ENSIGN Directional Services Wells Ranch State A36-675

TVD
2":100’

Company:	Noble Energy
Well Name:	Wells Ranch State A36-675
API:	
Rig Id:	H&P 326
State:	Colorado
County/Parish:	Weld
Country:	USA
Survey Company:	ENSIGN Directional
Job number:	HP326-207-15
DD1	Zach Gentry
DD2	Tyler Bachelder
DD3	Colby Hansen
MWD1	Andrew Demrow
MWD2	Derek Saykally
MWD3	Buster Snider

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

	Depth	Date
Start:	840 ft	06-30-2015
End:	16336 ft	7-7-2015

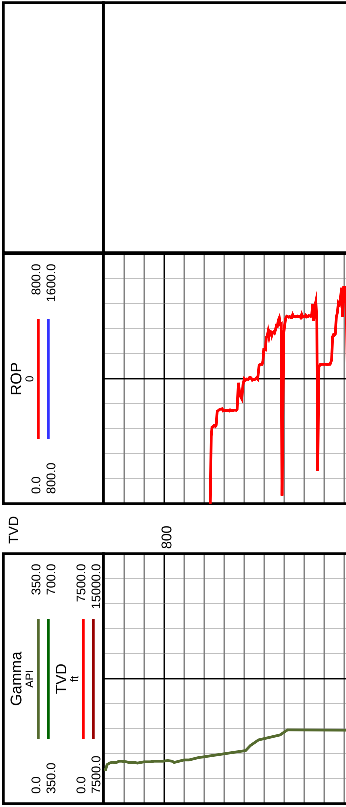
Casing	Depth	Size
Surface:	812	9 5/8
Intermediate:	7074	7

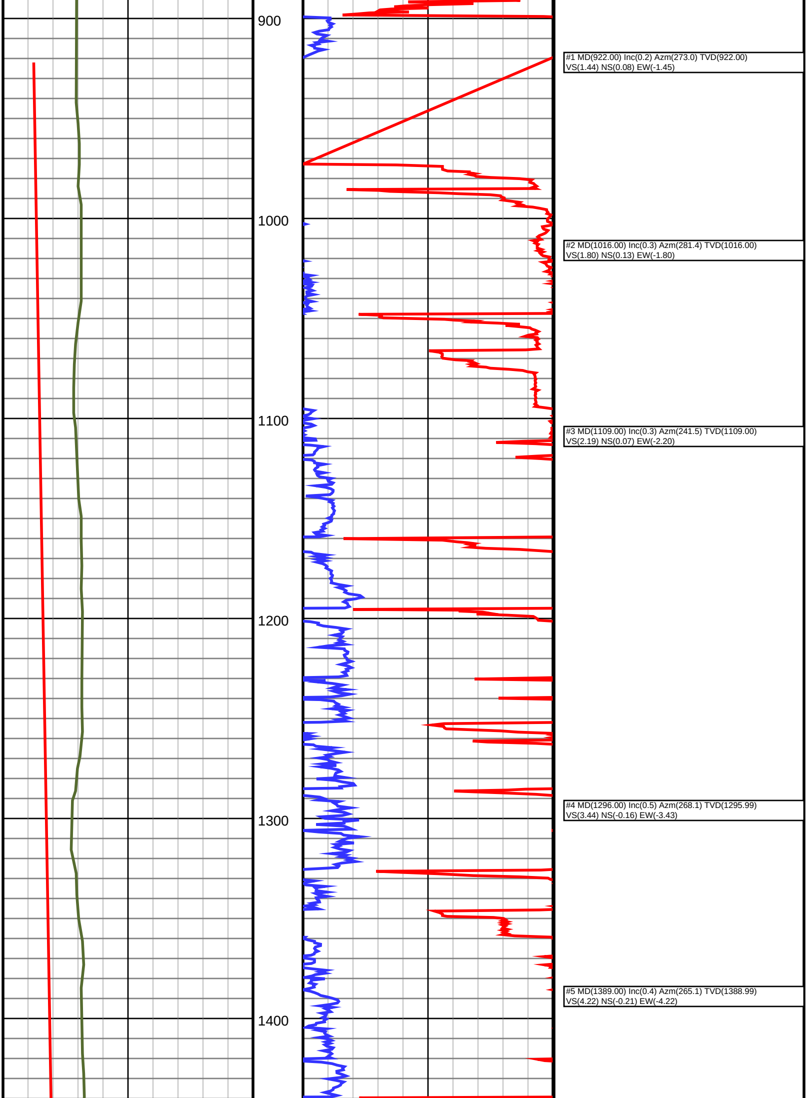
Mud Type:
Density:
Viscosity:
Rm: **Rmf:** **Rmc:**

Elevations
KB: 30
GL: 4855
DF: 4885

		Offsets		Depths		Dates	
Run	**Bit Size**	**Gamma**	**Survey**	**Start**	**End**	**Start**	**End**
1	8.75	54.81	49.81	840	7084	06-30-2015	07-01-2015
2	6.125	67.16	62.16	7084	9789	07-02-2015	07-03-2015
3	6.125	65.76	60.76	9789	14505	07-03-2015	07-05-2015
4	6.125	65.76	60.76	14505	16336	07-05-2015	07-07-2015
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.





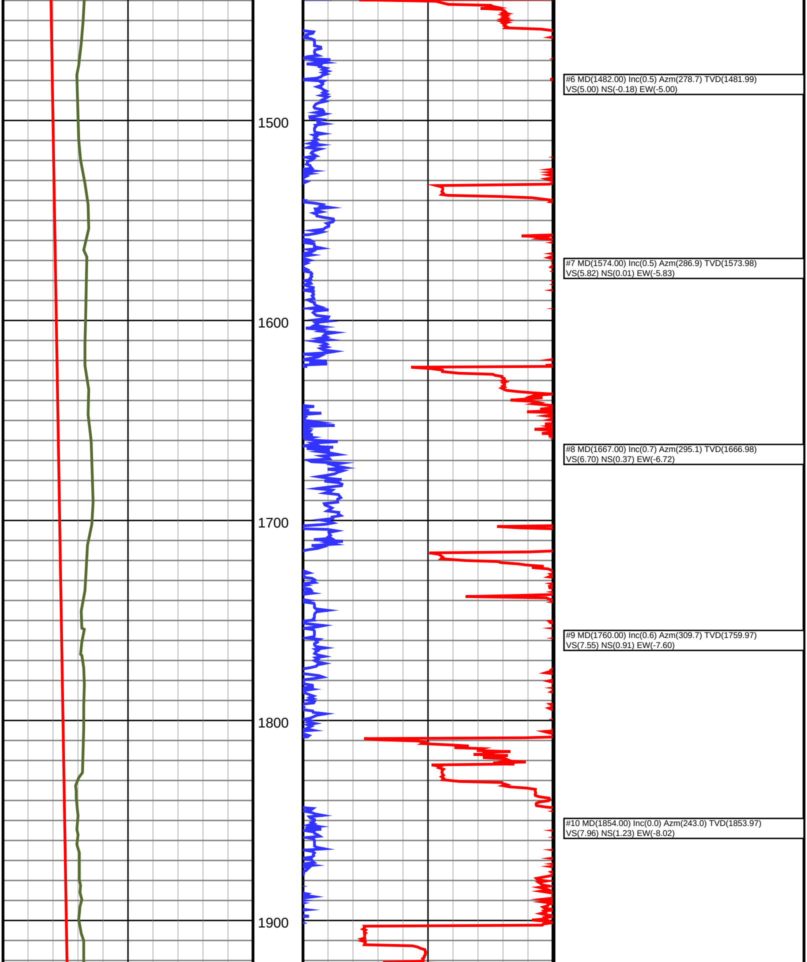
#1 MD(922.00) Inc(0.2) Azm(273.0) TVD(922.00)
VS(1.44) NS(0.08) EW(-1.45)

#2 MD(1016.00) Inc(0.3) Azm(281.4) TVD(1016.00)
VS(1.80) NS(0.13) EW(-1.80)

#3 MD(1109.00) Inc(0.3) Azm(241.5) TVD(1109.00)
VS(2.19) NS(0.07) EW(-2.20)

#4 MD(1296.00) Inc(0.5) Azm(268.1) TVD(1295.99)
VS(3.44) NS(-0.16) EW(-3.43)

#5 MD(1389.00) Inc(0.4) Azm(265.1) TVD(1388.99)
VS(4.22) NS(-0.21) EW(-4.22)



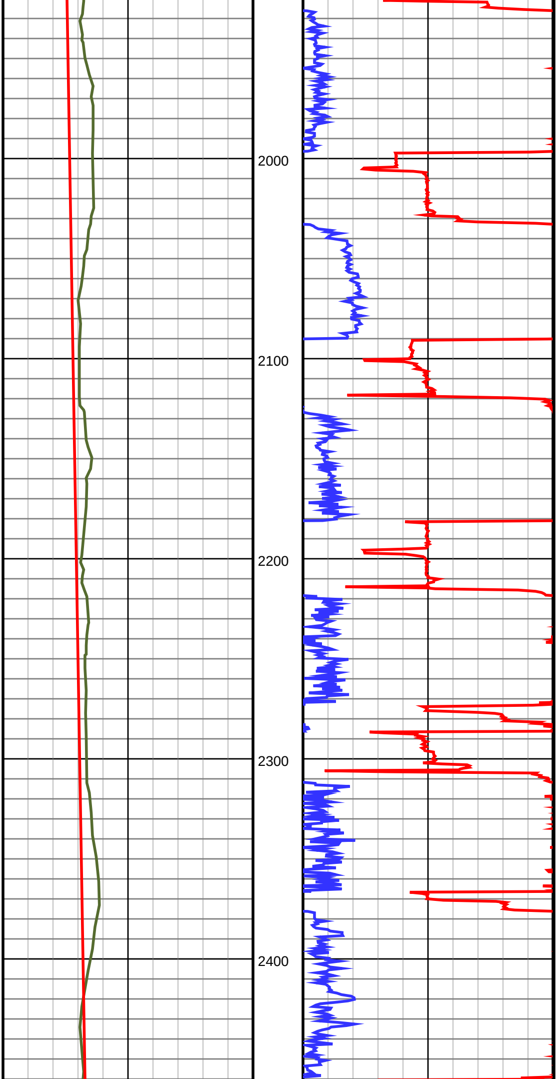
#6 MD(1482.00) Inc(0.5) Azm(278.7) TVD(1481.99)
VS(5.00) NS(-0.18) EW(-5.00)

#7 MD(1574.00) Inc(0.5) Azm(286.9) TVD(1573.98)
VS(5.82) NS(0.01) EW(-5.83)

#8 MD(1667.00) Inc(0.7) Azm(295.1) TVD(1666.98)
VS(6.70) NS(0.37) EW(-6.72)

#9 MD(1760.00) Inc(0.6) Azm(309.7) TVD(1759.97)
VS(7.55) NS(0.91) EW(-7.60)

#10 MD(1854.00) Inc(0.0) Azm(243.0) TVD(1853.97)
VS(7.96) NS(1.23) EW(-8.02)



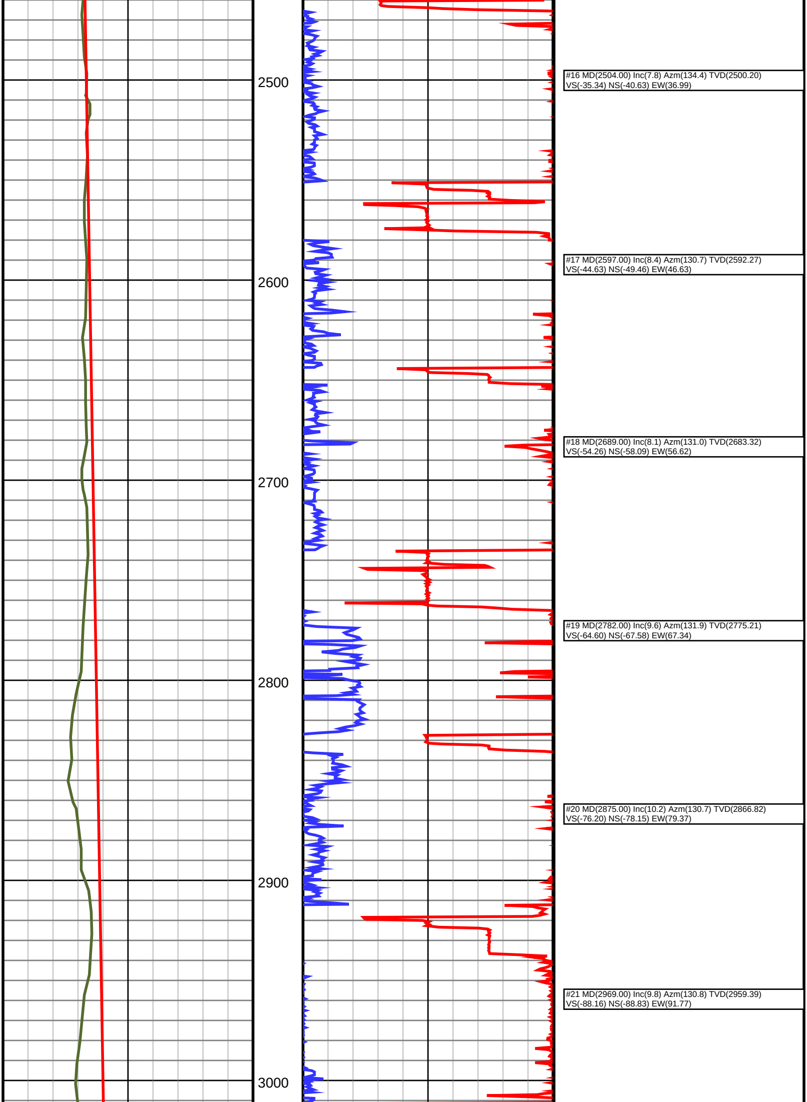
#11 MD(1947.00) Inc(0.8) Azm(114.1) TVD(1946.97)
VS(7.42) NS(0.95) EW(-7.46)

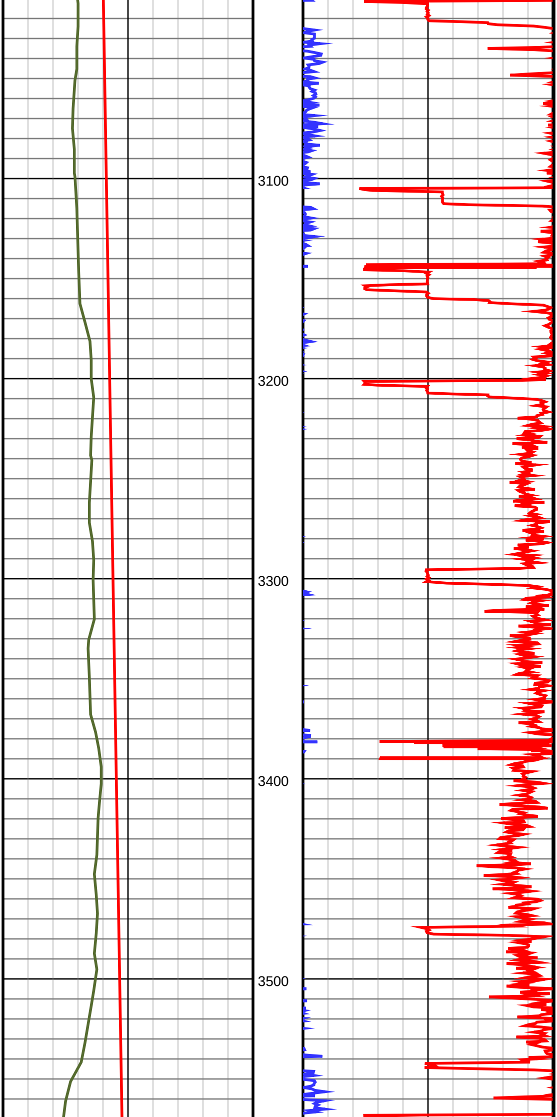
#12 MD(2041.00) Inc(3.7) Azm(120.6) TVD(2040.89)
VS(4.32) NS(-0.84) EW(-4.29)

#13 MD(2133.00) Inc(6.0) Azm(134.8) TVD(2132.56)
VS(-1.43) NS(-5.73) EW(1.66)

#14 MD(2225.00) Inc(7.7) Azm(134.6) TVD(2223.89)
VS(-8.92) NS(-13.45) EW(9.47)

#15 MD(2412.00) Inc(8.2) Azm(134.8) TVD(2409.09)
VS(-26.59) NS(-31.64) EW(27.87)





#22 MD(3063.00) Inc(9.8) Azm(129.7) TVD(3052.00)
VS(-100.02) NS(-99.22) EW(104.05)

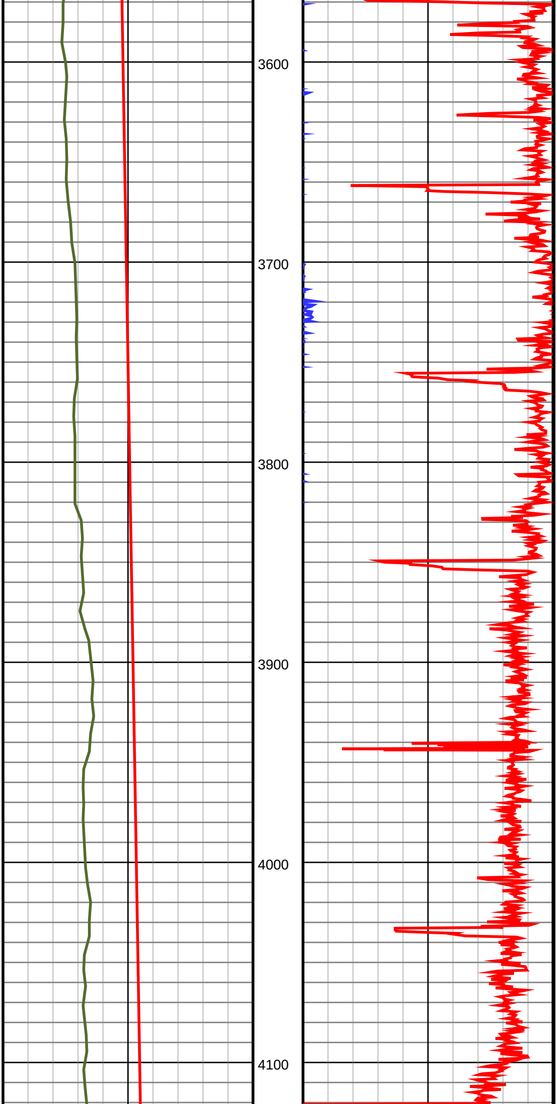
#23 MD(3157.00) Inc(9.3) Azm(128.0) TVD(3144.69)
VS(-111.81) NS(-109.03) EW(116.24)

#24 MD(3251.00) Inc(8.9) Azm(126.4) TVD(3237.50)
VS(-123.31) NS(-118.04) EW(128.10)

#25 MD(3345.00) Inc(8.6) Azm(125.3) TVD(3330.41)
VS(-134.54) NS(-126.42) EW(139.68)

#26 MD(3440.00) Inc(8.1) Azm(123.6) TVD(3424.40)
VS(-145.57) NS(-134.21) EW(151.02)

#27 MD(3534.00) Inc(7.8) Azm(124.0) TVD(3517.50)
VS(-156.08) NS(-141.45) EW(161.83)



#28 MD(3628.00) Inc(8.2) Azm(124.4) TVD(3610.58)
VS(-166.60) NS(-148.80) EW(172.65)

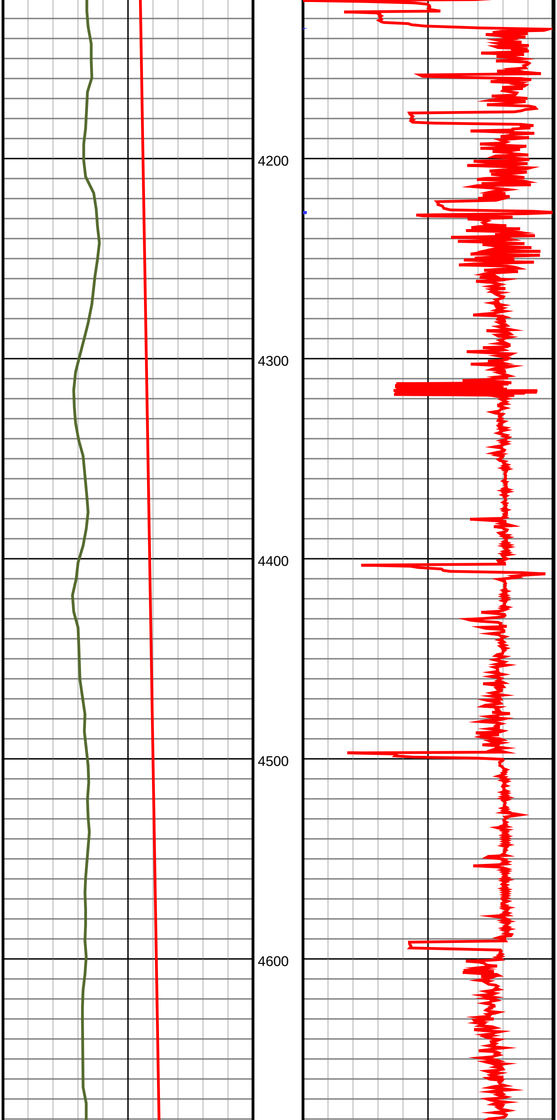
#29 MD(3722.00) Inc(8.3) Azm(124.5) TVD(3703.61)
VS(-177.40) NS(-156.42) EW(183.77)

#30 MD(3816.00) Inc(8.4) Azm(123.7) TVD(3796.61)
VS(-188.43) NS(-164.09) EW(195.11)

#31 MD(3910.00) Inc(8.4) Azm(123.7) TVD(3889.60)
VS(-199.57) NS(-171.72) EW(206.57)

#32 MD(4004.00) Inc(8.0) Azm(123.3) TVD(3982.63)
VS(-210.48) NS(-179.14) EW(217.78)

#33 MD(4098.00) Inc(7.7) Azm(122.6) TVD(4075.74)
VS(-221.01) NS(-186.16) EW(228.60)



#34 MD(4192.00) Inc(7.3) Azm(122.6) TVD(4168.93)
VS(-231.10) NS(-192.79) EW(238.95)

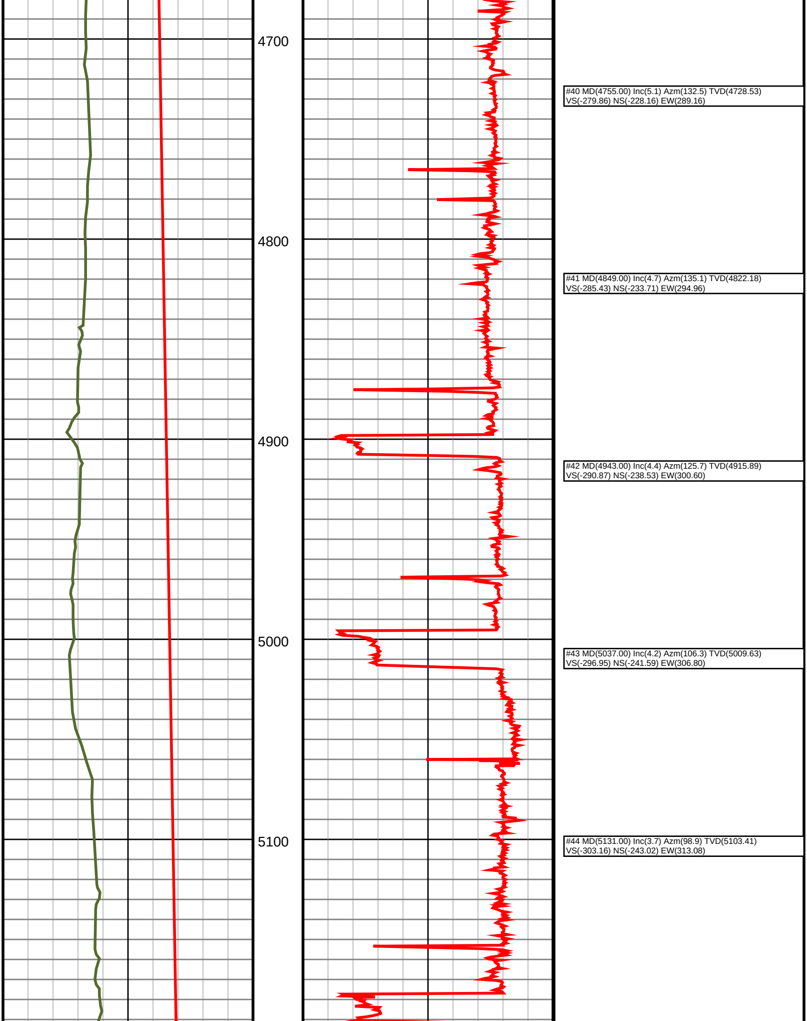
#35 MD(4285.00) Inc(7.0) Azm(122.3) TVD(4261.21)
VS(-240.59) NS(-198.99) EW(248.70)

#36 MD(4379.00) Inc(6.7) Azm(122.6) TVD(4354.54)
VS(-249.81) NS(-205.00) EW(258.17)

#37 MD(4473.00) Inc(6.4) Azm(123.1) TVD(4447.92)
VS(-258.62) NS(-210.84) EW(267.22)

#38 MD(4567.00) Inc(5.8) Azm(127.4) TVD(4541.39)
VS(-266.54) NS(-216.57) EW(275.37)

#39 MD(4661.00) Inc(5.6) Azm(130.4) TVD(4634.93)
VS(-273.53) NS(-222.39) EW(282.60)



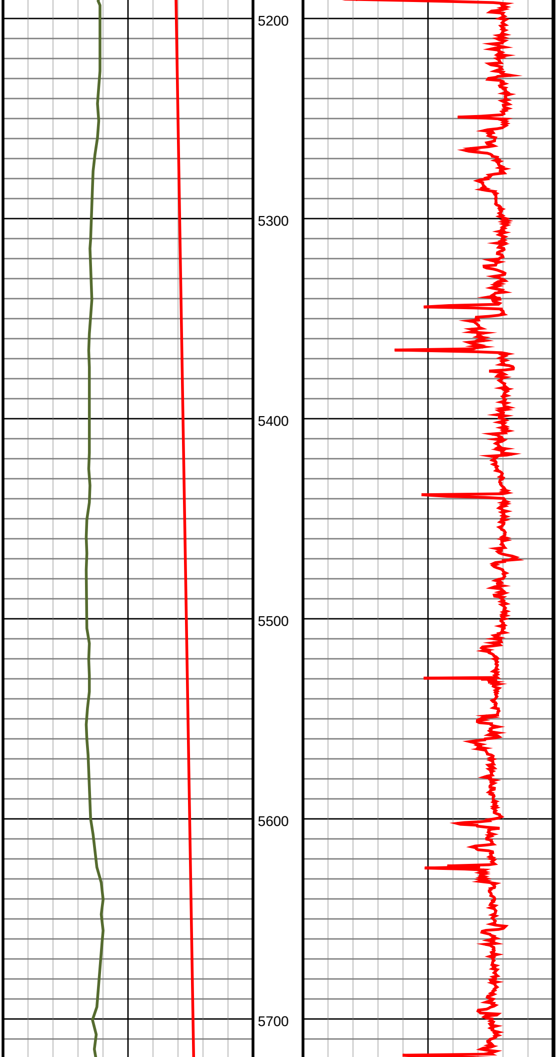
#40 MD(4755.00) Inc(5.1) Azm(132.5) TVD(4728.53)
VS(-279.86) NS(-228.16) EW(289.16)

#41 MD(4849.00) Inc(4.7) Azm(135.1) TVD(4822.18)
VS(-285.43) NS(-233.71) EW(294.96)

#42 MD(4943.00) Inc(4.4) Azm(125.7) TVD(4915.89)
VS(-290.87) NS(-238.53) EW(300.60)

#43 MD(5037.00) Inc(4.2) Azm(106.3) TVD(5009.63)
VS(-296.95) NS(-241.59) EW(306.80)

#44 MD(5131.00) Inc(3.7) Azm(98.9) TVD(5103.41)
VS(-303.16) NS(-243.02) EW(313.08)



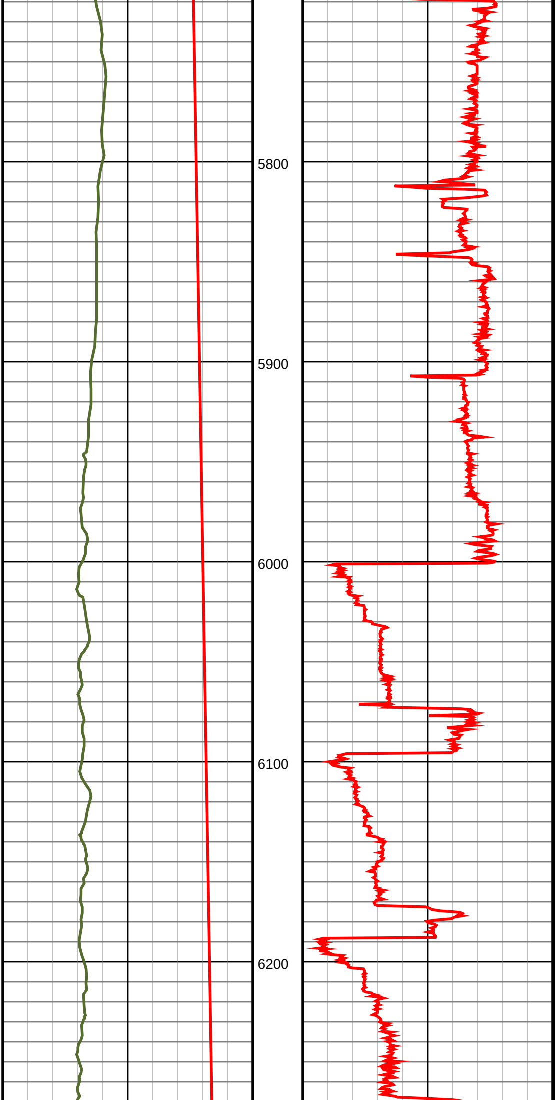
#45 MD(5225.00) Inc(1.6) Azm(100.8) TVD(5197.30)
VS(-307.44) NS(-243.74) EW(317.39)

#46 MD(5413.00) Inc(1.4) Azm(94.9) TVD(5385.24)
VS(-312.26) NS(-244.43) EW(322.24)

#47 MD(5507.00) Inc(0.9) Azm(110.0) TVD(5479.22)
VS(-314.06) NS(-244.78) EW(324.06)

#48 MD(5601.00) Inc(0.6) Azm(110.3) TVD(5573.21)
VS(-315.23) NS(-245.22) EW(325.24)

#49 MD(5695.00) Inc(0.7) Azm(134.0) TVD(5667.20)
VS(-316.12) NS(-245.82) EW(326.16)



#50 MD(5790.00) Inc(0.7) Azm(142.9) TVD(5762.20)
VS(-316.87) NS(-246.71) EW(326.95)

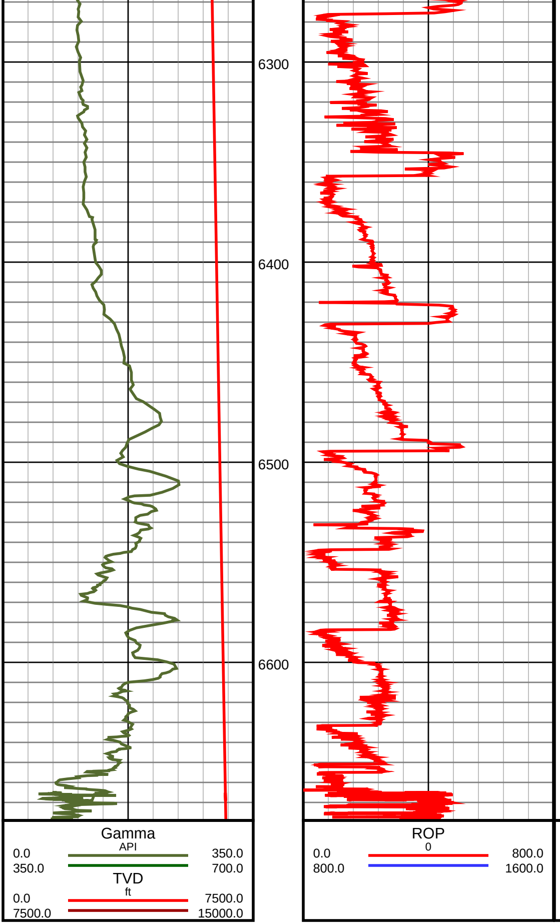
#51 MD(5884.00) Inc(1.1) Azm(175.4) TVD(5856.19)
VS(-317.24) NS(-248.06) EW(327.37)

#52 MD(5979.00) Inc(1.4) Azm(170.3) TVD(5951.16)
VS(-317.43) NS(-250.11) EW(327.64)

#53 MD(6073.00) Inc(5.4) Azm(246.1) TVD(6045.01)
VS(-313.49) NS(-253.03) EW(323.81)

#54 MD(6168.00) Inc(12.3) Azm(259.0) TVD(6138.83)
VS(-299.30) NS(-256.77) EW(309.76)

#55 MD(6262.00) Inc(21.2) Azm(264.1) TVD(6228.73)
VS(-272.32) NS(-260.43) EW(282.91)



#56 MD(6357.00) Inc(30.6) Azm(269.5) TVD(6314.12)
VS(-230.93) NS(-262.42) EW(241.56)

#57 MD(6452.00) Inc(38.2) Azm(267.4) TVD(6392.45)
VS(-177.31) NS(-263.99) EW(187.97)

#58 MD(6546.00) Inc(46.7) Azm(265.6) TVD(6461.72)
VS(-113.91) NS(-267.94) EW(124.67)

#59 MD(6640.00) Inc(59.0) Azm(270.0) TVD(6518.36)
VS(-39.14) NS(-270.56) EW(49.94)

#60 MD(6735.00) Inc(64.7) Azm(274.6) TVD(6563.13)
VS(44.31) NS(-267.12) EW(-33.71)

#61 MD(6830.00) Inc(70.0) Azm(274.9) TVD(6599.67)
VS(131.30) NS(-259.85) EW(-121.06)

#62 MD(6925.00) Inc(71.7) Azm(273.6) TVD(6630.87)
VS(220.44) NS(-253.16) EW(-210.54)

#63 MD(7019.00) Inc(79.1) Azm(271.1) TVD(6654.61)
VS(311.02) NS(-249.41) EW(-301.34)

#71 MD(7686.00) Inc(87.2) Azm(267.6) TVD(6672.67)
VS(975.42) NS(-236.06) EW(-966.80)

#74 MD(7970.00) Inc(90.1) Azm(268.3) TVD(6678.31)
VS(1259.33) NS(-245.14) EW(-1250.57)