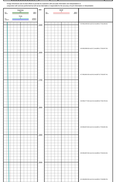

ENSIGN

Thistle Down 31G-232

MD
2":100'

Company: PDC Energy Inc
Well Name: Thistle Down 31G-232
API: 05123456000
County/Parish: WELD
State: COLORADO
Country: USA
Job number: 152-181
Field: Wattenberg
Rig Id: Ensign 152
Survey Company: Ensign Directional
DD1 Jesus Gallego
DD2 Dan Hanson
DD3
MWD1 Ryan Prue
MWD2 Paul Wilson

		Depth	Date
Log measurements: Gamma, ROP	**Start:**	0 ft	12-31-2018
Depth measured from:	**End:**	12328 ft	1-4-2019
Maximum temperature:			

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

Mud Type: Water
Density: 10.5
Viscosity: 42
Rm: **Rmf:** **Rmc:**

Elevations
KB: 23 ft
GL: 4805 ft
DF: 4828 ft

Run	Bit Size	Offsets		Depths		Dates	
		Gamma	Survey	Start	End	Start	End
1	12.25"		60.24 ft	0 ft	2502 ft	12-31-2018	1-1-2019
2	8.5"	63.25 ft	58.25 ft	2502 ft	12328 ft	1-2-2019	1-4-2019
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.

ROP
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0.0
800.0
800.0
1600.0
MD
Gamma
API
0.0
300.0
300.0
600.0
TVD
ft
0.0
12550.0
12550.0
25100.0
1500
1600
1700
1800
1900
2000
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#15 MD(1490.00) Inc(20.3) Azm(286.4) TVD(1456.82)
#16 MD(1586.00) Inc(19.7) Azm(286.1) TVD(1547.03)
#17 MD(1681.00) Inc(16.0) Azm(287.5) TVD(1637.44)
#18 MD(1777.00) Inc(14.0) Azm(284.0) TVD(1730.16)
#19 MD(1872.00) Inc(13.4) Azm(282.1) TVD(1822.46)
#20 MD(1967.00) Inc(14.6) Azm(286.4) TVD(1914.64)
#21 MD(2062.00) Inc(13.6) Azm(290.2) TVD(2006.78)
#22 MD(2158.00) Inc(13.4) Azm(288.2) TVD(2100.13)
#23 MD(2253.00) Inc(14.0) Azm(292.6) TVD(2192.43)
#24 MD(2348.00) Inc(12.5) Azm(290.4) TVD(2284.89)
#25 MD(2505.00) Inc(11.1) Azm(290.8) TVD(2438.57)
#26 MD(2658.00) Inc(14.8) Azm(298.7) TVD(2587.67)
#27 MD(2753.00) Inc(15.8) Azm(298.6) TVD(2679.31)
#28 MD(2848.00) Inc(18.9) Azm(298.4) TVD(2769.99)
#29 MD(2943.00) Inc(19.5) Azm(300.4) TVD(2859.71)
#30 MD(3038.00) Inc(19.3) Azm(300.1) TVD(2949.33)
#31 MD(3133.00) Inc(18.7) Azm(299.9) TVD(3039.17)
#32 MD(3228.00) Inc(18.5) Azm(300.5) TVD(3129.21)
#33 MD(3324.00) Inc(18.1) Azm(300.1) TVD(3220.34)
#34 MD(3419.00) Inc(17.6) Azm(298.9) TVD(3310.76)
#35 MD(3514.00) Inc(16.5) Azm(298.8) TVD(3401.58)
#36 MD(3609.00) Inc(15.9) Azm(298.0) TVD(3492.83)
#37 MD(3705.00) Inc(15.9) Azm(298.1) TVD(3585.17)
#38 MD(3801.00) Inc(16.6) Azm(295.3) TVD(3677.35)
#39 MD(3896.00) Inc(17.0) Azm(292.4) TVD(3768.31)
#40 MD(3992.00) Inc(19.7) Azm(283.9) TVD(3859.43)
#41 MD(4087.00) Inc(19.2) Azm(284.0) TVD(3949.00)
#42 MD(4183.00) Inc(19.1) Azm(284.4) TVD(4039.68)
#43 MD(4279.00) Inc(18.6) Azm(283.2) TVD(4130.51)
#44 MD(4374.00) Inc(18.5) Azm(282.7) TVD(4220.57)
#45 MD(4469.00) Inc(18.2) Azm(283.2) TVD(4310.74)
#46 MD(4565.00) Inc(17.6) Azm(282.8) TVD(4402.09)
#47 MD(4660.00) Inc(17.1) Azm(282.3) TVD(4492.76)
#48 MD(4756.00) Inc(17.1) Azm(285.9) TVD(4584.51)
#49 MD(4851.00) Inc(17.4) Azm(294.1) TVD(4675.26)
#50 MD(4946.00) Inc(16.8) Azm(292.5) TVD(4766.06)
#51 MD(5042.00) Inc(16.2) Azm(293.6) TVD(4858.10)
#52 MD(5137.00) Inc(17.7) Azm(294.4) TVD(4948.95)
#53 MD(5233.00) Inc(18.4) Azm(294.9) TVD(5040.23)
#54 MD(5328.00) Inc(18.0) Azm(294.1) TVD(5130.49)
#55 MD(5424.00) Inc(17.5) Azm(292.2) TVD(5221.94)
#56 MD(5519.00) Inc(16.7) Azm(292.3) TVD(5312.74)
#57 MD(5614.00) Inc(15.0) Azm(288.5) TVD(5404.13)
#58 MD(5710.00) Inc(13.6) Azm(288.1) TVD(5497.15)
#59 MD(5805.00) Inc(10.9) Azm(288.7) TVD(5589.98)
#60 MD(5900.00) Inc(8.5) Azm(288.9) TVD(5683.62)
#61 MD(5996.00) Inc(4.6) Azm(295.8) TVD(5778.97)
#62 MD(6091.00) Inc(2.4) Azm(329.7) TVD(5873.80)
#63 MD(6186.00) Inc(2.4) Azm(321.6) TVD(5968.72)
#64 MD(6282.00) Inc(2.6) Azm(317.3) TVD(6064.62)
#65 MD(6377.00) Inc(2.1) Azm(317.5) TVD(6159.54)
#66 MD(6473.00) Inc(9.4) Azm(98.7) TVD(6255.17)
#67 MD(6568.00) Inc(19.8) Azm(89.1) TVD(6346.99)
#68 MD(6664.00) Inc(21.0) Azm(87.2) TVD(6436.96)
#69 MD(6759.00) Inc(28.1) Azm(92.8) TVD(6523.34)
#70 MD(6855.00) Inc(34.1) Azm(97.1) TVD(6605.54)
#71 MD(6950.00) Inc(41.6) Azm(97.1) TVD(6680.53)
#72 MD(7046.00) Inc(56.2) Azm(92.5) TVD(6743.49)
#73 MD(7141.00) Inc(59.5) Azm(89.7) TVD(6794.06)
#74 MD(7237.00) Inc(66.8) Azm(88.6) TVD(6837.39)
#75 MD(7333.00) Inc(70.2) Azm(89.3) TVD(6872.49)
#76 MD(7427.00) Inc(75.8) Azm(89.1) TVD(6899.92)
#77 MD(7523.00) Inc(84.7) Azm(90.8) TVD(6916.13)
#78 MD(7619.00) Inc(90.9) Azm(91.0) TVD(6919.81)
#79 MD(7714.00) Inc(90.0) Azm(90.8) TVD(6919.07)
#80 MD(7809.00) Inc(89.7) Azm(90.5) TVD(6919.35)
#81 MD(7905.00) Inc(92.4) Azm(90.7) TVD(6917.66)
#82 MD(8000.00) Inc(92.6) Azm(91.1) TVD(6913.57)
#83 MD(8096.00) Inc(93.0) Azm(88.6) TVD(6908.88)
#84 MD(8192.00) Inc(93.6) Azm(89.1) TVD(6903.33)
#85 MD(8287.00) Inc(92.3) Azm(88.8) TVD(6898.42)
#86 MD(8383.00) Inc(90.9) Azm(89.1) TVD(6895.76)
#87 MD(8478.00) Inc(91.2) Azm(89.4) TVD(6894.00)
#88 MD(8574.00) Inc(89.3) Azm(87.7) TVD(6893.56)
#89 MD(8669.00) Inc(89.0) Azm(87.2) TVD(6895.02)
#90 MD(8765.00) Inc(88.3) Azm(87.1) TVD(6897.32)
#91 MD(8861.00) Inc(90.0) Azm(88.5) TVD(6898.79)
#92 MD(8956.00) Inc(90.4) Azm(89.1) TVD(6898.48)
#93 MD(9052.00) Inc(90.5) Azm(88.6) TVD(6897.71)
#94 MD(9147.00) Inc(90.1) Azm(88.2) TVD(6897.24)
#95 MD(9242.00) Inc(89.7) Azm(87.7) TVD(6897.42)
#96 MD(9338.00) Inc(92.0) Azm(88.4) TVD(6896.05)
#97 MD(9433.00) Inc(91.9) Azm(88.9) TVD(6892.88)
#98 MD(9529.00) Inc(92.1) Azm(88.9) TVD(6889.52)
#99 MD(9624.00) Inc(92.0) Azm(89.5) TVD(6886.11)
#100 MD(9720.00) Inc(92.0) Azm(89.4) TVD(6882.76)
#101 MD(9816.00) Inc(92.5) Azm(89.3) TVD(6878.94)
#102 MD(9911.00) Inc(90.9) Azm(90.6) TVD(6876.11)
#103 MD(10006.00) Inc(90.4) Azm(90.6) TVD(6875.06)
#104 MD(10101.00) Inc(91.4) Azm(90.3) TVD(6873.55)
#105 MD(10197.00) Inc(91.0) Azm(90.2) TVD(6871.48)
#106 MD(10293.00) Inc(91.0) Azm(91.4) TVD(6869.75)
#107 MD(10388.00) Inc(91.7) Azm(91.1) TVD(6867.52)
#108 MD(10484.00) Inc(90.2) Azm(90.2) TVD(6865.97)

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#109 MD(10580.00) Inc(89.1) Azm(90.5) TVD(6866.59)
#110 MD(10675.00) Inc(89.3) Azm(89.7) TVD(6867.93)
#111 MD(10771.00) Inc(89.7) Azm(89.5) TVD(6868.78)
#112 MD(10866.00) Inc(89.9) Azm(88.8) TVD(6869.11)
#113 MD(10962.00) Inc(90.0) Azm(88.3) TVD(6869.13)
#114 MD(11057.00) Inc(90.2) Azm(88.0) TVD(6868.94)
#115 MD(11153.00) Inc(89.4) Azm(90.0) TVD(6869.28)
#116 MD(11248.00) Inc(89.1) Azm(90.6) TVD(6870.54)
#117 MD(11344.00) Inc(89.5) Azm(89.5) TVD(6871.71)
#118 MD(11440.00) Inc(89.9) Azm(88.6) TVD(6872.21)
#119 MD(11535.00) Inc(90.4) Azm(88.8) TVD(6871.97)
#120 MD(11631.00) Inc(90.8) Azm(92.0) TVD(6870.89)
#121 MD(11726.00) Inc(90.9) Azm(92.0) TVD(6869.47)
#122 MD(11822.00) Inc(91.1) Azm(91.8) TVD(6867.80)
#123 MD(11917.00) Inc(91.5) Azm(91.6) TVD(6865.63)
#124 MD(12013.00) Inc(91.7) Azm(91.4) TVD(6862.99)
#125 MD(12109.00) Inc(91.9) Azm(91.2) TVD(6860.04)
#126 MD(12205.00) Inc(92.6) Azm(90.8) TVD(6856.29)
#127 MD(12271.00) Inc(92.3) Azm(91.0) TVD(6853.46)
Gamma
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