

Cub Creek Energy, LLC

Location	Weld County, CO	Slot	OLANDER 19
Field	WATTENBERG	Well	OLANDER 19
Installation	Olander Pad Rework 04-09-2019	Wellbore	OLANDER 19 (PWB)

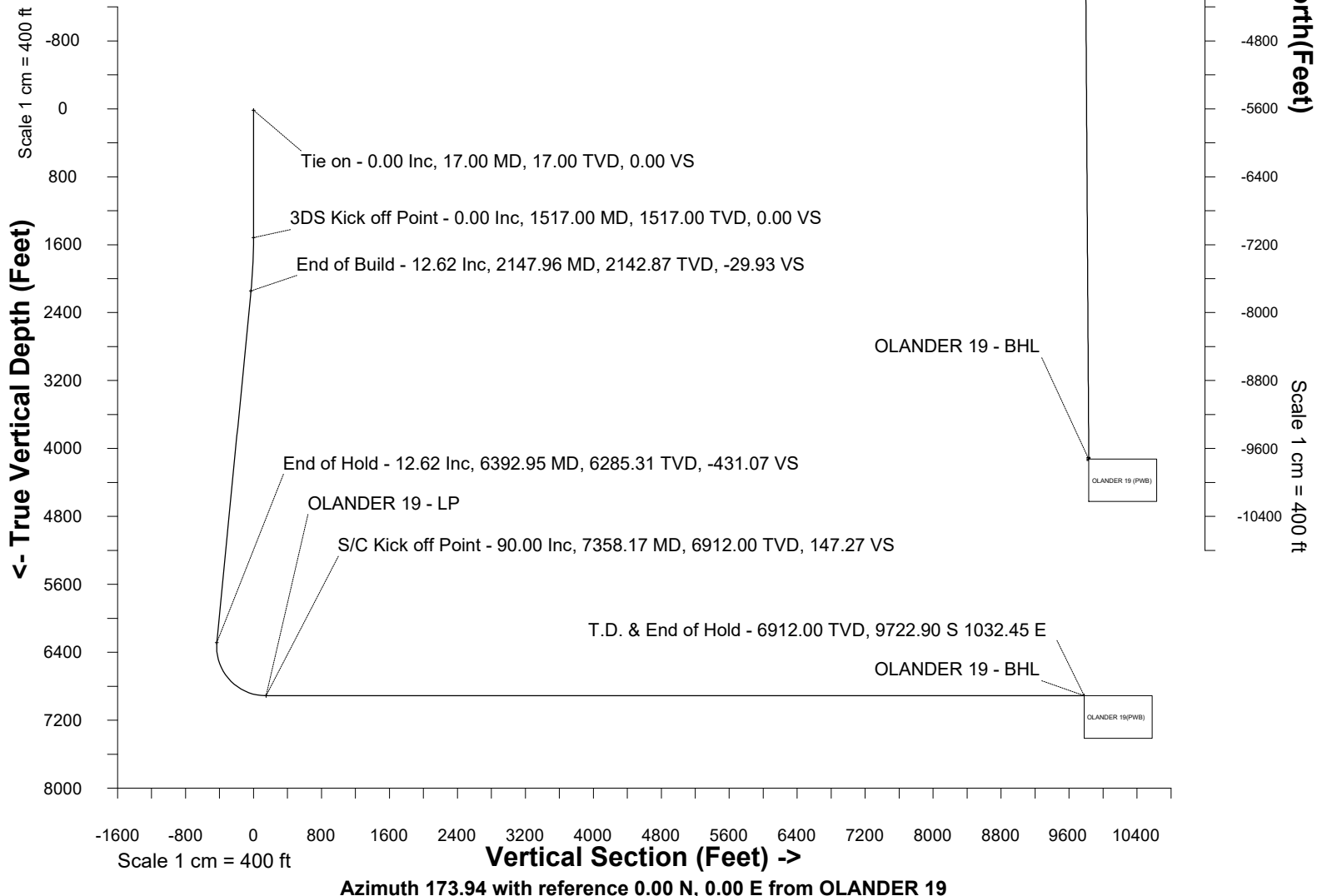
N
 GRID
 T
 M
 W
 E
 Jul-12-2017
 EMA-2015 Dip: 66.61 deg Field: 52203.1 nT
 Lat: N40 12 10.3680 Long: W105 1 31.6200 Elev: 5033.00 ft
 Magnetic North is 8.59 deg East of True North
 GRID North is 0.31 deg East of True North
 To correct azimuth from True to GRID subtract 0.31 deg
 To correct azimuth from Magnetic to GRID add 8.28 deg

Created by sean.dolfinger
 Date plotted 11-Apr-2019
 Plot reference is OLANDER 19 (PWB).
 Ref wellpath is OLANDER 19 (PWP#1).
 Coordinates are in Feet reference OLANDER 19.
 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 2400

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	58.31	1517.00	S 0.00	W 0.00	0.00	0.00
End of Build	2147.96	12.62	58.31	2142.87	N 36.35	E 58.88	2.00	-29.93
End of Hold	6392.95	12.62	58.31	6285.31	N 523.54	E 848.01	0.00	-431.07
Target OLANDER 19 - LP	7358.17	90.00	179.64	6912.00	S 44.94	E 971.44	10.00	147.27
T.D. & Target OLA...BHL	17036.32	90.00	179.64	6912.00	S 9722.90	E 1032.45	0.00	9777.56



SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 19 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
OLANDER 19	40.20281000	-105.02492000	1317081.5668	3132698.9213	24.71S	148.18E	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	58.31	1517.00	-3530.00	0.00N	0.00E	==>	0.00
2147.96	12.62	58.31	2142.87	-2904.13	36.35N	58.88E	2.00	-29.93
6392.95	12.62	58.31	6285.31	1238.31	523.54N	848.01E	==>	-431.07
7358.17	90.00	179.64	6912.00	1865.00	44.94S	971.44E	10.00	147.27
17036.32	90.00	179.64	6912.00	1865.00	9722.90S	1032.45E	==>	9777.56

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	-105.02492000
17.00	0.00	0.00	17.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1100.00	0.00	0.00	1100.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1200.00	0.00	0.00	1200.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1300.00	0.00	0.00	1300.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1400.00	0.00	0.00	1400.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1500.00	0.00	0.00	1500.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1517.00	0.00	58.31	1517.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02492000
1600.00	1.66	58.31	1599.99	0.63N	1.02E	2.00	-0.52	40.20281172	-105.02491633
1700.00	3.66	58.31	1699.88	3.07N	4.97E	2.00	-2.53	40.20281835	-105.02490214
1800.00	5.66	58.31	1799.54	7.34N	11.88E	2.00	-6.04	40.20282997	-105.02487731
1900.00	7.66	58.31	1898.86	13.43N	21.75E	2.00	-11.06	40.20284654	-105.02484187
2000.00	9.66	58.31	1997.71	21.34N	34.56E	2.00	-17.57	40.20286807	-105.02479586
2100.00	11.66	58.31	2095.98	31.06N	50.30E	2.00	-25.57	40.20289451	-105.02473932
2147.96	12.62	58.31	2142.87	36.35N	58.88E	2.00	-29.93	40.20290892	-105.02470850
2200.00	12.62	58.31	2193.65	42.33N	68.56E	==>	-34.85	40.20292518	-105.02467375
2300.00	12.62	58.31	2291.24	53.80N	87.15E	==>	-44.30	40.20295641	-105.02460698
2400.00	12.62	58.31	2388.82	65.28N	105.74E	==>	-53.75	40.20298764	-105.02454021
2500.00	12.62	58.31	2486.41	76.76N	124.33E	==>	-63.20	40.20301886	-105.02447344
2600.00	12.62	58.31	2583.99	88.23N	142.92E	==>	-72.65	40.20305009	-105.02440668
2700.00	12.62	58.31	2681.58	99.71N	161.51E	==>	-82.10	40.20308132	-105.02433991
2800.00	12.62	58.31	2779.16	111.19N	180.10E	==>	-91.55	40.20311255	-105.02427314

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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 173.94 degrees
Bottom hole distance is 9777.56 Feet on azimuth 173.94 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 11-Apr-2019

SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 19 (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	12.62	58.31	2876.74	122.66N	198.69E	==>	-101.00	40.20314378	-105.02420637
3000.00	12.62	58.31	2974.33	134.14N	217.28E	==>	-110.45	40.20317501	-105.02413960
3100.00	12.62	58.31	3071.91	145.62N	235.87E	==>	-119.90	40.20320624	-105.02407283
3200.00	12.62	58.31	3169.50	157.09N	254.46E	==>	-129.35	40.20323747	-105.02400606
3300.00	12.62	58.31	3267.08	168.57N	273.04E	==>	-138.80	40.20326870	-105.02393929
3400.00	12.62	58.31	3364.67	180.05N	291.63E	==>	-148.25	40.20329993	-105.02387252
3500.00	12.62	58.31	3462.25	191.52N	310.22E	==>	-157.70	40.20333116	-105.02380575
3600.00	12.62	58.31	3559.84	203.00N	328.81E	==>	-167.15	40.20336239	-105.02373898
3700.00	12.62	58.31	3657.42	214.48N	347.40E	==>	-176.60	40.20339362	-105.02367221
3800.00	12.62	58.31	3755.00	225.95N	365.99E	==>	-186.05	40.20342485	-105.02360544
3900.00	12.62	58.31	3852.59	237.43N	384.58E	==>	-195.49	40.20345607	-105.02353866
4000.00	12.62	58.31	3950.17	248.91N	403.17E	==>	-204.94	40.20348730	-105.02347189
4100.00	12.62	58.31	4047.76	260.39N	421.76E	==>	-214.39	40.20351853	-105.02340512
4200.00	12.62	58.31	4145.34	271.86N	440.35E	==>	-223.84	40.20354976	-105.02333835
4300.00	12.62	58.31	4242.93	283.34N	458.94E	==>	-233.29	40.20358099	-105.02327158
4400.00	12.62	58.31	4340.51	294.82N	477.53E	==>	-242.74	40.20361222	-105.02320481
4500.00	12.62	58.31	4438.09	306.29N	496.12E	==>	-252.19	40.20364345	-105.02313804
4600.00	12.62	58.31	4535.68	317.77N	514.71E	==>	-261.64	40.20367468	-105.02307127
4700.00	12.62	58.31	4633.26	329.25N	533.30E	==>	-271.09	40.20370591	-105.02300450
4800.00	12.62	58.31	4730.85	340.72N	551.89E	==>	-280.54	40.20373713	-105.02293773
4900.00	12.62	58.31	4828.43	352.20N	570.48E	==>	-289.99	40.20376836	-105.02287096
5000.00	12.62	58.31	4926.02	363.68N	589.07E	==>	-299.44	40.20379959	-105.02280419
5100.00	12.62	58.31	5023.60	375.15N	607.66E	==>	-308.89	40.20383082	-105.02273741
5200.00	12.62	58.31	5121.19	386.63N	626.25E	==>	-318.34	40.20386205	-105.02267064
5300.00	12.62	58.31	5218.77	398.11N	644.84E	==>	-327.79	40.20389328	-105.02260387
5400.00	12.62	58.31	5316.35	409.58N	663.43E	==>	-337.24	40.20392451	-105.02253710
5500.00	12.62	58.31	5413.94	421.06N	682.02E	==>	-346.69	40.20395573	-105.02247033
5600.00	12.62	58.31	5511.52	432.54N	700.61E	==>	-356.14	40.20398696	-105.02240356
5700.00	12.62	58.31	5609.11	444.01N	719.20E	==>	-365.59	40.20401819	-105.02233679
5800.00	12.62	58.31	5706.69	455.49N	737.78E	==>	-375.04	40.20404942	-105.02227002
5900.00	12.62	58.31	5804.28	466.97N	756.37E	==>	-384.49	40.20408065	-105.02220324
6000.00	12.62	58.31	5901.86	478.44N	774.96E	==>	-393.94	40.20411188	-105.02213647
6100.00	12.62	58.31	5999.44	489.92N	793.55E	==>	-403.39	40.20414310	-105.02206970
6200.00	12.62	58.31	6097.03	501.40N	812.14E	==>	-412.84	40.20417433	-105.02200293
6300.00	12.62	58.31	6194.61	512.87N	830.73E	==>	-422.29	40.20420556	-105.02193616
6392.95	12.62	58.31	6285.31	523.54N	848.01E	==>	-431.07	40.20423459	-105.02187409
6400.00	12.27	61.16	6292.20	524.31N	849.32E	10.00	-431.69	40.20423667	-105.02186938
6500.00	11.60	110.91	6390.29	525.85N	868.07E	10.00	-431.25	40.20424063	-105.02180223
6600.00	17.78	143.02	6487.13	510.03N	886.69E	10.00	-413.55	40.20419692	-105.02173588
6700.00	26.36	156.94	6579.78	477.32N	904.62E	10.00	-379.13	40.20410688	-105.02167235
6800.00	35.66	164.18	6665.42	428.73N	921.30E	10.00	-329.05	40.20397325	-105.02161355
6900.00	45.22	168.70	6741.46	365.72N	936.24E	10.00	-264.82	40.20380008	-105.02156129
7000.00	54.92	171.92	6805.58	290.22N	948.98E	10.00	-188.39	40.20359263	-105.02151715
7100.00	64.68	174.45	6855.83	204.51N	959.13E	10.00	-102.09	40.20335721	-105.02148246
7200.00	74.47	176.59	6890.69	111.20N	966.38E	10.00	-8.53	40.20310097	-105.02145829
7300.00	84.29	178.54	6909.10	13.13N	970.52E	10.00	89.43	40.20283170	-105.02144537
7358.17	90.00	179.64	6912.00	44.94S	971.44E	10.00	147.27	40.20267230	-105.02144320
7400.00	90.00	179.64	6912.00	86.77S	971.71E	==>	188.89	40.20255748	-105.02144306
7500.00	90.00	179.64	6912.00	186.77S	972.34E	==>	288.40	40.20228298	-105.02144274
7600.00	90.00	179.64	6912.00	286.77S	972.97E	==>	387.90	40.20200848	-105.02144242
7700.00	90.00	179.64	6912.00	386.76S	973.60E	==>	487.41	40.20173398	-105.02144209
7800.00	90.00	179.64	6912.00	486.76S	974.23E	==>	586.91	40.20145948	-105.02144177
7900.00	90.00	179.64	6912.00	586.76S	974.86E	==>	686.42	40.20118498	-105.02144144
8000.00	90.00	179.64	6912.00	686.76S	975.49E	==>	785.92	40.20091048	-105.02144112
8100.00	90.00	179.64	6912.00	786.76S	976.12E	==>	885.43	40.20063599	-105.02144079
8200.00	90.00	179.64	6912.00	886.75S	976.75E	==>	984.93	40.20036149	-105.02144047
8300.00	90.00	179.64	6912.00	986.75S	977.38E	==>	1084.44	40.20008699	-105.02144014
8400.00	90.00	179.64	6912.00	1086.75S	978.01E	==>	1183.95	40.19981249	-105.02143982

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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 173.94 degrees
Bottom hole distance is 9777.56 Feet on azimuth 173.94 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 11-Apr-2019

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Well Design Combined Report
Wellbore: OLANDER 19 (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	1186.75S	978.64E	==>	1283.45	40.19953799	-105.02143949
8600.00	90.00	179.64	6912.00	1286.75S	979.27E	==>	1382.96	40.19926349	-105.02143917
8700.00	90.00	179.64	6912.00	1386.74S	979.90E	==>	1482.46	40.19898899	-105.02143885
8800.00	90.00	179.64	6912.00	1486.74S	980.53E	==>	1581.97	40.19871449	-105.02143852
8900.00	90.00	179.64	6912.00	1586.74S	981.16E	==>	1681.47	40.19843999	-105.02143820
9000.00	90.00	179.64	6912.00	1686.74S	981.79E	==>	1780.98	40.19816549	-105.02143787
9100.00	90.00	179.64	6912.00	1786.74S	982.42E	==>	1880.48	40.19789099	-105.02143755
9200.00	90.00	179.64	6912.00	1886.73S	983.05E	==>	1979.99	40.19761649	-105.02143722
9300.00	90.00	179.64	6912.00	1986.73S	983.68E	==>	2079.49	40.19734199	-105.02143690
9400.00	90.00	179.64	6912.00	2086.73S	984.31E	==>	2179.00	40.19706749	-105.02143657
9500.00	90.00	179.64	6912.00	2186.73S	984.94E	==>	2278.51	40.19679299	-105.02143625
9600.00	90.00	179.64	6912.00	2286.73S	985.57E	==>	2378.01	40.19651849	-105.02143592
9700.00	90.00	179.64	6912.00	2386.72S	986.20E	==>	2477.52	40.19624400	-105.02143560
9800.00	90.00	179.64	6912.00	2486.72S	986.83E	==>	2577.02	40.19596950	-105.02143528
9900.00	90.00	179.64	6912.00	2586.72S	987.46E	==>	2676.53	40.19569500	-105.02143495
10000.00	90.00	179.64	6912.00	2686.72S	988.09E	==>	2776.03	40.19542050	-105.02143463
10100.00	90.00	179.64	6912.00	2786.72S	988.72E	==>	2875.54	40.19514600	-105.02143430
10200.00	90.00	179.64	6912.00	2886.71S	989.35E	==>	2975.04	40.19487150	-105.02143398
10300.00	90.00	179.64	6912.00	2986.71S	989.98E	==>	3074.55	40.19459700	-105.02143365
10400.00	90.00	179.64	6912.00	3086.71S	990.62E	==>	3174.06	40.19432250	-105.02143333
10500.00	90.00	179.64	6912.00	3186.71S	991.25E	==>	3273.56	40.19404800	-105.02143300
10600.00	90.00	179.64	6912.00	3286.71S	991.88E	==>	3373.07	40.19377350	-105.02143268
10700.00	90.00	179.64	6912.00	3386.70S	992.51E	==>	3472.57	40.19349900	-105.02143235
10800.00	90.00	179.64	6912.00	3486.70S	993.14E	==>	3572.08	40.19322450	-105.02143203
10900.00	90.00	179.64	6912.00	3586.70S	993.77E	==>	3671.58	40.19295000	-105.02143171
11000.00	90.00	179.64	6912.00	3686.70S	994.40E	==>	3771.09	40.19267550	-105.02143138
11100.00	90.00	179.64	6912.00	3786.70S	995.03E	==>	3870.59	40.19240100	-105.02143106
11200.00	90.00	179.64	6912.00	3886.69S	995.66E	==>	3970.10	40.19212650	-105.02143073
11300.00	90.00	179.64	6912.00	3986.69S	996.29E	==>	4069.61	40.19185200	-105.02143041
11400.00	90.00	179.64	6912.00	4086.69S	996.92E	==>	4169.11	40.19157750	-105.02143008
11500.00	90.00	179.64	6912.00	4186.69S	997.55E	==>	4268.62	40.19130300	-105.02142976
11600.00	90.00	179.64	6912.00	4286.69S	998.18E	==>	4368.12	40.19102850	-105.02142943
11700.00	90.00	179.64	6912.00	4386.68S	998.81E	==>	4467.63	40.19075400	-105.02142911
11800.00	90.00	179.64	6912.00	4486.68S	999.44E	==>	4567.13	40.19047950	-105.02142879
11900.00	90.00	179.64	6912.00	4586.68S	1000.07E	==>	4666.64	40.19020500	-105.02142846
12000.00	90.00	179.64	6912.00	4686.68S	1000.70E	==>	4766.14	40.18993050	-105.02142814
12100.00	90.00	179.64	6912.00	4786.68S	1001.33E	==>	4865.65	40.18965600	-105.02142781
12200.00	90.00	179.64	6912.00	4886.67S	1001.96E	==>	4965.15	40.18938150	-105.02142749
12300.00	90.00	179.64	6912.00	4986.67S	1002.59E	==>	5064.66	40.18910700	-105.02142716
12400.00	90.00	179.64	6912.00	5086.67S	1003.22E	==>	5164.17	40.18883251	-105.02142684
12500.00	90.00	179.64	6912.00	5186.67S	1003.85E	==>	5263.67	40.18855801	-105.02142651
12600.00	90.00	179.64	6912.00	5286.67S	1004.48E	==>	5363.18	40.18828351	-105.02142619
12700.00	90.00	179.64	6912.00	5386.66S	1005.11E	==>	5462.68	40.18800901	-105.02142587
12800.00	90.00	179.64	6912.00	5486.66S	1005.74E	==>	5562.19	40.18773451	-105.02142554
12900.00	90.00	179.64	6912.00	5586.66S	1006.37E	==>	5661.69	40.18746001	-105.02142522
13000.00	90.00	179.64	6912.00	5686.66S	1007.00E	==>	5761.20	40.18718551	-105.02142489
13100.00	90.00	179.64	6912.00	5786.66S	1007.63E	==>	5860.70	40.18691101	-105.02142457
13200.00	90.00	179.64	6912.00	5886.65S	1008.26E	==>	5960.21	40.18663651	-105.02142424
13300.00	90.00	179.64	6912.00	5986.65S	1008.89E	==>	6059.72	40.18636201	-105.02142392
13400.00	90.00	179.64	6912.00	6086.65S	1009.53E	==>	6159.22	40.18608751	-105.02142359
13500.00	90.00	179.64	6912.00	6186.65S	1010.16E	==>	6258.73	40.18581301	-105.02142327
13600.00	90.00	179.64	6912.00	6286.65S	1010.79E	==>	6358.23	40.18553851	-105.02142295
13700.00	90.00	179.64	6912.00	6386.64S	1011.42E	==>	6457.74	40.18526401	-105.02142262
13800.00	90.00	179.64	6912.00	6486.64S	1012.05E	==>	6557.24	40.18498951	-105.02142230
13900.00	90.00	179.64	6912.00	6586.64S	1012.68E	==>	6656.75	40.18471501	-105.02142197
14000.00	90.00	179.64	6912.00	6686.64S	1013.31E	==>	6756.25	40.18444051	-105.02142165
14100.00	90.00	179.64	6912.00	6786.64S	1013.94E	==>	6855.76	40.18416601	-105.02142132
14200.00	90.00	179.64	6912.00	6886.63S	1014.57E	==>	6955.27	40.18389151	-105.02142100
14300.00	90.00	179.64	6912.00	6986.63S	1015.20E	==>	7054.77	40.18361701	-105.02142068

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Prepared by
Date Printed: 11-Apr-2019

SYSDRILL
Well Design Combined Report
Wellbore: OLANDER 19 (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	7086.63S	1015.83E	==>	7154.28	40.18334251	-105.02142035
14500.00	90.00	179.64	6912.00	7186.63S	1016.46E	==>	7253.78	40.18306801	-105.02142003
14600.00	90.00	179.64	6912.00	7286.63S	1017.09E	==>	7353.29	40.18279351	-105.02141970
14700.00	90.00	179.64	6912.00	7386.62S	1017.72E	==>	7452.79	40.18251901	-105.02141938
14800.00	90.00	179.64	6912.00	7486.62S	1018.35E	==>	7552.30	40.18224451	-105.02141905
14900.00	90.00	179.64	6912.00	7586.62S	1018.98E	==>	7651.80	40.18197001	-105.02141873
15000.00	90.00	179.64	6912.00	7686.62S	1019.61E	==>	7751.31	40.18169551	-105.02141840
15100.00	90.00	179.64	6912.00	7786.62S	1020.24E	==>	7850.82	40.18142101	-105.02141808
15200.00	90.00	179.64	6912.00	7886.61S	1020.87E	==>	7950.32	40.18114651	-105.02141776
15300.00	90.00	179.64	6912.00	7986.61S	1021.50E	==>	8049.83	40.18087201	-105.02141743
15400.00	90.00	179.64	6912.00	8086.61S	1022.13E	==>	8149.33	40.18059751	-105.02141711
15500.00	90.00	179.64	6912.00	8186.61S	1022.76E	==>	8248.84	40.18032301	-105.02141678
15600.00	90.00	179.64	6912.00	8286.61S	1023.39E	==>	8348.34	40.18004851	-105.02141646
15700.00	90.00	179.64	6912.00	8386.60S	1024.02E	==>	8447.85	40.17977401	-105.02141613
15800.00	90.00	179.64	6912.00	8486.60S	1024.65E	==>	8547.35	40.17949951	-105.02141581
15900.00	90.00	179.64	6912.00	8586.60S	1025.28E	==>	8646.86	40.17922501	-105.02141549
16000.00	90.00	179.64	6912.00	8686.60S	1025.91E	==>	8746.36	40.17895051	-105.02141516
16100.00	90.00	179.64	6912.00	8786.60S	1026.54E	==>	8845.87	40.17867600	-105.02141484
16200.00	90.00	179.64	6912.00	8886.59S	1027.17E	==>	8945.38	40.17840150	-105.02141451
16300.00	90.00	179.64	6912.00	8986.59S	1027.80E	==>	9044.88	40.17812700	-105.02141419
16400.00	90.00	179.64	6912.00	9086.59S	1028.44E	==>	9144.39	40.17785250	-105.02141386
16500.00	90.00	179.64	6912.00	9186.59S	1029.07E	==>	9243.89	40.17757800	-105.02141354
16600.00	90.00	179.64	6912.00	9286.59S	1029.70E	==>	9343.40	40.17730350	-105.02141322
16700.00	90.00	179.64	6912.00	9386.58S	1030.33E	==>	9442.90	40.17702900	-105.02141289
16800.00	90.00	179.64	6912.00	9486.58S	1030.96E	==>	9542.41	40.17675450	-105.02141257
16900.00	90.00	179.64	6912.00	9586.58S	1031.59E	==>	9641.91	40.17648000	-105.02141224
17000.00	90.00	179.64	6912.00	9686.58S	1032.22E	==>	9741.42	40.17620550	-105.02141192
17036.32	90.00	179.64	6912.00	9722.90S	1032.45E	==>	9777.56	40.17610580	-105.02141180

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Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
OLANDER 19 - LP	44.94S	971.44E	6912.00	40.20267230	-105.02144320	1317036.63	3133670.32
OLANDER 19 - BHL	9722.90S	1032.45E	6912.00	40.17610580	-105.02141180	1307359.10	3133731.32

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
791320	Planned	1500.00	1500.00	WdW Rate Gyro	Standard
791319	Planned	17036.32	6912.00	ISCWSA MWD	Rev 4 + SAG + FLT

Notes

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