

Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07F-1837C

Hz

Plan: Design #1

Standard Planning Report

29 January, 2015





Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-1837C
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-1837C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Project	Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec 7-T10N-R57W			
Site Position:		Northing:	1,558,450.14 usft	Latitude:	40° 51' 14.300 N
From:	Lat/Long	Easting:	3,469,810.15 usft	Longitude:	103° 48' 5.960 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.10 °

Well	Horsetail #07F-1837C					
Well Position	+N/-S	-82.92 usft	Northing:	1,558,395.20 usft	Latitude:	40° 51' 13.480 N
	+E/-W	1,459.99 usft	Easting:	3,471,271.46 usft	Longitude:	103° 47' 46.961 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,925.70 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/5/2015	7.88	67.44	53,087

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	185.14

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	12.00	290.00	895.62	21.41	-58.83	2.00	2.00	0.00	290.00	
3,995.00	12.00	290.00	3,922.99	241.50	-663.51	0.00	0.00	0.00	0.00	
4,595.00	0.00	0.00	4,518.61	262.91	-722.33	2.00	-2.00	0.00	180.00	
5,510.52	0.00	0.00	5,434.13	262.91	-722.33	0.00	0.00	0.00	0.00	
6,328.70	90.00	179.96	5,955.00	-257.96	-721.93	11.00	11.00	0.00	179.96	PBHL 1837C
14,036.70	90.00	179.96	5,955.00	-7,965.96	-716.00	0.00	0.00	0.00	0.00	PBHL 1837C



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Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-1837C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 2°/100'									
400.00	2.00	290.00	399.98	0.60	-1.64	-0.45	2.00	2.00	0.00
500.00	4.00	290.00	499.84	2.39	-6.56	-1.79	2.00	2.00	0.00
600.00	6.00	290.00	599.45	5.37	-14.75	-4.03	2.00	2.00	0.00
700.00	8.00	290.00	698.70	9.54	-26.20	-7.15	2.00	2.00	0.00
800.00	10.00	290.00	797.47	14.89	-40.90	-11.16	2.00	2.00	0.00
900.00	12.00	290.00	895.62	21.41	-58.83	-16.06	2.00	2.00	0.00
Hold 12° Inc									
1,000.00	12.00	290.00	993.44	28.52	-78.36	-21.39	0.00	0.00	0.00
1,100.00	12.00	290.00	1,091.25	35.63	-97.90	-26.73	0.00	0.00	0.00
1,200.00	12.00	290.00	1,189.07	42.74	-117.44	-32.06	0.00	0.00	0.00
1,300.00	12.00	290.00	1,286.88	49.86	-136.98	-37.39	0.00	0.00	0.00
1,400.00	12.00	290.00	1,384.70	56.97	-156.51	-42.73	0.00	0.00	0.00
1,500.00	12.00	290.00	1,482.51	64.08	-176.05	-48.06	0.00	0.00	0.00
1,569.00	12.00	290.00	1,550.00	68.98	-189.53	-51.74	0.00	0.00	0.00
Upper Pierre									
1,600.00	12.00	290.00	1,580.33	71.19	-195.59	-53.39	0.00	0.00	0.00
1,700.00	12.00	290.00	1,678.14	78.30	-215.13	-58.73	0.00	0.00	0.00
1,800.00	12.00	290.00	1,775.96	85.41	-234.66	-64.06	0.00	0.00	0.00
1,900.00	12.00	290.00	1,873.77	92.52	-254.20	-69.39	0.00	0.00	0.00
2,000.00	12.00	290.00	1,971.59	99.63	-273.74	-74.73	0.00	0.00	0.00
2,100.00	12.00	290.00	2,069.40	106.74	-293.27	-80.06	0.00	0.00	0.00
2,200.00	12.00	290.00	2,167.22	113.85	-312.81	-85.39	0.00	0.00	0.00
2,300.00	12.00	290.00	2,265.03	120.97	-332.35	-90.73	0.00	0.00	0.00
2,400.00	12.00	290.00	2,362.84	128.08	-351.89	-96.06	0.00	0.00	0.00
2,500.00	12.00	290.00	2,460.66	135.19	-371.42	-101.39	0.00	0.00	0.00
2,600.00	12.00	290.00	2,558.47	142.30	-390.96	-106.73	0.00	0.00	0.00
2,700.00	12.00	290.00	2,656.29	149.41	-410.50	-112.06	0.00	0.00	0.00
2,800.00	12.00	290.00	2,754.10	156.52	-430.04	-117.39	0.00	0.00	0.00
2,900.00	12.00	290.00	2,851.92	163.63	-449.57	-122.73	0.00	0.00	0.00
3,000.00	12.00	290.00	2,949.73	170.74	-469.11	-128.06	0.00	0.00	0.00
3,100.00	12.00	290.00	3,047.55	177.85	-488.65	-133.39	0.00	0.00	0.00
3,200.00	12.00	290.00	3,145.36	184.96	-508.19	-138.73	0.00	0.00	0.00
3,300.00	12.00	290.00	3,243.18	192.08	-527.72	-144.06	0.00	0.00	0.00
3,400.00	12.00	290.00	3,340.99	199.19	-547.26	-149.40	0.00	0.00	0.00
3,500.00	12.00	290.00	3,438.81	206.30	-566.80	-154.73	0.00	0.00	0.00
3,562.56	12.00	290.00	3,500.00	210.75	-579.02	-158.07	0.00	0.00	0.00
Hygiene									
3,600.00	12.00	290.00	3,536.62	213.41	-586.33	-160.06	0.00	0.00	0.00
3,700.00	12.00	290.00	3,634.44	220.52	-605.87	-165.40	0.00	0.00	0.00
3,715.91	12.00	290.00	3,650.00	221.65	-608.98	-166.24	0.00	0.00	0.00
Lower Pierre									
3,800.00	12.00	290.00	3,732.25	227.63	-625.41	-170.73	0.00	0.00	0.00
3,900.00	12.00	290.00	3,830.07	234.74	-644.95	-176.06	0.00	0.00	0.00
3,995.00	12.00	290.00	3,922.99	241.50	-663.51	-181.13	0.00	0.00	0.00
Drop 2°/100'									
4,000.00	11.90	290.00	3,927.88	241.85	-664.48	-181.39	2.00	-2.00	0.00
4,100.00	9.90	290.00	4,026.07	248.32	-682.25	-186.25	2.00	-2.00	0.00
4,200.00	7.90	290.00	4,124.86	253.61	-696.79	-190.21	2.00	-2.00	0.00

WOG
Planning Report



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Well:	Horsetail #07F-1837C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,300.00	5.90	290.00	4,224.13	257.72	-708.07	-193.30	2.00	-2.00	0.00	
4,400.00	3.90	290.00	4,323.76	260.64	-716.10	-195.49	2.00	-2.00	0.00	
4,500.00	1.90	290.00	4,423.63	262.37	-720.85	-196.78	2.00	-2.00	0.00	
4,595.00	0.00	0.00	4,518.61	262.91	-722.33	-197.19	2.00	-2.00	0.00	
Hold Vertical										
4,600.00	0.00	0.00	4,523.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,623.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,723.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,823.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,923.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,023.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,123.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,223.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,323.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,423.61	262.91	-722.33	-197.19	0.00	0.00	0.00	
5,510.52	0.00	0.00	5,434.13	262.91	-722.33	-197.19	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,550.00	4.34	179.96	5,473.58	261.41	-722.33	-195.70	11.00	11.00	0.00	
5,591.72	8.93	179.96	5,515.00	256.59	-722.33	-190.90	11.00	11.00	0.00	
P200 Marker										
5,600.00	9.84	179.96	5,523.17	255.24	-722.33	-189.55	11.00	11.00	0.00	
5,606.94	10.61	179.96	5,530.00	254.01	-722.33	-188.33	11.00	11.00	0.00	
P300 Marker										
5,627.36	12.85	179.96	5,550.00	249.86	-722.32	-184.19	11.00	11.00	0.00	
P350 Marker										
5,650.00	15.34	179.96	5,571.95	244.34	-722.32	-178.70	11.00	11.00	0.00	
5,700.00	20.84	179.96	5,619.46	228.82	-722.31	-163.24	11.00	11.00	0.00	
5,750.00	26.34	179.96	5,665.26	208.82	-722.29	-143.32	11.00	11.00	0.00	
5,791.87	30.95	179.96	5,702.00	188.75	-722.28	-123.33	11.00	11.00	0.00	
Sharon Springs										
5,797.72	31.59	179.96	5,707.00	185.71	-722.27	-120.31	11.00	11.00	0.00	
Niobrara										
5,800.00	31.84	179.96	5,708.94	184.52	-722.27	-119.12	11.00	11.00	0.00	
5,821.54	34.21	179.96	5,727.00	172.78	-722.26	-107.42	11.00	11.00	0.00	
Top A Chalk										
5,850.00	37.34	179.96	5,750.08	156.14	-722.25	-90.86	11.00	11.00	0.00	
5,867.74	39.29	179.96	5,764.00	145.14	-722.24	-79.90	11.00	11.00	0.00	
Top A Marl										
5,892.79	42.05	179.96	5,783.00	128.82	-722.23	-63.64	11.00	11.00	0.00	
A Marl										
5,900.00	42.84	179.96	5,788.32	123.95	-722.23	-58.80	11.00	11.00	0.00	
5,905.04	43.40	179.96	5,792.00	120.50	-722.22	-55.37	11.00	11.00	0.00	
Top Upper B										
5,945.07	47.80	179.96	5,820.00	91.91	-722.20	-26.89	11.00	11.00	0.00	
Base Upper B										
5,950.00	48.34	179.96	5,823.29	88.25	-722.20	-23.24	11.00	11.00	0.00	
5,971.11	50.66	179.96	5,837.00	72.20	-722.19	-7.25	11.00	11.00	0.00	
Top Lower B										
6,000.00	53.84	179.96	5,854.68	49.35	-722.17	15.50	11.00	11.00	0.00	
6,003.95	54.28	179.96	5,857.00	46.16	-722.17	18.68	11.00	11.00	0.00	
Base Lower B										
6,016.13	55.62	179.96	5,864.00	36.18	-722.16	28.61	11.00	11.00	0.00	

WOG
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Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-1837C	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Top B Marl									
6,050.00	59.34	179.96	5,882.20	7.63	-722.14	57.05	11.00	11.00	0.00
6,100.00	64.84	179.96	5,905.60	-36.54	-722.10	101.04	11.00	11.00	0.00
6,120.65	67.11	179.96	5,914.00	-55.40	-722.09	119.82	11.00	11.00	0.00
Top C Chalk									
6,142.29	69.49	179.96	5,922.00	-75.50	-722.07	139.84	11.00	11.00	0.00
Middle C Chalk									
6,150.00	70.34	179.96	5,924.65	-82.75	-722.07	147.05	11.00	11.00	0.00
6,187.57	74.48	179.96	5,936.00	-118.55	-722.04	182.71	11.00	11.00	0.00
Middle C Marl									
6,200.00	75.84	179.96	5,939.18	-130.57	-722.03	194.68	11.00	11.00	0.00
6,250.00	81.34	179.96	5,949.07	-179.56	-721.99	243.47	11.00	11.00	0.00
6,300.00	86.84	179.96	5,954.21	-229.28	-721.95	292.99	11.00	11.00	0.00
6,327.00	89.81	179.96	5,955.00	-256.27	-721.93	319.86	11.00	11.00	0.00
Lower C Chalk									
6,328.70	90.00	179.96	5,955.00	-257.96	-721.93	321.55	11.00	11.00	0.00
LP @ 90° Inc, Hold - 7"									
6,400.00	90.00	179.96	5,955.00	-329.26	-721.88	392.56	0.00	0.00	0.00
6,500.00	90.00	179.96	5,955.00	-429.26	-721.80	492.15	0.00	0.00	0.00
6,600.00	90.00	179.96	5,955.00	-529.26	-721.72	591.75	0.00	0.00	0.00
6,700.00	90.00	179.96	5,955.00	-629.26	-721.65	691.34	0.00	0.00	0.00
6,800.00	90.00	179.96	5,955.00	-729.26	-721.57	790.93	0.00	0.00	0.00
6,900.00	90.00	179.96	5,955.00	-829.26	-721.49	890.52	0.00	0.00	0.00
7,000.00	90.00	179.96	5,955.00	-929.26	-721.42	990.11	0.00	0.00	0.00
7,100.00	90.00	179.96	5,955.00	-1,029.26	-721.34	1,089.70	0.00	0.00	0.00
7,200.00	90.00	179.96	5,955.00	-1,129.26	-721.26	1,189.30	0.00	0.00	0.00
7,300.00	90.00	179.96	5,955.00	-1,229.26	-721.19	1,288.89	0.00	0.00	0.00
7,400.00	90.00	179.96	5,955.00	-1,329.26	-721.11	1,388.48	0.00	0.00	0.00
7,500.00	90.00	179.96	5,955.00	-1,429.26	-721.03	1,488.07	0.00	0.00	0.00
7,600.00	90.00	179.96	5,955.00	-1,529.26	-720.95	1,587.66	0.00	0.00	0.00
7,700.00	90.00	179.96	5,955.00	-1,629.26	-720.88	1,687.25	0.00	0.00	0.00
7,800.00	90.00	179.96	5,955.00	-1,729.26	-720.80	1,786.84	0.00	0.00	0.00
7,900.00	90.00	179.96	5,955.00	-1,829.26	-720.72	1,886.44	0.00	0.00	0.00
8,000.00	90.00	179.96	5,955.00	-1,929.26	-720.65	1,986.03	0.00	0.00	0.00
8,100.00	90.00	179.96	5,955.00	-2,029.26	-720.57	2,085.62	0.00	0.00	0.00
8,200.00	90.00	179.96	5,955.00	-2,129.26	-720.49	2,185.21	0.00	0.00	0.00
8,300.00	90.00	179.96	5,955.00	-2,229.26	-720.42	2,284.80	0.00	0.00	0.00
8,400.00	90.00	179.96	5,955.00	-2,329.26	-720.34	2,384.39	0.00	0.00	0.00
8,500.00	90.00	179.96	5,955.00	-2,429.26	-720.26	2,483.99	0.00	0.00	0.00
8,600.00	90.00	179.96	5,955.00	-2,529.26	-720.18	2,583.58	0.00	0.00	0.00
8,700.00	90.00	179.96	5,955.00	-2,629.26	-720.11	2,683.17	0.00	0.00	0.00
8,800.00	90.00	179.96	5,955.00	-2,729.26	-720.03	2,782.76	0.00	0.00	0.00
8,900.00	90.00	179.96	5,955.00	-2,829.26	-719.95	2,882.35	0.00	0.00	0.00
9,000.00	90.00	179.96	5,955.00	-2,929.26	-719.88	2,981.94	0.00	0.00	0.00
9,100.00	90.00	179.96	5,955.00	-3,029.26	-719.80	3,081.54	0.00	0.00	0.00
9,200.00	90.00	179.96	5,955.00	-3,129.26	-719.72	3,181.13	0.00	0.00	0.00
9,300.00	90.00	179.96	5,955.00	-3,229.26	-719.65	3,280.72	0.00	0.00	0.00
9,400.00	90.00	179.96	5,955.00	-3,329.26	-719.57	3,380.31	0.00	0.00	0.00
9,500.00	90.00	179.96	5,955.00	-3,429.26	-719.49	3,479.90	0.00	0.00	0.00
9,600.00	90.00	179.96	5,955.00	-3,529.26	-719.41	3,579.49	0.00	0.00	0.00
9,700.00	90.00	179.96	5,955.00	-3,629.26	-719.34	3,679.08	0.00	0.00	0.00
9,800.00	90.00	179.96	5,955.00	-3,729.26	-719.26	3,778.68	0.00	0.00	0.00
9,900.00	90.00	179.96	5,955.00	-3,829.26	-719.18	3,878.27	0.00	0.00	0.00

WOG
Planning Report



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-1837C
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-1837C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
10,000.00	90.00	179.96	5,955.00	-3,929.26	-719.11	3,977.86	0.00	0.00	0.00	
10,100.00	90.00	179.96	5,955.00	-4,029.26	-719.03	4,077.45	0.00	0.00	0.00	
10,200.00	90.00	179.96	5,955.00	-4,129.26	-718.95	4,177.04	0.00	0.00	0.00	
10,300.00	90.00	179.96	5,955.00	-4,229.26	-718.88	4,276.63	0.00	0.00	0.00	
10,400.00	90.00	179.96	5,955.00	-4,329.26	-718.80	4,376.23	0.00	0.00	0.00	
10,500.00	90.00	179.96	5,955.00	-4,429.26	-718.72	4,475.82	0.00	0.00	0.00	
10,600.00	90.00	179.96	5,955.00	-4,529.26	-718.65	4,575.41	0.00	0.00	0.00	
10,700.00	90.00	179.96	5,955.00	-4,629.26	-718.57	4,675.00	0.00	0.00	0.00	
10,800.00	90.00	179.96	5,955.00	-4,729.26	-718.49	4,774.59	0.00	0.00	0.00	
10,900.00	90.00	179.96	5,955.00	-4,829.26	-718.41	4,874.18	0.00	0.00	0.00	
11,000.00	90.00	179.96	5,955.00	-4,929.26	-718.34	4,973.78	0.00	0.00	0.00	
11,100.00	90.00	179.96	5,955.00	-5,029.26	-718.26	5,073.37	0.00	0.00	0.00	
11,200.00	90.00	179.96	5,955.00	-5,129.26	-718.18	5,172.96	0.00	0.00	0.00	
11,300.00	90.00	179.96	5,955.00	-5,229.26	-718.11	5,272.55	0.00	0.00	0.00	
11,400.00	90.00	179.96	5,955.00	-5,329.26	-718.03	5,372.14	0.00	0.00	0.00	
11,500.00	90.00	179.96	5,955.00	-5,429.26	-717.95	5,471.73	0.00	0.00	0.00	
11,600.00	90.00	179.96	5,955.00	-5,529.26	-717.88	5,571.32	0.00	0.00	0.00	
11,700.00	90.00	179.96	5,955.00	-5,629.26	-717.80	5,670.92	0.00	0.00	0.00	
11,800.00	90.00	179.96	5,955.00	-5,729.26	-717.72	5,770.51	0.00	0.00	0.00	
11,900.00	90.00	179.96	5,955.00	-5,829.26	-717.64	5,870.10	0.00	0.00	0.00	
12,000.00	90.00	179.96	5,955.00	-5,929.26	-717.57	5,969.69	0.00	0.00	0.00	
12,100.00	90.00	179.96	5,955.00	-6,029.26	-717.49	6,069.28	0.00	0.00	0.00	
12,200.00	90.00	179.96	5,955.00	-6,129.26	-717.41	6,168.87	0.00	0.00	0.00	
12,300.00	90.00	179.96	5,955.00	-6,229.26	-717.34	6,268.47	0.00	0.00	0.00	
12,400.00	90.00	179.96	5,955.00	-6,329.26	-717.26	6,368.06	0.00	0.00	0.00	
12,500.00	90.00	179.96	5,955.00	-6,429.26	-717.18	6,467.65	0.00	0.00	0.00	
12,600.00	90.00	179.96	5,955.00	-6,529.26	-717.11	6,567.24	0.00	0.00	0.00	
12,700.00	90.00	179.96	5,955.00	-6,629.26	-717.03	6,666.83	0.00	0.00	0.00	
12,800.00	90.00	179.96	5,955.00	-6,729.26	-716.95	6,766.42	0.00	0.00	0.00	
12,900.00	90.00	179.96	5,955.00	-6,829.26	-716.87	6,866.02	0.00	0.00	0.00	
13,000.00	90.00	179.96	5,955.00	-6,929.26	-716.80	6,965.61	0.00	0.00	0.00	
13,100.00	90.00	179.96	5,955.00	-7,029.26	-716.72	7,065.20	0.00	0.00	0.00	
13,200.00	90.00	179.96	5,955.00	-7,129.26	-716.64	7,164.79	0.00	0.00	0.00	
13,300.00	90.00	179.96	5,955.00	-7,229.26	-716.57	7,264.38	0.00	0.00	0.00	
13,400.00	90.00	179.96	5,955.00	-7,329.26	-716.49	7,363.97	0.00	0.00	0.00	
13,500.00	90.00	179.96	5,955.00	-7,429.26	-716.41	7,463.56	0.00	0.00	0.00	
13,600.00	90.00	179.96	5,955.00	-7,529.26	-716.34	7,563.16	0.00	0.00	0.00	
13,700.00	90.00	179.96	5,955.00	-7,629.26	-716.26	7,662.75	0.00	0.00	0.00	
13,800.00	90.00	179.96	5,955.00	-7,729.26	-716.18	7,762.34	0.00	0.00	0.00	
13,900.00	90.00	179.96	5,955.00	-7,829.26	-716.11	7,861.93	0.00	0.00	0.00	
14,000.00	90.00	179.96	5,955.00	-7,929.26	-716.03	7,961.52	0.00	0.00	0.00	
14,036.70	90.00	179.96	5,955.00	-7,965.96	-716.00	7,998.07	0.00	0.00	0.00	
TD at 14036.74' MD - PBHL 1837C										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
- hit/miss target										
- Shape										
PBHL 1837C	0.00	0.00	5,955.00	-7,965.96	-716.00	1,550,416.95	3,470,708.62	40° 49' 54.770 N		103° 47' 56.275 W
- plan hits target center										
- Point										



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-1837C
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-1837C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,328.70	5,955.00	7"	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,569.00	1,550.00	Upper Pierre				
3,562.56	3,500.00	Hygiene				
3,715.91	3,650.00	Lower Pierre				
5,591.72	5,515.00	P200 Marker				
5,606.94	5,530.00	P300 Marker				
5,627.36	5,550.00	P350 Marker				
5,791.87	5,702.00	Sharon Springs				
5,797.72	5,707.00	Niobrara				
5,821.54	5,727.00	Top A Chalk				
5,867.74	5,764.00	Top A Marl				
5,892.79	5,783.00	A Marl				
5,905.04	5,792.00	Top Upper B				
5,945.07	5,820.00	Base Upper B				
5,971.11	5,837.00	Top Lower B				
6,003.95	5,857.00	Base Lower B				
6,016.13	5,864.00	Top B Marl				
6,120.65	5,914.00	Top C Chalk				
6,142.29	5,922.00	Middle C Chalk				
6,187.57	5,936.00	Middle C Marl				
6,327.00	5,955.00	Lower C Chalk				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Build 2°/100'	
900.00	895.62	21.41	-58.83	Hold 12° Inc	
3,995.00	3,922.99	241.50	-663.51	Drop 2°/100'	
4,595.00	4,518.61	262.91	-722.33	Hold Vertical	
5,510.52	5,434.13	262.91	-722.33	KOP, Build 11°/100'	
6,328.70	5,955.00	-257.96	-721.93	LP @ 90° Inc, Hold	
14,036.70	5,955.00	-7,965.96	-716.00	TD at 14036.74' MD	