

# Cub Creek Energy, LLC

<b>Location</b>	<b>Weld County, CO</b>	<b>Slot</b>	<b>OLANDER 21</b>
<b>Field</b>	<b>WATTENBERG</b>	<b>Well</b>	<b>OLANDER 21</b>
<b>Installation</b>	<b>Olander Pad Rework 04-09-2019</b>	<b>Wellbore</b>	<b>OLANDER 21 (PWB)</b>

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 21 (PWB).  
 Ref wellpath is OLANDER 21 (PWP#1).  
 Coordinates are in Feet reference OLANDER 21.  
 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

1600

1600

OLANDER 21 - LP

Surface 0.00 N 0.00 E

800

0

-800

-1600

-2400

-3200

-4000

-4800

-5600

-6400

-7200

-8000

-8800

-9600

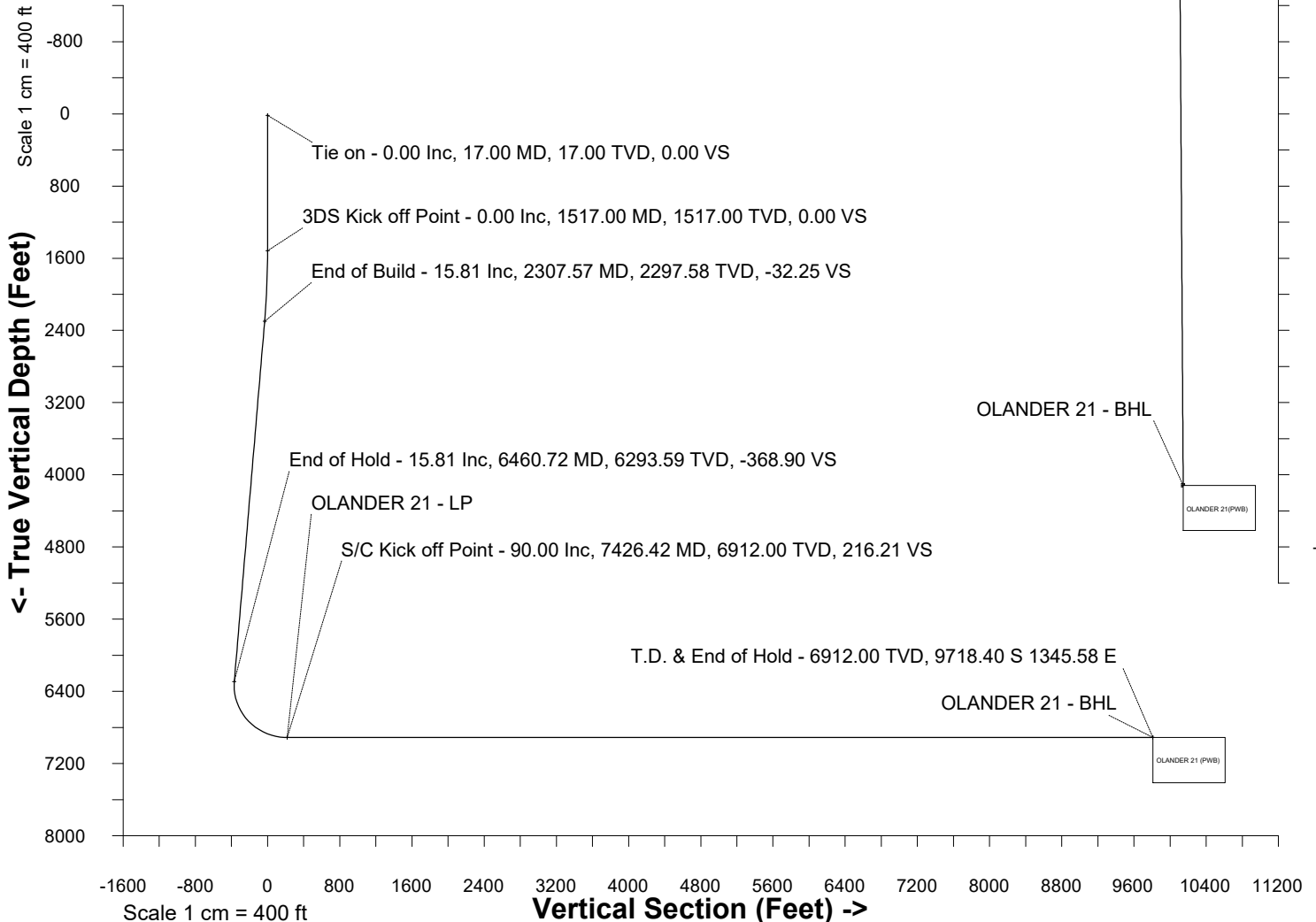
-10400

**<- North(Feet)**

**Scale 1 cm = 400 ft**

## 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	64.81	1517.00	S 0.00	W 0.00	0.00	0.00
End of Build	2307.57	15.81	64.81	2297.58	N 46.13	E 98.09	2.00	-32.25
End of Hold	6460.72	15.81	64.81	6293.59	N 527.78	E 1122.09	0.00	-368.90
Target OLANDER 21 - LP	7426.42	90.00	179.64	6912.00	S 40.41	E 1284.61	10.00	216.21
T.D. & Target OLA...BHL	17104.61	90.00	179.64	6912.00	S 9718.40	E 1345.58	0.00	9811.11



Azimuth 172.12 with reference 0.00 N, 0.00 E from OLANDER 21



SYSDRILL  
Well Design Combined Report  
Wellbore: OLANDER 21 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
OLANDER 21	40.20281000	-105.02486000	1317081.6566	3132715.6803	24.62S	164.94E	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	64.81	1517.00	-3530.00	0.00N	0.00E	==>	0.00
2307.57	15.81	64.81	2297.58	-2749.42	46.13N	98.09E	2.00	-32.25
6460.72	15.81	64.81	6293.59	1246.59	527.78N	1122.09E	==>	-368.90
7426.42	90.00	179.64	6912.00	1865.00	40.41S	1284.61E	10.00	216.21
17104.61	90.00	179.64	6912.00	1865.00	9718.40S	1345.58E	==>	9811.11

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	-105.02486000
17.00	0.00	0.00	17.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1100.00	0.00	0.00	1100.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1200.00	0.00	0.00	1200.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1300.00	0.00	0.00	1300.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1400.00	0.00	0.00	1400.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1500.00	0.00	0.00	1500.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1517.00	0.00	64.81	1517.00	0.00N	0.00E	==>	0.00	40.20281000	-105.02486000
1600.00	1.66	64.81	1599.99	0.51N	1.09E	2.00	-0.36	40.20281139	-105.02485610
1700.00	3.66	64.81	1699.88	2.49N	5.29E	2.00	-1.74	40.20281675	-105.02484102
1800.00	5.66	64.81	1799.54	5.94N	12.64E	2.00	-4.16	40.20282613	-105.02481464
1900.00	7.66	64.81	1898.86	10.88N	23.13E	2.00	-7.61	40.20283953	-105.02477698
2000.00	9.66	64.81	1997.71	17.29N	36.76E	2.00	-12.08	40.20285692	-105.02472808
2100.00	11.66	64.81	2095.98	25.16N	53.50E	2.00	-17.59	40.20287828	-105.02466801
2200.00	13.66	64.81	2193.55	34.49N	73.33E	2.00	-24.11	40.20290359	-105.02459684
2300.00	15.66	64.81	2290.29	45.26N	96.23E	2.00	-31.64	40.20293282	-105.02451465
2307.57	15.81	64.81	2297.58	46.13N	98.09E	2.00	-32.25	40.20293519	-105.02450798
2400.00	15.81	64.81	2386.51	56.85N	120.87E	==>	-39.74	40.20296428	-105.02442619
2500.00	15.81	64.81	2482.72	68.45N	145.53E	==>	-47.84	40.20299575	-105.02433770
2600.00	15.81	64.81	2578.94	80.05N	170.19E	==>	-55.95	40.20302722	-105.02424921
2700.00	15.81	64.81	2675.16	91.64N	194.84E	==>	-64.06	40.20305869	-105.02416072
2800.00	15.81	64.81	2771.37	103.24N	219.50E	==>	-72.16	40.20309016	-105.02407223

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Vertical Section is from 0.00N 0.00E on azimuth 172.12 degrees  
Bottom hole distance is 9811.11 Feet on azimuth 172.12 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 11-Apr-2019



SYSDRILL  
Well Design Combined Report  
Wellbore: OLANDER 21 (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	15.81	64.81	2867.59	114.84N	244.15E	==>	-80.27	40.20312163	-105.02398374
3000.00	15.81	64.81	2963.80	126.44N	268.81E	==>	-88.37	40.20315310	-105.02389525
3100.00	15.81	64.81	3060.02	138.03N	293.47E	==>	-96.48	40.20318457	-105.02380676
3200.00	15.81	64.81	3156.24	149.63N	318.12E	==>	-104.59	40.20321604	-105.02371827
3300.00	15.81	64.81	3252.45	161.23N	342.78E	==>	-112.69	40.20324751	-105.02362978
3400.00	15.81	64.81	3348.67	172.82N	367.44E	==>	-120.80	40.20327898	-105.02354129
3500.00	15.81	64.81	3444.89	184.42N	392.09E	==>	-128.90	40.20331045	-105.02345280
3600.00	15.81	64.81	3541.10	196.02N	416.75E	==>	-137.01	40.20334192	-105.02336431
3700.00	15.81	64.81	3637.32	207.61N	441.40E	==>	-145.12	40.20337339	-105.02327582
3800.00	15.81	64.81	3733.54	219.21N	466.06E	==>	-153.22	40.20340486	-105.02318733
3900.00	15.81	64.81	3829.75	230.81N	490.72E	==>	-161.33	40.20343633	-105.02309884
4000.00	15.81	64.81	3925.97	242.41N	515.37E	==>	-169.43	40.20346780	-105.02301035
4100.00	15.81	64.81	4022.18	254.00N	540.03E	==>	-177.54	40.20349927	-105.02292186
4200.00	15.81	64.81	4118.40	265.60N	564.68E	==>	-185.64	40.20353074	-105.02283337
4300.00	15.81	64.81	4214.62	277.20N	589.34E	==>	-193.75	40.20356220	-105.02274488
4400.00	15.81	64.81	4310.83	288.79N	614.00E	==>	-201.86	40.20359367	-105.02265639
4500.00	15.81	64.81	4407.05	300.39N	638.65E	==>	-209.96	40.20362514	-105.02256790
4600.00	15.81	64.81	4503.27	311.99N	663.31E	==>	-218.07	40.20365661	-105.02247941
4700.00	15.81	64.81	4599.48	323.58N	687.96E	==>	-226.17	40.20368808	-105.02239092
4800.00	15.81	64.81	4695.70	335.18N	712.62E	==>	-234.28	40.20371955	-105.02230242
4900.00	15.81	64.81	4791.92	346.78N	737.28E	==>	-242.39	40.20375102	-105.02221393
5000.00	15.81	64.81	4888.13	358.38N	761.93E	==>	-250.49	40.20378249	-105.02212544
5100.00	15.81	64.81	4984.35	369.97N	786.59E	==>	-258.60	40.20381395	-105.02203695
5200.00	15.81	64.81	5080.56	381.57N	811.24E	==>	-266.70	40.20384542	-105.02194846
5300.00	15.81	64.81	5176.78	393.17N	835.90E	==>	-274.81	40.20387689	-105.02185997
5400.00	15.81	64.81	5273.00	404.76N	860.56E	==>	-282.92	40.20390836	-105.02177148
5500.00	15.81	64.81	5369.21	416.36N	885.21E	==>	-291.02	40.20393983	-105.02168298
5600.00	15.81	64.81	5465.43	427.96N	909.87E	==>	-299.13	40.20397130	-105.02159449
5700.00	15.81	64.81	5561.65	439.56N	934.52E	==>	-307.23	40.20400276	-105.02150600
5800.00	15.81	64.81	5657.86	451.15N	959.18E	==>	-315.34	40.20403423	-105.02141751
5900.00	15.81	64.81	5754.08	462.75N	983.84E	==>	-323.44	40.20406570	-105.02132902
6000.00	15.81	64.81	5850.30	474.35N	1008.49E	==>	-331.55	40.20409717	-105.02124052
6100.00	15.81	64.81	5946.51	485.94N	1033.15E	==>	-339.66	40.20412864	-105.02115203
6200.00	15.81	64.81	6042.73	497.54N	1057.80E	==>	-347.76	40.20416010	-105.02106354
6300.00	15.81	64.81	6138.94	509.14N	1082.46E	==>	-355.87	40.20419157	-105.02097505
6400.00	15.81	64.81	6235.16	520.73N	1107.12E	==>	-363.97	40.20422304	-105.02088655
6460.72	15.81	64.81	6293.59	527.78N	1122.09E	==>	-368.90	40.20424215	-105.02083282
6500.00	14.65	79.14	6331.50	530.99N	1131.81E	10.00	-370.75	40.20425083	-105.02079795
6600.00	16.15	117.06	6428.14	527.04N	1156.68E	10.00	-363.42	40.20423961	-105.02070901
6700.00	22.42	141.11	6522.63	505.82N	1181.10E	10.00	-339.05	40.20418100	-105.02062200
6800.00	30.66	153.95	6612.09	467.97N	1204.33E	10.00	-298.38	40.20407677	-105.02053957
6900.00	39.66	161.58	6693.80	414.65N	1225.66E	10.00	-242.64	40.20393009	-105.02046422
7000.00	49.00	166.73	6765.28	347.48N	1244.46E	10.00	-173.52	40.20374542	-105.02039823
7100.00	58.51	170.58	6824.35	268.49N	1260.14E	10.00	-93.13	40.20352838	-105.02034363
7200.00	68.11	173.71	6869.23	180.09N	1272.23E	10.00	-3.91	40.20328554	-105.02030205
7300.00	77.76	176.44	6898.55	84.97N	1280.36E	10.00	91.44	40.20302431	-105.02027478
7400.00	87.44	178.98	6911.41	14.00S	1284.29E	10.00	190.00	40.20275260	-105.02026263
7426.42	90.00	179.64	6912.00	40.41S	1284.61E	10.00	216.21	40.20268010	-105.02026200
7500.00	90.00	179.64	6912.00	113.98S	1285.07E	==>	289.15	40.20247813	-105.02026177
7600.00	90.00	179.64	6912.00	213.98S	1285.70E	==>	388.29	40.20220363	-105.02026145
7700.00	90.00	179.64	6912.00	313.98S	1286.33E	==>	487.43	40.20192913	-105.02026113
7800.00	90.00	179.64	6912.00	413.98S	1286.96E	==>	586.57	40.20165463	-105.02026081
7900.00	90.00	179.64	6912.00	513.98S	1287.59E	==>	685.71	40.20138013	-105.02026049
8000.00	90.00	179.64	6912.00	613.97S	1288.22E	==>	784.85	40.20110563	-105.02026017
8100.00	90.00	179.64	6912.00	713.97S	1288.85E	==>	883.99	40.20083113	-105.02025986
8200.00	90.00	179.64	6912.00	813.97S	1289.48E	==>	983.13	40.20055663	-105.02025954
8300.00	90.00	179.64	6912.00	913.97S	1290.11E	==>	1082.27	40.20028213	-105.02025922
8400.00	90.00	179.64	6912.00	1013.97S	1290.74E	==>	1181.41	40.20000763	-105.02025890

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Vertical Section is from 0.00N 0.00E on azimuth 172.12 degrees  
Bottom hole distance is 9811.11 Feet on azimuth 172.12 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
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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	1113.96S	1291.37E	==>	1280.55	40.19973313	-105.02025858
8600.00	90.00	179.64	6912.00	1213.96S	1292.00E	==>	1379.69	40.19945863	-105.02025826
8700.00	90.00	179.64	6912.00	1313.96S	1292.63E	==>	1478.83	40.19918413	-105.02025795
8800.00	90.00	179.64	6912.00	1413.96S	1293.26E	==>	1577.97	40.19890963	-105.02025763
8900.00	90.00	179.64	6912.00	1513.96S	1293.89E	==>	1677.11	40.19863513	-105.02025731
9000.00	90.00	179.64	6912.00	1613.95S	1294.52E	==>	1776.25	40.19836064	-105.02025699
9100.00	90.00	179.64	6912.00	1713.95S	1295.15E	==>	1875.38	40.19808614	-105.02025667
9200.00	90.00	179.64	6912.00	1813.95S	1295.78E	==>	1974.52	40.19781164	-105.02025635
9300.00	90.00	179.64	6912.00	1913.95S	1296.41E	==>	2073.66	40.19753714	-105.02025604
9400.00	90.00	179.64	6912.00	2013.95S	1297.04E	==>	2172.80	40.19726264	-105.02025572
9500.00	90.00	179.64	6912.00	2113.94S	1297.67E	==>	2271.94	40.19698814	-105.02025540
9600.00	90.00	179.64	6912.00	2213.94S	1298.30E	==>	2371.08	40.19671364	-105.02025508
9700.00	90.00	179.64	6912.00	2313.94S	1298.93E	==>	2470.22	40.19643914	-105.02025476
9800.00	90.00	179.64	6912.00	2413.94S	1299.56E	==>	2569.36	40.19616464	-105.02025444
9900.00	90.00	179.64	6912.00	2513.94S	1300.19E	==>	2668.50	40.19589014	-105.02025413
10000.00	90.00	179.64	6912.00	2613.93S	1300.82E	==>	2767.64	40.19561564	-105.02025381
10100.00	90.00	179.64	6912.00	2713.93S	1301.45E	==>	2866.78	40.19534114	-105.02025349
10200.00	90.00	179.64	6912.00	2813.93S	1302.08E	==>	2965.92	40.19506664	-105.02025317
10300.00	90.00	179.64	6912.00	2913.93S	1302.71E	==>	3065.06	40.19479214	-105.02025285
10400.00	90.00	179.64	6912.00	3013.93S	1303.34E	==>	3164.20	40.19451764	-105.02025253
10500.00	90.00	179.64	6912.00	3113.93S	1303.97E	==>	3263.34	40.19424314	-105.02025222
10600.00	90.00	179.64	6912.00	3213.92S	1304.60E	==>	3362.48	40.19396864	-105.02025190
10700.00	90.00	179.64	6912.00	3313.92S	1305.23E	==>	3461.62	40.19369414	-105.02025158
10800.00	90.00	179.64	6912.00	3413.92S	1305.86E	==>	3560.76	40.19341964	-105.02025126
10900.00	90.00	179.64	6912.00	3513.92S	1306.49E	==>	3659.90	40.19314515	-105.02025094
11000.00	90.00	179.64	6912.00	3613.92S	1307.12E	==>	3759.03	40.19287065	-105.02025062
11100.00	90.00	179.64	6912.00	3713.91S	1307.75E	==>	3858.17	40.19259615	-105.02025031
11200.00	90.00	179.64	6912.00	3813.91S	1308.38E	==>	3957.31	40.19232165	-105.02024999
11300.00	90.00	179.64	6912.00	3913.91S	1309.01E	==>	4056.45	40.19204715	-105.02024967
11400.00	90.00	179.64	6912.00	4013.91S	1309.64E	==>	4155.59	40.19177265	-105.02024935
11500.00	90.00	179.64	6912.00	4113.91S	1310.27E	==>	4254.73	40.19149815	-105.02024903
11600.00	90.00	179.64	6912.00	4213.90S	1310.90E	==>	4353.87	40.19122365	-105.02024871
11700.00	90.00	179.64	6912.00	4313.90S	1311.53E	==>	4453.01	40.19094915	-105.02024840
11800.00	90.00	179.64	6912.00	4413.90S	1312.16E	==>	4552.15	40.19067465	-105.02024808
11900.00	90.00	179.64	6912.00	4513.90S	1312.79E	==>	4651.29	40.19040015	-105.02024776
12000.00	90.00	179.64	6912.00	4613.90S	1313.42E	==>	4750.43	40.19012565	-105.02024744
12100.00	90.00	179.64	6912.00	4713.89S	1314.05E	==>	4849.57	40.18985115	-105.02024712
12200.00	90.00	179.64	6912.00	4813.89S	1314.68E	==>	4948.71	40.18957665	-105.02024681
12300.00	90.00	179.64	6912.00	4913.89S	1315.31E	==>	5047.85	40.18930215	-105.02024649
12400.00	90.00	179.64	6912.00	5013.89S	1315.94E	==>	5146.99	40.18902765	-105.02024617
12500.00	90.00	179.64	6912.00	5113.89S	1316.57E	==>	5246.13	40.18875315	-105.02024585
12600.00	90.00	179.64	6912.00	5213.88S	1317.20E	==>	5345.27	40.18847865	-105.02024553
12700.00	90.00	179.64	6912.00	5313.88S	1317.83E	==>	5444.41	40.18820415	-105.02024521
12800.00	90.00	179.64	6912.00	5413.88S	1318.46E	==>	5543.55	40.18792965	-105.02024490
12900.00	90.00	179.64	6912.00	5513.88S	1319.09E	==>	5642.69	40.18765515	-105.02024458
13000.00	90.00	179.64	6912.00	5613.88S	1319.72E	==>	5741.82	40.18738065	-105.02024426
13100.00	90.00	179.64	6912.00	5713.87S	1320.35E	==>	5840.96	40.18710615	-105.02024394
13200.00	90.00	179.64	6912.00	5813.87S	1320.98E	==>	5940.10	40.18683165	-105.02024362
13300.00	90.00	179.64	6912.00	5913.87S	1321.61E	==>	6039.24	40.18655715	-105.02024330
13400.00	90.00	179.64	6912.00	6013.87S	1322.24E	==>	6138.38	40.18628265	-105.02024299
13500.00	90.00	179.64	6912.00	6113.87S	1322.87E	==>	6237.52	40.18600815	-105.02024267
13600.00	90.00	179.64	6912.00	6213.86S	1323.50E	==>	6336.66	40.18573365	-105.02024235
13700.00	90.00	179.64	6912.00	6313.86S	1324.13E	==>	6435.80	40.18545915	-105.02024203
13800.00	90.00	179.64	6912.00	6413.86S	1324.76E	==>	6534.94	40.18518465	-105.02024171
13900.00	90.00	179.64	6912.00	6513.86S	1325.39E	==>	6634.08	40.18491015	-105.02024140
14000.00	90.00	179.64	6912.00	6613.86S	1326.02E	==>	6733.22	40.18463565	-105.02024108
14100.00	90.00	179.64	6912.00	6713.85S	1326.65E	==>	6832.36	40.18436115	-105.02024076
14200.00	90.00	179.64	6912.00	6813.85S	1327.28E	==>	6931.50	40.18408665	-105.02024044
14300.00	90.00	179.64	6912.00	6913.85S	1327.91E	==>	7030.64	40.18381215	-105.02024012

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Date Printed: 11-Apr-2019



SYSDRILL  
Well Design Combined Report  
Wellbore: OLANDER 21 (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	7013.85S	1328.54E	==>	7129.78	40.18353765	-105.02023980
14500.00	90.00	179.64	6912.00	7113.85S	1329.17E	==>	7228.92	40.18326315	-105.02023949
14600.00	90.00	179.64	6912.00	7213.84S	1329.80E	==>	7328.06	40.18298865	-105.02023917
14700.00	90.00	179.64	6912.00	7313.84S	1330.43E	==>	7427.20	40.18271415	-105.02023885
14800.00	90.00	179.64	6912.00	7413.84S	1331.06E	==>	7526.34	40.18243965	-105.02023853
14900.00	90.00	179.64	6912.00	7513.84S	1331.69E	==>	7625.47	40.18216515	-105.02023821
15000.00	90.00	179.64	6912.00	7613.84S	1332.32E	==>	7724.61	40.18189065	-105.02023790
15100.00	90.00	179.64	6912.00	7713.83S	1332.95E	==>	7823.75	40.18161615	-105.02023758
15200.00	90.00	179.64	6912.00	7813.83S	1333.58E	==>	7922.89	40.18134165	-105.02023726
15300.00	90.00	179.64	6912.00	7913.83S	1334.21E	==>	8022.03	40.18106715	-105.02023694
15400.00	90.00	179.64	6912.00	8013.83S	1334.84E	==>	8121.17	40.18079265	-105.02023662
15500.00	90.00	179.64	6912.00	8113.83S	1335.47E	==>	8220.31	40.18051815	-105.02023630
15600.00	90.00	179.64	6912.00	8213.82S	1336.10E	==>	8319.45	40.18024365	-105.02023599
15700.00	90.00	179.64	6912.00	8313.82S	1336.73E	==>	8418.59	40.17996915	-105.02023567
15800.00	90.00	179.64	6912.00	8413.82S	1337.36E	==>	8517.73	40.17969465	-105.02023535
15900.00	90.00	179.64	6912.00	8513.82S	1337.99E	==>	8616.87	40.17942015	-105.02023503
16000.00	90.00	179.64	6912.00	8613.82S	1338.62E	==>	8716.01	40.17914565	-105.02023471
16100.00	90.00	179.64	6912.00	8713.81S	1339.25E	==>	8815.15	40.17887115	-105.02023440
16200.00	90.00	179.64	6912.00	8813.81S	1339.88E	==>	8914.29	40.17859665	-105.02023408
16300.00	90.00	179.64	6912.00	8913.81S	1340.51E	==>	9013.43	40.17832215	-105.02023376
16400.00	90.00	179.64	6912.00	9013.81S	1341.14E	==>	9112.57	40.17804765	-105.02023344
16500.00	90.00	179.64	6912.00	9113.81S	1341.77E	==>	9211.71	40.17777315	-105.02023312
16600.00	90.00	179.64	6912.00	9213.80S	1342.40E	==>	9310.85	40.17749865	-105.02023281
16700.00	90.00	179.64	6912.00	9313.80S	1343.03E	==>	9409.99	40.17722415	-105.02023249
16800.00	90.00	179.64	6912.00	9413.80S	1343.66E	==>	9509.12	40.17694965	-105.02023217
16900.00	90.00	179.64	6912.00	9513.80S	1344.29E	==>	9608.26	40.17667515	-105.02023185
17000.00	90.00	179.64	6912.00	9613.80S	1344.92E	==>	9707.40	40.17640065	-105.02023153
17100.00	90.00	179.64	6912.00	9713.79S	1345.55E	==>	9806.54	40.17612615	-105.02023121
17104.61	90.00	179.64	6912.00	9718.40S	1345.58E	==>	9811.11	40.17611350	-105.02023120

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**Targets**

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
OLANDER 21 - LP	40.41S	1284.61E	6912.00	40.20268010	-105.02026200	1317041.25	3134000.23
OLANDER 21 - BHL	9718.40S	1345.58E	6912.00	40.17611350	-105.02023120	1307363.69	3134061.20

**Survey Tool Program**

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
791341	Planned	1500.00	1500.00	WdW Rate Gyro	Standard
791340	Planned	17104.61	6912.00	ISCWSA MWD	Rev 4 + SAG + FLT

**Notes**

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