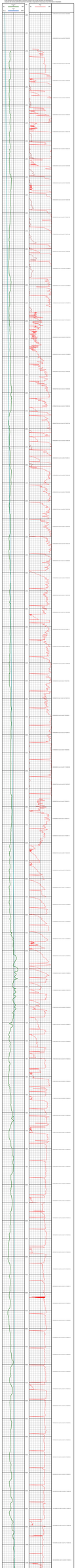

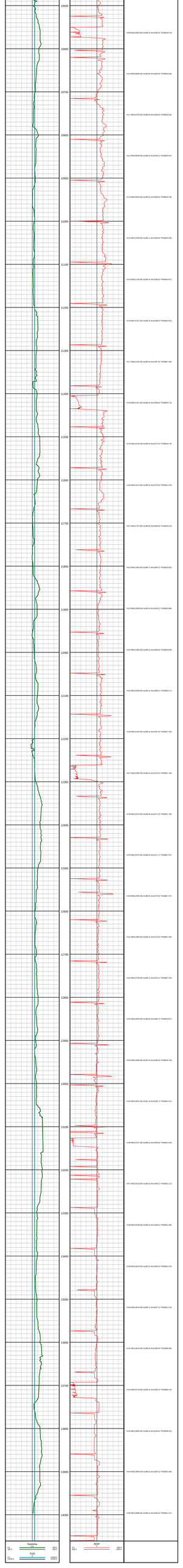

ENSIGN

Challenger 7N

PDC ENERGY

MD 2":100'

Company: PDC Energy Inc
Well Name: Challenger 7N
API: 051234589700
County/Parish: WELD
State: COLORADO
Country: USA
Job number: 152-190
Field: Wattenberg
Rig Id: Ensign 152
Survey Company: Ensign Directional
DD1 Jesus Gallego
DD2 Dan Hanson
DD3 Eric Cherry
MWD1 Justin Klatt
MWD2 Mike Geiger

Log measurements: Gamma, ROP
Depth measured from:
Maximum temperature: 208.5

Depth	Date
Start: 0 ft	3/4/2019
End: 14060 ft	3-8-2019

Casing	Depth	Size
Surface:	1690 ft	9 5/8"
Intermediate:		

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

Elevations
KB: 23 ft
GL: 4775 ft
DF: 4798 ft

Run	Bit Size	Offsets Gamma	Offsets Survey	Depths Start	Depths End	Dates Start	Dates End
1	12.25"		60.81 ft	0 ft	1690 ft	3-4-2019	3-5-2019
2	8.5"	63.28 ft	58.45 ft	1690 ft	14060 ft	3-6-2019	3-8-2019
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.

Gamma
API
0.0 300.0
300.0 600.0
TVD
ft
0.0 12550.0
12550.0 25100.0
MD
ROP
0
0.0 800.0
800.0 1600.0
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
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3400
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4000
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4200
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9100
9200
9300
9400
9500
9600
9700
9800
9900
10000
10100
10200
10300
10400
#15 MD(1487.00) Inc(2.5) Azm(138.2) TVD(1486.83)
#16 MD(1630.00) Inc(2.4) Azm(138.9) TVD(1629.70)
#17 MD(1771.00) Inc(2.8) Azm(127.3) TVD(1770.56)
#18 MD(1866.00) Inc(1.6) Azm(168.2) TVD(1865.49)
#19 MD(1961.00) Inc(4.9) Azm(156.8) TVD(1960.33)
#20 MD(2055.00) Inc(6.0) Azm(143.2) TVD(2053.91)
#21 MD(2149.00) Inc(6.5) Azm(157.1) TVD(2147.35)
#22 MD(2244.00) Inc(6.7) Azm(156.2) TVD(2241.72)
#23 MD(2339.00) Inc(8.5) Azm(157.9) TVD(2335.88)
#24 MD(2434.00) Inc(8.3) Azm(157.8) TVD(2429.86)
#25 MD(2528.00) Inc(8.4) Azm(137.8) TVD(2522.89)
#26 MD(2624.00) Inc(8.1) Azm(136.7) TVD(2617.90)
#27 MD(2719.00) Inc(7.9) Azm(135.7) TVD(2711.98)
#28 MD(2814.00) Inc(9.6) Azm(138.6) TVD(2805.88)
#29 MD(2909.00) Inc(11.4) Azm(138.8) TVD(2899.29)
#30 MD(3005.00) Inc(11.0) Azm(137.8) TVD(2993.46)
#31 MD(3101.00) Inc(10.9) Azm(137.3) TVD(3087.70)
#32 MD(3196.00) Inc(10.4) Azm(137.9) TVD(3181.07)
#33 MD(3292.00) Inc(10.2) Azm(134.9) TVD(3275.52)
#34 MD(3387.00) Inc(10.1) Azm(133.2) TVD(3369.03)
#35 MD(3483.00) Inc(9.3) Azm(129.2) TVD(3463.66)
#36 MD(3579.00) Inc(9.4) Azm(131.5) TVD(3558.39)
#37 MD(3674.00) Inc(9.1) Azm(132.2) TVD(3652.16)
#38 MD(3770.00) Inc(7.4) Azm(117.0) TVD(3747.18)
#39 MD(3866.00) Inc(5.3) Azm(105.8) TVD(3842.59)
#40 MD(3962.00) Inc(2.8) Azm(98.6) TVD(3938.34)
#41 MD(4058.00) Inc(1.0) Azm(189.6) TVD(4034.30)
#42 MD(4152.00) Inc(1.2) Azm(194.2) TVD(4128.28)
#43 MD(4247.00) Inc(1.1) Azm(196.0) TVD(4223.26)
#44 MD(4343.00) Inc(0.9) Azm(188.1) TVD(4319.24)
#45 MD(4438.00) Inc(0.9) Azm(179.9) TVD(4414.23)
#46 MD(4533.00) Inc(0.7) Azm(177.2) TVD(4509.22)
#47 MD(4629.00) Inc(0.8) Azm(168.4) TVD(4605.22)
#48 MD(4725.00) Inc(1.0) Azm(167.1) TVD(4701.20)
#49 MD(4820.00) Inc(1.1) Azm(171.3) TVD(4796.19)
#50 MD(4915.00) Inc(2.2) Azm(11.8) TVD(4891.17)
#51 MD(5011.00) Inc(2.0) Azm(359.4) TVD(4987.11)
#52 MD(5106.00) Inc(2.0) Azm(357.0) TVD(5082.05)
#53 MD(5202.00) Inc(1.9) Azm(2.2) TVD(5178.00)
#54 MD(5297.00) Inc(1.7) Azm(17.5) TVD(5272.95)
#55 MD(5393.00) Inc(1.6) Azm(8.6) TVD(5368.91)
#56 MD(5489.00) Inc(1.5) Azm(12.3) TVD(5464.87)
#57 MD(5584.00) Inc(1.6) Azm(5.9) TVD(5559.84)
#58 MD(5680.00) Inc(1.4) Azm(357.7) TVD(5655.80)
#59 MD(5775.00) Inc(1.6) Azm(347.9) TVD(5750.77)
#60 MD(5870.00) Inc(1.5) Azm(3.8) TVD(5845.74)
#61 MD(5966.00) Inc(0.9) Azm(2.4) TVD(5941.72)
#62 MD(6061.00) Inc(0.6) Azm(13.7) TVD(6036.71)
#63 MD(6157.00) Inc(2.6) Azm(300.7) TVD(6132.67)
#64 MD(6253.00) Inc(10.9) Azm(272.5) TVD(6227.93)
#65 MD(6348.00) Inc(18.7) Azm(277.7) TVD(6319.72)
#66 MD(6444.00) Inc(25.5) Azm(270.6) TVD(6408.64)
#67 MD(6539.00) Inc(32.0) Azm(271.4) TVD(6491.90)
#68 MD(6634.00) Inc(38.7) Azm(271.4) TVD(6569.34)
#69 MD(6729.00) Inc(46.9) Azm(267.5) TVD(6639.01)
#70 MD(6825.00) Inc(56.7) Azm(269.6) TVD(6698.33)
#71 MD(6920.00) Inc(64.7) Azm(268.3) TVD(6744.76)
#72 MD(7016.00) Inc(70.6) Azm(268.5) TVD(6781.25)
#73 MD(7111.00) Inc(77.4) Azm(270.5) TVD(6807.47)
#74 MD(7206.00) Inc(87.4) Azm(273.0) TVD(6820.03)
#75 MD(7302.00) Inc(91.0) Azm(273.0) TVD(6821.32)
#76 MD(7426.00) Inc(91.8) Azm(269.4) TVD(6818.31)
#77 MD(7521.00) Inc(91.8) Azm(268.5) TVD(6815.41)
#78 MD(7616.00) Inc(91.5) Azm(267.4) TVD(6812.69)
#79 MD(7710.00) Inc(89.3) Azm(267.8) TVD(6812.00)
#80 MD(7805.00) Inc(89.0) Azm(267.3) TVD(6813.42)
#81 MD(7900.00) Inc(89.3) Azm(267.1) TVD(6814.84)
#82 MD(7995.00) Inc(90.1) Azm(266.6) TVD(6815.36)
#83 MD(8090.00) Inc(88.5) Azm(267.9) TVD(6816.54)
#84 MD(8185.00) Inc(88.3) Azm(266.9) TVD(6819.14)
#85 MD(8280.00) Inc(88.4) Azm(267.2) TVD(6821.88)
#86 MD(8375.00) Inc(88.4) Azm(270.9) TVD(6824.58)
#87 MD(8469.00) Inc(88.6) Azm(270.5) TVD(6827.09)
#88 MD(8565.00) Inc(89.4) Azm(270.4) TVD(6828.77)
#89 MD(8659.00) Inc(89.9) Azm(270.6) TVD(6829.31)
#90 MD(8754.00) Inc(90.8) Azm(270.4) TVD(6828.68)
#91 MD(8849.00) Inc(91.0) Azm(270.3) TVD(6827.13)
#92 MD(8944.00) Inc(91.6) Azm(270.5) TVD(6824.95)
#93 MD(9039.00) Inc(91.9) Azm(270.3) TVD(6822.08)
#94 MD(9135.00) Inc(89.1) Azm(270.7) TVD(6821.23)
#95 MD(9229.00) Inc(89.1) Azm(270.4) TVD(6822.65)
#96 MD(9324.00) Inc(89.3) Azm(270.5) TVD(6823.95)
#97 MD(9419.00) Inc(89.0) Azm(270.1) TVD(6825.34)
#98 MD(9514.00) Inc(89.2) Azm(269.8) TVD(6826.84)
#99 MD(9610.00) Inc(89.2) Azm(269.6) TVD(6828.24)
#100 MD(9705.00) Inc(89.4) Azm(269.3) TVD(6829.42)
#101 MD(9800.00) Inc(89.5) Azm(269.4) TVD(6830.27)
#102 MD(9895.00) Inc(90.4) Azm(270.4) TVD(6830.30)
#103 MD(9991.00) Inc(90.7) Azm(270.1) TVD(6829.33)
#104 MD(10086.00) Inc(90.7) Azm(269.9) TVD(6828.11)
#105 MD(10181.00) Inc(90.7) Azm(269.7) TVD(6826.91)
#106 MD(10276.00) Inc(91.2) Azm(269.7) TVD(6825.32)
#107 MD(10371.00) Inc(91.6) Azm(269.6) TVD(6823.02)
#108 MD(10467.00) Inc(91.9) Azm(269.4) TVD(6820.09)

#109 MD(10563.00) Inc(90.3) Azm(269.9) TVD(6818.20)

#110 MD(10658.00) Inc(89.8) Azm(269.8) TVD(6818.08)

#111 MD(10753.00) Inc(89.6) Azm(269.5) TVD(6818.54)

#112 MD(10848.00) Inc(89.9) Azm(269.2) TVD(6818.97)

#113 MD(10944.00) Inc(89.8) Azm(268.8) TVD(6819.28)

#114 MD(11039.00) Inc(90.1) Azm(268.8) TVD(6819.38)

#115 MD(11135.00) Inc(90.4) Azm(268.5) TVD(6818.97)

#116 MD(11231.00) Inc(90.3) Azm(268.0) TVD(6818.43)

#117 MD(11326.00) Inc(90.6) Azm(267.8) TVD(6817.66)

#118 MD(11421.00) Inc(90.5) Azm(269.6) TVD(6816.74)

#119 MD(11516.00) Inc(89.5) Azm(270.2) TVD(6816.76)

#120 MD(11612.00) Inc(89.5) Azm(270.0) TVD(6817.63)

#121 MD(11707.00) Inc(89.8) Azm(269.9) TVD(6818.23)

#122 MD(11803.00) Inc(89.7) Azm(269.7) TVD(6818.62)

#123 MD(11898.00) Inc(90.0) Azm(269.2) TVD(6818.86)

#124 MD(11994.00) Inc(90.2) Azm(268.9) TVD(6818.69)

#125 MD(12089.00) Inc(90.4) Azm(268.2) TVD(6818.17)

#126 MD(12184.00) Inc(90.4) Azm(267.9) TVD(6817.55)

#127 MD(12280.00) Inc(90.0) Azm(270.0) TVD(6817.28)

#128 MD(12375.00) Inc(89.8) Azm(271.0) TVD(6817.45)

#129 MD(12470.00) Inc(89.9) Azm(271.1) TVD(6817.67)

#130 MD(12565.00) Inc(89.8) Azm(270.6) TVD(6817.87)

#131 MD(12660.00) Inc(90.2) Azm(270.5) TVD(6817.86)

#132 MD(12755.00) Inc(90.1) Azm(270.1) TVD(6817.63)

#133 MD(12850.00) Inc(90.8) Azm(269.7) TVD(6816.87)

#134 MD(12946.00) Inc(91.0) Azm(268.9) TVD(6815.30)

#135 MD(13041.00) Inc(91.3) Azm(268.7) TVD(6813.31)

#136 MD(13137.00) Inc(89.5) Azm(268.6) TVD(6812.64)

#137 MD(13232.00) Inc(90.0) Azm(268.2) TVD(6813.12)

#138 MD(13328.00) Inc(90.3) Azm(268.0) TVD(6812.89)

#139 MD(13424.00) Inc(90.5) Azm(268.0) TVD(6812.24)

#140 MD(13519.00) Inc(90.7) Azm(267.2) TVD(6811.23)

#141 MD(13614.00) Inc(90.8) Azm(266.9) TVD(6809.96)

#142 MD(13710.00) Inc(90.2) Azm(269.2) TVD(6809.14)

#143 MD(13806.00) Inc(89.5) Azm(269.6) TVD(6809.43)

#144 MD(13900.00) Inc(89.4) Azm(269.3) TVD(6810.36)

#145 MD(13996.00) Inc(89.2) Azm(269.6) TVD(6811.51)