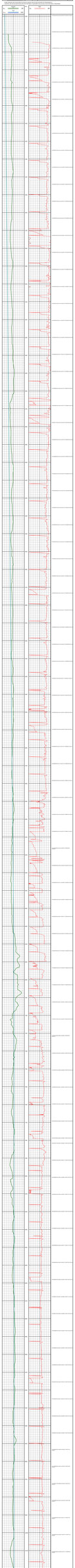

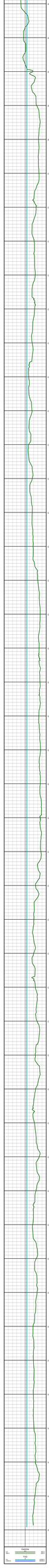

ENSIGN

Fern 11V-204

MD
2":100'

Company: PDC Energy Inc
Well Name: Fern 11V-204
API: 05123458400
County/Parish: WELD
State: COLORADO
Country: USA
Job number: 152-130
Field: Wattenberg
Rig Id: Ensign 152
Survey Company: Ensign Directional
DD1 Dan Hansen
DD2 Daryl Bailey
DD3 Joe Edgerton
MWD1 Ryan Prue
MWD2 Terry Ash
MWD3

Log measurements: Gamma, ROP
Depth measured from: 1645 ft
Maximum temperature:

	Depth	Date
Start:	0 ft	3-13-2018
End:	15049 ft	3-16-2018

Casing	**Depth**	**Size**
Surface:	1645 ft	9 5/8"
Intermediate:		

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

Elevations
KB: 23 ft
GL: 4619 ft
DF: 4642 ft

Run	Bit Size	Offsets Gamma	Offsets Survey	Depths Start	Depths End	Dates Start	Dates End
1	12.25"		58.74 ft	0 ft	1645 ft	3-13-2018	3-13-2018
2	8.5"	62.38 ft	57.55 ft	1645 ft	15049 ft	3-14-2018	3-16-2018
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.

#15 MD(1489.00) Inc(6.9) Azm(168.9) TVD(1486.21) DLS(0.9)

#16 MD(1587.00) Inc(5.4) Azm(173.5) TVD(1583.65) DLS(1.6)

#17 MD(1679.00) Inc(4.7) Azm(172.2) TVD(1675.29) DLS(0.8)

#18 MD(1775.00) Inc(6.8) Azm(178.6) TVD(1770.80) DLS(2.3)

#19 MD(1869.00) Inc(10.0) Azm(184.2) TVD(1863.78) DLS(3.5)

#20 MD(1965.00) Inc(13.2) Azm(182.1) TVD(1957.81) DLS(3.4)

#21 MD(2060.00) Inc(13.4) Azm(182.1) TVD(2050.26) DLS(0.2)

#22 MD(2156.00) Inc(12.8) Azm(181.7) TVD(2143.76) DLS(0.6)

#23 MD(2251.00) Inc(12.6) Azm(181.0) TVD(2236.44) DLS(0.3)

#24 MD(2346.00) Inc(12.0) Azm(180.9) TVD(2329.26) DLS(0.6)

#25 MD(2442.00) Inc(11.3) Azm(180.2) TVD(2423.28) DLS(0.7)

#26 MD(2537.00) Inc(11.0) Azm(179.1) TVD(2516.49) DLS(0.4)

#27 MD(2632.00) Inc(10.6) Azm(178.9) TVD(2609.81) DLS(0.4)

#28 MD(2728.00) Inc(12.8) Azm(190.4) TVD(2703.82) DLS(3.3)

#29 MD(2823.00) Inc(13.2) Azm(189.3) TVD(2796.38) DLS(0.5)

#30 MD(2919.00) Inc(12.4) Azm(187.9) TVD(2890.00) DLS(0.9)

#31 MD(3015.00) Inc(12.3) Azm(188.4) TVD(2983.77) DLS(0.2)

#32 MD(3110.00) Inc(12.5) Azm(187.5) TVD(3076.56) DLS(0.3)

#33 MD(3205.00) Inc(11.7) Azm(184.9) TVD(3169.45) DLS(1.0)

#34 MD(3300.00) Inc(11.2) Azm(183.5) TVD(3262.56) DLS(0.6)

#35 MD(3395.00) Inc(10.7) Azm(179.5) TVD(3355.83) DLS(1.0)

#36 MD(3491.00) Inc(10.4) Azm(177.3) TVD(3450.21) DLS(0.5)

#37 MD(3586.00) Inc(9.8) Azm(174.2) TVD(3543.73) DLS(0.9)

#38 MD(3682.00) Inc(10.8) Azm(170.1) TVD(3638.19) DLS(1.3)

#39 MD(3777.00) Inc(14.6) Azm(176.8) TVD(3730.85) DLS(4.3)

#40 MD(3873.00) Inc(15.3) Azm(178.2) TVD(3823.60) DLS(0.8)

#41 MD(3968.00) Inc(14.9) Azm(178.0) TVD(3915.32) DLS(0.4)

#42 MD(4064.00) Inc(13.8) Azm(176.6) TVD(4008.32) DLS(1.2)

#43 MD(4159.00) Inc(13.4) Azm(175.8) TVD(4100.66) DLS(0.5)

#44 MD(4254.00) Inc(12.8) Azm(173.3) TVD(4193.19) DLS(0.9)

#45 MD(4350.00) Inc(12.1) Azm(172.4) TVD(4286.93) DLS(0.8)

#46 MD(4446.00) Inc(11.6) Azm(170.1) TVD(4380.89) DLS(0.7)

#47 MD(4541.00) Inc(10.9) Azm(167.0) TVD(4474.06) DLS(1.0)

#48 MD(4637.00) Inc(10.2) Azm(161.5) TVD(4568.44) DLS(1.3)

#49 MD(4733.00) Inc(12.6) Azm(172.2) TVD(4662.55) DLS(3.3)

#50 MD(4828.00) Inc(12.8) Azm(172.1) TVD(4755.22) DLS(0.2)

#51 MD(4924.00) Inc(11.8) Azm(168.2) TVD(4849.02) DLS(1.4)

#52 MD(5020.00) Inc(11.3) Azm(164.3) TVD(4943.08) DLS(1.0)

#53 MD(5115.00) Inc(10.9) Azm(161.2) TVD(5036.30) DLS(0.8)

#54 MD(5211.00) Inc(9.8) Azm(157.7) TVD(5130.74) DLS(1.3)

#55 MD(5306.00) Inc(8.7) Azm(154.0) TVD(5224.50) DLS(1.3)

#56 MD(5402.00) Inc(8.2) Azm(150.4) TVD(5319.46) DLS(0.8)

#57 MD(5497.00) Inc(8.6) Azm(168.6) TVD(5413.46) DLS(2.8)

#58 MD(5593.00) Inc(8.7) Azm(176.3) TVD(5508.37) DLS(1.2)

#59 MD(5689.00) Inc(7.7) Azm(172.2) TVD(5603.39) DLS(1.2)

#60 MD(5784.00) Inc(6.4) Azm(169.3) TVD(5697.67) DLS(1.4)

#61 MD(5879.00) Inc(4.0) Azm(164.2) TVD(5792.27) DLS(2.6)

#62 MD(5974.00) Inc(4.5) Azm(159.6) TVD(5887.01) DLS(0.6)

#63 MD(6069.00) Inc(4.5) Azm(167.9) TVD(5981.72) DLS(0.7)

#64 MD(6165.00) Inc(13.6) Azm(232.2) TVD(6076.59) DLS(12.8)

#65 MD(6260.00) Inc(20.2) Azm(253.3) TVD(6167.52) DLS(9.4)

#66 MD(6356.00) Inc(24.1) Azm(259.6) TVD(6256.43) DLS(4.8)

#67 MD(6451.00) Inc(31.6) Azm(258.2) TVD(6340.37) DLS(7.9)

#68 MD(6546.00) Inc(38.7) Azm(257.7) TVD(6418.00) DLS(7.5)

#69 MD(6642.00) Inc(41.8) Azm(257.9) TVD(6491.26) DLS(3.2)

#70 MD(6738.00) Inc(47.5) Azm(256.4) TVD(6559.53) DLS(6.0)

#71 MD(6834.00) Inc(51.2) Azm(255.6) TVD(6622.05) DLS(3.9)

#72 MD(6929.00) Inc(58.1) Azm(257.0) TVD(6676.99) DLS(7.4)

#73 MD(7025.00) Inc(66.7) Azm(260.1) TVD(6721.43) DLS(9.4)

#74 MD(7121.00) Inc(75.4) Azm(264.0) TVD(6752.59) DLS(9.8)

#75 MD(7216.00) Inc(85.6) Azm(266.5) TVD(6768.25) DLS(11.0)

#76 MD(7312.00) Inc(87.6) Azm(267.5) TVD(6773.94) DLS(2.3)

#77 MD(7407.00) Inc(89.6) Azm(266.6) TVD(6776.26) DLS(2.3)

#78 MD(7502.00) Inc(90.1) Azm(266.3) TVD(6776.51) DLS(0.6)

#79 MD(7597.00) Inc(90.2) Azm(267.2) TVD(6776.26) DLS(1.0)

#80 MD(7693.00) Inc(89.8) Azm(266.5) TVD(6776.26) DLS(0.8)

#81 MD(7788.00) Inc(90.3) Azm(268.2) TVD(6776.18) DLS(1.9)

#82 MD(7817.00) Inc(90.2) Azm(268.4) TVD(6776.05) DLS(0.8)

#83 MD(7912.00) Inc(90.6) Azm(267.7) TVD(6775.39) DLS(0.8)

#84 MD(8008.00) Inc(90.6) Azm(266.6) TVD(6774.38) DLS(1.1)

#85 MD(8103.00) Inc(90.5) Azm(269.1) TVD(6773.47) DLS(2.6)

#86 MD(8199.00) Inc(90.3) Azm(268.4) TVD(6772.80) DLS(0.8)

#87 MD(8294.00) Inc(90.4) Azm(268.2) TVD(6772.22) DLS(0.2)

#88 MD(8389.00) Inc(90.5) Azm(267.7) TVD(6771.47) DLS(0.5)

#89 MD(8485.00) Inc(90.5) Azm(267.2) TVD(6770.64) DLS(0.5)

#90 MD(8581.00) Inc(89.6) Azm(269.3) TVD(6770.55) DLS(2.4)

#91 MD(8677.00) Inc(89.7) Azm(269.8) TVD(6771.14) DLS(0.5)

#92 MD(8772.00) Inc(89.5) Azm(268.9) TVD(6771.80) DLS(1.0)

#93 MD(8868.00) Inc(89.6) Azm(268.6) TVD(6772.56) DLS(0.3)

#94 MD(8964.00) Inc(89.1) Azm(268.2) TVD(6773.65) DLS(0.7)

#95 MD(9059.00) Inc(88.8) Azm(267.2) TVD(6775.39) DLS(1.1)

#96 MD(9155.00) Inc(90.0) Azm(270.2) TVD(6776.39) DLS(3.4)

#97 MD(9250.00) Inc(90.1) Azm(270.3) TVD(6776.31) DLS(0.1)

#98 MD(9346.00) Inc(90.3) Azm(269.8) TVD(6775.97) DLS(0.6)

#99 MD(9441.00) Inc(89.8) Azm(269.6) TVD(6775.89) DLS(0.6)

#100 MD(9536.00) Inc(89.9) Azm(269.1) TVD(6776.14) DLS(0.5)

#101 MD(9630.00) Inc(90.3) Azm(267.9) TVD(6775.98) DLS(1.3)

#102 MD(9727.00) Inc(89.9) Azm(267.0) TVD(6775.81) DLS(1.0)

#103 MD(9822.00) Inc(91.1) Azm(270.9) TVD(6774.98) DLS(4.3)

#104 MD(9918.00) Inc(91.3) Azm(271.2) TVD(6772.97) DLS(0.4)

#105 MD(10013.00) Inc(90.7) Azm(270.7) TVD(6771.31) DLS(0.8)

#106 MD(10109.00) Inc(90.9) Azm(271.2) TVD(6769.97) DLS(0.6)

#107 MD(10204.00) Inc(90.4) Azm(270.9) TVD(6768.89) DLS(0.6)

#108 MD(10299.00) Inc(90.7) Azm(270.3) TVD(6767.98) DLS(0.7)

#109 MD(10395.00) Inc(90.9) Azm(270.3) TVD(6766.64) DLS(0.2)

#110 MD(10490.00) Inc(92.6) Azm(268.9) TVD(6763.74)
DLS(2.3)

#111 MD(10585.00) Inc(93.0) Azm(268.2) TVD(6759.10)
DLS(0.8)

#112 MD(10680.00) Inc(93.4) Azm(267.5) TVD(6753.79)
DLS(0.8)

#113 MD(10776.00) Inc(90.9) Azm(266.6) TVD(6750.19)
DLS(2.8)

#114 MD(10871.00) Inc(90.3) Azm(265.6) TVD(6749.20)
DLS(1.2)

#115 MD(10967.00) Inc(90.0) Azm(264.7) TVD(6748.95)
DLS(1.0)

#116 MD(11062.00) Inc(90.0) Azm(264.2) TVD(6748.95)
DLS(0.5)

#117 MD(11158.00) Inc(90.0) Azm(266.6) TVD(6748.95)
DLS(2.5)

#118 MD(11254.00) Inc(89.3) Azm(266.3) TVD(6749.53)
DLS(0.8)

#119 MD(11349.00) Inc(89.3) Azm(265.2) TVD(6750.69)
DLS(1.2)

#120 MD(11444.00) Inc(90.2) Azm(267.2) TVD(6751.11)
DLS(2.3)

#121 MD(11540.00) Inc(90.3) Azm(267.2) TVD(6750.69)
DLS(0.1)

#122 MD(11635.00) Inc(90.2) Azm(271.0) TVD(6750.27)
DLS(4.0)

#123 MD(11730.00) Inc(90.1) Azm(270.9) TVD(6750.03)
DLS(0.1)

#124 MD(11826.00) Inc(90.0) Azm(270.0) TVD(6749.94)
DLS(0.9)

#125 MD(11920.00) Inc(90.2) Azm(269.6) TVD(6749.78)
DLS(0.5)

#126 MD(12016.00) Inc(90.1) Azm(268.2) TVD(6749.53)
DLS(1.5)

#127 MD(12111.00) Inc(90.1) Azm(267.9) TVD(6749.36)
DLS(0.3)

#128 MD(12206.00) Inc(90.0) Azm(267.5) TVD(6749.28)
DLS(0.4)

#129 MD(12302.00) Inc(89.5) Azm(267.7) TVD(6749.70)
DLS(0.6)

#130 MD(12397.00) Inc(89.2) Azm(267.2) TVD(6750.77)
DLS(0.6)

#131 MD(12493.00) Inc(88.9) Azm(270.3) TVD(6752.37)
DLS(3.2)

#132 MD(12588.00) Inc(89.4) Azm(271.4) TVD(6753.78)
DLS(1.3)

#133 MD(12683.00) Inc(90.3) Azm(272.6) TVD(6754.02)
DLS(1.6)

#134 MD(12779.00) Inc(89.8) Azm(272.6) TVD(6753.94)
DLS(0.5)

#135 MD(12874.00) Inc(89.6) Azm(271.9) TVD(6754.44)
DLS(0.8)

#136 MD(12970.00) Inc(92.0) Azm(271.0) TVD(6753.10)
DLS(2.7)

#137 MD(13066.00) Inc(92.1) Azm(270.7) TVD(6749.66)
DLS(0.3)

#138 MD(13162.00) Inc(91.8) Azm(269.6) TVD(6746.40)
DLS(1.2)

#139 MD(13257.00) Inc(92.2) Azm(269.1) TVD(6743.08)
DLS(0.7)

#140 MD(13353.00) Inc(92.0) Azm(268.2) TVD(6739.56)
DLS(1.0)

#141 MD(13448.00) Inc(90.0) Azm(267.3) TVD(6737.91)
DLS(2.3)

#142 MD(13543.00) Inc(89.9) Azm(267.3) TVD(6737.99)
DLS(0.1)

#143 MD(13639.00) Inc(89.0) Azm(266.3) TVD(6738.91)
DLS(1.4)

#144 MD(13735.00) Inc(88.6) Azm(266.5) TVD(6740.92)
DLS(0.5)

#145 MD(13831.00) Inc(89.2) Azm(269.1) TVD(6742.76)
DLS(2.8)

#146 MD(13926.00) Inc(88.5) Azm(268.9) TVD(6744.67)
DLS(0.8)

#147 MD(14022.00) Inc(88.4) Azm(269.1) TVD(6747.27)
DLS(0.2)

#148 MD(14117.00) Inc(90.9) Azm(268.9) TVD(6747.85)
DLS(2.6)

#149 MD(14213.00) Inc(90.5) Azm(268.4) TVD(6746.67)
DLS(0.7)

#150 MD(14309.00) Inc(90.2) Azm(269.1) TVD(6746.09)
DLS(0.8)

#151 MD(14404.00) Inc(89.7) Azm(268.6) TVD(6746.17)
DLS(0.7)

#152 MD(14500.00) Inc(89.9) Azm(267.5) TVD(6746.51)
DLS(1.2)

#153 MD(14595.00) Inc(90.2) Azm(267.0) TVD(6746.42)
DLS(0.6)

#154 MD(14691.00) Inc(90.2) Azm(266.1) TVD(6746.09)
DLS(0.9)

#155 MD(14787.00) Inc(89.9) Azm(265.9) TVD(6746.00)
DLS(0.4)

#156 MD(14882.00) Inc(90.8) Azm(267.2) TVD(6745.42)
DLS(1.7)

#157 MD(14977.00) Inc(90.5) Azm(266.3) TVD(6744.35)
DLS(1.0)

#158 MD(14992.00) Inc(90.6) Azm(266.3) TVD(6744.20)
DLS(0.7)