

Company: Noble Energy Inc

Well Name: Heartland State C31-79-1HN

API: 05-123-39953

Rig Id: Precision 828

State: Colorado

County/Parish: Weld

Country: USA

Survey Company: Ensign Directional

Job number: 207-P828-38

Company Man 1 Gary Stapleton

Directional Driller 1 Tyler Batchelder

Directional Driller 2 Matt Mason

Directional Driller 3 Dustin Davis

MWD 1 Mark Bigler

MWD 2 Derek Saykally

Log measurements: Gamma

Depth measured from: KB

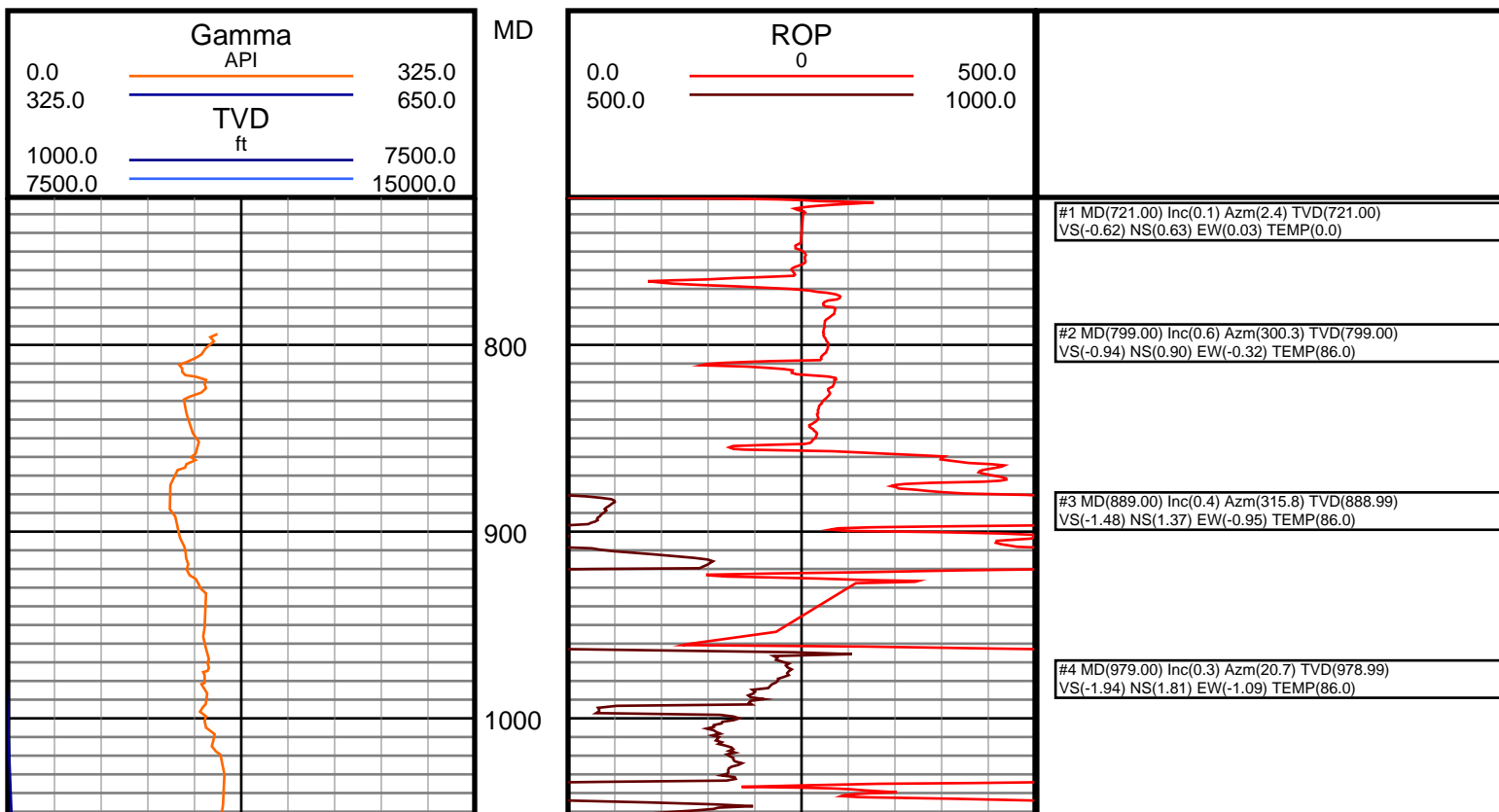
Maximum temperature:

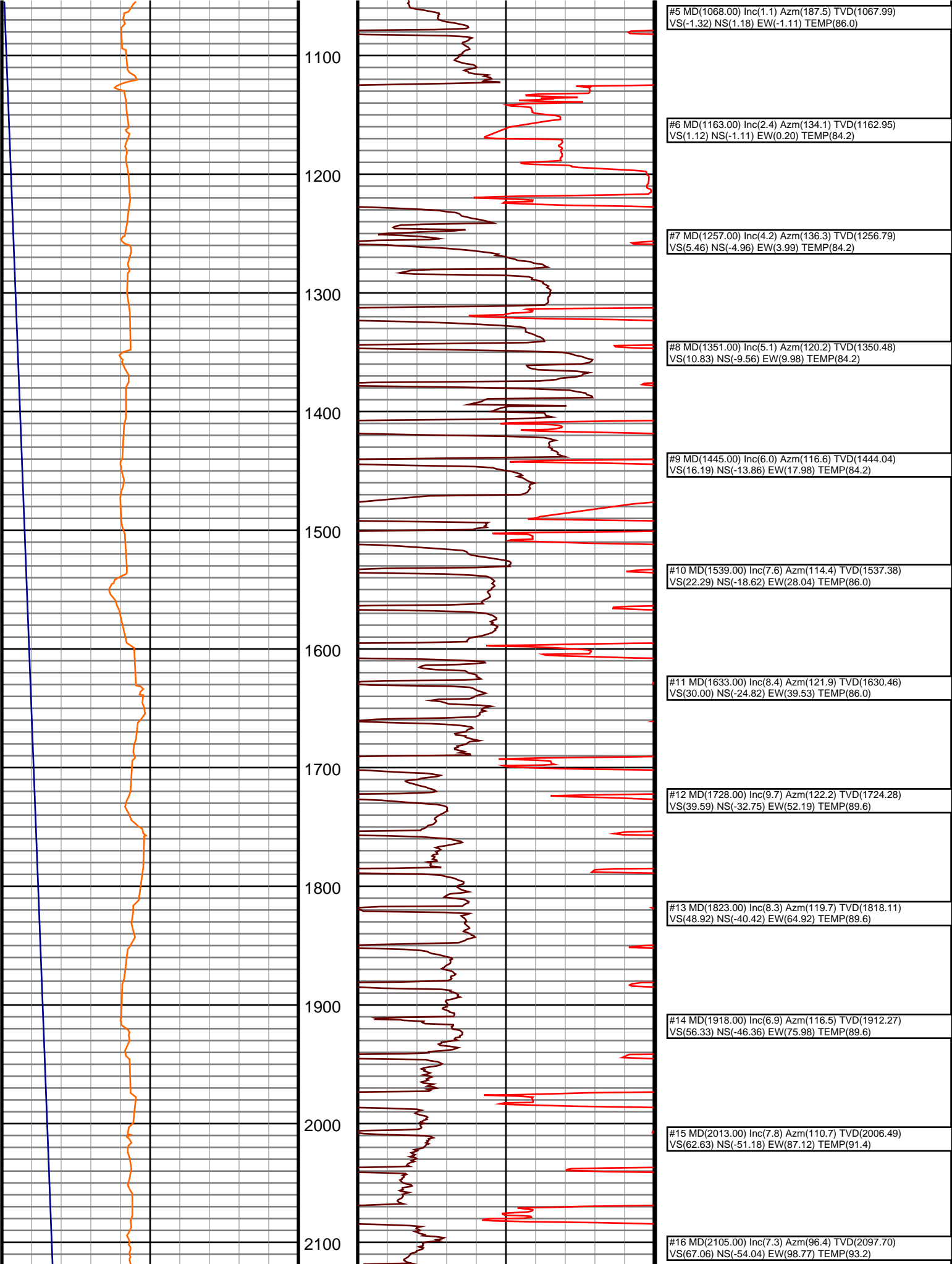
Depth Date  
Start: 715 ft 9/10/2014  
End: 11911 ft 9/17/2014

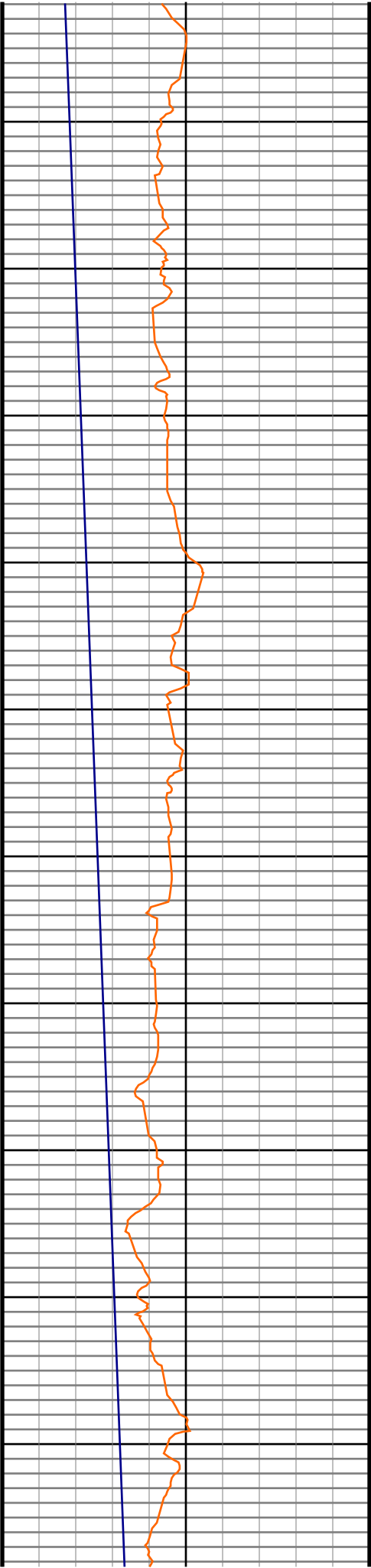
| Casing        | Depth | Size  | Mud Type:  | Water Based | Elevations |
|---------------|-------|-------|------------|-------------|------------|
| Surface:      | 715   | 9.625 | Density:   |             | KB: 4860   |
| Intermediate: | 7357  | 7     | Viscosity: |             | GL: 4844   |
|               |       |       | Rm:        | Rmf:        | DF: 4860   |

| Run | Bit Size | Gamma | Survey | Start | End   | Start     | End       |
|-----|----------|-------|--------|-------|-------|-----------|-----------|
| 1   | 8 3/4    | 59.43 | 54.43  | 715   | 7383  | 9/10/2014 | 9/12/2014 |
| 2   | 6 1/8    | 60.91 | 55.91  | 7357  | 11911 | 9/14/2014 | 9/17/2014 |
| 3   |          |       |        |       |       |           |           |
| 4   |          |       |        |       |       |           |           |
| 5   |          |       |        |       |       |           |           |
| 6   |          |       |        |       |       |           |           |
| 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.







2200

2300

2400

2500

2600

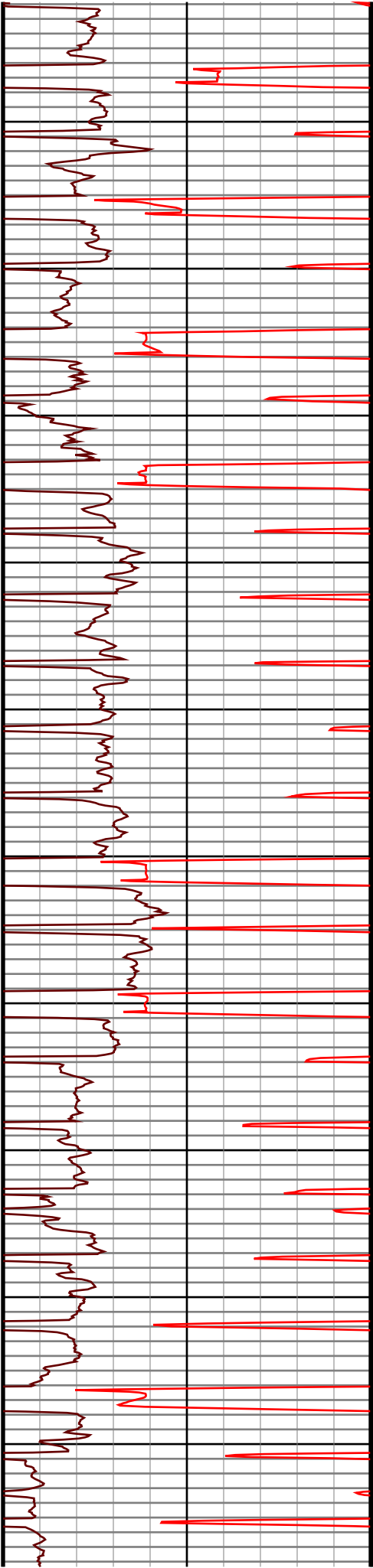
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2800

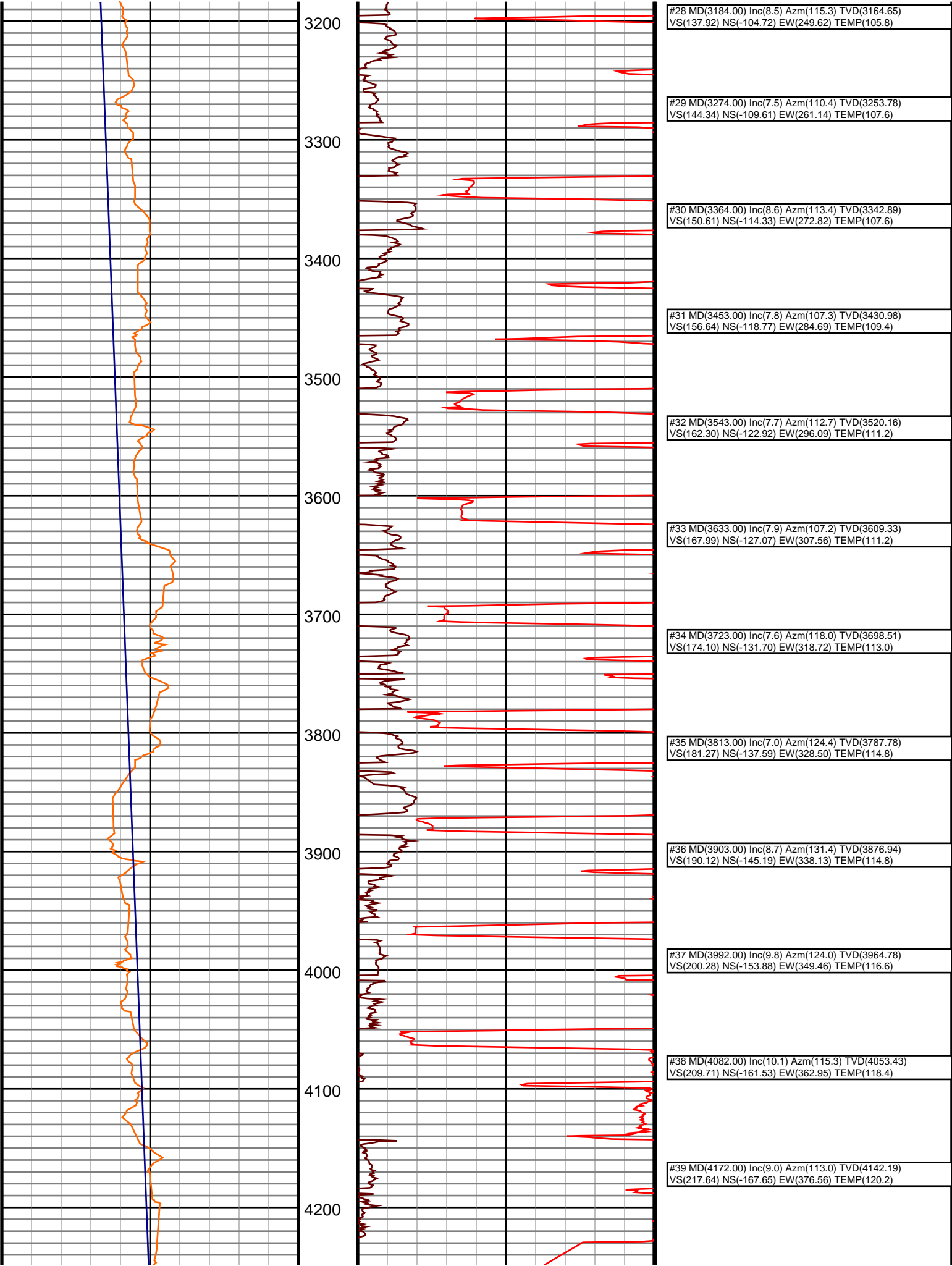
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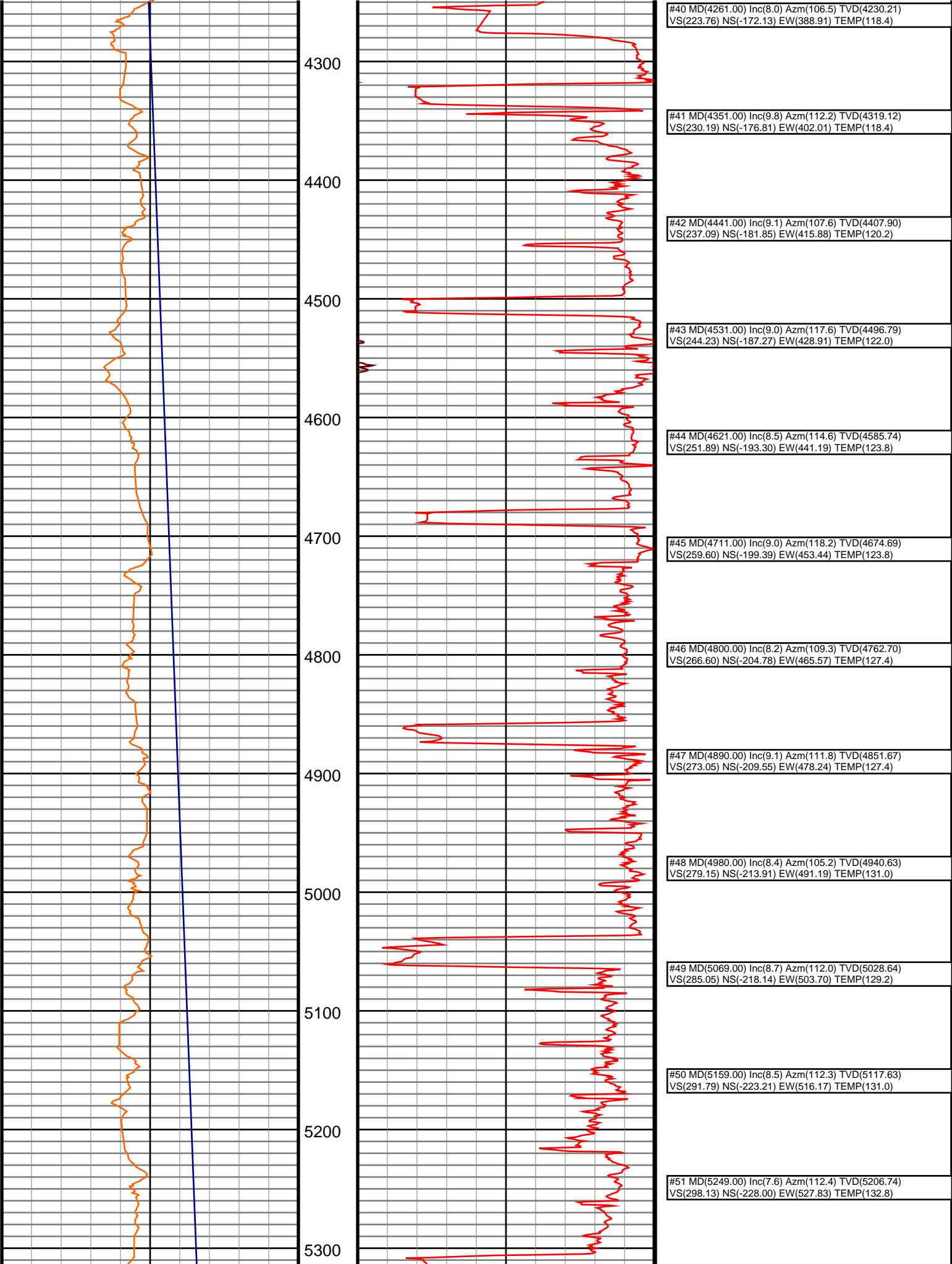
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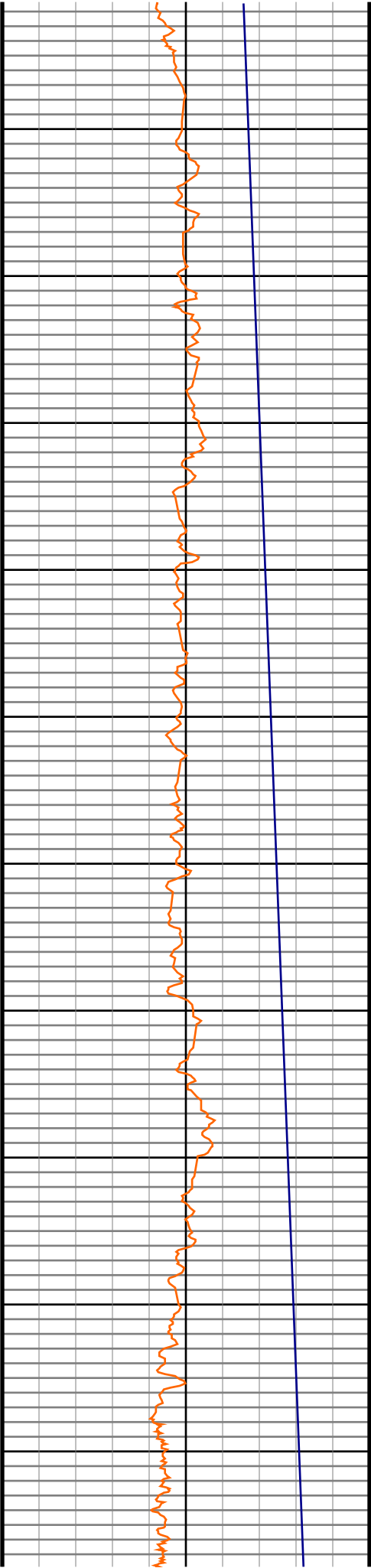
3100



|  |
|--|
| #17 MD(2195.00) Inc(7.6) Azm(93.1) TVD(2186.94)<br>VS(69.60) NS(-55.00) EW(110.39) TEMP(93.2)    |
| #18 MD(2285.00) Inc(7.0) Azm(100.6) TVD(2276.21)<br>VS(72.47) NS(-56.33) EW(121.73) TEMP(95.0)   |
| #19 MD(2375.00) Inc(7.7) Azm(110.6) TVD(2365.48)<br>VS(77.08) NS(-59.46) EW(132.76) TEMP(95.0)   |
| #20 MD(2465.00) Inc(8.9) Azm(114.0) TVD(2454.53)<br>VS(83.63) NS(-64.42) EW(144.77) TEMP(96.8)   |
| #21 MD(2555.00) Inc(8.8) Azm(110.0) TVD(2543.46)<br>VS(90.53) NS(-69.60) EW(157.60) TEMP(98.6)   |
| #22 MD(2645.00) Inc(8.6) Azm(103.6) TVD(2632.43)<br>VS(96.21) NS(-73.54) EW(170.61) TEMP(100.4)  |
| #23 MD(2735.00) Inc(8.7) Azm(105.8) TVD(2721.41)<br>VS(101.40) NS(-76.98) EW(183.70) TEMP(100.4) |
| #24 MD(2824.00) Inc(9.6) Azm(114.6) TVD(2809.28)<br>VS(108.09) NS(-81.90) EW(196.92) TEMP(100.4) |
| #25 MD(2914.00) Inc(9.6) Azm(112.7) TVD(2898.02)<br>VS(115.94) NS(-87.92) EW(210.67) TEMP(102.2) |
| #26 MD(3004.00) Inc(9.2) Azm(109.9) TVD(2986.81)<br>VS(123.10) NS(-93.26) EW(224.36) TEMP(104.0) |
| #27 MD(3094.00) Inc(8.9) Azm(116.3) TVD(3075.69)<br>VS(130.37) NS(-98.80) EW(237.36) TEMP(104.0) |







5400

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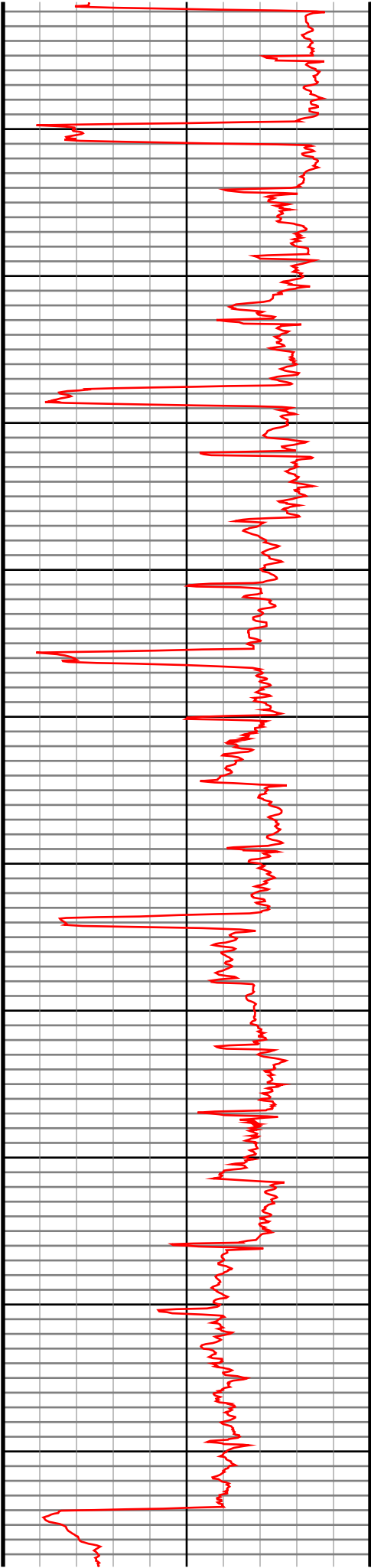
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6000

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6200

6300



#52 MD(5339.00) Inc(7.6) Azm(117.0) TVD(5295.95)  
VS(304.53) NS(-232.97) EW(538.63) TEMP(131.0)

#53 MD(5429.00) Inc(7.1) Azm(111.5) TVD(5385.21)  
VS(310.66) NS(-237.71) EW(549.11) TEMP(127.4)

#54 MD(5518.00) Inc(5.8) Azm(109.8) TVD(5473.65)  
VS(315.45) NS(-241.25) EW(558.46) TEMP(127.4)

#55 MD(5608.00) Inc(5.5) Azm(102.8) TVD(5563.21)  
VS(319.08) NS(-243.75) EW(566.94) TEMP(127.4)

#56 MD(5698.00) Inc(4.2) Azm(102.3) TVD(5652.89)  
VS(321.74) NS(-245.41) EW(574.37) TEMP(129.2)

#57 MD(5788.00) Inc(4.1) Azm(124.1) TVD(5742.66)  
VS(325.03) NS(-247.91) EW(580.25) TEMP(129.2)

#58 MD(5878.00) Inc(3.1) Azm(130.9) TVD(5832.48)  
VS(329.01) NS(-251.31) EW(584.76) TEMP(132.8)

#59 MD(5967.00) Inc(3.8) Azm(135.5) TVD(5921.32)  
VS(333.19) NS(-254.99) EW(588.64) TEMP(134.6)

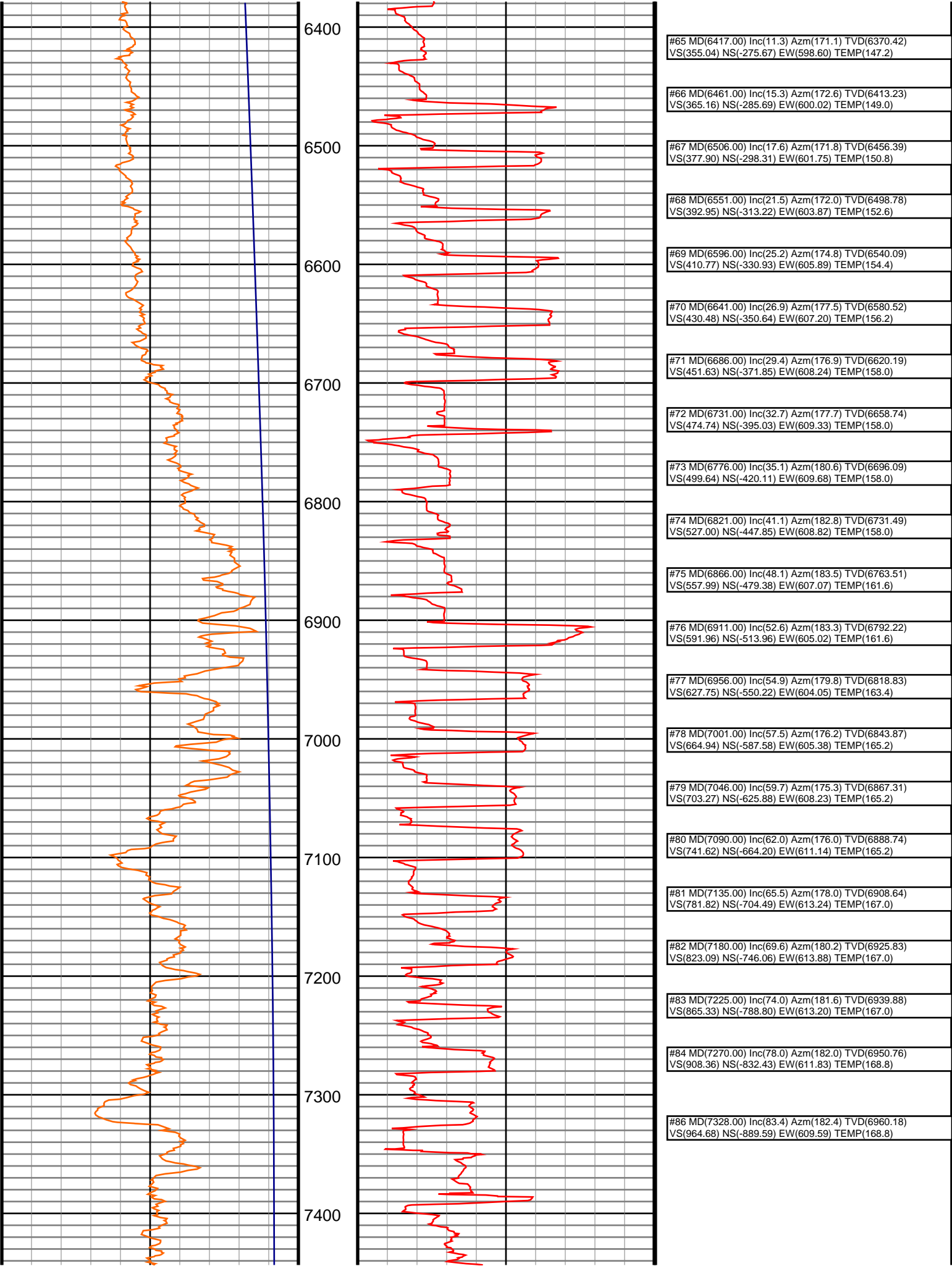
#60 MD(6057.00) Inc(2.7) Azm(143.1) TVD(6011.17)  
VS(337.44) NS(-258.81) EW(592.01) TEMP(138.2)

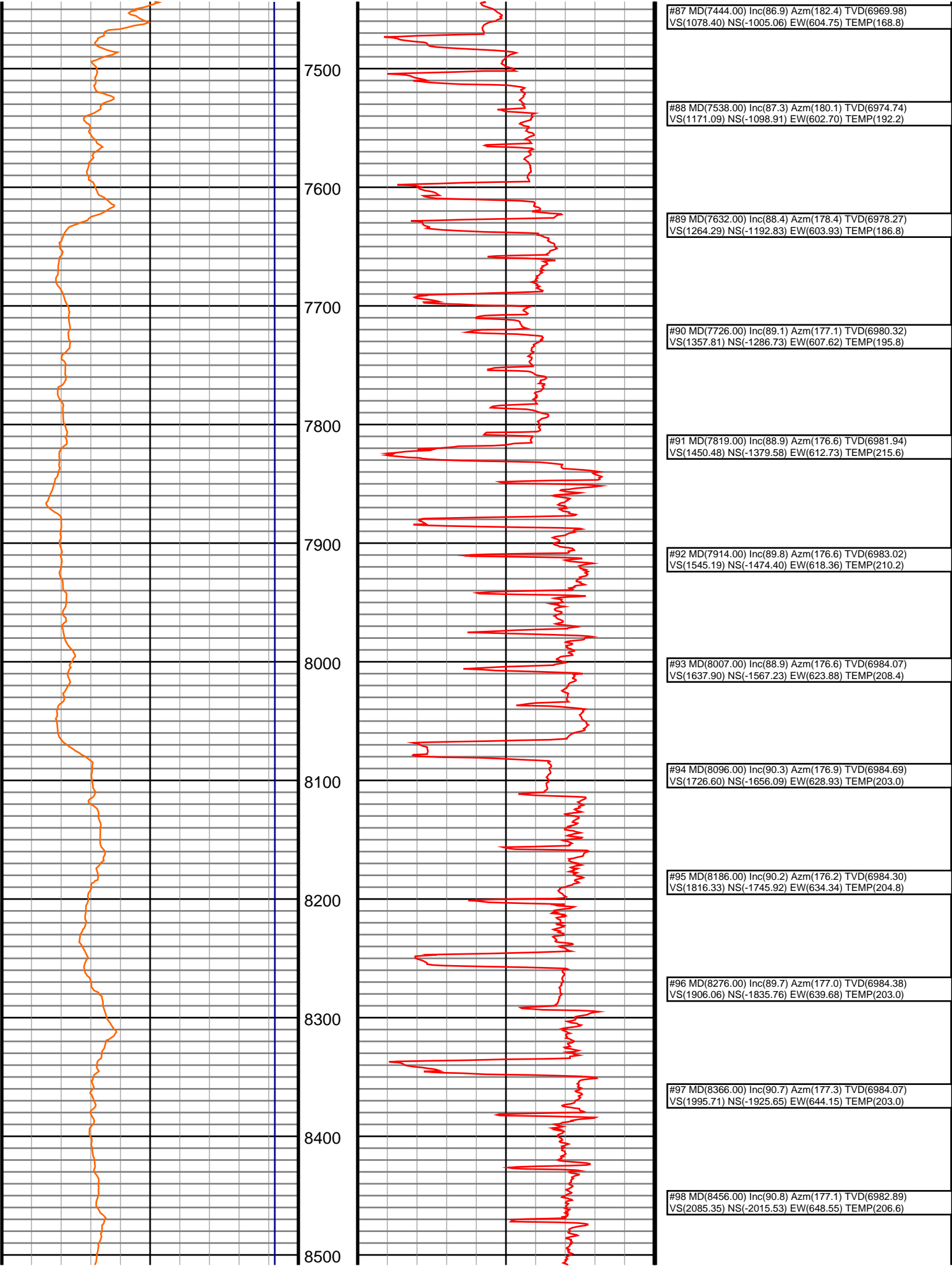
#61 MD(6147.00) Inc(1.8) Azm(159.0) TVD(6101.10)  
VS(340.67) NS(-261.83) EW(593.79) TEMP(140.0)

#62 MD(6237.00) Inc(1.6) Azm(152.9) TVD(6191.06)  
VS(343.23) NS(-264.27) EW(594.87) TEMP(143.6)

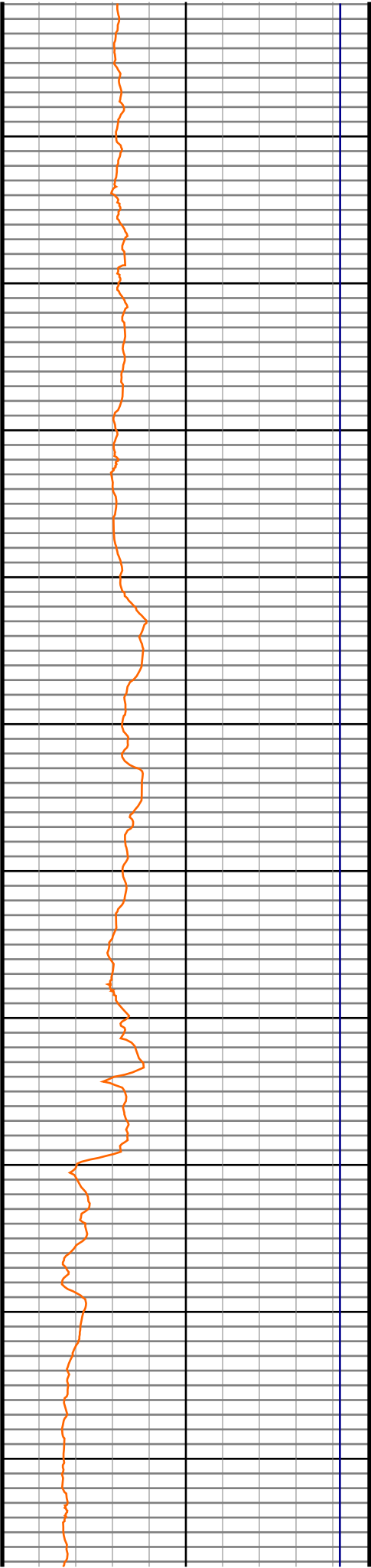
#63 MD(6327.00) Inc(1.9) Azm(141.3) TVD(6281.02)  
VS(345.70) NS(-266.55) EW(596.37) TEMP(145.4)

#64 MD(6372.00) Inc(5.5) Azm(165.5) TVD(6325.92)  
VS(348.48) NS(-269.22) EW(597.38) TEMP(145.4)









8600

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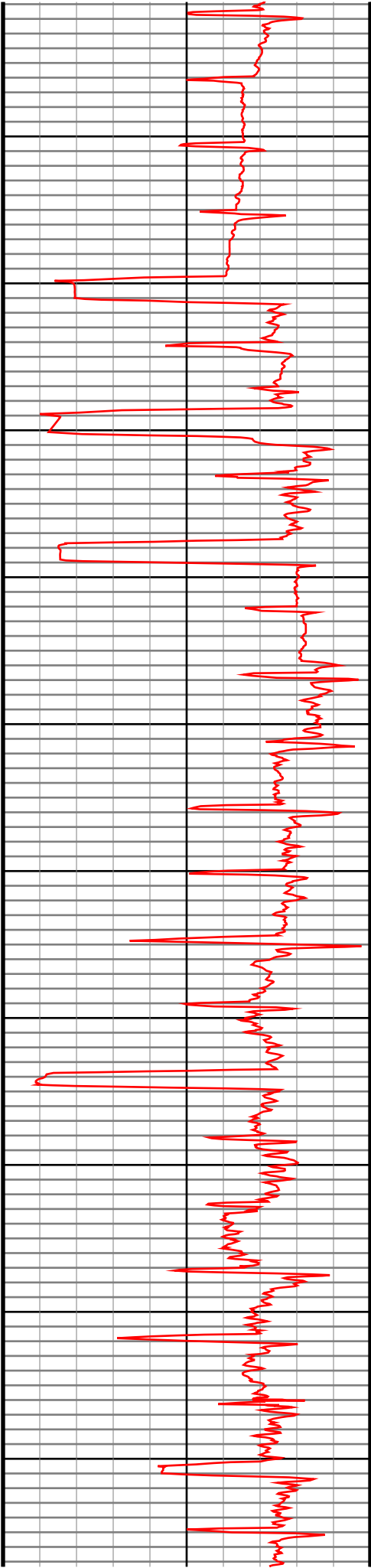
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9200

9300

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9500



#99 MD(8545.00) Inc(90.8) Azm(176.9) TVD(6981.65)  
VS(2174.02) NS(-2104.40) EW(653.21) TEMP(210.2)

#100 MD(8635.00) Inc(90.9) Azm(176.5) TVD(6980.31)  
VS(2263.73) NS(-2194.24) EW(658.39) TEMP(213.8)

#101 MD(8725.00) Inc(90.5) Azm(176.4) TVD(6979.21)  
VS(2353.46) NS(-2284.06) EW(663.96) TEMP(212.0)

#102 MD(8815.00) Inc(91.0) Azm(177.8) TVD(6978.03)  
VS(2443.12) NS(-2373.94) EW(668.51) TEMP(210.2)

#103 MD(8905.00) Inc(90.3) Azm(180.4) TVD(6977.01)  
VS(2532.44) NS(-2463.91) EW(669.93) TEMP(210.2)

#104 MD(8995.00) Inc(89.9) Azm(180.1) TVD(6976.85)  
VS(2621.53) NS(-2553.91) EW(669.53) TEMP(213.8)

#105 MD(9084.00) Inc(89.5) Azm(179.8) TVD(6977.32)  
VS(2709.70) NS(-2642.91) EW(669.61) TEMP(215.6)

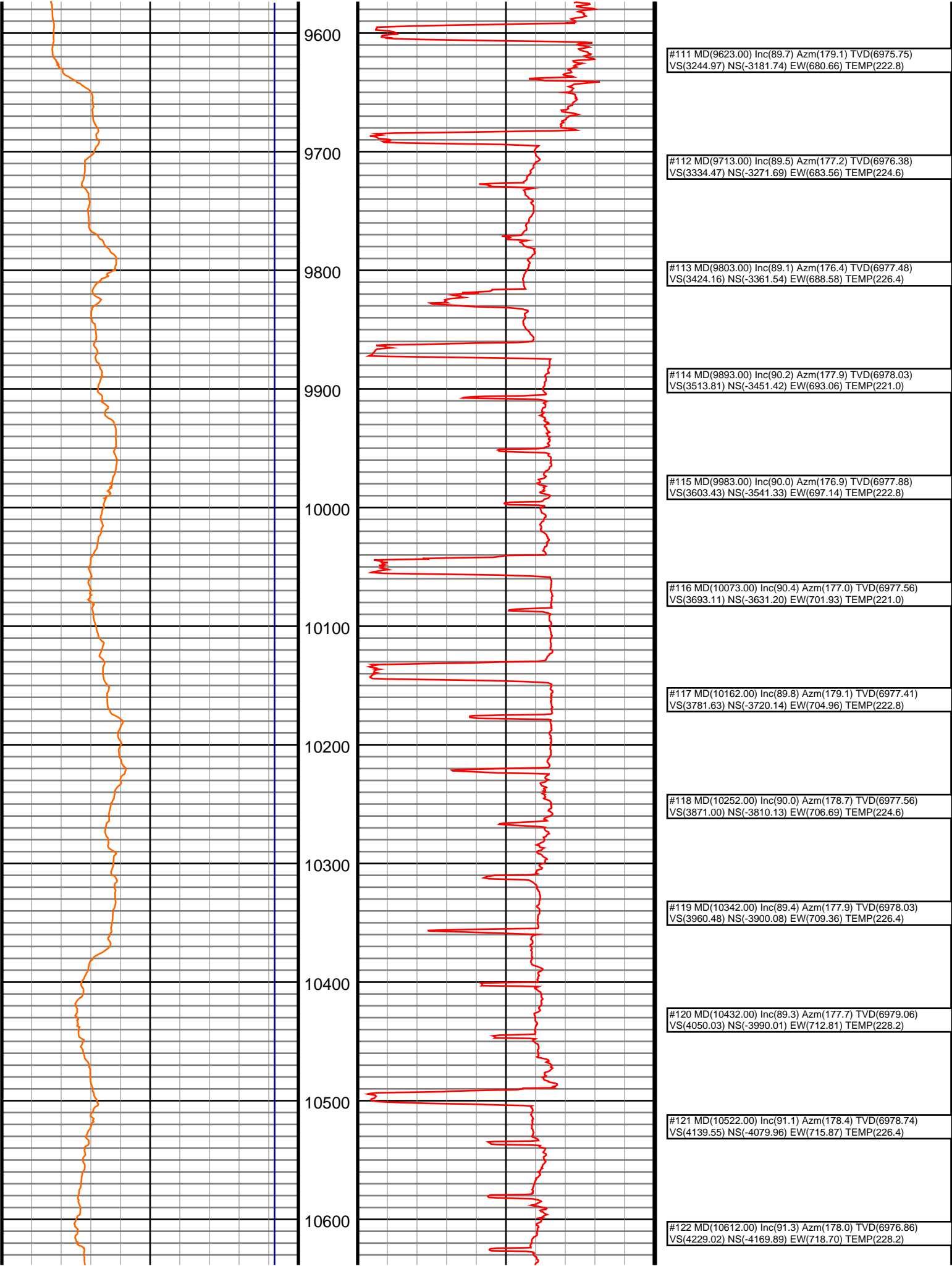
#106 MD(9174.00) Inc(89.2) Azm(179.6) TVD(6978.34)  
VS(2798.91) NS(-2732.90) EW(670.08) TEMP(217.4)

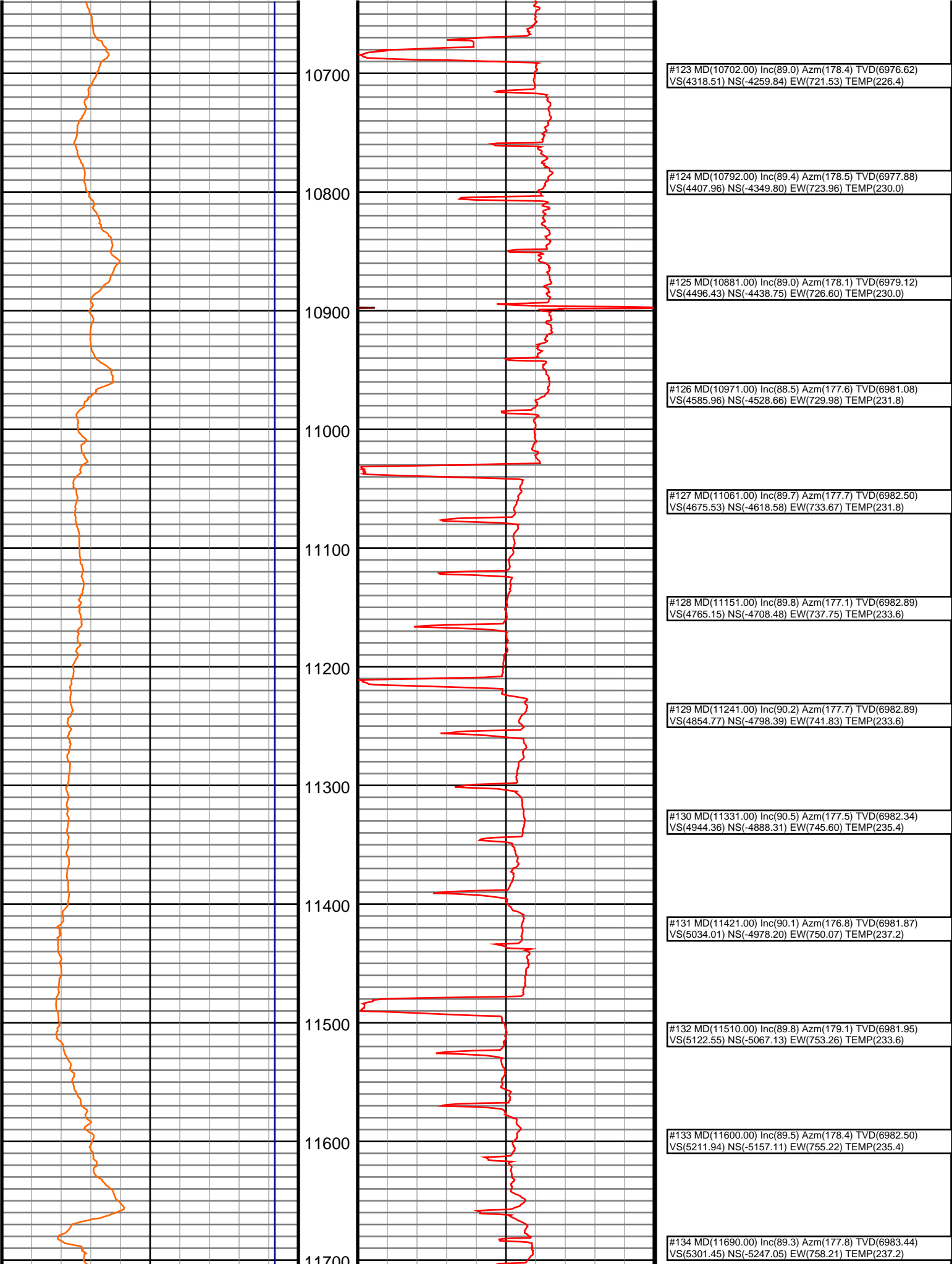
#107 MD(9264.00) Inc(90.6) Azm(179.2) TVD(6978.50)  
VS(2888.19) NS(-2822.90) EW(671.02) TEMP(217.4)

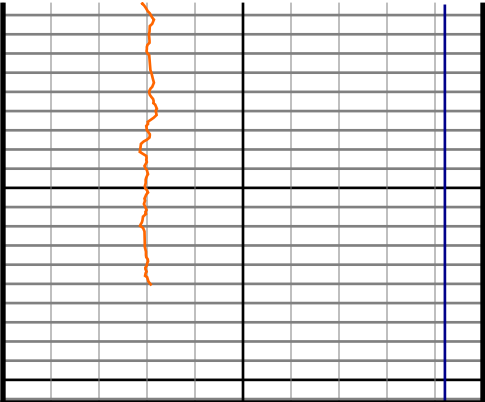
#108 MD(9354.00) Inc(90.5) Azm(178.9) TVD(6977.63)  
VS(2977.53) NS(-2912.88) EW(672.52) TEMP(219.2)

#109 MD(9444.00) Inc(90.2) Azm(178.0) TVD(6977.08)  
VS(3066.98) NS(-3002.84) EW(674.95) TEMP(222.8)

#110 MD(9534.00) Inc(90.9) Azm(177.8) TVD(6976.22)  
VS(3156.52) NS(-3092.78) EW(678.25) TEMP(224.6)

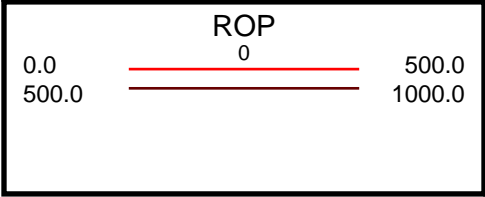
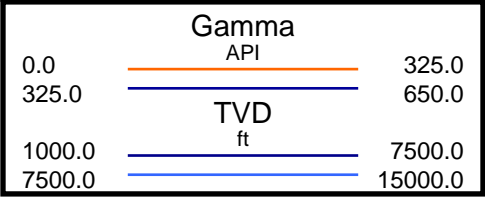






11800

11900



#135 MD(11780.00) Inc(90.0) Azm(177.7) TVD(6983.99)  
VS(5391.02) NS(-5336.98) EW(761.74) TEMP(233.6)

#136 MD(11853.00) Inc(89.8) Azm(177.9) TVD(6984.12)  
VS(5463.66) NS(-5409.93) EW(764.54) TEMP(237.2)