Mahalo State AA09-72-1AHNB

MD
1":100'

Company:	Noble Energy Inc
Well Name:	Mahalo State AA09-72-1AHNB
API:	05-123-39012
Rig Id:	Precision 828
State:	Colorado
County/Parish:	Weld
Country:	USA
Survey Company:	Ensign Directional
Job number:	207-P828-52
Company Man 1	Gary Stapleton
Directional Driller 1	Tyler Batchelder
Directional Driller 2	Nick Jones
MWD 1	Derek Saykally
MWD 2	Buster Snider

Log measurements: Gama
Depth measured from: KB
Maximum temperature:

	Depth	Date
Start:	831 ft	1/9/2015
End:	11883 ft	1/16/2015

Casing	Depth	Size
Surface:	831	9.625
Intermediate:	7043	7.0

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

Elevations
KB: 4732
GL: 4716
DF: 4732

Run	Bit Size	Offsets Gamma	Offsets Survey	Depths Start	Depths End	Dates Start	Dates End
1	8 3/4	61.50	56.50	831	7043	1/9/2015	1/11/2015
2	6 1/8	60.59	55.59	7043	10850	1/12/2015	1/14/2015
3	6 1/8	60.59	55.59	10850	11883	1/14/2015	1/16/2015
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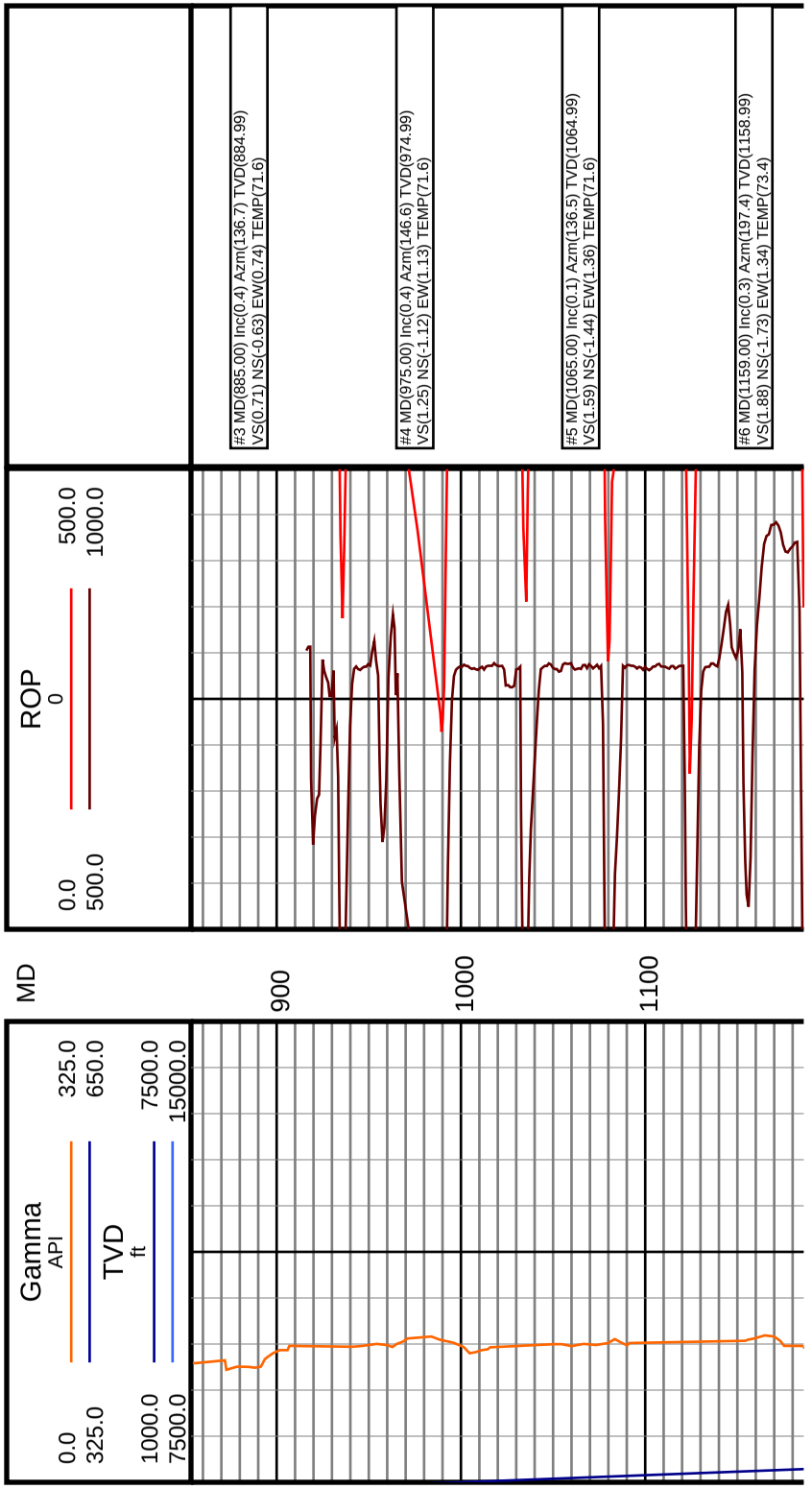

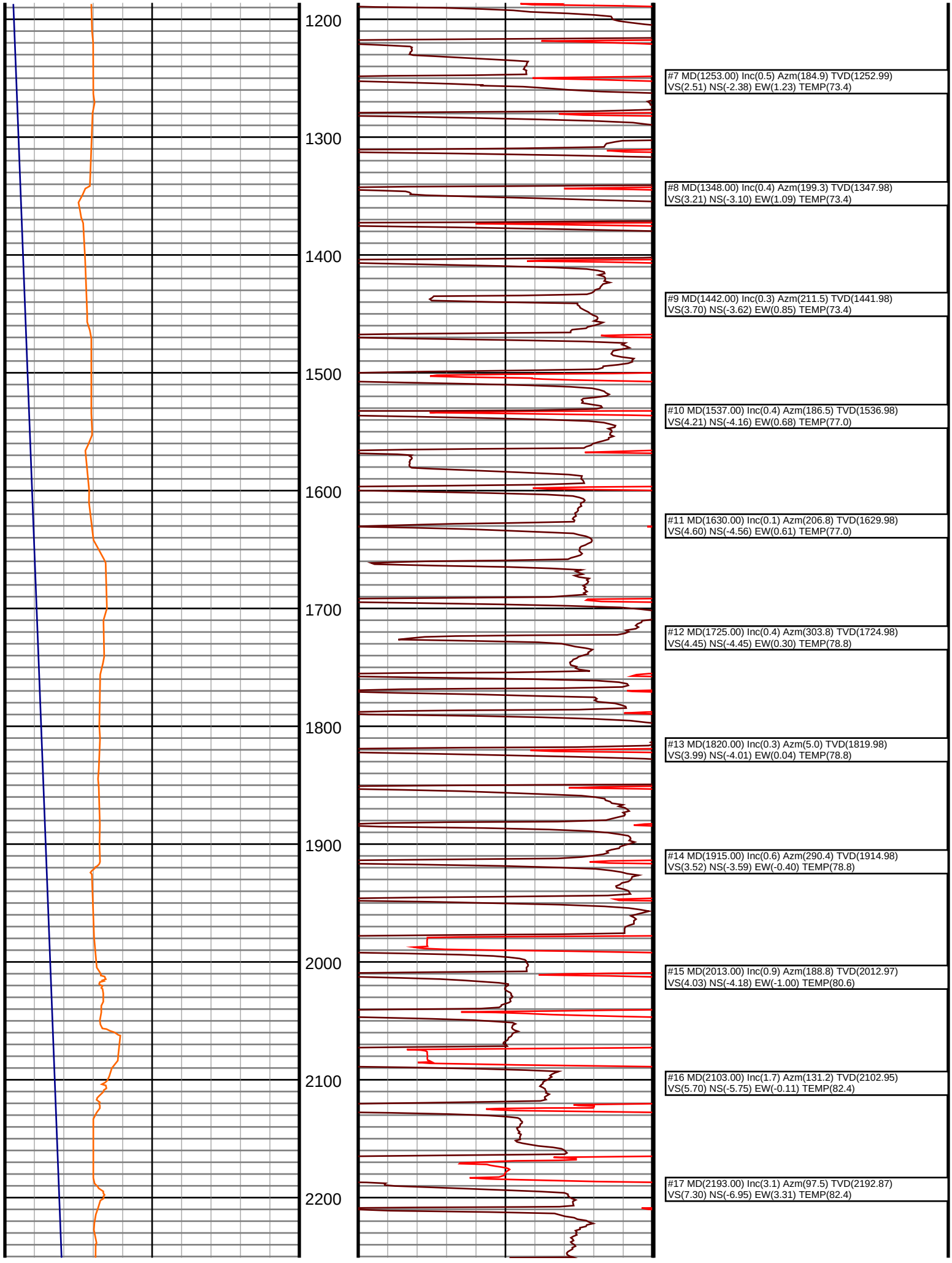
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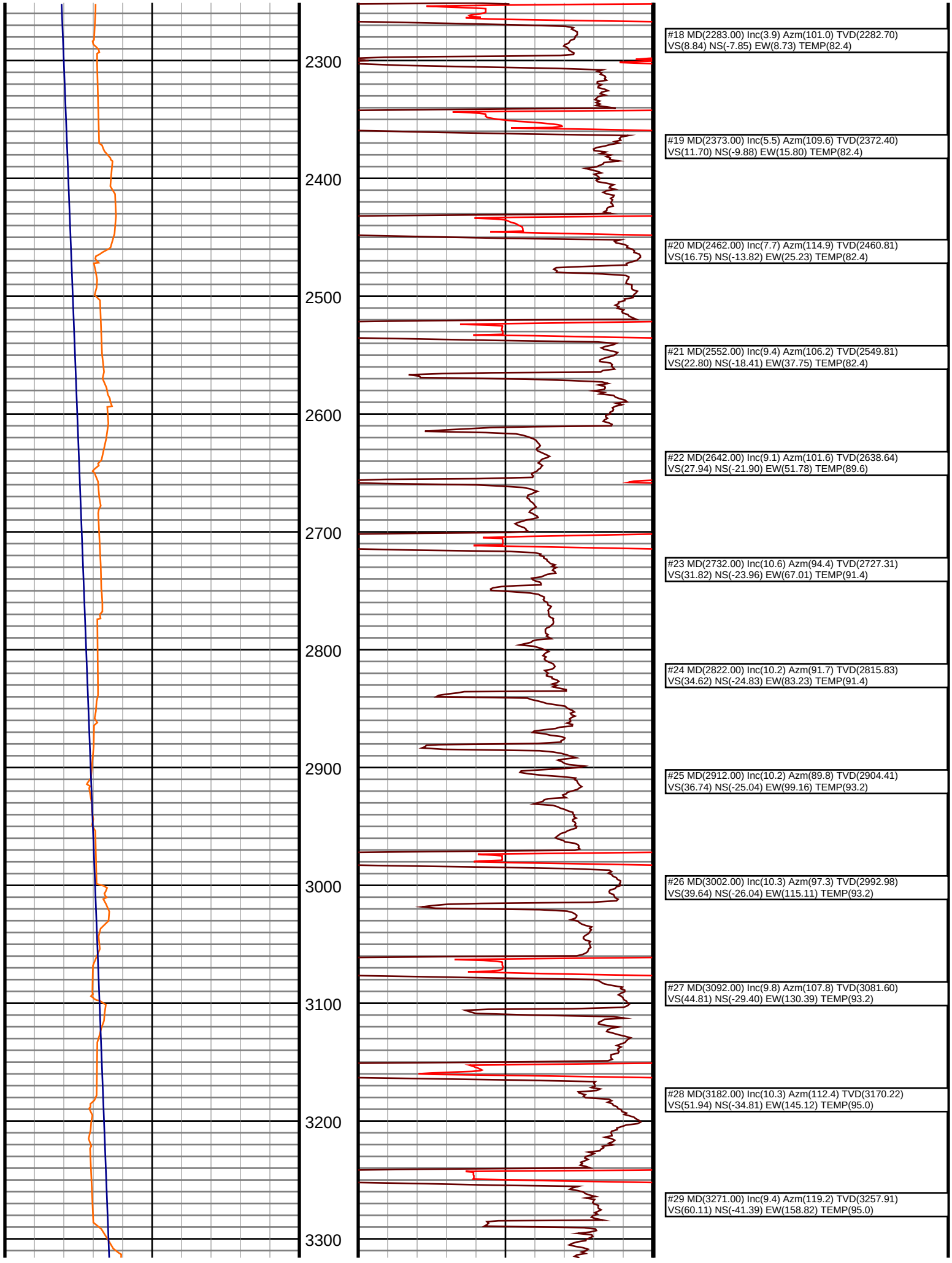
#7 MD(1253.00) Inc(0.5) Azm(184.9) TVD(1252.99)
VS(2.51) NS(-2.38) EW(1.23) TEMP(73.4)
#8 MD(1348.00) Inc(0.4) Azm(199.3) TVD(1347.98)
VS(3.21) NS(-3.10) EW(1.09) TEMP(73.4)
#9 MD(1442.00) Inc(0.3) Azm(211.5) TVD(1441.98)
VS(3.70) NS(-3.62) EW(0.85) TEMP(73.4)
#10 MD(1537.00) Inc(0.4) Azm(186.5) TVD(1536.98)
VS(4.21) NS(-4.16) EW(0.68) TEMP(77.0)
#11 MD(1630.00) Inc(0.1) Azm(206.8) TVD(1629.98)
VS(4.60) NS(-4.56) EW(0.61) TEMP(77.0)
#12 MD(1725.00) Inc(0.4) Azm(303.8) TVD(1724.98)
VS(4.45) NS(-4.45) EW(0.30) TEMP(78.8)
#13 MD(1820.00) Inc(0.3) Azm(5.0) TVD(1819.98)
VS(3.99) NS(-4.01) EW(0.04) TEMP(78.8)
#14 MD(1915.00) Inc(0.6) Azm(290.4) TVD(1914.98)
VS(3.52) NS(-3.59) EW(-0.40) TEMP(78.8)
#15 MD(2013.00) Inc(0.9) Azm(188.8) TVD(2012.97)
VS(4.03) NS(-4.18) EW(-1.00) TEMP(80.6)
#16 MD(2103.00) Inc(1.7) Azm(131.2) TVD(2102.95)
VS(5.70) NS(-5.75) EW(-0.11) TEMP(82.4)
#17 MD(2193.00) Inc(3.1) Azm(97.5) TVD(2192.87)
VS(7.30) NS(-6.95) EW(3.31) TEMP(82.4)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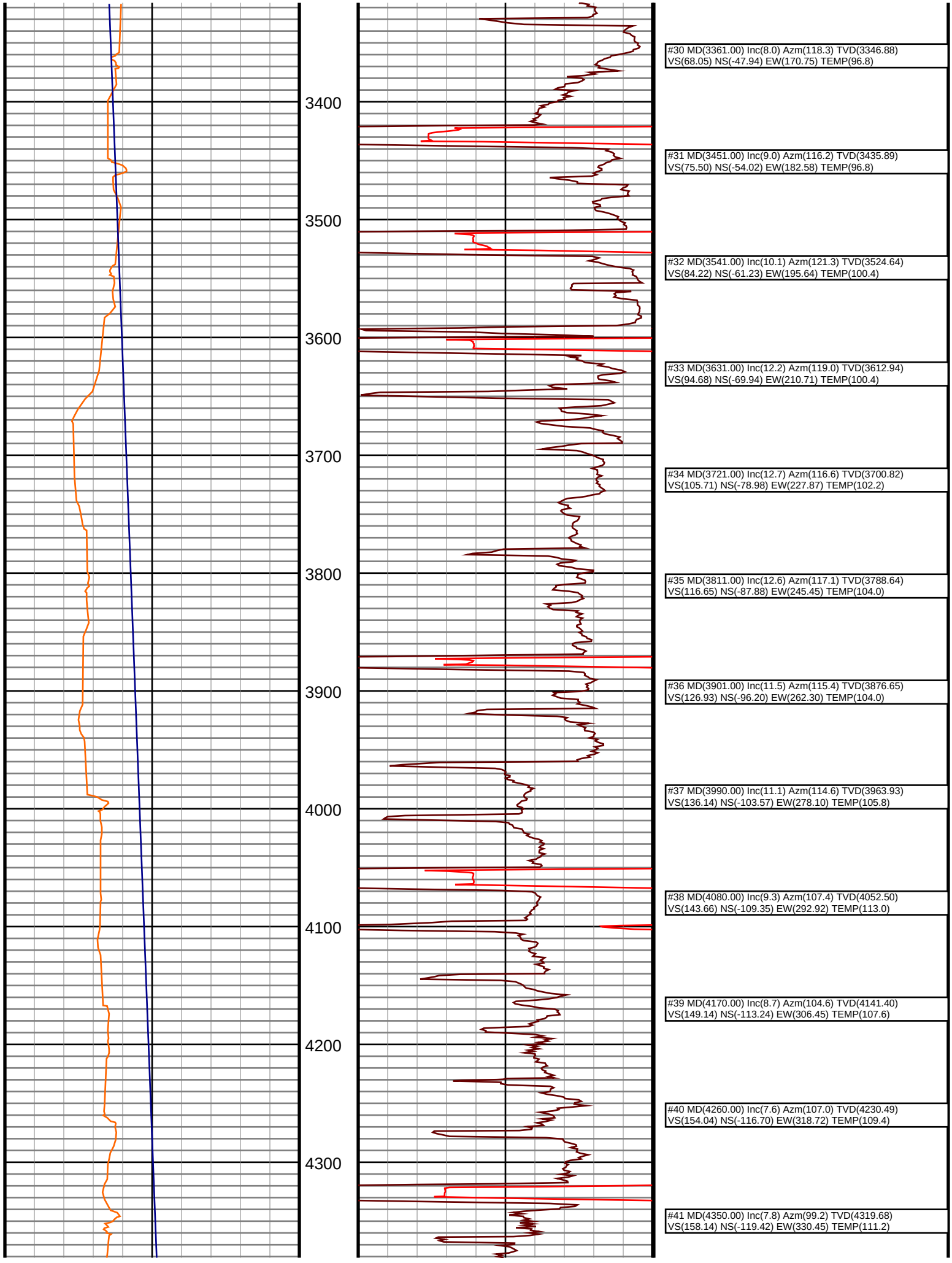
VS(8.84) NS(-7.85) EW(8.73) TEMP(82.4)
#19 MD(2373.00) Inc(5.5) Azm(109.6) TVD(2372.40)
VS(11.70) NS(-9.88) EW(15.80) TEMP(82.4)
#20 MD(2462.00) Inc(7.7) Azm(114.9) TVD(2460.81)
VS(16.75) NS(-13.82) EW(25.23) TEMP(82.4)
#21 MD(2552.00) Inc(9.4) Azm(106.2) TVD(2549.81)
VS(22.80) NS(-18.41) EW(37.75) TEMP(82.4)
#22 MD(2642.00) Inc(9.1) Azm(101.6) TVD(2638.64)
VS(27.94) NS(-21.90) EW(51.78) TEMP(89.6)
#23 MD(2732.00) Inc(10.6) Azm(94.4) TVD(2727.31)
VS(31.82) NS(-23.96) EW(67.01) TEMP(91.4)
#24 MD(2822.00) Inc(10.2) Azm(91.7) TVD(2815.83)
VS(34.62) NS(-24.83) EW(83.23) TEMP(91.4)
#25 MD(2912.00) Inc(10.2) Azm(89.8) TVD(2904.41)
VS(36.74) NS(-25.04) EW(99.16) TEMP(93.2)
#26 MD(3002.00) Inc(10.3) Azm(97.3) TVD(2992.98)
VS(39.64) NS(-26.04) EW(115.11) TEMP(93.2)
#27 MD(3092.00) Inc(9.8) Azm(107.8) TVD(3081.60)
VS(44.81) NS(-29.40) EW(130.39) TEMP(93.2)
#28 MD(3182.00) Inc(10.3) Azm(112.4) TVD(3170.22)
VS(51.94) NS(-34.81) EW(145.12) TEMP(95.0)
#29 MD(3271.00) Inc(9.4) Azm(119.2) TVD(3257.91)
VS(60.11) NS(-41.39) EW(158.82) TEMP(95.0)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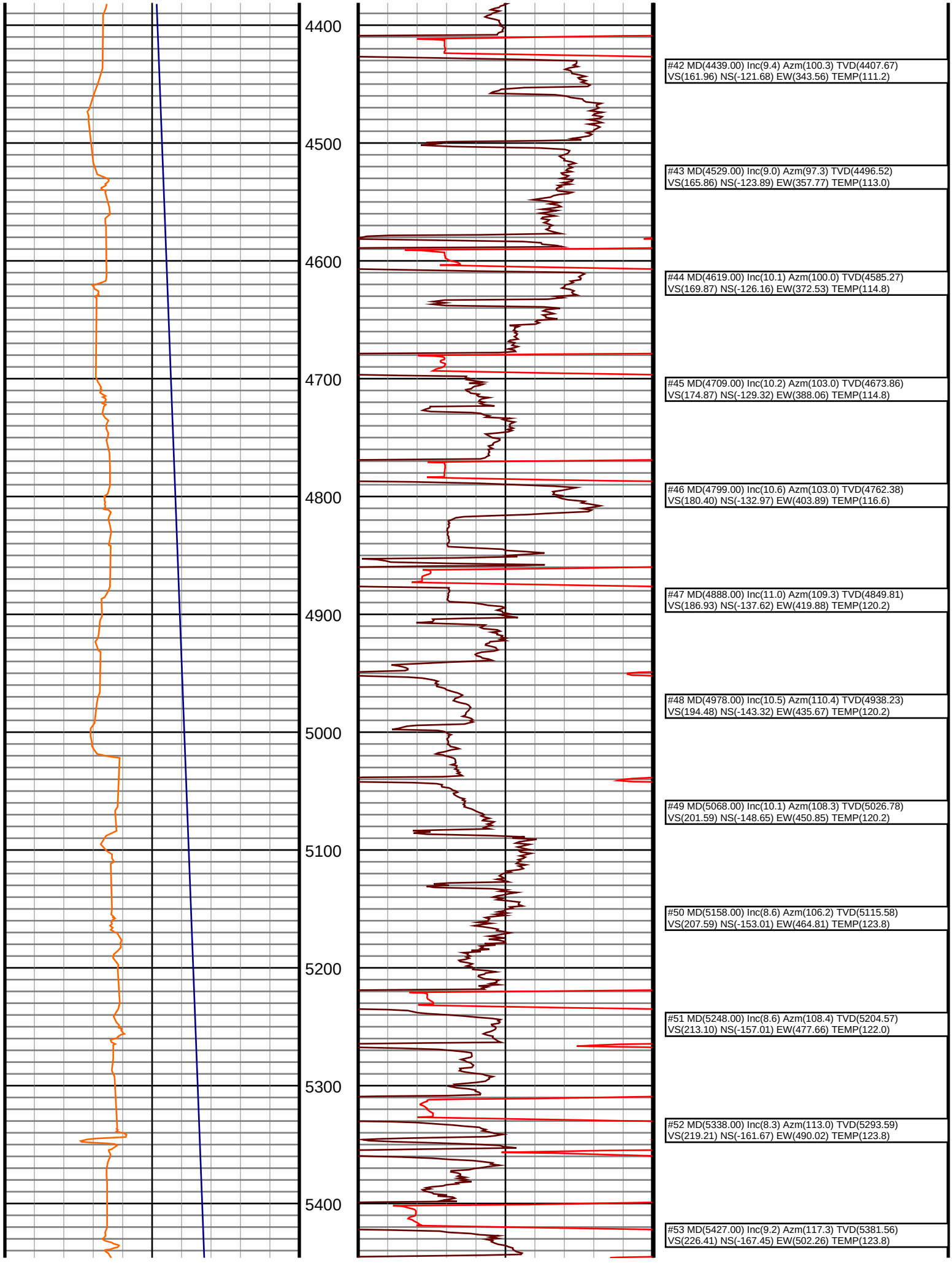
VS(68.05) NS(-47.94) EW(170.75) TEMP(96.8)
#31 MD(3451.00) Inc(9.0) Azm(116.2) TVD(3435.89)
VS(75.50) NS(-54.02) EW(182.58) TEMP(96.8)
#32 MD(3541.00) Inc(10.1) Azm(121.3) TVD(3524.64)
VS(84.22) NS(-61.23) EW(195.64) TEMP(100.4)
#33 MD(3631.00) Inc(12.2) Azm(119.0) TVD(3612.94)
VS(94.68) NS(-69.94) EW(210.71) TEMP(100.4)
#34 MD(3721.00) Inc(12.7) Azm(116.6) TVD(3700.82)
VS(105.71) NS(-78.98) EW(227.87) TEMP(102.2)
#35 MD(3811.00) Inc(12.6) Azm(117.1) TVD(3788.64)
VS(116.65) NS(-87.88) EW(245.45) TEMP(104.0)
#36 MD(3901.00) Inc(11.5) Azm(115.4) TVD(3876.65)
VS(126.93) NS(-96.20) EW(262.30) TEMP(104.0)
#37 MD(3990.00) Inc(11.1) Azm(114.6) TVD(3963.93)
VS(136.14) NS(-103.57) EW(278.10) TEMP(105.8)
#38 MD(4080.00) Inc(9.3) Azm(107.4) TVD(4052.50)
VS(143.66) NS(-109.35) EW(292.92) TEMP(113.0)
#39 MD(4170.00) Inc(8.7) Azm(104.6) TVD(4141.40)
VS(149.14) NS(-113.24) EW(306.45) TEMP(107.6)
#40 MD(4260.00) Inc(7.6) Azm(107.0) TVD(4230.49)
VS(154.04) NS(-116.70) EW(318.72) TEMP(109.4)
#41 MD(4350.00) Inc(7.8) Azm(99.2) TVD(4319.68)
VS(158.14) NS(-119.42) EW(330.45) TEMP(111.2)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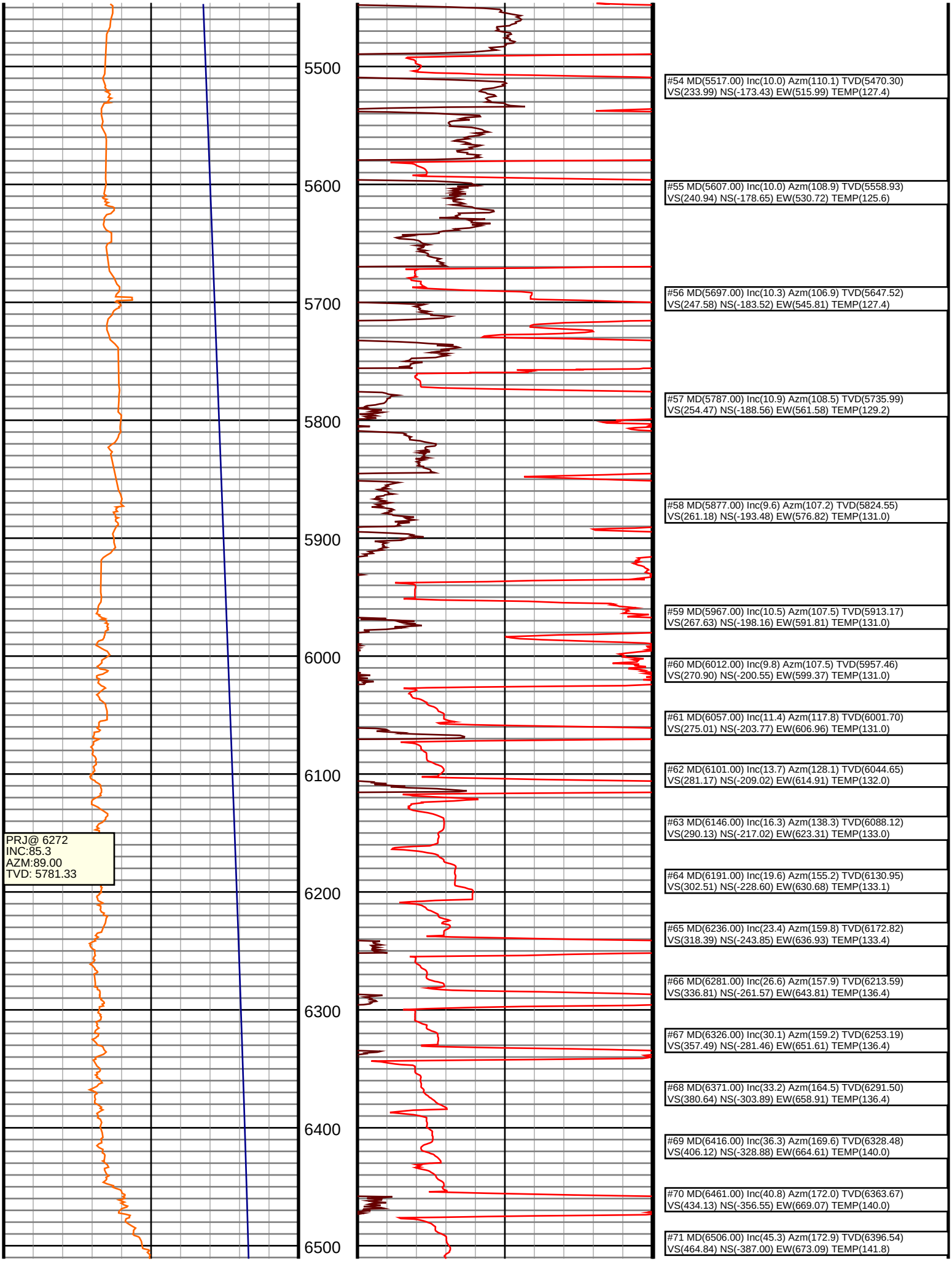
#43 MD(4529.00) Inc(9.0) Azm(97.3) TVD(4496.52) VS(165.86) NS(-123.89) EW(357.77) TEMP(113.0)
#44 MD(4619.00) Inc(10.1) Azm(100.0) TVD(4585.27) VS(169.87) NS(-126.16) EW(372.53) TEMP(114.8)
#45 MD(4709.00) Inc(10.2) Azm(103.0) TVD(4673.86) VS(174.87) NS(-129.32) EW(388.06) TEMP(114.8)
#46 MD(4799.00) Inc(10.6) Azm(103.0) TVD(4762.38) VS(180.40) NS(-132.97) EW(403.89) TEMP(116.6)
#47 MD(4888.00) Inc(11.0) Azm(109.3) TVD(4849.81) VS(186.93) NS(-137.62) EW(419.88) TEMP(120.2)
#48 MD(4978.00) Inc(10.5) Azm(110.4) TVD(4938.23) VS(194.48) NS(-143.32) EW(435.67) TEMP(120.2)
#49 MD(5068.00) Inc(10.1) Azm(108.3) TVD(5026.78) VS(201.59) NS(-148.65) EW(450.85) TEMP(120.2)
#50 MD(5158.00) Inc(8.6) Azm(106.2) TVD(5115.58) VS(207.59) NS(-153.01) EW(464.81) TEMP(123.8)
#51 MD(5248.00) Inc(8.6) Azm(108.4) TVD(5204.57) VS(213.10) NS(-157.01) EW(477.66) TEMP(122.0)
#52 MD(5338.00) Inc(8.3) Azm(113.0) TVD(5293.59) VS(219.21) NS(-161.67) EW(490.02) TEMP(123.8)
#53 MD(5427.00) Inc(9.2) Azm(117.3) TVD(5381.56) VS(226.41) NS(-167.45) EW(502.26) TEMP(123.8)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INC:85.3
AZM:89.00
TVD: 5781.33
#54 MD(5517.00) Inc(10.0) Azm(110.1) TVD(5470.30) VS(233.99) NS(-173.43) EW(515.99) TEMP(127.4)
#55 MD(5607.00) Inc(10.0) Azm(108.9) TVD(5558.93) VS(240.94) NS(-178.65) EW(530.72) TEMP(125.6)
#56 MD(5697.00) Inc(10.3) Azm(106.9) TVD(5647.52) VS(247.58) NS(-183.52) EW(545.81) TEMP(127.4)
#57 MD(5787.00) Inc(10.9) Azm(108.5) TVD(5735.99) VS(254.47) NS(-188.56) EW(561.58) TEMP(129.2)
#58 MD(5877.00) Inc(9.6) Azm(107.2) TVD(5824.55) VS(261.18) NS(-193.48) EW(576.82) TEMP(131.0)
#59 MD(5967.00) Inc(10.5) Azm(107.5) TVD(5913.17) VS(267.63) NS(-198.16) EW(591.81) TEMP(131.0)
#60 MD(6012.00) Inc(9.8) Azm(107.5) TVD(5957.46) VS(270.90) NS(-200.55) EW(599.37) TEMP(131.0)
#61 MD(6057.00) Inc(11.4) Azm(117.8) TVD(6001.70) VS(275.01) NS(-203.77) EW(606.96) TEMP(131.0)
#62 MD(6101.00) Inc(13.7) Azm(128.1) TVD(6044.65) VS(281.17) NS(-209.02) EW(614.91) TEMP(132.0)
#63 MD(6146.00) Inc(16.3) Azm(138.3) TVD(6088.12) VS(290.13) NS(-217.02) EW(623.31) TEMP(133.0)
#64 MD(6191.00) Inc(19.6) Azm(155.2) TVD(6130.95) VS(302.51) NS(-228.60) EW(630.68) TEMP(133.1)
#65 MD(6236.00) Inc(23.4) Azm(159.8) TVD(6172.82) VS(318.39) NS(-243.85) EW(636.93) TEMP(133.4)
#66 MD(6281.00) Inc(26.6) Azm(157.9) TVD(6213.59) VS(336.81) NS(-261.57) EW(643.81) TEMP(136.4)
#67 MD(6326.00) Inc(30.1) Azm(159.2) TVD(6253.19) VS(357.49) NS(-281.46) EW(651.61) TEMP(136.4)
#68 MD(6371.00) Inc(33.2) Azm(164.5) TVD(6291.50) VS(380.64) NS(-303.89) EW(658.91) TEMP(136.4)
#69 MD(6416.00) Inc(36.3) Azm(169.6) TVD(6328.48) VS(406.12) NS(-328.88) EW(664.61) TEMP(140.0)
#70 MD(6461.00) Inc(40.8) Azm(172.0) TVD(6363.67) VS(434.13) NS(-356.55) EW(669.07) TEMP(140.0)
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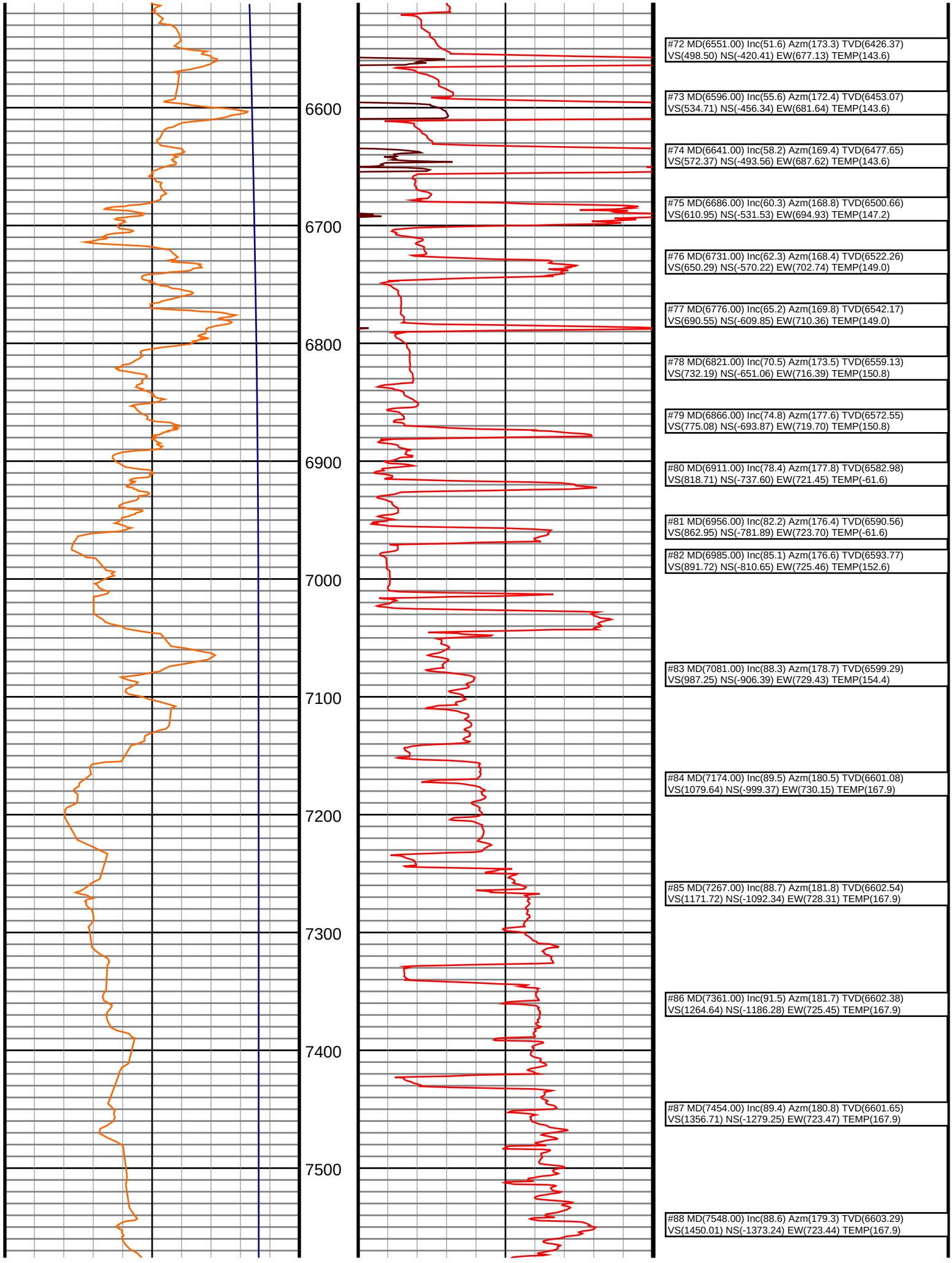
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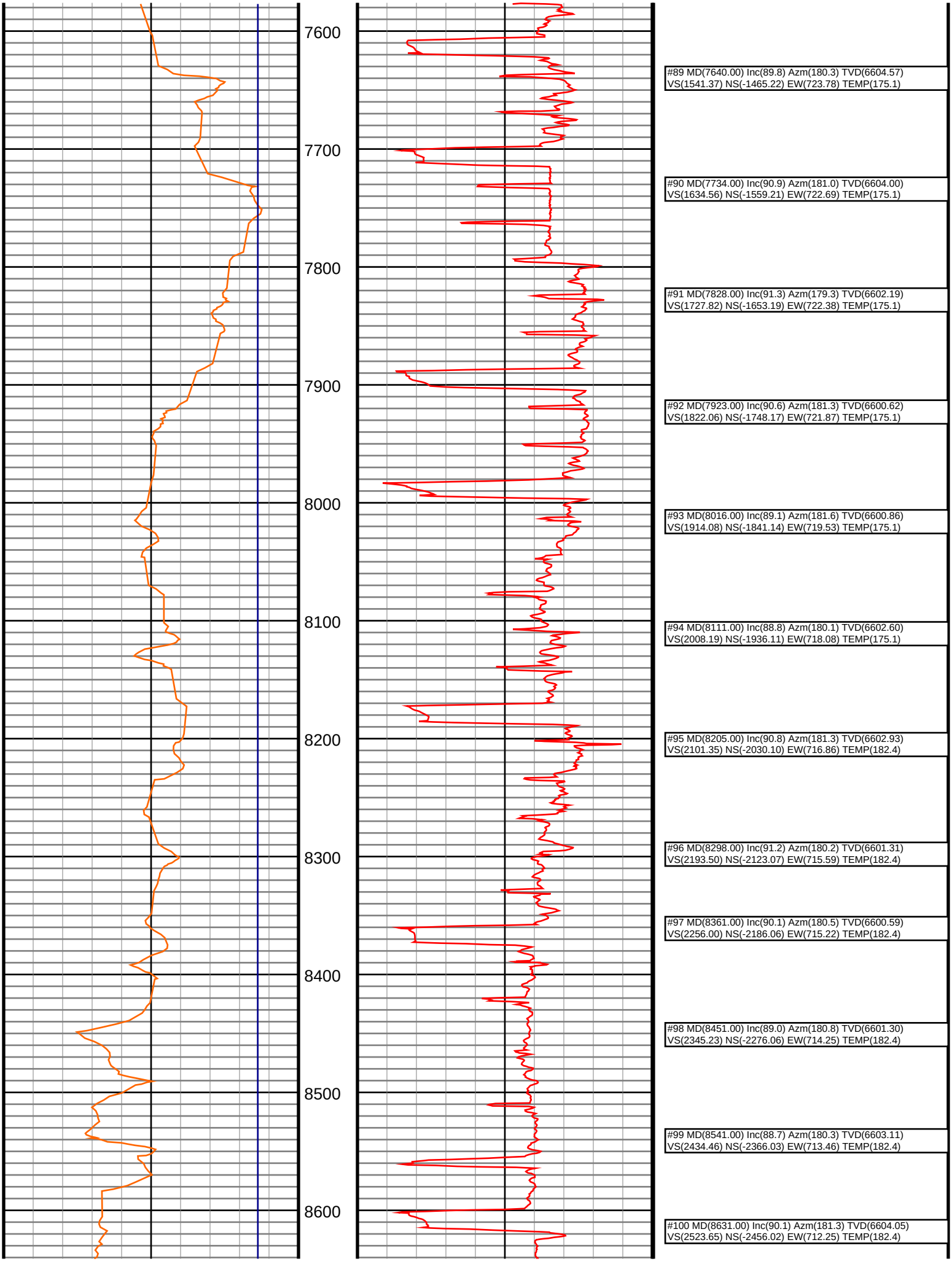
#73 MD(6596.00) Inc(55.6) Azm(172.4) TVD(6453.07) VS(534.71) NS(-456.34) EW(681.64) TEMP(143.6)
#74 MD(6641.00) Inc(58.2) Azm(169.4) TVD(6477.65) VS(572.37) NS(-493.56) EW(687.62) TEMP(143.6)
#75 MD(6686.00) Inc(60.3) Azm(168.8) TVD(6500.66) VS(610.95) NS(-531.53) EW(694.93) TEMP(147.2)
#76 MD(6731.00) Inc(62.3) Azm(168.4) TVD(6522.26) VS(650.29) NS(-570.22) EW(702.74) TEMP(149.0)
#77 MD(6776.00) Inc(65.2) Azm(169.8) TVD(6542.17) VS(690.55) NS(-609.85) EW(710.36) TEMP(149.0)
#78 MD(6821.00) Inc(70.5) Azm(173.5) TVD(6559.13) VS(732.19) NS(-651.06) EW(716.39) TEMP(150.8)
#79 MD(6866.00) Inc(74.8) Azm(177.6) TVD(6572.55) VS(775.08) NS(-693.87) EW(719.70) TEMP(150.8)
#80 MD(6911.00) Inc(78.4) Azm(177.8) TVD(6582.98) VS(818.71) NS(-737.60) EW(721.45) TEMP(-61.6)
#81 MD(6956.00) Inc(82.2) Azm(176.4) TVD(6590.56) VS(862.95) NS(-781.89) EW(723.70) TEMP(-61.6)
#82 MD(6985.00) Inc(85.1) Azm(176.6) TVD(6593.77) VS(891.72) NS(-810.65) EW(725.46) TEMP(152.6)
#83 MD(7081.00) Inc(88.3) Azm(178.7) TVD(6599.29) VS(987.25) NS(-906.39) EW(729.43) TEMP(154.4)
#84 MD(7174.00) Inc(89.5) Azm(180.5) TVD(6601.08) VS(1079.64) NS(-999.37) EW(730.15) TEMP(167.9)
#85 MD(7267.00) Inc(88.7) Azm(181.8) TVD(6602.54) VS(1171.72) NS(-1092.34) EW(728.31) TEMP(167.9)
#86 MD(7361.00) Inc(91.5) Azm(181.7) TVD(6602.38) VS(1264.64) NS(-1186.28) EW(725.45) TEMP(167.9)
#87 MD(7454.00) Inc(89.4) Azm(180.8) TVD(6601.65) VS(1356.71) NS(-1279.25) EW(723.47) TEMP(167.9)
#88 MD(7548.00) Inc(88.6) Azm(179.3) TVD(6603.29) VS(1450.01) NS(-1373.24) EW(723.44) TEMP(167.9)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#90 MD(7734.00) Inc(90.9) Azm(181.0) TVD(6604.00) VS(1634.56) NS(-1559.21) EW(722.69) TEMP(175.1)
#91 MD(7828.00) Inc(91.3) Azm(179.3) TVD(6602.19) VS(1727.82) NS(-1653.19) EW(722.38) TEMP(175.1)
#92 MD(7923.00) Inc(90.6) Azm(181.3) TVD(6600.62) VS(1822.06) NS(-1748.17) EW(721.87) TEMP(175.1)
#93 MD(8016.00) Inc(89.1) Azm(181.6) TVD(6600.86) VS(1914.08) NS(-1841.14) EW(719.53) TEMP(175.1)
#94 MD(8111.00) Inc(88.8) Azm(180.1) TVD(6602.60) VS(2008.19) NS(-1936.11) EW(718.08) TEMP(175.1)
#95 MD(8205.00) Inc(90.8) Azm(181.3) TVD(6602.93) VS(2101.35) NS(-2030.10) EW(716.86) TEMP(182.4)
#96 MD(8298.00) Inc(91.2) Azm(180.2) TVD(6601.31) VS(2193.50) NS(-2123.07) EW(715.59) TEMP(182.4)
#97 MD(8361.00) Inc(90.1) Azm(180.5) TVD(6600.59) VS(2256.00) NS(-2186.06) EW(715.22) TEMP(182.4)
#98 MD(8451.00) Inc(89.0) Azm(180.8) TVD(6601.30) VS(2345.23) NS(-2276.06) EW(714.25) TEMP(182.4)
#99 MD(8541.00) Inc(88.7) Azm(180.3) TVD(6603.11) VS(2434.46) NS(-2366.03) EW(713.46) TEMP(182.4)
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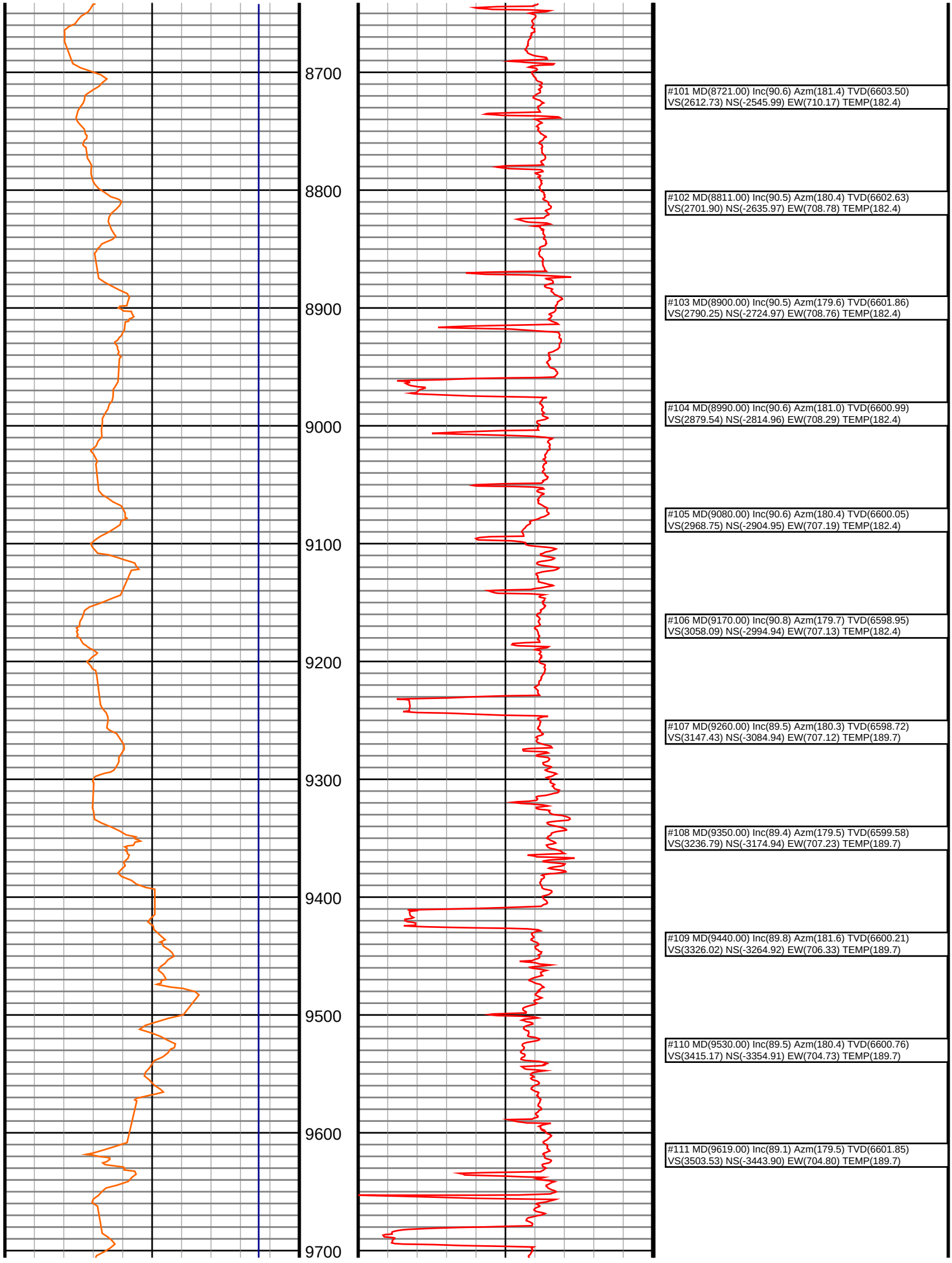
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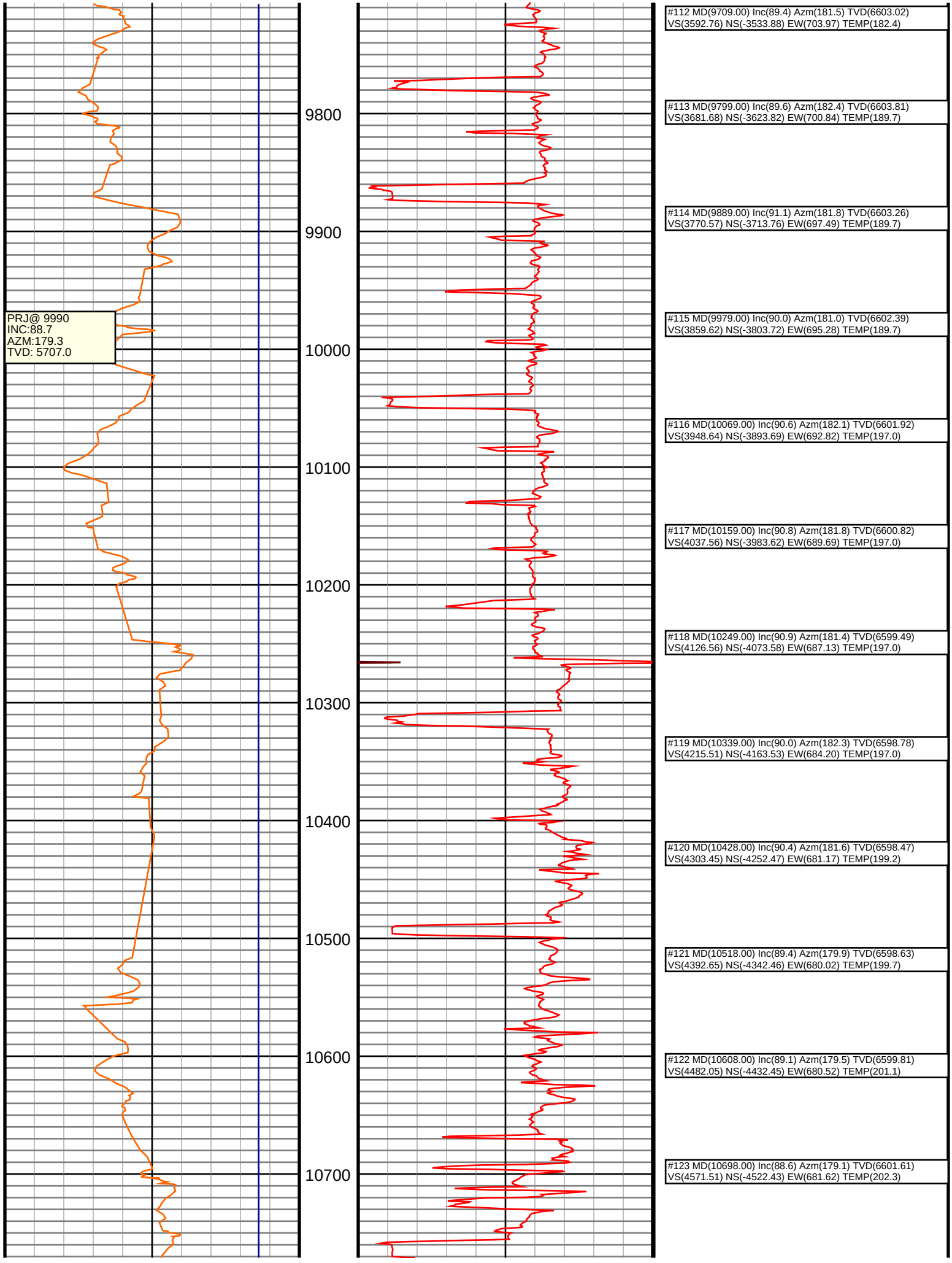
#101 MD(8721.00) Inc(90.6) Azm(181.4) TVD(6603.50)
VS(2612.73) NS(-2545.99) EW(710.17) TEMP(182.4)
#102 MD(8811.00) Inc(90.5) Azm(180.4) TVD(6602.63)
VS(2701.90) NS(-2635.97) EW(708.78) TEMP(182.4)
#103 MD(8900.00) Inc(90.5) Azm(179.6) TVD(6601.86)
VS(2790.25) NS(-2724.97) EW(708.76) TEMP(182.4)
#104 MD(8990.00) Inc(90.6) Azm(181.0) TVD(6600.99)
VS(2879.54) NS(-2814.96) EW(708.29) TEMP(182.4)
#105 MD(9080.00) Inc(90.6) Azm(180.4) TVD(6600.05)
VS(2968.75) NS(-2904.95) EW(707.19) TEMP(182.4)
#106 MD(9170.00) Inc(90.8) Azm(179.7) TVD(6598.95)
VS(3058.09) NS(-2994.94) EW(707.13) TEMP(182.4)
#107 MD(9260.00) Inc(89.5) Azm(180.3) TVD(6598.72)
VS(3147.43) NS(-3084.94) EW(707.12) TEMP(189.7)
#108 MD(9350.00) Inc(89.4) Azm(179.5) TVD(6599.58)
VS(3236.79) NS(-3174.94) EW(707.23) TEMP(189.7)
#109 MD(9440.00) Inc(89.8) Azm(181.6) TVD(6600.21)
VS(3326.02) NS(-3264.92) EW(706.33) TEMP(189.7)
#110 MD(9530.00) Inc(89.5) Azm(180.4) TVD(6600.76)
VS(3415.17) NS(-3354.91) EW(704.73) TEMP(189.7)
#111 MD(9619.00) Inc(89.1) Azm(179.5) TVD(6601.85)
VS(3503.53) NS(-3443.90) EW(704.80) TEMP(189.7)


PRJ@ 9990
INC:88.7
AZM:179.3
TVD: 5707.0
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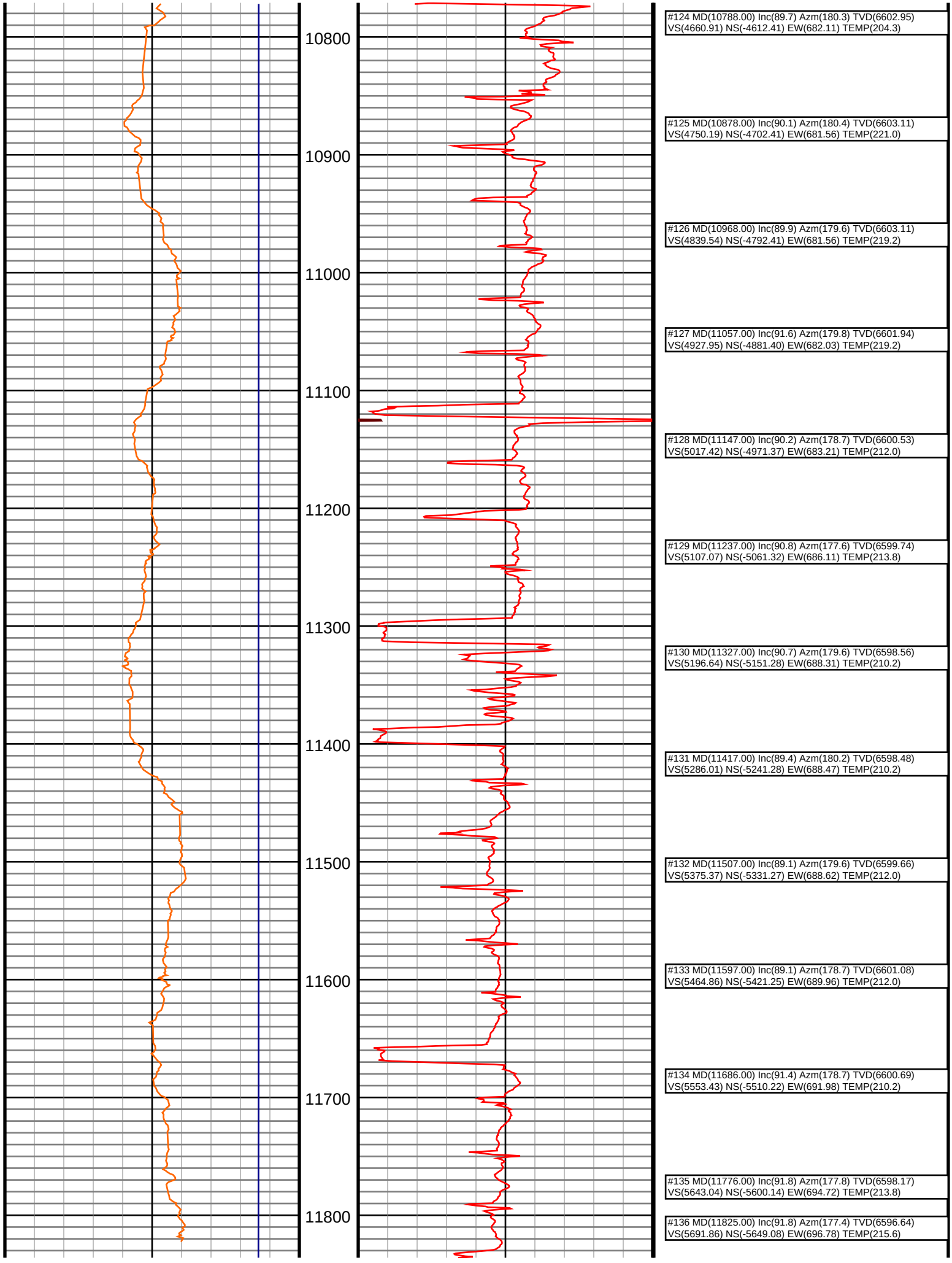
9900
10000
10100
10200
10300
10400
10500
10600
10700
#112 MD(9709.00) Inc(89.4) Azm(181.5) TVD(6603.02) VS(3592.76) NS(-3533.88) EW(703.97) TEMP(182.4)
#113 MD(9799.00) Inc(89.6) Azm(182.4) TVD(6603.81) VS(3681.68) NS(-3623.82) EW(700.84) TEMP(189.7)
#114 MD(9889.00) Inc(91.1) Azm(181.8) TVD(6603.26) VS(3770.57) NS(-3713.76) EW(697.49) TEMP(189.7)
#115 MD(9979.00) Inc(90.0) Azm(181.0) TVD(6602.39) VS(3859.62) NS(-3803.72) EW(695.28) TEMP(189.7)
#116 MD(10069.00) Inc(90.6) Azm(182.1) TVD(6601.92) VS(3948.64) NS(-3893.69) EW(692.82) TEMP(197.0)
#117 MD(10159.00) Inc(90.8) Azm(181.8) TVD(6600.82) VS(4037.56) NS(-3983.62) EW(689.69) TEMP(197.0)
#118 MD(10249.00) Inc(90.9) Azm(181.4) TVD(6599.49) VS(4126.56) NS(-4073.58) EW(687.13) TEMP(197.0)
#119 MD(10339.00) Inc(90.0) Azm(182.3) TVD(6598.78) VS(4215.51) NS(-4163.53) EW(684.20) TEMP(197.0)
#120 MD(10428.00) Inc(90.4) Azm(181.6) TVD(6598.47) VS(4303.45) NS(-4252.47) EW(681.17) TEMP(199.2)
#121 MD(10518.00) Inc(89.4) Azm(179.9) TVD(6598.63) VS(4392.65) NS(-4342.46) EW(680.02) TEMP(199.7)
#122 MD(10608.00) Inc(89.1) Azm(179.5) TVD(6599.81) VS(4482.05) NS(-4432.45) EW(680.52) TEMP(201.1)
#123 MD(10698.00) Inc(88.6) Azm(179.1) TVD(6601.61) VS(4571.51) NS(-4522.43) EW(681.62) TEMP(202.3)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10900
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11200
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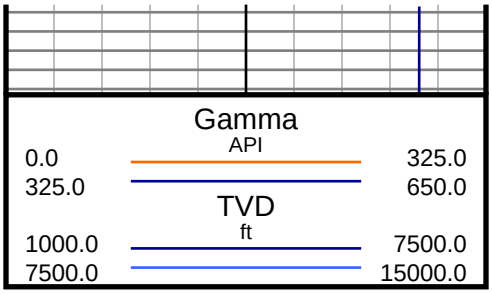
11800
#124 MD(10788.00) Inc(89.7) Azm(180.3) TVD(6602.95) VS(4660.91) NS(-4612.41) EW(682.11) TEMP(204.3)
#125 MD(10878.00) Inc(90.1) Azm(180.4) TVD(6603.11) VS(4750.19) NS(-4702.41) EW(681.56) TEMP(221.0)
#126 MD(10968.00) Inc(89.9) Azm(179.6) TVD(6603.11) VS(4839.54) NS(-4792.41) EW(681.56) TEMP(219.2)
#127 MD(11057.00) Inc(91.6) Azm(179.8) TVD(6601.94) VS(4927.95) NS(-4881.40) EW(682.03) TEMP(219.2)
#128 MD(11147.00) Inc(90.2) Azm(178.7) TVD(6600.53) VS(5017.42) NS(-4971.37) EW(683.21) TEMP(212.0)
#129 MD(11237.00) Inc(90.8) Azm(177.6) TVD(6599.74) VS(5107.07) NS(-5061.32) EW(686.11) TEMP(213.8)
#130 MD(11327.00) Inc(90.7) Azm(179.6) TVD(6598.56) VS(5196.64) NS(-5151.28) EW(688.31) TEMP(210.2)
#131 MD(11417.00) Inc(89.4) Azm(180.2) TVD(6598.48) VS(5286.01) NS(-5241.28) EW(688.47) TEMP(210.2)
#132 MD(11507.00) Inc(89.1) Azm(179.6) TVD(6599.66) VS(5375.37) NS(-5331.27) EW(688.62) TEMP(212.0)
#133 MD(11597.00) Inc(89.1) Azm(178.7) TVD(6601.08) VS(5464.86) NS(-5421.25) EW(689.96) TEMP(212.0)
#134 MD(11686.00) Inc(91.4) Azm(178.7) TVD(6600.69) VS(5553.43) NS(-5510.22) EW(691.98) TEMP(210.2)
#135 MD(11776.00) Inc(91.8) Azm(177.8) TVD(6598.17) VS(5643.04) NS(-5600.14) EW(694.72) TEMP(213.8)
#136 MD(11825.00) Inc(91.8) Azm(177.4) TVD(6596.64) VS(5691.86) NS(-5649.08) EW(696.78) TEMP(215.6)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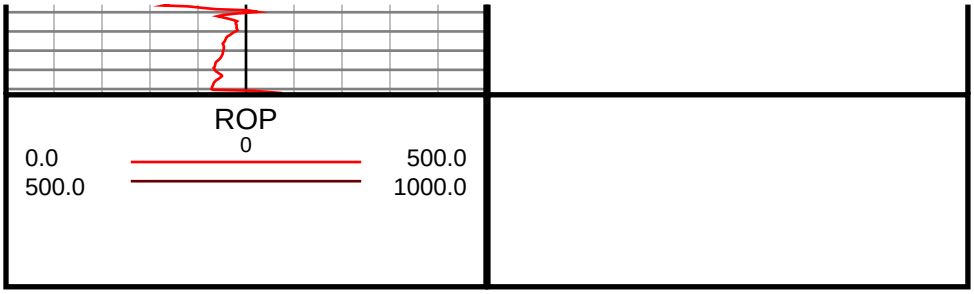
325.0
650.0
TVD
ft
1000.0
7500.0
7500.0
15000.0


ROP
0
0.0
500.0
500.0
1000.0