

Cub Creek Energy, LLC

Location	Weld County, CO	Slot	OLANDER 6
Field	WATTENBERG	Well	W OLANDER 6
Installation	Olander Pad	Wellbore	W OLANDER 6 (PWB)

East (Feet) ->

-3200 -2400 -1600 -800 -0 800
Scale 1 cm = 400 ft

N
GRID

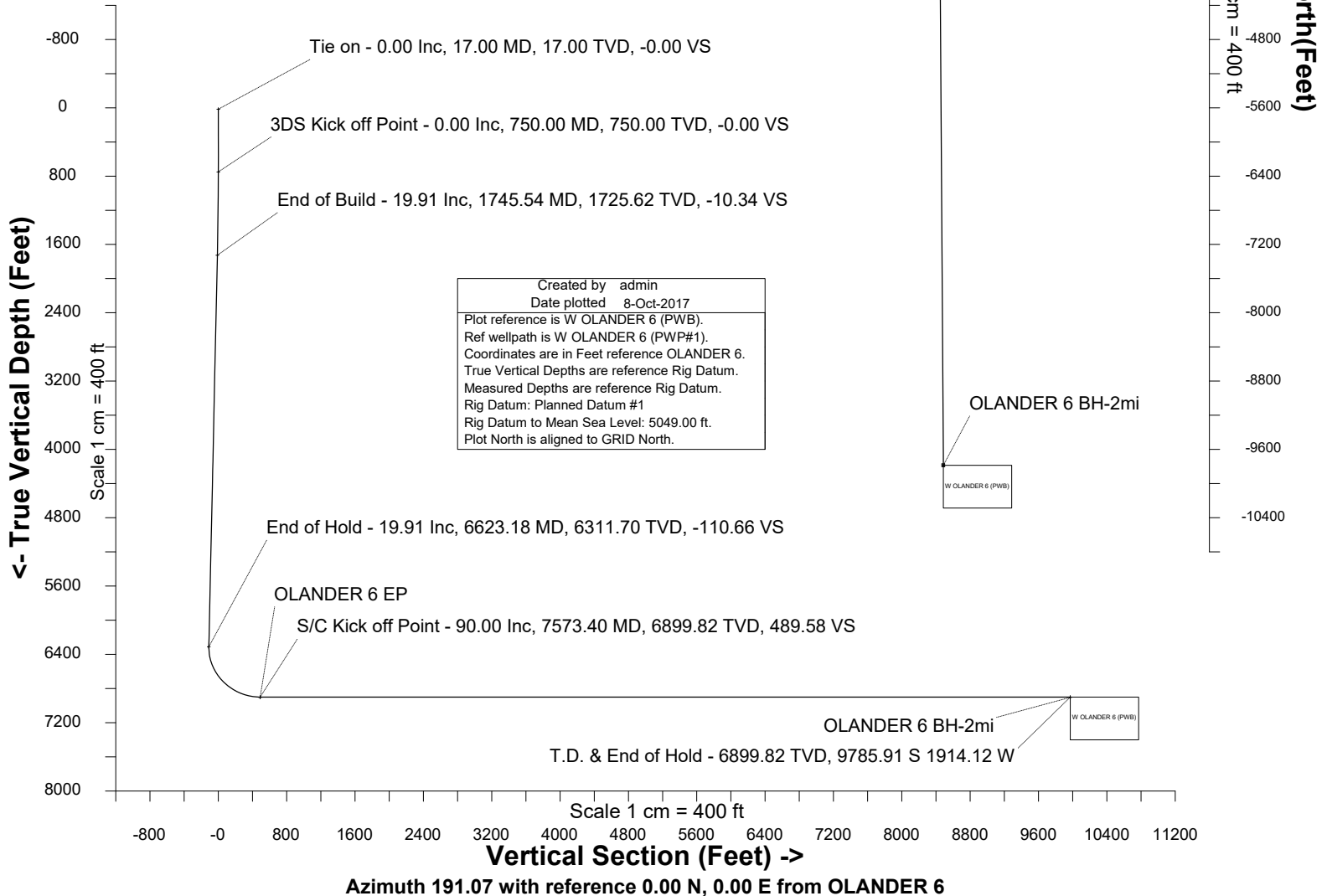
WELL PROFILE DATA

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	750.00	0.00	284.53	750.00	S 0.00	W 0.00	0.00	-0.00
End of Build	1745.54	19.91	284.53	1725.62	N 42.96	W 165.77	2.00	-10.34
End of Hold	6623.18	19.91	284.53	6311.70	N 459.70	W 1773.75	0.00	-110.66
Target OLANDER 6 EP	7573.40	90.00	179.63	6899.82	S 112.36	W 1975.96	10.00	489.58
T.D. & Target OLA...2mi	17247.15	90.00	179.63	6899.82	S 9785.91	W 1914.12	0.00	9971.35

Surface 0.00 N 0.00 E

OLANDER 6 EP

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





SYSDRILL
Well Design Combined Report
Wellbore: W OLANDER 6 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
OLANDER 6	40.20288000	-105.02519000	1317106.6623	3132623.3693	0.39N	72.63E	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	1317106.66	3132623.37
750.00	0.00	284.530	750.00	0.00N	0.00E	==>	0.00	1317106.66	3132623.37
1745.54	19.91	284.530	1725.62	42.96N	165.77W	2.00	-10.34	1317149.62	3132457.61
6623.18	19.91	284.530	6311.70	459.70N	1773.75W	==>	-110.66	1317566.34	3130849.70
7573.40	90.00	179.630	6899.82	112.36S	1975.96W	10.00	489.58	1316994.31	3130647.49
17247.15	90.00	179.630	6899.82	9785.91S	1914.12W	==>	9971.35	1307321.19	3130709.33

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	1.00	284.530	800.00	0.11N	0.42W	2.00	-0.03	
900.00	3.00	284.530	899.93	0.98N	3.80W	2.00	-0.24	
1000.00	5.00	284.530	999.68	2.73N	10.55W	2.00	-0.66	
1100.00	7.00	284.530	1099.13	5.36N	20.67W	2.00	-1.29	
1200.00	9.00	284.530	1198.15	8.85N	34.14W	2.00	-2.13	
1300.00	11.00	284.530	1296.63	13.20N	50.95W	2.00	-3.18	
1400.00	13.00	284.530	1394.44	18.42N	71.08W	2.00	-4.43	
1500.00	15.00	284.530	1491.46	24.49N	94.49W	2.00	-5.90	
1517.00	15.34	284.530	1507.87	25.61N	98.80W	2.00	-6.16	
1617.00	17.34	284.530	1603.83	32.66N	126.03W	2.00	-7.86	
1717.00	19.34	284.530	1698.74	40.56N	156.49W	2.00	-9.76	
1817.00	19.91	284.530	1792.81	49.07N	189.33W	==>	-11.81	
1917.00	19.91	284.530	1886.83	57.61N	222.29W	==>	-13.87	
2017.00	19.91	284.530	1980.86	66.16N	255.26W	==>	-15.92	
2117.00	19.91	284.530	2074.88	74.70N	288.23W	==>	-17.98	
2217.00	19.91	284.530	2168.90	83.24N	321.19W	==>	-20.04	
2317.00	19.91	284.530	2262.92	91.79N	354.16W	==>	-22.09	
2417.00	19.91	284.530	2356.95	100.33N	387.13W	==>	-24.15	
2517.00	19.91	284.530	2450.97	108.87N	420.09W	==>	-26.21	
2617.00	19.91	284.530	2544.99	117.42N	453.06W	==>	-28.26	
2717.00	19.91	284.530	2639.01	125.96N	486.02W	==>	-30.32	
2817.00	19.91	284.530	2733.04	134.51N	518.99W	==>	-32.38	
2917.00	19.91	284.530	2827.06	143.05N	551.96W	==>	-34.43	
3017.00	19.91	284.530	2921.08	151.59N	584.92W	==>	-36.49	

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 191.070 degrees
Bottom hole distance is 9971.35 Feet on azimuth 191.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 8-Oct-2017



SYSDRILL
Well Design Combined Report
Wellbore: W OLANDER 6 (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	19.91	284.530	3015.10	160.14N	617.89W	==>	-38.55	
3217.00	19.91	284.530	3109.13	168.68N	650.86W	==>	-40.60	
3317.00	19.91	284.530	3203.15	177.23N	683.82W	==>	-42.66	
3417.00	19.91	284.530	3297.17	185.77N	716.79W	==>	-44.72	
3517.00	19.91	284.530	3391.19	194.31N	749.76W	==>	-46.77	
3617.00	19.91	284.530	3485.22	202.86N	782.72W	==>	-48.83	
3717.00	19.91	284.530	3579.24	211.40N	815.69W	==>	-50.89	
3817.00	19.91	284.530	3673.26	219.94N	848.66W	==>	-52.94	
3917.00	19.91	284.530	3767.28	228.49N	881.62W	==>	-55.00	
4017.00	19.91	284.530	3861.31	237.03N	914.59W	==>	-57.06	
4117.00	19.91	284.530	3955.33	245.58N	947.55W	==>	-59.11	
4217.00	19.91	284.530	4049.35	254.12N	980.52W	==>	-61.17	
4317.00	19.91	284.530	4143.37	262.66N	1013.49W	==>	-63.23	
4417.00	19.91	284.530	4237.39	271.21N	1046.45W	==>	-65.28	
4517.00	19.91	284.530	4331.42	279.75N	1079.42W	==>	-67.34	
4617.00	19.91	284.530	4425.44	288.30N	1112.39W	==>	-69.40	
4717.00	19.91	284.530	4519.46	296.84N	1145.35W	==>	-71.45	
4817.00	19.91	284.530	4613.48	305.38N	1178.32W	==>	-73.51	
4917.00	19.91	284.530	4707.51	313.93N	1211.29W	==>	-75.57	
5017.00	19.91	284.530	4801.53	322.47N	1244.25W	==>	-77.62	
5117.00	19.91	284.530	4895.55	331.02N	1277.22W	==>	-79.68	
5217.00	19.91	284.530	4989.57	339.56N	1310.19W	==>	-81.74	
5317.00	19.91	284.530	5083.60	348.10N	1343.15W	==>	-83.79	
5417.00	19.91	284.530	5177.62	356.65N	1376.12W	==>	-85.85	
5517.00	19.91	284.530	5271.64	365.19N	1409.09W	==>	-87.91	
5617.00	19.91	284.530	5365.66	373.73N	1442.05W	==>	-89.96	
5717.00	19.91	284.530	5459.69	382.28N	1475.02W	==>	-92.02	
5817.00	19.91	284.530	5553.71	390.82N	1507.98W	==>	-94.08	
5917.00	19.91	284.530	5647.73	399.37N	1540.95W	==>	-96.13	
6017.00	19.91	284.530	5741.75	407.91N	1573.92W	==>	-98.19	
6117.00	19.91	284.530	5835.78	416.45N	1606.88W	==>	-100.25	
6217.00	19.91	284.530	5929.80	425.00N	1639.85W	==>	-102.30	
6317.00	19.91	284.530	6023.82	433.54N	1672.82W	==>	-104.36	
6417.00	19.91	284.530	6117.84	442.09N	1705.78W	==>	-106.42	
6517.00	19.91	284.530	6211.87	450.63N	1738.75W	==>	-108.47	
6617.00	19.91	284.530	6305.89	459.17N	1771.72W	==>	-110.53	
6717.00	19.76	256.640	6400.15	460.04N	1804.72W	10.00	-105.05	
6817.00	23.89	231.860	6493.16	443.59N	1837.17W	10.00	-82.68	
6917.00	30.70	215.750	6582.09	410.29N	1868.09W	10.00	-44.05	
7017.00	38.82	205.430	6664.25	361.14N	1896.53W	10.00	9.64	
7117.00	47.56	198.300	6737.14	297.64N	1921.64W	10.00	76.78	
7217.00	56.63	192.960	6798.53	221.72N	1942.64W	10.00	155.32	
7317.00	65.89	188.640	6846.57	135.68N	1958.91W	10.00	242.88	
7417.00	75.26	184.920	6879.80	42.15N	1969.94W	10.00	336.79	
7517.00	84.68	181.500	6897.21	56.05S	1975.41W	10.00	434.21	
7617.00	90.00	179.630	6899.82	155.96S	1975.69W	==>	532.32	
7717.00	90.00	179.630	6899.82	255.96S	1975.05W	==>	630.33	
7817.00	90.00	179.630	6899.82	355.96S	1974.41W	==>	728.35	
7917.00	90.00	179.630	6899.82	455.95S	1973.77W	==>	826.36	
8017.00	90.00	179.630	6899.82	555.95S	1973.13W	==>	924.38	
8117.00	90.00	179.630	6899.82	655.95S	1972.49W	==>	1022.39	
8217.00	90.00	179.630	6899.82	755.95S	1971.85W	==>	1120.41	
8317.00	90.00	179.630	6899.82	855.95S	1971.21W	==>	1218.42	
8417.00	90.00	179.630	6899.82	955.94S	1970.57W	==>	1316.44	
8517.00	90.00	179.630	6899.82	1055.94S	1969.93W	==>	1414.46	
8617.00	90.00	179.630	6899.82	1155.94S	1969.29W	==>	1512.47	
8717.00	90.00	179.630	6899.82	1255.94S	1968.65W	==>	1610.49	
8817.00	90.00	179.630	6899.82	1355.93S	1968.02W	==>	1708.50	
8917.00	90.00	179.630	6899.82	1455.93S	1967.38W	==>	1806.52	

All data is in Feet unless otherwise stated
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 191.070 degrees
Bottom hole distance is 9971.35 Feet on azimuth 191.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 8-Oct-2017



SYSDRILL
Well Design Combined Report
Wellbore: W OLANDER 6 (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	179.630	6899.82	1555.93S	1966.74W	==>	1904.53	
9117.00	90.00	179.630	6899.82	1655.93S	1966.10W	==>	2002.55	
9217.00	90.00	179.630	6899.82	1755.93S	1965.46W	==>	2100.56	
9317.00	90.00	179.630	6899.82	1855.92S	1964.82W	==>	2198.58	
9417.00	90.00	179.630	6899.82	1955.92S	1964.18W	==>	2296.60	
9517.00	90.00	179.630	6899.82	2055.92S	1963.54W	==>	2394.61	
9617.00	90.00	179.630	6899.82	2155.92S	1962.90W	==>	2492.63	
9717.00	90.00	179.630	6899.82	2255.92S	1962.26W	==>	2590.64	
9817.00	90.00	179.630	6899.82	2355.91S	1961.62W	==>	2688.66	
9917.00	90.00	179.630	6899.82	2455.91S	1960.98W	==>	2786.67	
10017.00	90.00	179.630	6899.82	2555.91S	1960.34W	==>	2884.69	
10117.00	90.00	179.630	6899.82	2655.91S	1959.70W	==>	2982.70	
10217.00	90.00	179.630	6899.82	2755.91S	1959.07W	==>	3080.72	
10317.00	90.00	179.630	6899.82	2855.90S	1958.43W	==>	3178.74	
10417.00	90.00	179.630	6899.82	2955.90S	1957.79W	==>	3276.75	
10517.00	90.00	179.630	6899.82	3055.90S	1957.15W	==>	3374.77	
10617.00	90.00	179.630	6899.82	3155.90S	1956.51W	==>	3472.78	
10717.00	90.00	179.630	6899.82	3255.90S	1955.87W	==>	3570.80	
10817.00	90.00	179.630	6899.82	3355.89S	1955.23W	==>	3668.81	
10917.00	90.00	179.630	6899.82	3455.89S	1954.59W	==>	3766.83	
11017.00	90.00	179.630	6899.82	3555.89S	1953.95W	==>	3864.84	
11117.00	90.00	179.630	6899.82	3655.89S	1953.31W	==>	3962.86	
11217.00	90.00	179.630	6899.82	3755.89S	1952.67W	==>	4060.87	
11317.00	90.00	179.630	6899.82	3855.88S	1952.03W	==>	4158.89	
11417.00	90.00	179.630	6899.82	3955.88S	1951.39W	==>	4256.91	
11517.00	90.00	179.630	6899.82	4055.88S	1950.76W	==>	4354.92	
11617.00	90.00	179.630	6899.82	4155.88S	1950.12W	==>	4452.94	
11717.00	90.00	179.630	6899.82	4255.88S	1949.48W	==>	4550.95	
11817.00	90.00	179.630	6899.82	4355.87S	1948.84W	==>	4648.97	
11917.00	90.00	179.630	6899.82	4455.87S	1948.20W	==>	4746.98	
12017.00	90.00	179.630	6899.82	4555.87S	1947.56W	==>	4845.00	
12117.00	90.00	179.630	6899.82	4655.87S	1946.92W	==>	4943.01	
12217.00	90.00	179.630	6899.82	4755.87S	1946.28W	==>	5041.03	
12317.00	90.00	179.630	6899.82	4855.86S	1945.64W	==>	5139.05	
12417.00	90.00	179.630	6899.82	4955.86S	1945.00W	==>	5237.06	
12517.00	90.00	179.630	6899.82	5055.86S	1944.36W	==>	5335.08	
12617.00	90.00	179.630	6899.82	5155.86S	1943.72W	==>	5433.09	
12717.00	90.00	179.630	6899.82	5255.86S	1943.08W	==>	5531.11	
12817.00	90.00	179.630	6899.82	5355.85S	1942.44W	==>	5629.12	
12917.00	90.00	179.630	6899.82	5455.85S	1941.81W	==>	5727.14	
13017.00	90.00	179.630	6899.82	5555.85S	1941.17W	==>	5825.15	
13117.00	90.00	179.630	6899.82	5655.85S	1940.53W	==>	5923.17	
13217.00	90.00	179.630	6899.82	5755.84S	1939.89W	==>	6021.18	
13317.00	90.00	179.630	6899.82	5855.84S	1939.25W	==>	6119.20	
13417.00	90.00	179.630	6899.82	5955.84S	1938.61W	==>	6217.22	
13517.00	90.00	179.630	6899.82	6055.84S	1937.97W	==>	6315.23	
13617.00	90.00	179.630	6899.82	6155.84S	1937.33W	==>	6413.25	
13717.00	90.00	179.630	6899.82	6255.83S	1936.69W	==>	6511.26	
13817.00	90.00	179.630	6899.82	6355.83S	1936.05W	==>	6609.28	
13917.00	90.00	179.630	6899.82	6455.83S	1935.41W	==>	6707.29	
14017.00	90.00	179.630	6899.82	6555.83S	1934.77W	==>	6805.31	
14117.00	90.00	179.630	6899.82	6655.83S	1934.13W	==>	6903.32	
14217.00	90.00	179.630	6899.82	6755.82S	1933.50W	==>	7001.34	
14317.00	90.00	179.630	6899.82	6855.82S	1932.86W	==>	7099.36	
14417.00	90.00	179.630	6899.82	6955.82S	1932.22W	==>	7197.37	
14517.00	90.00	179.630	6899.82	7055.82S	1931.58W	==>	7295.39	
14617.00	90.00	179.630	6899.82	7155.82S	1930.94W	==>	7393.40	
14717.00	90.00	179.630	6899.82	7255.81S	1930.30W	==>	7491.42	
14817.00	90.00	179.630	6899.82	7355.81S	1929.66W	==>	7589.43	

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 191.070 degrees
Bottom hole distance is 9971.35 Feet on azimuth 191.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 8-Oct-2017



SYS DRILL
Well Design Combined Report
Wellbore: W OLANDER 6 (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	179.630	6899.82	7455.81S	1929.02W	==>	7687.45	
15017.00	90.00	179.630	6899.82	7555.81S	1928.38W	==>	7785.46	
15117.00	90.00	179.630	6899.82	7655.81S	1927.74W	==>	7883.48	
15217.00	90.00	179.630	6899.82	7755.80S	1927.10W	==>	7981.50	
15317.00	90.00	179.630	6899.82	7855.80S	1926.46W	==>	8079.51	
15417.00	90.00	179.630	6899.82	7955.80S	1925.82W	==>	8177.53	
15517.00	90.00	179.630	6899.82	8055.80S	1925.18W	==>	8275.54	
15617.00	90.00	179.630	6899.82	8155.80S	1924.55W	==>	8373.56	
15717.00	90.00	179.630	6899.82	8255.79S	1923.91W	==>	8471.57	
15817.00	90.00	179.630	6899.82	8355.79S	1923.27W	==>	8569.59	
15917.00	90.00	179.630	6899.82	8455.79S	1922.63W	==>	8667.60	
16017.00	90.00	179.630	6899.82	8555.79S	1921.99W	==>	8765.62	
16117.00	90.00	179.630	6899.82	8655.79S	1921.35W	==>	8863.63	
16217.00	90.00	179.630	6899.82	8755.78S	1920.71W	==>	8961.65	
16317.00	90.00	179.630	6899.82	8855.78S	1920.07W	==>	9059.67	
16417.00	90.00	179.630	6899.82	8955.78S	1919.43W	==>	9157.68	
16517.00	90.00	179.630	6899.82	9055.78S	1918.79W	==>	9255.70	
16617.00	90.00	179.630	6899.82	9155.78S	1918.15W	==>	9353.71	
16717.00	90.00	179.630	6899.82	9255.77S	1917.51W	==>	9451.73	
16817.00	90.00	179.630	6899.82	9355.77S	1916.87W	==>	9549.74	
16917.00	90.00	179.630	6899.82	9455.77S	1916.24W	==>	9647.76	
17017.00	90.00	179.630	6899.82	9555.77S	1915.60W	==>	9745.77	
17117.00	90.00	179.630	6899.82	9655.77S	1914.96W	==>	9843.79	
17217.00	90.00	179.630	6899.82	9755.76S	1914.32W	==>	9941.81	
17247.15	90.00	179.630	6899.82	9785.91S	1914.12W	==>	9971.35	

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 191.070 degrees
Bottom hole distance is 9971.35 Feet on azimuth 191.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 8-Oct-2017



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
OLANDER 6 EP	112.36S	1975.96W	6899.82	40.20260040	-105.03226590	1316994.31	3130647.49
OLANDER 6 BH-2mi	9785.91S	1914.12W	6899.82	40.17604600	-105.03222720	1307321.19	3130709.33

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
562224	Planned	1517.00	1507.87	WdW Rate Gyro	Standard	
562223	Planned	17247.15	6899.82	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes