



Whiting Petroleum Corp.

Weld County, CO

Sec 8-T10N-R57W

Horsetail #08D-1735

Hz

Plan: APD

Standard Planning Report

26 February, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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 8-T10N-R57W			
Site Position:		Northing:	1,561,022.64 usft	Latitude:	40° 51' 38.869 N
From:	Lat/Long	Easting:	3,474,249.13 usft	Longitude:	103° 47' 7.559 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.11 °

Well	Horsetail #08D-1735					
Well Position	+N/-S	-326.82 usft	Northing:	1,560,706.81 usft	Latitude:	40° 51' 35.640 N
	+E/-W	565.44 usft	Easting:	3,474,820.79 usft	Longitude:	103° 47' 0.200 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,958.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/6/2015	7.86	67.44	53,082

Design	APD			
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	178.61

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	
512.50	4.25	45.00	512.30	5.57	5.57	2.00	2.00	0.00	45.00	
5,012.50	4.25	45.00	4,999.93	241.38	241.38	0.00	0.00	0.00	0.00	
5,225.00	0.00	0.00	5,212.24	246.95	246.95	2.00	-2.00	0.00	180.00	
5,409.89	0.00	0.00	5,397.13	246.95	246.95	0.00	0.00	0.00	0.00	
6,228.07	90.00	180.00	5,918.00	-273.92	246.94	11.00	11.00	0.00	180.00	PBHL 1735
16,155.76	90.00	180.00	5,918.00	-10,201.61	246.76	0.00	0.00	0.00	0.00	PBHL 1735



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Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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	45.00	399.98	1.23	1.23	-1.20	2.00	2.00	0.00
500.00	4.00	45.00	499.84	4.93	4.93	-4.81	2.00	2.00	0.00
512.50	4.25	45.00	512.30	5.57	5.57	-5.43	2.00	2.00	0.00
Hold 4.25° Inc									
600.00	4.25	45.00	599.56	10.16	10.16	-9.91	0.00	0.00	0.00
700.00	4.25	45.00	699.29	15.40	15.40	-15.02	0.00	0.00	0.00
800.00	4.25	45.00	799.01	20.64	20.64	-20.13	0.00	0.00	0.00
900.00	4.25	45.00	898.74	25.88	25.88	-25.24	0.00	0.00	0.00
1,000.00	4.25	45.00	998.46	31.12	31.12	-30.36	0.00	0.00	0.00
1,100.00	4.25	45.00	1,098.19	36.36	36.36	-35.47	0.00	0.00	0.00
1,200.00	4.25	45.00	1,197.91	41.60	41.60	-40.58	0.00	0.00	0.00
1,300.00	4.25	45.00	1,297.64	46.84	46.84	-45.69	0.00	0.00	0.00
1,400.00	4.25	45.00	1,397.36	52.08	52.08	-50.80	0.00	0.00	0.00
1,500.00	4.25	45.00	1,497.09	57.32	57.32	-55.92	0.00	0.00	0.00
1,555.16	4.25	45.00	1,552.10	60.21	60.21	-58.74	0.00	0.00	0.00
Upper Pierre									
1,600.00	4.25	45.00	1,596.81	62.56	62.56	-61.03	0.00	0.00	0.00
1,700.00	4.25	45.00	1,696.54	67.80	67.80	-66.14	0.00	0.00	0.00
1,800.00	4.25	45.00	1,796.26	73.04	73.04	-71.25	0.00	0.00	0.00
1,900.00	4.25	45.00	1,895.99	78.28	78.28	-76.36	0.00	0.00	0.00
2,000.00	4.25	45.00	1,995.71	83.52	83.52	-81.48	0.00	0.00	0.00
2,100.00	4.25	45.00	2,095.44	88.76	88.76	-86.59	0.00	0.00	0.00
2,200.00	4.25	45.00	2,195.16	94.00	94.00	-91.70	0.00	0.00	0.00
2,300.00	4.25	45.00	2,294.89	99.24	99.24	-96.81	0.00	0.00	0.00
2,400.00	4.25	45.00	2,394.61	104.48	104.48	-101.92	0.00	0.00	0.00
2,500.00	4.25	45.00	2,494.34	109.72	109.72	-107.04	0.00	0.00	0.00
2,600.00	4.25	45.00	2,594.07	114.96	114.96	-112.15	0.00	0.00	0.00
2,700.00	4.25	45.00	2,693.79	120.20	120.20	-117.26	0.00	0.00	0.00
2,800.00	4.25	45.00	2,793.52	125.44	125.44	-122.37	0.00	0.00	0.00
2,900.00	4.25	45.00	2,893.24	130.68	130.68	-127.48	0.00	0.00	0.00
3,000.00	4.25	45.00	2,992.97	135.92	135.92	-132.60	0.00	0.00	0.00
3,100.00	4.25	45.00	3,092.69	141.16	141.16	-137.71	0.00	0.00	0.00
3,200.00	4.25	45.00	3,192.42	146.40	146.40	-142.82	0.00	0.00	0.00
3,300.00	4.25	45.00	3,292.14	151.64	151.64	-147.93	0.00	0.00	0.00
3,400.00	4.25	45.00	3,391.87	156.88	156.88	-153.04	0.00	0.00	0.00
3,500.00	4.25	45.00	3,491.59	162.12	162.12	-158.16	0.00	0.00	0.00
3,510.54	4.25	45.00	3,502.10	162.68	162.68	-158.69	0.00	0.00	0.00
Hygiene									
3,600.00	4.25	45.00	3,591.32	167.36	167.36	-163.27	0.00	0.00	0.00
3,660.95	4.25	45.00	3,652.10	170.56	170.56	-166.38	0.00	0.00	0.00
Lower Pierre									
3,700.00	4.25	45.00	3,691.04	172.60	172.60	-168.38	0.00	0.00	0.00
3,800.00	4.25	45.00	3,790.77	177.84	177.84	-173.49	0.00	0.00	0.00
3,900.00	4.25	45.00	3,890.49	183.08	183.08	-178.60	0.00	0.00	0.00
4,000.00	4.25	45.00	3,990.22	188.32	188.32	-183.72	0.00	0.00	0.00
4,100.00	4.25	45.00	4,089.94	193.56	193.56	-188.83	0.00	0.00	0.00
4,200.00	4.25	45.00	4,189.67	198.80	198.80	-193.94	0.00	0.00	0.00
4,300.00	4.25	45.00	4,289.39	204.05	204.05	-199.05	0.00	0.00	0.00
4,400.00	4.25	45.00	4,389.12	209.29	209.29	-204.16	0.00	0.00	0.00



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Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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	4.25	45.00	4,488.84	214.53	214.53	-209.28	0.00	0.00	0.00	
4,600.00	4.25	45.00	4,588.57	219.77	219.77	-214.39	0.00	0.00	0.00	
4,700.00	4.25	45.00	4,688.29	225.01	225.01	-219.50	0.00	0.00	0.00	
4,800.00	4.25	45.00	4,788.02	230.25	230.25	-224.61	0.00	0.00	0.00	
4,900.00	4.25	45.00	4,887.74	235.49	235.49	-229.72	0.00	0.00	0.00	
5,000.00	4.25	45.00	4,987.47	240.73	240.73	-234.84	0.00	0.00	0.00	
5,012.50	4.25	45.00	4,999.93	241.38	241.38	-235.47	0.00	0.00	0.00	
Drop 2°/100'										
5,100.00	2.50	45.00	5,087.28	245.02	245.02	-239.03	2.00	-2.00	0.00	
5,200.00	0.50	45.00	5,187.24	246.88	246.88	-240.83	2.00	-2.00	0.00	
5,225.00	0.00	0.00	5,212.24	246.95	246.95	-240.91	2.00	-2.00	0.00	
Hold Vertical										
5,300.00	0.00	0.00	5,287.24	246.95	246.95	-240.91	0.00	0.00	0.00	
5,409.89	0.00	0.00	5,397.13	246.95	246.95	-240.91	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,450.00	4.41	180.00	5,437.20	245.41	246.95	-239.37	11.00	11.00	0.00	
5,500.00	9.91	180.00	5,486.79	239.18	246.95	-233.14	11.00	11.00	0.00	
5,530.95	13.32	180.00	5,517.10	232.95	246.95	-226.91	11.00	11.00	0.00	
P200 Marker										
5,546.42	15.02	180.00	5,532.10	229.16	246.95	-223.12	11.00	11.00	0.00	
P300 Marker										
5,550.00	15.41	180.00	5,535.55	228.22	246.95	-222.18	11.00	11.00	0.00	
5,567.25	17.31	180.00	5,552.10	223.36	246.95	-217.33	11.00	11.00	0.00	
P350 Marker										
5,600.00	20.91	180.00	5,583.04	212.64	246.95	-206.61	11.00	11.00	0.00	
5,650.00	26.41	180.00	5,628.82	192.58	246.95	-186.55	11.00	11.00	0.00	
5,700.00	31.91	180.00	5,672.47	168.23	246.95	-162.21	11.00	11.00	0.00	
5,738.17	36.11	180.00	5,704.10	146.88	246.95	-140.87	11.00	11.00	0.00	
Sharon Springs										
5,744.39	36.79	180.00	5,709.10	143.19	246.95	-137.17	11.00	11.00	0.00	
Niobrara										
5,750.00	37.41	180.00	5,713.58	139.80	246.95	-133.79	11.00	11.00	0.00	
5,769.84	39.59	180.00	5,729.10	127.45	246.95	-121.44	11.00	11.00	0.00	
Top A Chalk										
5,800.00	42.91	180.00	5,751.77	107.57	246.95	-101.56	11.00	11.00	0.00	
5,819.92	45.10	180.00	5,766.10	93.73	246.95	-87.73	11.00	11.00	0.00	
Top A Marl										
5,847.59	48.15	180.00	5,785.10	73.62	246.95	-67.63	11.00	11.00	0.00	
A Marl										
5,850.00	48.41	180.00	5,786.71	71.82	246.95	-65.83	11.00	11.00	0.00	
5,861.28	49.65	180.00	5,794.10	63.30	246.95	-57.31	11.00	11.00	0.00	
Top Upper B										
5,900.00	53.91	180.00	5,818.05	32.89	246.95	-26.91	11.00	11.00	0.00	
5,906.94	54.68	180.00	5,822.10	27.25	246.95	-21.27	11.00	11.00	0.00	
Base Upper B										
5,937.64	58.05	180.00	5,839.10	1.70	246.95	4.27	11.00	11.00	0.00	
Top Lower B										
5,950.00	59.41	180.00	5,845.52	-8.87	246.95	14.84	11.00	11.00	0.00	
5,977.98	62.49	180.00	5,859.10	-33.32	246.95	39.29	11.00	11.00	0.00	
Base Lower B										
5,993.58	64.21	180.00	5,866.10	-47.27	246.95	53.23	11.00	11.00	0.00	
Top B Marl										



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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	64.91	180.00	5,868.86	-53.07	246.95	59.02	11.00	11.00	0.00
6,050.00	70.41	180.00	5,887.85	-99.30	246.95	105.24	11.00	11.00	0.00
6,100.00	75.91	180.00	5,902.33	-147.13	246.95	153.06	11.00	11.00	0.00
6,150.00	81.41	180.00	5,912.16	-196.14	246.94	202.05	11.00	11.00	0.00
6,183.62	85.11	180.00	5,916.10	-229.53	246.94	235.43	11.00	11.00	0.00
Top C Chalk									
6,200.00	86.91	180.00	5,917.24	-245.86	246.94	251.76	11.00	11.00	0.00
6,228.07	90.00	180.00	5,918.00	-273.92	246.94	279.81	11.00	11.00	0.00
LP @ 90° Inc, Hold - 7"									
6,300.00	90.00	180.00	5,918.00	-345.85	246.94	351.72	0.00	0.00	0.00
6,400.00	90.00	180.00	5,918.00	-445.85	246.94	451.69	0.00	0.00	0.00
6,500.00	90.00	180.00	5,918.00	-545.85	246.94	551.66	0.00	0.00	0.00
6,600.00	90.00	180.00	5,918.00	-645.85	246.94	651.63	0.00	0.00	0.00
6,700.00	90.00	180.00	5,918.00	-745.85	246.93	751.60	0.00	0.00	0.00
6,800.00	90.00	180.00	5,918.00	-845.85	246.93	851.57	0.00	0.00	0.00
6,900.00	90.00	180.00	5,918.00	-945.85	246.93	951.54	0.00	0.00	0.00
7,000.00	90.00	180.00	5,918.00	-1,045.85	246.93	1,051.51	0.00	0.00	0.00
7,100.00	90.00	180.00	5,918.00	-1,145.85	246.93	1,151.48	0.00	0.00	0.00
7,200.00	90.00	180.00	5,918.00	-1,245.85	246.92	1,251.45	0.00	0.00	0.00
7,300.00	90.00	180.00	5,918.00	-1,345.85	246.92	1,351.43	0.00	0.00	0.00
7,400.00	90.00	180.00	5,918.00	-1,445.85	246.92	1,451.40	0.00	0.00	0.00
7,500.00	90.00	180.00	5,918.00	-1,545.85	246.92	1,551.37	0.00	0.00	0.00
7,600.00	90.00	180.00	5,918.00	-1,645.85	246.92	1,651.34	0.00	0.00	0.00
7,700.00	90.00	180.00	5,918.00	-1,745.85	246.91	1,751.31	0.00	0.00	0.00
7,800.00	90.00	180.00	5,918.00	-1,845.85	246.91	1,851.28	0.00	0.00	0.00
7,900.00	90.00	180.00	5,918.00	-1,945.85	246.91	1,951.25	0.00	0.00	0.00
8,000.00	90.00	180.00	5,918.00	-2,045.85	246.91	2,051.22	0.00	0.00	0.00
8,100.00	90.00	180.00	5,918.00	-2,145.85	246.91	2,151.19	0.00	0.00	0.00
8,200.00	90.00	180.00	5,918.00	-2,245.85	246.91	2,251.16	0.00	0.00	0.00
8,300.00	90.00	180.00	5,918.00	-2,345.85	246.90	2,351.13	0.00	0.00	0.00
8,400.00	90.00	180.00	5,918.00	-2,445.85	246.90	2,451.10	0.00	0.00	0.00
8,500.00	90.00	180.00	5,918.00	-2,545.85	246.90	2,551.07	0.00	0.00	0.00
8,600.00	90.00	180.00	5,918.00	-2,645.85	246.90	2,651.04	0.00	0.00	0.00
8,700.00	90.00	180.00	5,918.00	-2,745.85	246.90	2,751.02	0.00	0.00	0.00
8,800.00	90.00	180.00	5,918.00	-2,845.85	246.89	2,850.99	0.00	0.00	0.00
8,900.00	90.00	180.00	5,918.00	-2,945.85	246.89	2,950.96	0.00	0.00	0.00
9,000.00	90.00	180.00	5,918.00	-3,045.85	246.89	3,050.93	0.00	0.00	0.00
9,100.00	90.00	180.00	5,918.00	-3,145.85	246.89	3,150.90	0.00	0.00	0.00
9,200.00	90.00	180.00	5,918.00	-3,245.85	246.89	3,250.87	0.00	0.00	0.00
9,300.00	90.00	180.00	5,918.00	-3,345.85	246.88	3,350.84	0.00	0.00	0.00
9,400.00	90.00	180.00	5,918.00	-3,445.85	246.88	3,450.81	0.00	0.00	0.00
9,500.00	90.00	180.00	5,918.00	-3,545.85	246.88	3,550.78	0.00	0.00	0.00
9,600.00	90.00	180.00	5,918.00	-3,645.85	246.88	3,650.75	0.00	0.00	0.00
9,700.00	90.00	180.00	5,918.00	-3,745.85	246.88	3,750.72	0.00	0.00	0.00
9,800.00	90.00	180.00	5,918.00	-3,845.85	246.88	3,850.69	0.00	0.00	0.00
9,900.00	90.00	180.00	5,918.00	-3,945.85	246.87	3,950.66	0.00	0.00	0.00
10,000.00	90.00	180.00	5,918.00	-4,045.85	246.87	4,050.63	0.00	0.00	0.00
10,100.00	90.00	180.00	5,918.00	-4,145.85	246.87	4,150.61	0.00	0.00	0.00
10,200.00	90.00	180.00	5,918.00	-4,245.85	246.87	4,250.58	0.00	0.00	0.00
10,300.00	90.00	180.00	5,918.00	-4,345.85	246.87	4,350.55	0.00	0.00	0.00
10,400.00	90.00	180.00	5,918.00	-4,445.85	246.86	4,450.52	0.00	0.00	0.00
10,500.00	90.00	180.00	5,918.00	-4,545.85	246.86	4,550.49	0.00	0.00	0.00
10,600.00	90.00	180.00	5,918.00	-4,645.85	246.86	4,650.46	0.00	0.00	0.00
10,700.00	90.00	180.00	5,918.00	-4,745.85	246.86	4,750.43	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	APD		

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)
10,800.00	90.00	180.00	5,918.00	-4,845.85	246.86	4,850.40	0.00	0.00	0.00
10,900.00	90.00	180.00	5,918.00	-4,945.85	246.85	4,950.37	0.00	0.00	0.00
11,000.00	90.00	180.00	5,918.00	-5,045.85	246.85	5,050.34	0.00	0.00	0.00
11,100.00	90.00	180.00	5,918.00	-5,145.85	246.85	5,150.31	0.00	0.00	0.00
11,200.00	90.00	180.00	5,918.00	-5,245.85	246.85	5,250.28	0.00	0.00	0.00
11,300.00	90.00	180.00	5,918.00	-5,345.85	246.85	5,350.25	0.00	0.00	0.00
11,400.00	90.00	180.00	5,918.00	-5,445.85	246.85	5,450.22	0.00	0.00	0.00
11,500.00	90.00	180.00	5,918.00	-5,545.85	246.84	5,550.20	0.00	0.00	0.00
11,600.00	90.00	180.00	5,918.00	-5,645.85	246.84	5,650.17	0.00	0.00	0.00
11,700.00	90.00	180.00	5,918.00	-5,745.85	246.84	5,750.14	0.00	0.00	0.00
11,800.00	90.00	180.00	5,918.00	-5,845.85	246.84	5,850.11	0.00	0.00	0.00
11,900.00	90.00	180.00	5,918.00	-5,945.85	246.84	5,950.08	0.00	0.00	0.00
12,000.00	90.00	180.00	5,918.00	-6,045.85	246.83	6,050.05	0.00	0.00	0.00
12,100.00	90.00	180.00	5,918.00	-6,145.85	246.83	6,150.02	0.00	0.00	0.00
12,200.00	90.00	180.00	5,918.00	-6,245.85	246.83	6,249.99	0.00	0.00	0.00
12,300.00	90.00	180.00	5,918.00	-6,345.85	246.83	6,349.96	0.00	0.00	0.00
12,400.00	90.00	180.00	5,918.00	-6,445.85	246.83	6,449.93	0.00	0.00	0.00
12,500.00	90.00	180.00	5,918.00	-6,545.85	246.82	6,549.90	0.00	0.00	0.00
12,600.00	90.00	180.00	5,918.00	-6,645.85	246.82	6,649.87	0.00	0.00	0.00
12,700.00	90.00	180.00	5,918.00	-6,745.85	246.82	6,749.84	0.00	0.00	0.00
12,800.00	90.00	180.00	5,918.00	-6,845.85	246.82	6,849.81	0.00	0.00	0.00
12,900.00	90.00	180.00	5,918.00	-6,945.85	246.82	6,949.79	0.00	0.00	0.00
13,000.00	90.00	180.00	5,918.00	-7,045.85	246.82	7,049.76	0.00	0.00	0.00
13,100.00	90.00	180.00	5,918.00	-7,145.85	246.81	7,149.73	0.00	0.00	0.00
13,200.00	90.00	180.00	5,918.00	-7,245.85	246.81	7,249.70	0.00	0.00	0.00
13,300.00	90.00	180.00	5,918.00	-7,345.85	246.81	7,349.67	0.00	0.00	0.00
13,400.00	90.00	180.00	5,918.00	-7,445.85	246.81	7,449.64	0.00	0.00	0.00
13,500.00	90.00	180.00	5,918.00	-7,545.85	246.81	7,549.61	0.00	0.00	0.00
13,600.00	90.00	180.00	5,918.00	-7,645.85	246.80	7,649.58	0.00	0.00	0.00
13,700.00	90.00	180.00	5,918.00	-7,745.85	246.80	7,749.55	0.00	0.00	0.00
13,800.00	90.00	180.00	5,918.00	-7,845.85	246.80	7,849.52	0.00	0.00	0.00
13,900.00	90.00	180.00	5,918.00	-7,945.85	246.80	7,949.49	0.00	0.00	0.00
14,000.00	90.00	180.00	5,918.00	-8,045.85	246.80	8,049.46	0.00	0.00	0.00
14,100.00	90.00	180.00	5,918.00	-8,145.85	246.79	8,149.43	0.00	0.00	0.00
14,200.00	90.00	180.00	5,918.00	-8,245.85	246.79	8,249.40	0.00	0.00	0.00
14,300.00	90.00	180.00	5,918.00	-8,345.85	246.79	8,349.38	0.00	0.00	0.00
14,400.00	90.00	180.00	5,918.00	-8,445.85	246.79	8,449.35	0.00	0.00	0.00
14,500.00	90.00	180.00	5,918.00	-8,545.85	246.79	8,549.32	0.00	0.00	0.00
14,600.00	90.00	180.00	5,918.00	-8,645.85	246.79	8,649.29	0.00	0.00	0.00
14,700.00	90.00	180.00	5,918.00	-8,745.85	246.78	8,749.26	0.00	0.00	0.00
14,800.00	90.00	180.00	5,918.00	-8,845.85	246.78	8,849.23	0.00	0.00	0.00
14,900.00	90.00	180.00	5,918.00	-8,945.85	246.78	8,949.20	0.00	0.00	0.00
15,000.00	90.00	180.00	5,918.00	-9,045.85	246.78	9,049.17	0.00	0.00	0.00
15,100.00	90.00	180.00	5,918.00	-9,145.85	246.78	9,149.14	0.00	0.00	0.00
15,200.00	90.00	180.00	5,918.00	-9,245.85	246.77	9,249.11	0.00	0.00	0.00
15,300.00	90.00	180.00	5,918.00	-9,345.85	246.77	9,349.08	0.00	0.00	0.00
15,400.00	90.00	180.00	5,918.00	-9,445.85	246.77	9,449.05	0.00	0.00	0.00
15,500.00	90.00	180.00	5,918.00	-9,545.85	246.77	9,549.02	0.00	0.00	0.00
15,600.00	90.00	180.00	5,918.00	-9,645.85	246.77	9,648.99	0.00	0.00	0.00
15,700.00	90.00	180.00	5,918.00	-9,745.85	246.76	9,748.97	0.00	0.00	0.00
15,800.00	90.00	180.00	5,918.00	-9,845.85	246.76	9,848.94	0.00	0.00	0.00
15,900.00	90.00	180.00	5,918.00	-9,945.85	246.76	9,948.91	0.00	0.00	0.00
16,000.00	90.00	180.00	5,918.00	-10,045.85	246.76	10,048.88	0.00	0.00	0.00
16,100.00	90.00	180.00	5,918.00	-10,145.85	246.76	10,148.85	0.00	0.00	0.00



WOG Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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)
16,155.76	90.00	180.00	5,918.00	-10,201.61	246.76	10,204.59	0.00	0.00	0.00
TD at 16155.76' 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 1735	0.00	0.00	5,918.00	-10,201.61	246.76	1,550,511.89	3,475,264.97	40° 49' 54.840 N	103° 46' 56.990 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,228.07	5,918.00	7"	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,555.16	1,552.10	Upper Pierre				
3,510.54	3,502.10	Hygiene				
3,660.95	3,652.10	Lower Pierre				
5,530.95	5,517.10	P200 Marker				
5,546.42	5,532.10	P300 Marker				
5,567.25	5,552.10	P350 Marker				
5,738.17	5,704.10	Sharon Springs				
5,744.39	5,709.10	Niobrara				
5,769.84	5,729.10	Top A Chalk				
5,819.92	5,766.10	Top A Marl				
5,847.59	5,785.10	A Marl				
5,861.28	5,794.10	Top Upper B				
5,906.94	5,822.10	Base Upper B				
5,937.64	5,839.10	Top Lower B				
5,977.98	5,859.10	Base Lower B				
5,993.58	5,866.10	Top B Marl				
6,183.62	5,916.10	Top C Chalk				



WOG

Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Build 2°/100'
512.50	512.30	5.57	5.57	Hold 4.25° Inc
5,012.50	4,999.93	241.38	241.38	Drop 2°/100'
5,225.00	5,212.24	246.95	246.95	Hold Vertical
5,409.89	5,397.13	246.95	246.95	KOP, Build 11°/100'
6,228.07	5,918.00	-273.92	246.94	LP @ 90° Inc, Hold
16,155.76	5,918.00	-10,201.61	246.76	TD at 16155.76' MD