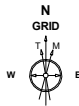


Cub Creek Energy, LLC

| | | | |
|---------------------|--------------------------------------|-----------------|-------------------------|
| Location | Weld County, CO | Slot | OLANDER 16 |
| Field | WATTENBERG | Well | OLANDER 16 |
| Installation | Olander Pad Rework 04-09-2019 | Wellbore | OLANDER 16 (PWB) |



Jul-12-2017
 EMM-2015 Dip: 66.61 deg Field: 52203.1 nT
 Lat: N40 12 10.3680 Long: W105 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

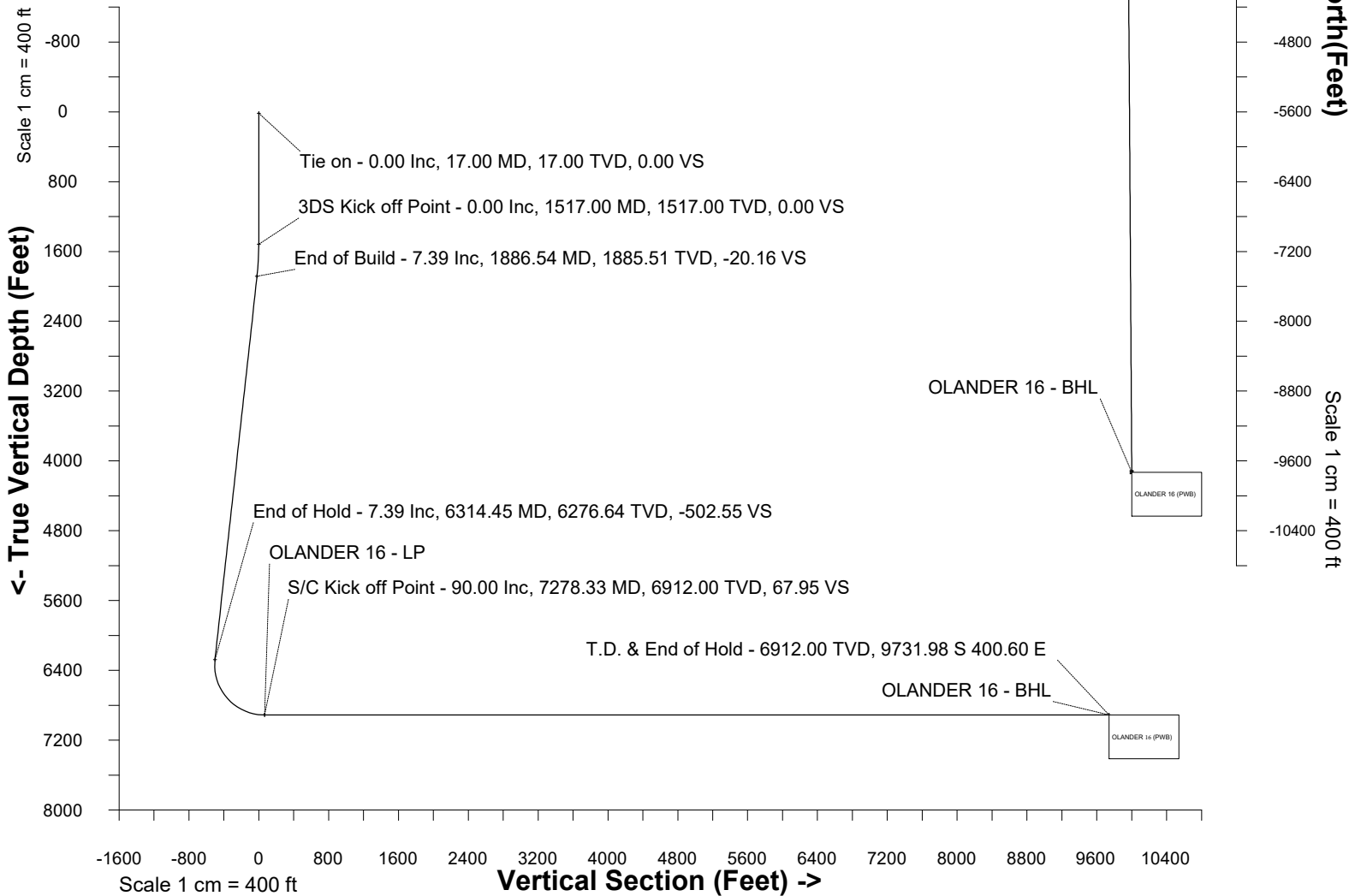
Created by sean.dolfinger
 Date plotted 11-Apr-2019
 Plot reference is OLANDER 16 (PWB).
 Ref wellpath is OLANDER 16 (PWP#1).
 Coordinates are in Feet reference OLANDER 16.
 True Vertical Depths are reference Rig Datum.
 Measured Depths are reference Rig Datum. Rig Datum: Planned Datum #1
 Rig Datum to Mean Sea Level: 5047.00 ft.
 Plot North is aligned to GRID North.

Scale 1 cm = 400 ft
 East (Feet) ->
 -800 0 800 1600

OLANDER 16 - LP

Surface 0.00 N 0.00 E

| 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 | 1517.00 | 0.00 | 29.77 | 1517.00 | S 0.00 | W 0.00 | 0.00 | 0.00 |
| End of Build | 1886.54 | 7.39 | 29.77 | 1885.51 | N 20.66 | E 11.82 | 2.00 | -20.16 |
| End of Hold | 6314.45 | 7.39 | 29.77 | 6276.64 | N 515.10 | E 294.59 | 0.00 | -502.55 |
| Target OLANDER 16 - LP | 7278.33 | 90.00 | 179.64 | 6912.00 | S 54.03 | E 339.54 | 10.00 | 67.95 |
| T.D. & Target OLA...BHL | 16956.48 | 90.00 | 179.64 | 6912.00 | S 9731.98 | E 400.60 | 0.00 | 9740.23 |



SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 16 (PWB)



| Wellhead Details | | | | | | | |
|------------------|-------------|---------------|--------------|--------------|--------|---------|-----------------------------|
| Name | Latitude | Longitude | Northing | Easting | North | East | Slot Elevation Above Ground |
| OLANDER 16 | 40.20281000 | -105.02502000 | 1317081.4171 | 3132670.9897 | 24.86S | 120.25E | 0.00 |

| Declination | | |
|-------------|----------|-------|
| Date | Source | Time |
| Jul-12-2017 | EMM-2015 | 14:01 |

| Installation Details | | | | | | |
|----------------------------------|----------------------------------|-----------------------------------|--------------|--------------|---|-----------------|
| Name | Installation Position (Latitude) | Installation Position (Longitude) | Northing | Easting | Coord System Name | North Alignment |
| Olander Pad Rework 04-09-2019 | 40.20288000 | -105.02545000 | 1317106.2735 | 3132550.7471 | NAD83 Based Colorado State Planes, Northern Zone, US Feet | Grid |

| Summary Wellpath | | | | | | | | |
|------------------|----------|----------|---------|-------------------|-----------|----------|--------------------|----------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | Vertical Depth SS | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] |
| 17.00 | 0.00 | 0.00 | 17.00 | -5030.00 | 0.00N | 0.00E | | 0.00 |
| 1517.00 | 0.00 | 29.77 | 1517.00 | -3530.00 | 0.00N | 0.00E | ==> | 0.00 |
| 1886.54 | 7.39 | 29.77 | 1885.51 | -3161.49 | 20.66N | 11.82E | 2.00 | -20.16 |
| 6314.45 | 7.39 | 29.77 | 6276.64 | 1229.64 | 515.10N | 294.59E | ==> | -502.55 |
| 7278.33 | 90.00 | 179.64 | 6912.00 | 1865.00 | 54.03S | 339.54E | 10.00 | 67.95 |
| 16956.48 | 90.00 | 179.64 | 6912.00 | 1865.00 | 9731.98S | 400.60E | ==> | 9740.23 |

| Interpolated Wellpath | | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|--------------------|----------------------|-----------------------------|------------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | Station Position (Latitude) | Station Position (Longitude) |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00N | 0.00E | | 0.00 | 40.20281000 | -105.02502000 |
| 17.00 | 0.00 | 0.00 | 17.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1000.00 | 0.00 | 0.00 | 1000.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1100.00 | 0.00 | 0.00 | 1100.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1200.00 | 0.00 | 0.00 | 1200.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1300.00 | 0.00 | 0.00 | 1300.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1400.00 | 0.00 | 0.00 | 1400.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1500.00 | 0.00 | 0.00 | 1500.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1517.00 | 0.00 | 29.77 | 1517.00 | 0.00N | 0.00E | ==> | 0.00 | 40.20281000 | -105.02502000 |
| 1600.00 | 1.66 | 29.77 | 1599.99 | 1.04N | 0.60E | 2.00 | -1.02 | 40.20281286 | -105.02501784 |
| 1700.00 | 3.66 | 29.77 | 1699.88 | 5.07N | 2.90E | 2.00 | -4.95 | 40.20282388 | -105.02500952 |
| 1800.00 | 5.66 | 29.77 | 1799.54 | 12.12N | 6.93E | 2.00 | -11.83 | 40.20284318 | -105.02499495 |
| 1886.54 | 7.39 | 29.77 | 1885.51 | 20.66N | 11.82E | 2.00 | -20.16 | 40.20286654 | -105.02497730 |
| 1900.00 | 7.39 | 29.77 | 1898.86 | 22.16N | 12.68E | ==> | -21.62 | 40.20287065 | -105.02497420 |
| 2000.00 | 7.39 | 29.77 | 1998.03 | 33.33N | 19.06E | ==> | -32.52 | 40.20290121 | -105.02495112 |
| 2100.00 | 7.39 | 29.77 | 2097.20 | 44.50N | 25.45E | ==> | -43.41 | 40.20293177 | -105.02492805 |
| 2200.00 | 7.39 | 29.77 | 2196.37 | 55.66N | 31.83E | ==> | -54.31 | 40.20296233 | -105.02490497 |
| 2300.00 | 7.39 | 29.77 | 2295.54 | 66.83N | 38.22E | ==> | -65.20 | 40.20299288 | -105.02488189 |
| 2400.00 | 7.39 | 29.77 | 2394.71 | 78.00N | 44.61E | ==> | -76.10 | 40.20302344 | -105.02485882 |
| 2500.00 | 7.39 | 29.77 | 2493.88 | 89.16N | 50.99E | ==> | -86.99 | 40.20305400 | -105.02483574 |
| 2600.00 | 7.39 | 29.77 | 2593.05 | 100.33N | 57.38E | ==> | -97.88 | 40.20308455 | -105.02481267 |
| 2700.00 | 7.39 | 29.77 | 2692.22 | 111.50N | 63.76E | ==> | -108.78 | 40.20311511 | -105.02478959 |
| 2800.00 | 7.39 | 29.77 | 2791.39 | 122.66N | 70.15E | ==> | -119.67 | 40.20314567 | -105.02476651 |

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 5047.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 177.64 degrees
Bottom hole distance is 9740.23 Feet on azimuth 177.64 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 11-Apr-2019

SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 16 (PWB)



| Interpolated Wellpath | | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|-----------------------------------|------------------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | Station Position (Latitude) | Station Position (Longitude) |
| 2900.00 | 7.39 | 29.77 | 2890.56 | 133.83N | 76.54E | ==> | -130.57 | 40.20317623 | -105.02474344 |
| 3000.00 | 7.39 | 29.77 | 2989.73 | 144.99N | 82.92E | ==> | -141.46 | 40.20320678 | -105.02472036 |
| 3100.00 | 7.39 | 29.77 | 3088.89 | 156.16N | 89.31E | ==> | -152.36 | 40.20323734 | -105.02469728 |
| 3200.00 | 7.39 | 29.77 | 3188.06 | 167.33N | 95.70E | ==> | -163.25 | 40.20326790 | -105.02467421 |
| 3300.00 | 7.39 | 29.77 | 3287.23 | 178.49N | 102.08E | ==> | -174.14 | 40.20329846 | -105.02465113 |
| 3400.00 | 7.39 | 29.77 | 3386.40 | 189.66N | 108.47E | ==> | -185.04 | 40.20332901 | -105.02462806 |
| 3500.00 | 7.39 | 29.77 | 3485.57 | 200.83N | 114.85E | ==> | -195.93 | 40.20335957 | -105.02460498 |
| 3600.00 | 7.39 | 29.77 | 3584.74 | 211.99N | 121.24E | ==> | -206.83 | 40.20339013 | -105.02458190 |
| 3700.00 | 7.39 | 29.77 | 3683.91 | 223.16N | 127.63E | ==> | -217.72 | 40.20342069 | -105.02455883 |
| 3800.00 | 7.39 | 29.77 | 3783.08 | 234.33N | 134.01E | ==> | -228.62 | 40.20345124 | -105.02453575 |
| 3900.00 | 7.39 | 29.77 | 3882.25 | 245.49N | 140.40E | ==> | -239.51 | 40.20348180 | -105.02451267 |
| 4000.00 | 7.39 | 29.77 | 3981.42 | 256.66N | 146.78E | ==> | -250.41 | 40.20351236 | -105.02448960 |
| 4100.00 | 7.39 | 29.77 | 4080.59 | 267.83N | 153.17E | ==> | -261.30 | 40.20354292 | -105.02446652 |
| 4200.00 | 7.39 | 29.77 | 4179.76 | 278.99N | 159.56E | ==> | -272.19 | 40.20357347 | -105.02444345 |
| 4300.00 | 7.39 | 29.77 | 4278.92 | 290.16N | 165.94E | ==> | -283.09 | 40.20360403 | -105.02442037 |
| 4400.00 | 7.39 | 29.77 | 4378.09 | 301.33N | 172.33E | ==> | -293.98 | 40.20363459 | -105.02439729 |
| 4500.00 | 7.39 | 29.77 | 4477.26 | 312.49N | 178.72E | ==> | -304.88 | 40.20366515 | -105.02437422 |
| 4600.00 | 7.39 | 29.77 | 4576.43 | 323.66N | 185.10E | ==> | -315.77 | 40.20369570 | -105.02435114 |
| 4700.00 | 7.39 | 29.77 | 4675.60 | 334.82N | 191.49E | ==> | -326.67 | 40.20372626 | -105.02432806 |
| 4800.00 | 7.39 | 29.77 | 4774.77 | 345.99N | 197.87E | ==> | -337.56 | 40.20375682 | -105.02430499 |
| 4900.00 | 7.39 | 29.77 | 4873.94 | 357.16N | 204.26E | ==> | -348.45 | 40.20378737 | -105.02428191 |
| 5000.00 | 7.39 | 29.77 | 4973.11 | 368.32N | 210.65E | ==> | -359.35 | 40.20381793 | -105.02425883 |
| 5100.00 | 7.39 | 29.77 | 5072.28 | 379.49N | 217.03E | ==> | -370.24 | 40.20384849 | -105.02423576 |
| 5200.00 | 7.39 | 29.77 | 5171.45 | 390.66N | 223.42E | ==> | -381.14 | 40.20387905 | -105.02421268 |
| 5300.00 | 7.39 | 29.77 | 5270.62 | 401.82N | 229.80E | ==> | -392.03 | 40.20390960 | -105.02418960 |
| 5400.00 | 7.39 | 29.77 | 5369.79 | 412.99N | 236.19E | ==> | -402.93 | 40.20394016 | -105.02416653 |
| 5500.00 | 7.39 | 29.77 | 5468.95 | 424.16N | 242.58E | ==> | -413.82 | 40.20397072 | -105.02414345 |
| 5600.00 | 7.39 | 29.77 | 5568.12 | 435.32N | 248.96E | ==> | -424.71 | 40.20400128 | -105.02412037 |
| 5700.00 | 7.39 | 29.77 | 5667.29 | 446.49N | 255.35E | ==> | -435.61 | 40.20403183 | -105.02409730 |
| 5800.00 | 7.39 | 29.77 | 5766.46 | 457.66N | 261.73E | ==> | -446.50 | 40.20406239 | -105.02407422 |
| 5900.00 | 7.39 | 29.77 | 5865.63 | 468.82N | 268.12E | ==> | -457.40 | 40.20409295 | -105.02405114 |
| 6000.00 | 7.39 | 29.77 | 5964.80 | 479.99N | 274.51E | ==> | -468.29 | 40.20412351 | -105.02402807 |
| 6100.00 | 7.39 | 29.77 | 6063.97 | 491.15N | 280.89E | ==> | -479.19 | 40.20415406 | -105.02400499 |
| 6200.00 | 7.39 | 29.77 | 6163.14 | 502.32N | 287.28E | ==> | -490.08 | 40.20418462 | -105.02398191 |
| 6300.00 | 7.39 | 29.77 | 6262.31 | 513.49N | 293.67E | ==> | -500.98 | 40.20421518 | -105.02395884 |
| 6314.45 | 7.39 | 29.77 | 6276.64 | 515.10N | 294.59E | ==> | -502.55 | 40.20421959 | -105.02395550 |
| 6400.00 | 4.31 | 119.86 | 6361.87 | 518.28N | 300.12E | 10.00 | -505.50 | 40.20422825 | -105.02393565 |
| 6500.00 | 12.72 | 162.87 | 6460.75 | 505.86N | 306.63E | 10.00 | -492.83 | 40.20419406 | -105.02391256 |
| 6600.00 | 22.46 | 170.58 | 6555.98 | 476.43N | 313.02E | 10.00 | -463.15 | 40.20411316 | -105.02389026 |
| 6700.00 | 32.36 | 173.74 | 6644.64 | 430.86N | 319.08E | 10.00 | -417.38 | 40.20398800 | -105.02386944 |
| 6800.00 | 42.30 | 175.54 | 6724.06 | 370.56N | 324.63E | 10.00 | -356.89 | 40.20382239 | -105.02385073 |
| 6900.00 | 52.26 | 176.75 | 6791.82 | 297.35N | 329.50E | 10.00 | -283.54 | 40.20362136 | -105.02383469 |
| 7000.00 | 62.23 | 177.67 | 6845.86 | 213.45N | 333.55E | 10.00 | -199.55 | 40.20339101 | -105.02382182 |
| 7100.00 | 72.21 | 178.44 | 6884.53 | 121.42N | 336.65E | 10.00 | -107.48 | 40.20313835 | -105.02381249 |
| 7200.00 | 82.18 | 179.13 | 6906.67 | 24.06N | 338.70E | 10.00 | -10.11 | 40.20287105 | -105.02380701 |
| 7278.33 | 90.00 | 179.64 | 6912.00 | 54.03S | 339.54E | 10.00 | 67.95 | 40.20265670 | -105.02380550 |
| 7300.00 | 90.00 | 179.64 | 6912.00 | 75.70S | 339.68E | ==> | 89.60 | 40.20259722 | -105.02380543 |
| 7400.00 | 90.00 | 179.64 | 6912.00 | 175.69S | 340.31E | ==> | 189.54 | 40.20232272 | -105.02380509 |
| 7500.00 | 90.00 | 179.64 | 6912.00 | 275.69S | 340.94E | ==> | 289.48 | 40.20204822 | -105.02380476 |
| 7600.00 | 90.00 | 179.64 | 6912.00 | 375.69S | 341.57E | ==> | 389.42 | 40.20177372 | -105.02380442 |
| 7700.00 | 90.00 | 179.64 | 6912.00 | 475.69S | 342.20E | ==> | 489.36 | 40.20149922 | -105.02380408 |
| 7800.00 | 90.00 | 179.64 | 6912.00 | 575.69S | 342.84E | ==> | 589.30 | 40.20122472 | -105.02380375 |
| 7900.00 | 90.00 | 179.64 | 6912.00 | 675.68S | 343.47E | ==> | 689.24 | 40.20095022 | -105.02380341 |
| 8000.00 | 90.00 | 179.64 | 6912.00 | 775.68S | 344.10E | ==> | 789.18 | 40.20067572 | -105.02380308 |
| 8100.00 | 90.00 | 179.64 | 6912.00 | 875.68S | 344.73E | ==> | 889.12 | 40.20040123 | -105.02380274 |
| 8200.00 | 90.00 | 179.64 | 6912.00 | 975.68S | 345.36E | ==> | 989.06 | 40.20012673 | -105.02380240 |
| 8300.00 | 90.00 | 179.64 | 6912.00 | 1075.68S | 345.99E | ==> | 1089.00 | 40.19985223 | -105.02380207 |
| 8400.00 | 90.00 | 179.64 | 6912.00 | 1175.67S | 346.62E | ==> | 1188.93 | 40.19957773 | -105.02380173 |

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 5047.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 177.64 degrees
Bottom hole distance is 9740.23 Feet on azimuth 177.64 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 11-Apr-2019

SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 16 (PWB)



| Interpolated Wellpath | | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|-----------------------------------|------------------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | Station Position (Latitude) | Station Position (Longitude) |
| 8500.00 | 90.00 | 179.64 | 6912.00 | 1275.67S | 347.25E | ==> | 1288.87 | 40.19930323 | -105.02380140 |
| 8600.00 | 90.00 | 179.64 | 6912.00 | 1375.67S | 347.88E | ==> | 1388.81 | 40.19902873 | -105.02380106 |
| 8700.00 | 90.00 | 179.64 | 6912.00 | 1475.67S | 348.51E | ==> | 1488.75 | 40.19875423 | -105.02380072 |
| 8800.00 | 90.00 | 179.64 | 6912.00 | 1575.67S | 349.14E | ==> | 1588.69 | 40.19847973 | -105.02380039 |
| 8900.00 | 90.00 | 179.64 | 6912.00 | 1675.66S | 349.78E | ==> | 1688.63 | 40.19820523 | -105.02380005 |
| 9000.00 | 90.00 | 179.64 | 6912.00 | 1775.66S | 350.41E | ==> | 1788.57 | 40.19793073 | -105.02379972 |
| 9100.00 | 90.00 | 179.64 | 6912.00 | 1875.66S | 351.04E | ==> | 1888.51 | 40.19765623 | -105.02379938 |
| 9200.00 | 90.00 | 179.64 | 6912.00 | 1975.66S | 351.67E | ==> | 1988.45 | 40.19738173 | -105.02379904 |
| 9300.00 | 90.00 | 179.64 | 6912.00 | 2075.66S | 352.30E | ==> | 2088.39 | 40.19710723 | -105.02379871 |
| 9400.00 | 90.00 | 179.64 | 6912.00 | 2175.65S | 352.93E | ==> | 2188.33 | 40.19683273 | -105.02379837 |
| 9500.00 | 90.00 | 179.64 | 6912.00 | 2275.65S | 353.56E | ==> | 2288.27 | 40.19655823 | -105.02379804 |
| 9600.00 | 90.00 | 179.64 | 6912.00 | 2375.65S | 354.19E | ==> | 2388.21 | 40.19628373 | -105.02379770 |
| 9700.00 | 90.00 | 179.64 | 6912.00 | 2475.65S | 354.82E | ==> | 2488.15 | 40.19600924 | -105.02379737 |
| 9800.00 | 90.00 | 179.64 | 6912.00 | 2575.65S | 355.45E | ==> | 2588.09 | 40.19573474 | -105.02379703 |
| 9900.00 | 90.00 | 179.64 | 6912.00 | 2675.64S | 356.08E | ==> | 2688.02 | 40.19546024 | -105.02379669 |
| 10000.00 | 90.00 | 179.64 | 6912.00 | 2775.64S | 356.71E | ==> | 2787.96 | 40.19518574 | -105.02379636 |
| 10100.00 | 90.00 | 179.64 | 6912.00 | 2875.64S | 357.35E | ==> | 2887.90 | 40.19491124 | -105.02379602 |
| 10200.00 | 90.00 | 179.64 | 6912.00 | 2975.64S | 357.98E | ==> | 2987.84 | 40.19463674 | -105.02379569 |
| 10300.00 | 90.00 | 179.64 | 6912.00 | 3075.64S | 358.61E | ==> | 3087.78 | 40.19436224 | -105.02379535 |
| 10400.00 | 90.00 | 179.64 | 6912.00 | 3175.63S | 359.24E | ==> | 3187.72 | 40.19408774 | -105.02379501 |
| 10500.00 | 90.00 | 179.64 | 6912.00 | 3275.63S | 359.87E | ==> | 3287.66 | 40.19381324 | -105.02379468 |
| 10600.00 | 90.00 | 179.64 | 6912.00 | 3375.63S | 360.50E | ==> | 3387.60 | 40.19353874 | -105.02379434 |
| 10700.00 | 90.00 | 179.64 | 6912.00 | 3475.63S | 361.13E | ==> | 3487.54 | 40.19326424 | -105.02379401 |
| 10800.00 | 90.00 | 179.64 | 6912.00 | 3575.63S | 361.76E | ==> | 3587.48 | 40.19298974 | -105.02379367 |
| 10900.00 | 90.00 | 179.64 | 6912.00 | 3675.62S | 362.39E | ==> | 3687.42 | 40.19271524 | -105.02379334 |
| 11000.00 | 90.00 | 179.64 | 6912.00 | 3775.62S | 363.02E | ==> | 3787.36 | 40.19244074 | -105.02379300 |
| 11100.00 | 90.00 | 179.64 | 6912.00 | 3875.62S | 363.65E | ==> | 3887.30 | 40.19216624 | -105.02379266 |
| 11200.00 | 90.00 | 179.64 | 6912.00 | 3975.62S | 364.28E | ==> | 3987.24 | 40.19189174 | -105.02379233 |
| 11300.00 | 90.00 | 179.64 | 6912.00 | 4075.62S | 364.92E | ==> | 4087.18 | 40.19161724 | -105.02379199 |
| 11400.00 | 90.00 | 179.64 | 6912.00 | 4175.61S | 365.55E | ==> | 4187.11 | 40.19134274 | -105.02379166 |
| 11500.00 | 90.00 | 179.64 | 6912.00 | 4275.61S | 366.18E | ==> | 4287.05 | 40.19106824 | -105.02379132 |
| 11600.00 | 90.00 | 179.64 | 6912.00 | 4375.61S | 366.81E | ==> | 4386.99 | 40.19079374 | -105.02379098 |
| 11700.00 | 90.00 | 179.64 | 6912.00 | 4475.61S | 367.44E | ==> | 4486.93 | 40.19051924 | -105.02379065 |
| 11800.00 | 90.00 | 179.64 | 6912.00 | 4575.61S | 368.07E | ==> | 4586.87 | 40.19024474 | -105.02379031 |
| 11900.00 | 90.00 | 179.64 | 6912.00 | 4675.60S | 368.70E | ==> | 4686.81 | 40.18997024 | -105.02378998 |
| 12000.00 | 90.00 | 179.64 | 6912.00 | 4775.60S | 369.33E | ==> | 4786.75 | 40.18969574 | -105.02378964 |
| 12100.00 | 90.00 | 179.64 | 6912.00 | 4875.60S | 369.96E | ==> | 4886.69 | 40.18942124 | -105.02378931 |
| 12200.00 | 90.00 | 179.64 | 6912.00 | 4975.60S | 370.59E | ==> | 4986.63 | 40.18914674 | -105.02378897 |
| 12300.00 | 90.00 | 179.64 | 6912.00 | 5075.60S | 371.22E | ==> | 5086.57 | 40.18887224 | -105.02378863 |
| 12400.00 | 90.00 | 179.64 | 6912.00 | 5175.59S | 371.85E | ==> | 5186.51 | 40.18859775 | -105.02378830 |
| 12500.00 | 90.00 | 179.64 | 6912.00 | 5275.59S | 372.49E | ==> | 5286.45 | 40.18832325 | -105.02378796 |
| 12600.00 | 90.00 | 179.64 | 6912.00 | 5375.59S | 373.12E | ==> | 5386.39 | 40.18804875 | -105.02378763 |
| 12700.00 | 90.00 | 179.64 | 6912.00 | 5475.59S | 373.75E | ==> | 5486.33 | 40.18777425 | -105.02378729 |
| 12800.00 | 90.00 | 179.64 | 6912.00 | 5575.59S | 374.38E | ==> | 5586.27 | 40.18749975 | -105.02378695 |
| 12900.00 | 90.00 | 179.64 | 6912.00 | 5675.58S | 375.01E | ==> | 5686.21 | 40.18722525 | -105.02378662 |
| 13000.00 | 90.00 | 179.64 | 6912.00 | 5775.58S | 375.64E | ==> | 5786.14 | 40.18695075 | -105.02378628 |
| 13100.00 | 90.00 | 179.64 | 6912.00 | 5875.58S | 376.27E | ==> | 5886.08 | 40.18667625 | -105.02378595 |
| 13200.00 | 90.00 | 179.64 | 6912.00 | 5975.58S | 376.90E | ==> | 5986.02 | 40.18640175 | -105.02378561 |
| 13300.00 | 90.00 | 179.64 | 6912.00 | 6075.58S | 377.53E | ==> | 6085.96 | 40.18612725 | -105.02378528 |
| 13400.00 | 90.00 | 179.64 | 6912.00 | 6175.57S | 378.16E | ==> | 6185.90 | 40.18585275 | -105.02378494 |
| 13500.00 | 90.00 | 179.64 | 6912.00 | 6275.57S | 378.79E | ==> | 6285.84 | 40.18557825 | -105.02378460 |
| 13600.00 | 90.00 | 179.64 | 6912.00 | 6375.57S | 379.42E | ==> | 6385.78 | 40.18530375 | -105.02378427 |
| 13700.00 | 90.00 | 179.64 | 6912.00 | 6475.57S | 380.06E | ==> | 6485.72 | 40.18502925 | -105.02378393 |
| 13800.00 | 90.00 | 179.64 | 6912.00 | 6575.57S | 380.69E | ==> | 6585.66 | 40.18475475 | -105.02378360 |
| 13900.00 | 90.00 | 179.64 | 6912.00 | 6675.56S | 381.32E | ==> | 6685.60 | 40.18448025 | -105.02378326 |
| 14000.00 | 90.00 | 179.64 | 6912.00 | 6775.56S | 381.95E | ==> | 6785.54 | 40.18420575 | -105.02378293 |
| 14100.00 | 90.00 | 179.64 | 6912.00 | 6875.56S | 382.58E | ==> | 6885.48 | 40.18393125 | -105.02378259 |
| 14200.00 | 90.00 | 179.64 | 6912.00 | 6975.56S | 383.21E | ==> | 6985.42 | 40.18365675 | -105.02378225 |
| 14300.00 | 90.00 | 179.64 | 6912.00 | 7075.56S | 383.84E | ==> | 7085.36 | 40.18338225 | -105.02378192 |

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Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 11-Apr-2019

SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 16 (PWB)



| Interpolated Wellpath | | | | | | | | | |
|-----------------------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|-----------------------------------|------------------------------------|
| MD[ft] | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg [deg/100ft] | Vertical Section[ft] | Station Position (Latitude) | Station Position (Longitude) |
| 14400.00 | 90.00 | 179.64 | 6912.00 | 7175.55S | 384.47E | ==> | 7185.30 | 40.18310775 | -105.02378158 |
| 14500.00 | 90.00 | 179.64 | 6912.00 | 7275.55S | 385.10E | ==> | 7285.23 | 40.18283325 | -105.02378125 |
| 14600.00 | 90.00 | 179.64 | 6912.00 | 7375.55S | 385.73E | ==> | 7385.17 | 40.18255875 | -105.02378091 |
| 14700.00 | 90.00 | 179.64 | 6912.00 | 7475.55S | 386.36E | ==> | 7485.11 | 40.18228425 | -105.02378058 |
| 14800.00 | 90.00 | 179.64 | 6912.00 | 7575.55S | 387.00E | ==> | 7585.05 | 40.18200975 | -105.02378024 |
| 14900.00 | 90.00 | 179.64 | 6912.00 | 7675.54S | 387.63E | ==> | 7684.99 | 40.18173525 | -105.02377990 |
| 15000.00 | 90.00 | 179.64 | 6912.00 | 7775.54S | 388.26E | ==> | 7784.93 | 40.18146075 | -105.02377957 |
| 15100.00 | 90.00 | 179.64 | 6912.00 | 7875.54S | 388.89E | ==> | 7884.87 | 40.18118625 | -105.02377923 |
| 15200.00 | 90.00 | 179.64 | 6912.00 | 7975.54S | 389.52E | ==> | 7984.81 | 40.18091175 | -105.02377890 |
| 15300.00 | 90.00 | 179.64 | 6912.00 | 8075.54S | 390.15E | ==> | 8084.75 | 40.18063725 | -105.02377856 |
| 15400.00 | 90.00 | 179.64 | 6912.00 | 8175.53S | 390.78E | ==> | 8184.69 | 40.18036275 | -105.02377823 |
| 15500.00 | 90.00 | 179.64 | 6912.00 | 8275.53S | 391.41E | ==> | 8284.63 | 40.18008825 | -105.02377789 |
| 15600.00 | 90.00 | 179.64 | 6912.00 | 8375.53S | 392.04E | ==> | 8384.57 | 40.17981375 | -105.02377755 |
| 15700.00 | 90.00 | 179.64 | 6912.00 | 8475.53S | 392.67E | ==> | 8484.51 | 40.17953925 | -105.02377722 |
| 15800.00 | 90.00 | 179.64 | 6912.00 | 8575.53S | 393.30E | ==> | 8584.45 | 40.17926475 | -105.02377688 |
| 15900.00 | 90.00 | 179.64 | 6912.00 | 8675.52S | 393.93E | ==> | 8684.39 | 40.17899025 | -105.02377655 |
| 16000.00 | 90.00 | 179.64 | 6912.00 | 8775.52S | 394.57E | ==> | 8784.32 | 40.17871574 | -105.02377621 |
| 16100.00 | 90.00 | 179.64 | 6912.00 | 8875.52S | 395.20E | ==> | 8884.26 | 40.17844124 | -105.02377588 |
| 16200.00 | 90.00 | 179.64 | 6912.00 | 8975.52S | 395.83E | ==> | 8984.20 | 40.17816674 | -105.02377554 |
| 16300.00 | 90.00 | 179.64 | 6912.00 | 9075.52S | 396.46E | ==> | 9084.14 | 40.17789224 | -105.02377520 |
| 16400.00 | 90.00 | 179.64 | 6912.00 | 9175.51S | 397.09E | ==> | 9184.08 | 40.17761774 | -105.02377487 |
| 16500.00 | 90.00 | 179.64 | 6912.00 | 9275.51S | 397.72E | ==> | 9284.02 | 40.17734324 | -105.02377453 |
| 16600.00 | 90.00 | 179.64 | 6912.00 | 9375.51S | 398.35E | ==> | 9383.96 | 40.17706874 | -105.02377420 |
| 16700.00 | 90.00 | 179.64 | 6912.00 | 9475.51S | 398.98E | ==> | 9483.90 | 40.17679424 | -105.02377386 |
| 16800.00 | 90.00 | 179.64 | 6912.00 | 9575.51S | 399.61E | ==> | 9583.84 | 40.17651974 | -105.02377353 |
| 16900.00 | 90.00 | 179.64 | 6912.00 | 9675.50S | 400.24E | ==> | 9683.78 | 40.17624524 | -105.02377319 |
| 16956.48 | 90.00 | 179.64 | 6912.00 | 9731.98S | 400.60E | ==> | 9740.23 | 40.17609020 | -105.02377300 |

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Wellbore: OLANDER 16 (PWB)



Targets

| Name | North[ft] | East[ft] | TVD[ft] | Latitude | Longitude | Northing | Easting |
|------------------|-----------|----------|---------|-------------|---------------|------------|------------|
| OLANDER 16 - LP | 54.03S | 339.54E | 6912.00 | 40.20265670 | -105.02380550 | 1317027.39 | 3133010.52 |
| OLANDER 16 - BHL | 9731.98S | 400.60E | 6912.00 | 40.17609020 | -105.02377300 | 1307349.87 | 3133071.57 |

Survey Tool Program

| Reference | Survey Name | MD[ft] | TVD[ft] | Survey Tool | Error Model |
|-----------|-------------|----------|---------|---------------|-------------------|
| 791278 | Planned | 1500.00 | 1500.00 | WdW Rate Gyro | Standard |
| 791277 | Planned | 16956.48 | 6912.00 | ISCWSA MWD | Rev 4 + SAG + FLT |

Notes

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