) Inc(11.1) Azm(148.5) TVD(3595.68)
VS(-183.67) NS(-332.56) EW(238.11)

#37 MD(3722.00) Inc(11.9) Azm(151.9) TVD(3683.87)
VS(-190.04) NS(-348.14) EW(247.01)

#38 MD(3811.00) Inc(11.9) Azm(150.5) TVD(3770.96)
VS(-196.28) NS(-364.22) EW(255.85)

#39 MD(3901.00) Inc(12.0) Azm(150.0) TVD(3859.01)
VS(-202.91) NS(-380.40) EW(265.10)

#40 MD(3991.00) Inc(10.9) Azm(149.6) TVD(3947.22)
VS(-209.39) NS(-395.84) EW(274.08)

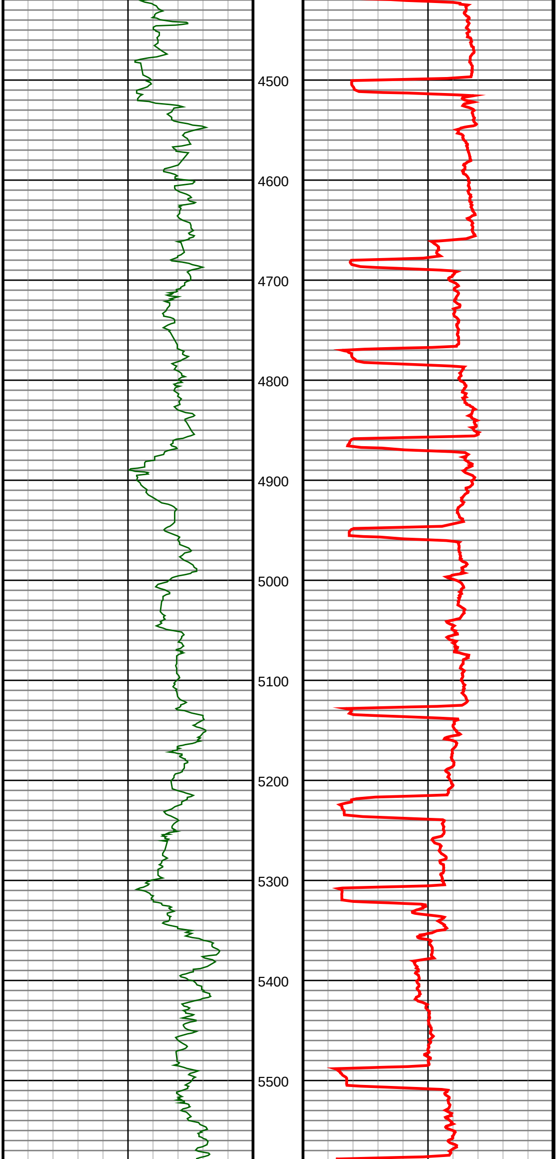
#41 MD(4081.00) Inc(10.2) Azm(145.0) TVD(4035.70)
VS(-216.01) NS(-409.71) EW(282.96)

#42 MD(4171.00) Inc(9.1) Azm(141.7) TVD(4124.42)

4175.0:New Tool

#43 MD(4261.00) Inc(9.5) Azm(140.6) TVD(4213.24)
VS(-230.26) NS(-433.15) EW(301.07)

#44 MD(4351.00) Inc(9.1) Azm(144.5) TVD(4302.06)
VS(-237.21) NS(-444.68) EW(309.91)



#45 MD(4441.00) Inc(9.0) Azm(139.2) TVD(4390.94)
VS(-244.12) NS(-455.80) EW(318.65)

#46 MD(4531.00) Inc(10.3) Azm(141.0) TVD(4479.66)
VS(-251.87) NS(-467.38) EW(328.31)

#47 MD(4621.00) Inc(9.5) Azm(139.6) TVD(4568.32)
VS(-259.78) NS(-479.29) EW(338.19)

#48 MD(4711.00) Inc(9.0) Azm(140.8) TVD(4657.15)
VS(-267.21) NS(-490.40) EW(347.45)

#49 MD(4801.00) Inc(9.3) Azm(147.1) TVD(4746.01)
VS(-273.71) NS(-501.97) EW(355.85)

#50 MD(4891.00) Inc(9.8) Azm(146.4) TVD(4834.76)
VS(-279.87) NS(-514.45) EW(364.04)

#51 MD(4981.00) Inc(9.9) Azm(141.3) TVD(4923.44)
VS(-286.91) NS(-526.87) EW(373.11)

#52 MD(5071.00) Inc(9.0) Azm(140.5) TVD(5012.21)
VS(-294.33) NS(-538.34) EW(382.43)

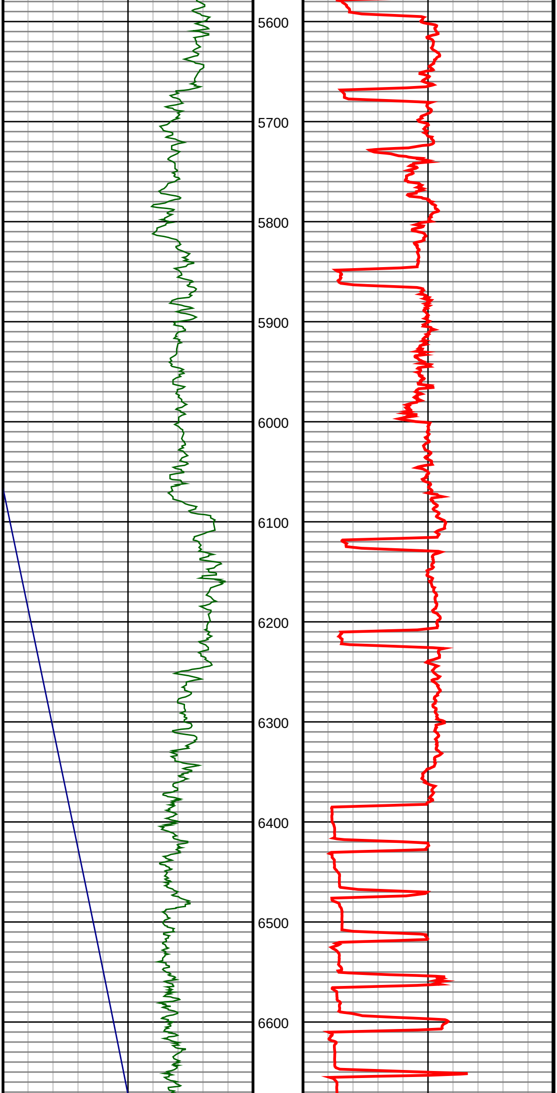
#53 MD(5160.00) Inc(8.1) Azm(142.2) TVD(5100.22)
VS(-300.90) NS(-548.67) EW(390.70)

#54 MD(5250.00) Inc(8.0) Azm(141.3) TVD(5189.34)
VS(-307.07) NS(-558.56) EW(398.50)

#55 MD(5340.00) Inc(9.4) Azm(141.9) TVD(5278.30)
VS(-313.77) NS(-569.24) EW(406.95)

#56 MD(5430.00) Inc(7.7) Azm(141.0) TVD(5367.30)
VS(-320.37) NS(-579.71) EW(415.28)

#57 MD(5520.00) Inc(7.6) Azm(144.0) TVD(5456.49)
VS(-326.11) NS(-589.21) EW(422.58)



#58 MD(5610.00) Inc(7.5) Azm(145.6) TVD(5545.71)
VS(-331.34) NS(-598.87) EW(429.39)

#59 MD(5700.00) Inc(7.4) Azm(142.4) TVD(5634.96)
VS(-336.65) NS(-608.31) EW(436.25)

#60 MD(5790.00) Inc(5.2) Azm(132.4) TVD(5724.41)
VS(-341.98) NS(-615.65) EW(442.80)

#61 MD(5880.00) Inc(5.6) Azm(139.2) TVD(5814.01)
VS(-346.85) NS(-621.72) EW(448.68)

#62 MD(5970.00) Inc(4.2) Azm(140.3) TVD(5903.68)
VS(-350.86) NS(-627.58) EW(453.65)

#63 MD(6059.00) Inc(3.1) Azm(139.6) TVD(5992.50)
VS(-353.78) NS(-631.92) EW(457.29)

#64 MD(6149.00) Inc(1.6) Azm(175.4) TVD(6082.42)
VS(-354.96) NS(-635.03) EW(458.97)

#65 MD(6239.00) Inc(0.4) Azm(269.8) TVD(6172.41)
VS(-354.55) NS(-636.28) EW(458.76)

#66 MD(6329.00) Inc(0.4) Azm(229.9) TVD(6262.41)
VS(-353.97) NS(-636.49) EW(458.20)

#67 MD(6374.00) Inc(0.4) Azm(247.5) TVD(6307.41)
VS(-353.69) NS(-636.65) EW(457.94)

#68 MD(6419.00) Inc(3.3) Azm(269.7) TVD(6352.38)
VS(-352.25) NS(-636.72) EW(456.50)

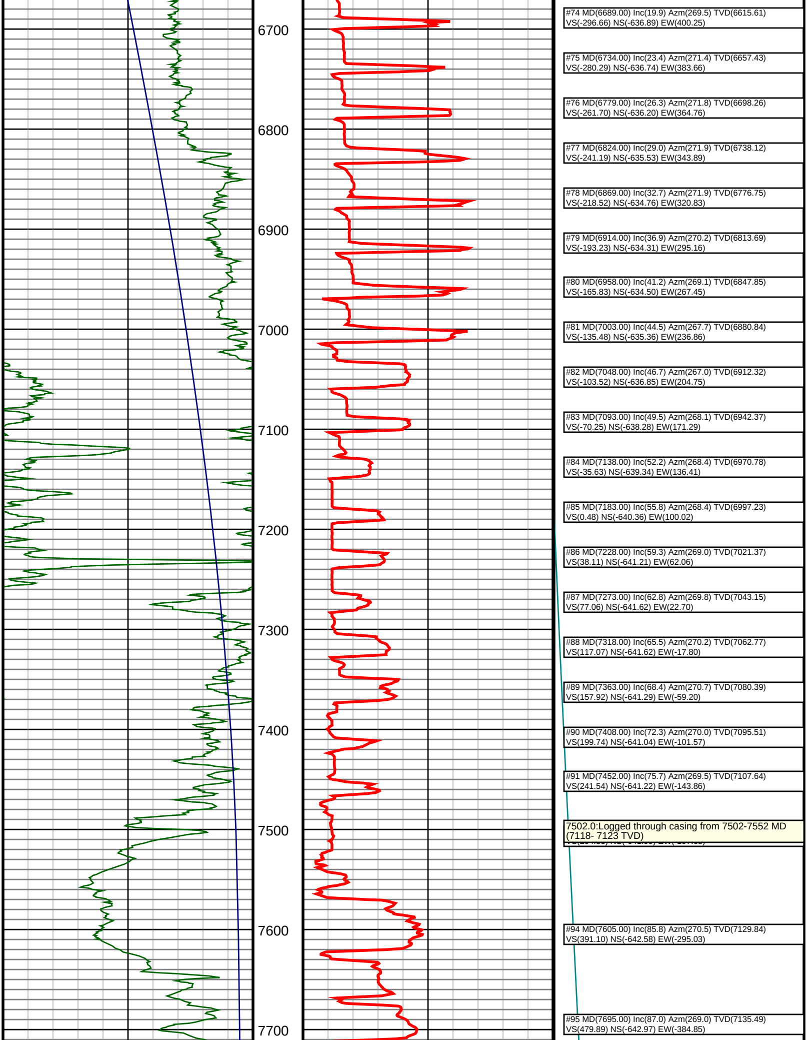
#69 MD(6464.00) Inc(6.8) Azm(272.7) TVD(6397.20)
VS(-348.36) NS(-636.60) EW(452.54)

#70 MD(6509.00) Inc(10.2) Azm(273.4) TVD(6441.70)
VS(-341.86) NS(-636.24) EW(445.90)

#71 MD(6554.00) Inc(12.6) Azm(269.8) TVD(6485.81)
VS(-333.11) NS(-636.02) EW(437.01)

#72 MD(6599.00) Inc(14.6) Azm(268.4) TVD(6529.54)
VS(-322.63) NS(-636.19) EW(426.44)

#73 MD(6644.00) Inc(16.6) Azm(267.9) TVD(6572.88)
VS(-310.62) NS(-636.59) EW(414.34)



#74 MD(6689.00) Inc(19.9) Azm(269.5) TVD(6615.61)
VS(-296.66) NS(-636.89) EW(400.25)

#75 MD(6734.00) Inc(23.4) Azm(271.4) TVD(6657.43)
VS(-280.29) NS(-636.74) EW(383.66)

#76 MD(6779.00) Inc(26.3) Azm(271.8) TVD(6698.26)
VS(-261.70) NS(-636.20) EW(364.76)

#77 MD(6824.00) Inc(29.0) Azm(271.9) TVD(6738.12)
VS(-241.19) NS(-635.53) EW(343.89)

#78 MD(6869.00) Inc(32.7) Azm(271.9) TVD(6776.75)
VS(-218.52) NS(-634.76) EW(320.83)

#79 MD(6914.00) Inc(36.9) Azm(270.2) TVD(6813.69)
VS(-193.23) NS(-634.31) EW(295.16)

#80 MD(6958.00) Inc(41.2) Azm(269.1) TVD(6847.85)
VS(-165.83) NS(-634.50) EW(267.45)

#81 MD(7003.00) Inc(44.5) Azm(267.7) TVD(6880.84)
VS(-135.48) NS(-635.36) EW(236.86)

#82 MD(7048.00) Inc(46.7) Azm(267.0) TVD(6912.32)
VS(-103.52) NS(-636.85) EW(204.75)

#83 MD(7093.00) Inc(49.5) Azm(268.1) TVD(6942.37)
VS(-70.25) NS(-638.28) EW(171.29)

#84 MD(7138.00) Inc(52.2) Azm(268.4) TVD(6970.78)
VS(-35.63) NS(-639.34) EW(136.41)

#85 MD(7183.00) Inc(55.8) Azm(268.4) TVD(6997.23)
VS(0.48) NS(-640.36) EW(100.02)

#86 MD(7228.00) Inc(59.3) Azm(269.0) TVD(7021.37)
VS(38.11) NS(-641.21) EW(62.06)

#87 MD(7273.00) Inc(62.8) Azm(269.8) TVD(7043.15)
VS(77.06) NS(-641.62) EW(22.70)

#88 MD(7318.00) Inc(65.5) Azm(270.2) TVD(7062.77)
VS(117.07) NS(-641.62) EW(-17.80)

#89 MD(7363.00) Inc(68.4) Azm(270.7) TVD(7080.39)
VS(157.92) NS(-641.29) EW(-59.20)

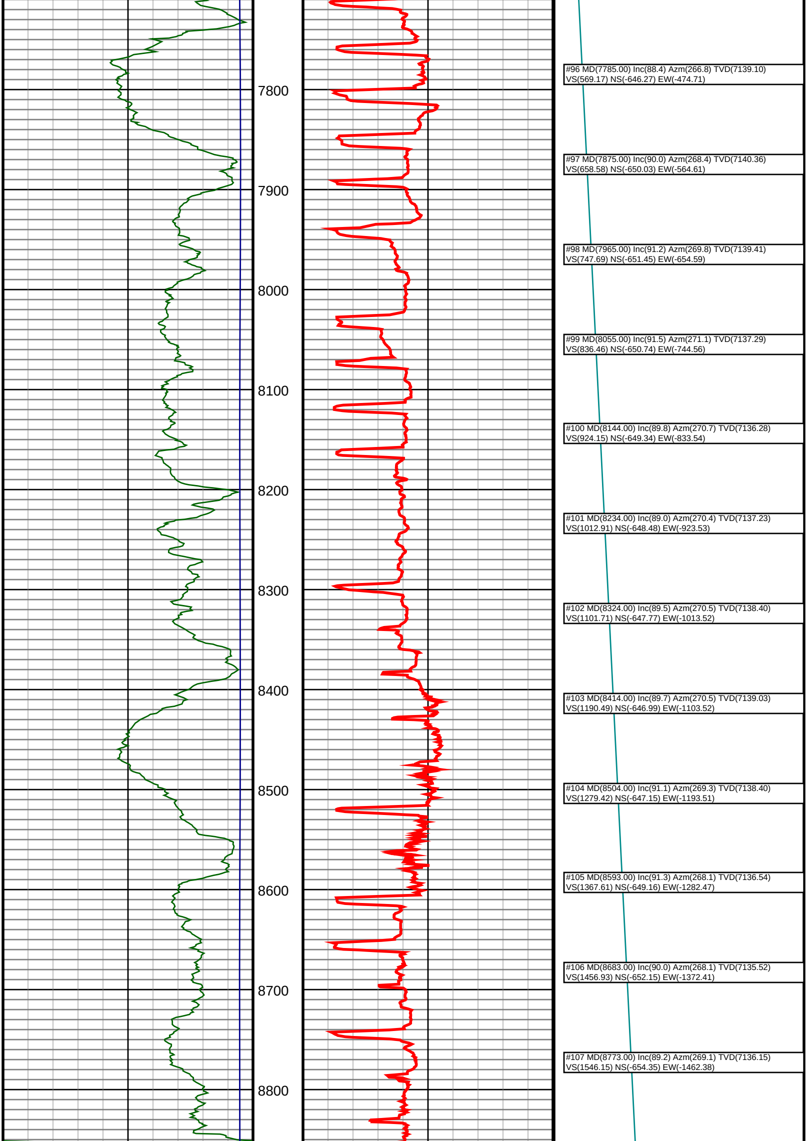
#90 MD(7408.00) Inc(72.3) Azm(270.0) TVD(7095.51)
VS(199.74) NS(-641.04) EW(-101.57)

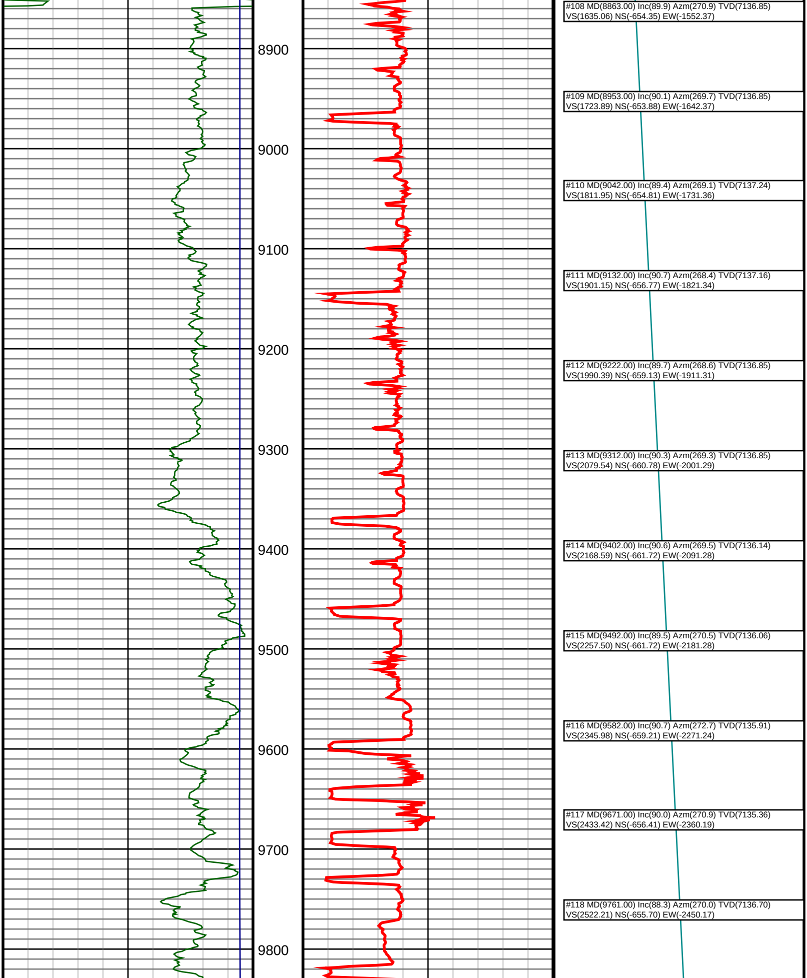
#91 MD(7452.00) Inc(75.7) Azm(269.5) TVD(7107.64)
VS(241.54) NS(-641.22) EW(-143.86)

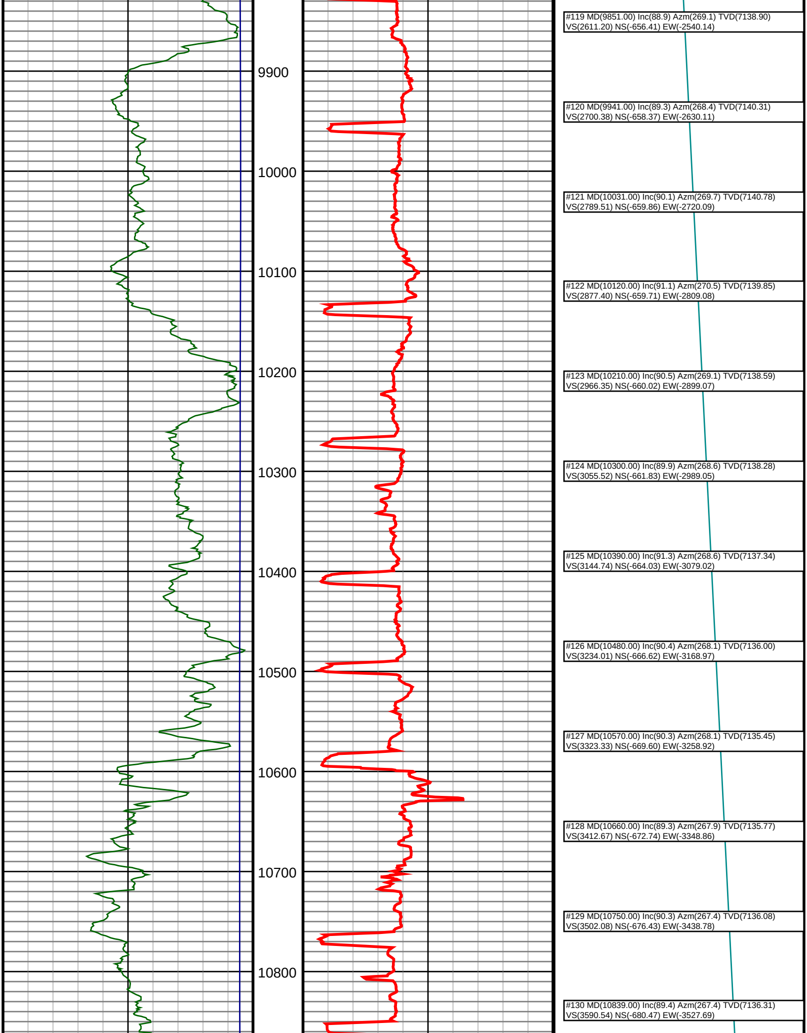
7502.0:Logged through casing from 7502-7552 MD
(7118- 7123 TVD)

#94 MD(7605.00) Inc(85.8) Azm(270.5) TVD(7129.84)
VS(391.10) NS(-642.58) EW(-295.03)

#95 MD(7695.00) Inc(87.0) Azm(269.0) TVD(7135.49)
VS(479.89) NS(-642.97) EW(-384.85)







#119 MD(9851.00) Inc(88.9) Azm(269.1) TVD(7138.90)
VS(2611.20) NS(-656.41) EW(-2540.14)

#120 MD(9941.00) Inc(89.3) Azm(268.4) TVD(7140.31)
VS(2700.38) NS(-658.37) EW(-2630.11)

#121 MD(10031.00) Inc(90.1) Azm(269.7) TVD(7140.78)
VS(2789.51) NS(-659.86) EW(-2720.09)

#122 MD(10120.00) Inc(91.1) Azm(270.5) TVD(7139.85)
VS(2877.40) NS(-659.71) EW(-2809.08)

#123 MD(10210.00) Inc(90.5) Azm(269.1) TVD(7138.59)
VS(2966.35) NS(-660.02) EW(-2899.07)

#124 MD(10300.00) Inc(89.9) Azm(268.6) TVD(7138.28)
VS(3055.52) NS(-661.83) EW(-2989.05)

#125 MD(10390.00) Inc(91.3) Azm(268.6) TVD(7137.34)
VS(3144.74) NS(-664.03) EW(-3079.02)

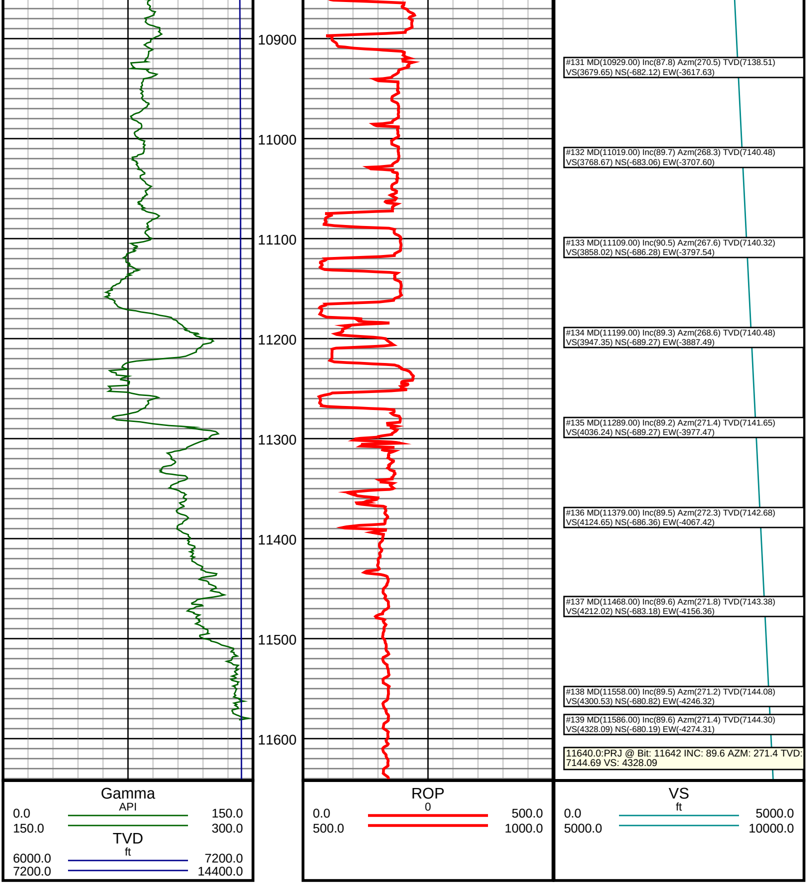
#126 MD(10480.00) Inc(90.4) Azm(268.1) TVD(7136.00)
VS(3234.01) NS(-666.62) EW(-3168.97)

#127 MD(10570.00) Inc(90.3) Azm(268.1) TVD(7135.45)
VS(3323.33) NS(-669.60) EW(-3258.92)

#128 MD(10660.00) Inc(89.3) Azm(267.9) TVD(7135.77)
VS(3412.67) NS(-672.74) EW(-3348.86)

#129 MD(10750.00) Inc(90.3) Azm(267.4) TVD(7136.08)
VS(3502.08) NS(-676.43) EW(-3438.78)

#130 MD(10839.00) Inc(89.4) Azm(267.4) TVD(7136.31)
VS(3590.54) NS(-680.47) EW(-3527.69)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#131 MD(10929.00) Inc(87.8) Azm(270.5) TVD(7138.51)
VS(3679.65) NS(-682.12) EW(-3617.63)
#132 MD(11019.00) Inc(89.7) Azm(268.3) TVD(7140.48)
VS(3768.67) NS(-683.06) EW(-3707.60)
#133 MD(11109.00) Inc(90.5) Azm(267.6) TVD(7140.32)
VS(3858.02) NS(-686.28) EW(-3797.54)
#134 MD(11199.00) Inc(89.3) Azm(268.6) TVD(7140.48)
VS(3947.35) NS(-689.27) EW(-3887.49)
#135 MD(11289.00) Inc(89.2) Azm(271.4) TVD(7141.65)
VS(4036.24) NS(-689.27) EW(-3977.47)
#136 MD(11379.00) Inc(89.5) Azm(272.3) TVD(7142.68)
VS(4124.65) NS(-686.36) EW(-4067.42)
#137 MD(11468.00) Inc(89.6) Azm(271.8) TVD(7143.38)
VS(4212.02) NS(-683.18) EW(-4156.36)
#138 MD(11558.00) Inc(89.5) Azm(271.2) TVD(7144.08)
VS(4300.53) NS(-680.82) EW(-4246.32)
#139 MD(11586.00) Inc(89.6) Azm(271.4) TVD(7144.30)
VS(4328.09) NS(-680.19) EW(-4274.31)
11640.0:PRJ @ Bit: 11642 INC: 89.6 AZM: 271.4 TVD: 7144.69 VS: 4328.09
Gamma
API
0.0 150.0
150.0 300.0
TVD
ft
6000.0 7200.0
7200.0 14400.0
ROP
0
0.0 500.0
500.0 1000.0
VS
ft
0.0 5000.0
5000.0 10000.0