ENSIGN Directional Services

Reliance E23-65-1HC

TVD
2":100'

Company:	Noble Energy
Well Name:	Reliance E23-65-1HC
API:	0-123-37602
Rig Id:	H&P 326
State:	Colorado
County/Parish:	Weld
Country:	USA
Survey Company:	ENSIGN Directional
Job number:	HP326-207-2
DD1	Zach Gentry
DD2	Tyler Bachelder
DD3	Colby Hansen
MWD1	Andrew Demrow
MWD2	Derek Saykally
MWD3	Nick Jones

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

	Depth	Date
Start:	819 ft	03-04-2015
End:	11352 ft	03-09-2015

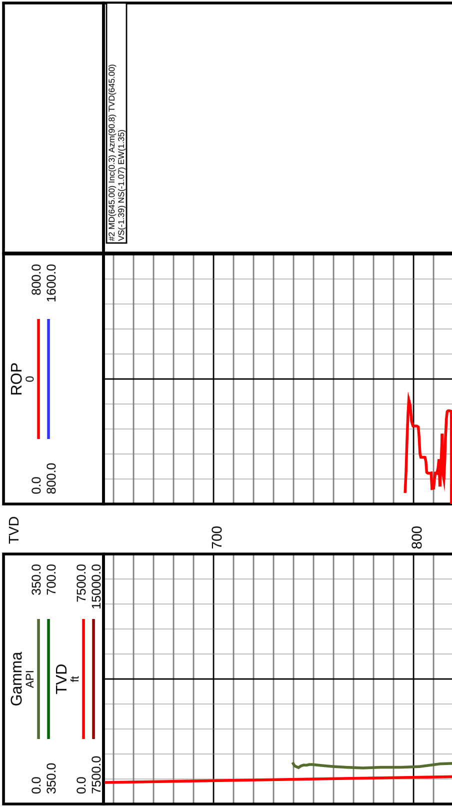
Casing	Depth	Size
Surface:	819	9 5/8
Intermediate:	7274	7

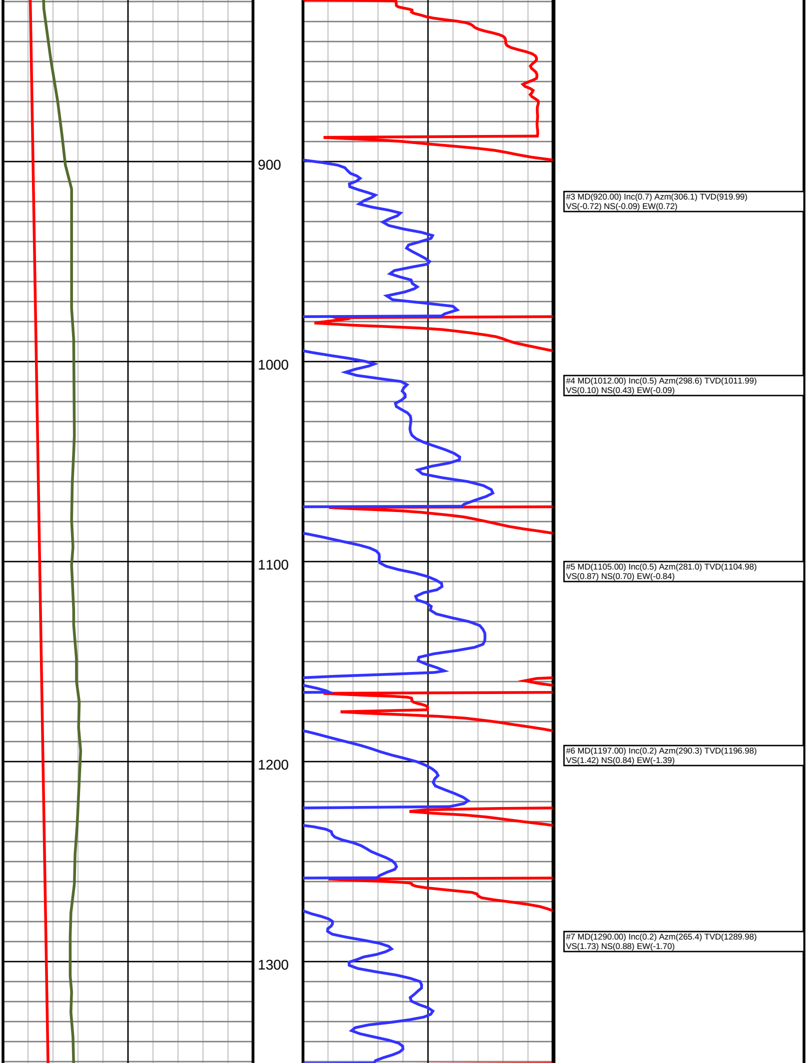
Mud Type:
Density:
Viscosity:
Rm: **Rmf:** **Rmc:**

Elevations
KB: 30
GL: 4695
DF: 4711

		Offsets		Depths		Dates	
Run	**Bit Size**	**Gamma**	**Survey**	**Start**	**End**	**Start**	**End**
1	8.75	63.55	58.55	838	7284	03-04-2015	03-07-2015
2	6.125	63.29	58.29	7284	11352	03-08-2015	03-09-2015
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.





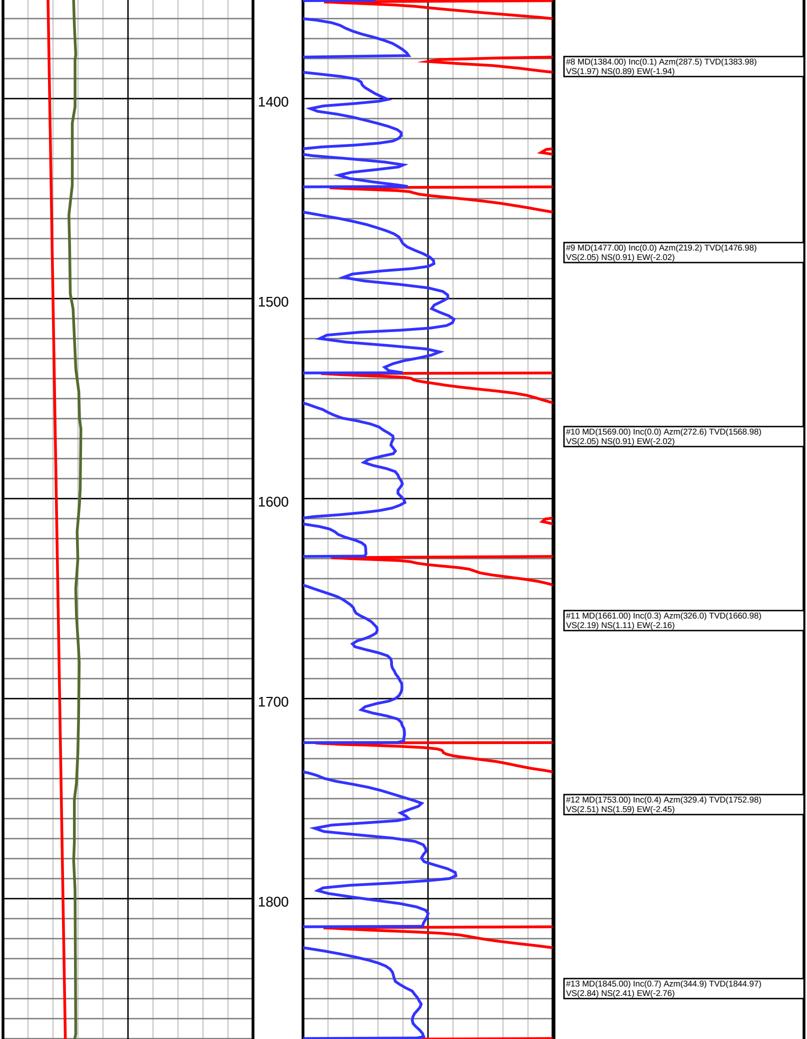
#3 MD(920.00) Inc(0.7) Azm(306.1) TVD(919.99)
VS(-0.72) NS(-0.09) EW(0.72)

#4 MD(1012.00) Inc(0.5) Azm(298.6) TVD(1011.99)
VS(0.10) NS(0.43) EW(-0.09)

#5 MD(1105.00) Inc(0.5) Azm(281.0) TVD(1104.98)
VS(0.87) NS(0.70) EW(-0.84)

#6 MD(1197.00) Inc(0.2) Azm(290.3) TVD(1196.98)
VS(1.42) NS(0.84) EW(-1.39)

#7 MD(1290.00) Inc(0.2) Azm(265.4) TVD(1289.98)
VS(1.73) NS(0.88) EW(-1.70)



#8 MD(1384.00) Inc(0.1) Azm(287.5) TVD(1383.98)
VS(1.97) NS(0.89) EW(-1.94)

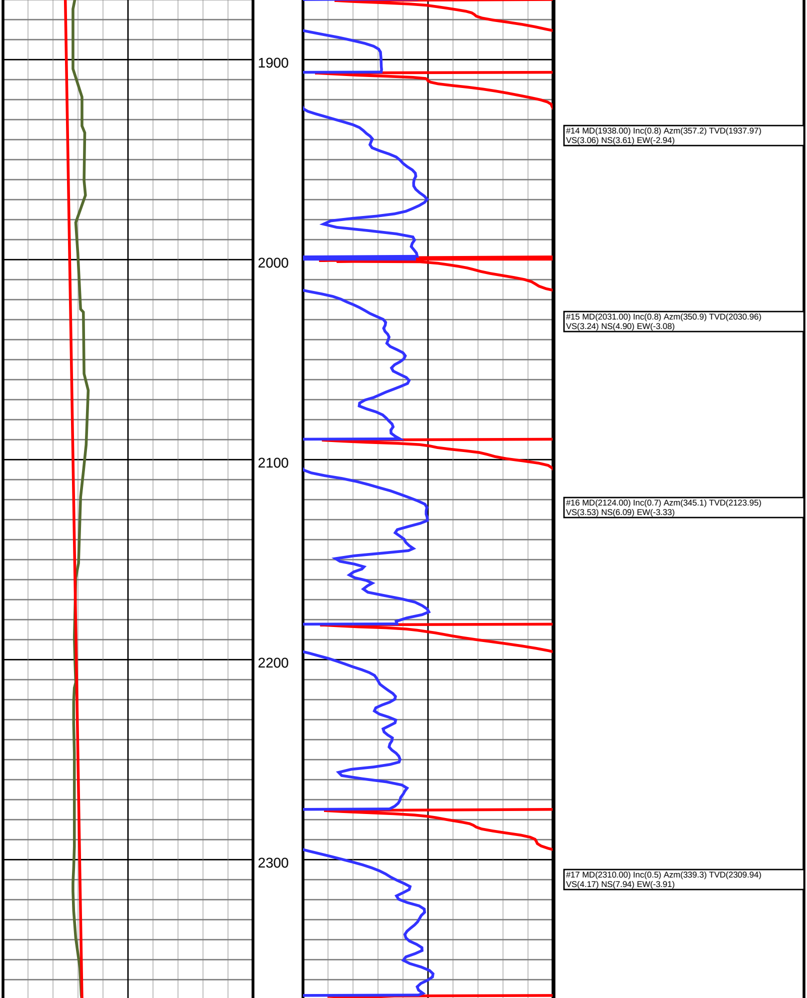
#9 MD(1477.00) Inc(0.0) Azm(219.2) TVD(1476.98)
VS(2.05) NS(0.91) EW(-2.02)

#10 MD(1569.00) Inc(0.0) Azm(272.6) TVD(1568.98)
VS(2.05) NS(0.91) EW(-2.02)

#11 MD(1661.00) Inc(0.3) Azm(326.0) TVD(1660.98)
VS(2.19) NS(1.11) EW(-2.16)

#12 MD(1753.00) Inc(0.4) Azm(329.4) TVD(1752.98)
VS(2.51) NS(1.59) EW(-2.45)

#13 MD(1845.00) Inc(0.7) Azm(344.9) TVD(1844.97)
VS(2.84) NS(2.41) EW(-2.76)

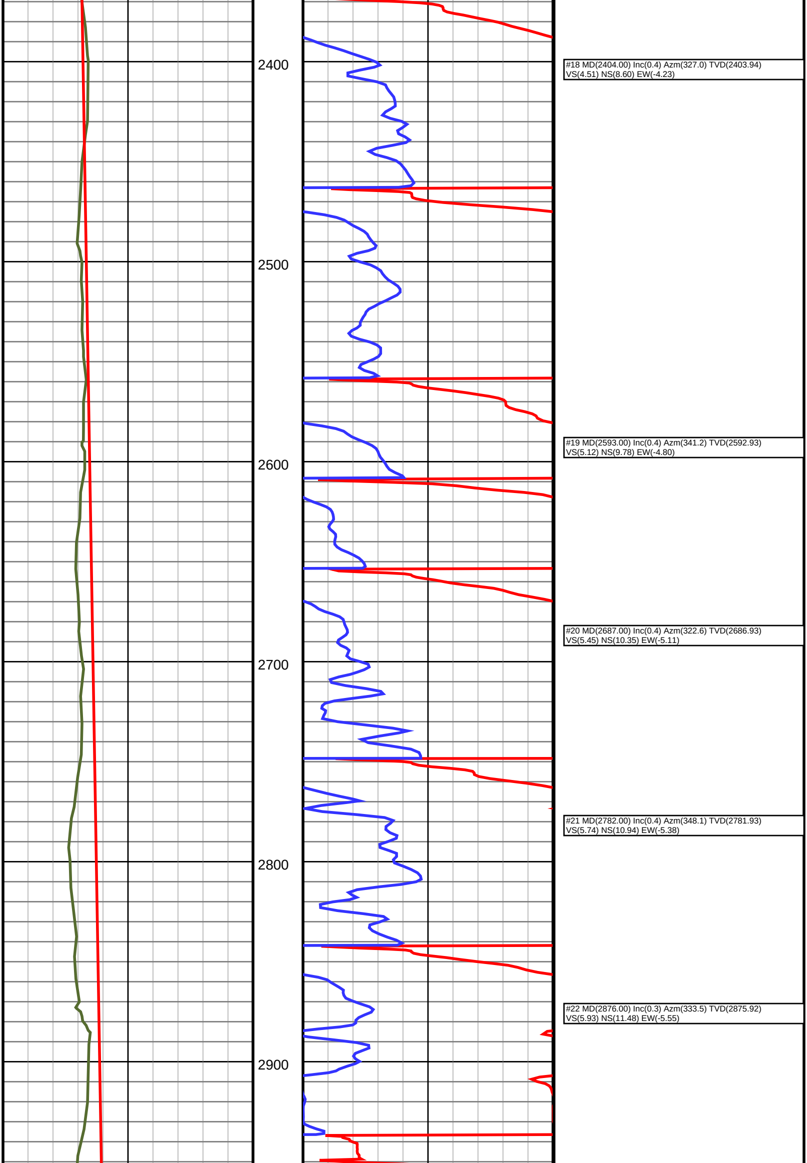


#14 MD(1938.00) Inc(0.8) Azm(357.2) TVD(1937.97)
VS(3.06) NS(3.61) EW(-2.94)

#15 MD(2031.00) Inc(0.8) Azm(350.9) TVD(2030.96)
VS(3.24) NS(4.90) EW(-3.08)

#16 MD(2124.00) Inc(0.7) Azm(345.1) TVD(2123.95)
VS(3.53) NS(6.09) EW(-3.33)

#17 MD(2310.00) Inc(0.5) Azm(339.3) TVD(2309.94)
VS(4.17) NS(7.94) EW(-3.91)



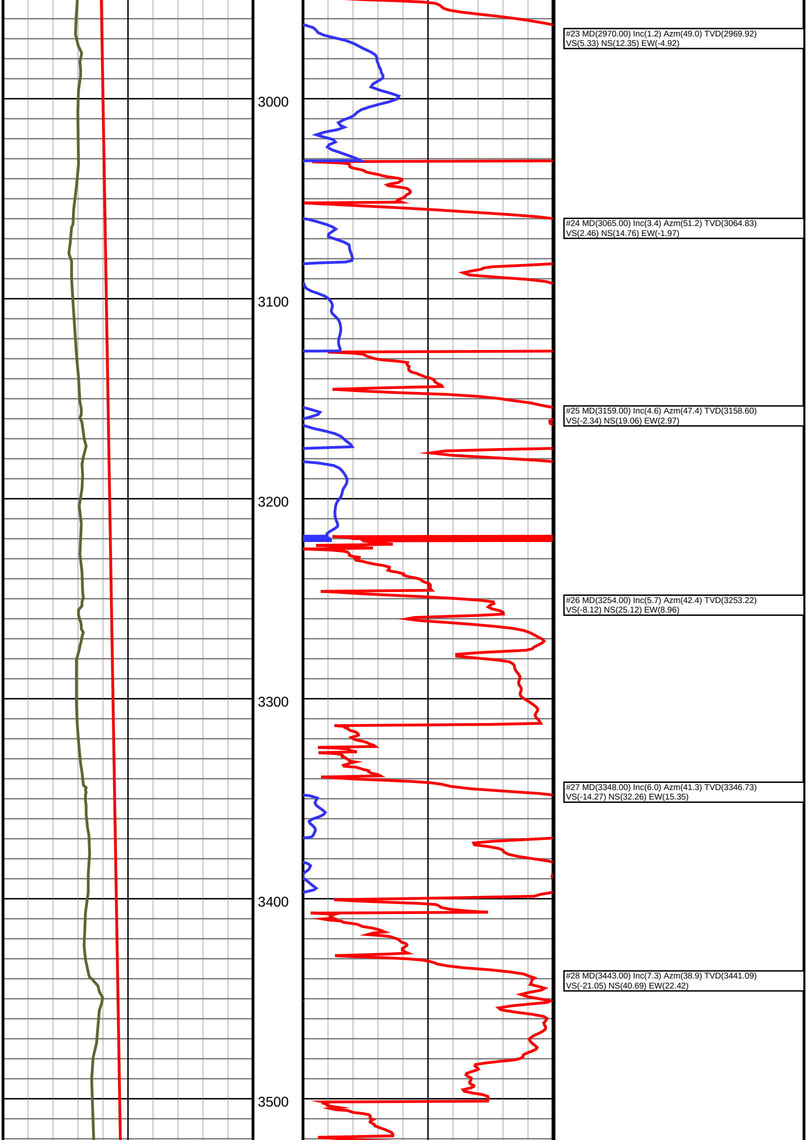
#18 MD(2404.00) Inc(0.4) Azm(327.0) TVD(2403.94)
VS(4.51) NS(8.60) EW(-4.23)

#19 MD(2593.00) Inc(0.4) Azm(341.2) TVD(2592.93)
VS(5.12) NS(9.78) EW(-4.80)

#20 MD(2687.00) Inc(0.4) Azm(322.6) TVD(2686.93)
VS(5.45) NS(10.35) EW(-5.11)

#21 MD(2782.00) Inc(0.4) Azm(348.1) TVD(2781.93)
VS(5.74) NS(10.94) EW(-5.38)

#22 MD(2876.00) Inc(0.3) Azm(333.5) TVD(2875.92)
VS(5.93) NS(11.48) EW(-5.55)



#23 MD(2970.00) Inc(1.2) Azm(49.0) TVD(2969.92)
VS(5.33) NS(12.35) EW(-4.92)

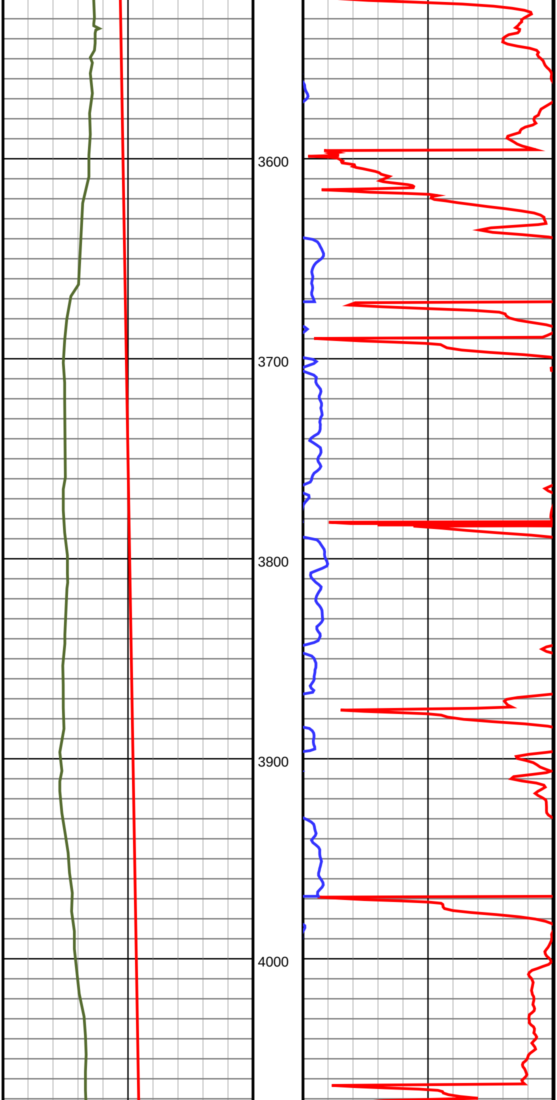
#24 MD(3065.00) Inc(3.4) Azm(51.2) TVD(3064.83)
VS(2.46) NS(14.76) EW(-1.97)

#25 MD(3159.00) Inc(4.6) Azm(47.4) TVD(3158.60)
VS(-2.34) NS(19.06) EW(2.97)

#26 MD(3254.00) Inc(5.7) Azm(42.4) TVD(3253.22)
VS(-8.12) NS(25.12) EW(8.96)

#27 MD(3348.00) Inc(6.0) Azm(41.3) TVD(3346.73)
VS(-14.27) NS(32.26) EW(15.35)

#28 MD(3443.00) Inc(7.3) Azm(38.9) TVD(3441.09)
VS(-21.05) NS(40.69) EW(22.42)



#29 MD(3538.00) Inc(6.6) Azm(57.8) TVD(3535.40)
VS(-29.21) NS(48.30) EW(30.83)

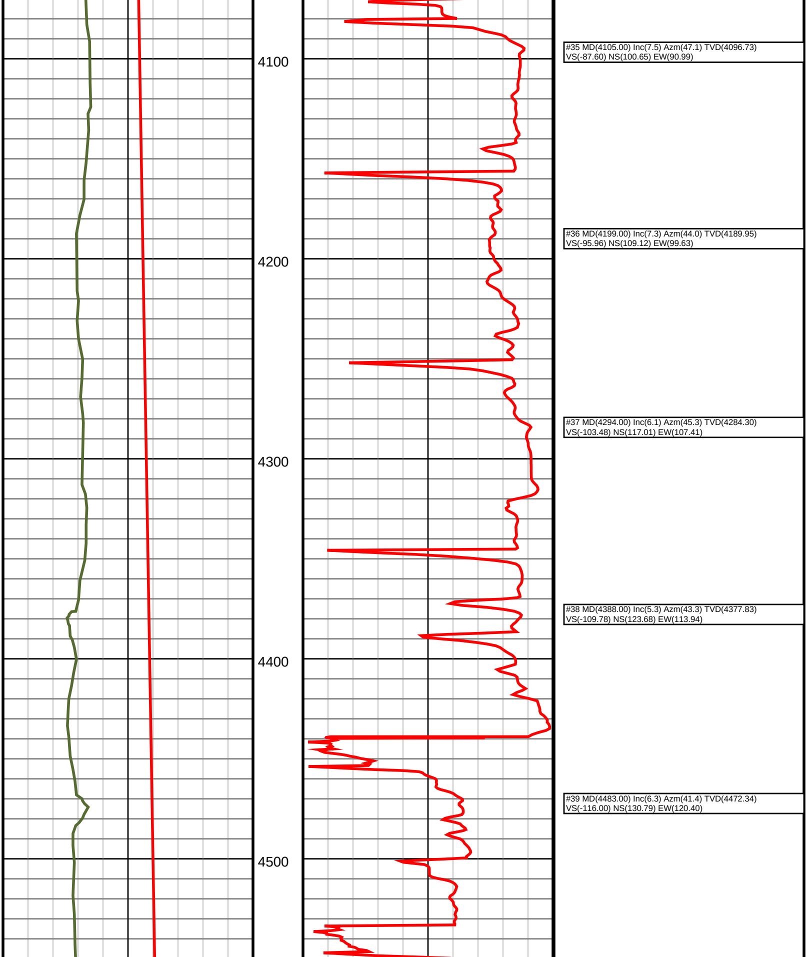
#30 MD(3632.00) Inc(7.5) Azm(48.0) TVD(3628.69)
VS(-38.10) NS(55.28) EW(39.96)

#31 MD(3726.00) Inc(8.2) Azm(48.9) TVD(3721.81)
VS(-47.43) NS(63.79) EW(49.57)

#32 MD(3821.00) Inc(8.3) Azm(48.4) TVD(3815.83)
VS(-57.35) NS(72.80) EW(59.80)

#33 MD(3915.00) Inc(8.8) Azm(48.6) TVD(3908.78)
VS(-67.51) NS(82.06) EW(70.27)

#34 MD(4010.00) Inc(8.7) Azm(48.3) TVD(4002.68)
VS(-78.00) NS(91.64) EW(81.08)



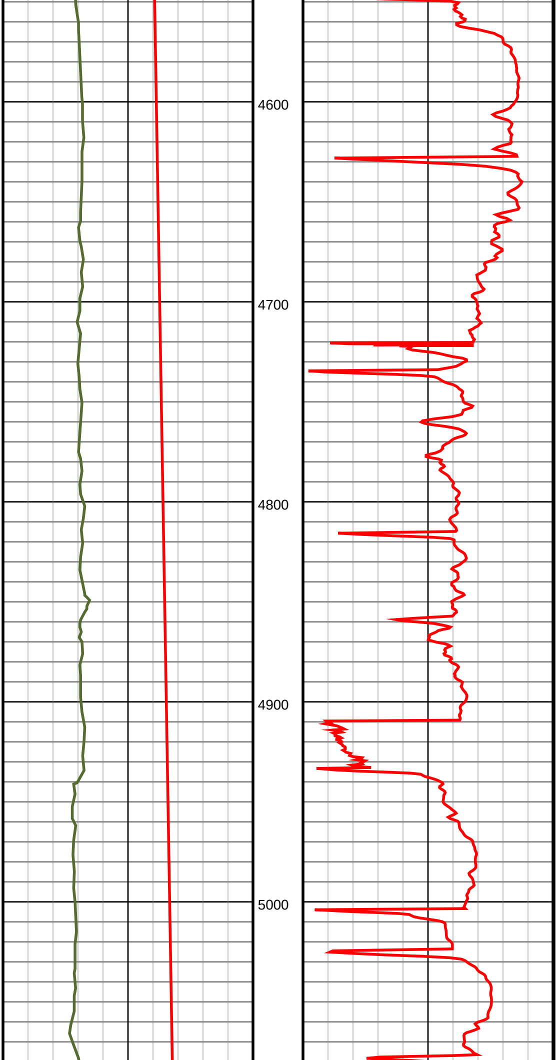
#35 MD(4105.00) Inc(7.5) Azm(47.1) TVD(4096.73)
VS(-87.60) NS(100.65) EW(90.99)

#36 MD(4199.00) Inc(7.3) Azm(44.0) TVD(4189.95)
VS(-95.96) NS(109.12) EW(99.63)

#37 MD(4294.00) Inc(6.1) Azm(45.3) TVD(4284.30)
VS(-103.48) NS(117.01) EW(107.41)

#38 MD(4388.00) Inc(5.3) Azm(43.3) TVD(4377.83)
VS(-109.78) NS(123.68) EW(113.94)

#39 MD(4483.00) Inc(6.3) Azm(41.4) TVD(4472.34)
VS(-116.00) NS(130.79) EW(120.40)



#40 MD(4578.00) Inc(7.4) Azm(38.7) TVD(4566.66)
VS(-122.98) NS(139.47) EW(127.67)

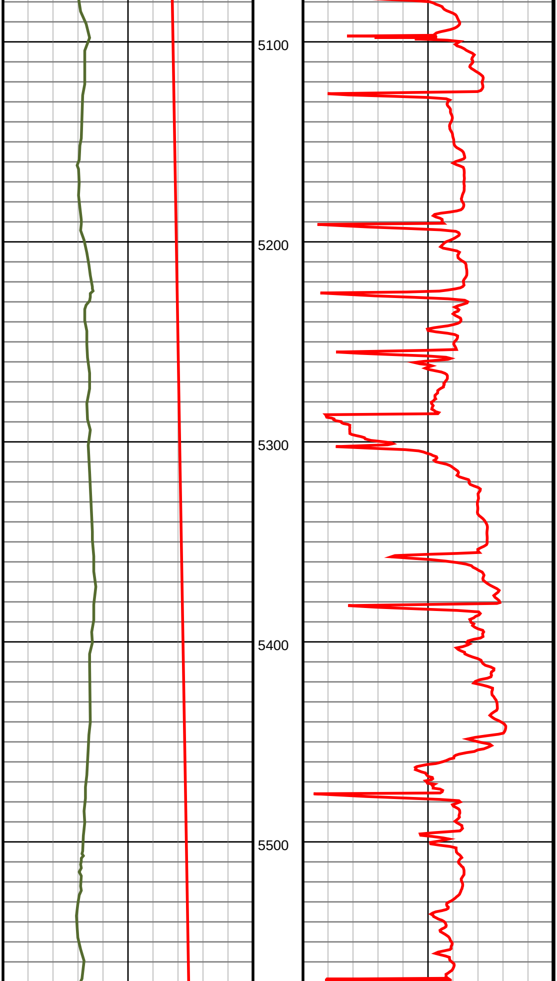
#41 MD(4672.00) Inc(6.0) Azm(39.4) TVD(4660.02)
VS(-129.59) NS(147.99) EW(134.57)

#42 MD(4767.00) Inc(5.7) Azm(36.6) TVD(4754.53)
VS(-135.30) NS(155.62) EW(140.54)

#43 MD(4861.00) Inc(5.1) Azm(29.8) TVD(4848.11)
VS(-139.91) NS(162.99) EW(145.40)

#44 MD(4956.00) Inc(5.6) Azm(43.1) TVD(4942.70)
VS(-144.94) NS(170.04) EW(150.66)

#45 MD(5050.00) Inc(5.5) Azm(42.3) TVD(5036.26)
VS(-150.88) NS(176.72) EW(156.83)



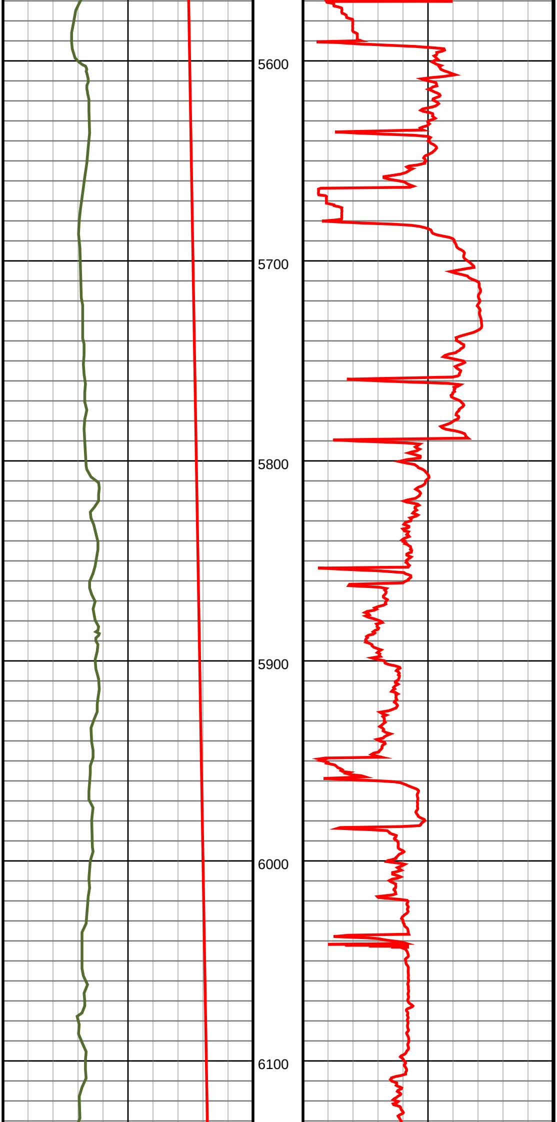
#46 MD(5145.00) Inc(4.5) Azm(46.5) TVD(5130.90)
VS(-156.45) NS(182.65) EW(162.60)

#47 MD(5240.00) Inc(3.4) Azm(51.1) TVD(5225.67)
VS(-161.20) NS(186.99) EW(167.49)

#48 MD(5334.00) Inc(4.3) Azm(56.8) TVD(5319.46)
VS(-166.19) NS(190.67) EW(172.61)

#49 MD(5429.00) Inc(2.9) Azm(54.1) TVD(5414.27)
VS(-171.01) NS(194.02) EW(177.54)

#50 MD(5523.00) Inc(2.2) Azm(59.0) TVD(5508.17)
VS(-174.40) NS(196.35) EW(181.01)



#51 MD(5618.00) Inc(0.6) Azm(28.4) TVD(5603.14)
VS(-176.15) NS(197.73) EW(182.81)

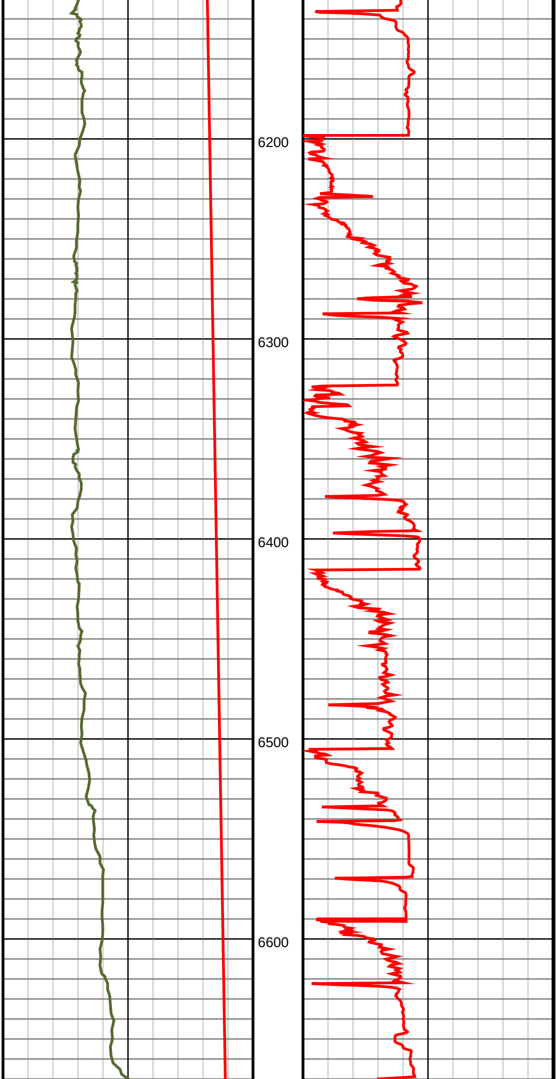
#52 MD(5713.00) Inc(0.6) Azm(201.8) TVD(5698.14)
VS(-176.21) NS(197.70) EW(182.86)

#53 MD(5807.00) Inc(0.3) Azm(170.1) TVD(5792.14)
VS(-176.09) NS(197.00) EW(182.72)

#54 MD(5902.00) Inc(0.5) Azm(160.1) TVD(5887.13)
VS(-176.29) NS(196.37) EW(182.91)

#55 MD(5996.00) Inc(0.6) Azm(321.0) TVD(5981.13)
VS(-176.12) NS(196.36) EW(182.73)

#56 MD(6090.00) Inc(0.7) Azm(337.9) TVD(6075.13)
VS(-175.57) NS(197.28) EW(182.21)



#57 MD(6184.00) Inc(0.7) Azm(5.3) TVD(6169.12)
VS(-175.37) NS(198.38) EW(182.05)

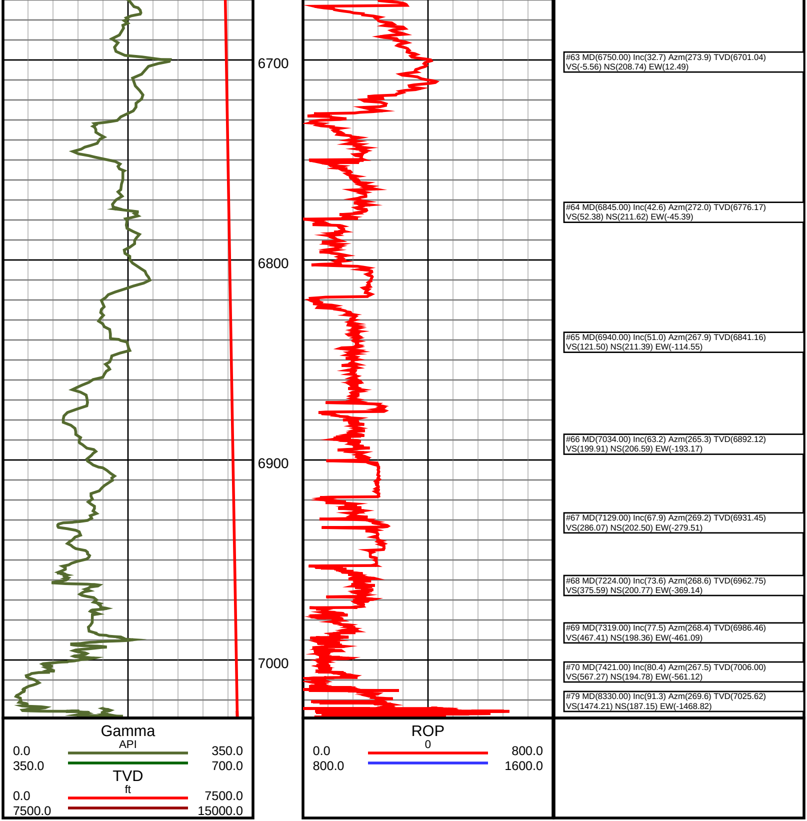
#58 MD(6278.00) Inc(7.4) Azm(289.0) TVD(6262.85)
VS(-169.61) NS(200.93) EW(176.37)

#59 MD(6373.00) Inc(12.4) Azm(270.5) TVD(6356.43)
VS(-153.55) NS(203.01) EW(160.37)

#60 MD(6467.00) Inc(18.5) Azm(265.3) TVD(6446.99)
VS(-128.62) NS(201.88) EW(135.39)

#61 MD(6562.00) Inc(24.3) Azm(273.2) TVD(6535.42)
VS(-94.07) NS(201.73) EW(100.82)

#62 MD(6656.00) Inc(27.8) Azm(275.5) TVD(6619.86)
VS(-52.84) NS(204.91) EW(59.67)



#63 MD(6750.00) Inc(32.7) Azm(273.9) TVD(6701.04)
VS(-5.56) NS(208.74) EW(12.49)

#64 MD(6845.00) Inc(42.6) Azm(272.0) TVD(6776.17)
VS(52.38) NS(211.62) EW(-45.39)

#65 MD(6940.00) Inc(51.0) Azm(267.9) TVD(6841.16)
VS(121.50) NS(211.39) EW(-114.55)

#66 MD(7034.00) Inc(63.2) Azm(265.3) TVD(6892.12)
VS(199.91) NS(206.59) EW(-193.17)

#67 MD(7129.00) Inc(67.9) Azm(269.2) TVD(6931.45)
VS(286.07) NS(202.50) EW(-279.51)

#68 MD(7224.00) Inc(73.6) Azm(268.6) TVD(6962.75)
VS(375.59) NS(200.77) EW(-369.14)

#69 MD(7319.00) Inc(77.5) Azm(268.4) TVD(6986.46)
VS(467.41) NS(198.36) EW(-461.09)

#70 MD(7421.00) Inc(80.4) Azm(267.5) TVD(7006.00)
VS(567.27) NS(194.78) EW(-561.12)

#79 MD(8330.00) Inc(91.3) Azm(269.6) TVD(7025.62)
VS(1474.21) NS(187.15) EW(-1468.82)