

Cub Creek Energy, LLC

| | | | |
|--------------|-----------------|----------|--------------------|
| Location | Weld County, CO | Slot | OLANDER 18 |
| Field | WATTENBERG | Well | W OLANDER 18 |
| Installation | Olander Pad | Wellbore | W OLANDER 18 (PWB) |

N

GRID

Jul-12-2017
EMMA-2015 (2000-0-2020 Q) Dip: 66.61 deg Field: 52203.1 nT
Lat: N40 12 10.3680 Long: W106 1 31.6200 Elev: 5033.00 ft
Magnetic North is 8.59 deg East of True North
GRID North is 0.31 deg East of True North
To correct azimuth from True to GRID subtract 0.31 deg
To correct azimuth from Magnetic to GRID add 8.28 deg

| WELL PROFILE DATA | | | | | | | | |
|-------------------------|----------|-------|--------|---------|-----------|----------|-----------|---------|
| Point | MD | Inc | Azi | TVD | North | East | deg/100ft | V. Sect |
| Tie on | 17.00 | 0.00 | 0.00 | 17.00 | S 0.00 | W 0.00 | | 0.00 |
| KOP | 1350.00 | 0.00 | 50.39 | 1350.00 | S 0.00 | W 0.00 | 0.00 | 0.00 |
| End of Build | 1845.02 | 9.90 | 50.39 | 1842.56 | N 27.20 | E 32.87 | 2.00 | -24.49 |
| End of Hold | 6339.66 | 9.90 | 50.39 | 6270.27 | N 519.85 | E 628.27 | 0.00 | -468.11 |
| Target OLANDER 18 EP | 7302.11 | 90.00 | 179.64 | 6899.82 | S 49.16 | E 716.96 | 10.00 | 106.16 |
| T.D. & Target OLA...2mi | 16980.26 | 90.00 | 179.64 | 6899.82 | S 9727.12 | E 777.98 | 0.00 | 9758.18 |

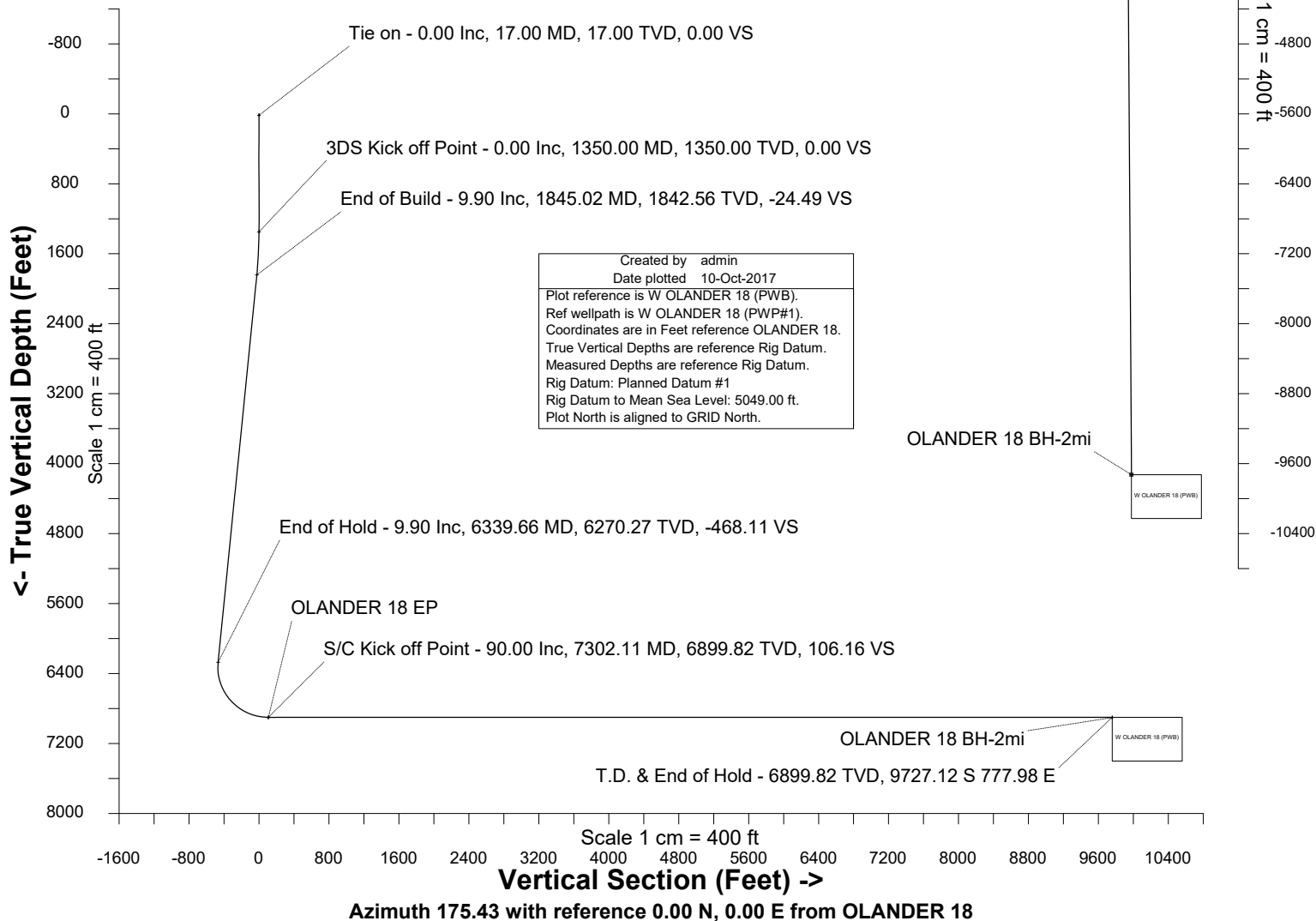
East (Feet) ->

-800 0 800 1600
Scale 1 cm = 400 ft

Surface 0.00 N 0.00 E

OLANDER 18 EP

<- North(Feet)
Scale 1 cm = 400 ft





SYSDRILL
Well Design Combined Report
Wellbore: W OLANDER 18 (PWB)



| Wellhead Details | | | | | | | |
|------------------|-------------|---------------|--------------|--------------|--------|--------|-----------------------------|
| Name | Latitude | Longitude | Northing | Easting | North | East | Slot Elevation Above Ground |
| OLANDER 18 | 40.20281000 | -105.02519000 | 1317081.1628 | 3132623.5059 | 25.11S | 72.76E | 0.00 |

| Declination | | |
|-------------|--------------------------|-------|
| Date | Source | Time |
| Jul-12-2017 | EMM-2015 [2000.0-2020.0] | 14:01 |

| Installation Details | | | | | | |
|----------------------|----------------------------------|-----------------------------------|--------------|--------------|--------------------------------------------|-----------------|
| Name | Installation Position (Latitude) | Installation Position (Longitude) | Northing | Easting | Coord System Name | North Alignment |
| Olander Pad | 40.20288000 | -105.02545000 | 1317106.2735 | 3132550.7471 | CO83-NF on NORTH AMERICAN DATUM 1983 datum | Grid |

| Summary Wellpath | | | | | | | | | |
|------------------|----------|----------|---------|-----------|----------|--------------------|----------------------|------------|------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | Northing | Easting |
| 17.00 | 0.00 | 0.000 | 17.00 | 0.00N | 0.00E | | 0.00 | 1317081.16 | 3132623.51 |
| 1350.00 | 0.00 | 50.390 | 1350.00 | 0.00N | 0.00E | ==> | 0.00 | 1317081.16 | 3132623.51 |
| 1845.02 | 9.90 | 50.390 | 1842.56 | 27.20N | 32.87E | 2.00 | -24.49 | 1317108.36 | 3132656.37 |
| 6339.66 | 9.90 | 50.390 | 6270.27 | 519.85N | 628.27E | ==> | -468.11 | 1317600.99 | 3133251.75 |
| 7302.11 | 90.00 | 179.640 | 6899.82 | 49.16S | 716.96E | 10.00 | 106.16 | 1317032.01 | 3133340.43 |
| 16980.26 | 90.00 | 179.640 | 6899.82 | 9727.12S | 777.98E | ==> | 9758.18 | 1307354.48 | 3133401.45 |

| Interpolated Wellpath | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|--------------------|----------------------|----------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | All Station Comments |
| 0.00 | 0.00 | 0.000 | 0.00 | 0.00N | 0.00E | | 0.00 | Rig Datum |
| 17.00 | 0.00 | 0.000 | 17.00 | 0.00N | 0.00E | ==> | 0.00 | Slot Datum |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 1000.00 | 0.00 | 0.000 | 1000.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 1100.00 | 0.00 | 0.000 | 1100.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 1200.00 | 0.00 | 0.000 | 1200.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 1300.00 | 0.00 | 0.000 | 1300.00 | 0.00N | 0.00E | ==> | 0.00 | |
| 1400.00 | 1.00 | 50.390 | 1400.00 | 0.28N | 0.34E | 2.00 | -0.25 | |
| 1500.00 | 3.00 | 50.390 | 1499.93 | 2.50N | 3.02E | 2.00 | -2.25 | |
| 1517.00 | 3.34 | 50.390 | 1516.91 | 3.10N | 3.75E | 2.00 | -2.79 | |
| 1617.00 | 5.34 | 50.390 | 1616.61 | 7.93N | 9.58E | 2.00 | -7.14 | |
| 1717.00 | 7.34 | 50.390 | 1716.00 | 14.97N | 18.09E | 2.00 | -13.48 | |
| 1817.00 | 9.34 | 50.390 | 1814.93 | 24.21N | 29.26E | 2.00 | -21.80 | |
| 1917.00 | 9.90 | 50.390 | 1913.47 | 35.09N | 42.40E | ==> | -31.59 | |
| 2017.00 | 9.90 | 50.390 | 2011.98 | 46.05N | 55.65E | ==> | -41.46 | |
| 2117.00 | 9.90 | 50.390 | 2110.49 | 57.01N | 68.90E | ==> | -51.33 | |
| 2217.00 | 9.90 | 50.390 | 2209.00 | 67.97N | 82.15E | ==> | -61.20 | |
| 2317.00 | 9.90 | 50.390 | 2307.51 | 78.93N | 95.39E | ==> | -71.07 | |
| 2417.00 | 9.90 | 50.390 | 2406.02 | 89.89N | 108.64E | ==> | -80.94 | |
| 2517.00 | 9.90 | 50.390 | 2504.53 | 100.85N | 121.89E | ==> | -90.81 | |
| 2617.00 | 9.90 | 50.390 | 2603.04 | 111.81N | 135.13E | ==> | -100.68 | |
| 2717.00 | 9.90 | 50.390 | 2701.55 | 122.77N | 148.38E | ==> | -110.55 | |
| 2817.00 | 9.90 | 50.390 | 2800.07 | 133.74N | 161.63E | ==> | -120.42 | |
| 2917.00 | 9.90 | 50.390 | 2898.58 | 144.70N | 174.87E | ==> | -130.29 | |
| 3017.00 | 9.90 | 50.390 | 2997.09 | 155.66N | 188.12E | ==> | -140.16 | |

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5049.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 175.430 degrees
Bottom hole distance is 9758.18 Feet on azimuth 175.43 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 10-Oct-2017



SYSDRILL
Well Design Combined Report
Wellbore: W OLANDER 18 (PWB)



| Interpolated Wellpath | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|-------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | All Station Comments |
| 3117.00 | 9.90 | 50.390 | 3095.60 | 166.62N | 201.37E | ==> | -150.03 | |
| 3217.00 | 9.90 | 50.390 | 3194.11 | 177.58N | 214.61E | ==> | -159.90 | |
| | | | | | | | | |
| 3317.00 | 9.90 | 50.390 | 3292.62 | 188.54N | 227.86E | ==> | -169.77 | |
| 3417.00 | 9.90 | 50.390 | 3391.13 | 199.50N | 241.11E | ==> | -179.64 | |
| 3517.00 | 9.90 | 50.390 | 3489.64 | 210.46N | 254.36E | ==> | -189.51 | |
| 3617.00 | 9.90 | 50.390 | 3588.15 | 221.42N | 267.60E | ==> | -199.38 | |
| 3717.00 | 9.90 | 50.390 | 3686.66 | 232.38N | 280.85E | ==> | -209.25 | |
| | | | | | | | | |
| 3817.00 | 9.90 | 50.390 | 3785.17 | 243.35N | 294.10E | ==> | -219.12 | |
| 3917.00 | 9.90 | 50.390 | 3883.68 | 254.31N | 307.34E | ==> | -228.99 | |
| 4017.00 | 9.90 | 50.390 | 3982.19 | 265.27N | 320.59E | ==> | -238.86 | |
| 4117.00 | 9.90 | 50.390 | 4080.71 | 276.23N | 333.84E | ==> | -248.73 | |
| 4217.00 | 9.90 | 50.390 | 4179.22 | 287.19N | 347.08E | ==> | -258.60 | |
| | | | | | | | | |
| 4317.00 | 9.90 | 50.390 | 4277.73 | 298.15N | 360.33E | ==> | -268.47 | |
| 4417.00 | 9.90 | 50.390 | 4376.24 | 309.11N | 373.58E | ==> | -278.34 | |
| 4517.00 | 9.90 | 50.390 | 4474.75 | 320.07N | 386.83E | ==> | -288.21 | |
| 4617.00 | 9.90 | 50.390 | 4573.26 | 331.03N | 400.07E | ==> | -298.08 | |
| 4717.00 | 9.90 | 50.390 | 4671.77 | 341.99N | 413.32E | ==> | -307.95 | |
| | | | | | | | | |
| 4817.00 | 9.90 | 50.390 | 4770.28 | 352.95N | 426.57E | ==> | -317.82 | |
| 4917.00 | 9.90 | 50.390 | 4868.79 | 363.92N | 439.81E | ==> | -327.69 | |
| 5017.00 | 9.90 | 50.390 | 4967.30 | 374.88N | 453.06E | ==> | -337.56 | |
| 5117.00 | 9.90 | 50.390 | 5065.81 | 385.84N | 466.31E | ==> | -347.43 | |
| 5217.00 | 9.90 | 50.390 | 5164.32 | 396.80N | 479.55E | ==> | -357.30 | |
| | | | | | | | | |
| 5317.00 | 9.90 | 50.390 | 5262.84 | 407.76N | 492.80E | ==> | -367.17 | |
| 5417.00 | 9.90 | 50.390 | 5361.35 | 418.72N | 506.05E | ==> | -377.04 | |
| 5517.00 | 9.90 | 50.390 | 5459.86 | 429.68N | 519.29E | ==> | -386.91 | |
| 5617.00 | 9.90 | 50.390 | 5558.37 | 440.64N | 532.54E | ==> | -396.78 | |
| 5717.00 | 9.90 | 50.390 | 5656.88 | 451.60N | 545.79E | ==> | -406.65 | |
| | | | | | | | | |
| 5817.00 | 9.90 | 50.390 | 5755.39 | 462.56N | 559.04E | ==> | -416.52 | |
| 5917.00 | 9.90 | 50.390 | 5853.90 | 473.53N | 572.28E | ==> | -426.39 | |
| 6017.00 | 9.90 | 50.390 | 5952.41 | 484.49N | 585.53E | ==> | -436.26 | |
| 6117.00 | 9.90 | 50.390 | 6050.92 | 495.45N | 598.78E | ==> | -446.13 | |
| 6217.00 | 9.90 | 50.390 | 6149.43 | 506.41N | 612.02E | ==> | -456.00 | |
| | | | | | | | | |
| 6317.00 | 9.90 | 50.390 | 6247.94 | 517.37N | 625.27E | ==> | -465.87 | |
| 6417.00 | 7.84 | 100.620 | 6346.78 | 523.12N | 638.60E | 10.00 | -470.55 | |
| 6517.00 | 13.80 | 146.250 | 6445.12 | 511.92N | 651.96E | 10.00 | -458.31 | |
| 6617.00 | 22.76 | 160.850 | 6540.03 | 483.66N | 664.97E | 10.00 | -429.10 | |
| 6717.00 | 32.32 | 167.300 | 6628.61 | 439.19N | 677.22E | 10.00 | -383.80 | |
| | | | | | | | | |
| 6817.00 | 42.07 | 171.030 | 6708.18 | 379.86N | 688.35E | 10.00 | -323.78 | |
| 6917.00 | 51.90 | 173.550 | 6776.32 | 307.49N | 698.02E | 10.00 | -250.86 | |
| 7017.00 | 61.77 | 175.480 | 6830.97 | 224.27N | 705.93E | 10.00 | -167.27 | |
| 7117.00 | 71.66 | 177.070 | 6870.45 | 132.72N | 711.84E | 10.00 | -75.55 | |
| 7217.00 | 81.57 | 178.490 | 6893.57 | 35.63N | 715.58E | 10.00 | 21.53 | |
| | | | | | | | | |
| 7317.00 | 90.00 | 179.640 | 6899.82 | 64.05S | 717.05E | ==> | 121.01 | |
| 7417.00 | 90.00 | 179.640 | 6899.82 | 164.05S | 717.68E | ==> | 220.74 | |
| 7517.00 | 90.00 | 179.640 | 6899.82 | 264.04S | 718.31E | ==> | 320.47 | |
| 7617.00 | 90.00 | 179.640 | 6899.82 | 364.04S | 718.94E | ==> | 420.20 | |
| 7717.00 | 90.00 | 179.640 | 6899.82 | 464.04S | 719.58E | ==> | 519.93 | |
| | | | | | | | | |
| 7817.00 | 90.00 | 179.640 | 6899.82 | 564.04S | 720.21E | ==> | 619.66 | |
| 7917.00 | 90.00 | 179.640 | 6899.82 | 664.04S | 720.84E | ==> | 719.39 | |
| 8017.00 | 90.00 | 179.640 | 6899.82 | 764.03S | 721.47E | ==> | 819.12 | |
| 8117.00 | 90.00 | 179.640 | 6899.82 | 864.03S | 722.10E | ==> | 918.85 | |
| 8217.00 | 90.00 | 179.640 | 6899.82 | 964.03S | 722.73E | ==> | 1018.58 | |
| | | | | | | | | |
| 8317.00 | 90.00 | 179.640 | 6899.82 | 1064.03S | 723.36E | ==> | 1118.31 | |
| 8417.00 | 90.00 | 179.640 | 6899.82 | 1164.03S | 723.99E | ==> | 1218.04 | |
| 8517.00 | 90.00 | 179.640 | 6899.82 | 1264.02S | 724.62E | ==> | 1317.77 | |
| 8617.00 | 90.00 | 179.640 | 6899.82 | 1364.02S | 725.25E | ==> | 1417.50 | |
| 8717.00 | 90.00 | 179.640 | 6899.82 | 1464.02S | 725.88E | ==> | 1517.23 | |
| | | | | | | | | |
| 8817.00 | 90.00 | 179.640 | 6899.82 | 1564.02S | 726.51E | ==> | 1616.96 | |
| 8917.00 | 90.00 | 179.640 | 6899.82 | 1664.02S | 727.14E | ==> | 1716.69 | |

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5049.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 175.430 degrees
Bottom hole distance is 9758.18 Feet on azimuth 175.43 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 10-Oct-2017



SYSDRILL
Well Design Combined Report
Wellbore: W OLANDER 18 (PWB)



| Interpolated Wellpath | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|-------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | All Station Comments |
| 9017.00 | 90.00 | 179.640 | 6899.82 | 1764.01S | 727.77E | ==> | 1816.42 | |
| 9117.00 | 90.00 | 179.640 | 6899.82 | 1864.01S | 728.40E | ==> | 1916.15 | |
| 9217.00 | 90.00 | 179.640 | 6899.82 | 1964.01S | 729.03E | ==> | 2015.88 | |
| 9317.00 | 90.00 | 179.640 | 6899.82 | 2064.01S | 729.66E | ==> | 2115.61 | |
| 9417.00 | 90.00 | 179.640 | 6899.82 | 2164.01S | 730.29E | ==> | 2215.34 | |
| 9517.00 | 90.00 | 179.640 | 6899.82 | 2264.00S | 730.92E | ==> | 2315.07 | |
| 9617.00 | 90.00 | 179.640 | 6899.82 | 2364.00S | 731.55E | ==> | 2414.80 | |
| 9717.00 | 90.00 | 179.640 | 6899.82 | 2464.00S | 732.18E | ==> | 2514.53 | |
| 9817.00 | 90.00 | 179.640 | 6899.82 | 2564.00S | 732.81E | ==> | 2614.26 | |
| 9917.00 | 90.00 | 179.640 | 6899.82 | 2664.00S | 733.45E | ==> | 2713.99 | |
| 10017.00 | 90.00 | 179.640 | 6899.82 | 2763.99S | 734.08E | ==> | 2813.72 | |
| 10117.00 | 90.00 | 179.640 | 6899.82 | 2863.99S | 734.71E | ==> | 2913.45 | |
| 10217.00 | 90.00 | 179.640 | 6899.82 | 2963.99S | 735.34E | ==> | 3013.18 | |
| 10317.00 | 90.00 | 179.640 | 6899.82 | 3063.99S | 735.97E | ==> | 3112.91 | |
| 10417.00 | 90.00 | 179.640 | 6899.82 | 3163.99S | 736.60E | ==> | 3212.64 | |
| 10517.00 | 90.00 | 179.640 | 6899.82 | 3263.98S | 737.23E | ==> | 3312.37 | |
| 10617.00 | 90.00 | 179.640 | 6899.82 | 3363.98S | 737.86E | ==> | 3412.10 | |
| 10717.00 | 90.00 | 179.640 | 6899.82 | 3463.98S | 738.49E | ==> | 3511.83 | |
| 10817.00 | 90.00 | 179.640 | 6899.82 | 3563.98S | 739.12E | ==> | 3611.56 | |
| 10917.00 | 90.00 | 179.640 | 6899.82 | 3663.98S | 739.75E | ==> | 3711.29 | |
| 11017.00 | 90.00 | 179.640 | 6899.82 | 3763.97S | 740.38E | ==> | 3811.02 | |
| 11117.00 | 90.00 | 179.640 | 6899.82 | 3863.97S | 741.01E | ==> | 3910.75 | |
| 11217.00 | 90.00 | 179.640 | 6899.82 | 3963.97S | 741.64E | ==> | 4010.48 | |
| 11317.00 | 90.00 | 179.640 | 6899.82 | 4063.97S | 742.27E | ==> | 4110.21 | |
| 11417.00 | 90.00 | 179.640 | 6899.82 | 4163.97S | 742.90E | ==> | 4209.94 | |
| 11517.00 | 90.00 | 179.640 | 6899.82 | 4263.96S | 743.53E | ==> | 4309.67 | |
| 11617.00 | 90.00 | 179.640 | 6899.82 | 4363.96S | 744.16E | ==> | 4409.40 | |
| 11717.00 | 90.00 | 179.640 | 6899.82 | 4463.96S | 744.79E | ==> | 4509.13 | |
| 11817.00 | 90.00 | 179.640 | 6899.82 | 4563.96S | 745.42E | ==> | 4608.86 | |
| 11917.00 | 90.00 | 179.640 | 6899.82 | 4663.96S | 746.05E | ==> | 4708.59 | |
| 12017.00 | 90.00 | 179.640 | 6899.82 | 4763.95S | 746.68E | ==> | 4808.32 | |
| 12117.00 | 90.00 | 179.640 | 6899.82 | 4863.95S | 747.31E | ==> | 4908.05 | |
| 12217.00 | 90.00 | 179.640 | 6899.82 | 4963.95S | 747.95E | ==> | 5007.78 | |
| 12317.00 | 90.00 | 179.640 | 6899.82 | 5063.95S | 748.58E | ==> | 5107.51 | |
| 12417.00 | 90.00 | 179.640 | 6899.82 | 5163.95S | 749.21E | ==> | 5207.24 | |
| 12517.00 | 90.00 | 179.640 | 6899.82 | 5263.94S | 749.84E | ==> | 5306.97 | |
| 12617.00 | 90.00 | 179.640 | 6899.82 | 5363.94S | 750.47E | ==> | 5406.70 | |
| 12717.00 | 90.00 | 179.640 | 6899.82 | 5463.94S | 751.10E | ==> | 5506.43 | |
| 12817.00 | 90.00 | 179.640 | 6899.82 | 5563.94S | 751.73E | ==> | 5606.16 | |
| 12917.00 | 90.00 | 179.640 | 6899.82 | 5663.94S | 752.36E | ==> | 5705.89 | |
| 13017.00 | 90.00 | 179.640 | 6899.82 | 5763.93S | 752.99E | ==> | 5805.62 | |
| 13117.00 | 90.00 | 179.640 | 6899.82 | 5863.93S | 753.62E | ==> | 5905.35 | |
| 13217.00 | 90.00 | 179.640 | 6899.82 | 5963.93S | 754.25E | ==> | 6005.08 | |
| 13317.00 | 90.00 | 179.640 | 6899.82 | 6063.93S | 754.88E | ==> | 6104.81 | |
| 13417.00 | 90.00 | 179.640 | 6899.82 | 6163.93S | 755.51E | ==> | 6204.54 | |
| 13517.00 | 90.00 | 179.640 | 6899.82 | 6263.92S | 756.14E | ==> | 6304.27 | |
| 13617.00 | 90.00 | 179.640 | 6899.82 | 6363.92S | 756.77E | ==> | 6404.00 | |
| 13717.00 | 90.00 | 179.640 | 6899.82 | 6463.92S | 757.40E | ==> | 6503.73 | |
| 13817.00 | 90.00 | 179.640 | 6899.82 | 6563.92S | 758.03E | ==> | 6603.46 | |
| 13917.00 | 90.00 | 179.640 | 6899.82 | 6663.92S | 758.66E | ==> | 6703.19 | |
| 14017.00 | 90.00 | 179.640 | 6899.82 | 6763.91S | 759.29E | ==> | 6802.92 | |
| 14117.00 | 90.00 | 179.640 | 6899.82 | 6863.91S | 759.92E | ==> | 6902.65 | |
| 14217.00 | 90.00 | 179.640 | 6899.82 | 6963.91S | 760.55E | ==> | 7002.38 | |
| 14317.00 | 90.00 | 179.640 | 6899.82 | 7063.91S | 761.18E | ==> | 7102.11 | |
| 14417.00 | 90.00 | 179.640 | 6899.82 | 7163.91S | 761.82E | ==> | 7201.84 | |
| 14517.00 | 90.00 | 179.640 | 6899.82 | 7263.90S | 762.45E | ==> | 7301.57 | |
| 14617.00 | 90.00 | 179.640 | 6899.82 | 7363.90S | 763.08E | ==> | 7401.30 | |
| 14717.00 | 90.00 | 179.640 | 6899.82 | 7463.90S | 763.71E | ==> | 7501.03 | |
| 14817.00 | 90.00 | 179.640 | 6899.82 | 7563.90S | 764.34E | ==> | 7600.76 | |

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5049.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 175.430 degrees
Bottom hole distance is 9758.18 Feet on azimuth 175.43 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 10-Oct-2017



SYS DRILL
Well Design Combined Report
Wellbore: W OLANDER 18 (PWB)



| Interpolated Wellpath | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|-------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | All Station Comments |
| 14917.00 | 90.00 | 179.640 | 6899.82 | 7663.90S | 764.97E | ==> | 7700.49 | |
| 15017.00 | 90.00 | 179.640 | 6899.82 | 7763.89S | 765.60E | ==> | 7800.22 | |
| 15117.00 | 90.00 | 179.640 | 6899.82 | 7863.89S | 766.23E | ==> | 7899.95 | |
| 15217.00 | 90.00 | 179.640 | 6899.82 | 7963.89S | 766.86E | ==> | 7999.68 | |
| | | | | | | | | |
| 15317.00 | 90.00 | 179.640 | 6899.82 | 8063.89S | 767.49E | ==> | 8099.41 | |
| 15417.00 | 90.00 | 179.640 | 6899.82 | 8163.89S | 768.12E | ==> | 8199.14 | |
| 15517.00 | 90.00 | 179.640 | 6899.82 | 8263.88S | 768.75E | ==> | 8298.87 | |
| 15617.00 | 90.00 | 179.640 | 6899.82 | 8363.88S | 769.38E | ==> | 8398.60 | |
| 15717.00 | 90.00 | 179.640 | 6899.82 | 8463.88S | 770.01E | ==> | 8498.33 | |
| | | | | | | | | |
| 15817.00 | 90.00 | 179.640 | 6899.82 | 8563.88S | 770.64E | ==> | 8598.06 | |
| 15917.00 | 90.00 | 179.640 | 6899.82 | 8663.88S | 771.27E | ==> | 8697.79 | |
| 16017.00 | 90.00 | 179.640 | 6899.82 | 8763.87S | 771.90E | ==> | 8797.52 | |
| 16117.00 | 90.00 | 179.640 | 6899.82 | 8863.87S | 772.53E | ==> | 8897.25 | |
| 16217.00 | 90.00 | 179.640 | 6899.82 | 8963.87S | 773.16E | ==> | 8996.98 | |
| | | | | | | | | |
| 16317.00 | 90.00 | 179.640 | 6899.82 | 9063.87S | 773.79E | ==> | 9096.71 | |
| 16417.00 | 90.00 | 179.640 | 6899.82 | 9163.87S | 774.42E | ==> | 9196.44 | |
| 16517.00 | 90.00 | 179.640 | 6899.82 | 9263.86S | 775.05E | ==> | 9296.17 | |
| 16617.00 | 90.00 | 179.640 | 6899.82 | 9363.86S | 775.68E | ==> | 9395.90 | |
| 16717.00 | 90.00 | 179.640 | 6899.82 | 9463.86S | 776.32E | ==> | 9495.63 | |
| | | | | | | | | |
| 16817.00 | 90.00 | 179.640 | 6899.82 | 9563.86S | 776.95E | ==> | 9595.36 | |
| 16917.00 | 90.00 | 179.640 | 6899.82 | 9663.86S | 777.58E | ==> | 9695.09 | |
| 16980.26 | 90.00 | 179.640 | 6899.82 | 9727.12S | 777.98E | ==> | 9758.18 | |

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Coordinates are from Slot MD's are from Rig (Planned Datum #1 5049.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 175.430 degrees
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| Targets | | | | | | | |
|----------------------|-----------|----------|---------|-------------|---------------|------------|------------|
| Name | North[ft] | East[ft] | TVD[ft] | Latitude | Longitude | Northing | Easting |
| OLANDER 18 EP | 49.16S | 716.96E | 6899.82 | 40.20266450 | -105.02262430 | 1317032.01 | 3133340.43 |
| OLANDER 18 BH-2mi | 9727.12S | 777.98E | 6899.82 | 40.17609800 | -105.02259240 | 1307354.48 | 3133401.45 |

| Survey Tool Program | | | | | | |
|---------------------|-------------|----------|---------|---------------|-------------------|--|
| Reference | Survey Name | MD[ft] | TVD[ft] | Survey Tool | Error Model | |
| 562500 | Planned | 1517.00 | 1516.91 | WdW Rate Gyro | Standard | |
| 562499 | Planned | 16980.26 | 6899.82 | ISCWSA MWD | Rev 4 + SAG + FLT | |

| Notes |
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