

Company: Noble Energy Inc

Well Name: Mahalo State AA09-72-1BHNC

API: 05-123-39018

Rig Id: Precision 828

State: Colorado

County/Parish: Weld

Country: USA

Survey Company: Ensign Directional

Job number: 207-P828-50

Company Man 1 Gary Stapleton

Directional Driller 1 Tyler Batchelder

Directional Driller 2 Matt Mason

MWD 1 Derek Saykally

MWD 2 Buster Snider

Log measurements: Gamma

Depth measured from: KB

Maximum temperature:

Depth Date

Start: 834 ft 12/29/2014

End: 12036 ft 1/5/2015

Casing Depth Size

Surface: 834 9.625

Intermediate: 7176 7

Mud Type: Water Based

Density:

Viscosity:

Rm: Rmf: Rmc:

Elevations

KB: 4732

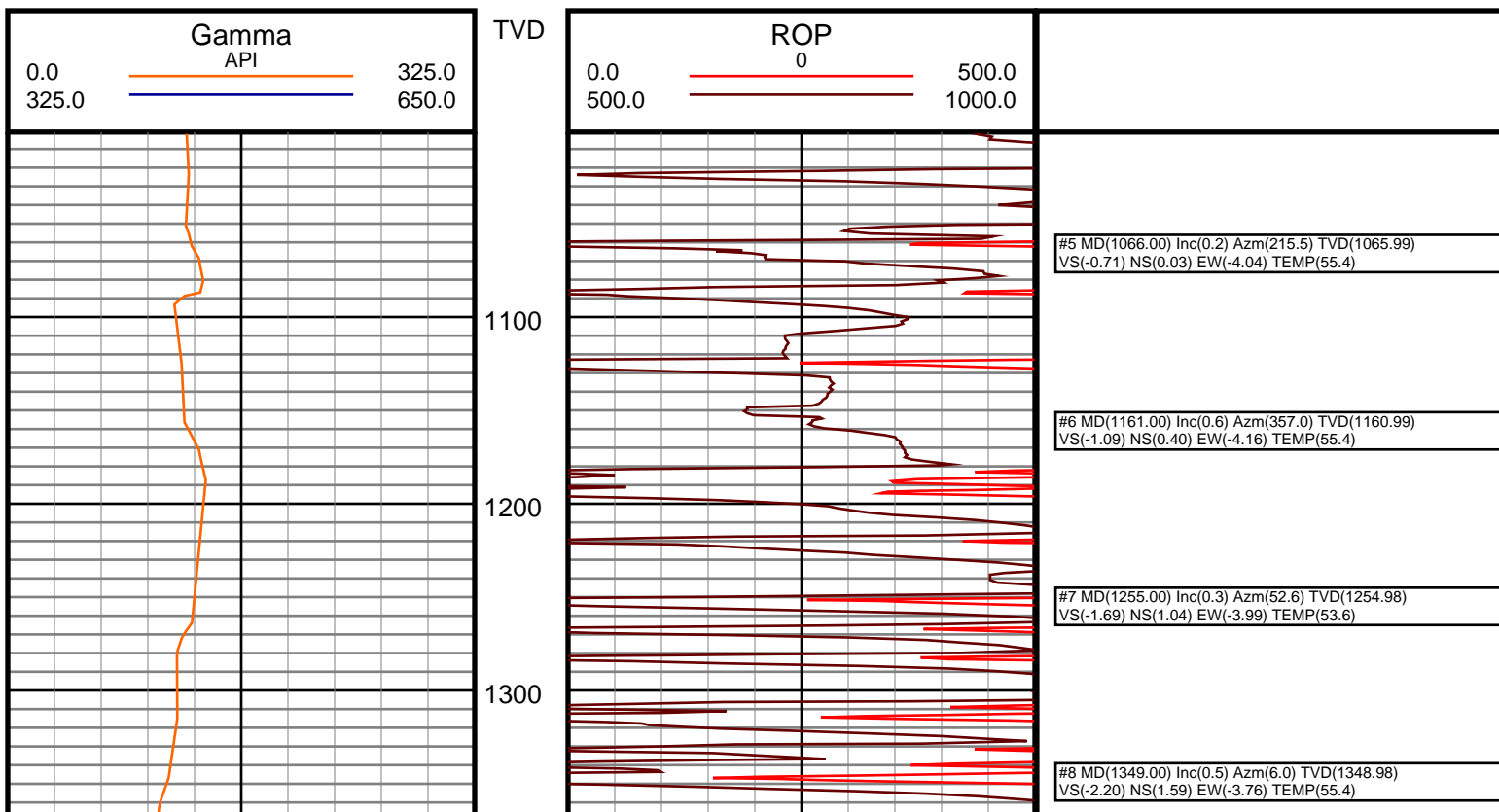
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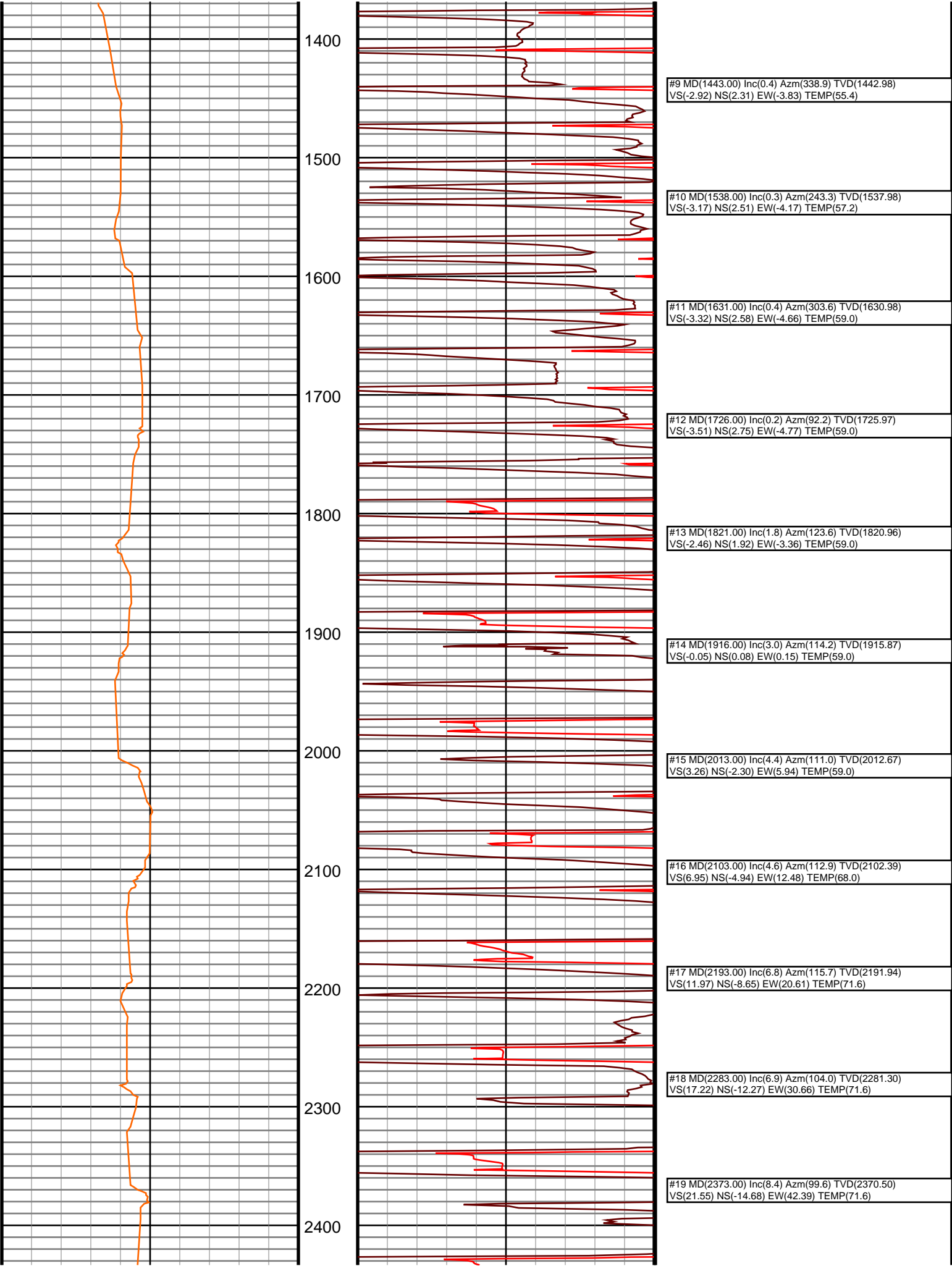
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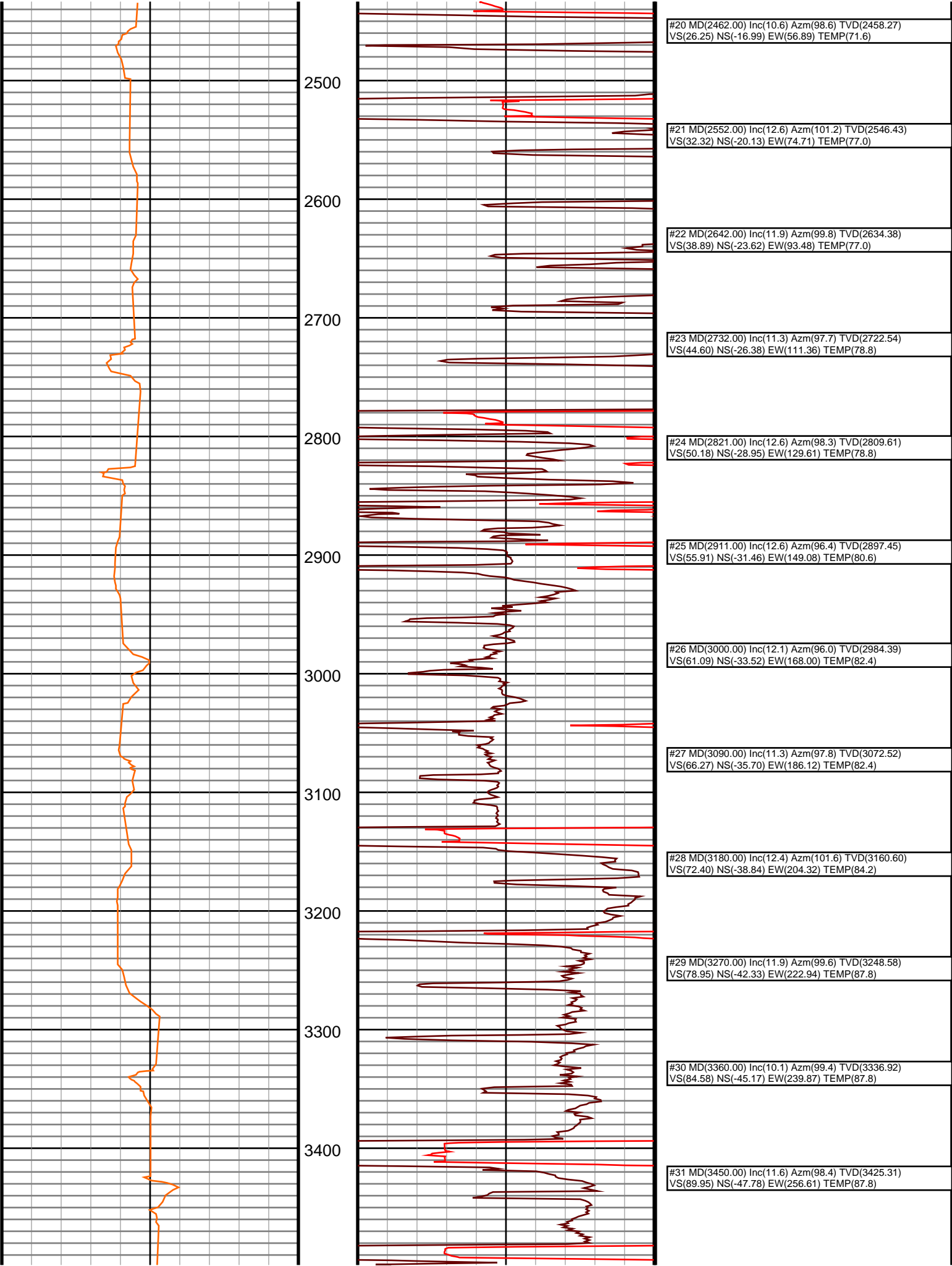
Run	Bit Size	Gamma	Survey	Start	End	Start	End
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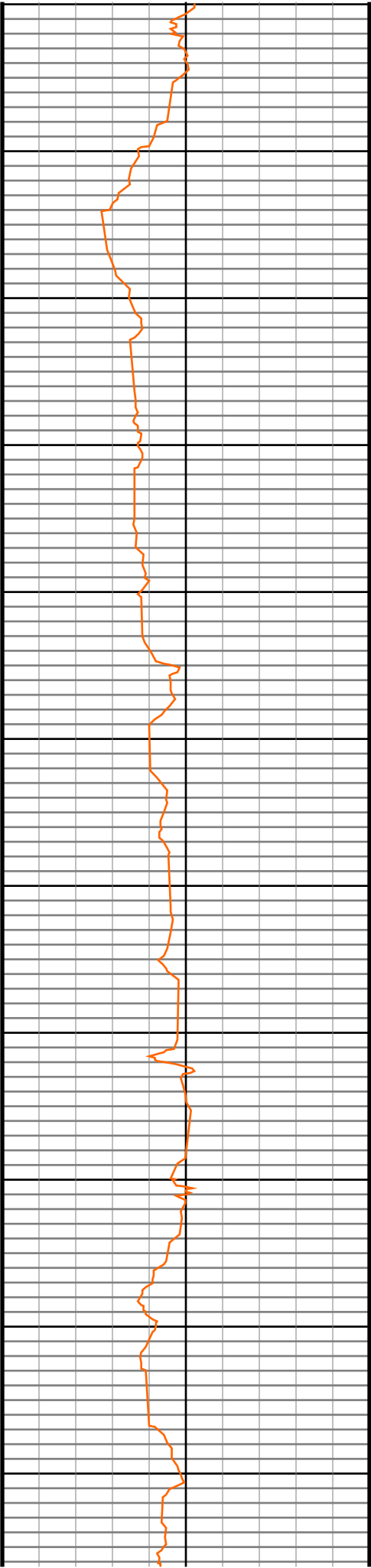
1	8 3/4	60.64	55.64	834	7186	12/29/2014	1/1/2015
2	6 1/8	61.59	56.59	7186	12036	1/2/2015	1/5/2015
3							
4							
5							
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7							
8							
9							
10							

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.

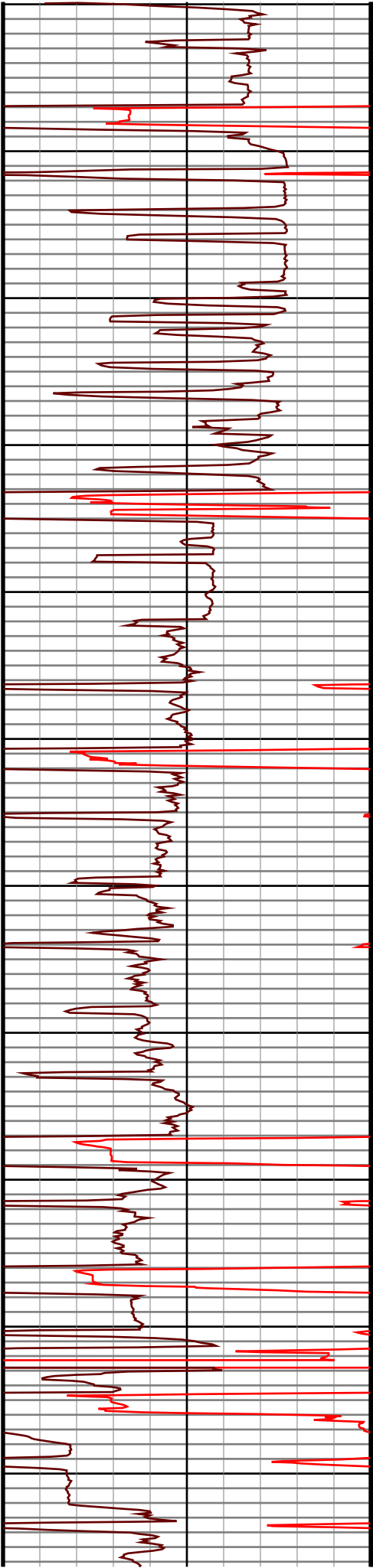




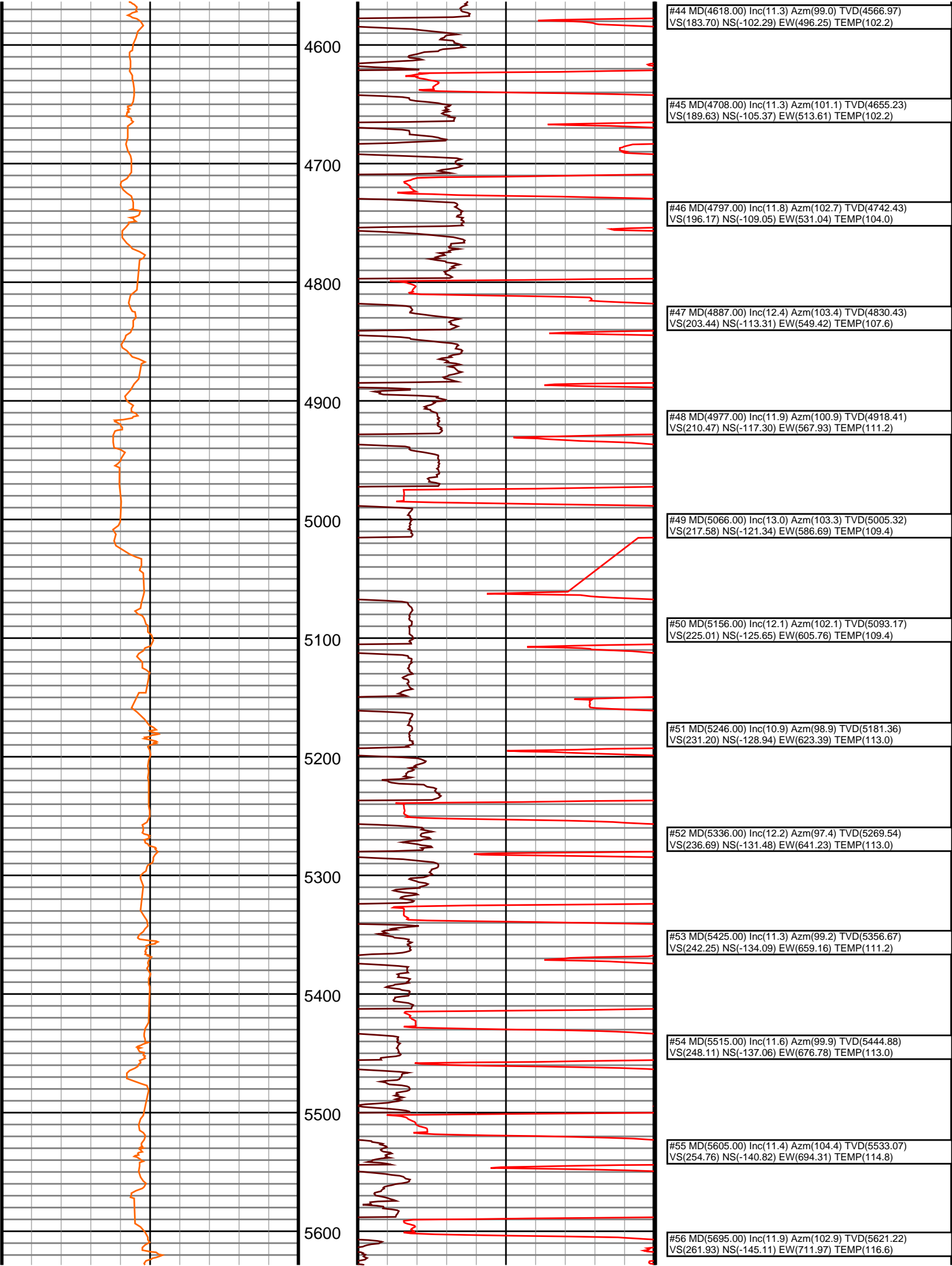


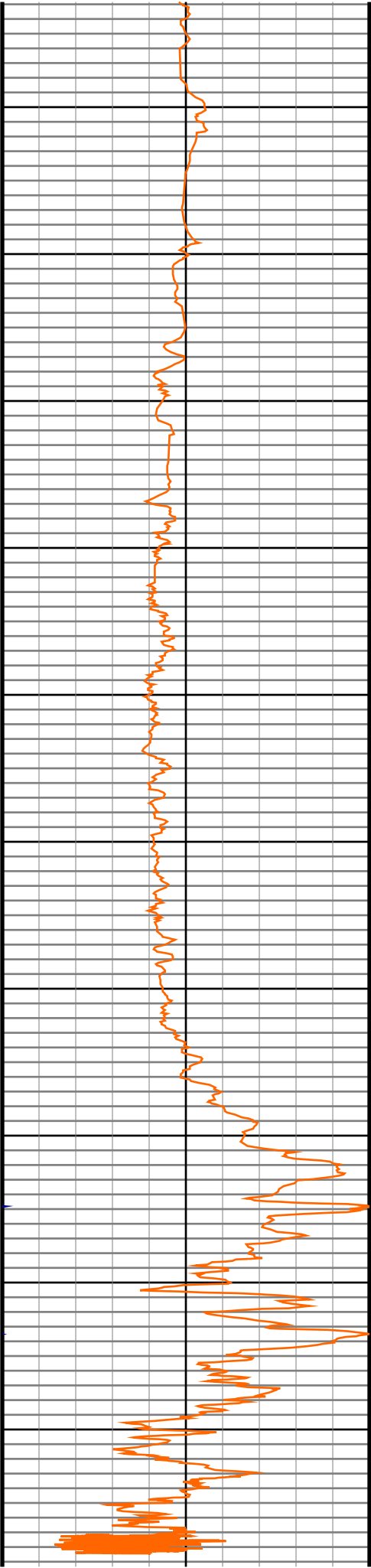


3500
3600
3700
3800
3900
4000
4100
4200
4300
4400
4500



#32 MD(3539.00) Inc(12.0) Azm(102.9) TVD(3512.43) VS(96.25) NS(-51.15) EW(274.48) TEMP(86.0)
#33 MD(3629.00) Inc(12.7) Azm(106.9) TVD(3600.35) VS(104.25) NS(-56.11) EW(293.07) TEMP(87.8)
#34 MD(3719.00) Inc(13.1) Azm(106.3) TVD(3688.08) VS(113.12) NS(-61.85) EW(312.33) TEMP(87.8)
#35 MD(3809.00) Inc(13.2) Azm(102.7) TVD(3775.72) VS(121.48) NS(-66.97) EW(332.14) TEMP(89.6)
#36 MD(3899.00) Inc(12.7) Azm(106.5) TVD(3863.43) VS(129.74) NS(-72.04) EW(351.65) TEMP(93.2)
#37 MD(3988.00) Inc(13.1) Azm(106.7) TVD(3950.19) VS(138.51) NS(-77.72) EW(370.69) TEMP(93.2)
#38 MD(4078.00) Inc(11.7) Azm(103.4) TVD(4038.09) VS(146.60) NS(-82.77) EW(389.34) TEMP(95.0)
#39 MD(4168.00) Inc(11.4) Azm(102.2) TVD(4126.27) VS(153.47) NS(-86.76) EW(406.91) TEMP(96.8)
#40 MD(4258.00) Inc(9.9) Azm(101.0) TVD(4214.71) VS(159.50) NS(-90.12) EW(423.20) TEMP(98.6)
#41 MD(4348.00) Inc(11.5) Azm(98.5) TVD(4303.15) VS(165.01) NS(-92.92) EW(439.67) TEMP(98.6)
#42 MD(4438.00) Inc(12.7) Azm(98.5) TVD(4391.14) VS(170.88) NS(-95.71) EW(458.33) TEMP(102.2)
#43 MD(4528.00) Inc(12.7) Azm(100.9) TVD(4478.94) VS(177.42) NS(-99.04) EW(477.82) TEMP(98.6)





5700

5800

5900

6000

6100

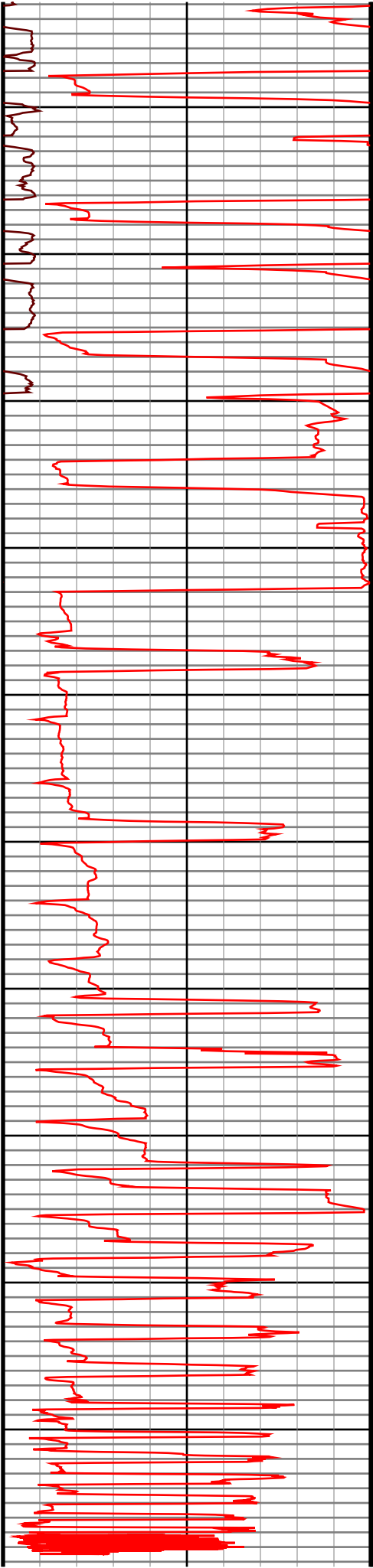
6200

6300

6400

6500

6600



#57 MD(5785.00) Inc(12.0) Azm(105.5) TVD(5709.27) VS(269.45) NS(-149.68) EW(730.03) TEMP(118.4)
#58 MD(5875.00) Inc(11.8) Azm(105.7) TVD(5797.34) VS(277.35) NS(-154.67) EW(747.91) TEMP(122.0)
#59 MD(5964.00) Inc(11.7) Azm(101.1) TVD(5884.47) VS(284.44) NS(-158.87) EW(765.52) TEMP(123.8)
#60 MD(6054.00) Inc(11.6) Azm(100.5) TVD(5972.62) VS(290.77) NS(-162.27) EW(783.38) TEMP(123.8)
#61 MD(6099.00) Inc(11.3) Azm(100.8) TVD(6016.72) VS(293.87) NS(-163.93) EW(792.16) TEMP(125.6)
#62 MD(6144.00) Inc(12.9) Azm(111.1) TVD(6060.73) VS(297.97) NS(-166.56) EW(801.17) TEMP(125.6)
#63 MD(6189.00) Inc(14.9) Azm(120.0) TVD(6104.41) VS(304.23) NS(-171.26) EW(810.87) TEMP(125.6)
#64 MD(6234.00) Inc(19.3) Azm(125.2) TVD(6147.42) VS(313.16) NS(-178.45) EW(821.97) TEMP(129.2)
#65 MD(6279.00) Inc(22.8) Azm(129.2) TVD(6189.41) VS(324.97) NS(-188.25) EW(834.80) TEMP(129.2)
#66 MD(6324.00) Inc(26.2) Azm(135.6) TVD(6230.36) VS(339.69) NS(-200.86) EW(848.52) TEMP(132.8)
#67 MD(6370.00) Inc(29.5) Azm(144.6) TVD(6271.04) VS(358.24) NS(-217.36) EW(862.19) TEMP(132.8)
#68 MD(6415.00) Inc(32.9) Azm(147.2) TVD(6309.53) VS(379.46) NS(-236.67) EW(875.24) TEMP(132.8)
#69 MD(6460.00) Inc(36.1) Azm(147.8) TVD(6346.61) VS(402.94) NS(-258.17) EW(888.92) TEMP(132.8)
#70 MD(6505.00) Inc(39.1) Azm(153.9) TVD(6382.27) VS(428.80) NS(-282.14) EW(902.24) TEMP(136.4)
#71 MD(6550.00) Inc(44.3) Azm(157.3) TVD(6415.86) VS(457.74) NS(-309.40) EW(914.56) TEMP(138.2)
#72 MD(6595.00) Inc(46.8) Azm(160.3) TVD(6447.38) VS(489.20) NS(-339.35) EW(926.15) TEMP(138.2)
#73 MD(6640.00) Inc(49.9) Azm(163.1) TVD(6477.28) VS(522.43) NS(-371.27) EW(936.69) TEMP(140.0)
#74 MD(6685.00) Inc(51.4) Azm(164.4) TVD(6505.82) VS(557.00) NS(-404.68) EW(946.42) TEMP(140.0)
#75 MD(6730.00) Inc(53.6) Azm(166.2) TVD(6533.21) VS(592.55) NS(-439.21) EW(955.47) TEMP(141.8)
#76 MD(6774.00) Inc(56.8) Azm(168.4) TVD(6558.32) VS(628.62) NS(-474.45) EW(963.40) TEMP(141.8)
#77 MD(6819.00) Inc(61.4) Azm(170.8) TVD(6581.43) VS(667.22) NS(-512.42) EW(970.35) TEMP(143.6)
#79 MD(6909.00) Inc(68.8) Azm(175.2) TVD(6619.15) VS(748.73) NS(-593.49) EW(979.82) TEMP(143.6)
#81 MD(6999.00) Inc(73.6) Azm(178.3) TVD(6648.08) VS(833.41) NS(-678.53) EW(984.82) TEMP(145.4)
#137 MD(11978.00) Inc(89.6) Azm(177.8) TVD(6684.48) VS(5738.98) NS(-5653.73) EW(985.94) TEMP(217.4)

