



Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07H-0645

Hz

Plan: Design #1

Standard Planning Report

27 March, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07H-0645
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4925.90usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4925.90usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07H-0645	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 #07H-0645			
Well Position	+N/-S	-200.07 usft	Northing:	1,558,323.65 usft
	+E/-W	3,840.02 usft	Easting:	3,473,653.30 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 4,908.90 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/6/2015	7.88	67.44	53,088

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	355.11

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	
725.00	8.50	236.00	723.44	-17.60	-26.09	2.00	2.00	0.00	236.00	
5,025.00	8.50	236.00	4,976.21	-373.01	-553.01	0.00	0.00	0.00	0.00	
5,450.00	0.00	0.00	5,399.65	-390.60	-579.10	2.00	-2.00	0.00	180.00	
5,484.48	0.00	0.00	5,434.13	-390.60	-579.10	0.00	0.00	0.00	0.00	
6,302.66	90.00	359.60	5,955.00	130.25	-582.75	11.00	11.00	0.00	359.60	PBHL 0645C
13,580.97	90.00	359.60	5,955.00	7,408.38	-633.79	0.00	0.00	0.00	0.00	PBHL 0645C



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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4925.90usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4925.90usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07H-0645	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	236.00	399.98	-0.98	-1.45	-0.85	2.00	2.00	0.00
500.00	4.00	236.00	499.84	-3.90	-5.79	-3.39	2.00	2.00	0.00
600.00	6.00	236.00	599.45	-8.78	-13.01	-7.63	2.00	2.00	0.00
700.00	8.00	236.00	698.70	-15.59	-23.11	-13.56	2.00	2.00	0.00
725.00	8.50	236.00	723.44	-17.60	-26.09	-15.31	2.00	2.00	0.00
Hold 8.50° Inc									
800.00	8.50	236.00	797.62	-23.80	-35.28	-20.70	0.00	0.00	0.00
900.00	8.50	236.00	896.52	-32.06	-47.53	-27.89	0.00	0.00	0.00
1,000.00	8.50	236.00	995.42	-40.33	-59.79	-35.08	0.00	0.00	0.00
1,100.00	8.50	236.00	1,094.32	-48.59	-72.04	-42.27	0.00	0.00	0.00
1,200.00	8.50	236.00	1,193.23	-56.86	-84.29	-49.46	0.00	0.00	0.00
1,300.00	8.50	236.00	1,292.13	-65.12	-96.55	-56.66	0.00	0.00	0.00
1,400.00	8.50	236.00	1,391.03	-73.39	-108.80	-63.85	0.00	0.00	0.00
1,500.00	8.50	236.00	1,489.93	-81.65	-121.06	-71.04	0.00	0.00	0.00
1,560.74	8.50	236.00	1,550.00	-86.67	-128.50	-75.40	0.00	0.00	0.00
Upper Pierre									
1,600.00	8.50	236.00	1,588.83	-89.92	-133.31	-78.23	0.00	0.00	0.00
1,700.00	8.50	236.00	1,687.73	-98.18	-145.56	-85.42	0.00	0.00	0.00
1,800.00	8.50	236.00	1,786.63	-106.45	-157.82	-92.61	0.00	0.00	0.00
1,900.00	8.50	236.00	1,885.54	-114.71	-170.07	-99.80	0.00	0.00	0.00
2,000.00	8.50	236.00	1,984.44	-122.98	-182.33	-106.99	0.00	0.00	0.00
2,100.00	8.50	236.00	2,083.34	-131.25	-194.58	-114.18	0.00	0.00	0.00
2,200.00	8.50	236.00	2,182.24	-139.51	-206.83	-121.37	0.00	0.00	0.00
2,300.00	8.50	236.00	2,281.14	-147.78	-219.09	-128.56	0.00	0.00	0.00
2,400.00	8.50	236.00	2,380.04	-156.04	-231.34	-135.75	0.00	0.00	0.00
2,500.00	8.50	236.00	2,478.95	-164.31	-243.60	-142.95	0.00	0.00	0.00
2,600.00	8.50	236.00	2,577.85	-172.57	-255.85	-150.14	0.00	0.00	0.00
2,700.00	8.50	236.00	2,676.75	-180.84	-268.10	-157.33	0.00	0.00	0.00
2,800.00	8.50	236.00	2,775.65	-189.10	-280.36	-164.52	0.00	0.00	0.00
2,900.00	8.50	236.00	2,874.55	-197.37	-292.61	-171.71	0.00	0.00	0.00
3,000.00	8.50	236.00	2,973.45	-205.63	-304.87	-178.90	0.00	0.00	0.00
3,100.00	8.50	236.00	3,072.36	-213.90	-317.12	-186.09	0.00	0.00	0.00
3,200.00	8.50	236.00	3,171.26	-222.16	-329.37	-193.28	0.00	0.00	0.00
3,300.00	8.50	236.00	3,270.16	-230.43	-341.63	-200.47	0.00	0.00	0.00
3,400.00	8.50	236.00	3,369.06	-238.70	-353.88	-207.66	0.00	0.00	0.00
3,500.00	8.50	236.00	3,467.96	-246.96	-366.13	-214.85	0.00	0.00	0.00
3,532.39	8.50	236.00	3,500.00	-249.64	-370.10	-217.18	0.00	0.00	0.00
Hygiene									
3,600.00	8.50	236.00	3,566.86	-255.23	-378.39	-222.04	0.00	0.00	0.00
3,684.06	8.50	236.00	3,650.00	-262.17	-388.69	-228.09	0.00	0.00	0.00
Lower Pierre									
3,700.00	8.50	236.00	3,665.77	-263.49	-390.64	-229.23	0.00	0.00	0.00
3,800.00	8.50	236.00	3,764.67	-271.76	-402.90	-236.43	0.00	0.00	0.00
3,900.00	8.50	236.00	3,863.57	-280.02	-415.15	-243.62	0.00	0.00	0.00
4,000.00	8.50	236.00	3,962.47	-288.29	-427.40	-250.81	0.00	0.00	0.00
4,100.00	8.50	236.00	4,061.37	-296.55	-439.66	-258.00	0.00	0.00	0.00
4,200.00	8.50	236.00	4,160.27	-304.82	-451.91	-265.19	0.00	0.00	0.00
4,300.00	8.50	236.00	4,259.17	-313.08	-464.17	-272.38	0.00	0.00	0.00
4,400.00	8.50	236.00	4,358.08	-321.35	-476.42	-279.57	0.00	0.00	0.00



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Well:	Horsetail #07H-0645	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)
4,500.00	8.50	236.00	4,456.98	-329.62	-488.67	-286.76	0.00	0.00	0.00
4,600.00	8.50	236.00	4,555.88	-337.88	-500.93	-293.95	0.00	0.00	0.00
4,700.00	8.50	236.00	4,654.78	-346.15	-513.18	-301.14	0.00	0.00	0.00
4,800.00	8.50	236.00	4,753.68	-354.41	-525.44	-308.33	0.00	0.00	0.00
4,900.00	8.50	236.00	4,852.58	-362.68	-537.69	-315.52	0.00	0.00	0.00
5,000.00	8.50	236.00	4,951.49	-370.94	-549.94	-322.72	0.00	0.00	0.00
5,025.00	8.50	236.00	4,976.21	-373.01	-553.01	-324.51	0.00	0.00	0.00
Drop 2°/100'									
5,100.00	7.00	236.00	5,050.52	-378.66	-561.39	-329.43	2.00	-2.00	0.00
5,200.00	5.00	236.00	5,149.97	-384.51	-570.06	-334.52	2.00	-2.00	0.00
5,300.00	3.00	236.00	5,249.72	-388.41	-575.84	-337.91	2.00	-2.00	0.00
5,400.00	1.00	236.00	5,349.66	-390.36	-578.73	-339.61	2.00	-2.00	0.00
5,450.00	0.00	0.00	5,399.65	-390.60	-579.10	-339.82	2.00	-2.00	0.00
Hold Vertical									
5,484.48	0.00	0.00	5,434.13	-390.60	-579.10	-339.82	0.00	0.00	0.00
KOP, Build 11°/100'									
5,500.00	1.71	359.60	5,449.65	-390.37	-579.10	-339.59	11.00	11.00	0.00
5,550.00	7.21	359.60	5,499.48	-386.49	-579.12	-335.72	11.00	11.00	0.00
5,565.67	8.93	359.60	5,515.00	-384.29	-579.14	-333.52	11.00	11.00	0.00
P200 Marker									
5,580.90	10.61	359.60	5,530.00	-381.71	-579.16	-330.95	11.00	11.00	0.00
P300 Marker									
5,600.00	12.71	359.60	5,548.71	-377.85	-579.18	-327.10	11.00	11.00	0.00
5,601.32	12.85	359.60	5,550.00	-377.55	-579.19	-326.81	11.00	11.00	0.00
P350 Marker									
5,650.00	18.21	359.60	5,596.88	-364.53	-579.28	-313.82	11.00	11.00	0.00
5,700.00	23.71	359.60	5,643.56	-346.65	-579.40	-296.00	11.00	11.00	0.00
5,750.00	29.21	359.60	5,688.30	-324.38	-579.56	-273.80	11.00	11.00	0.00
5,765.83	30.95	359.60	5,702.00	-316.45	-579.62	-265.89	11.00	11.00	0.00
Sharon Springs									
5,771.68	31.59	359.60	5,707.00	-313.41	-579.64	-262.87	11.00	11.00	0.00
Niobrara									
5,795.50	34.21	359.60	5,727.00	-300.47	-579.73	-249.97	11.00	11.00	0.00
Top A Chalk									
5,800.00	34.71	359.60	5,730.71	-297.93	-579.75	-247.43	11.00	11.00	0.00
5,841.70	39.29	359.60	5,764.00	-272.84	-579.92	-222.42	11.00	11.00	0.00
Top A Marl									
5,850.00	40.21	359.60	5,770.38	-267.53	-579.96	-217.12	11.00	11.00	0.00
5,866.75	42.05	359.60	5,783.00	-256.52	-580.04	-206.14	11.00	11.00	0.00
A Marl									
5,879.00	43.40	359.60	5,792.00	-248.20	-580.09	-197.85	11.00	11.00	0.00
Top Upper B									
5,900.00	45.71	359.60	5,806.96	-233.47	-580.20	-183.17	11.00	11.00	0.00
5,919.03	47.80	359.60	5,820.00	-219.61	-580.29	-169.35	11.00	11.00	0.00
Base Upper B									
5,945.07	50.66	359.60	5,837.00	-199.90	-580.43	-149.69	11.00	11.00	0.00
Top Lower B									
5,950.00	51.21	359.60	5,840.11	-196.07	-580.46	-145.88	11.00	11.00	0.00
5,977.90	54.28	359.60	5,857.00	-173.86	-580.62	-123.74	11.00	11.00	0.00
Base Lower B									
5,990.09	55.62	359.60	5,864.00	-163.88	-580.69	-113.79	11.00	11.00	0.00
Top B Marl									



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4925.90usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4925.90usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07H-0645	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)
6,000.00	56.71	359.60	5,869.52	-155.65	-580.74	-105.59	11.00	11.00	0.00
6,050.00	62.21	359.60	5,894.92	-112.61	-581.04	-62.67	11.00	11.00	0.00
6,094.60	67.11	359.60	5,914.00	-72.31	-581.33	-22.50	11.00	11.00	0.00
Top C Chalk									
6,100.00	67.71	359.60	5,916.07	-67.33	-581.36	-17.53	11.00	11.00	0.00
6,116.25	69.49	359.60	5,922.00	-52.20	-581.47	-2.45	11.00	11.00	0.00
Middle C Chalk									
6,150.00	73.21	359.60	5,932.79	-20.23	-581.69	29.43	11.00	11.00	0.00
6,161.53	74.48	359.60	5,936.00	-9.16	-581.77	40.47	11.00	11.00	0.00
Middle C Marl									
6,200.00	78.71	359.60	5,944.92	28.26	-582.03	77.77	11.00	11.00	0.00
6,250.00	84.21	359.60	5,952.34	77.68	-582.38	127.04	11.00	11.00	0.00
6,300.77	89.79	359.60	5,955.00	128.36	-582.73	177.56	11.00	11.00	0.00
Lower C Chalk									
6,302.66	90.00	359.60	5,955.00	130.25	-582.75	179.45	11.00	11.00	0.00
LP @ 90° Inc, Hold - 7"									
6,400.00	90.00	359.60	5,955.00	227.59	-583.43	276.49	0.00	0.00	0.00
6,500.00	90.00	359.60	5,955.00	327.59	-584.13	376.19	0.00	0.00	0.00
6,600.00	90.00	359.60	5,955.00	427.58	-584.83	475.88	0.00	0.00	0.00
6,700.00	90.00	359.60	5,955.00	527.58	-585.53	575.57	0.00	0.00	0.00
6,800.00	90.00	359.60	5,955.00	627.58	-586.24	675.27	0.00	0.00	0.00
6,900.00	90.00	359.60	5,955.00	727.58	-586.94	774.96	0.00	0.00	0.00
7,000.00	90.00	359.60	5,955.00	827.58	-587.64	874.65	0.00	0.00	0.00
7,100.00	90.00	359.60	5,955.00	927.57	-588.34	974.35	0.00	0.00	0.00
7,200.00	90.00	359.60	5,955.00	1,027.57	-589.04	1,074.04	0.00	0.00	0.00
7,300.00	90.00	359.60	5,955.00	1,127.57	-589.74	1,173.73	0.00	0.00	0.00
7,400.00	90.00	359.60	5,955.00	1,227.57	-590.44	1,273.43	0.00	0.00	0.00
7,500.00	90.00	359.60	5,955.00	1,327.56	-591.15	1,373.12	0.00	0.00	0.00
7,600.00	90.00	359.60	5,955.00	1,427.56	-591.85	1,472.81	0.00	0.00	0.00
7,700.00	90.00	359.60	5,955.00	1,527.56	-592.55	1,572.51	0.00	0.00	0.00
7,800.00	90.00	359.60	5,955.00	1,627.56	-593.25	1,672.20	0.00	0.00	0.00
7,900.00	90.00	359.60	5,955.00	1,727.55	-593.95	1,771.89	0.00	0.00	0.00
8,000.00	90.00	359.60	5,955.00	1,827.55	-594.65	1,871.59	0.00	0.00	0.00
8,100.00	90.00	359.60	5,955.00	1,927.55	-595.35	1,971.28	0.00	0.00	0.00
8,200.00	90.00	359.60	5,955.00	2,027.55	-596.05	2,070.97	0.00	0.00	0.00
8,300.00	90.00	359.60	5,955.00	2,127.54	-596.76	2,170.67	0.00	0.00	0.00
8,400.00	90.00	359.60	5,955.00	2,227.54	-597.46	2,270.36	0.00	0.00	0.00
8,500.00	90.00	359.60	5,955.00	2,327.54	-598.16	2,370.05	0.00	0.00	0.00
8,600.00	90.00	359.60	5,955.00	2,427.54	-598.86	2,469.75	0.00	0.00	0.00
8,700.00	90.00	359.60	5,955.00	2,527.53	-599.56	2,569.44	0.00	0.00	0.00
8,800.00	90.00	359.60	5,955.00	2,627.53	-600.26	2,669.13	0.00	0.00	0.00
8,900.00	90.00	359.60	5,955.00	2,727.53	-600.96	2,768.83	0.00	0.00	0.00
9,000.00	90.00	359.60	5,955.00	2,827.53	-601.67	2,868.52	0.00	0.00	0.00
9,100.00	90.00	359.60	5,955.00	2,927.52	-602.37	2,968.21	0.00	0.00	0.00
9,200.00	90.00	359.60	5,955.00	3,027.52	-603.07	3,067.91	0.00	0.00	0.00
9,300.00	90.00	359.60	5,955.00	3,127.52	-603.77	3,167.60	0.00	0.00	0.00
9,400.00	90.00	359.60	5,955.00	3,227.52	-604.47	3,267.29	0.00	0.00	0.00
9,500.00	90.00	359.60	5,955.00	3,327.51	-605.17	3,366.99	0.00	0.00	0.00
9,600.00	90.00	359.60	5,955.00	3,427.51	-605.87	3,466.68	0.00	0.00	0.00
9,700.00	90.00	359.60	5,955.00	3,527.51	-606.57	3,566.37	0.00	0.00	0.00
9,800.00	90.00	359.60	5,955.00	3,627.51	-607.28	3,666.07	0.00	0.00	0.00
9,900.00	90.00	359.60	5,955.00	3,727.50	-607.98	3,765.76	0.00	0.00	0.00
10,000.00	90.00	359.60	5,955.00	3,827.50	-608.68	3,865.45	0.00	0.00	0.00
10,100.00	90.00	359.60	5,955.00	3,927.50	-609.38	3,965.15	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07H-0645
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4925.90usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4925.90usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07H-0645	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)
10,200.00	90.00	359.60	5,955.00	4,027.50	-610.08	4,064.84	0.00	0.00	0.00
10,300.00	90.00	359.60	5,955.00	4,127.49	-610.78	4,164.53	0.00	0.00	0.00
10,400.00	90.00	359.60	5,955.00	4,227.49	-611.48	4,264.23	0.00	0.00	0.00
10,500.00	90.00	359.60	5,955.00	4,327.49	-612.18	4,363.92	0.00	0.00	0.00
10,600.00	90.00	359.60	5,955.00	4,427.49	-612.89	4,463.61	0.00	0.00	0.00
10,700.00	90.00	359.60	5,955.00	4,527.48	-613.59	4,563.31	0.00	0.00	0.00
10,800.00	90.00	359.60	5,955.00	4,627.48	-614.29	4,663.00	0.00	0.00	0.00
10,900.00	90.00	359.60	5,955.00	4,727.48	-614.99	4,762.69	0.00	0.00	0.00
11,000.00	90.00	359.60	5,955.00	4,827.48	-615.69	4,862.39	0.00	0.00	0.00
11,100.00	90.00	359.60	5,955.00	4,927.47	-616.39	4,962.08	0.00	0.00	0.00
11,200.00	90.00	359.60	5,955.00	5,027.47	-617.09	5,061.78	0.00	0.00	0.00
11,300.00	90.00	359.60	5,955.00	5,127.47	-617.80	5,161.47	0.00	0.00	0.00
11,400.00	90.00	359.60	5,955.00	5,227.47	-618.50	5,261.16	0.00	0.00	0.00
11,500.00	90.00	359.60	5,955.00	5,327.46	-619.20	5,360.86	0.00	0.00	0.00
11,600.00	90.00	359.60	5,955.00	5,427.46	-619.90	5,460.55	0.00	0.00	0.00
11,700.00	90.00	359.60	5,955.00	5,527.46	-620.60	5,560.24	0.00	0.00	0.00
11,800.00	90.00	359.60	5,955.00	5,627.46	-621.30	5,659.94	0.00	0.00	0.00
11,900.00	90.00	359.60	5,955.00	5,727.45	-622.00	5,759.63	0.00	0.00	0.00
12,000.00	90.00	359.60	5,955.00	5,827.45	-622.70	5,859.32	0.00	0.00	0.00
12,100.00	90.00	359.60	5,955.00	5,927.45	-623.41	5,959.02	0.00	0.00	0.00
12,200.00	90.00	359.60	5,955.00	6,027.45	-624.11	6,058.71	0.00	0.00	0.00
12,300.00	90.00	359.60	5,955.00	6,127.44	-624.81	6,158.40	0.00	0.00	0.00
12,400.00	90.00	359.60	5,955.00	6,227.44	-625.51	6,258.10	0.00	0.00	0.00
12,500.00	90.00	359.60	5,955.00	6,327.44	-626.21	6,357.79	0.00	0.00	0.00
12,600.00	90.00	359.60	5,955.00	6,427.44	-626.91	6,457.48	0.00	0.00	0.00
12,700.00	90.00	359.60	5,955.00	6,527.43	-627.61	6,557.18	0.00	0.00	0.00
12,800.00	90.00	359.60	5,955.00	6,627.43	-628.32	6,656.87	0.00	0.00	0.00
12,900.00	90.00	359.60	5,955.00	6,727.43	-629.02	6,756.56	0.00	0.00	0.00
13,000.00	90.00	359.60	5,955.00	6,827.43	-629.72	6,856.26	0.00	0.00	0.00
13,100.00	90.00	359.60	5,955.00	6,927.43	-630.42	6,955.95	0.00	0.00	0.00
13,200.00	90.00	359.60	5,955.00	7,027.42	-631.12	7,055.64	0.00	0.00	0.00
13,300.00	90.00	359.60	5,955.00	7,127.42	-631.82	7,155.34	0.00	0.00	0.00
13,400.00	90.00	359.60	5,955.00	7,227.42	-632.52	7,255.03	0.00	0.00	0.00
13,500.00	90.00	359.60	5,955.00	7,327.42	-633.22	7,354.72	0.00	0.00	0.00
13,580.97	90.00	359.60	5,955.00	7,408.38	-633.79	7,435.44	0.00	0.00	0.00
TD at 13580.97' MD									

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 0645C	0.00	0.00	5,955.00	7,408.38	-633.79	1,565,718.42	3,472,876.58	40° 52' 25.520 N	103° 47' 24.240 W
- plan hits target center									
- Point									



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07H-0645
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4925.90usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4925.90usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07H-0645	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)	
6,302.66	5,955.00	7"	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,560.74	1,550.00	Upper Pierre				
3,532.39	3,500.00	Hygiene				
3,684.06	3,650.00	Lower Pierre				
5,565.67	5,515.00	P200 Marker				
5,580.90	5,530.00	P300 Marker				
5,601.32	5,550.00	P350 Marker				
5,765.83	5,702.00	Sharon Springs				
5,771.68	5,707.00	Niobrara				
5,795.50	5,727.00	Top A Chalk				
5,841.70	5,764.00	Top A Marl				
5,866.75	5,783.00	A Marl				
5,879.00	5,792.00	Top Upper B				
5,919.03	5,820.00	Base Upper B				
5,945.07	5,837.00	Top Lower B				
5,977.90	5,857.00	Base Lower B				
5,990.09	5,864.00	Top B Marl				
6,094.60	5,914.00	Top C Chalk				
6,116.25	5,922.00	Middle C Chalk				
6,161.53	5,936.00	Middle C Marl				
6,300.77	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'	
725.00	723.44	-17.60	-26.09	Hold 8.50° Inc	
5,025.00	4,976.21	-373.01	-553.01	Drop 2°/100'	
5,450.00	5,399.65	-390.60	-579.10	Hold Vertical	
5,484.48	5,434.13	-390.60	-579.10	KOP, Build 11°/100'	
6,302.66	5,955.00	130.25	-582.75	LP @ 90° Inc, Hold	
13,580.97	5,955.00	7,408.38	-633.79	TD at 13580.97' MD	