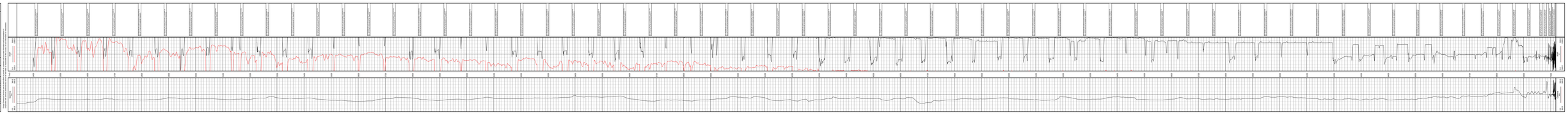

ENSIGN Directional

Spaur 10Q-241

TVD 2":100'

Company: Petroleum Development Corp.
Well Name: Spaur 10Q-241
API: 05123423230O
County/Parish: Weld
State: Colorado
Country: USA
Job number: 207-121-259
Field: DJ Basin
Rig Id: Ensign 121
Survey Company: Ensign Directional Services
Company Man 1 Dean Haight

Lead Directional Driller Breven Williams
Rotating Directional Driller Pete Moriarty
Night Directional Driller Dave Van Dorin/Tyler Batchelder

MWD Ensign Directional Services

Log measurements: gamma, ROP
Depth measured from: Rig Floor
Maximum temperature: -------

Depth	**Date**
Start: 0 ft **End:** ft	3-7-2016

Casing	**Depth**	**Size**
Surface:	1370	9 5/8
Intermediate:		7

Mud Type: H2O
Density:
Viscosity:
Rm: **Rmf:** **Rmc:**

Elevations
KB: 4854.5
GL: 4841
DF: 4854.5

Run	**Bit Size**	**Offsets**		**Depths**		**Dates**	
		Gamma	**Survey**	**Start**	**End**	**Start**	**End**
1	12.25		57.87	0	1400	3-7-2016	3-7-2016
2	8.5	53.72	58.72	1400	7502	3-8-2016	3-9-2016
3	8.5	61.45	56.45	7502		3-9-2016	
4							
5							
6							
7							
8							
9							
10							

Ensign Directional Services 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.

#14 MD(1414.00) Inc(5.3) Azm(112.5) TVD(1412.01)
VS(-14.24) NS(-23.65) EW(56.20) TEMP(0.0)

#15 MD(1510.00) Inc(6.2) Azm(107.6) TVD(1507.53)
VS(-15.99) NS(-26.91) EW(65.24) TEMP(0.0)

#16 MD(1606.00) Inc(6.4) Azm(114.5) TVD(1602.95)
VS(-18.14) NS(-30.70) EW(75.05) TEMP(0.0)

#17 MD(1702.00) Inc(7.2) Azm(121.1) TVD(1698.28)
VS(-21.77) NS(-36.03) EW(85.07) TEMP(0.0)

#18 MD(1798.00) Inc(8.7) Azm(113.4) TVD(1793.35)
VS(-25.77) NS(-42.02) EW(96.88) TEMP(0.0)

#19 MD(1894.00) Inc(9.6) Azm(109.2) TVD(1888.13)
VS(-28.91) NS(-47.53) EW(111.11) TEMP(0.0)

#20 MD(1989.00) Inc(10.5) Azm(111.1) TVD(1981.67)
VS(-32.04) NS(-53.26) EW(126.66) TEMP(0.0)

#21 MD(2085.00) Inc(11.3) Azm(104.6) TVD(2075.94)
VS(-34.69) NS(-58.78) EW(143.93) TEMP(0.0)

#22 MD(2181.00) Inc(10.2) Azm(100.6) TVD(2170.26)
VS(-35.75) NS(-62.71) EW(161.39) TEMP(0.0)

#23 MD(2277.00) Inc(10.5) Azm(95.6) TVD(2264.70)
VS(-35.37) NS(-65.13) EW(178.45) TEMP(0.0)

#24 MD(2372.00) Inc(10.5) Azm(107.4) TVD(2358.12)
VS(-36.02) NS(-68.56) EW(195.32) TEMP(0.0)

#25 MD(2467.00) Inc(12.0) Azm(111.8) TVD(2451.29)
VS(-39.38) NS(-74.82) EW(212.75) TEMP(0.0)

#26 MD(2563.00) Inc(11.8) Azm(106.5) TVD(2545.23)
VS(-42.76) NS(-81.31) EW(231.43) TEMP(0.0)

#27 MD(2659.00) Inc(11.9) Azm(107.6) TVD(2639.19)
VS(-45.41) NS(-87.09) EW(250.28) TEMP(0.0)

#28 MD(2754.00) Inc(10.8) Azm(106.0) TVD(2732.33)
VS(-47.86) NS(-92.51) EW(268.17) TEMP(0.0)

#29 MD(2850.00) Inc(11.6) Azm(109.0) TVD(2826.50)
VS(-50.53) NS(-98.13) EW(285.94) TEMP(0.0)

#30 MD(2946.00) Inc(10.0) Azm(121.1) TVD(2920.81)
VS(-55.24) NS(-105.58) EW(302.21) TEMP(0.0)

#31 MD(3041.00) Inc(9.0) Azm(118.1) TVD(3014.51)
VS(-60.70) NS(-113.34) EW(315.83) TEMP(0.0)

#32 MD(3137.00) Inc(7.7) Azm(119.7) TVD(3109.49)
VS(-65.35) NS(-120.06) EW(328.04) TEMP(0.0)

#33 MD(3232.00) Inc(8.1) Azm(110.2) TVD(3203.59)
VS(-68.83) NS(-125.53) EW(339.85) TEMP(0.0)

#34 MD(3328.00) Inc(8.2) Azm(117.6) TVD(3298.62)
VS(-72.26) NS(-131.04) EW(352.26) TEMP(0.0)

#35 MD(3424.00) Inc(8.6) Azm(131.0) TVD(3393.60)
VS(-78.17) NS(-138.92) EW(363.75) TEMP(0.0)

#36 MD(3520.00) Inc(9.2) Azm(122.4) TVD(3488.45)
VS(-84.95) NS(-147.74) EW(375.65) TEMP(0.0)

#37 MD(3616.00) Inc(10.8) Azm(124.5) TVD(3582.99)
VS(-91.79) NS(-156.95) EW(389.54) TEMP(0.0)

#38 MD(3712.00) Inc(11.1) Azm(110.4) TVD(3677.26)
VS(-97.39) NS(-165.26) EW(405.62) TEMP(0.0)

#39 MD(3808.00) Inc(10.5) Azm(110.8) TVD(3771.56)
VS(-100.91) NS(-171.59) EW(422.45) TEMP(0.0)

#40 MD(3904.00) Inc(10.6) Azm(110.2) TVD(3865.93)
VS(-104.32) NS(-177.75) EW(438.92) TEMP(0.0)

#41 MD(3999.00) Inc(9.9) Azm(107.8) TVD(3959.42)
VS(-107.17) NS(-183.26) EW(454.89) TEMP(0.0)

#42 MD(4095.00) Inc(9.4) Azm(106.2) TVD(4054.06)
VS(-109.33) NS(-187.97) EW(470.28) TEMP(0.0)

#43 MD(4191.00) Inc(10.5) Azm(107.9) TVD(4148.61)
VS(-111.57) NS(-192.84) EW(486.13) TEMP(0.0)

#44 MD(4287.00) Inc(9.2) Azm(114.6) TVD(4243.20)
VS(-114.90) NS(-198.73) EW(501.44) TEMP(0.0)

#45 MD(4383.00) Inc(8.0) Azm(107.2) TVD(4338.12)
VS(-117.84) NS(-203.90) EW(514.80) TEMP(0.0)

#46 MD(4479.00) Inc(9.1) Azm(111.6) TVD(4433.05)
VS(-120.37) NS(-208.67) EW(528.24) TEMP(0.0)

#47 MD(4575.00) Inc(9.1) Azm(106.9) TVD(4527.85)
VS(-122.98) NS(-213.67) EW(542.56) TEMP(0.0)

#48 MD(4670.00) Inc(11.1) Azm(102.0) TVD(4621.37)
VS(-124.40) NS(-217.76) EW(558.69) TEMP(0.0)

#49 MD(4766.00) Inc(10.5) Azm(102.9) TVD(4715.67)
VS(-125.38) NS(-221.63) EW(576.26) TEMP(0.0)

#50 MD(4862.00) Inc(11.0) Azm(108.1) TVD(4809.99)
VS(-127.32) NS(-226.43) EW(593.49) TEMP(0.0)

#51 MD(4957.00) Inc(10.1) Azm(112.5) TVD(4903.38)
VS(-130.61) NS(-232.43) EW(609.80) TEMP(0.0)

#52 MD(5053.00) Inc(9.9) Azm(113.6) TVD(4997.92)
VS(-134.56) NS(-238.96) EW(625.14) TEMP(0.0)

#53 MD(5149.00) Inc(9.9) Azm(123.2) TVD(5092.50)
VS(-139.94) NS(-246.78) EW(639.61) TEMP(0.0)

#54 MD(5245.00) Inc(10.4) Azm(114.8) TVD(5187.00)
VS(-145.59) NS(-254.94) EW(654.38) TEMP(0.0)

#55 MD(5340.00) Inc(9.4) Azm(115.7) TVD(5280.59)
VS(-150.07) NS(-261.90) EW(669.16) TEMP(0.0)

#56 MD(5436.00) Inc(9.0) Azm(110.4) TVD(5375.35)
VS(-153.72) NS(-267.91) EW(683.26) TEMP(0.0)

#57 MD(5532.00) Inc(7.3) Azm(109.7) TVD(5470.38)
VS(-156.27) NS(-272.59) EW(696.04) TEMP(0.0)

#58 MD(5628.00) Inc(6.3) Azm(114.8) TVD(5565.71)
VS(-158.77) NS(-276.85) EW(706.57) TEMP(0.0)

#59 MD(5724.00) Inc(4.7) Azm(114.5) TVD(5661.26)
VS(-161.21) NS(-280.69) EW(714.93) TEMP(0.0)

#60 MD(5820.00) Inc(3.7) Azm(119.4) TVD(5757.00)
VS(-163.30) NS(-283.85) EW(721.20) TEMP(0.0)

#61 MD(5915.00) Inc(1.4) Azm(76.3) TVD(5851.91)
VS(-163.90) NS(-285.08) EW(725.00) TEMP(0.0)

#62 MD(6011.00) Inc(1.1) Azm(327.9) TVD(5947.89)
VS(-162.75) NS(-284.02) EW(725.65) TEMP(0.0)

#63 MD(6107.00) Inc(1.7) Azm(346.1) TVD(6043.87)
VS(-160.75) NS(-281.85) EW(724.82) TEMP(134.5)

#64 MD(6203.00) Inc(1.8) Azm(340.0) TVD(6139.82)
VS(-158.13) NS(-279.05) EW(723.96) TEMP(134.5)

#65 MD(6299.00) Inc(6.2) Azm(0.9) TVD(6235.57)
VS(-151.68) NS(-272.45) EW(723.53) TEMP(134.5)

#66 MD(6395.00) Inc(14.5) Azm(358.4) TVD(6329.92)
VS(-134.72) NS(-255.22) EW(723.27) TEMP(134.5)

#67 MD(6490.00) Inc(20.3) Azm(1.2) TVD(6420.54)
VS(-106.71) NS(-226.84) EW(723.29) TEMP(134.5)

#68 MD(6586.00) Inc(23.7) Azm(4.8) TVD(6509.54)
VS(-70.97) NS(-190.95) EW(725.25) TEMP(149.3)

#69 MD(6682.00) Inc(26.3) Azm(1.4) TVD(6596.54)
VS(-30.67) NS(-150.45) EW(727.39) TEMP(149.3)

#70 MD(6778.00) Inc(36.3) Azm(359.8) TVD(6678.47)
VS(18.55) NS(-100.65) EW(727.81) TEMP(149.3)

#71 MD(6873.00) Inc(48.8) Azm(358.1) TVD(6748.32)
VS(81.59) NS(-36.55) EW(726.52) TEMP(149.3)

#72 MD(6969.00) Inc(53.1) Azm(0.7) TVD(6808.79)
VS(155.01) NS(37.97) EW(725.79) TEMP(149.3)

#73 MD(7064.00) Inc(54.1) Azm(0.4) TVD(6865.16)
VS(230.58) NS(114.43) EW(726.52) TEMP(223.3)

#74 MD(7160.00) Inc(56.8) Azm(357.4) TVD(6919.61)
VS(308.32) NS(193.46) EW(724.97) TEMP(149.3)

#75 MD(7256.00) Inc(67.5) Azm(0.5) TVD(6964.40)
VS(391.70) NS(278.19) EW(723.53) TEMP(149.3)

#76 MD(7303.00) Inc(73.9) Azm(0.4) TVD(6979.93)
VS(435.50) NS(322.53) EW(723.88) TEMP(149.3)

#78 MD(7399.00) Inc(83.0) Azm(357.9) TVD(6997.60)
VS(528.26) NS(416.76) EW(722.45) TEMP(30.8)

#120 MD(11394.00) Inc(90.5) Azm(359.8) TVD(7009.62)
VS(4471.82) NS(4410.24) EW(739.77) TEMP(193.7)