



# WELLS RANCH USX AA27-69-1HN 1":100'

Company: NOBLE ENERGY  
Well Name: WELLS RANCH USX AA27-69-1HN  
UWI or LSD: 051-233-7138  
Rig Id: H&P 277  
State: CO  
County/Parish: WELD COUNTY  
Country: USA  
Survey Company: DRILTECH, LLC  
Job number: 2013-268-IDDT-CO  
MARK LARUE MWD OPERATOR  
JOSH CAYLOR MWD OPERATOR

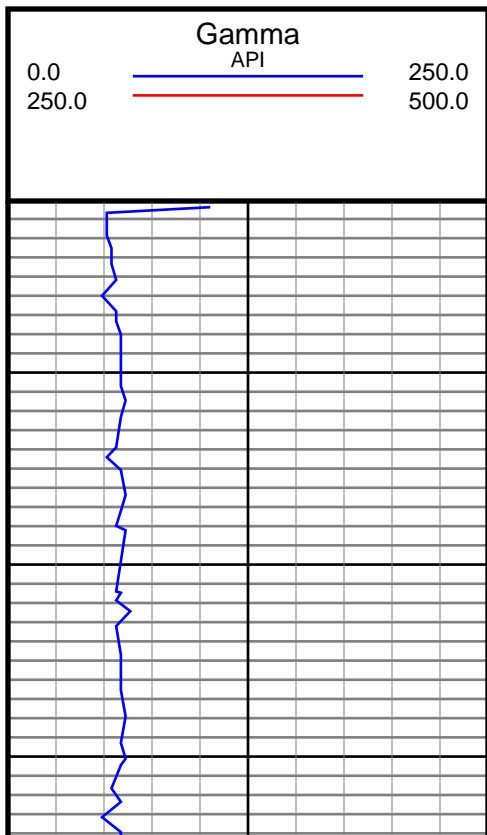
Log measurements: Gamma, ROP, Temp  
Depth measured from: 910  
Maximum temperature: 220.3

Depth Date  
Start: 910 ft 8/27/2013  
End: 11447 ft 9/3/2013

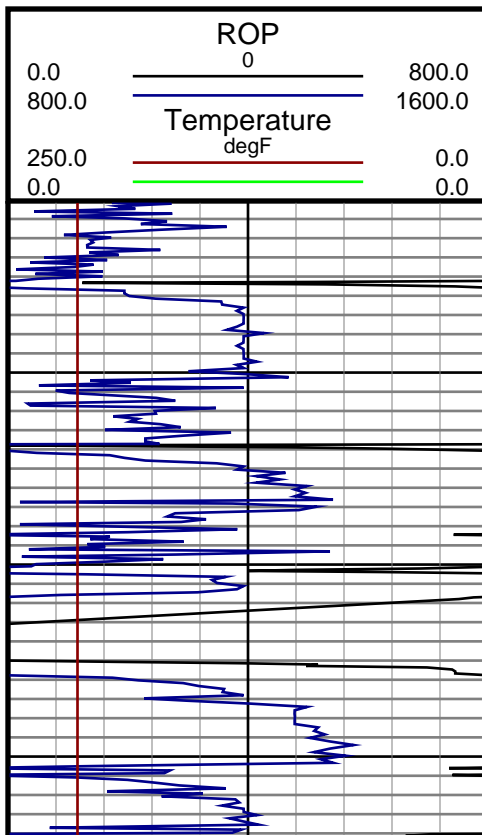
Casing Depth Size  
Surface: 598 9.625  
Intermediate: 7134 7  
Mud Type: WATER BASE  
Density: 8.75  
Viscosity: 28  
Rm: Rmf: Rmc: Elevations  
KB: GL: DF:

Run	Bit Size	Gamma	Survey	Offsets	Start	End	Start	End	Dates
1	8 3/4	36.00	53.00	608	5897	7145	8/27/13	8/28/13	
2	8 3/4	45.00	62.00	5897	7145	8/28/13	8/30/13		
3	6 1/8	50.00	67.00	7145	9383	8/31/13	9/1/13		
4	6 1/8	50.00	67.00	9383	10525	9/1/13	9/2/13		
5	6 1/8	50.00	67.00	10525	11447	9/2/13	9/3/13		
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.



MD

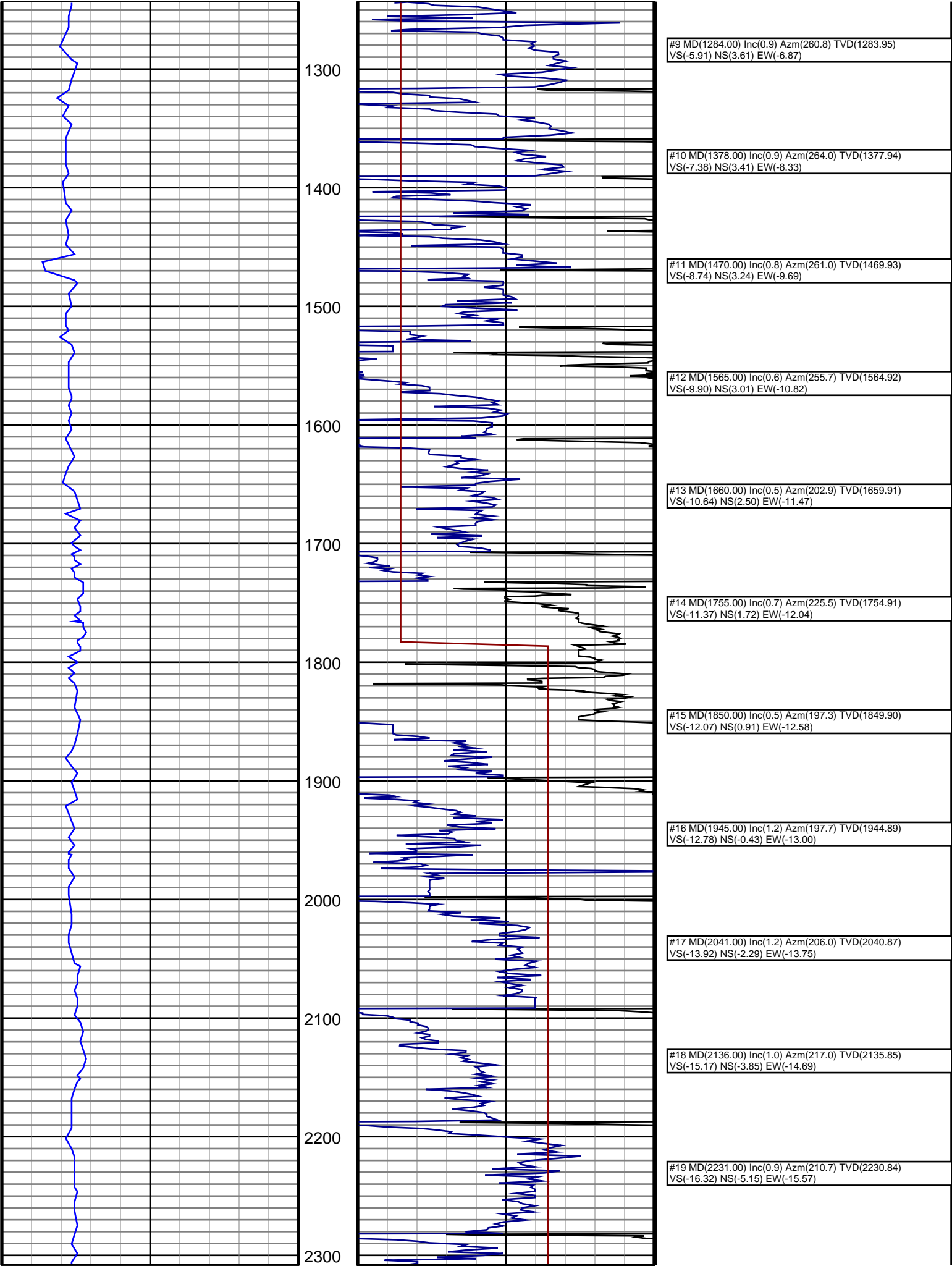


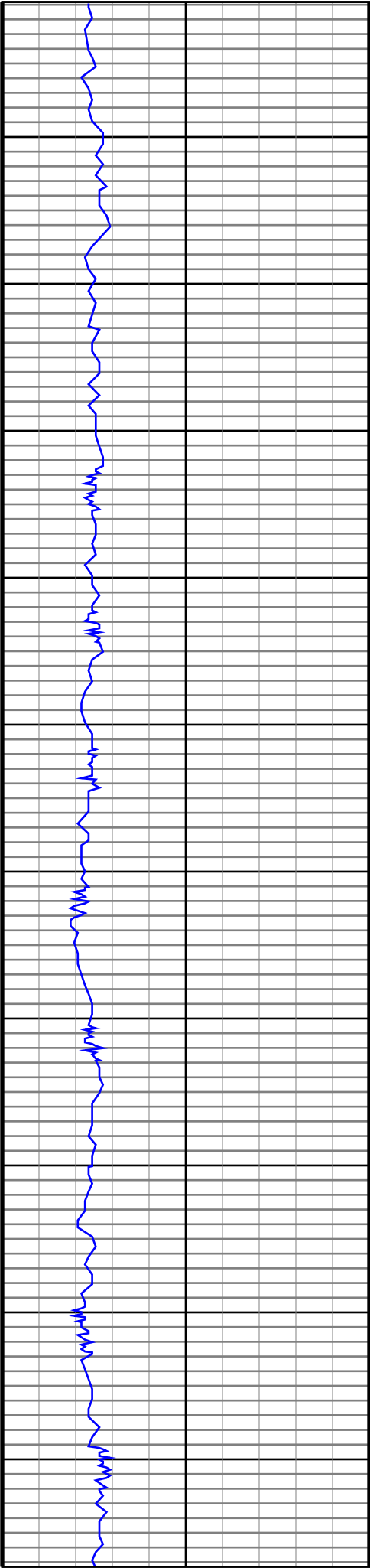
#5 MD(912.00) Inc(0.7) Azm(305.8) TVD(911.97)  
VS(-2.37) NS(2.28) EW(-2.95)

#6 MD(1005.00) Inc(0.7) Azm(312.9) TVD(1004.97)  
VS(-3.07) NS(3.00) EW(-3.82)

#7 MD(1097.00) Inc(0.5) Azm(286.4) TVD(1096.96)  
VS(-3.74) NS(3.49) EW(-4.62)

#8 MD(1191.00) Inc(0.7) Azm(275.8) TVD(1190.96)  
VS(-4.64) NS(3.67) EW(-5.58)





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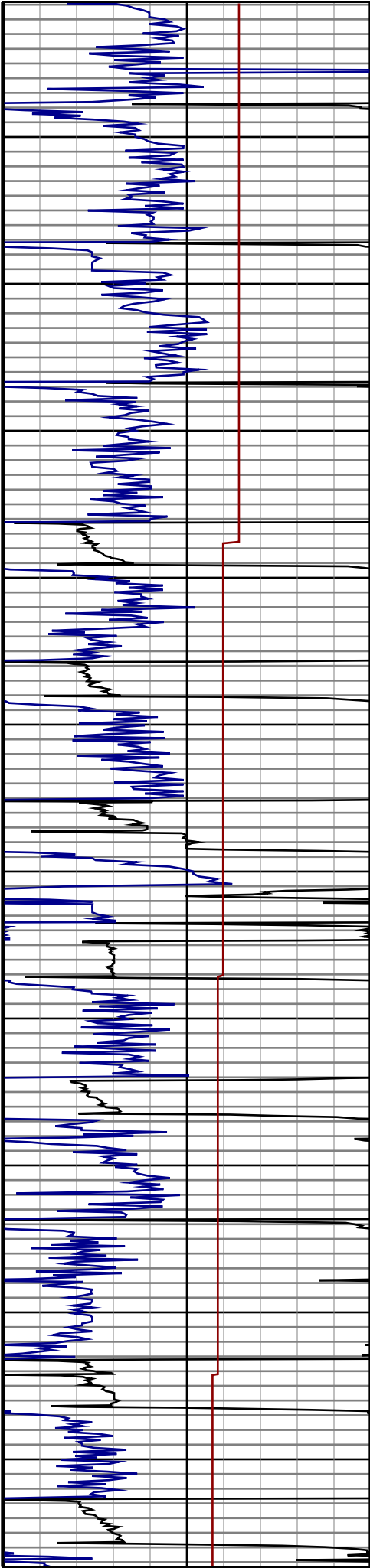
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#20 MD(2326.00) Inc(0.9) Azm(225.3) TVD(2325.83)  
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#21 MD(2421.00) Inc(0.8) Azm(236.3) TVD(2420.82)  
VS(-18.71) NS(-7.21) EW(-17.56)

#22 MD(2516.00) Inc(0.9) Azm(265.7) TVD(2515.81)  
VS(-20.07) NS(-7.63) EW(-18.85)

#23 MD(2612.00) Inc(1.1) Azm(277.7) TVD(2611.80)  
VS(-21.68) NS(-7.57) EW(-20.52)

#24 MD(2707.00) Inc(2.7) Azm(344.8) TVD(2706.75)  
VS(-22.63) NS(-5.29) EW(-22.01)

#25 MD(2802.00) Inc(4.0) Azm(11.9) TVD(2801.59)  
VS(-21.35) NS(0.12) EW(-21.91)

#26 MD(2897.00) Inc(5.8) Azm(14.8) TVD(2896.24)  
VS(-17.76) NS(8.00) EW(-20.00)

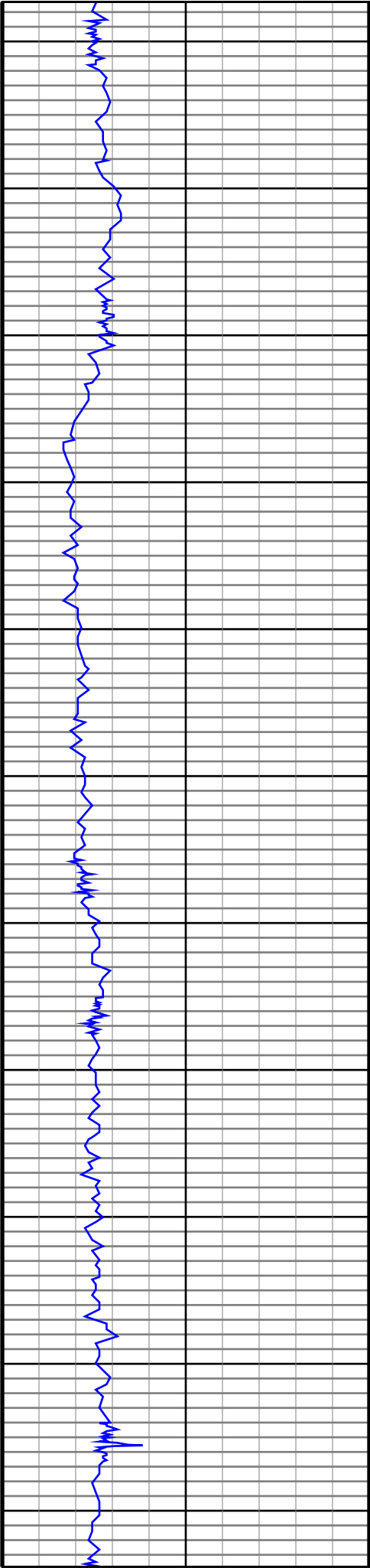
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VS(-13.33) NS(19.29) EW(-18.00)

#28 MD(3087.00) Inc(9.2) Azm(3.6) TVD(3084.46)  
VS(-8.98) NS(33.52) EW(-16.74)

#29 MD(3182.00) Inc(9.6) Azm(3.6) TVD(3178.18)  
VS(-4.63) NS(49.00) EW(-15.76)

#30 MD(3278.00) Inc(10.6) Azm(359.4) TVD(3272.69)  
VS(-0.54) NS(65.82) EW(-15.35)

#31 MD(3373.00) Inc(11.7) Azm(0.0) TVD(3365.90)  
VS(3.40) NS(84.19) EW(-15.45)



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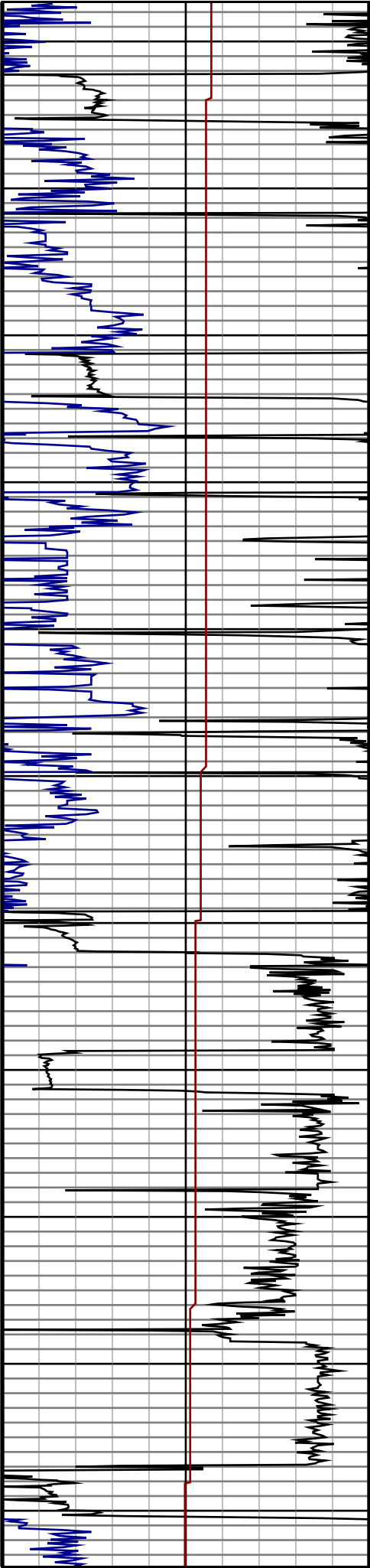
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#32 MD(3468.00) Inc(11.0) Azm(350.3) TVD(3459.05)  
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#33 MD(3563.00) Inc(9.7) Azm(348.7) TVD(3552.50)  
VS(6.64) NS(119.54) EW(-20.07)

#34 MD(3658.00) Inc(12.0) Azm(340.6) TVD(3645.80)  
VS(5.67) NS(136.71) EW(-24.92)

#35 MD(3753.00) Inc(13.7) Azm(340.5) TVD(3738.42)  
VS(3.18) NS(156.63) EW(-31.95)

#36 MD(3848.00) Inc(14.6) Azm(340.5) TVD(3830.53)  
VS(0.42) NS(178.52) EW(-39.71)

#37 MD(3944.00) Inc(15.2) Azm(340.6) TVD(3923.31)  
VS(-2.50) NS(201.80) EW(-47.93)

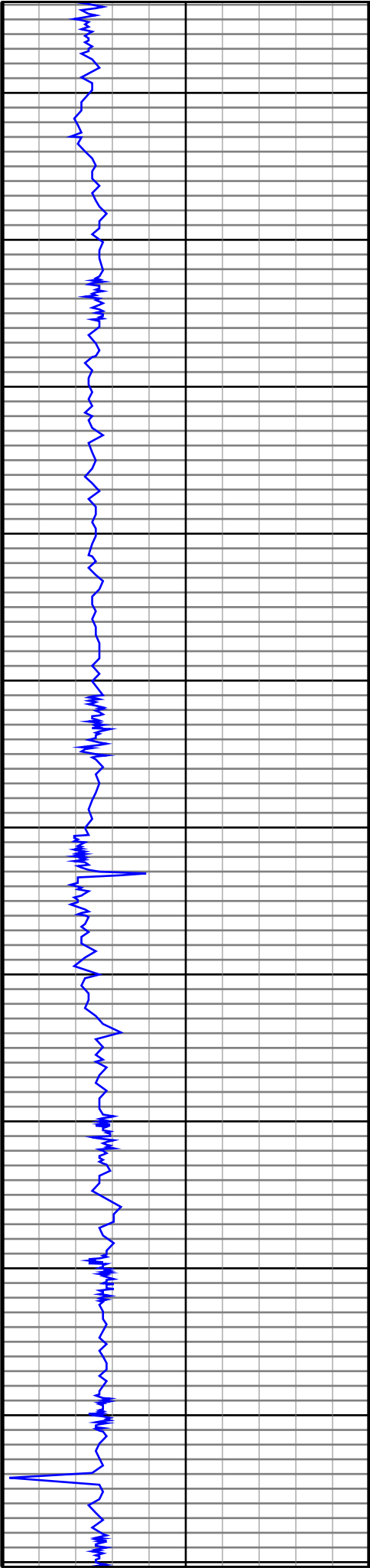
#38 MD(4039.00) Inc(14.2) Azm(340.6) TVD(4015.20)  
VS(-5.32) NS(224.54) EW(-55.93)

#39 MD(4134.00) Inc(13.2) Azm(348.6) TVD(4107.50)  
VS(-6.45) NS(246.16) EW(-61.95)

#40 MD(4229.00) Inc(12.3) Azm(348.2) TVD(4200.16)  
VS(-6.05) NS(266.70) EW(-66.16)

#41 MD(4324.00) Inc(10.4) Azm(347.9) TVD(4293.29)  
VS(-5.81) NS(284.99) EW(-70.03)

#42 MD(4419.00) Inc(9.6) Azm(347.2) TVD(4386.85)  
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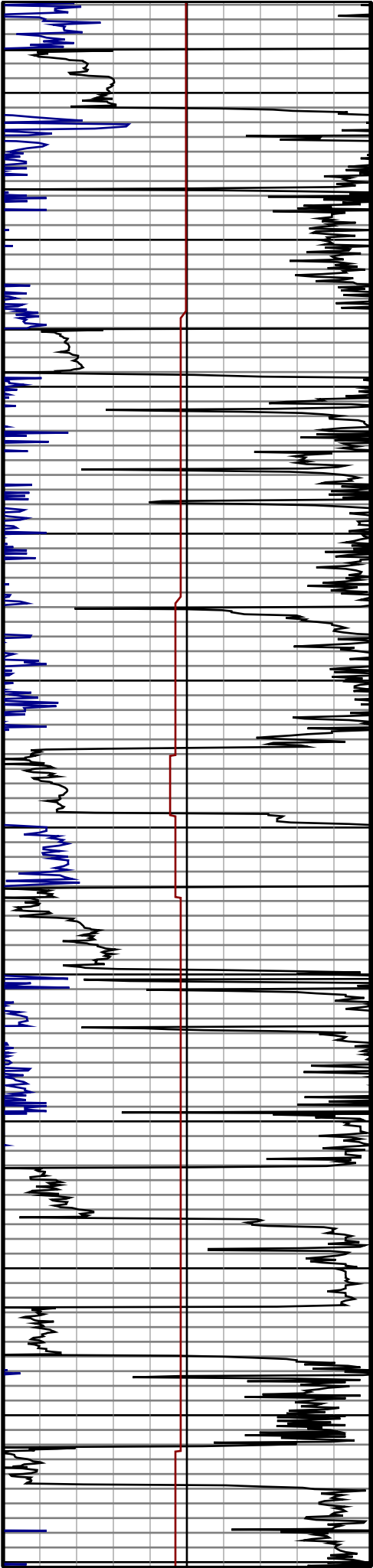
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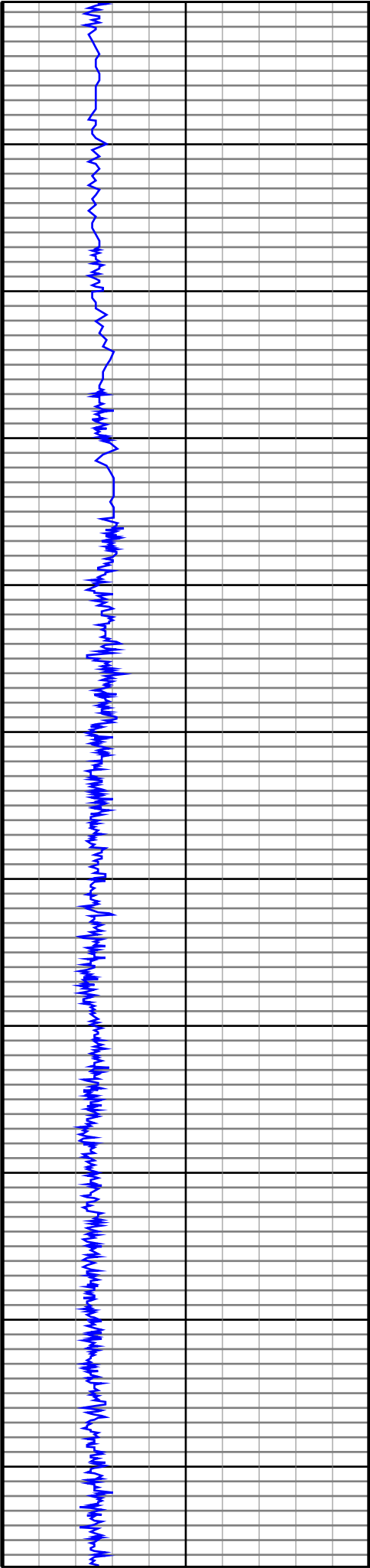
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#44 MD(4610.00) Inc(10.8) Azm(351.9) TVD(4574.31) VS(-2.39) NS(337.34) EW(-78.29)
#45 MD(4705.00) Inc(11.5) Azm(1.1) TVD(4667.52) VS(0.57) NS(355.62) EW(-79.36)
#46 MD(4800.00) Inc(11.1) Azm(359.4) TVD(4760.68) VS(4.74) NS(374.24) EW(-79.28)
#47 MD(4896.00) Inc(10.3) Azm(355.0) TVD(4855.01) VS(7.81) NS(392.03) EW(-80.12)
#48 MD(4991.00) Inc(11.8) Azm(351.1) TVD(4948.25) VS(9.59) NS(410.09) EW(-82.37)
#49 MD(5086.00) Inc(14.2) Azm(355.3) TVD(5040.81) VS(11.84) NS(431.30) EW(-84.82)
#50 MD(5181.00) Inc(12.8) Azm(353.9) TVD(5133.18) VS(14.66) NS(453.38) EW(-86.90)
#51 MD(5277.00) Inc(13.4) Azm(357.2) TVD(5226.68) VS(17.78) NS(475.06) EW(-88.57)
#52 MD(5372.00) Inc(14.9) Azm(354.7) TVD(5318.80) VS(21.24) NS(498.22) EW(-90.24)
#53 MD(5467.00) Inc(14.1) Azm(349.8) TVD(5410.78) VS(23.30) NS(521.77) EW(-93.41)



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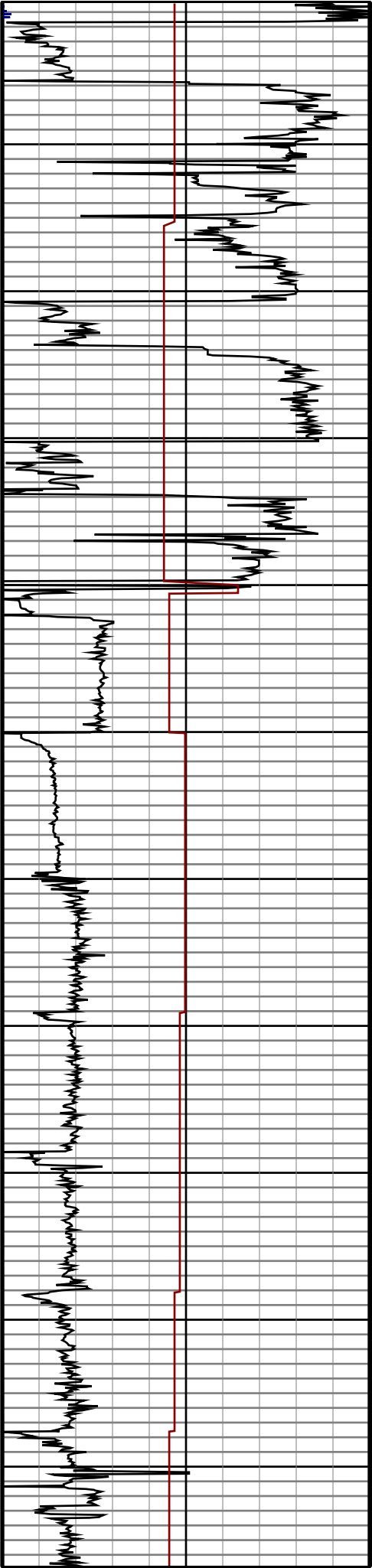
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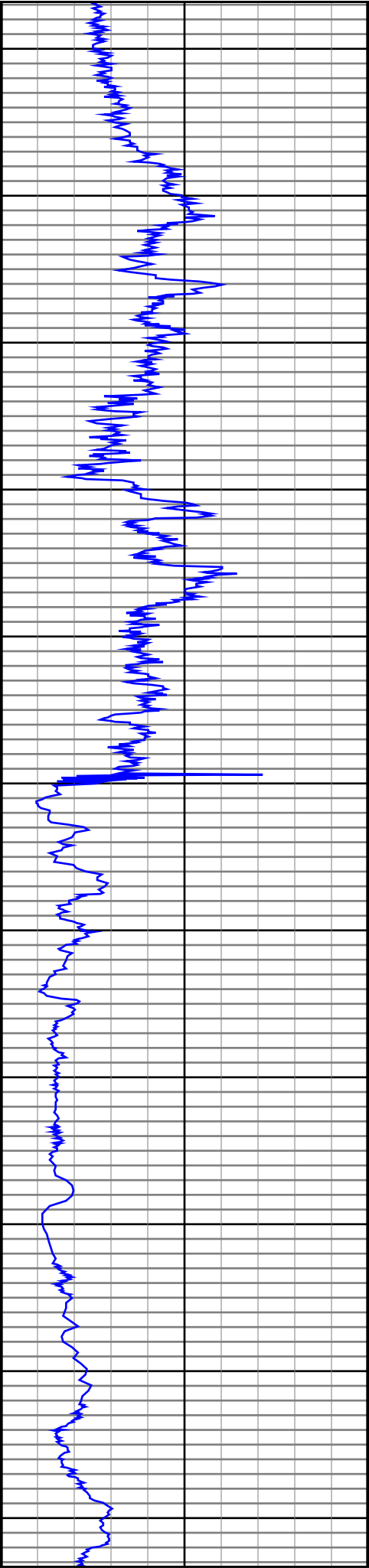
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#55 MD(5657.00) Inc(14.2) Azm(353.1) TVD(5594.28) VS(27.91) NS(570.61) EW(-99.67)
#56 MD(5752.00) Inc(14.9) Azm(350.9) TVD(5686.23) VS(29.84) NS(594.24) EW(-103.01)
#57 MD(5847.00) Inc(13.0) Azm(350.5) TVD(5778.42) VS(31.19) NS(616.84) EW(-106.70)
#58 MD(5940.00) Inc(13.3) Azm(345.7) TVD(5868.99) VS(31.47) NS(637.52) EW(-111.07)
#59 MD(6035.00) Inc(15.5) Azm(354.8) TVD(5961.01) VS(32.81) NS(660.76) EW(-114.92)
#60 MD(6083.00) Inc(19.9) Azm(2.2) TVD(6006.73) VS(35.74) NS(675.31) EW(-115.19)
#61 MD(6131.00) Inc(23.3) Azm(8.1) TVD(6051.36) VS(41.20) NS(692.88) EW(-113.54)
#62 MD(6178.00) Inc(27.5) Azm(15.2) TVD(6093.82) VS(49.58) NS(712.57) EW(-109.38)
#63 MD(6226.00) Inc(31.3) Azm(17.5) TVD(6135.63) VS(61.03) NS(735.17) EW(-102.72)
#64 MD(6273.00) Inc(36.0) Azm(19.5) TVD(6174.74) VS(74.53) NS(759.84) EW(-94.43)
#65 MD(6321.00) Inc(39.0) Azm(24.0) TVD(6212.83) VS(91.06) NS(786.95) EW(-83.58)
#66 MD(6368.00) Inc(41.8) Azm(31.4) TVD(6248.64) VS(110.81) NS(813.85) EW(-69.39)
#67 MD(6416.00) Inc(43.2) Azm(38.4) TVD(6284.05) VS(134.73) NS(840.40) EW(-50.84)
#68 MD(6464.00) Inc(44.8) Azm(44.6) TVD(6318.59) VS(161.75) NS(865.33) EW(-28.75)
#69 MD(6511.00) Inc(46.4) Azm(50.1) TVD(6351.48) VS(190.82) NS(888.05) EW(-4.05)
#70 MD(6559.00) Inc(48.7) Azm(55.2) TVD(6383.89) VS(223.00) NS(909.49) EW(24.10)



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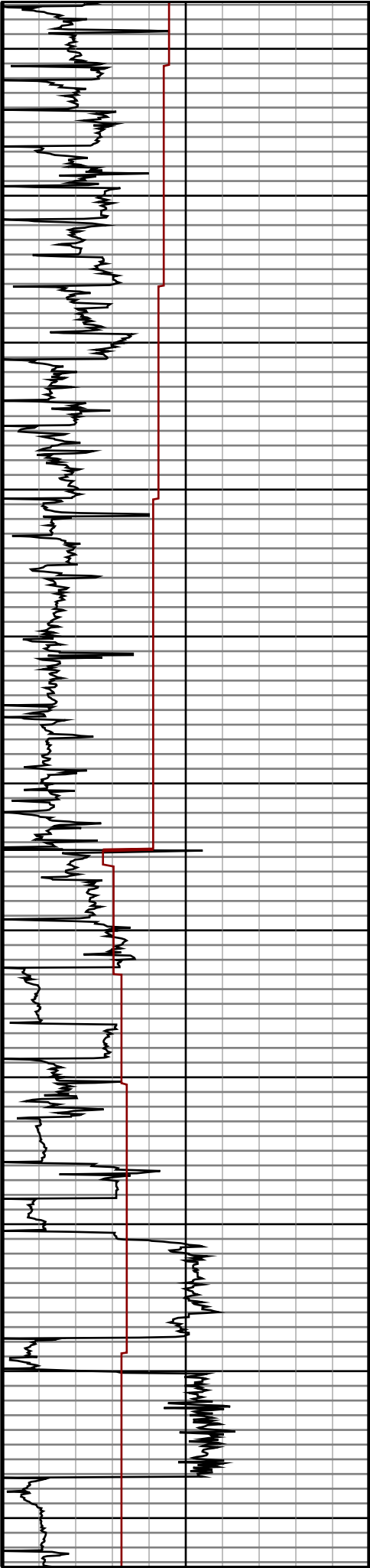
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VS(256.92) NS(928.71) EW(54.55)

#72 MD(6654.00) Inc(54.3) Azm(62.9) TVD(6443.07)  
VS(293.73) NS(946.91) EW(88.19)

#73 MD(6701.00) Inc(56.0) Azm(66.6) TVD(6469.93)  
VS(331.37) NS(963.35) EW(123.07)

#74 MD(6749.00) Inc(57.5) Azm(69.7) TVD(6496.25)  
VS(370.99) NS(978.28) EW(160.32)

#75 MD(6797.00) Inc(59.6) Azm(73.2) TVD(6521.30)  
VS(411.71) NS(991.29) EW(199.13)

#76 MD(6844.00) Inc(62.1) Azm(76.0) TVD(6544.20)  
VS(452.70) NS(1002.17) EW(238.70)

#77 MD(6892.00) Inc(63.5) Azm(77.6) TVD(6566.14)  
VS(495.39) NS(1011.92) EW(280.26)

#78 MD(6939.00) Inc(64.5) Azm(80.6) TVD(6586.74)  
VS(537.60) NS(1019.90) EW(321.74)

#79 MD(6987.00) Inc(67.4) Azm(84.5) TVD(6606.31)  
VS(581.24) NS(1025.57) EW(365.19)

#80 MD(7035.00) Inc(72.0) Azm(86.6) TVD(6622.96)  
VS(625.78) NS(1029.05) EW(410.06)

#81 MD(7082.00) Inc(76.4) Azm(87.6) TVD(6635.75)  
VS(670.33) NS(1031.33) EW(455.21)

#82 MD(7158.00) Inc(83.2) Azm(87.0) TVD(6649.20)  
VS(743.96) NS(1034.85) EW(529.88)

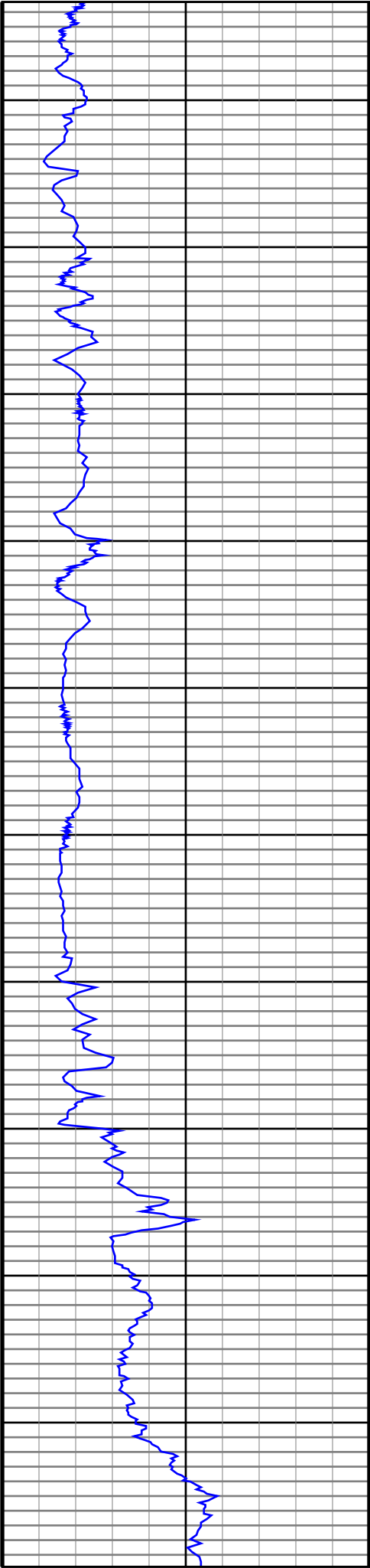
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VS(899.79) NS(1041.49) EW(688.11)

#85 MD(7412.00) Inc(93.2) Azm(90.1) TVD(6658.16)  
VS(992.66) NS(1042.65) EW(783.04)

#86 MD(7507.00) Inc(93.5) Azm(89.5) TVD(6652.61)  
VS(1085.26) NS(1042.98) EW(877.88)

#87 MD(7603.00) Inc(92.2) Azm(89.3) TVD(6647.83)  
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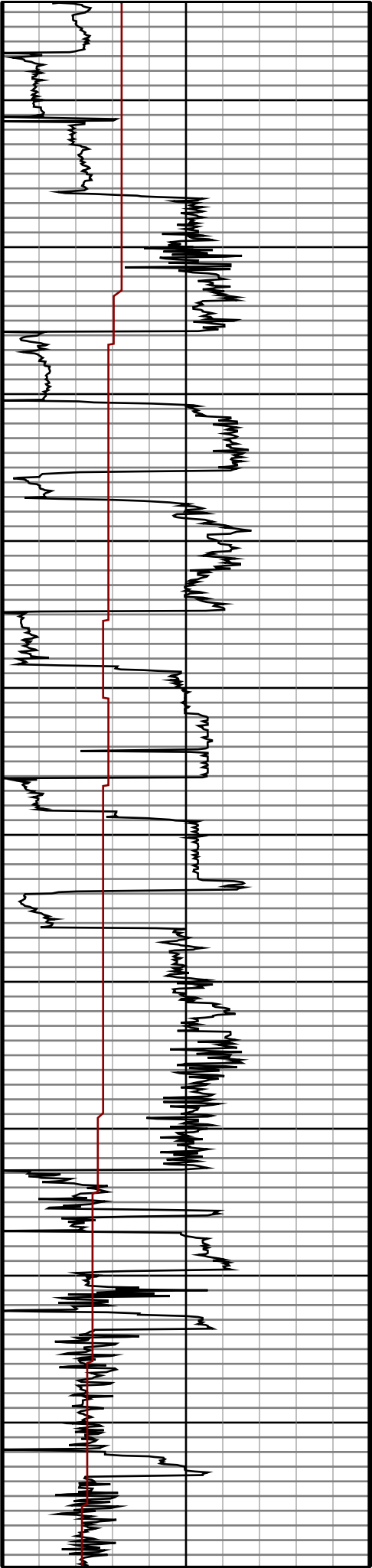
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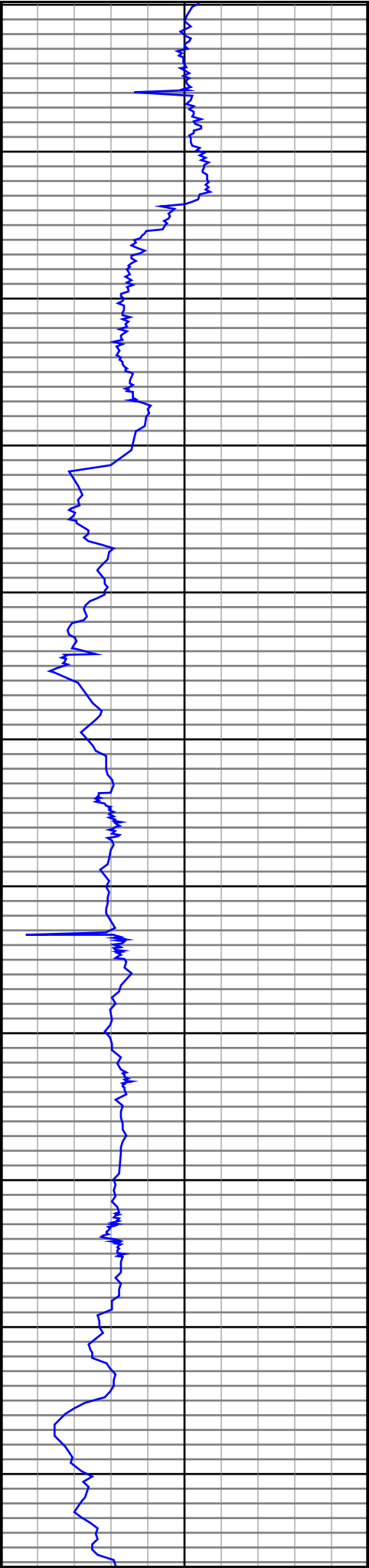
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#89 MD(7793.00) Inc(85.5) Azm(87.2) TVD(6654.55) VS(1365.63) NS(1051.35) EW(1163.36)
#90 MD(7888.00) Inc(88.7) Azm(90.0) TVD(6659.35) VS(1458.66) NS(1053.66) EW(1258.19)
#91 MD(7983.00) Inc(94.0) Azm(90.7) TVD(6657.11) VS(1551.15) NS(1053.08) EW(1353.13)
#92 MD(8078.00) Inc(92.9) Azm(90.1) TVD(6651.40) VS(1643.52) NS(1052.42) EW(1447.95)
#93 MD(8173.00) Inc(92.5) Azm(89.9) TVD(6646.92) VS(1736.11) NS(1052.42) EW(1542.84)
#94 MD(8269.00) Inc(89.7) Azm(88.9) TVD(6645.08) VS(1829.96) NS(1053.42) EW(1638.81)
#95 MD(8364.00) Inc(90.4) Azm(89.2) TVD(6645.00) VS(1922.98) NS(1055.00) EW(1733.80)
#96 MD(8459.00) Inc(87.9) Azm(89.5) TVD(6646.41) VS(2015.88) NS(1056.08) EW(1828.77)
#97 MD(8554.00) Inc(88.2) Azm(89.4) TVD(6649.64) VS(2108.70) NS(1056.99) EW(1923.71)
#98 MD(8649.00) Inc(88.5) Azm(88.8) TVD(6652.37) VS(2201.67) NS(1058.48) EW(2018.66)





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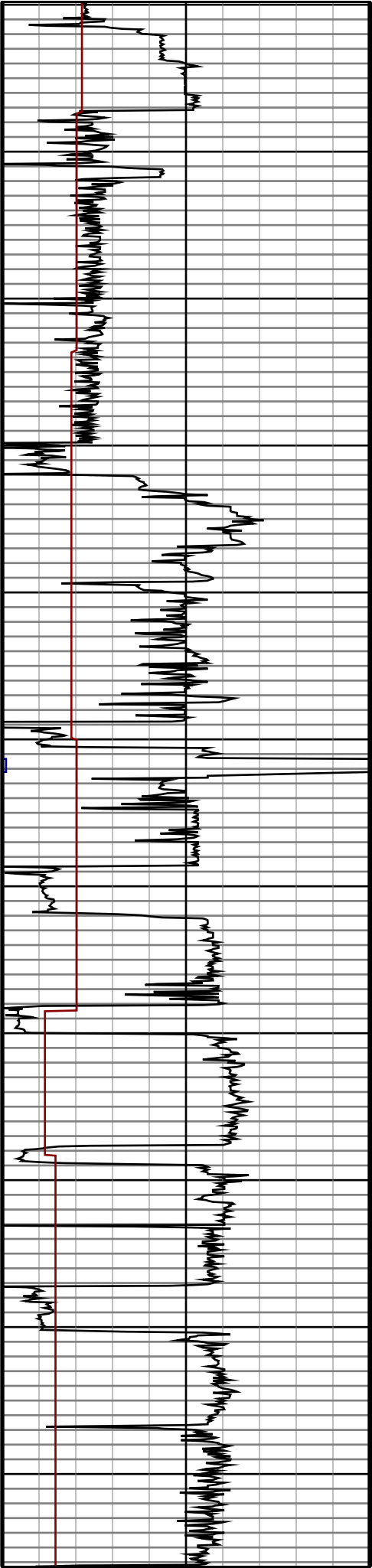
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#100 MD(8840.00) Inc(91.0) Azm(89.6) TVD(6652.63)  
VS(2388.64) NS(1061.48) EW(2209.62)

#101 MD(8935.00) Inc(91.9) Azm(88.8) TVD(6650.23)  
VS(2481.57) NS(1062.81) EW(2304.58)

#102 MD(9030.00) Inc(90.8) Azm(88.8) TVD(6647.99)  
VS(2574.65) NS(1064.80) EW(2399.53)

#103 MD(9125.00) Inc(92.3) Azm(88.6) TVD(6645.42)  
VS(2667.75) NS(1066.95) EW(2494.47)

#104 MD(9221.00) Inc(92.9) Azm(89.4) TVD(6641.07)  
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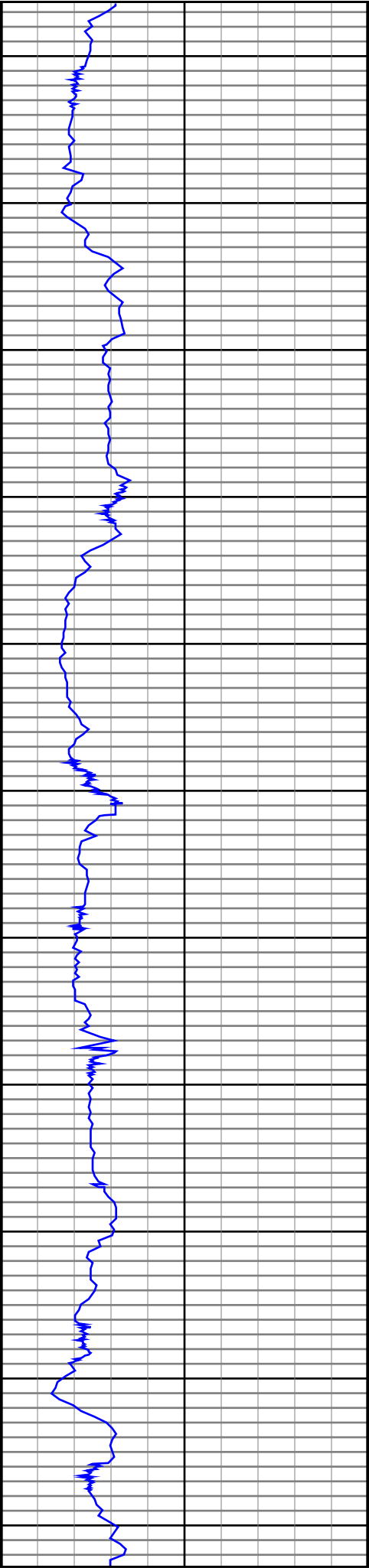
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#106 MD(9411.00) Inc(89.7) Azm(89.1) TVD(6638.25)  
VS(2947.22) NS(1069.70) EW(2780.30)

#107 MD(9506.00) Inc(89.6) Azm(89.3) TVD(6638.83)  
VS(3040.19) NS(1071.03) EW(2875.29)

#108 MD(9602.00) Inc(88.1) Azm(89.3) TVD(6640.76)  
VS(3134.08) NS(1072.20) EW(2971.26)

#109 MD(9697.00) Inc(88.7) Azm(89.4) TVD(6643.41)  
VS(3226.96) NS(1073.28) EW(3066.22)



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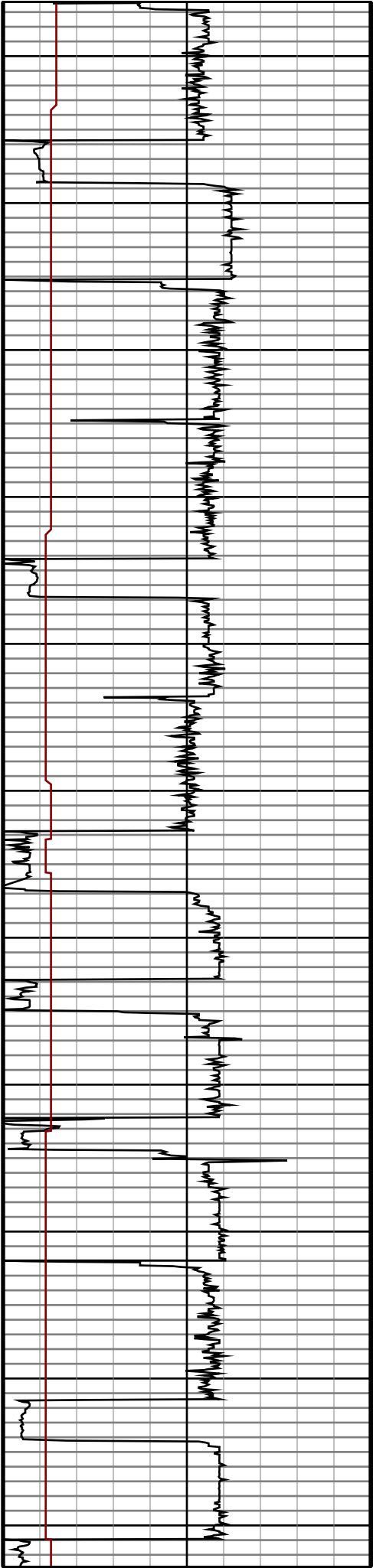
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#111 MD(9887.00) Inc(88.5) Azm(91.3) TVD(6645.73)  
VS(3412.61) NS(1074.69) EW(3256.18)

#112 MD(9983.00) Inc(89.9) Azm(91.7) TVD(6647.07)  
VS(3505.67) NS(1072.18) EW(3352.13)

#113 MD(10078.00) Inc(91.4) Azm(92.0) TVD(6645.99)  
VS(3597.63) NS(1069.11) EW(3447.07)

#114 MD(10173.00) Inc(90.6) Azm(91.5) TVD(6644.34)  
VS(3689.62) NS(1066.21) EW(3542.01)

#115 MD(10268.00) Inc(92.2) Azm(91.8) TVD(6642.01)  
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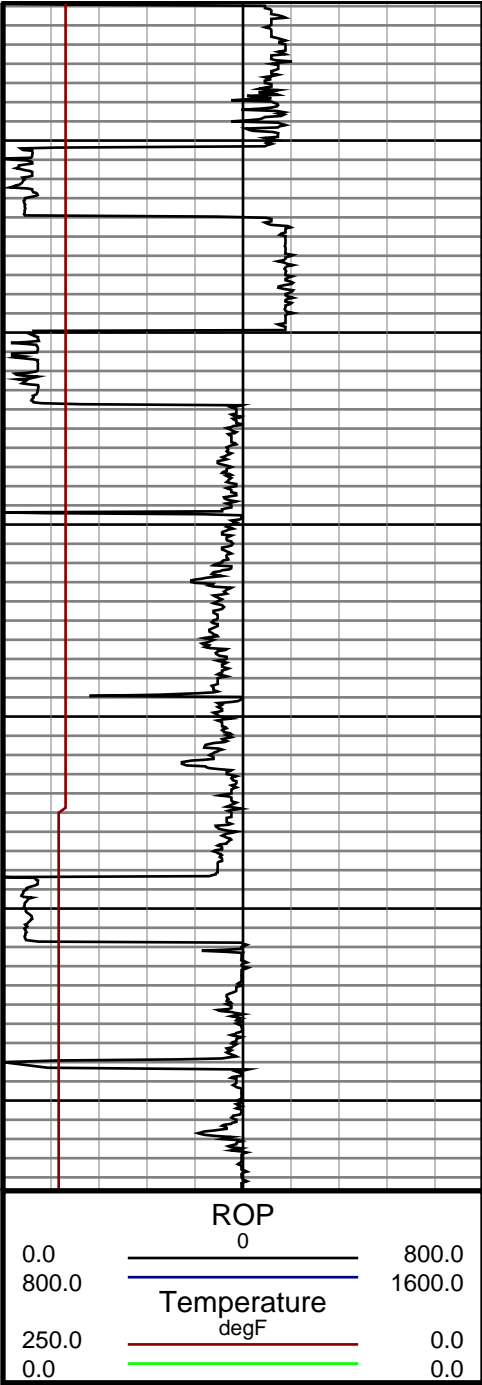
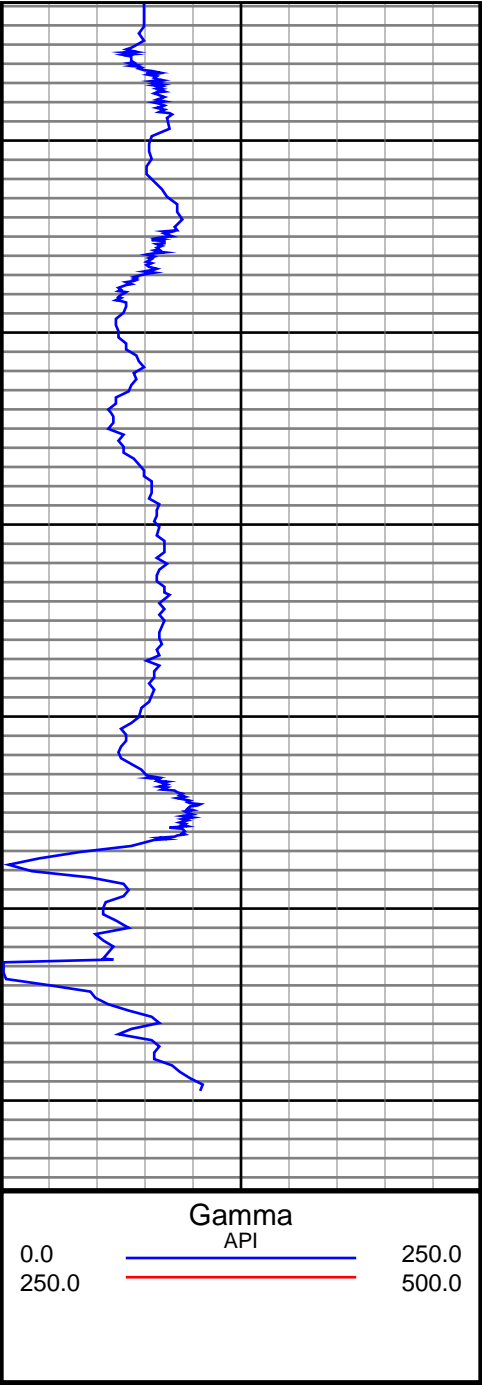
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VS(3873.72) NS(1060.99) EW(3731.88)

#117 MD(10459.00) Inc(90.3) Azm(90.2) TVD(6638.61)  
VS(3967.11) NS(1059.82) EW(3827.86)

#118 MD(10554.00) Inc(90.3) Azm(88.2) TVD(6638.11)  
VS(4060.07) NS(1061.14) EW(3922.85)

#119 MD(10649.00) Inc(91.6) Azm(87.3) TVD(6636.53)  
VS(4153.49) NS(1064.87) EW(4017.76)

#120 MD(10744.00) Inc(90.9) Azm(89.0) TVD(6634.46)  
VS(4246.77) NS(1067.94) EW(4112.68)



#121 MD(10839.00) Inc(90.5) Azm(88.4) TVD(6633.30) VS(4339.90) NS(1070.09) EW(4207.65)
#122 MD(10934.00) Inc(90.7) Azm(87.8) TVD(6632.31) VS(4433.22) NS(1073.24) EW(4302.59)
#123 MD(11030.00) Inc(89.3) Azm(89.2) TVD(6632.31) VS(4527.40) NS(1075.76) EW(4398.55)
#124 MD(11125.00) Inc(89.9) Azm(89.4) TVD(6632.97) VS(4620.33) NS(1076.92) EW(4493.54)
#125 MD(11220.00) Inc(91.4) Azm(89.2) TVD(6631.89) VS(4713.26) NS(1078.08) EW(4588.53)
#126 MD(11315.00) Inc(89.6) Azm(90.0) TVD(6631.06) VS(4806.08) NS(1078.74) EW(4683.52)
#127 MD(11380.00) Inc(90.2) Azm(90.1) TVD(6631.18) VS(4869.48) NS(1078.68) EW(4748.52)
#128 MD(11447.00) Inc(90.2) Azm(90.1) TVD(6630.94) VS(4934.62) NS(1078.37) EW(4813.52)