ENSIGN Directional Services

Ward S-20-19HN

MD
2":100’

Company: Bayswater
Well Name: Ward S-20-19HN
API: 05-123-43660
County/Parish: Weld
State: Colorado
Country: USA
Job number: T38-04-207
Field: DJ Basin
Rig Id: True 38
Survey Company: Ensign Energy Inc
DAY COMPANY MAN Marsh Wing
NIGHT COMPANY MAN Mark Stoner
DIR. DRILLER DAY Tyler Batchelder
DIR. DRILLER NIGHT Pete Moriarty
LWD/MWD DAY Paul Seevers Jr
LWD/MWD NIGHT Chad Anderson

Log measurements:
Depth measured from:
Maximum temperature:

	Depth	Date
Start:	0 ft	06/28/2017
End:	17787 ft	09/30/2017

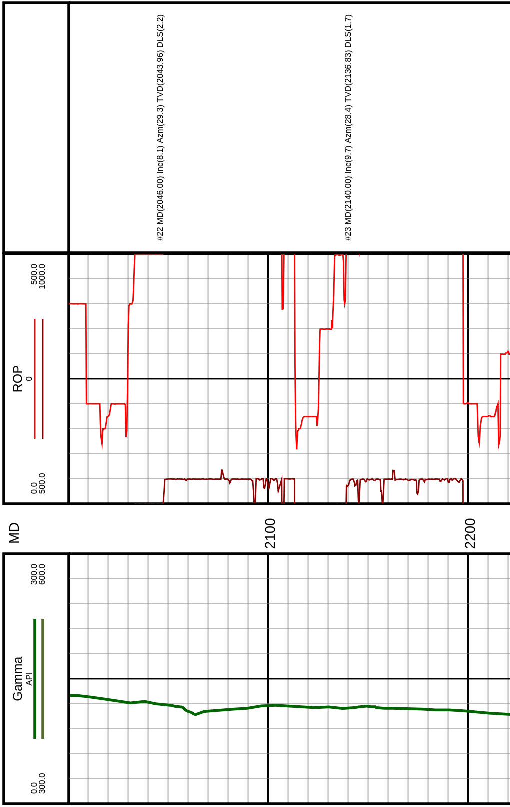
Casing	Depth	Size
Surface:	1555 ft	9 5/8"
Intermediate:		

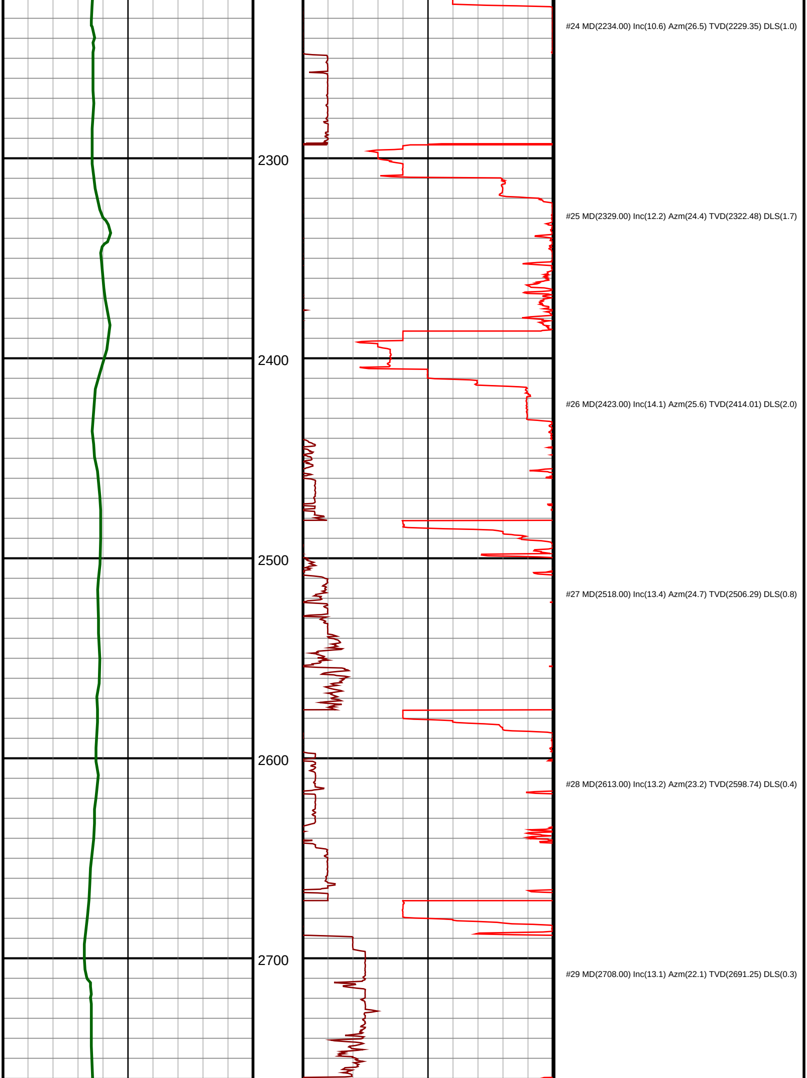
Mud Type: OBM
Density: 8.5
Viscosity: 35
Rm: N/A **Rmf:** N/A **Rmc:** N/A

Elevations
KB: 25 ft
GL: 4728 ft
DF: 4753 ft

		Offsets		Depths		Dates	
Run	**Bit Size**	**Gamma**	**Survey**	**Start**	**End**	**Start**	**End**
1	13.5"	67.00 ft	62.00 ft	0 ft	1555 ft	6/28/2017	6/29/2017
2	8.5"	62.00 ft	57.00 ft	1555 ft	7534 ft	9/23/17	9/25/2017
3	8.5"	62.00 ft	57.00 ft	7534 ft	17787 ft	9/25/2017	9/30/2017
4							
5							
6							
7							
8							
9							
10							

Ensign Energy Inc 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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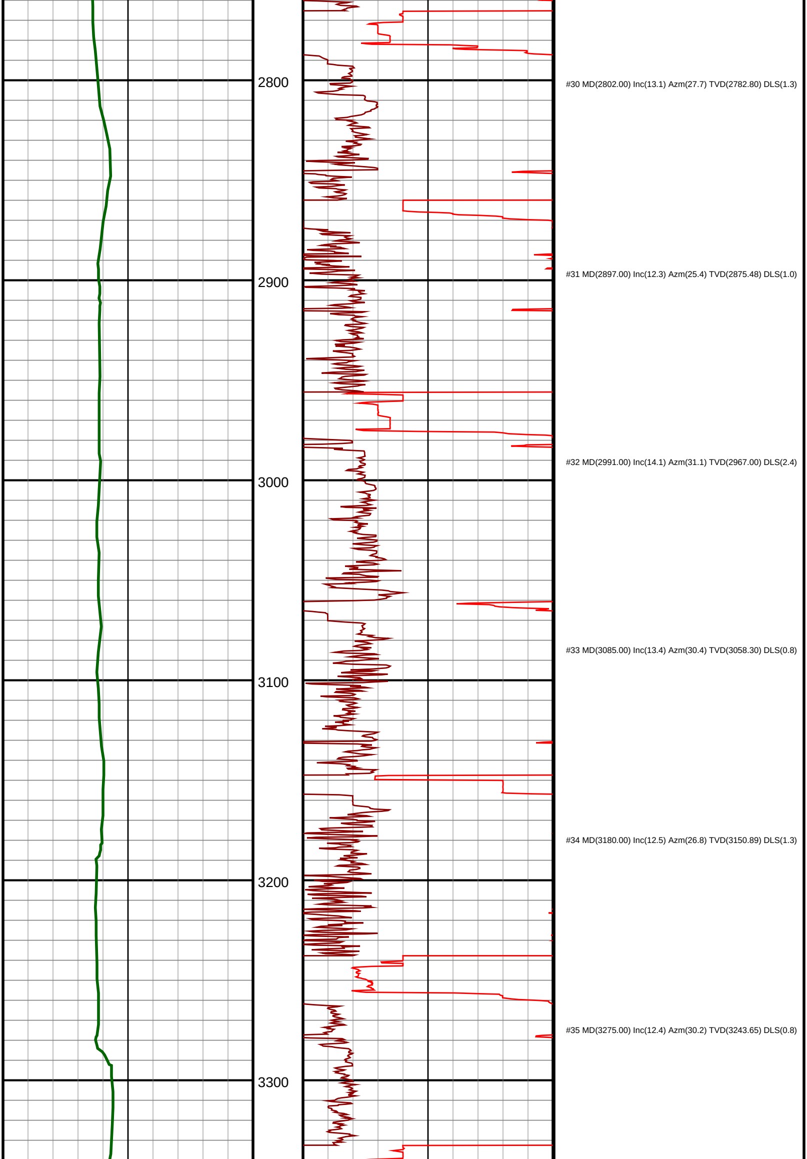
#25 MD(2329.00) Inc(12.2) Azm(24.4) TVD(2322.48) DLS(1.7)

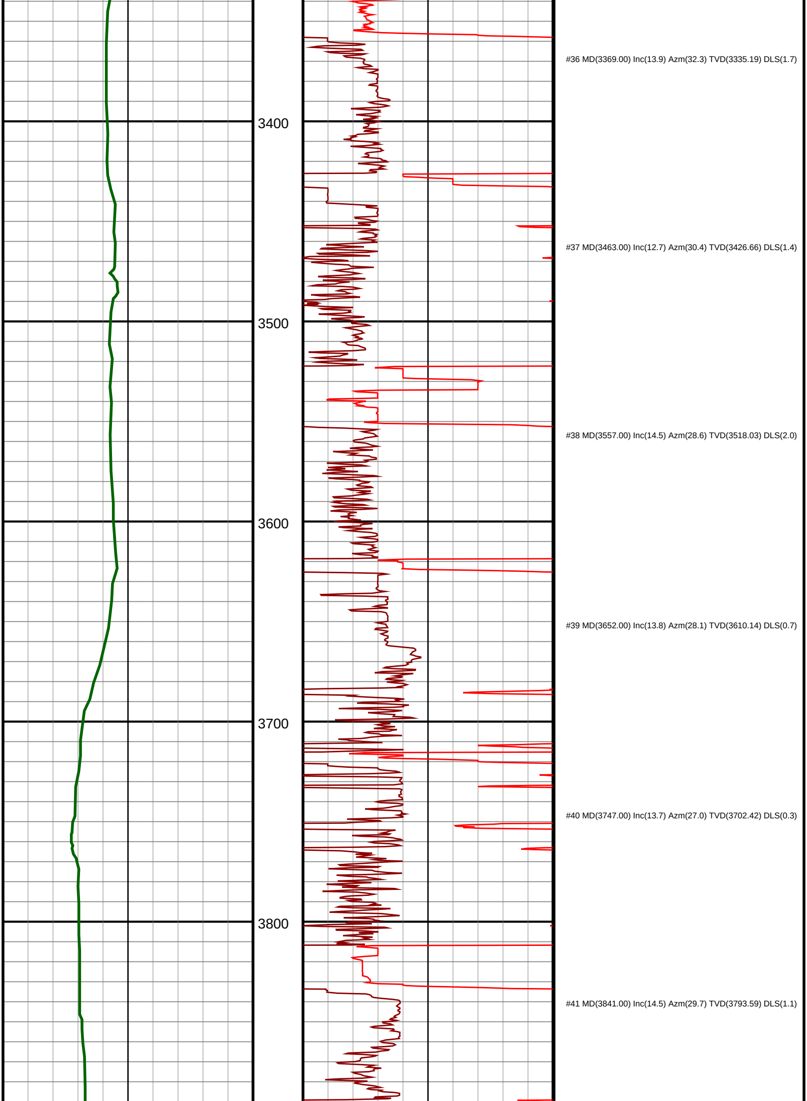
#26 MD(2423.00) Inc(14.1) Azm(25.6) TVD(2414.01) DLS(2.0)

#27 MD(2518.00) Inc(13.4) Azm(24.7) TVD(2506.29) DLS(0.8)

#28 MD(2613.00) Inc(13.2) Azm(23.2) TVD(2598.74) DLS(0.4)

#29 MD(2708.00) Inc(13.1) Azm(22.1) TVD(2691.25) DLS(0.3)





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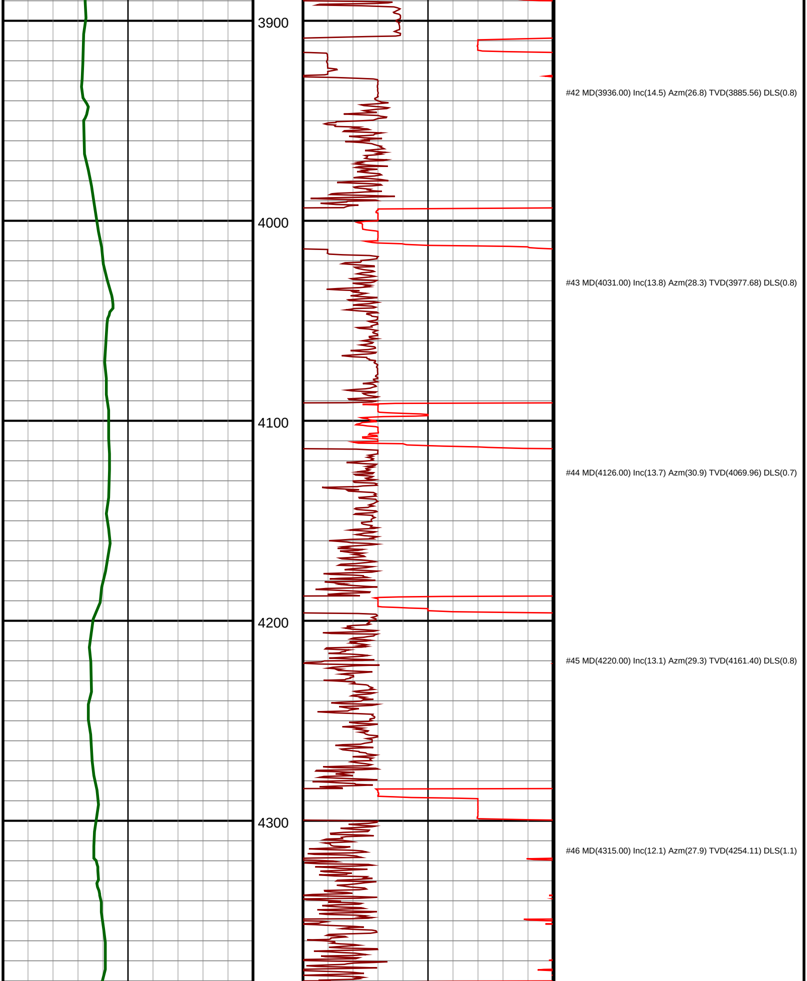
#37 MD(3463.00) Inc(12.7) Azm(30.4) TVD(3426.66) DLS(1.4)

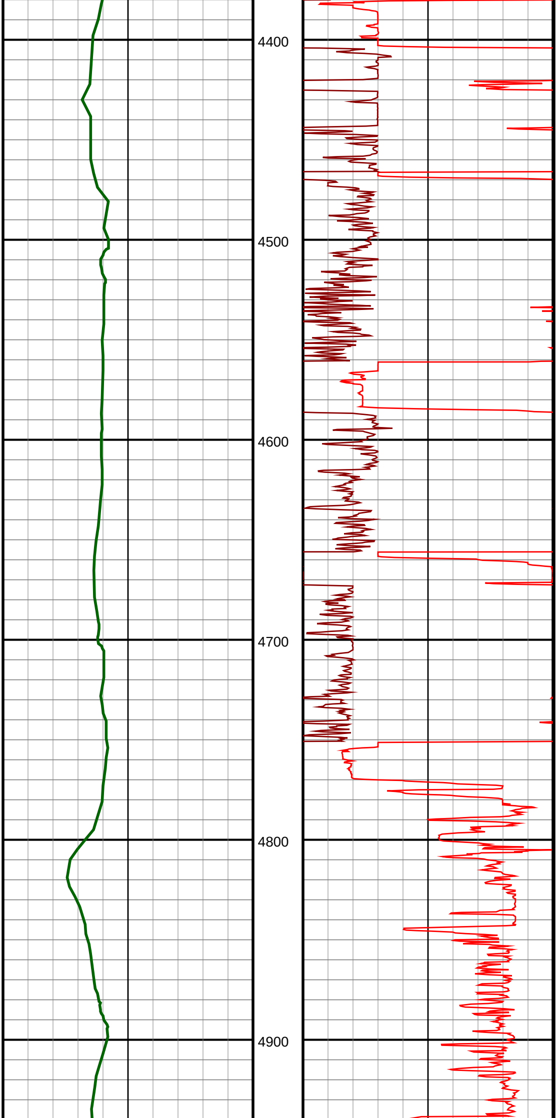
#38 MD(3557.00) Inc(14.5) Azm(28.6) TVD(3518.03) DLS(2.0)

#39 MD(3652.00) Inc(13.8) Azm(28.1) TVD(3610.14) DLS(0.7)

#40 MD(3747.00) Inc(13.7) Azm(27.0) TVD(3702.42) DLS(0.3)

#41 MD(3841.00) Inc(14.5) Azm(29.7) TVD(3793.59) DLS(1.1)





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#49 MD(4598.00) Inc(13.5) Azm(33.7) TVD(4529.52) DLS(1.3)

#50 MD(4694.00) Inc(12.8) Azm(31.6) TVD(4623.00) DLS(0.9)

#51 MD(4789.00) Inc(14.2) Azm(33.7) TVD(4715.38) DLS(1.6)

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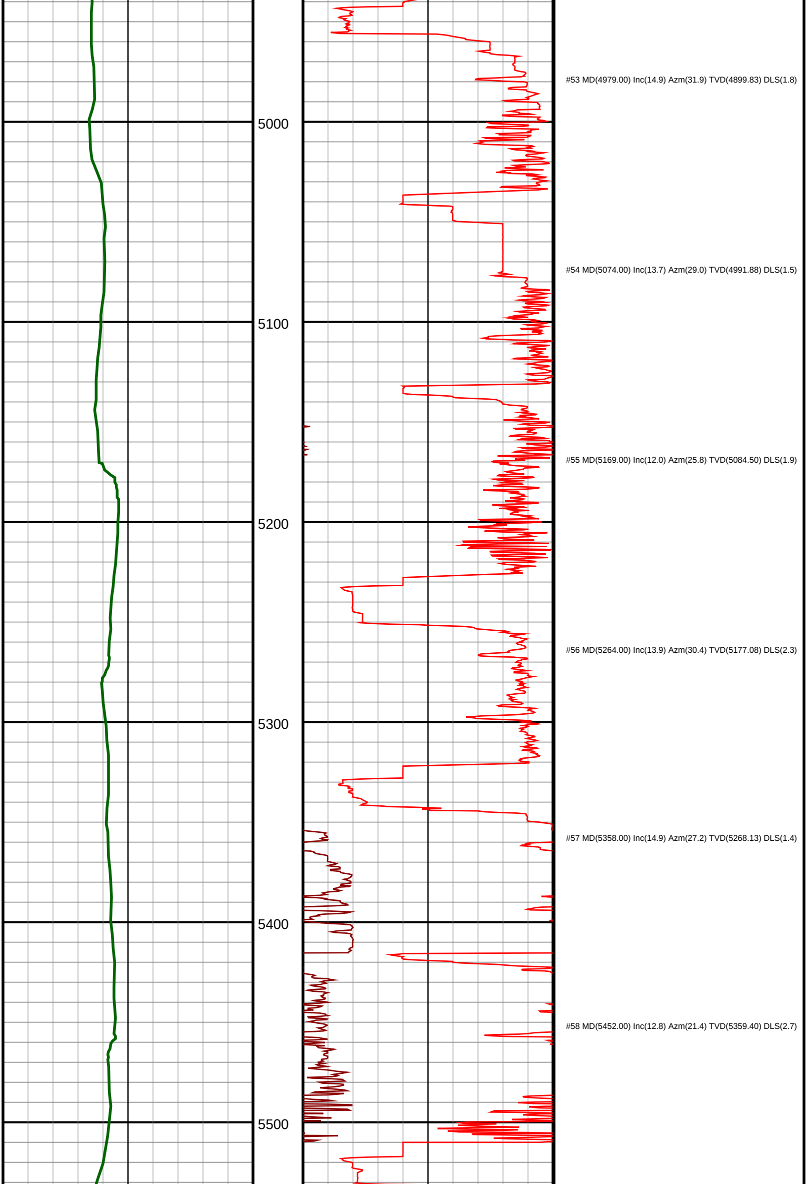

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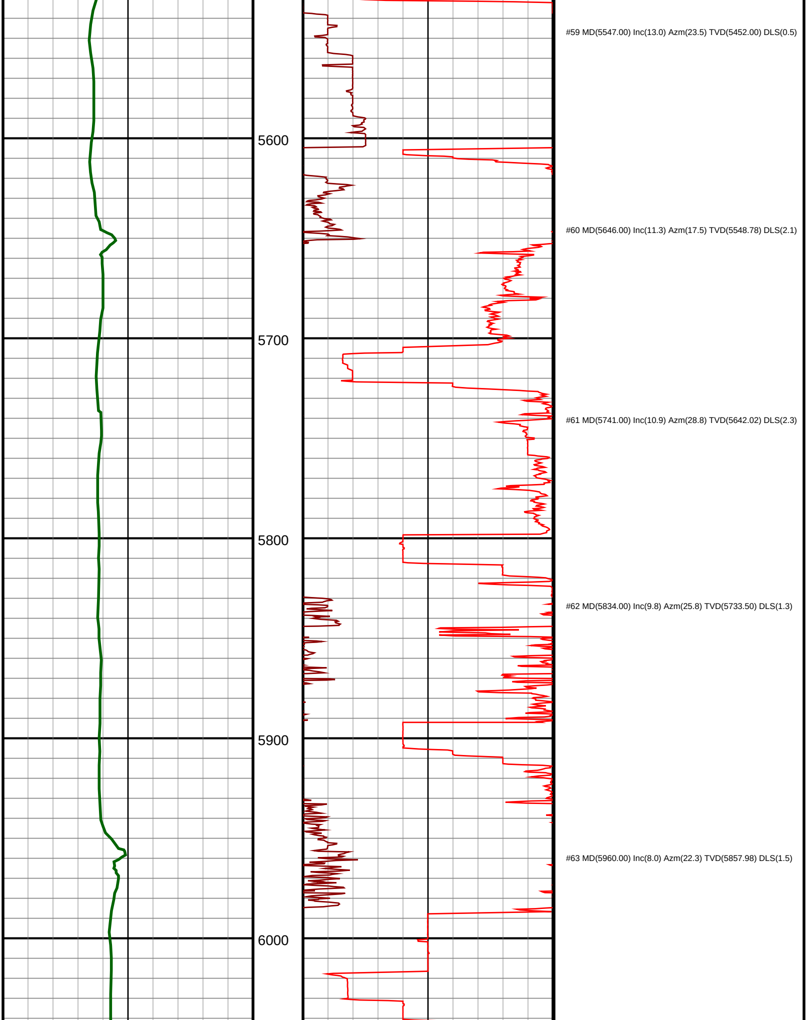
#55 MD(5169.00) Inc(12.0) Azm(25.8) TVD(5084.50) DLS(1.9)

#56 MD(5264.00) Inc(13.9) Azm(30.4) TVD(5177.08) DLS(2.3)

#57 MD(5358.00) Inc(14.9) Azm(27.2) TVD(5268.13) DLS(1.4)

#58 MD(5452.00) Inc(12.8) Azm(21.4) TVD(5359.40) DLS(2.7)



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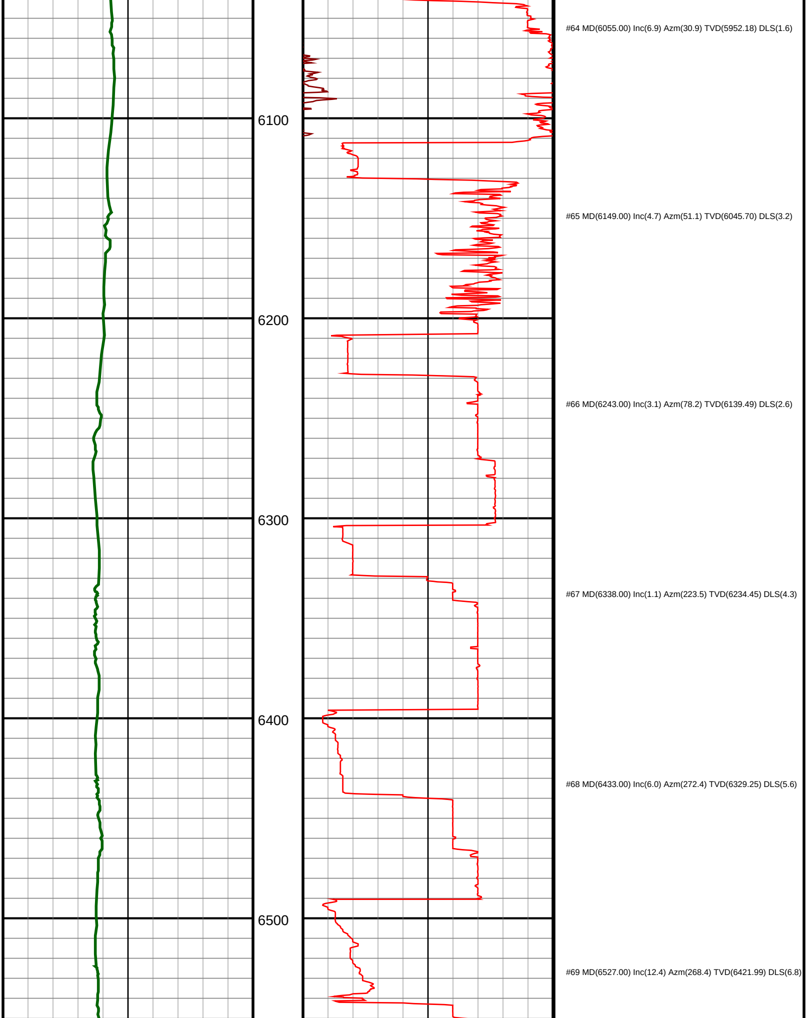
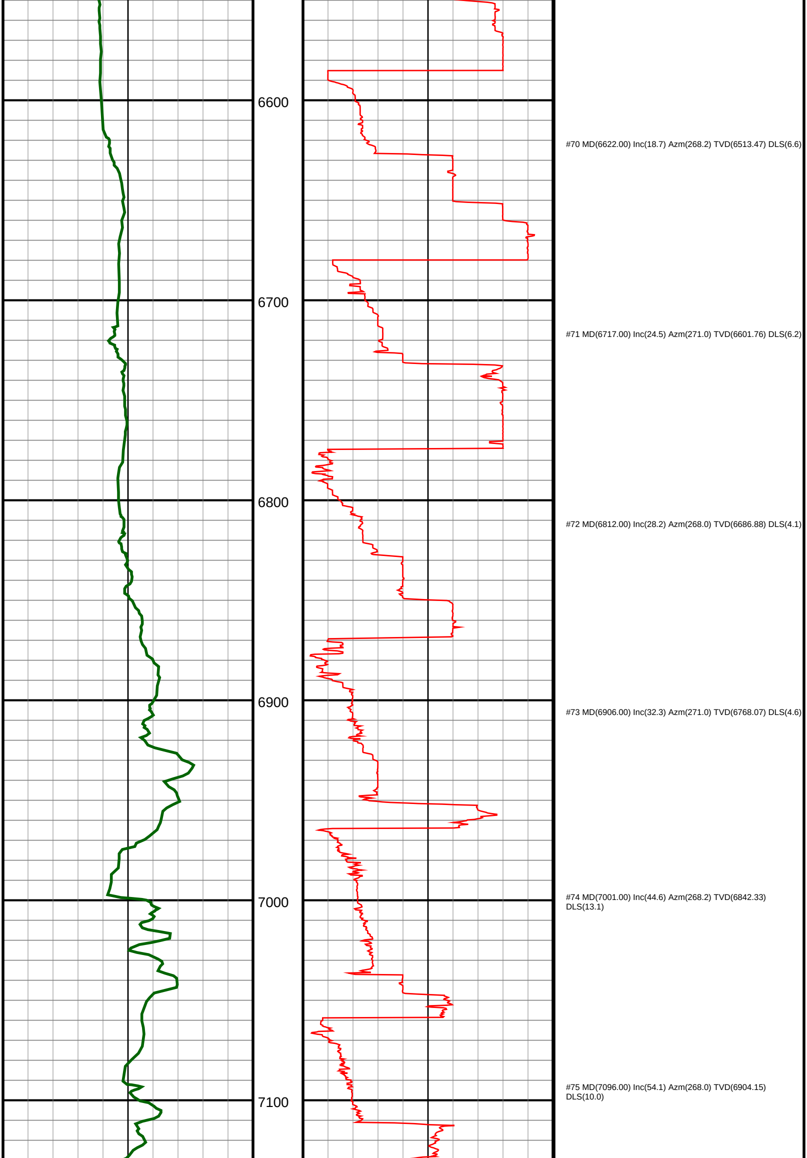
#60 MD(5646.00) Inc(11.3) Azm(17.5) TVD(5548.78) DLS(2.1)

#61 MD(5741.00) Inc(10.9) Azm(28.8) TVD(5642.02) DLS(2.3)

#62 MD(5834.00) Inc(9.8) Azm(25.8) TVD(5733.50) DLS(1.3)

#63 MD(5960.00) Inc(8.0) Azm(22.3) TVD(5857.98) DLS(1.5)





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#71 MD(6717.00) Inc(24.5) Azm(271.0) TVD(6601.76) DLS(6.2)

#72 MD(6812.00) Inc(28.2) Azm(268.0) TVD(6686.88) DLS(4.1)

#73 MD(6906.00) Inc(32.3) Azm(271.0) TVD(6768.07) DLS(4.6)

#74 MD(7001.00) Inc(44.6) Azm(268.2) TVD(6842.33) DLS(13.1)

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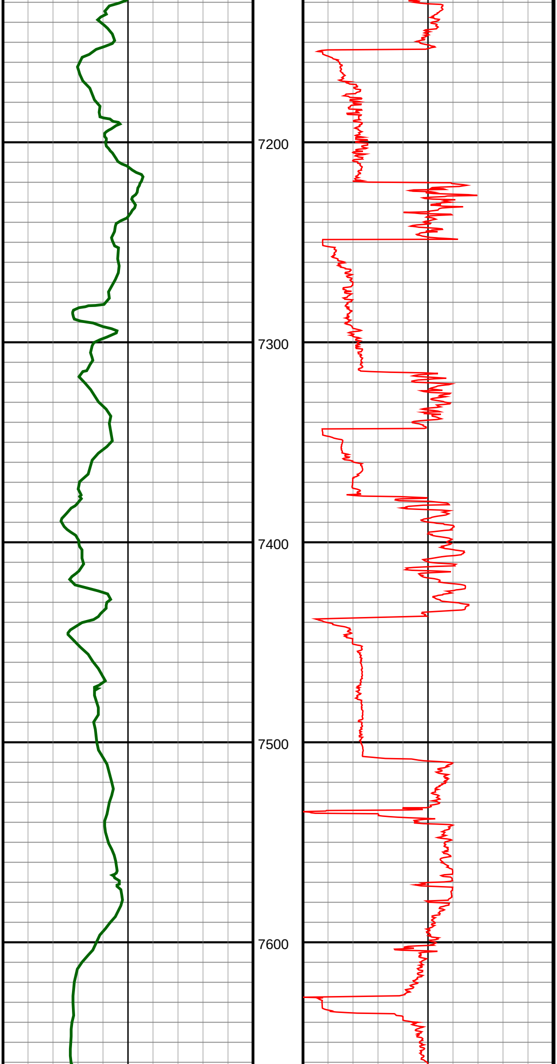

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#77 MD(7286.00) Inc(71.7) Azm(266.3) TVD(6993.15) DLS(11.3)

#78 MD(7380.00) Inc(80.1) Azm(267.7) TVD(7016.03) DLS(9.1)

#79 MD(7475.00) Inc(87.5) Azm(267.0) TVD(7026.28) DLS(7.8)

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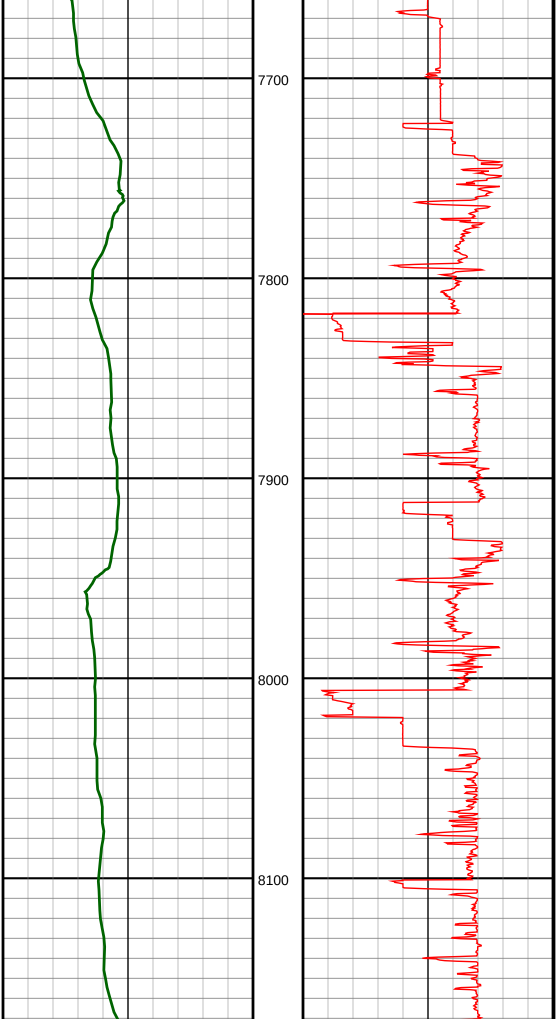

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#83 MD(7854.00) Inc(90.0) Azm(268.9) TVD(7025.20) DLS(1.6)

#84 MD(7948.00) Inc(89.6) Azm(267.7) TVD(7025.53) DLS(1.3)

#85 MD(8043.00) Inc(90.7) Azm(268.9) TVD(7025.28) DLS(1.7)

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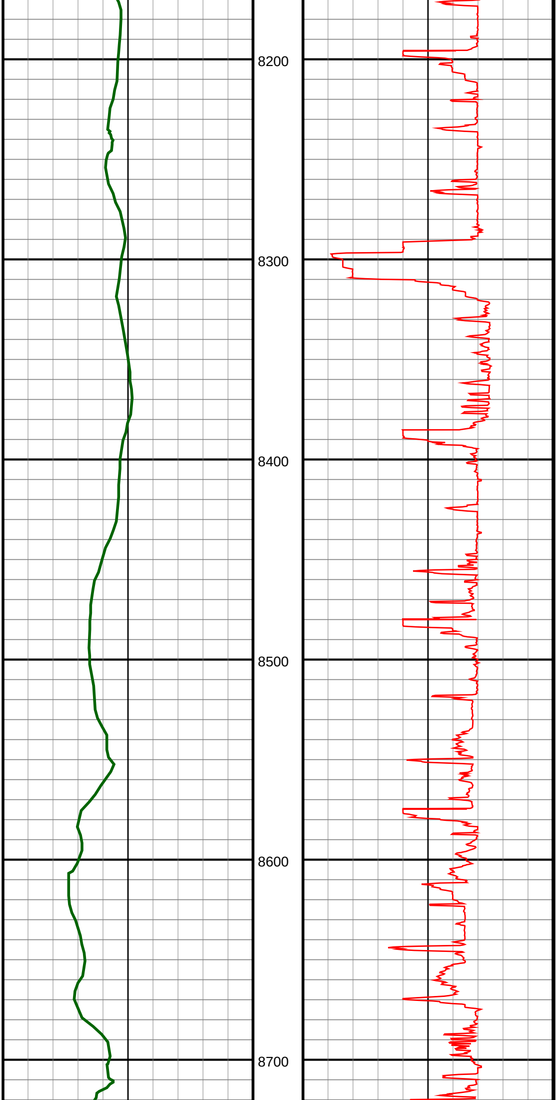

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#89 MD(8422.00) Inc(90.8) Azm(267.3) TVD(7022.88) DLS(0.9)

#90 MD(8517.00) Inc(90.6) Azm(267.7) TVD(7021.72) DLS(0.5)

#91 MD(8611.00) Inc(89.5) Azm(267.0) TVD(7021.64) DLS(1.4)

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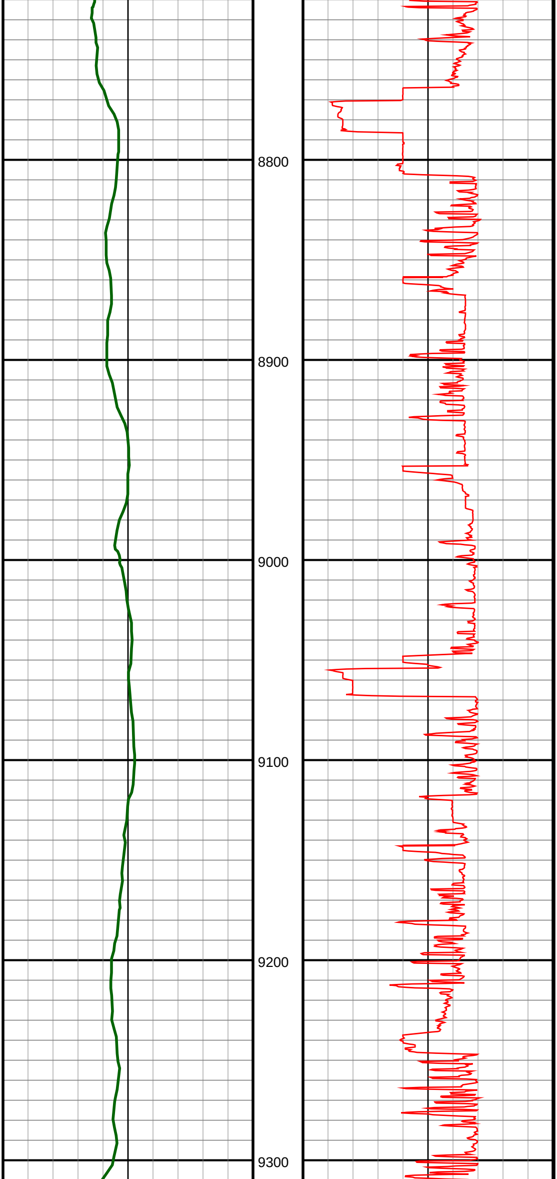

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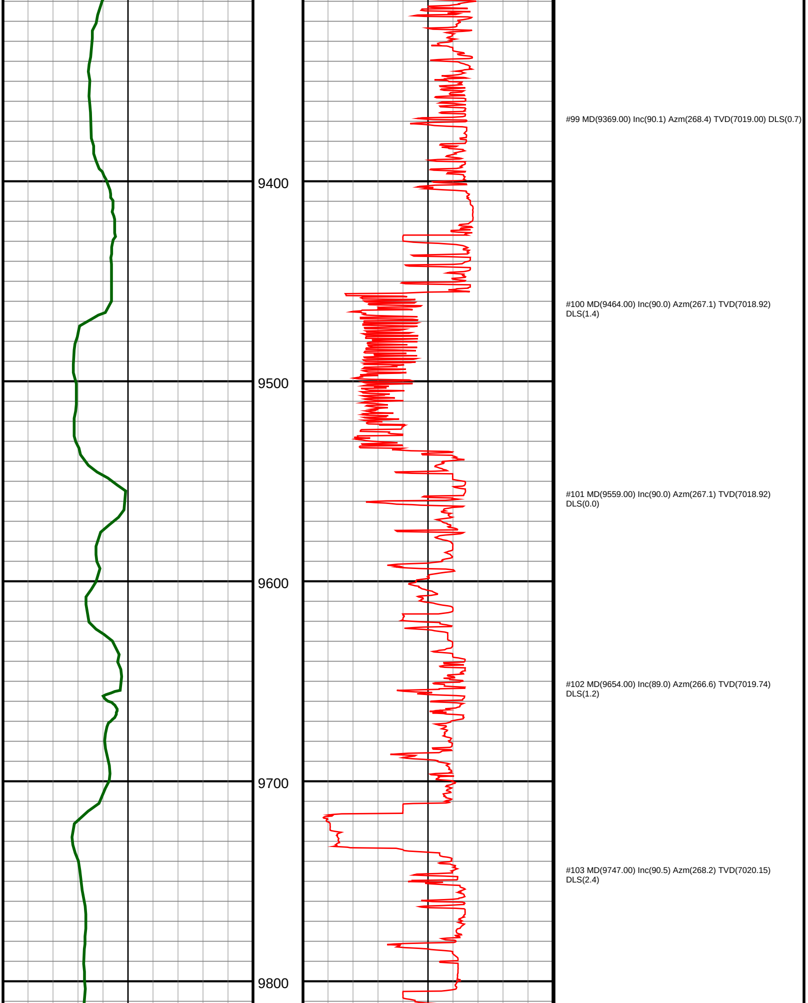

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#101 MD(9559.00) Inc(90.0) Azm(267.1) TVD(7018.92) DLS(0.0)

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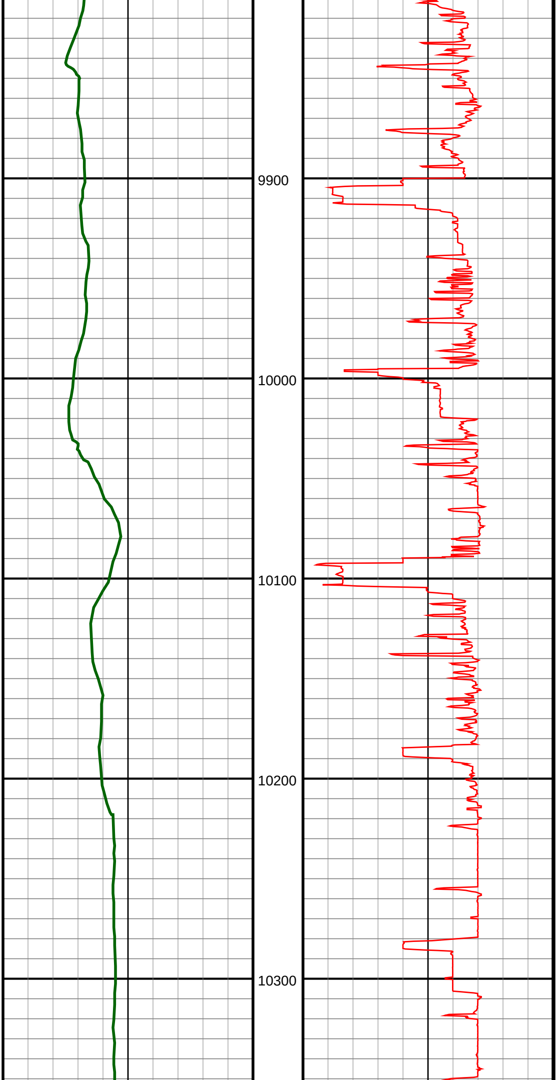

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#107 MD(10127.00) Inc(90.9) Azm(268.7) TVD(7017.33)
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#108 MD(10222.00) Inc(90.3) Azm(267.5) TVD(7016.34)
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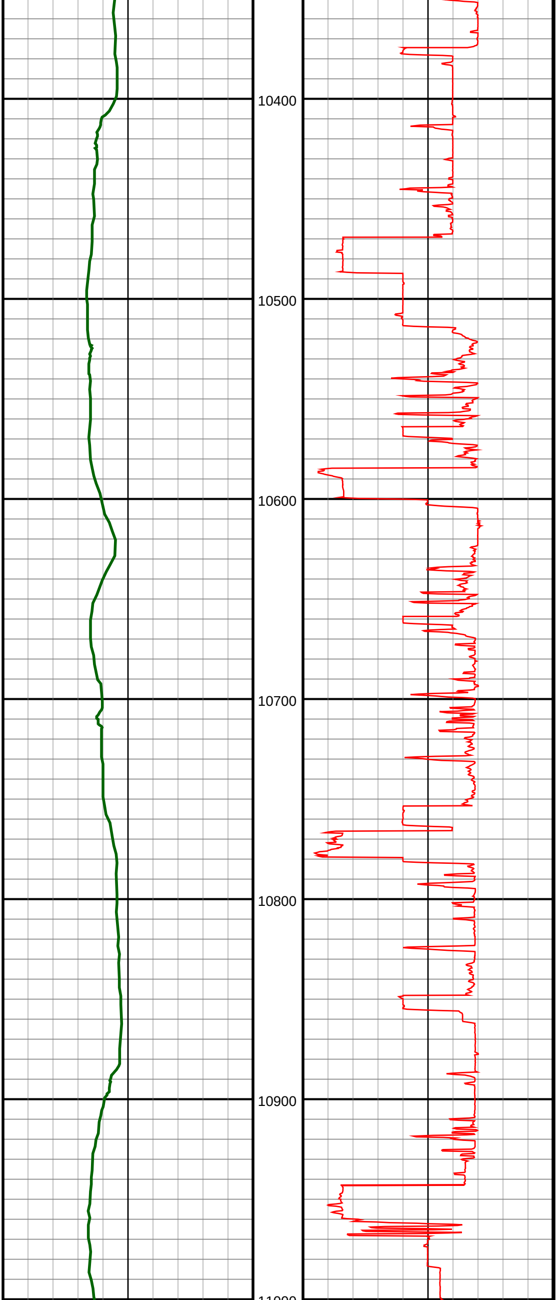

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#137 MD(12971.00) Inc(90.5) Azm(268.0) TVD(6999.62)
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#162 MD(15340.00) Inc(91.0) Azm(265.6) TVD(6997.39)
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#163 MD(15434.00) Inc(91.5) Azm(265.2) TVD(6995.34)
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#164 MD(15529.00) Inc(90.4) Azm(266.4) TVD(6993.76)
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#169 MD(16004.00) Inc(89.9) Azm(265.6) TVD(6992.69)
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#170 MD(16099.00) Inc(89.6) Azm(264.2) TVD(6993.10)
DLS(1.5)

#171 MD(16193.00) Inc(90.2) Azm(266.6) TVD(6993.27)
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#172 MD(16288.00) Inc(89.9) Azm(268.5) TVD(6993.18)
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#173 MD(16383.00) Inc(89.7) Azm(267.7) TVD(6993.52)
DLS(0.9)

#174 MD(16478.00) Inc(89.9) Azm(266.8) TVD(6993.85)
DLS(1.0)

#175 MD(16573.00) Inc(90.0) Azm(266.1) TVD(6993.93)
DLS(0.7)

#176 MD(16668.00) Inc(90.0) Azm(268.2) TVD(6993.93)
DLS(2.2)

#177 MD(16762.00) Inc(89.7) Azm(268.0) TVD(6994.18)
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#178 MD(16857.00) Inc(90.0) Azm(266.8) TVD(6994.42)
DLS(1.3)

#179 MD(16952.00) Inc(89.5) Azm(265.9) TVD(6994.84)
DLS(1.1)

#180 MD(17047.00) Inc(90.1) Azm(267.7) TVD(6995.17)
DLS(2.0)

#181 MD(17142.00) Inc(89.8) Azm(267.5) TVD(6995.25)
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#182 MD(17236.00) Inc(89.8) Azm(266.4) TVD(6995.58)
DLS(1.2)

#183 MD(17331.00) Inc(91.4) Azm(268.2) TVD(6994.59)
DLS(2.5)

#184 MD(17426.00) Inc(91.5) Azm(267.0) TVD(6992.18)
DLS(1.3)

#185 MD(17521.00) Inc(91.5) Azm(266.1) TVD(6989.70)
DLS(0.9)

#186 MD(17616.00) Inc(90.7) Azm(265.4) TVD(6987.87)
DLS(1.1)

#187 MD(17711.00) Inc(90.6) Azm(265.2) TVD(6986.79)
DLS(0.2)

#188 MD(17735.00) Inc(90.5) Azm(265.0) TVD(6986.56)
DLS(0.9)