ENSIGN
Directional Services

Harold 6X-234

TVD
5":100’

Company: Petroleum Development Corp.
Well Name: Harold 6X-234
API: 051234575100
County/Parish: Weld
State: Colorado
Country: United States
Job number: 161-159
Field: Wattenburg
Rig Id: Ensign 161
Survey Company: Ensign
Operator: Petroleum Development Corp.
Company Man: Brady Sharp / John Falton

Daylight DD: Zach Gentry
Swing Shift DD: Tony Callow
Night DD: Eric Mays
Daylight MWD: Ryan Prue
Night MWD: Chad Anderson

Log measurements: Gamma, ROP
Depth measured from: 1651 ft
Maximum temperature: 190.8

	Depth	Date
Start:	0 ft	1-19-2019
End:	11780 ft	1-22-2019

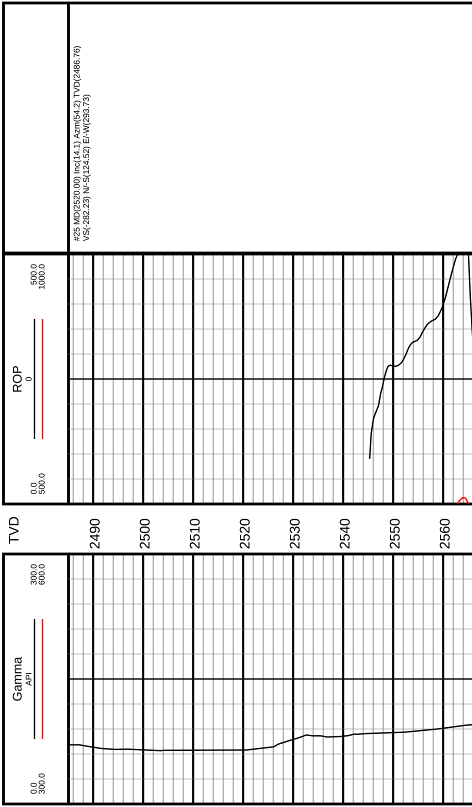
Casing	Depth	Size
Surface:	1651 ft	9 5/8"
Intermediate:		

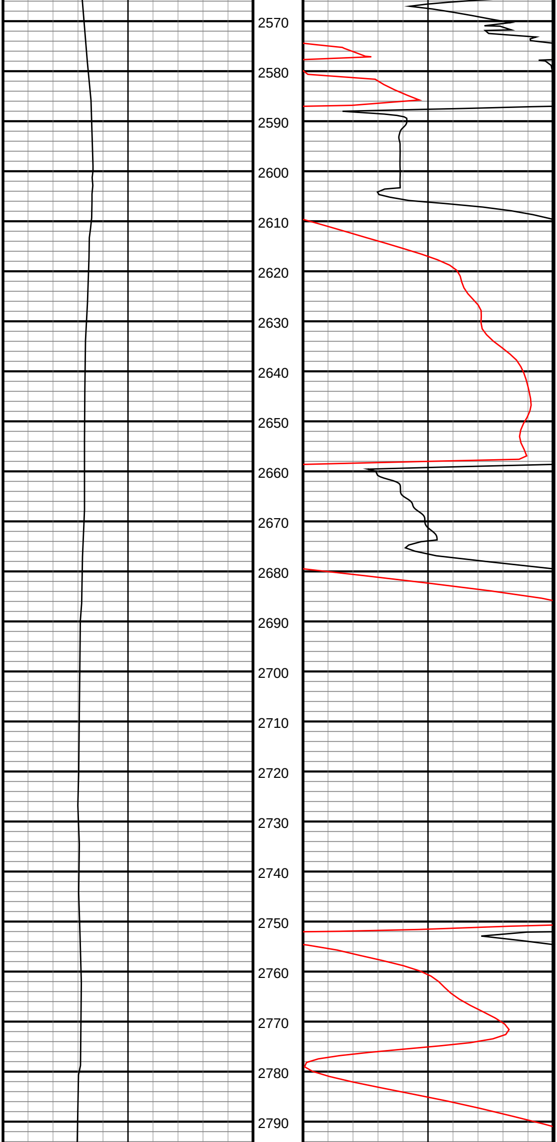
Mud Type: H2O
Density:
Viscosity:
Rm: **Rmf:** **Rmc:**

Elevations
KB: 23 ft
GL: 4787 ft
DF: 4810 ft

		Offsets		Depths		Dates	
Run	**Bit Size**	**Gamma**	**Survey**	**Start**	**End**	**Start**	**End**
1	12.25"		61.57 ft	0 ft	2580 ft	1-19-2019	1-20-2019
2	8.5"	63.04 ft	58.21 ft	2580 ft	5659 ft	1-20-2019	1-21-2019
3	8.5"	62.84 ft	58.01 ft	5659 ft	11780 ft	1-21-2019	1-22-2019
4							
5							
6							
7							
8							
9							
10							

Ensign 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.

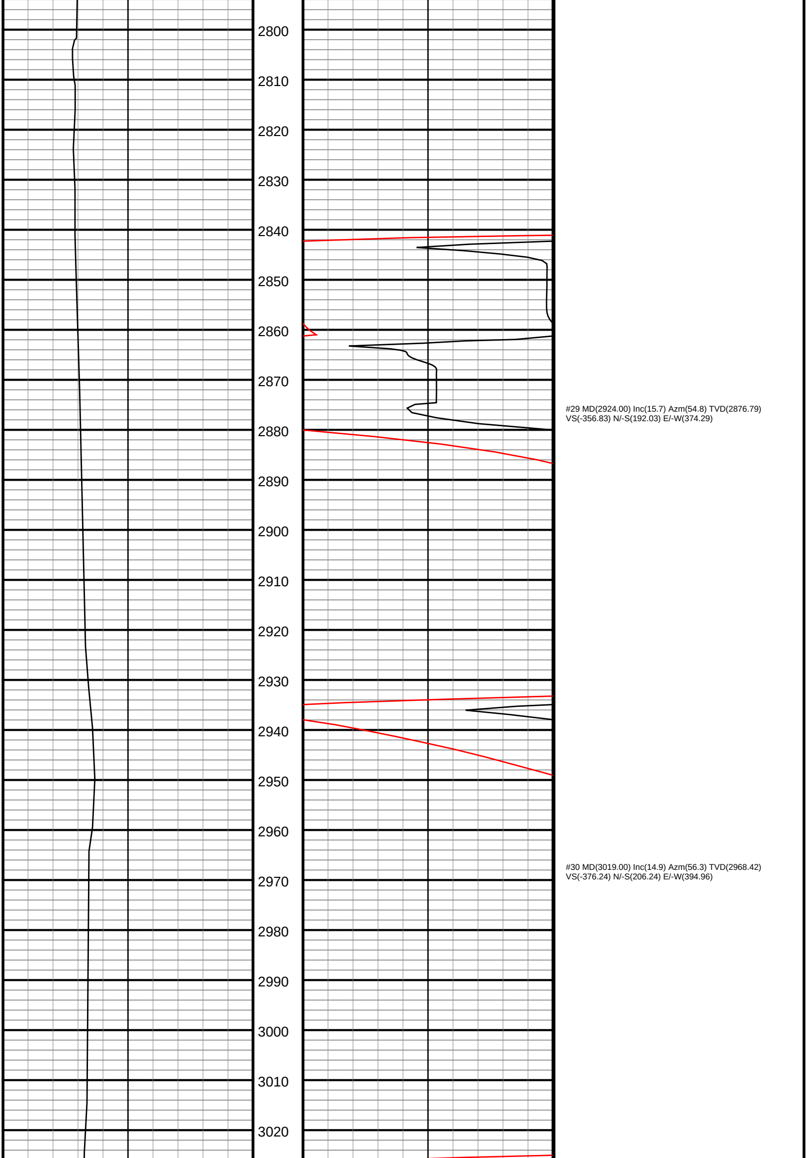




#26 MD(2637.00) Inc(14.2) Azm(44.2) TVD(2600.22)
VS(-302.20) N/-S(143.17) E/-W(315.35)

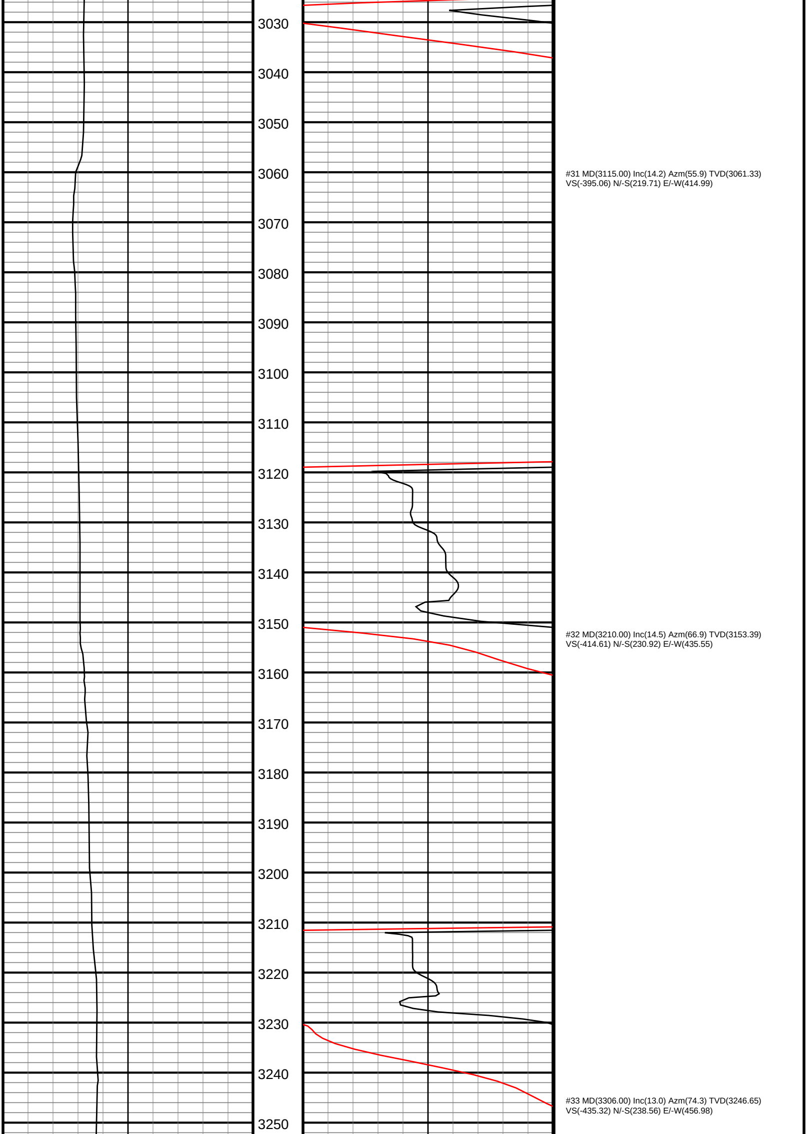
#27 MD(2733.00) Inc(15.8) Azm(50.8) TVD(2692.95)
VS(-319.07) N/-S(159.87) E/-W(333.68)

#28 MD(2828.00) Inc(15.7) Azm(50.5) TVD(2784.39)
VS(-337.55) N/-S(176.23) E/-W(353.61)



#29 MD(2924.00) Inc(15.7) Azm(54.8) TVD(2876.79)
VS(-356.83) N/-S(192.03) E/-W(374.29)

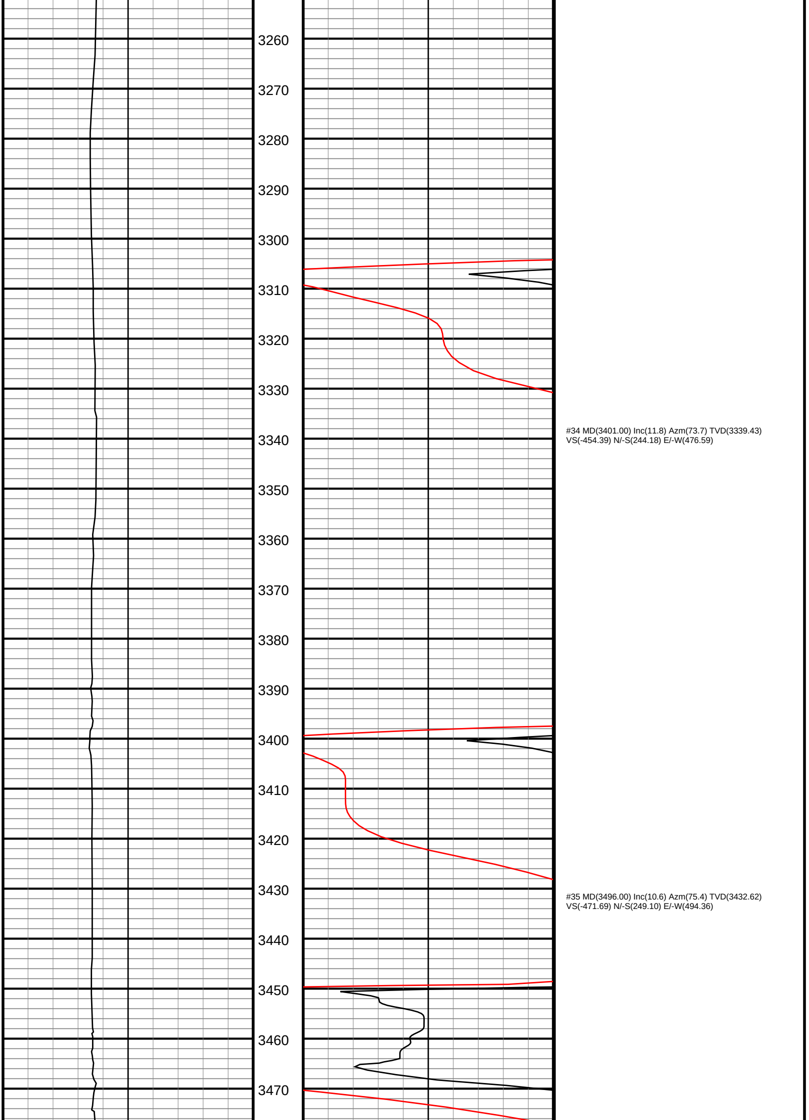
#30 MD(3019.00) Inc(14.9) Azm(56.3) TVD(2968.42)
VS(-376.24) N/-S(206.24) E/-W(394.96)



#31 MD(3115.00) Inc(14.2) Azm(55.9) TVD(3061.33)
VS(-395.06) N/-S(219.71) E/-W(414.99)

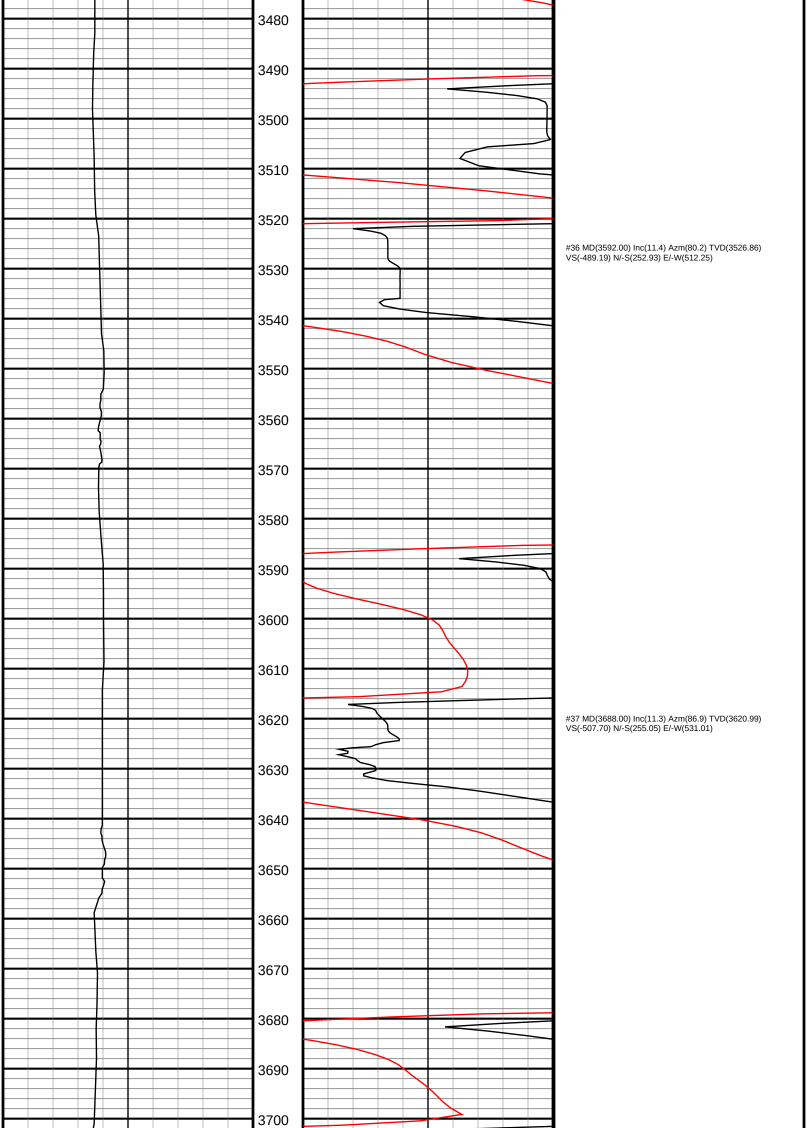
#32 MD(3210.00) Inc(14.5) Azm(66.9) TVD(3153.39)
VS(-414.61) N/-S(230.92) E/-W(435.55)

#33 MD(3306.00) Inc(13.0) Azm(74.3) TVD(3246.65)
VS(-435.32) N/-S(238.56) E/-W(456.98)



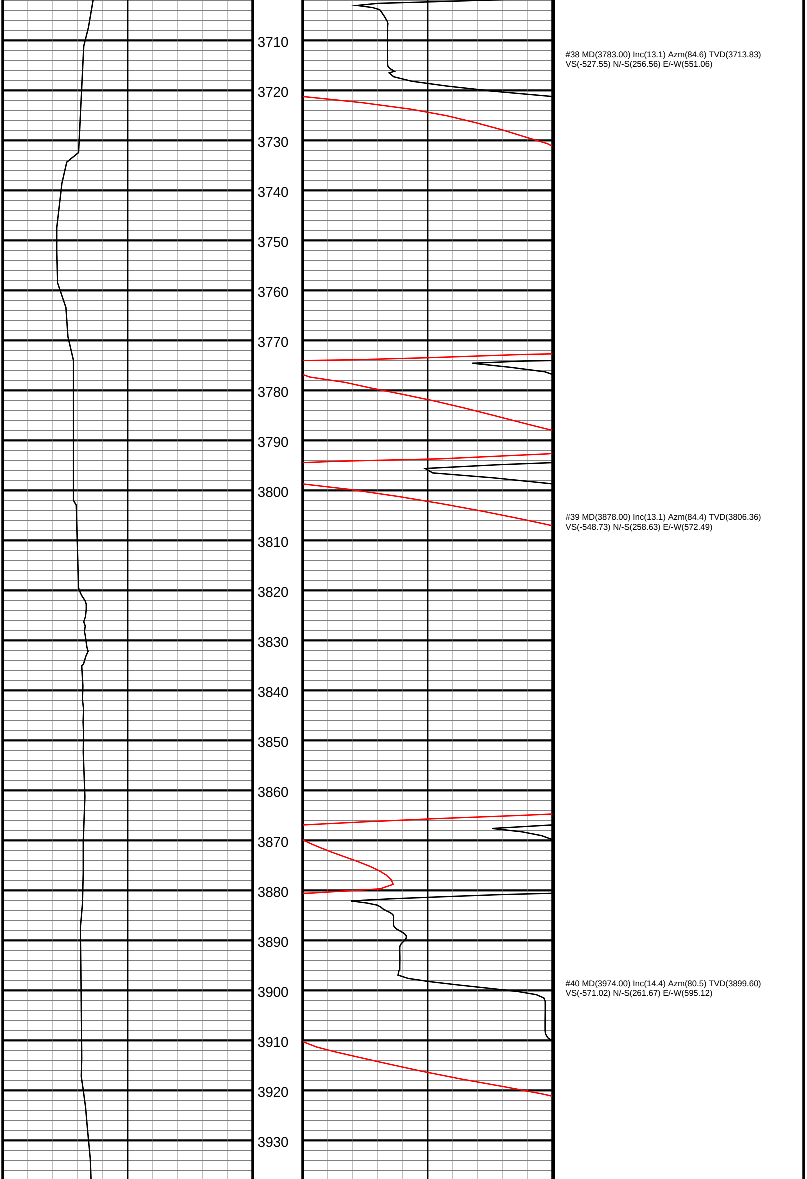
#34 MD(3401.00) Inc(11.8) Azm(73.7) TVD(3339.43)
VS(-454.39) N/-S(244.18) E/-W(476.59)

#35 MD(3496.00) Inc(10.6) Azm(75.4) TVD(3432.62)
VS(-471.69) N/-S(249.10) E/-W(494.36)



#36 MD(3592.00) Inc(11.4) Azm(80.2) TVD(3526.86)
VS(-489.19) N/-S(252.93) E/-W(512.25)

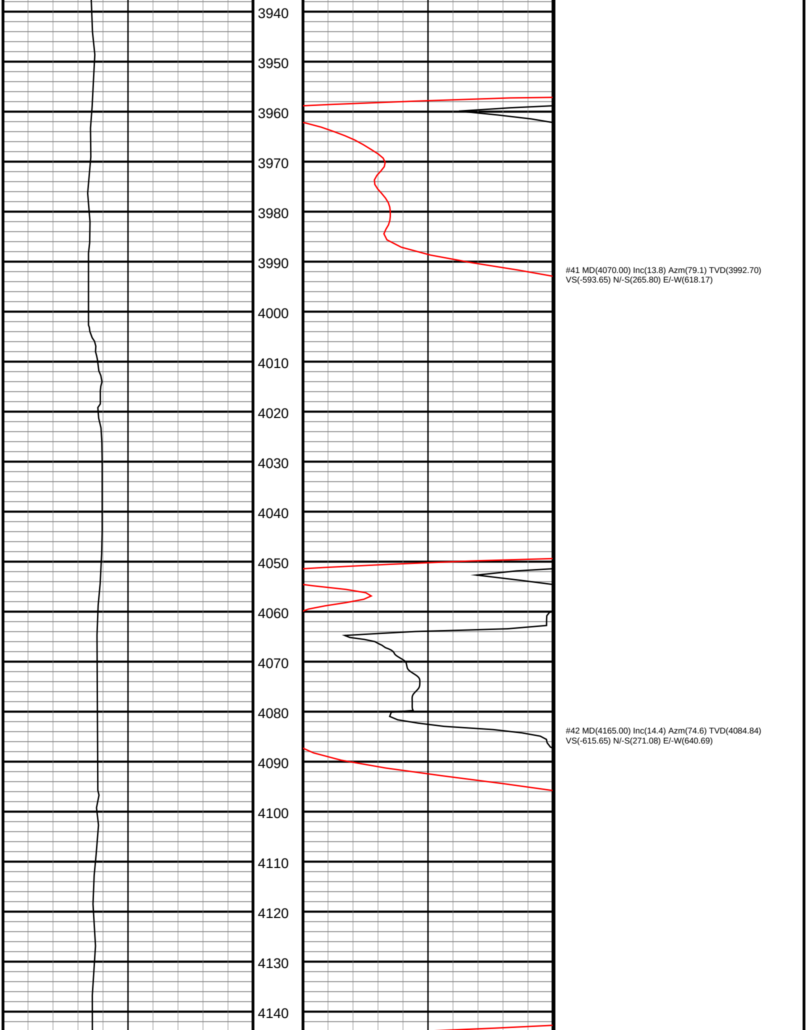
#37 MD(3688.00) Inc(11.3) Azm(86.9) TVD(3620.99)
VS(-507.70) N/-S(255.05) E/-W(531.01)



#38 MD(3783.00) Inc(13.1) Azm(84.6) TVD(3713.83)
VS(-527.55) N/-S(256.56) E/-W(551.06)

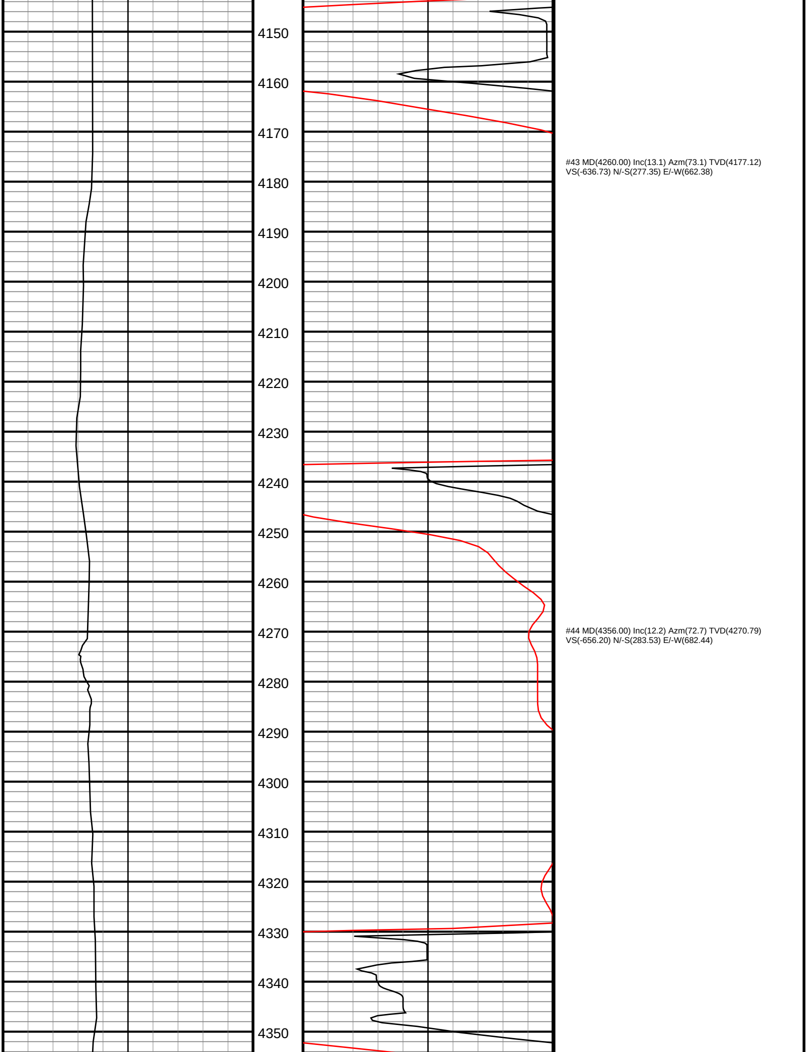
#39 MD(3878.00) Inc(13.1) Azm(84.4) TVD(3806.36)
VS(-548.73) N/-S(258.63) E/-W(572.49)

#40 MD(3974.00) Inc(14.4) Azm(80.5) TVD(3899.60)
VS(-571.02) N/-S(261.67) E/-W(595.12)



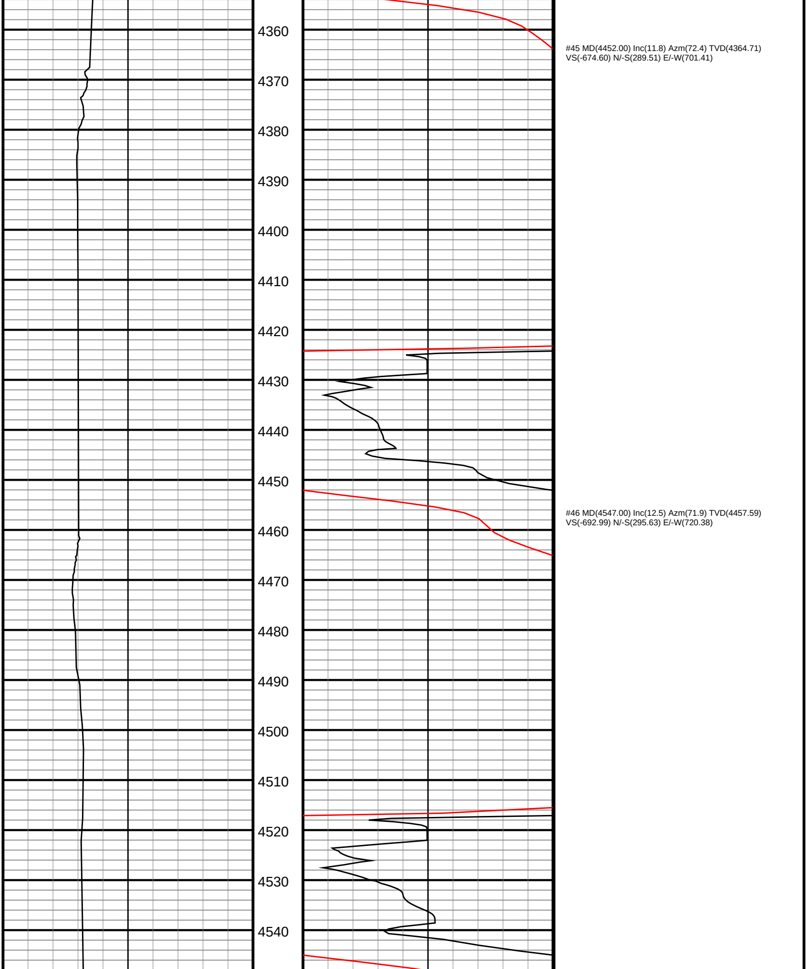
#41 MD(4070.00) Inc(13.8) Azm(79.1) TVD(3992.70)
VS(-593.65) N/-S(265.80) E/-W(618.17)

#42 MD(4165.00) Inc(14.4) Azm(74.6) TVD(4084.84)
VS(-615.65) N/-S(271.08) E/-W(640.69)



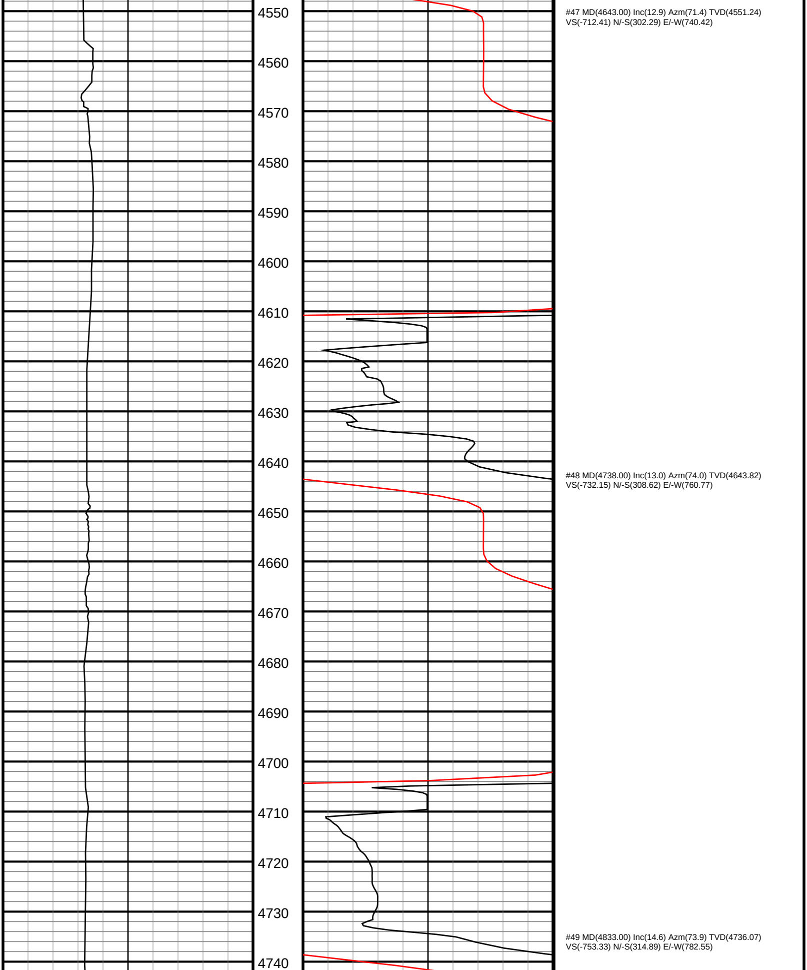
#43 MD(4260.00) Inc(13.1) Azm(73.1) TVD(4177.12)
VS(-636.73) N/-S(277.35) E/-W(662.38)

#44 MD(4356.00) Inc(12.2) Azm(72.7) TVD(4270.79)
VS(-656.20) N/-S(283.53) E/-W(682.44)



#45 MD(4452.00) Inc(11.8) Azm(72.4) TVD(4364.71)
VS(-674.60) N/-S(289.51) E/-W(701.41)

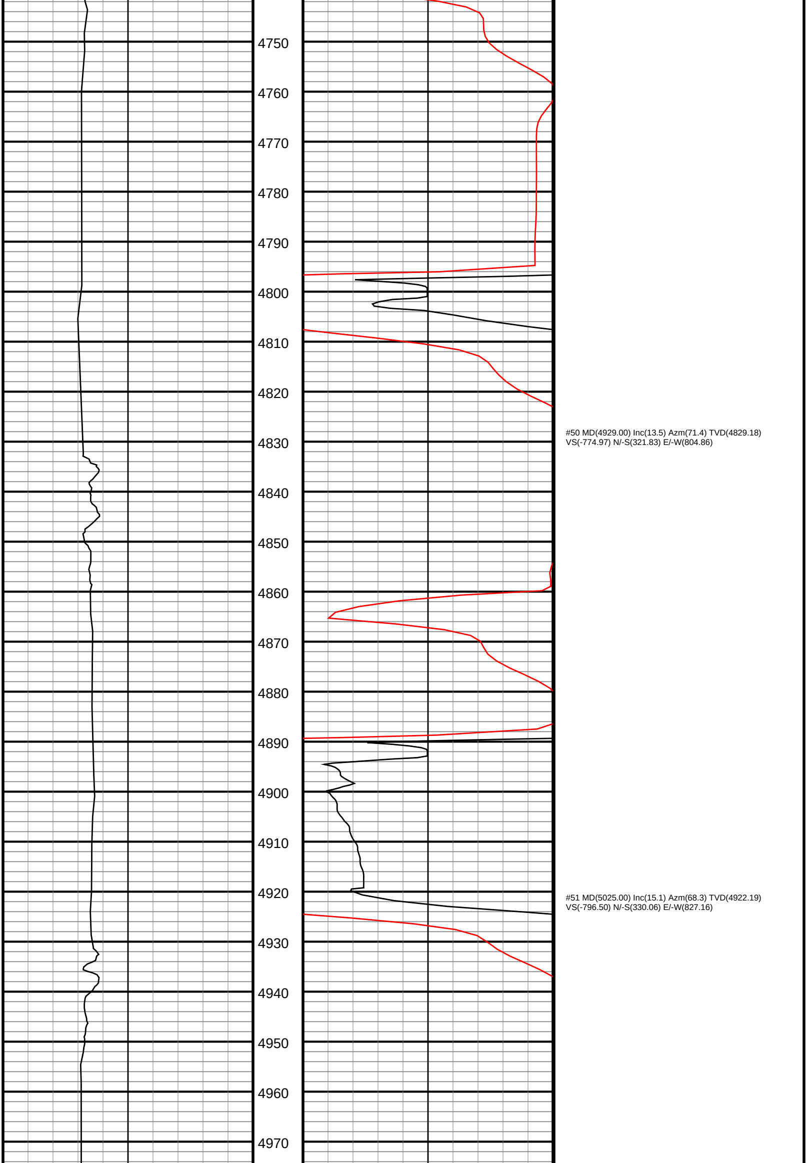
#46 MD(4547.00) Inc(12.5) Azm(71.9) TVD(4457.59)
VS(-692.99) N/-S(295.63) E/-W(720.38)



#47 MD(4643.00) Inc(12.9) Azm(71.4) TVD(4551.24)
VS(-712.41) N/-S(302.29) E/-W(740.42)

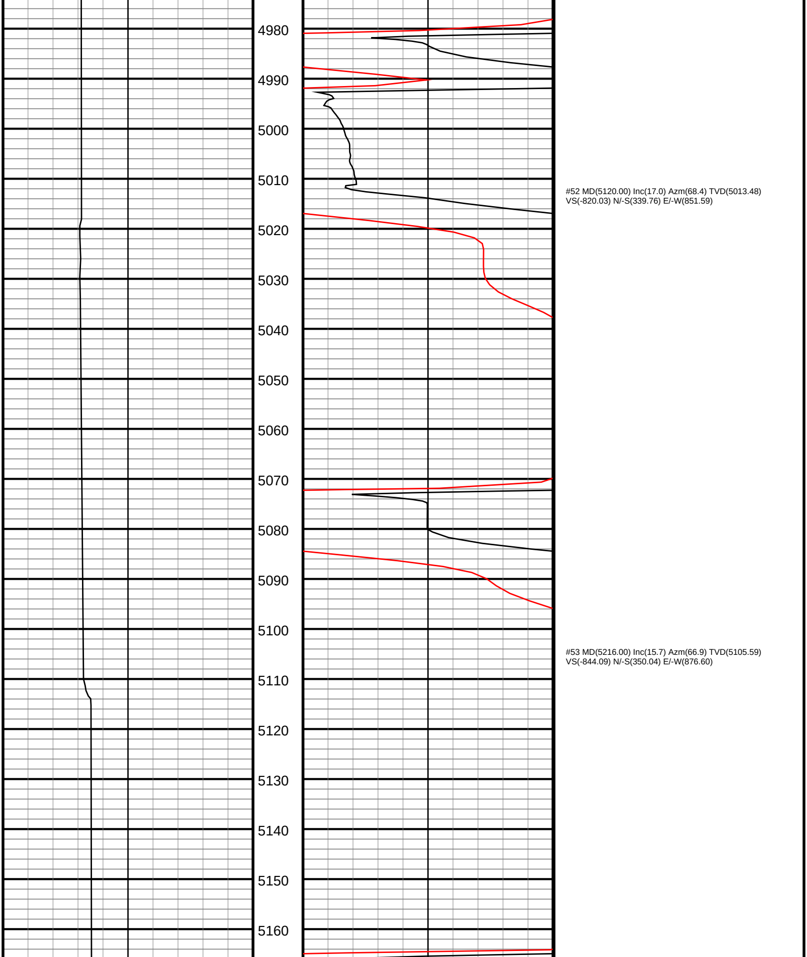
#48 MD(4738.00) Inc(13.0) Azm(74.0) TVD(4643.82)
VS(-732.15) N/-S(308.62) E/-W(760.77)

#49 MD(4833.00) Inc(14.6) Azm(73.9) TVD(4736.07)
VS(-753.33) N/-S(314.89) E/-W(782.55)



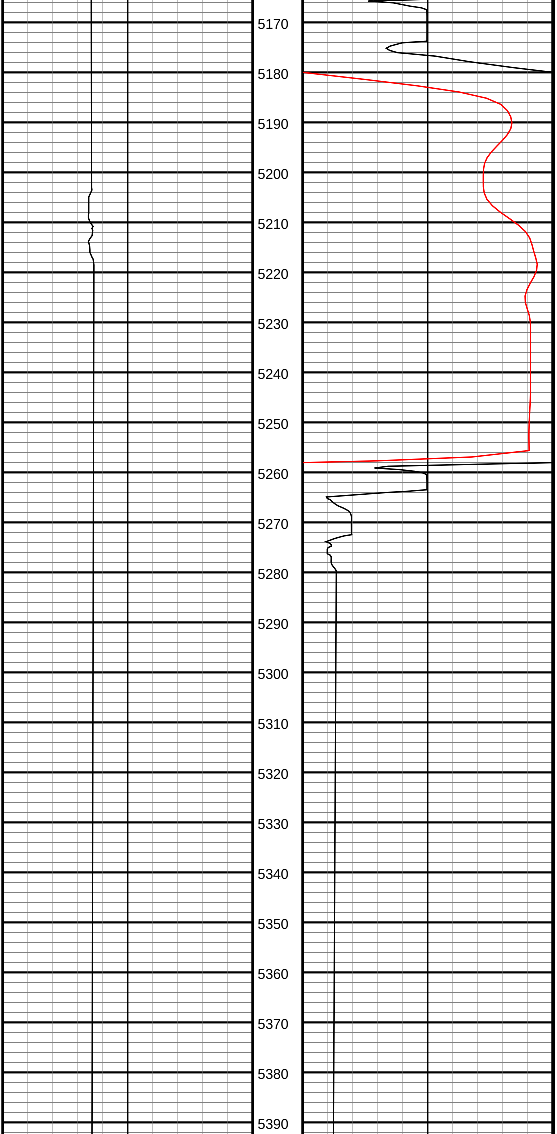
#50 MD(4929.00) Inc(13.5) Azm(71.4) TVD(4829.18)
VS(-774.97) N/-S(321.83) E/-W(804.86)

#51 MD(5025.00) Inc(15.1) Azm(68.3) TVD(4922.19)
VS(-796.50) N/-S(330.06) E/-W(827.16)



#52 MD(5120.00) Inc(17.0) Azm(68.4) TVD(5013.48)
VS(-820.03) N/-S(339.76) E/-W(851.59)

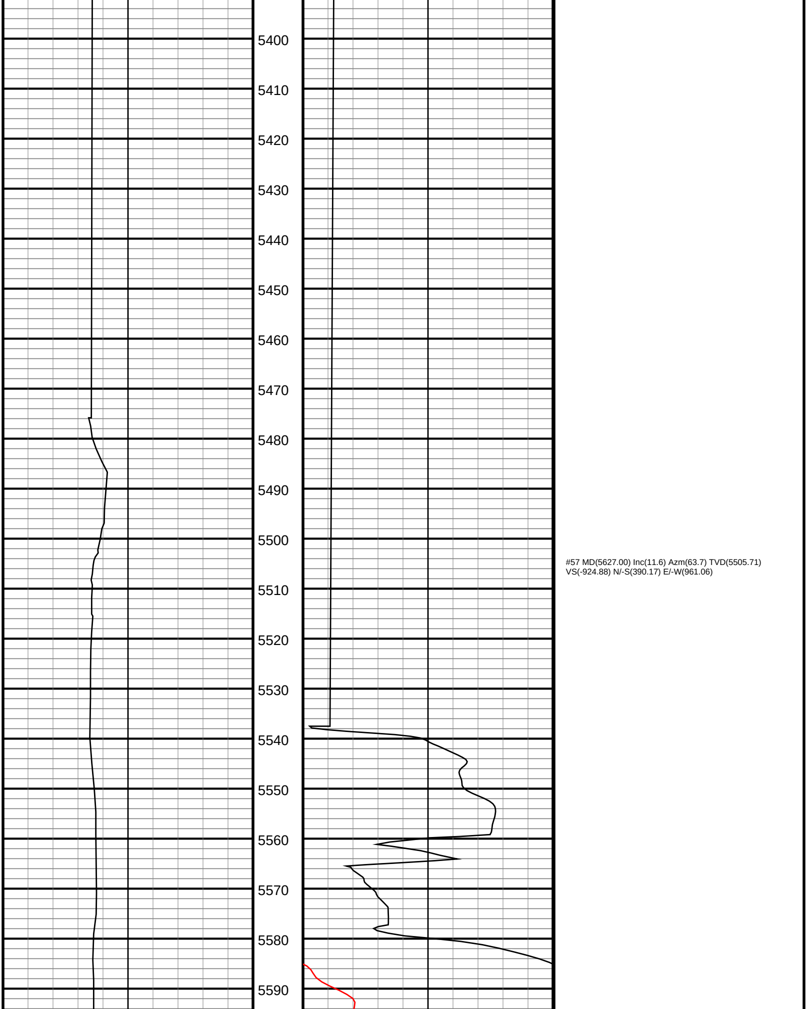
#53 MD(5216.00) Inc(15.7) Azm(66.9) TVD(5105.59)
VS(-844.09) N/-S(350.04) E/-W(876.60)



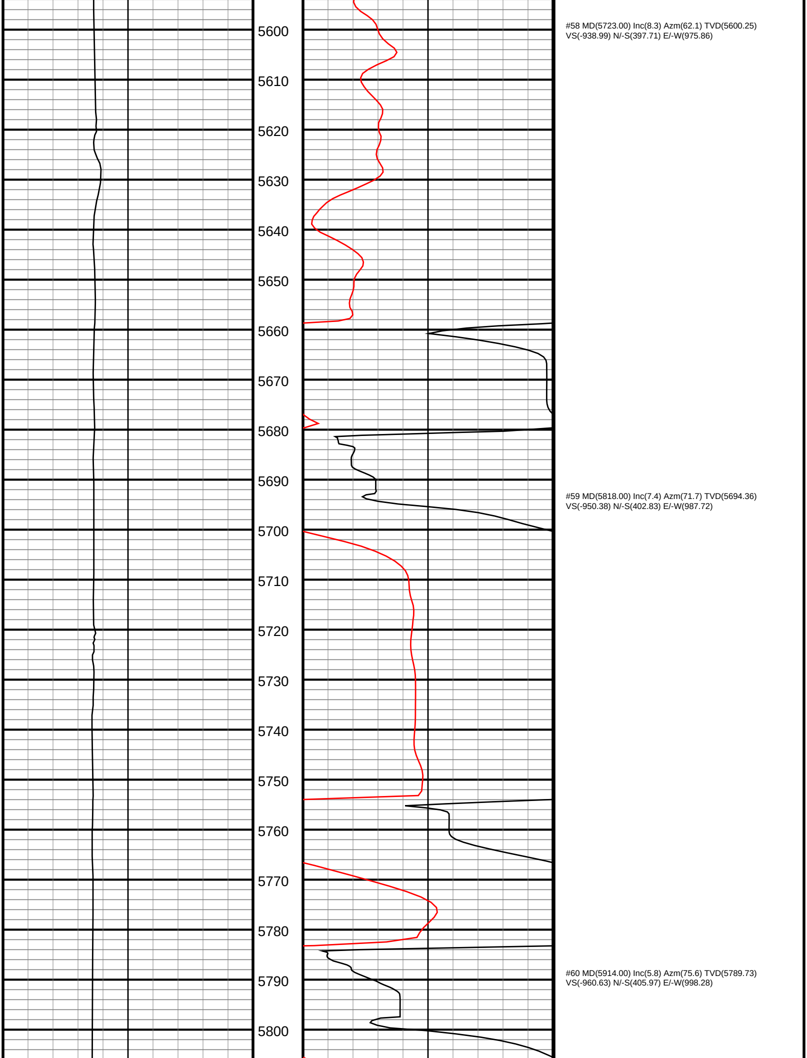
#54 MD(5312.00) Inc(13.8) Azm(66.3) TVD(5198.41)
VS(-865.66) N/-S(359.77) E/-W(899.07)

#55 MD(5407.00) Inc(13.6) Azm(64.5) TVD(5290.70)
VS(-885.27) N/-S(369.13) E/-W(919.54)

#56 MD(5502.00) Inc(12.0) Azm(62.1) TVD(5383.35)
VS(-903.20) N/-S(378.53) E/-W(938.33)



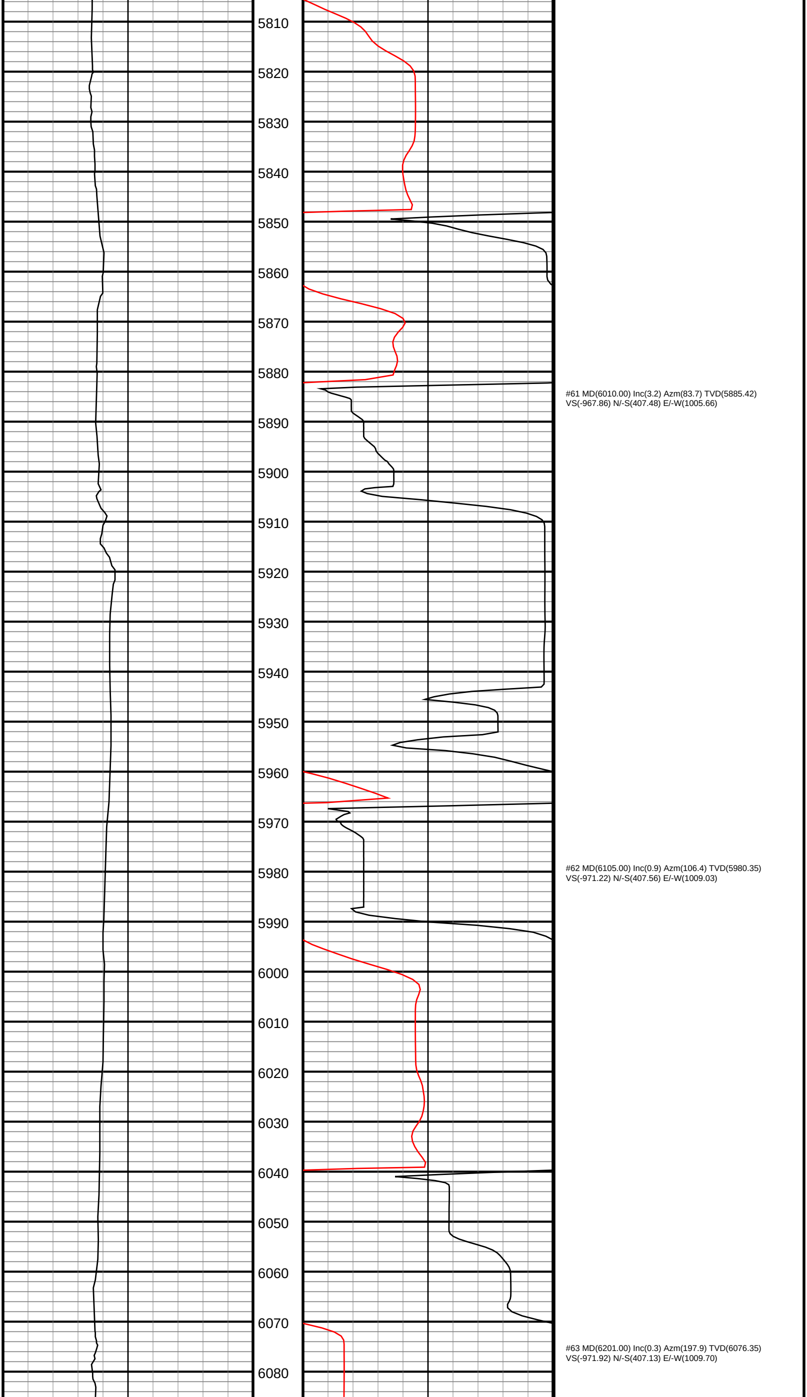
#57 MD(5627.00) Inc(11.6) Azm(63.7) TVD(5505.71)
VS(-924.88) N/-S(390.17) E/-W(961.06)



#58 MD(5723.00) Inc(8.3) Azm(62.1) TVD(5600.25)
VS(-938.99) N/-S(397.71) E/-W(975.86)

#59 MD(5818.00) Inc(7.4) Azm(71.7) TVD(5694.36)
VS(-950.38) N/-S(402.83) E/-W(987.72)

#60 MD(5914.00) Inc(5.8) Azm(75.6) TVD(5789.73)
VS(-960.63) N/-S(405.97) E/-W(998.28)



#61 MD(6010.00) Inc(3.2) Azm(83.7) TVD(5885.42)
VS(-967.86) N/-S(407.48) E/-W(1005.66)

#62 MD(6105.00) Inc(0.9) Azm(106.4) TVD(5980.35)
VS(-971.22) N/-S(407.56) E/-W(1009.03)

#63 MD(6201.00) Inc(0.3) Azm(197.9) TVD(6076.35)
VS(-971.92) N/-S(407.13) E/-W(1009.70)

#64 MD(6296.00) Inc(6.1) Azm(276.5) TVD(6171.17)
VS(-966.80) N/-S(407.49) E/-W(1004.60)

#65 MD(6392.00) Inc(14.1) Azm(280.4) TVD(6265.59)
VS(-949.99) N/-S(410.17) E/-W(987.95)

#66 MD(6488.00) Inc(18.9) Azm(266.6) TVD(6357.63)
VS(-922.88) N/-S(411.35) E/-W(960.84)

#67 MD(6583.00) Inc(24.7) Azm(268.4) TVD(6445.80)
VS(-887.88) N/-S(409.87) E/-W(925.60)

#68 MD(6679.00) Inc(30.4) Azm(271.6) TVD(6530.90)
VS(-843.69) N/-S(409.99) E/-W(881.26)

#69 MD(6775.00) Inc(39.9) Azm(271.8) TVD(6609.29)
VS(-788.56) N/-S(411.62) E/-W(826.07)

#70 MD(6871.00) Inc(51.0) Azm(270.8) TVD(6676.53)
VS(-720.38) N/-S(413.11) E/-W(757.77)

#71 MD(6967.00) Inc(59.3) Azm(264.9) TVD(6731.39)
VS(-642.34) N/-S(410.01) E/-W(679.19)

#72 MD(7062.00) Inc(67.0) Azm(267.6) TVD(6774.28)
VS(-558.59) N/-S(404.54) E/-W(594.69)

#73 MD(7158.00) Inc(71.3) Azm(268.8) TVD(6808.49)
VS(-469.52) N/-S(401.71) E/-W(505.06)

#74 MD(7254.00) Inc(76.9) Azm(268.4) TVD(6834.83)
VS(-377.78) N/-S(399.48) E/-W(412.81)

#117 MD(11361.00) Inc(87.8) Azm(269.2) TVD(6843.32)
VS(3707.32) N/-S(344.20) E/-W(-3691.46)

#121 MD(11720.00) Inc(90.8) Azm(267.6) TVD(6848.64)
VS(4063.86) N/-S(333.16) E/-W(-4050.19)