



WELLS RANCH STATE AA21-66-1HN 1":100' MD

Company: NOBLE ENERGY
Well Name: WELLS RANCH STATE AA21-66-1HN
API: 05-123-37712
Rig Id: H&P 277
State: CO
County/Parish: WELD COUNTY
Country: USA
Survey Company: DRILTECH, LLC
Job number: 2014-001-IDDT-CO
MARK LARUE MWD OPERATOR
JEREMY HOWE MWD OPERATOR

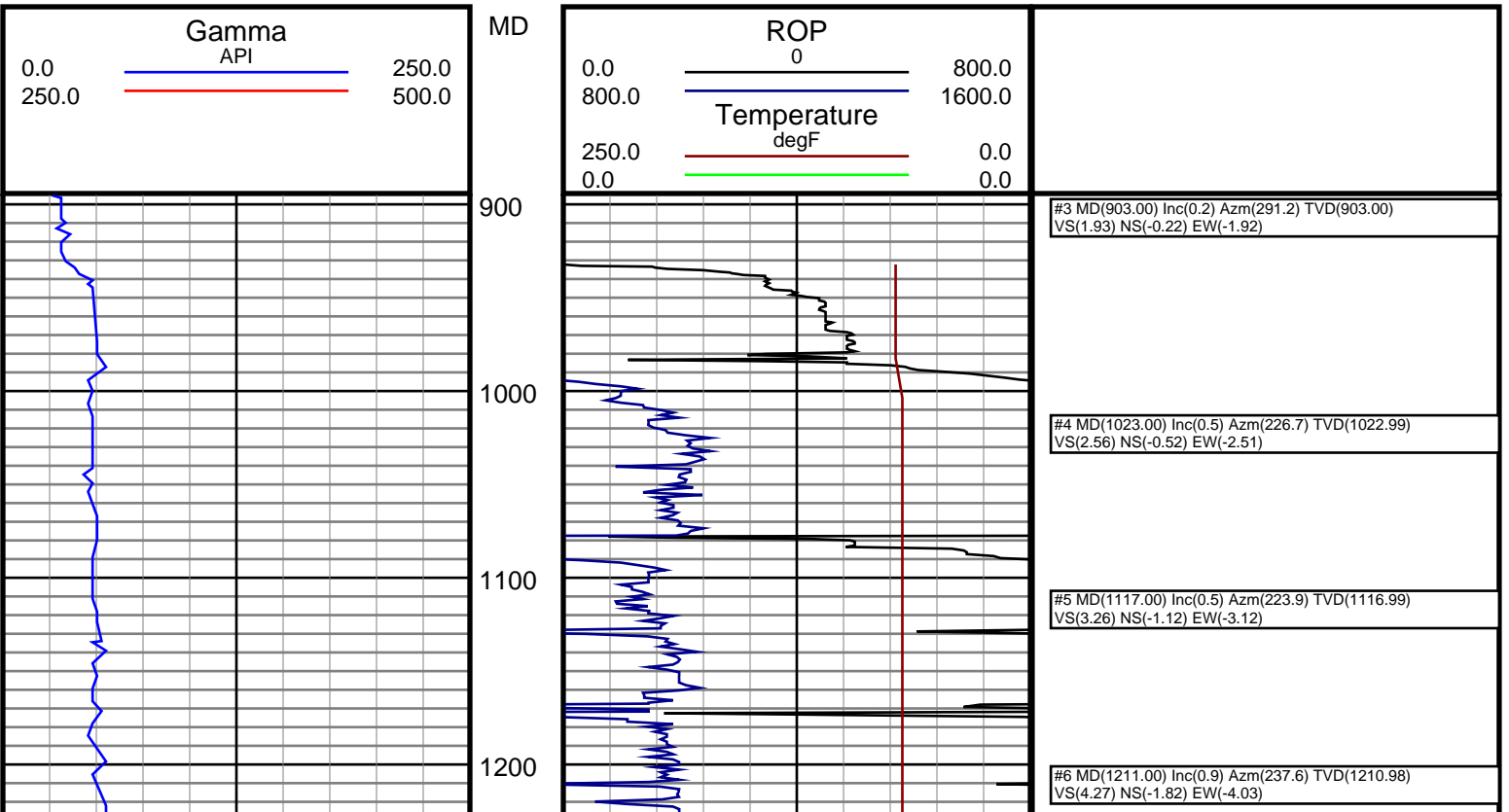
Log measurements:
Depth measured from:
Maximum temperature: 220.3

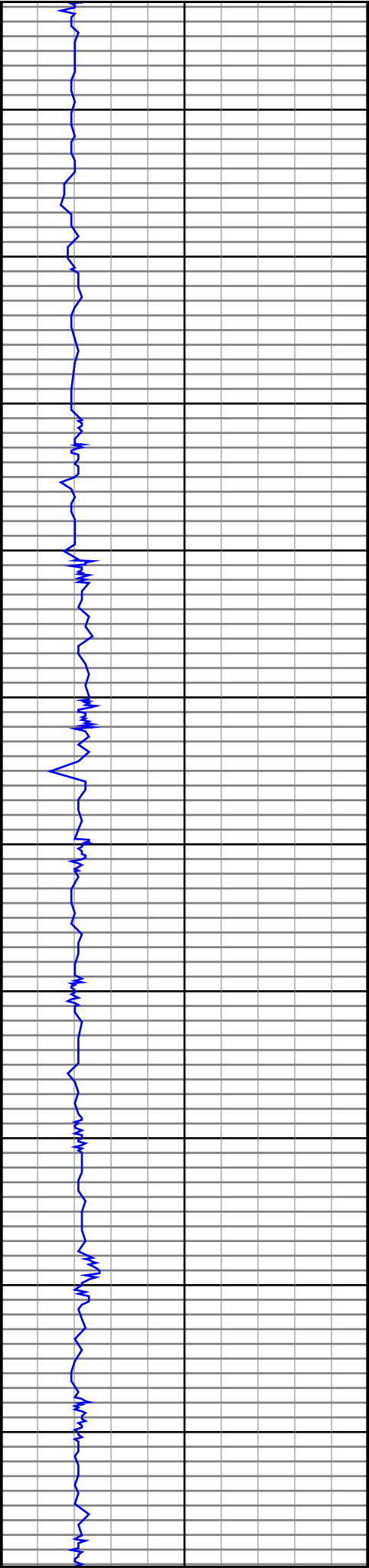
Depth Date
Start: 1000 ft 1/4/14
End: 11003 ft 1/9/14

Casing Depth Size
Surface: 924 9.625
Intermediate: 7143 7.0
Mud Type: WATER BASE
Density: 9.15
Viscosity: 32
Rm: Rmf: Rmc:
Elevations
KB: 4727
DF: 4751

Run	Bit Size	Gamma	Offsets	Start	End	Start	End
1	8 3/4	37.00	52.00	932	6064	1/4/2014	1/5/2014
2	8 3/4	45.00	60.00	6064	6725	1/5/2014	1/6/2014
3	6 1/8	47.00	64.00	6725	11003	1/7/2014	1/9/2014
4							
5							
6							
7							
8							
9							
10							

DRILTECH, LLC 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.





1300

1400

1500

1600

1700

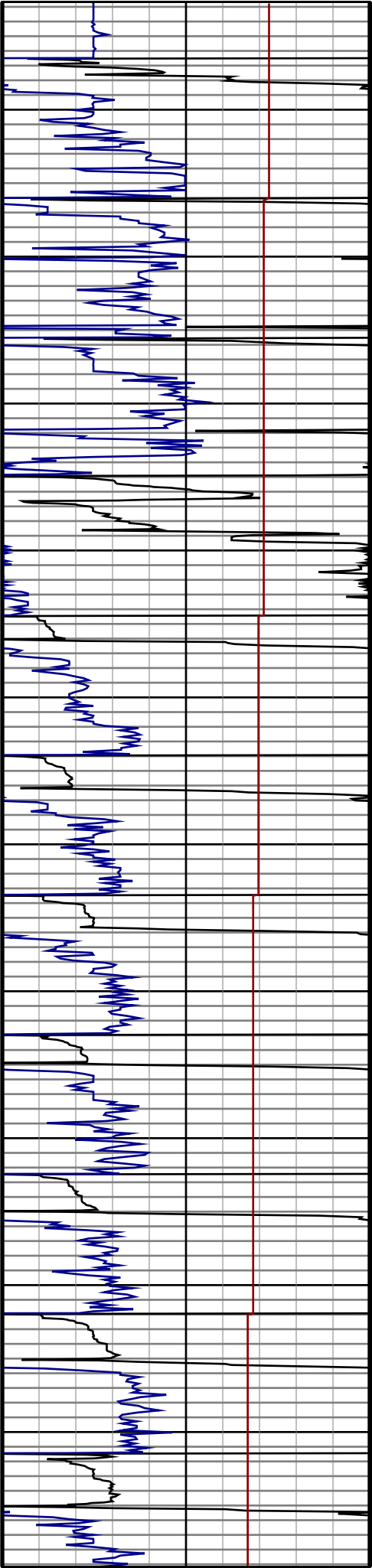
1800

1900

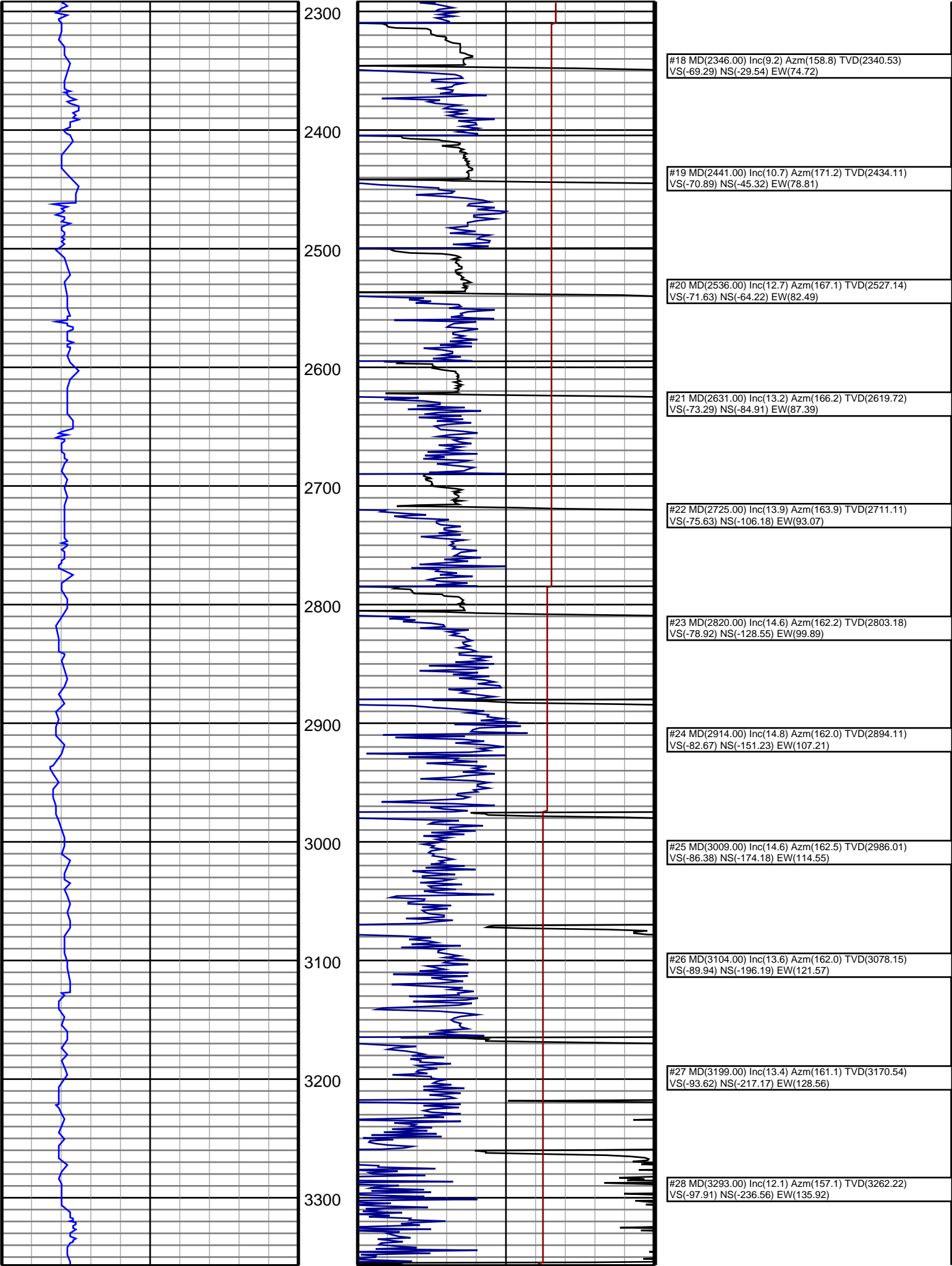
2000

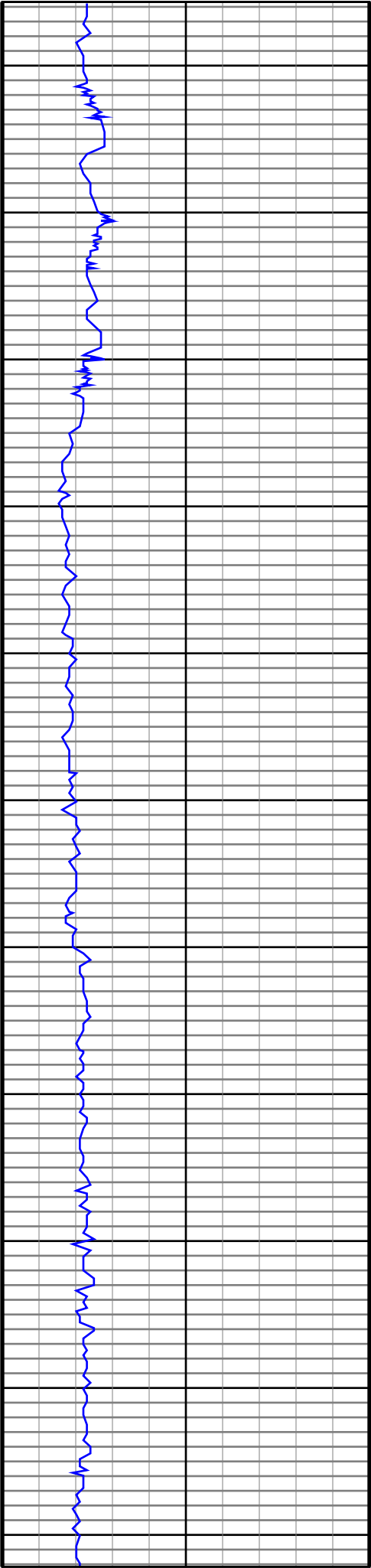
2100

2200



#7 MD(1306.00) Inc(0.9) Azm(119.5) TVD(1305.98) VS(4.36) NS(-2.57) EW(-4.01)
#8 MD(1401.00) Inc(0.7) Azm(131.2) TVD(1400.97) VS(3.42) NS(-3.32) EW(-2.94)
#9 MD(1495.00) Inc(0.7) Azm(130.7) TVD(1494.96) VS(2.68) NS(-4.07) EW(-2.08)
#10 MD(1589.00) Inc(3.2) Azm(78.5) TVD(1588.90) VS(-0.29) NS(-3.93) EW(0.91)
#11 MD(1684.00) Inc(4.4) Azm(76.4) TVD(1683.70) VS(-6.55) NS(-2.55) EW(7.02)
#12 MD(1778.00) Inc(6.0) Azm(80.3) TVD(1777.31) VS(-15.04) NS(-0.87) EW(15.36)
#13 MD(1873.00) Inc(7.4) Azm(85.2) TVD(1871.66) VS(-26.08) NS(0.47) EW(26.32)
#14 MD(1968.00) Inc(7.0) Azm(94.0) TVD(1965.91) VS(-37.85) NS(0.58) EW(38.22)
#15 MD(2063.00) Inc(7.2) Azm(110.9) TVD(2060.19) VS(-48.71) NS(-1.95) EW(49.60)
#16 MD(2157.00) Inc(7.4) Azm(127.2) TVD(2153.44) VS(-58.03) NS(-7.71) EW(59.93)
#17 MD(2252.00) Inc(8.1) Azm(147.1) TVD(2247.59) VS(-65.00) NS(-17.01) EW(68.43)





3400

3500

3600

3700

3800

3900

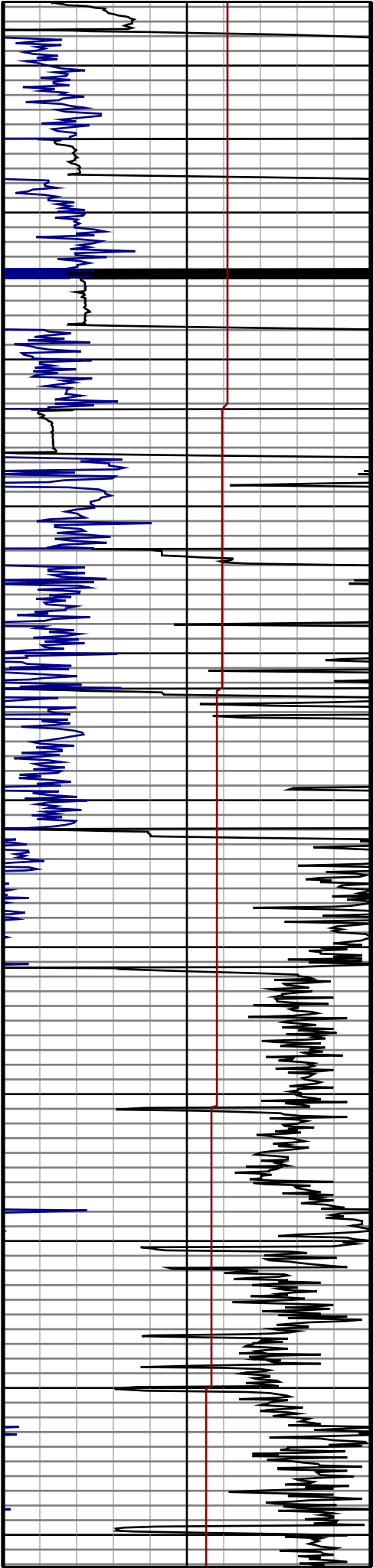
4000

4100

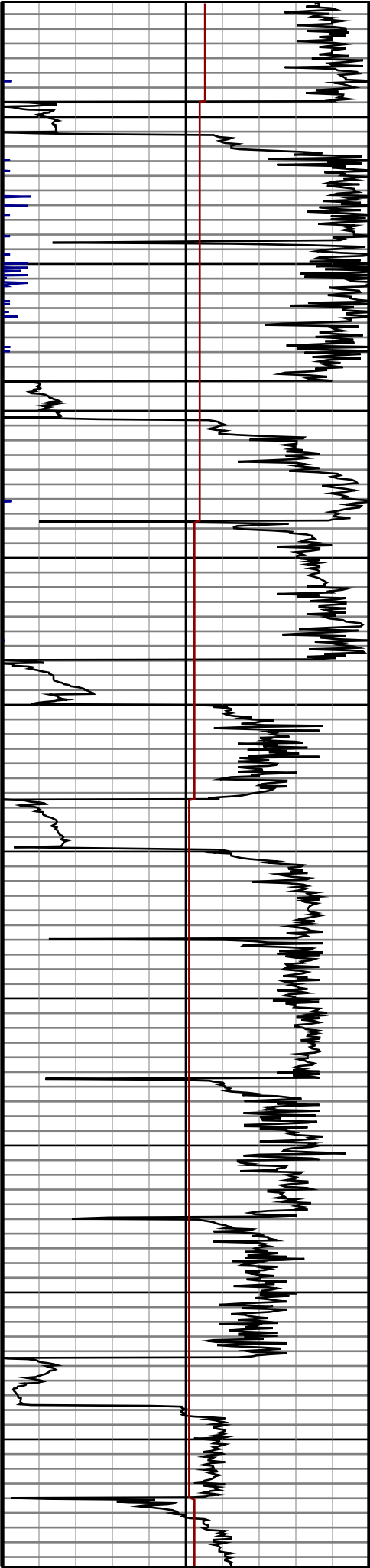
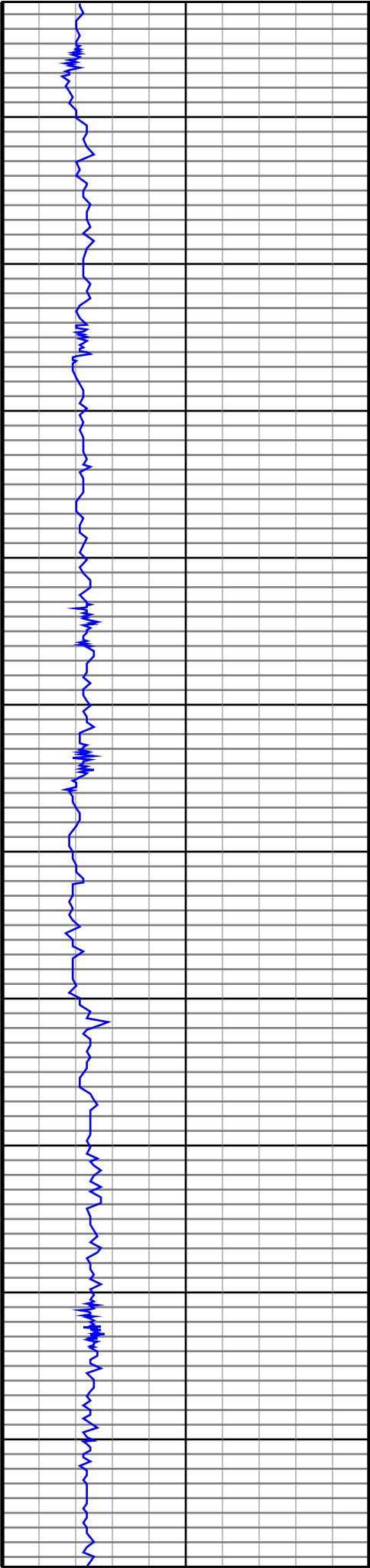
4200

4300

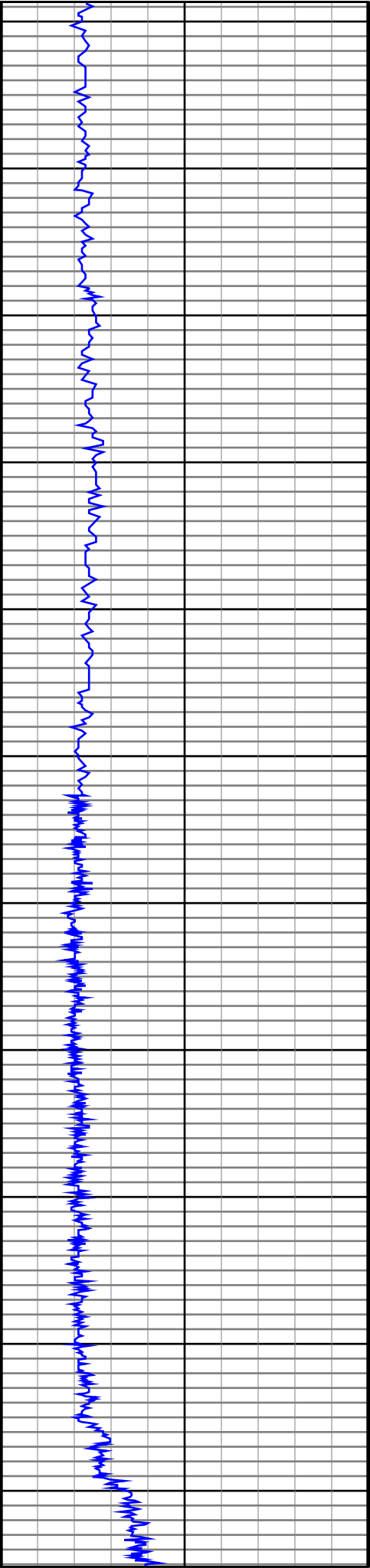
4400



#29 MD(3388.00) Inc(11.1) Azm(161.8) TVD(3355.28) VS(-101.81) NS(-254.44) EW(142.66)
#30 MD(3483.00) Inc(10.9) Azm(160.8) TVD(3448.53) VS(-104.91) NS(-271.61) EW(148.46)
#31 MD(3578.00) Inc(11.3) Azm(161.8) TVD(3541.76) VS(-108.02) NS(-288.92) EW(154.31)
#32 MD(3673.00) Inc(13.2) Azm(161.3) TVD(3634.60) VS(-111.38) NS(-308.01) EW(160.68)
#33 MD(3767.00) Inc(13.9) Azm(161.5) TVD(3725.98) VS(-115.11) NS(-328.88) EW(167.70)
#34 MD(3862.00) Inc(14.6) Azm(162.2) TVD(3818.06) VS(-118.89) NS(-351.10) EW(174.99)
#35 MD(3957.00) Inc(15.3) Azm(162.5) TVD(3909.84) VS(-122.63) NS(-374.46) EW(182.41)
#36 MD(4052.00) Inc(14.8) Azm(161.8) TVD(4001.59) VS(-126.47) NS(-397.94) EW(189.95)
#37 MD(4146.00) Inc(14.3) Azm(161.7) TVD(4092.59) VS(-130.31) NS(-420.32) EW(197.33)
#38 MD(4241.00) Inc(13.0) Azm(161.3) TVD(4184.91) VS(-134.07) NS(-441.55) EW(204.44)
#39 MD(4336.00) Inc(11.6) Azm(159.0) TVD(4277.72) VS(-137.91) NS(-460.62) EW(211.29)



#40 MD(4431.00) Inc(10.6) Azm(159.6) TVD(4370.95) VS(-141.66) NS(-477.70) EW(217.75)
#41 MD(4525.00) Inc(10.4) Azm(165.5) TVD(4463.38) VS(-144.23) NS(-493.97) EW(222.88)
#42 MD(4620.00) Inc(8.1) Azm(165.0) TVD(4557.15) VS(-145.78) NS(-508.72) EW(226.74)
#43 MD(4715.00) Inc(8.6) Azm(176.1) TVD(4651.14) VS(-145.88) NS(-522.28) EW(228.96)
#44 MD(4809.00) Inc(7.0) Azm(177.8) TVD(4744.26) VS(-144.61) NS(-535.06) EW(229.66)
#45 MD(4904.00) Inc(7.9) Azm(176.8) TVD(4838.45) VS(-143.29) NS(-547.42) EW(230.25)
#46 MD(4999.00) Inc(7.7) Azm(162.0) TVD(4932.58) VS(-143.66) NS(-560.04) EW(232.59)
#47 MD(5094.00) Inc(6.3) Azm(161.3) TVD(5026.86) VS(-145.57) NS(-571.08) EW(236.24)
#48 MD(5189.00) Inc(5.1) Azm(159.4) TVD(5121.39) VS(-147.33) NS(-580.00) EW(239.41)
#49 MD(5283.00) Inc(4.0) Azm(151.5) TVD(5215.09) VS(-149.30) NS(-586.82) EW(242.47)
#50 MD(5378.00) Inc(4.8) Azm(153.9) TVD(5309.81) VS(-151.59) NS(-593.30) EW(245.80)
#51 MD(5473.00) Inc(3.9) Azm(151.3) TVD(5404.54) VS(-153.84) NS(-599.65) EW(249.06)



5500

5600

5700

5800

5900

6000

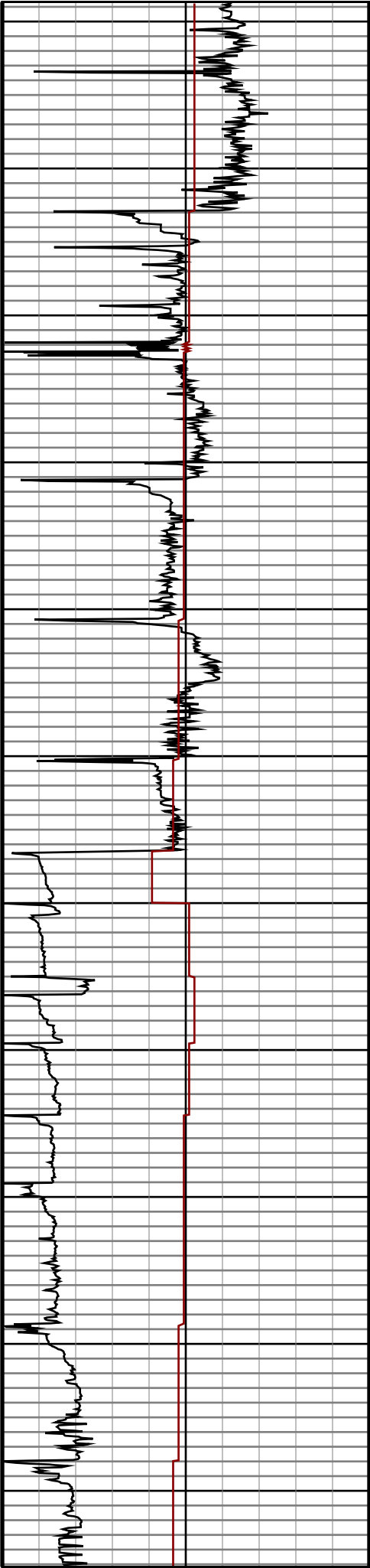
6100

6200

6300

6400

6500



#52 MD(5568.00) Inc(3.3) Azm(152.3) TVD(5499.35)
VS(-155.83) NS(-604.91) EW(251.89)

#53 MD(5662.00) Inc(3.0) Azm(149.9) TVD(5593.21)
VS(-157.60) NS(-609.46) EW(254.39)

#54 MD(5757.00) Inc(2.3) Azm(153.1) TVD(5688.10)
VS(-159.09) NS(-613.29) EW(256.49)

#55 MD(5852.00) Inc(2.1) Azm(159.6) TVD(5783.03)
VS(-160.03) NS(-616.62) EW(257.96)

#56 MD(5947.00) Inc(1.6) Azm(149.2) TVD(5877.98)
VS(-160.87) NS(-619.39) EW(259.25)

#57 MD(6040.00) Inc(1.6) Azm(137.0) TVD(5970.95)
VS(-162.07) NS(-621.43) EW(260.78)

#58 MD(6087.00) Inc(1.9) Azm(244.7) TVD(6017.94)
VS(-161.67) NS(-622.24) EW(260.50)

#59 MD(6134.00) Inc(5.2) Azm(261.1) TVD(6064.84)
VS(-158.79) NS(-622.91) EW(257.69)

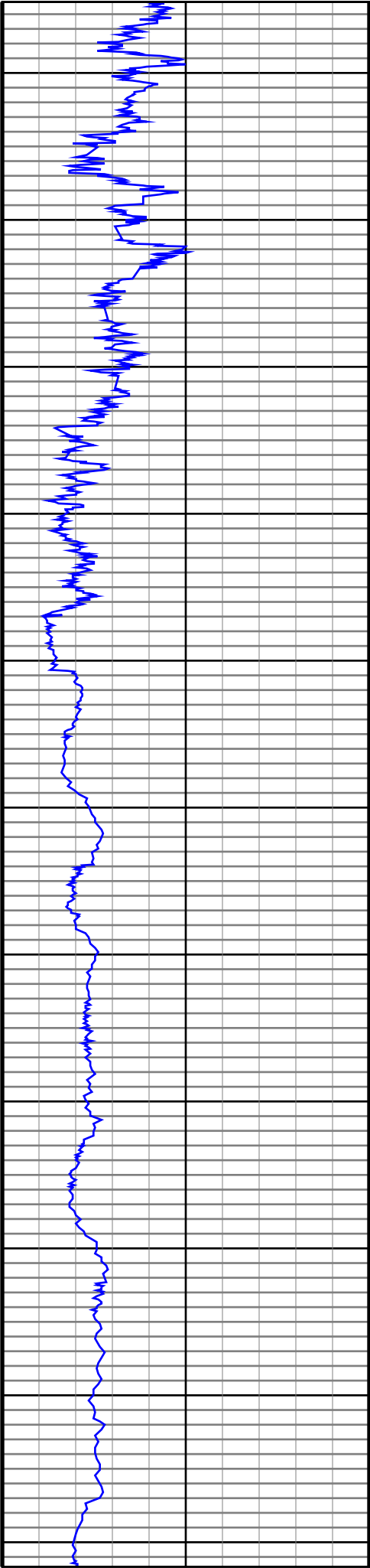
#60 MD(6182.00) Inc(8.2) Azm(267.9) TVD(6112.51)
VS(-153.22) NS(-623.37) EW(252.13)

#61 MD(6229.00) Inc(11.8) Azm(281.0) TVD(6158.80)
VS(-145.39) NS(-622.57) EW(244.08)

#62 MD(6324.00) Inc(20.1) Azm(283.1) TVD(6250.05)
VS(-121.06) NS(-616.99) EW(218.58)

#63 MD(6418.00) Inc(29.7) Azm(276.4) TVD(6335.21)
VS(-83.48) NS(-610.68) EW(179.57)

#64 MD(6513.00) Inc(41.9) Azm(273.6) TVD(6412.09)
VS(-29.55) NS(-606.05) EW(124.27)



6600

6700

6800

6900

7000

7100

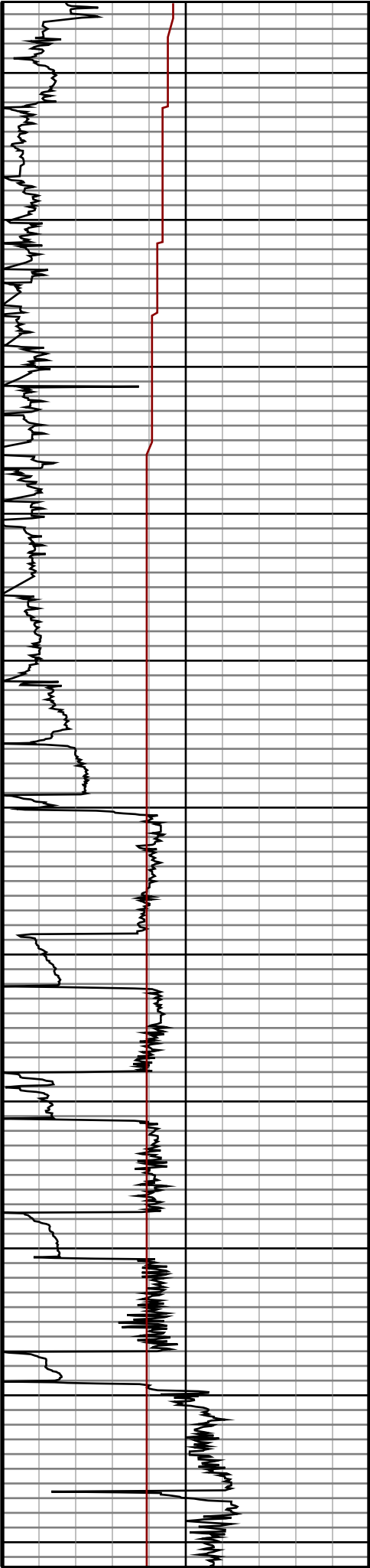
7200

7300

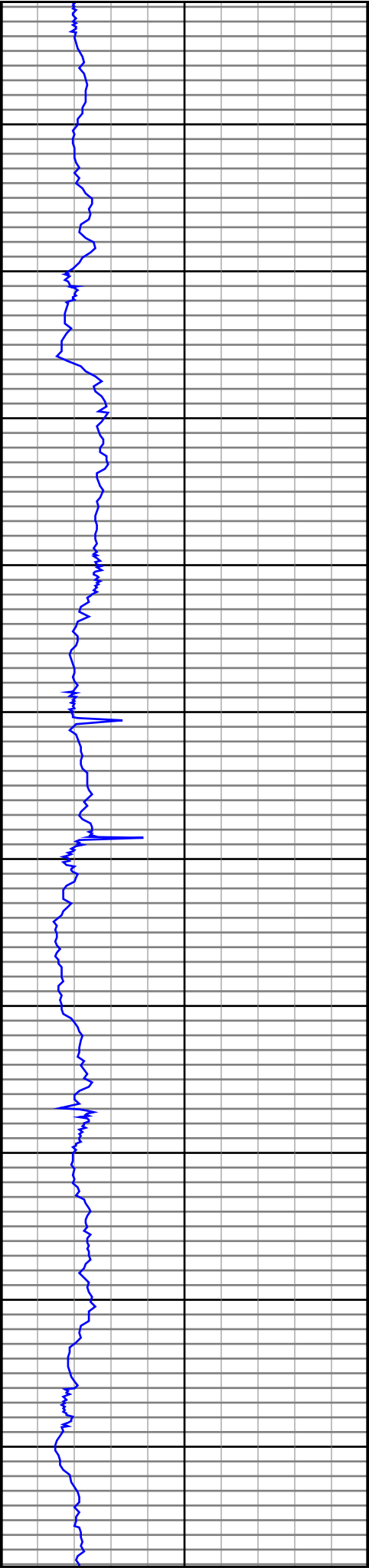
7400

7500

7600



#65 MD(6561.00) Inc(49.7) Azm(273.5) TVD(6445.53) VS(4.04) NS(-603.95) EW(89.95)
#66 MD(6608.00) Inc(52.5) Azm(271.1) TVD(6475.05) VS(39.92) NS(-602.52) EW(53.41)
#67 MD(6655.00) Inc(55.0) Azm(271.6) TVD(6502.82) VS(77.23) NS(-601.62) EW(15.51)
#68 MD(6703.00) Inc(59.8) Azm(268.9) TVD(6528.66) VS(117.16) NS(-601.46) EW(-24.92)
#69 MD(6750.00) Inc(62.8) Azm(267.1) TVD(6551.24) VS(158.08) NS(-602.90) EW(-66.11)
#70 MD(6797.00) Inc(66.6) Azm(267.2) TVD(6571.34) VS(200.32) NS(-605.00) EW(-108.53)
#71 MD(6845.00) Inc(70.0) Azm(267.3) TVD(6589.10) VS(244.65) NS(-607.12) EW(-153.07)
#72 MD(6892.00) Inc(74.3) Azm(267.1) TVD(6603.50) VS(289.13) NS(-609.29) EW(-197.74)
#73 MD(6952.00) Inc(83.0) Azm(268.3) TVD(6615.30) VS(347.51) NS(-611.64) EW(-256.46)
#74 MD(7122.00) Inc(91.2) Azm(269.4) TVD(6623.86) VS(515.62) NS(-615.08) EW(-426.07)
#75 MD(7216.00) Inc(89.8) Azm(270.6) TVD(6622.99) VS(608.50) NS(-615.12) EW(-520.06)
#76 MD(7311.00) Inc(87.8) Azm(272.2) TVD(6624.92) VS(701.97) NS(-612.86) EW(-615.00)
#77 MD(7405.00) Inc(88.3) Azm(275.8) TVD(6628.10) VS(793.56) NS(-606.36) EW(-708.71)
#78 MD(7499.00) Inc(88.0) Azm(278.9) TVD(6631.09) VS(883.79) NS(-594.40) EW(-801.89)
#79 MD(7594.00) Inc(89.4) Azm(279.7) TVD(6633.25) VS(974.03) NS(-579.06) EW(-895.61)



7700

7800

7900

8000

8100

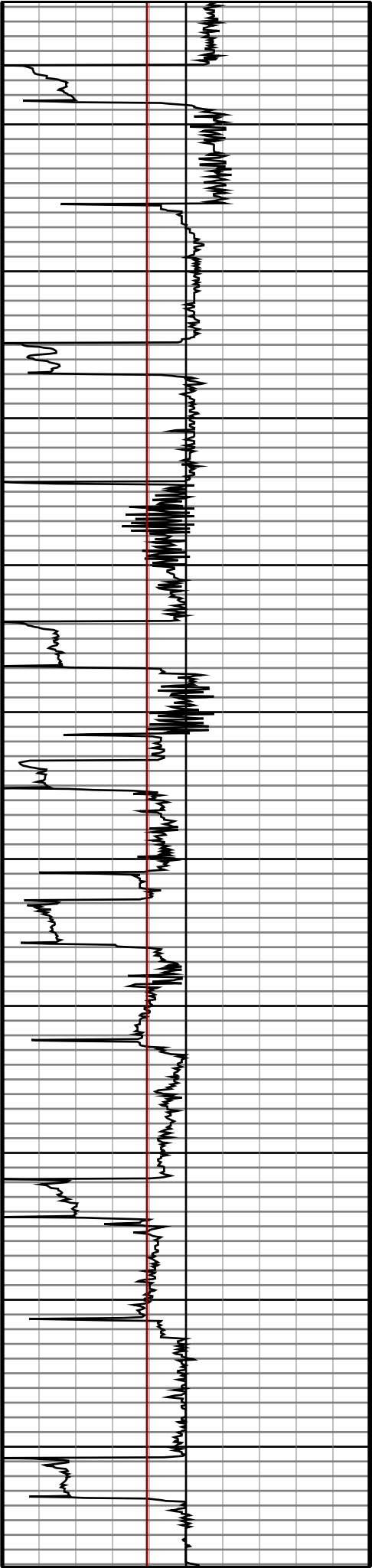
8200

8300

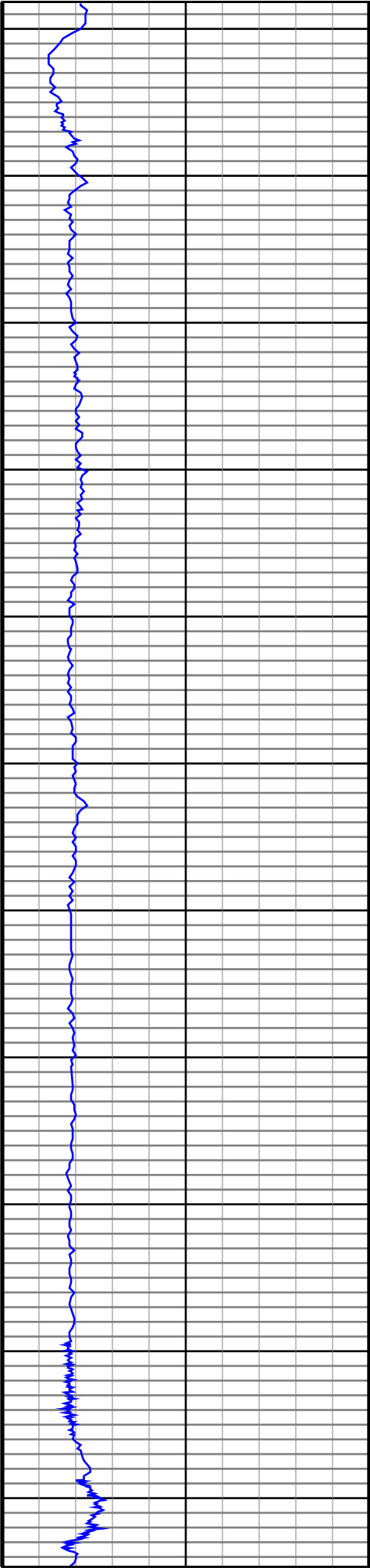
8400

8500

8600



#80 MD(7688.00) Inc(88.3) Azm(278.4) TVD(6635.16) VS(1063.44) NS(-564.21) EW(-988.41)
#81 MD(7783.00) Inc(89.3) Azm(279.1) TVD(6637.12) VS(1153.96) NS(-549.72) EW(-1082.27)
#82 MD(7878.00) Inc(88.8) Azm(278.5) TVD(6638.69) VS(1244.48) NS(-535.20) EW(-1176.14)
#83 MD(7972.00) Inc(89.0) Azm(279.2) TVD(6640.46) VS(1334.02) NS(-520.75) EW(-1269.01)
#84 MD(8067.00) Inc(89.3) Azm(275.1) TVD(6641.85) VS(1425.30) NS(-508.90) EW(-1363.24)
#85 MD(8162.00) Inc(91.2) Azm(274.1) TVD(6641.46) VS(1517.68) NS(-501.25) EW(-1457.92)
#86 MD(8257.00) Inc(89.2) Azm(273.5) TVD(6641.09) VS(1610.37) NS(-494.94) EW(-1552.71)
#87 MD(8351.00) Inc(90.1) Azm(273.9) TVD(6641.67) VS(1702.10) NS(-488.80) EW(-1646.50)
#88 MD(8446.00) Inc(89.6) Azm(272.8) TVD(6641.96) VS(1794.94) NS(-483.19) EW(-1741.33)
#89 MD(8540.00) Inc(90.8) Azm(273.1) TVD(6641.67) VS(1886.95) NS(-478.32) EW(-1835.21)
#90 MD(8634.00) Inc(89.9) Azm(274.6) TVD(6641.10) VS(1978.64) NS(-472.00) EW(-1928.99)



8700

8800

8900

9000

9100

9200

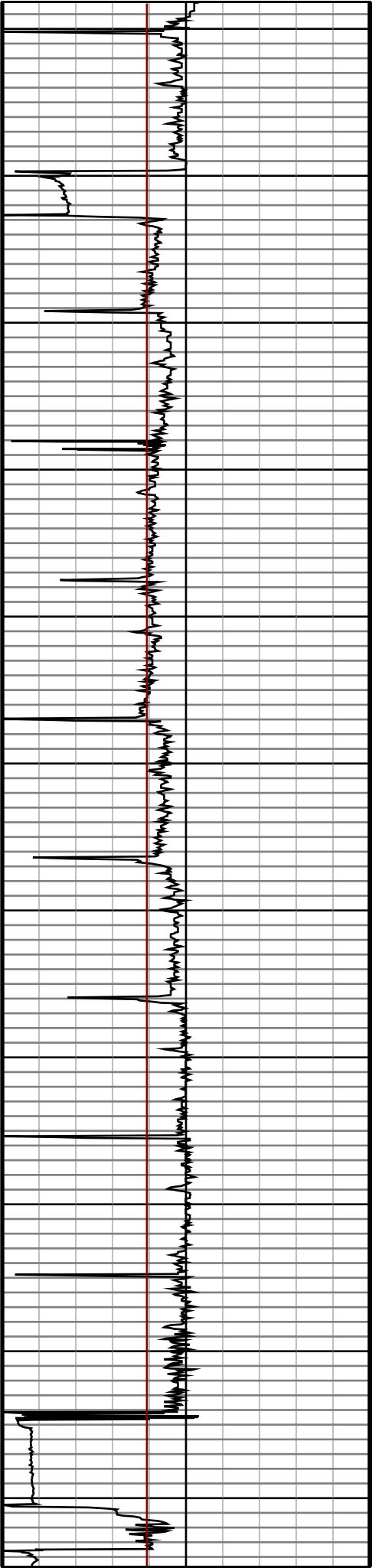
9300

9400

9500

9600

9700



#91 MD(8728.00) Inc(91.2) Azm(274.9) TVD(6640.16)
VS(2070.01) NS(-464.25) EW(-2022.66)

#92 MD(8822.00) Inc(89.5) Azm(275.9) TVD(6639.54)
VS(2161.12) NS(-455.46) EW(-2116.24)

#93 MD(8916.00) Inc(89.6) Azm(276.7) TVD(6640.27)
VS(2251.85) NS(-445.15) EW(-2209.67)

#94 MD(9011.00) Inc(89.5) Azm(276.6) TVD(6641.04)
VS(2343.39) NS(-434.14) EW(-2304.03)

#95 MD(9105.00) Inc(89.2) Azm(276.1) TVD(6642.12)
VS(2434.10) NS(-423.78) EW(-2397.45)

#96 MD(9199.00) Inc(89.5) Azm(276.4) TVD(6643.16)
VS(2524.84) NS(-413.51) EW(-2490.88)

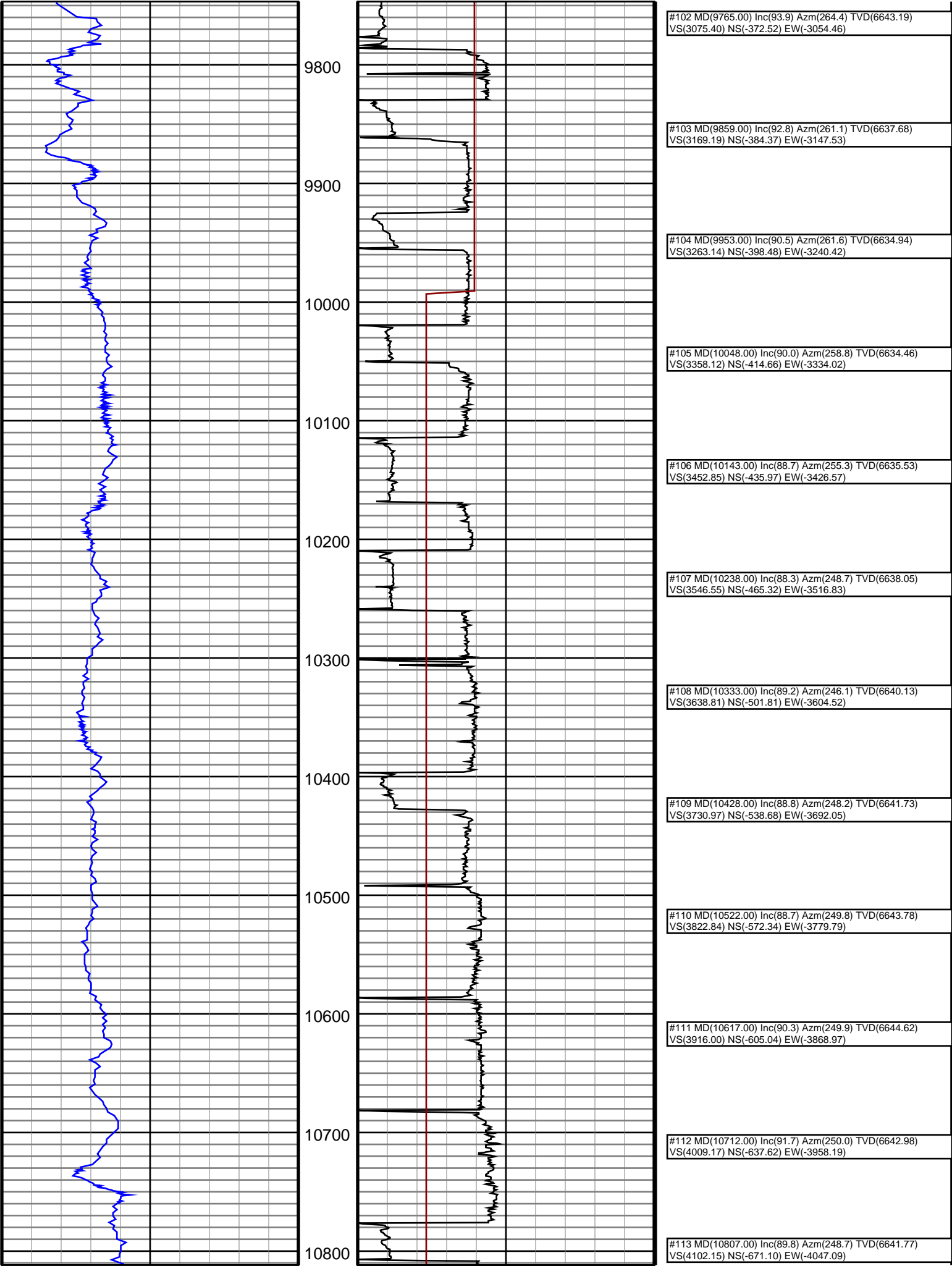
#97 MD(9294.00) Inc(89.3) Azm(276.1) TVD(6644.11)
VS(2616.56) NS(-403.15) EW(-2585.31)

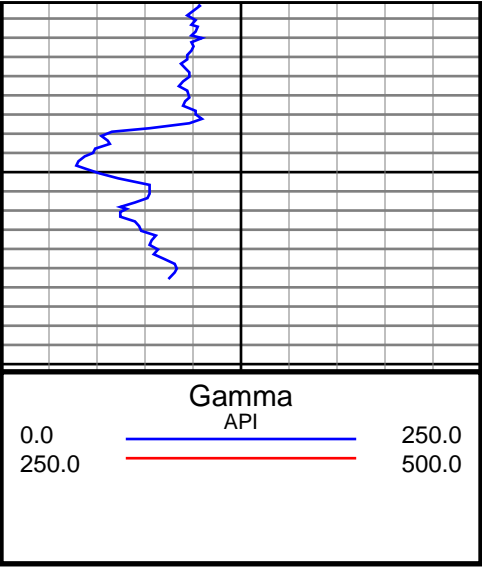
#98 MD(9388.00) Inc(89.5) Azm(276.1) TVD(6645.08)
VS(2707.37) NS(-393.17) EW(-2678.77)

#99 MD(9483.00) Inc(89.5) Azm(275.6) TVD(6645.93)
VS(2799.26) NS(-383.49) EW(-2773.27)

#100 MD(9577.00) Inc(89.6) Azm(275.4) TVD(6646.65)
VS(2890.33) NS(-374.52) EW(-2866.84)

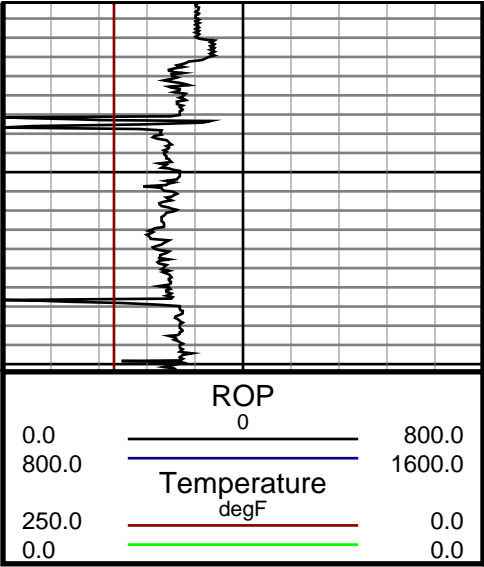
#101 MD(9671.00) Inc(90.3) Azm(271.3) TVD(6646.68)
VS(2982.18) NS(-369.01) EW(-2960.66)





10900

11000



#114 MD(10902.00) Inc(90.8) Azm(249.0) TVD(6641.30)
VS(4194.97) NS(-705.38) EW(-4135.68)

#115 MD(11003.00) Inc(90.8) Azm(249.0) TVD(6639.94)
VS(4203.68) NS(-744.64) EW(-4200.84)