

**Company:** Noble Energy Inc  
**Well Name:** Steadfast E27-63-1HN

**API:** 05-123-38159  
**Rig Id:** Precision 828  
**State:** Colorado

**County/Parish:** Weld  
**Country:** USA

**Survey Company:** Ensign Directional  
**Job number:** 207-P828-30

**Company Man 1:** Gary Stapleton  
**Directional Driller 1:** Tyler Batchelder  
**Directional Driller 2:** Matt Mason  
**MWD 1:** Nick Jones  
**MWD 2:** Damien Hunter

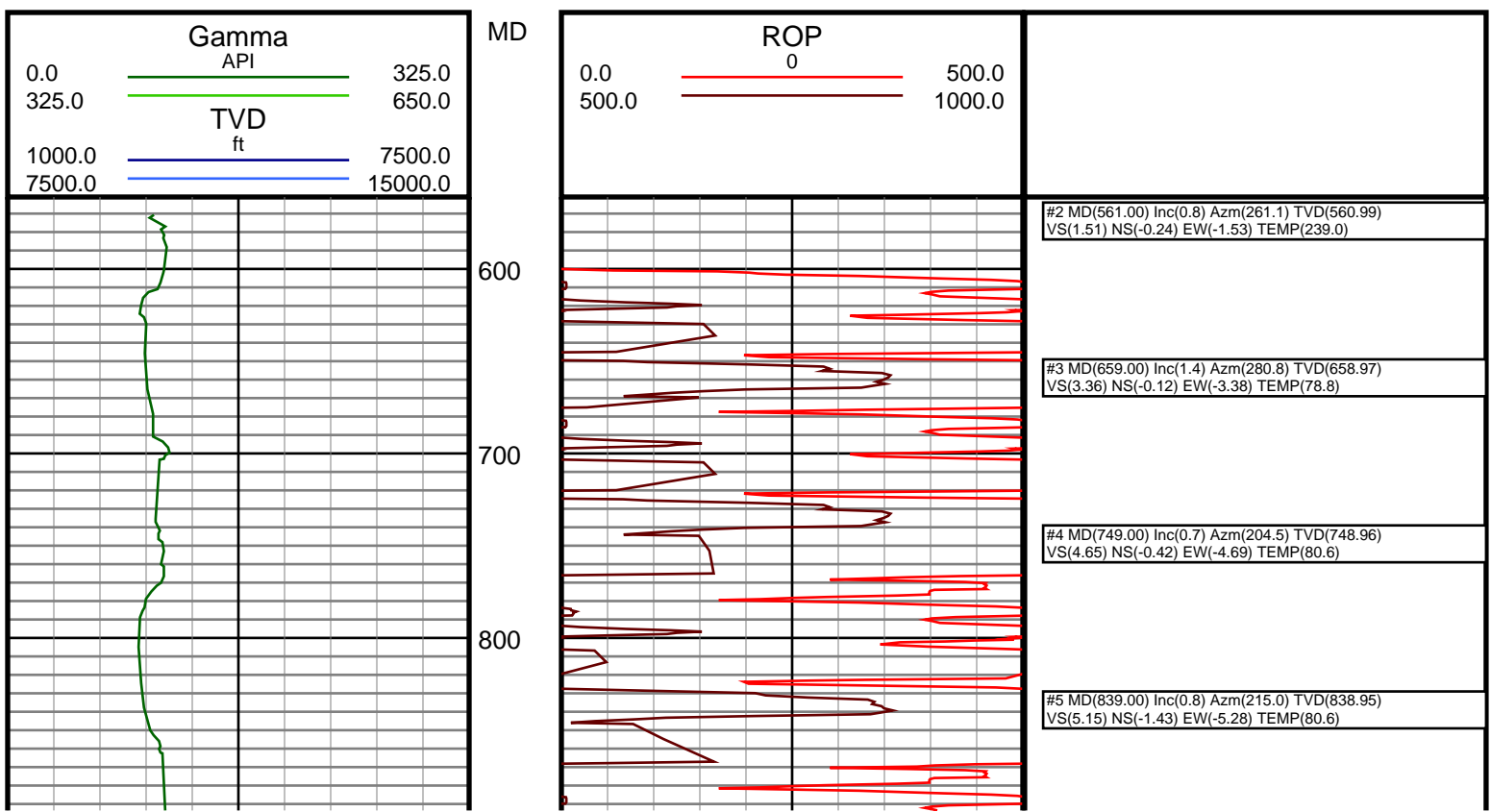
**Log measurements:** Gamma  
**Depth measured from:** KB  
**Maximum temperature:**

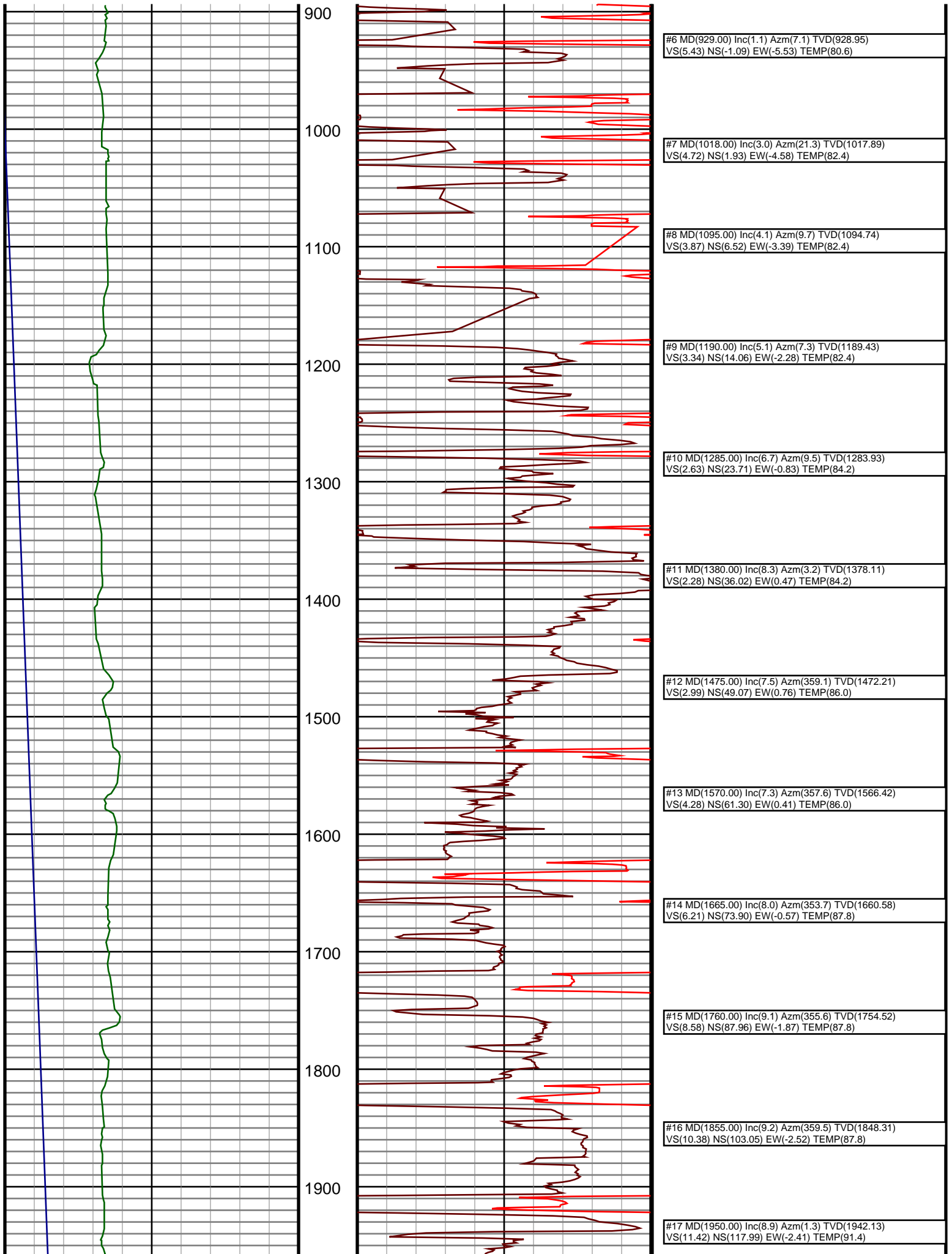
Casing	Depth	Size	Mud Type:	Elevations
Surface:	597	9.625	Water Based	KB: 4692
Intermediate:	7266	7	Viscosity:	GL: 4676
			Rm:	DF: 4692
			Rmf:	
			Rmc:	

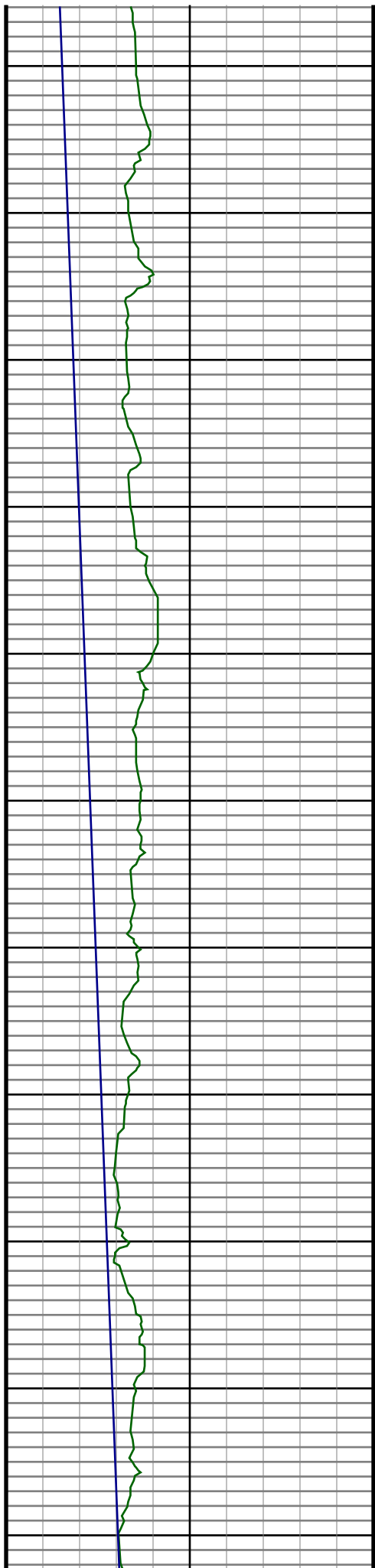
Run	Bit Size	Gamma Survey	Depths		Dates		
			Start	End	Start	End	
1	8 3/4	56.19	51.19	600	7278	5/6/2014	5/8/2014
2	6 1/8	65.33	60.33	7278	7282	5/9/2014	5/10/2014
3	6 1/8	65.83	60.83	7282	13528	5/10/2014	5/13/2014
4							
5							
6							
7							
8							
9							
10							

**Depth**      **Date**  
Start: 600 ft    5/6/2014  
End: 13528 ft   5/13/2014

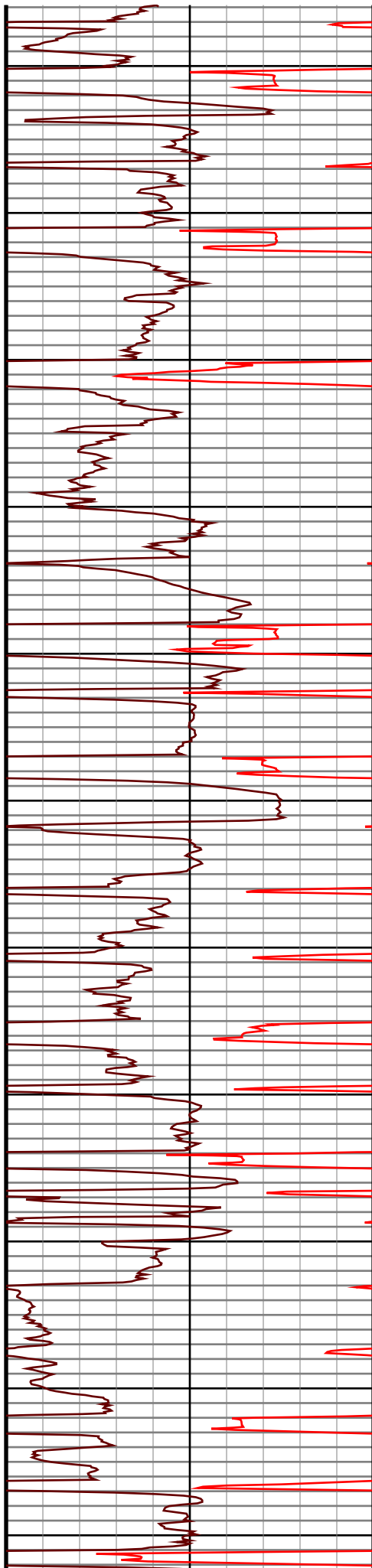
Ensign Directional uses its best efforts to provide its customers with accurate information and interpretations in conjunction with services performed but will not be held liable or responsible for the accuracy of such information or interpretation.







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3000



#18 MD(2059.00) Inc(9.4) Azm(1.6) TVD(2049.74)  
VS(12.30) NS(135.32) EW(-1.97) TEMP(93.2)

#19 MD(2149.00) Inc(8.8) Azm(10.2) TVD(2138.61)  
VS(11.96) NS(149.44) EW(-0.55) TEMP(93.2)

#20 MD(2239.00) Inc(9.4) Azm(7.1) TVD(2227.48)  
VS(10.91) NS(163.51) EW(1.58) TEMP(95.0)

#21 MD(2329.00) Inc(8.0) Azm(2.7) TVD(2316.44)  
VS(10.75) NS(177.06) EW(2.78) TEMP(96.8)

#22 MD(2418.00) Inc(8.4) Azm(2.9) TVD(2404.53)  
VS(11.10) NS(189.74) EW(3.40) TEMP(96.8)

#23 MD(2508.00) Inc(8.6) Azm(8.1) TVD(2493.54)  
VS(10.83) NS(202.96) EW(4.68) TEMP(98.6)

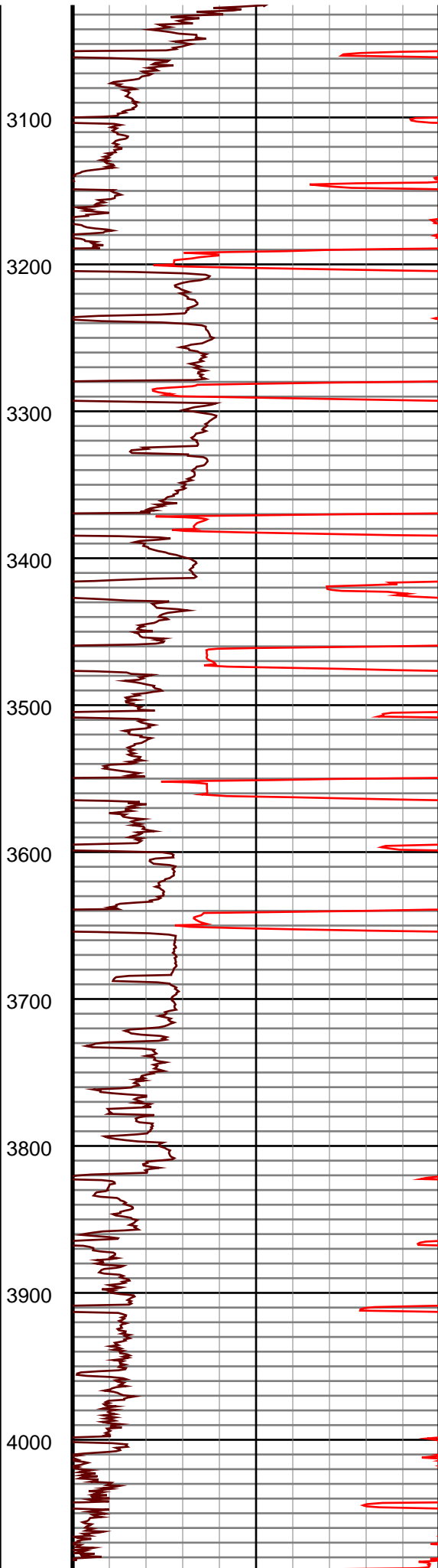
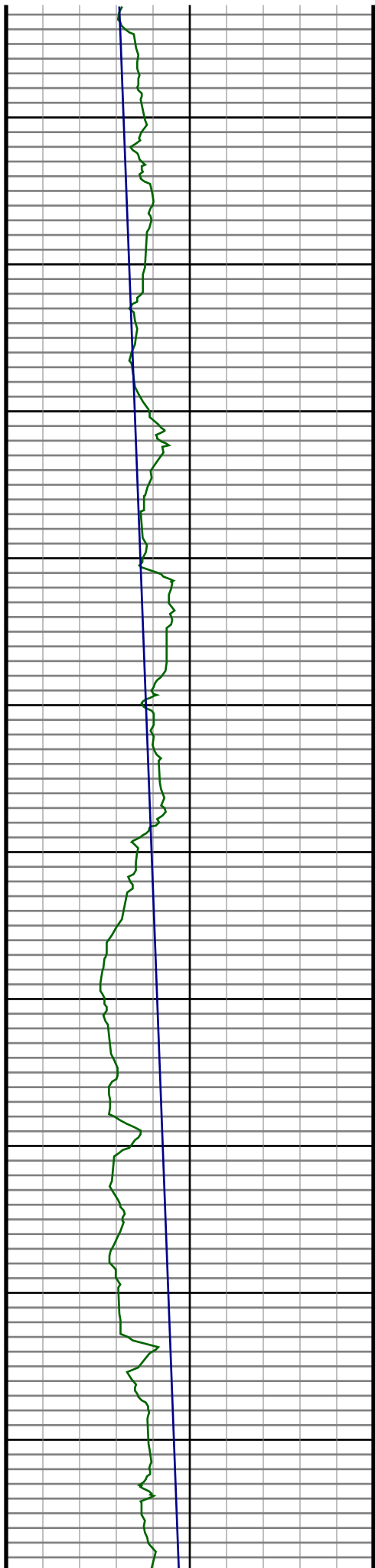
#24 MD(2598.00) Inc(7.5) Azm(7.5) TVD(2582.66)  
VS(10.08) NS(215.45) EW(6.40) TEMP(98.6)

#25 MD(2688.00) Inc(8.4) Azm(8.6) TVD(2671.79)  
VS(9.27) NS(227.77) EW(8.15) TEMP(102.2)

#26 MD(2778.00) Inc(9.8) Azm(6.5) TVD(2760.66)  
VS(8.51) NS(241.88) EW(10.00) TEMP(102.2)

#27 MD(2868.00) Inc(9.8) Azm(2.8) TVD(2849.34)  
VS(8.43) NS(257.14) EW(11.24) TEMP(105.8)

#28 MD(2958.00) Inc(10.4) Azm(2.8) TVD(2937.95)  
VS(8.87) NS(272.91) EW(12.01) TEMP(105.8)



#29 MD(3048.00) Inc(9.6) Azm(8.6) TVD(3026.58)  
VS(8.54) NS(288.44) EW(13.53) TEMP(105.8)

#30 MD(3137.00) Inc(7.6) Azm(4.9) TVD(3114.58)  
VS(7.94) NS(301.65) EW(15.14) TEMP(105.8)

#31 MD(3227.00) Inc(7.8) Azm(2.5) TVD(3203.77)  
VS(8.09) NS(313.68) EW(15.92) TEMP(113.0)

#32 MD(3317.00) Inc(7.1) Azm(1.5) TVD(3293.01)  
VS(8.57) NS(325.34) EW(16.33) TEMP(113.0)

#33 MD(3407.00) Inc(7.3) Azm(357.9) TVD(3382.30)  
VS(9.49) NS(336.61) EW(16.26) TEMP(113.0)

#34 MD(3497.00) Inc(7.0) Azm(4.2) TVD(3471.60)  
VS(10.15) NS(347.80) EW(16.46) TEMP(113.0)

#35 MD(3587.00) Inc(7.7) Azm(1.6) TVD(3560.86)  
VS(10.46) NS(359.29) EW(17.03) TEMP(113.0)

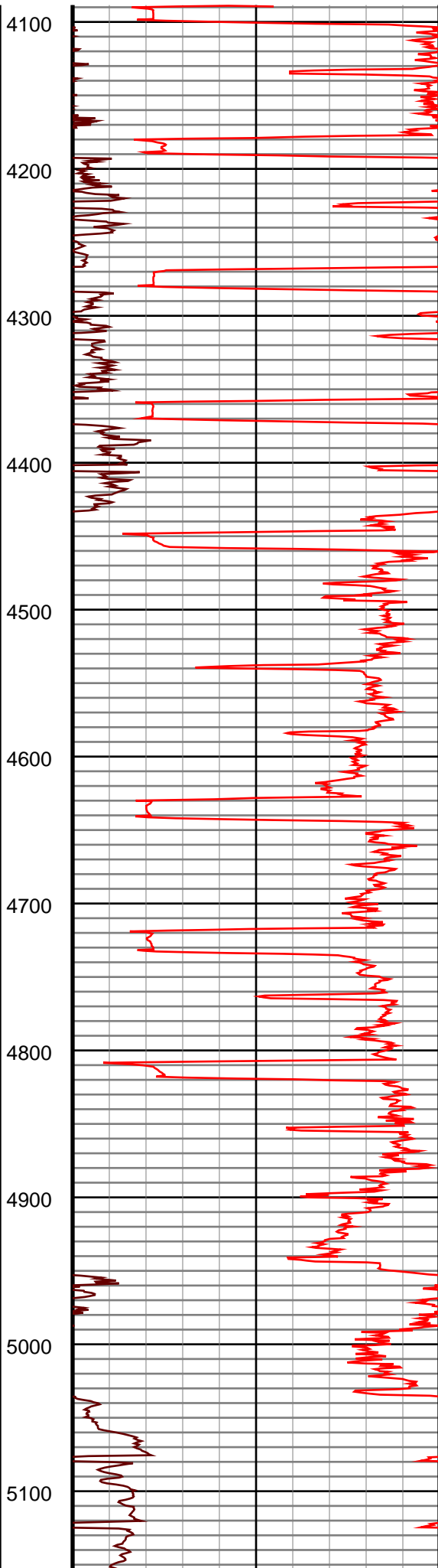
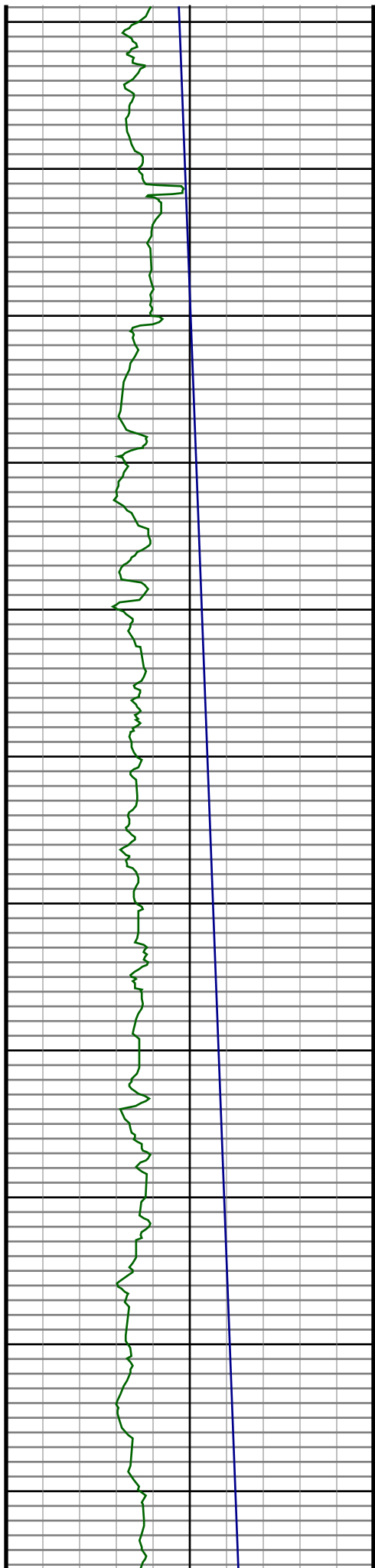
#36 MD(3677.00) Inc(8.8) Azm(8.6) TVD(3649.93)  
VS(10.25) NS(372.13) EW(18.22) TEMP(113.0)

#37 MD(3767.00) Inc(9.5) Azm(8.1) TVD(3738.78)  
VS(9.26) NS(386.29) EW(20.30) TEMP(118.4)

#38 MD(3856.00) Inc(9.7) Azm(8.0) TVD(3826.54)  
VS(8.31) NS(400.98) EW(22.38) TEMP(118.4)

#39 MD(3946.00) Inc(9.5) Azm(6.4) TVD(3915.28)  
VS(7.57) NS(415.87) EW(24.26) TEMP(118.4)

#40 MD(4036.00) Inc(8.6) Azm(7.1) TVD(4004.16)  
VS(6.99) NS(429.93) EW(25.92) TEMP(118.4)



#41 MD(4126.00) Inc(8.3) Azm(2.1) TVD(4093.18)  
VS(6.93) NS(443.10) EW(26.99) TEMP(123.8)

#42 MD(4216.00) Inc(8.7) Azm(8.7) TVD(4182.19)  
VS(6.67) NS(456.32) EW(28.26) TEMP(118.4)

#43 MD(4306.00) Inc(9.0) Azm(3.8) TVD(4271.12)  
VS(6.23) NS(470.07) EW(29.75) TEMP(123.8)

#44 MD(4395.00) Inc(9.3) Azm(358.8) TVD(4358.99)  
VS(7.00) NS(484.21) EW(30.06) TEMP(123.8)

#45 MD(4485.00) Inc(10.1) Azm(3.1) TVD(4447.70)  
VS(7.89) NS(499.36) EW(30.34) TEMP(123.8)

#46 MD(4575.00) Inc(8.2) Azm(0.2) TVD(4536.56)  
VS(8.53) NS(513.66) EW(30.79) TEMP(123.8)

#47 MD(4665.00) Inc(8.0) Azm(2.7) TVD(4625.66)  
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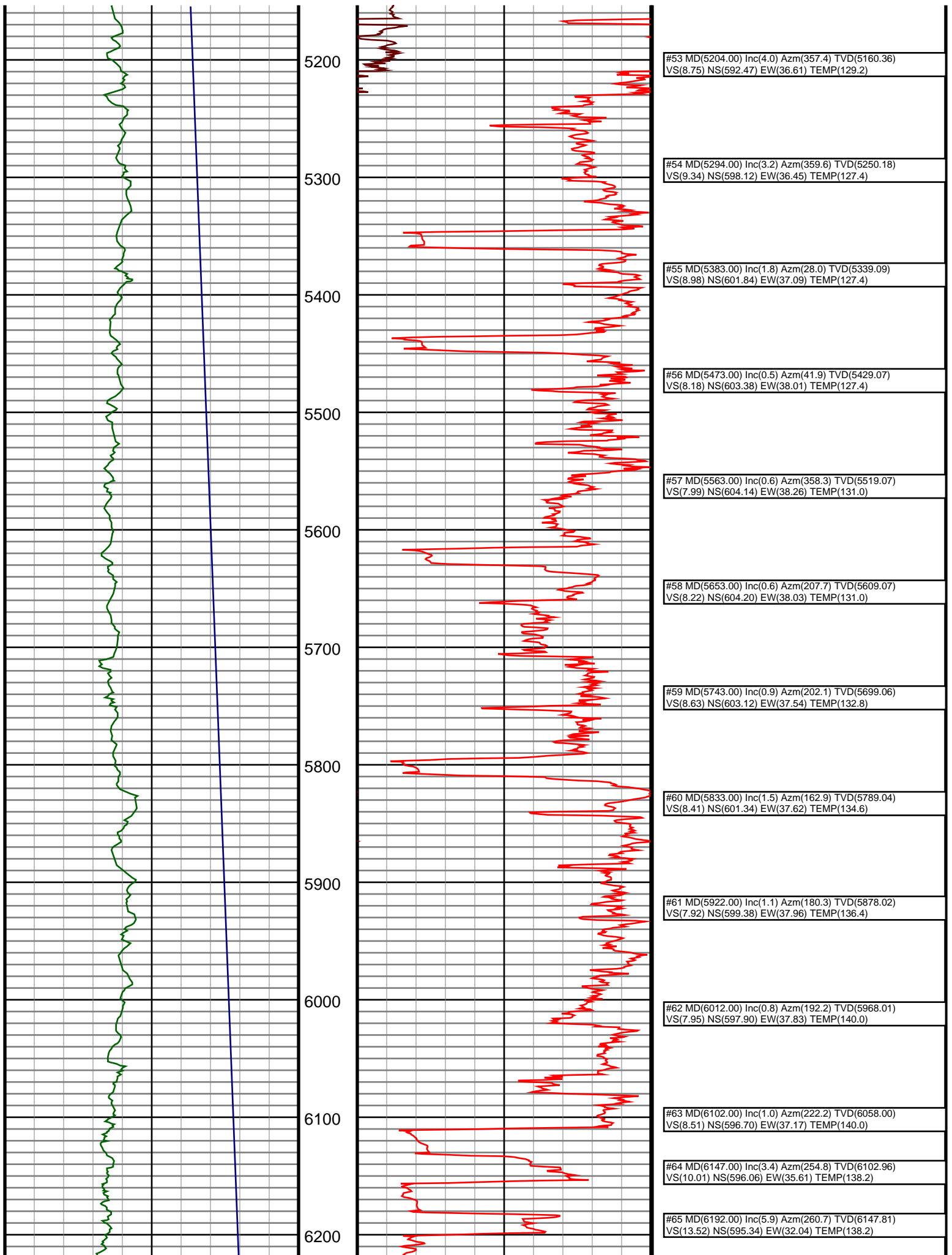
#48 MD(4754.00) Inc(8.8) Azm(4.2) TVD(4713.70)  
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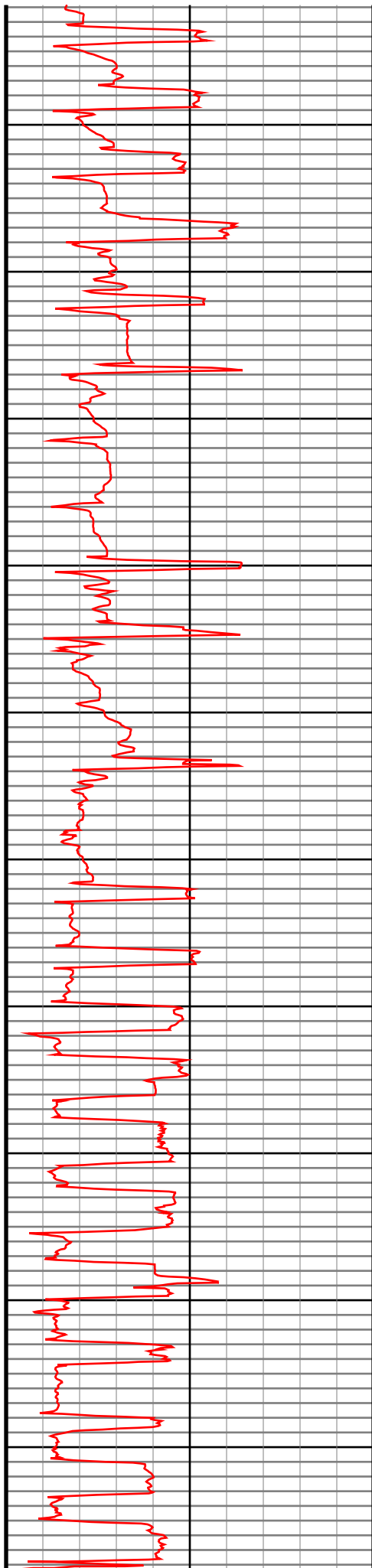
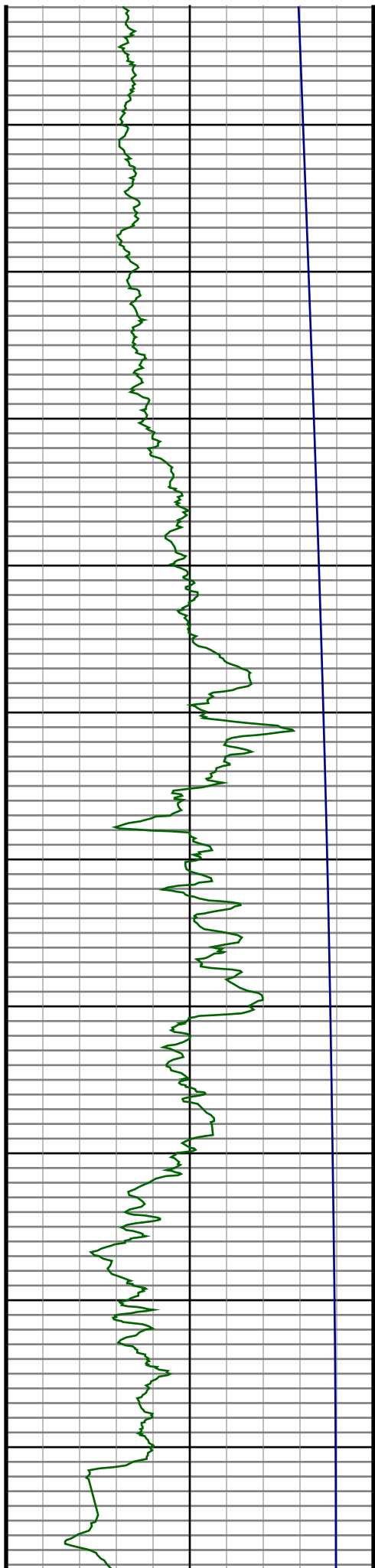
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VS(8.98) NS(553.00) EW(33.35) TEMP(129.2)

#50 MD(4934.00) Inc(7.3) Azm(5.5) TVD(4891.76)  
VS(8.45) NS(565.51) EW(34.84) TEMP(129.2)

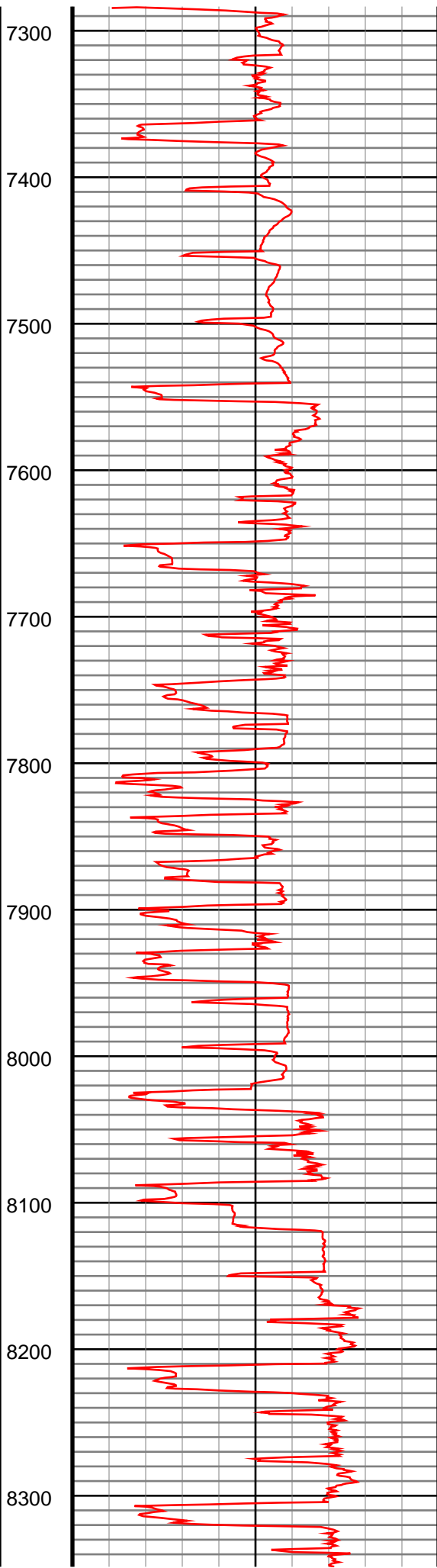
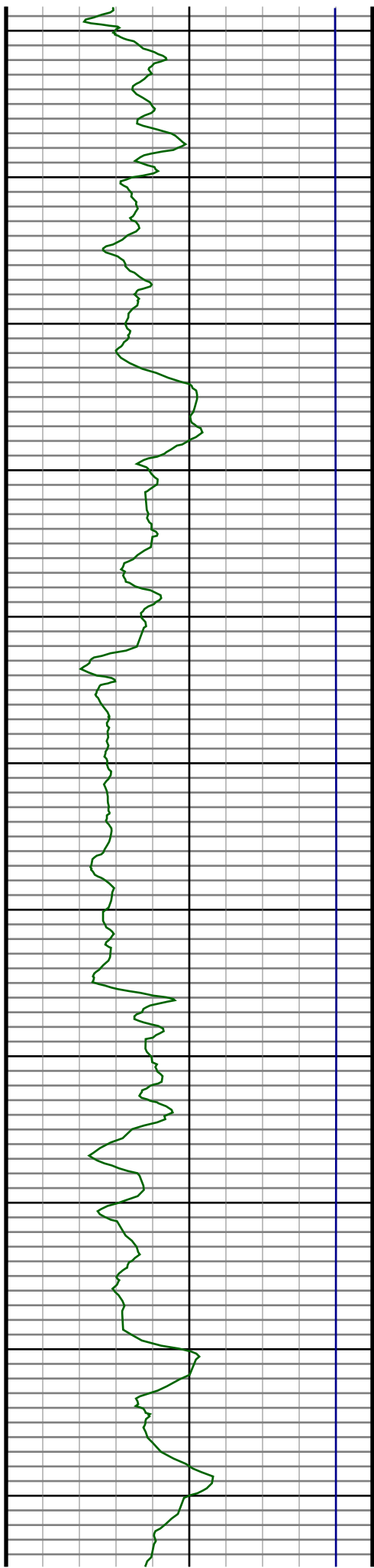
#51 MD(5024.00) Inc(6.5) Azm(5.0) TVD(4981.10)  
VS(8.28) NS(576.27) EW(35.83) TEMP(129.2)

#52 MD(5114.00) Inc(5.1) Azm(3.4) TVD(5070.64)  
VS(8.30) NS(585.34) EW(36.51) TEMP(129.2)

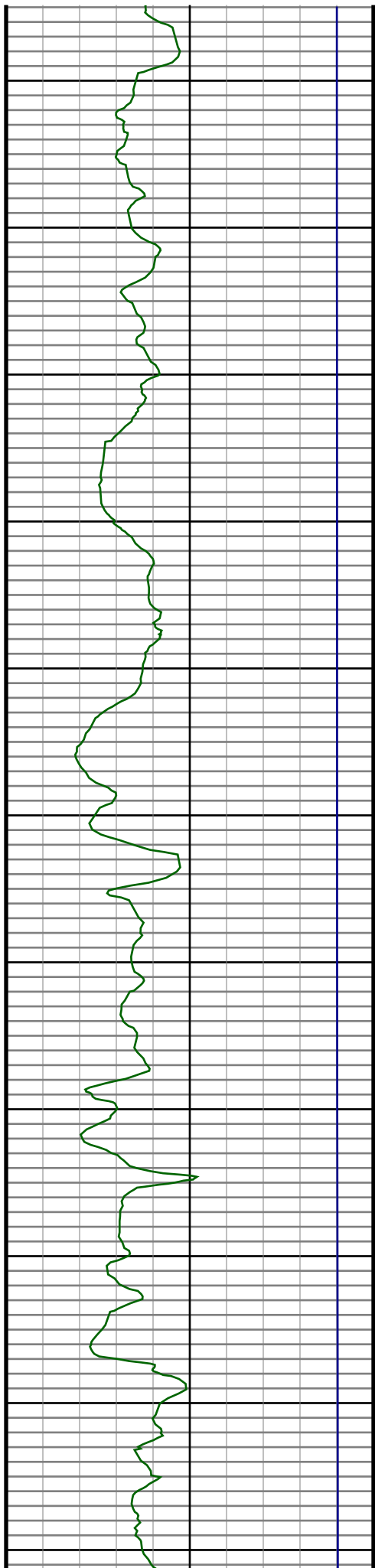




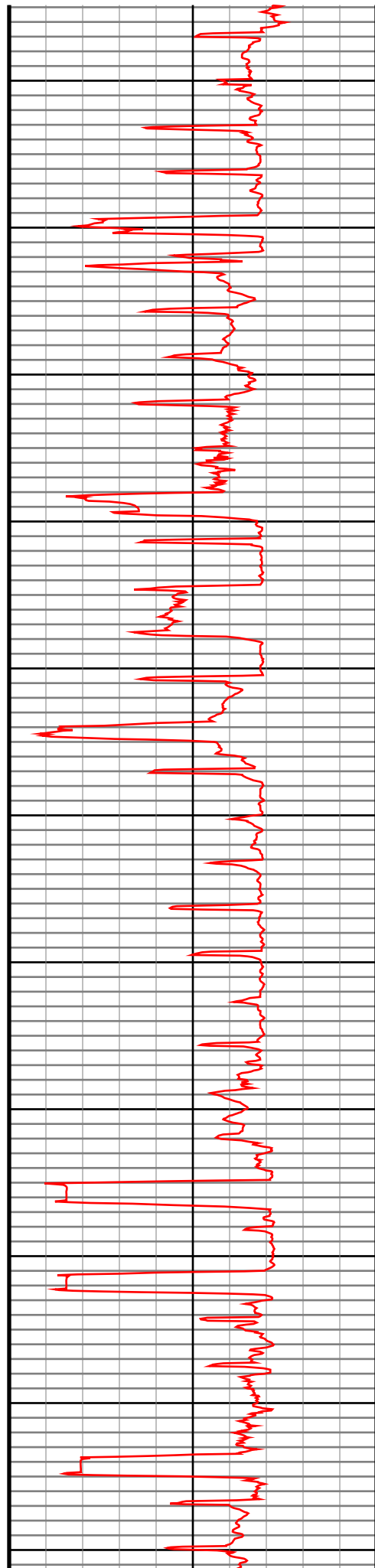
#66 MD(6237.00) Inc(8.6) Azm(261.4) TVD(6192.44) VS(19.04) NS(594.46) EW(26.43) TEMP(140.0)
#67 MD(6282.00) Inc(11.2) Azm(262.3) TVD(6236.77) VS(26.60) NS(593.37) EW(18.77) TEMP(140.0)
#68 MD(6326.00) Inc(13.6) Azm(265.2) TVD(6279.74) VS(35.88) NS(592.37) EW(9.38) TEMP(140.0)
#69 MD(6371.00) Inc(15.2) Azm(266.5) TVD(6323.33) VS(46.95) NS(591.56) EW(-1.78) TEMP(141.8)
#70 MD(6416.00) Inc(16.5) Azm(269.5) TVD(6366.62) VS(59.16) NS(591.15) EW(-14.06) TEMP(143.6)
#71 MD(6461.00) Inc(18.8) Azm(273.8) TVD(6409.50) VS(72.78) NS(591.57) EW(-27.69) TEMP(143.6)
#72 MD(6506.00) Inc(22.8) Azm(275.5) TVD(6451.56) VS(88.76) NS(592.89) EW(-43.61) TEMP(143.6)
#73 MD(6551.00) Inc(27.6) Azm(274.0) TVD(6492.26) VS(107.91) NS(594.45) EW(-62.69) TEMP(147.2)
#74 MD(6596.00) Inc(32.6) Azm(272.0) TVD(6531.18) VS(130.46) NS(595.60) EW(-85.22) TEMP(147.2)
#75 MD(6640.00) Inc(36.3) Azm(272.0) TVD(6567.46) VS(155.33) NS(596.47) EW(-110.09) TEMP(147.2)
#76 MD(6685.00) Inc(39.8) Azm(270.4) TVD(6602.89) VS(183.01) NS(597.04) EW(-137.82) TEMP(147.2)
#77 MD(6730.00) Inc(45.0) Azm(269.5) TVD(6636.11) VS(213.25) NS(597.00) EW(-168.15) TEMP(149.0)
#78 MD(6775.00) Inc(49.5) Azm(267.0) TVD(6666.65) VS(246.09) NS(595.96) EW(-201.17) TEMP(149.0)
#79 MD(6820.00) Inc(54.7) Azm(265.5) TVD(6694.28) VS(281.23) NS(593.63) EW(-236.58) TEMP(149.0)
#80 MD(6865.00) Inc(59.7) Azm(264.5) TVD(6718.65) VS(318.53) NS(590.32) EW(-274.25) TEMP(152.6)
#81 MD(6910.00) Inc(63.4) Azm(264.8) TVD(6740.09) VS(357.52) NS(586.63) EW(-313.64) TEMP(152.6)
#82 MD(6955.00) Inc(65.8) Azm(265.7) TVD(6759.39) VS(397.66) NS(583.27) EW(-354.14) TEMP(154.4)
#83 MD(7000.00) Inc(68.0) Azm(266.7) TVD(6777.04) VS(438.62) NS(580.53) EW(-395.44) TEMP(154.4)
#84 MD(7045.00) Inc(69.7) Azm(268.1) TVD(6793.28) VS(480.28) NS(578.63) EW(-437.37) TEMP(156.2)
#85 MD(7090.00) Inc(72.0) Azm(268.9) TVD(6808.04) VS(522.56) NS(577.52) EW(-479.86) TEMP(156.2)
#86 MD(7135.00) Inc(76.5) Azm(268.7) TVD(6820.25) VS(565.66) NS(576.61) EW(-523.15) TEMP(158.0)
#87 MD(7179.00) Inc(82.2) Azm(268.4) TVD(6828.38) VS(608.66) NS(575.52) EW(-566.36) TEMP(159.8)
#88 MD(7226.00) Inc(86.2) Azm(268.9) TVD(6833.13) VS(655.17) NS(574.42) EW(-613.09) TEMP(159.8)



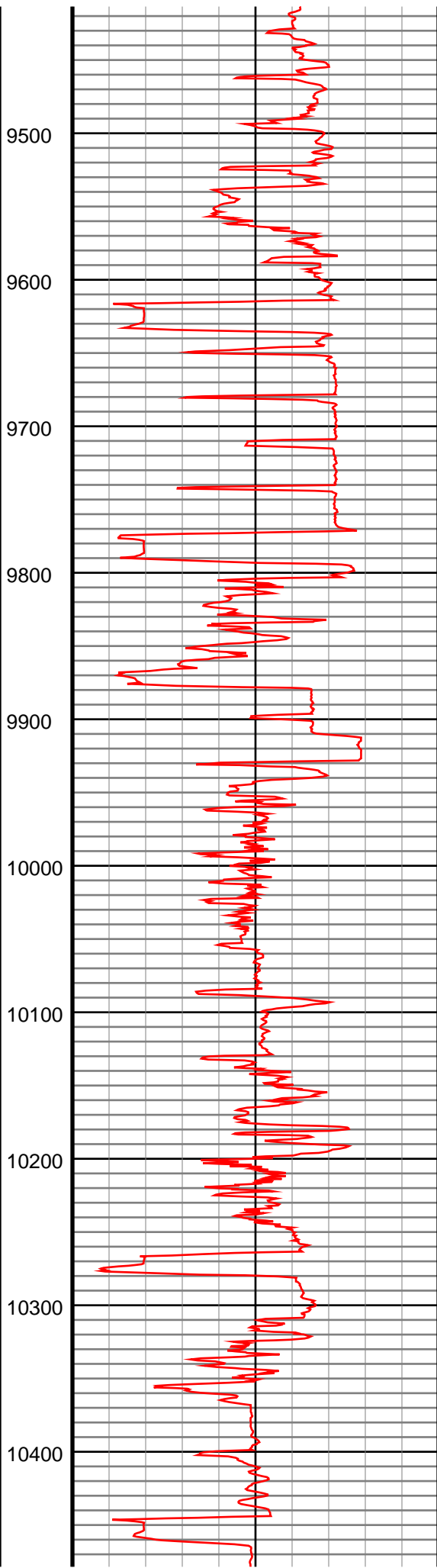
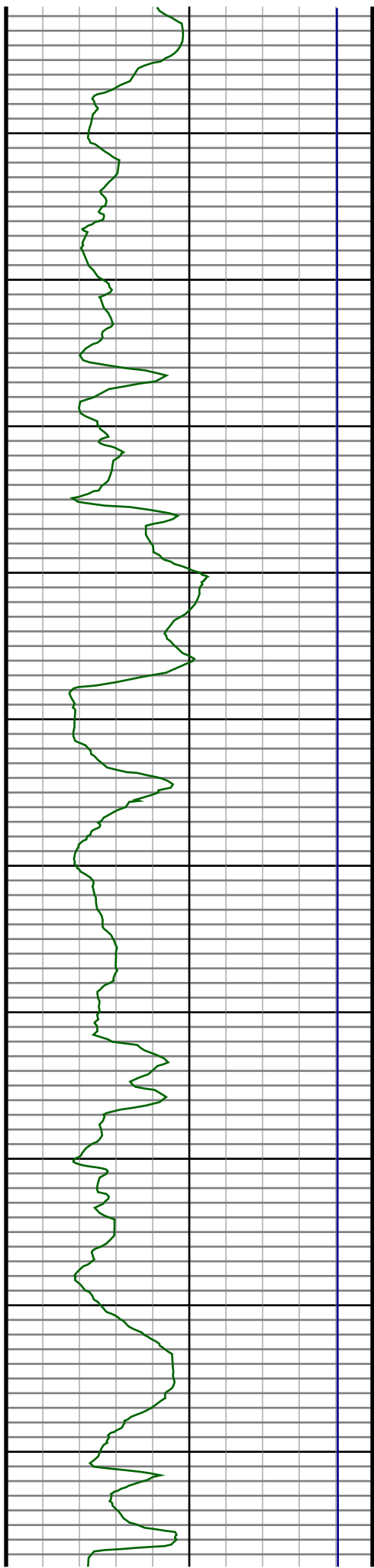
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#90 MD(7390.00) Inc(88.1) Azm(269.6) TVD(6839.08) VS(817.92) NS(567.82) EW(-776.82) TEMP(-61.6)
#91 MD(7480.00) Inc(88.7) Azm(269.3) TVD(6841.59) VS(907.55) NS(566.95) EW(-866.78) TEMP(192.2)
#92 MD(7588.00) Inc(87.5) Azm(270.6) TVD(6845.17) VS(1015.16) NS(566.86) EW(-974.72) TEMP(190.4)
#93 MD(7681.00) Inc(87.4) Azm(271.1) TVD(6849.31) VS(1107.89) NS(568.24) EW(-1067.61) TEMP(192.2)
#94 MD(7774.00) Inc(87.2) Azm(271.1) TVD(6853.69) VS(1200.64) NS(570.02) EW(-1160.49) TEMP(192.2)
#95 MD(7868.00) Inc(87.3) Azm(268.5) TVD(6858.20) VS(1294.22) NS(569.69) EW(-1254.38) TEMP(192.2)
#96 MD(7962.00) Inc(92.2) Azm(270.0) TVD(6858.61) VS(1387.81) NS(568.46) EW(-1348.34) TEMP(194.0)
#97 MD(8055.00) Inc(92.6) Azm(270.2) TVD(6854.72) VS(1480.47) NS(568.62) EW(-1441.25) TEMP(188.6)
#98 MD(8149.00) Inc(91.5) Azm(271.1) TVD(6851.36) VS(1574.21) NS(569.69) EW(-1535.19) TEMP(195.8)
#99 MD(8243.00) Inc(89.0) Azm(271.4) TVD(6850.95) VS(1668.06) NS(571.74) EW(-1629.15) TEMP(197.6)
#100 MD(8337.00) Inc(89.8) Azm(271.1) TVD(6851.93) VS(1761.92) NS(573.79) EW(-1723.13) TEMP(199.4)



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#101 MD(8431.00) Inc(90.2) Azm(270.9) TVD(6851.93) VS(1855.75) NS(575.43) EW(-1817.11) TEMP(203.0)
#102 MD(8523.00) Inc(88.9) Azm(270.3) TVD(6852.65) VS(1947.55) NS(576.40) EW(-1909.10) TEMP(199.4)
#103 MD(8617.00) Inc(88.2) Azm(269.5) TVD(6855.03) VS(2041.23) NS(576.23) EW(-2003.07) TEMP(199.4)
#104 MD(8712.00) Inc(90.6) Azm(271.1) TVD(6856.03) VS(2135.97) NS(576.73) EW(-2098.05) TEMP(201.2)
#105 MD(8805.00) Inc(89.2) Azm(270.0) TVD(6856.19) VS(2228.76) NS(577.62) EW(-2191.05) TEMP(201.2)
#106 MD(8898.00) Inc(90.5) Azm(269.5) TVD(6856.43) VS(2321.45) NS(577.22) EW(-2284.04) TEMP(203.0)
#107 MD(8992.00) Inc(89.3) Azm(268.7) TVD(6856.60) VS(2415.05) NS(575.74) EW(-2378.03) TEMP(203.0)
#108 MD(9086.00) Inc(88.2) Azm(268.0) TVD(6858.65) VS(2508.51) NS(573.03) EW(-2471.96) TEMP(204.8)
#109 MD(9180.00) Inc(87.4) Azm(270.1) TVD(6862.26) VS(2602.03) NS(571.48) EW(-2565.88) TEMP(203.0)
#110 MD(9273.00) Inc(88.1) Azm(269.6) TVD(6865.91) VS(2694.66) NS(571.23) EW(-2658.80) TEMP(204.8)
#111 MD(9367.00) Inc(89.2) Azm(270.3) TVD(6868.12) VS(2788.35) NS(571.15) EW(-2752.77) TEMP(206.6)



#112 MD(9461.00) Inc(88.9) Azm(270.1) TVD(6869.68)  
VS(2882.09) NS(571.48) EW(-2846.76) TEMP(208.4)

#113 MD(9555.00) Inc(88.2) Azm(269.7) TVD(6872.06)  
VS(2975.77) NS(571.32) EW(-2940.73) TEMP(210.2)

#114 MD(9648.00) Inc(89.0) Azm(269.9) TVD(6874.33)  
VS(3068.45) NS(570.99) EW(-3033.70) TEMP(210.2)

#115 MD(9741.00) Inc(87.7) Azm(269.7) TVD(6877.01)  
VS(3161.11) NS(570.67) EW(-3126.66) TEMP(206.6)

#116 MD(9835.00) Inc(88.9) Azm(269.7) TVD(6879.80)  
VS(3254.75) NS(570.17) EW(-3220.62) TEMP(206.6)

#117 MD(9929.00) Inc(90.4) Azm(269.7) TVD(6880.37)  
VS(3348.44) NS(569.68) EW(-3314.61) TEMP(208.4)

#118 MD(10023.00) Inc(90.0) Azm(269.0) TVD(6880.04)  
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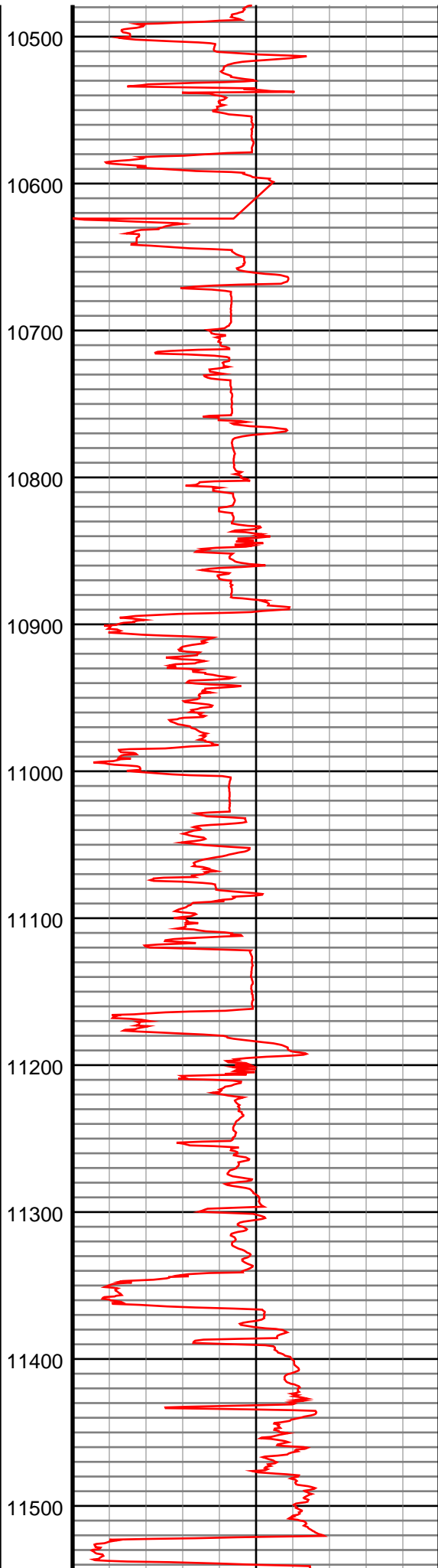
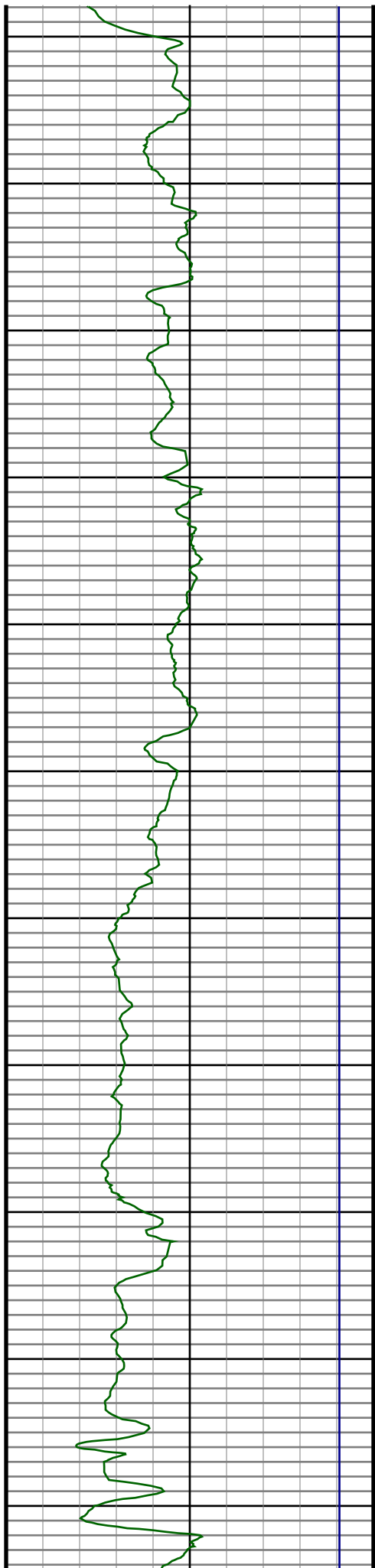
#119 MD(10113.00) Inc(90.2) Azm(269.5) TVD(6879.89)  
VS(3531.71) NS(567.44) EW(-3498.59) TEMP(212.0)

#120 MD(10202.00) Inc(89.8) Azm(269.1) TVD(6879.89)  
VS(3620.36) NS(566.35) EW(-3587.59) TEMP(213.8)

#121 MD(10292.00) Inc(89.0) Azm(269.5) TVD(6880.83)  
VS(3710.00) NS(565.25) EW(-3677.57) TEMP(212.0)

#122 MD(10382.00) Inc(87.5) Azm(267.1) TVD(6883.58)  
VS(3799.45) NS(562.58) EW(-3767.48) TEMP(215.6)

#123 MD(10472.00) Inc(88.4) Azm(267.7) TVD(6886.80)  
VS(3888.72) NS(558.50) EW(-3857.33) TEMP(213.8)



#124 MD(10562.00) Inc(88.7) Azm(268.4) TVD(6889.07)  
VS(3978.14) NS(555.44) EW(-3947.25) TEMP(213.8)

#125 MD(10651.00) Inc(89.9) Azm(270.9) TVD(6890.16)  
VS(4066.82) NS(554.90) EW(-4036.23) TEMP(215.6)

#126 MD(10741.00) Inc(89.9) Azm(270.6) TVD(6890.32)  
VS(4156.64) NS(556.08) EW(-4126.23) TEMP(-61.6)

#127 MD(10831.00) Inc(89.1) Azm(270.3) TVD(6891.10)  
VS(4246.43) NS(556.78) EW(-4216.22) TEMP(219.2)

#128 MD(10920.00) Inc(89.3) Azm(271.3) TVD(6892.35)  
VS(4335.24) NS(558.03) EW(-4305.20) TEMP(221.0)

#129 MD(11010.00) Inc(89.8) Azm(271.8) TVD(6893.05)  
VS(4425.13) NS(560.46) EW(-4395.16) TEMP(221.0)

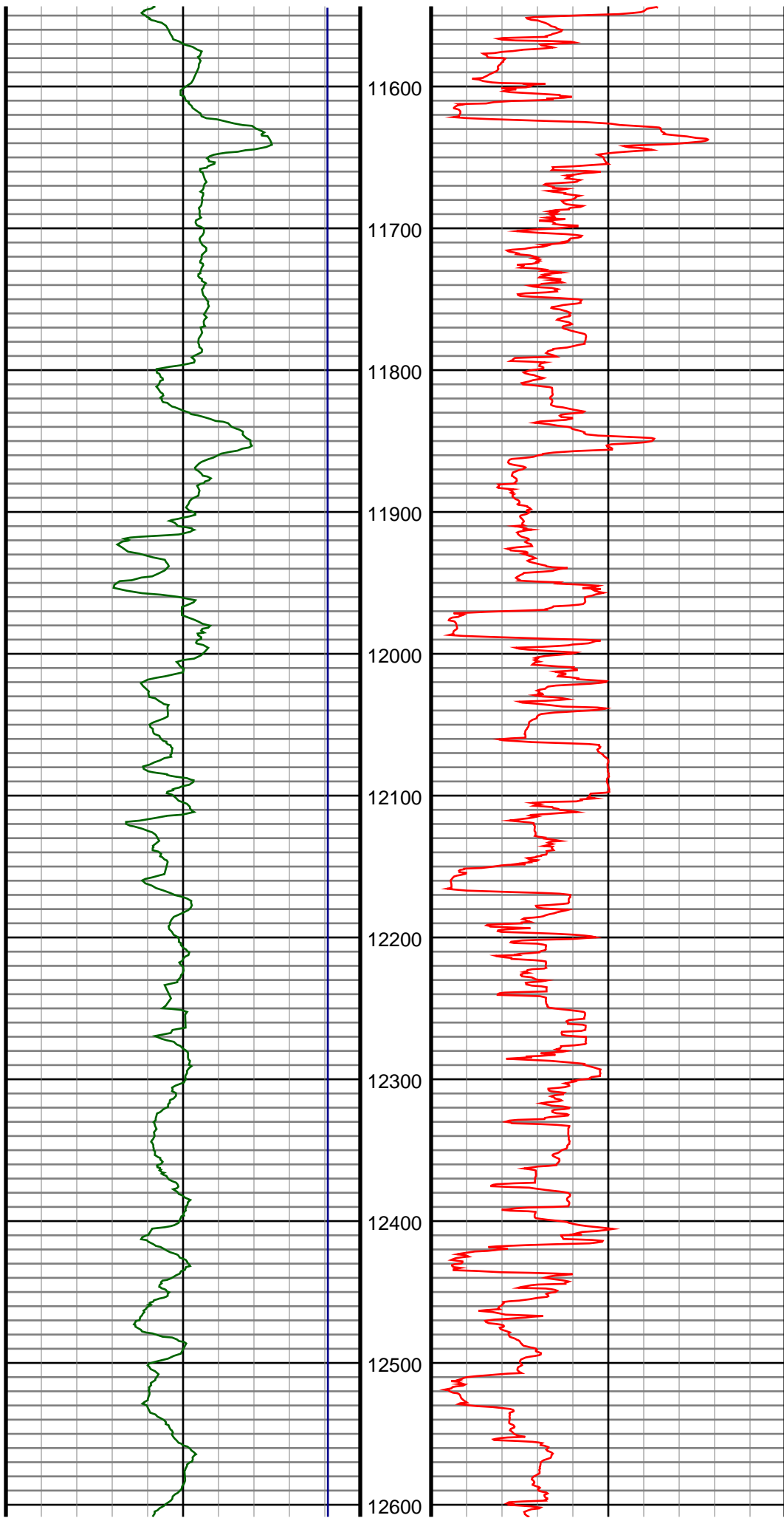
#130 MD(11100.00) Inc(89.0) Azm(271.7) TVD(6894.00)  
VS(4515.03) NS(563.21) EW(-4485.12) TEMP(222.8)

#131 MD(11190.00) Inc(89.5) Azm(271.0) TVD(6895.17)  
VS(4604.90) NS(565.33) EW(-4575.08) TEMP(222.8)

#132 MD(11280.00) Inc(89.3) Azm(271.3) TVD(6896.12)  
VS(4694.75) NS(567.14) EW(-4665.06) TEMP(215.6)

#133 MD(11370.00) Inc(89.8) Azm(270.7) TVD(6896.82)  
VS(4784.59) NS(568.71) EW(-4755.04) TEMP(221.0)

#134 MD(11459.00) Inc(89.4) Azm(270.6) TVD(6897.44)  
VS(4873.40) NS(569.72) EW(-4844.03) TEMP(224.6)



#135 MD(11549.00) Inc(89.6) Azm(271.3) TVD(6898.23)  
VS(4963.23) NS(571.21) EW(-4934.02) TEMP(224.6)

#136 MD(11639.00) Inc(89.8) Azm(269.1) TVD(6898.70)  
VS(5052.99) NS(571.52) EW(-5024.01) TEMP(224.6)

#137 MD(11729.00) Inc(89.4) Azm(269.1) TVD(6899.33)  
VS(5142.60) NS(570.11) EW(-5114.00) TEMP(228.2)

#138 MD(11818.00) Inc(89.1) Azm(268.5) TVD(6900.49)  
VS(5231.17) NS(568.24) EW(-5202.97) TEMP(228.2)

#139 MD(11908.00) Inc(88.7) Azm(267.7) TVD(6902.22)  
VS(5320.61) NS(565.26) EW(-5292.90) TEMP(230.0)

#140 MD(11998.00) Inc(89.2) Azm(269.1) TVD(6903.87)  
VS(5410.11) NS(562.75) EW(-5382.85) TEMP(230.0)

#141 MD(12088.00) Inc(89.2) Azm(268.4) TVD(6905.13)  
VS(5499.66) NS(560.79) EW(-5472.82) TEMP(231.8)

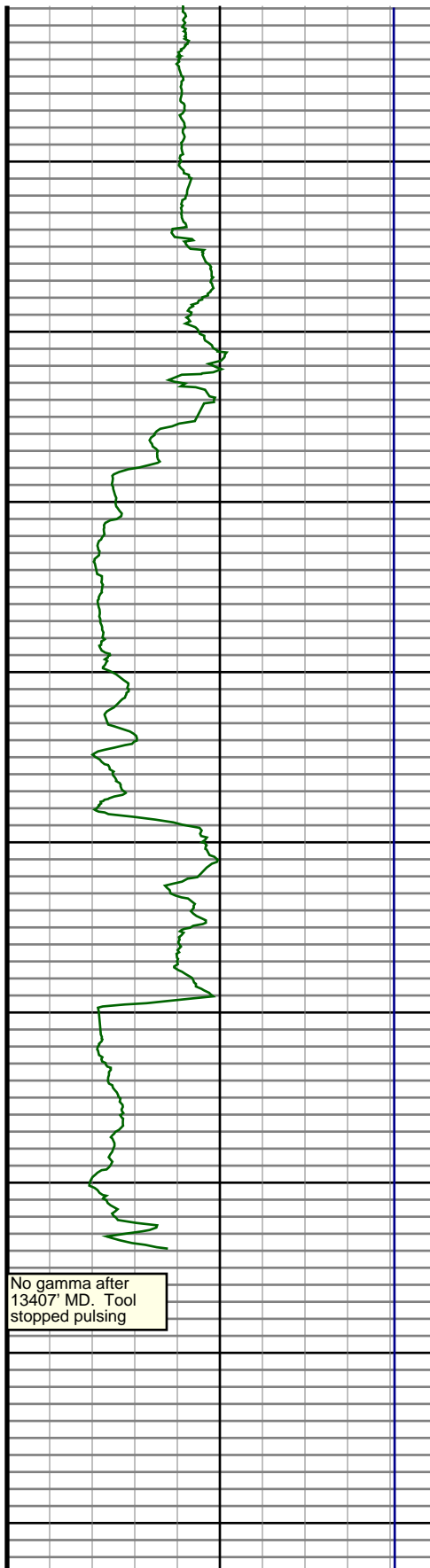
#142 MD(12177.00) Inc(90.5) Azm(269.9) TVD(6905.36)  
VS(5588.29) NS(559.47) EW(-5561.80) TEMP(230.0)

#143 MD(12267.00) Inc(90.3) Azm(269.3) TVD(6904.73)  
VS(5677.97) NS(558.84) EW(-5651.80) TEMP(230.0)

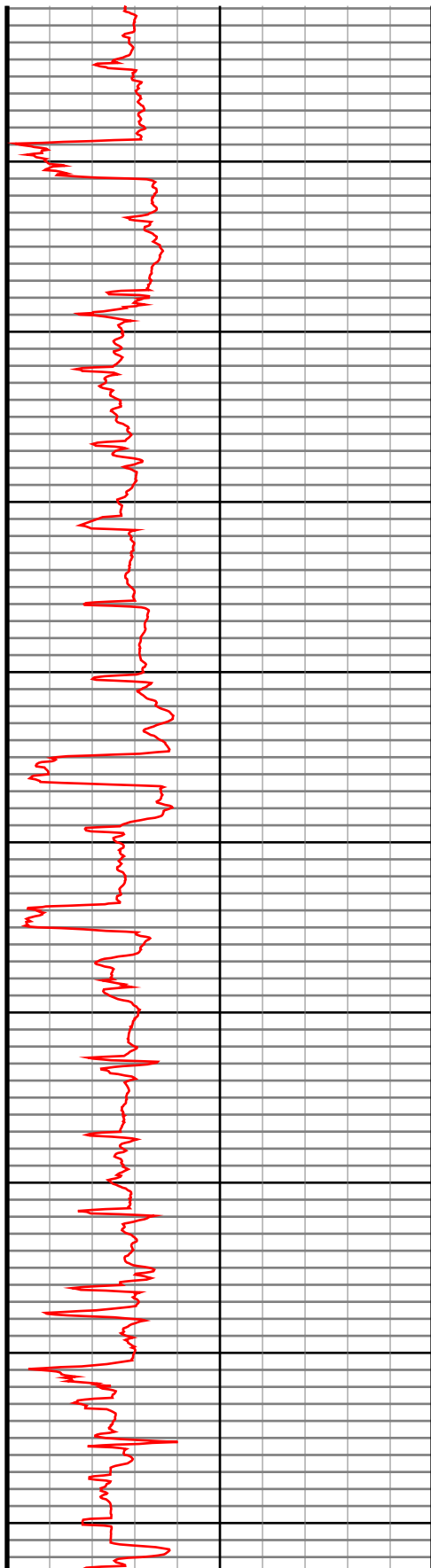
#144 MD(12357.00) Inc(89.6) Azm(267.7) TVD(6904.81)  
VS(5767.50) NS(556.48) EW(-5741.77) TEMP(231.8)

#145 MD(12447.00) Inc(89.1) Azm(268.4) TVD(6905.83)  
VS(5856.94) NS(553.42) EW(-5831.71) TEMP(347.0)

#146 MD(12537.00) Inc(90.2) Azm(270.0) TVD(6906.38)  
VS(5946.57) NS(552.16) EW(-5921.69) TEMP(230.0)



12700  
12800  
12900  
13000  
13100  
13200  
13300  
13400  
13500



#147 MD(12627.00) Inc(89.5) Azm(268.8) TVD(6906.62) VS(6036.22) NS(551.22) EW(-6011.68) TEMP(233.6)
#148 MD(12716.00) Inc(89.8) Azm(270.3) TVD(6907.16) VS(6124.90) NS(550.52) EW(-6100.68) TEMP(230.0)
#149 MD(12806.00) Inc(89.6) Azm(269.9) TVD(6907.63) VS(6214.65) NS(550.68) EW(-6190.68) TEMP(231.8)
#150 MD(12896.00) Inc(89.3) Azm(269.5) TVD(6908.50) VS(6304.35) NS(550.21) EW(-6280.67) TEMP(233.6)
#151 MD(12986.00) Inc(90.8) Azm(267.8) TVD(6908.42) VS(6393.89) NS(548.09) EW(-6370.64) TEMP(235.4)
#152 MD(13076.00) Inc(89.4) Azm(268.8) TVD(6908.26) VS(6483.38) NS(545.42) EW(-6460.60) TEMP(233.6)
#153 MD(13166.00) Inc(88.4) Azm(270.4) TVD(6909.99) VS(6573.05) NS(544.79) EW(-6550.57) TEMP(233.6)
#154 MD(13256.00) Inc(88.1) Azm(269.9) TVD(6912.74) VS(6662.76) NS(545.02) EW(-6640.53) TEMP(237.2)
#155 MD(13301.00) Inc(88.2) Azm(269.9) TVD(6914.19) VS(6707.60) NS(544.95) EW(-6685.51) TEMP(237.2)

