



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail #07H-1816**

**Hz**

**Plan: Design #1**

## **Standard Planning Report**

**27 March, 2015**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07H-1816
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07H-1816	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Design #1		

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

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

<b>Well</b>	Horsetail #07H-1816			
<b>Well Position</b>	<b>+N/-S</b>	-156.51 usft	<b>Northing:</b>	1,558,371.25 usft
	<b>+E/-W</b>	4,051.37 usft	<b>Easting:</b>	3,473,863.77 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	
			<b>Ground Level:</b>	4,908.90 usft

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

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	176.89

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
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	
612.50	6.25	38.00	611.88	13.42	10.48	2.00	2.00	0.00	38.00	
4,612.50	6.25	38.00	4,588.11	356.57	278.58	0.00	0.00	0.00	0.00	
4,925.00	0.00	0.00	4,899.99	369.99	289.07	2.00	-2.00	0.00	180.00	
5,341.14	0.00	0.00	5,316.13	369.99	289.07	0.00	0.00	0.00	0.00	
6,159.32	90.00	179.03	5,837.00	-150.81	297.88	11.00	11.00	0.00	179.03	PBHL 1816B
13,899.67	90.00	179.03	5,837.00	-7,890.04	428.91	0.00	0.00	0.00	0.00	PBHL 1816B



# WOG

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<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07H-1816	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	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	
<b>Build 2°/100'</b>										
400.00	2.00	38.00	399.98	1.38	1.07	-1.31	2.00	2.00	0.00	
500.00	4.00	38.00	499.84	5.50	4.30	-5.26	2.00	2.00	0.00	
600.00	6.00	38.00	599.45	12.37	9.66	-11.82	2.00	2.00	0.00	
612.50	6.25	38.00	611.88	13.42	10.48	-12.83	2.00	2.00	0.00	
<b>Hold 6.25° Inc</b>										
700.00	6.25	38.00	698.86	20.92	16.35	-20.01	0.00	0.00	0.00	
800.00	6.25	38.00	798.27	29.50	23.05	-28.21	0.00	0.00	0.00	
900.00	6.25	38.00	897.67	38.08	29.75	-36.41	0.00	0.00	0.00	
1,000.00	6.25	38.00	997.08	46.66	36.46	-44.61	0.00	0.00	0.00	
1,100.00	6.25	38.00	1,096.48	55.24	43.16	-52.82	0.00	0.00	0.00	
1,200.00	6.25	38.00	1,195.89	63.82	49.86	-61.02	0.00	0.00	0.00	
1,300.00	6.25	38.00	1,295.29	72.40	56.56	-69.22	0.00	0.00	0.00	
1,400.00	6.25	38.00	1,394.70	80.98	63.27	-77.42	0.00	0.00	0.00	
1,500.00	6.25	38.00	1,494.11	89.55	69.97	-85.62	0.00	0.00	0.00	
1,556.23	6.25	38.00	1,550.00	94.38	73.74	-90.24	0.00	0.00	0.00	
<b>Upper Pierre</b>										
1,600.00	6.25	38.00	1,593.51	98.13	76.67	-93.83	0.00	0.00	0.00	
1,700.00	6.25	38.00	1,692.92	106.71	83.37	-102.03	0.00	0.00	0.00	
1,800.00	6.25	38.00	1,792.32	115.29	90.08	-110.23	0.00	0.00	0.00	
1,900.00	6.25	38.00	1,891.73	123.87	96.78	-118.43	0.00	0.00	0.00	
2,000.00	6.25	38.00	1,991.13	132.45	103.48	-126.64	0.00	0.00	0.00	
2,100.00	6.25	38.00	2,090.54	141.03	110.18	-134.84	0.00	0.00	0.00	
2,200.00	6.25	38.00	2,189.95	149.61	116.89	-143.04	0.00	0.00	0.00	
2,300.00	6.25	38.00	2,289.35	158.19	123.59	-151.24	0.00	0.00	0.00	
2,400.00	6.25	38.00	2,388.76	166.76	130.29	-159.45	0.00	0.00	0.00	
2,500.00	6.25	38.00	2,488.16	175.34	136.99	-167.65	0.00	0.00	0.00	
2,600.00	6.25	38.00	2,587.57	183.92	143.70	-175.85	0.00	0.00	0.00	
2,700.00	6.25	38.00	2,686.97	192.50	150.40	-184.05	0.00	0.00	0.00	
2,800.00	6.25	38.00	2,786.38	201.08	157.10	-192.26	0.00	0.00	0.00	
2,900.00	6.25	38.00	2,885.78	209.66	163.80	-200.46	0.00	0.00	0.00	
3,000.00	6.25	38.00	2,985.19	218.24	170.51	-208.66	0.00	0.00	0.00	
3,100.00	6.25	38.00	3,084.60	226.82	177.21	-216.86	0.00	0.00	0.00	
3,200.00	6.25	38.00	3,184.00	235.39	183.91	-225.07	0.00	0.00	0.00	
3,300.00	6.25	38.00	3,283.41	243.97	190.61	-233.27	0.00	0.00	0.00	
3,400.00	6.25	38.00	3,382.81	252.55	197.32	-241.47	0.00	0.00	0.00	
3,500.00	6.25	38.00	3,482.22	261.13	204.02	-249.67	0.00	0.00	0.00	
3,517.89	6.25	38.00	3,500.00	262.67	205.22	-251.14	0.00	0.00	0.00	
<b>Hygiene</b>										
3,600.00	6.25	38.00	3,581.62	269.71	210.72	-257.87	0.00	0.00	0.00	
3,668.78	6.25	38.00	3,650.00	275.61	215.33	-263.52	0.00	0.00	0.00	
<b>Lower Pierre</b>										
3,700.00	6.25	38.00	3,681.03	278.29	217.42	-266.08	0.00	0.00	0.00	
3,800.00	6.25	38.00	3,780.44	286.87	224.13	-274.28	0.00	0.00	0.00	
3,900.00	6.25	38.00	3,879.84	295.45	230.83	-282.48	0.00	0.00	0.00	
4,000.00	6.25	38.00	3,979.25	304.03	237.53	-290.68	0.00	0.00	0.00	
4,100.00	6.25	38.00	4,078.65	312.60	244.23	-298.89	0.00	0.00	0.00	
4,200.00	6.25	38.00	4,178.06	321.18	250.94	-307.09	0.00	0.00	0.00	
4,300.00	6.25	38.00	4,277.46	329.76	257.64	-315.29	0.00	0.00	0.00	
4,400.00	6.25	38.00	4,376.87	338.34	264.34	-323.49	0.00	0.00	0.00	



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<b>Well:</b>	Horsetail #07H-1816	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	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	6.25	38.00	4,476.27	346.92	271.04	-331.70	0.00	0.00	0.00
4,600.00	6.25	38.00	4,575.68	355.50	277.75	-339.90	0.00	0.00	0.00
4,612.50	6.25	38.00	4,588.11	356.57	278.58	-340.92	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,700.00	4.50	38.00	4,675.22	363.03	283.63	-347.10	2.00	-2.00	0.00
4,800.00	2.50	38.00	4,775.03	367.84	287.39	-351.70	2.00	-2.00	0.00
4,900.00	0.50	38.00	4,874.99	369.90	289.00	-353.67	2.00	-2.00	0.00
4,925.00	0.00	0.00	4,899.99	369.99	289.07	-353.75	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,000.00	0.00	0.00	4,974.99	369.99	289.07	-353.75	0.00	0.00	0.00
5,100.00	0.00	0.00	5,074.99	369.99	289.07	-353.75	0.00	0.00	0.00
5,200.00	0.00	0.00	5,174.99	369.99	289.07	-353.75	0.00	0.00	0.00
5,300.00	0.00	0.00	5,274.99	369.99	289.07	-353.75	0.00	0.00	0.00
5,341.14	0.00	0.00	5,316.13	369.99	289.07	-353.75	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,350.00	0.97	179.03	5,324.99	369.91	289.07	-353.68	11.00	11.00	0.00
5,400.00	6.47	179.03	5,374.86	366.67	289.12	-350.43	11.00	11.00	0.00
5,450.00	11.97	179.03	5,424.20	358.66	289.26	-342.43	11.00	11.00	0.00
5,500.00	17.47	179.03	5,472.54	345.95	289.47	-329.73	11.00	11.00	0.00
5,545.19	22.45	179.03	5,515.00	330.53	289.73	-314.32	11.00	11.00	0.00
<b>P200 Marker</b>									
5,550.00	22.97	179.03	5,519.43	328.68	289.77	-312.46	11.00	11.00	0.00
5,561.53	24.24	179.03	5,530.00	324.06	289.84	-307.85	11.00	11.00	0.00
<b>P300 Marker</b>									
5,583.68	26.68	179.03	5,550.00	314.54	290.01	-298.33	11.00	11.00	0.00
<b>P350 Marker</b>									
5,600.00	28.47	179.03	5,564.46	306.99	290.13	-290.79	11.00	11.00	0.00
5,650.00	33.97	179.03	5,607.20	281.08	290.57	-264.89	11.00	11.00	0.00
5,700.00	39.47	179.03	5,647.26	251.20	291.08	-235.03	11.00	11.00	0.00
5,750.00	44.97	179.03	5,684.27	217.61	291.65	-201.46	11.00	11.00	0.00
5,775.70	47.80	179.03	5,702.00	199.01	291.96	-182.87	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,783.20	48.63	179.03	5,707.00	193.42	292.06	-177.28	11.00	11.00	0.00
<b>Niobrara</b>									
5,800.00	50.47	179.03	5,717.90	180.64	292.27	-164.51	11.00	11.00	0.00
5,814.55	52.08	179.03	5,727.00	169.29	292.46	-153.16	11.00	11.00	0.00
<b>Top A Chalk</b>									
5,850.00	55.97	179.03	5,747.82	140.61	292.95	-124.50	11.00	11.00	0.00
5,880.23	59.30	179.03	5,764.00	115.08	293.38	-98.98	11.00	11.00	0.00
<b>Top A Marl</b>									
5,900.00	61.47	179.03	5,773.77	97.90	293.67	-81.81	11.00	11.00	0.00
5,920.05	63.68	179.03	5,783.00	80.10	293.97	-64.03	11.00	11.00	0.00
<b>A Marl</b>									
5,941.23	66.01	179.03	5,792.00	60.94	294.30	-44.88	11.00	11.00	0.00
<b>Top Upper B</b>									
5,950.00	66.97	179.03	5,795.50	52.90	294.44	-36.84	11.00	11.00	0.00
6,000.00	72.47	179.03	5,812.82	6.02	295.23	10.02	11.00	11.00	0.00
6,025.89	75.32	179.03	5,820.00	-18.85	295.65	34.87	11.00	11.00	0.00
<b>Base Upper B</b>									
6,050.00	77.97	179.03	5,825.57	-42.30	296.05	58.31	11.00	11.00	0.00
6,100.00	83.47	179.03	5,833.62	-91.62	296.88	107.60	11.00	11.00	0.00
6,150.00	88.97	179.03	5,836.91	-141.49	297.73	157.44	11.00	11.00	0.00



# WOG

## Planning Report

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<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
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<b>Wellbore:</b>	Hz		
<b>Design:</b>	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)
6,159.32	90.00	179.03	5,837.00	-150.81	297.88	166.75	11.00	11.00	0.00
LP @ 90° Inc, Hold - Top Lower B - 7"									
6,200.00	90.00	179.03	5,837.00	-191.48	298.57	207.41	0.00	0.00	0.00
6,300.00	90.00	179.03	5,837.00	-291.47	300.27	307.34	0.00	0.00	0.00
6,400.00	90.00	179.03	5,837.00	-391.45	301.96	407.27	0.00	0.00	0.00
6,500.00	90.00	179.03	5,837.00	-491.44	303.65	507.20	0.00	0.00	0.00
6,600.00	90.00	179.03	5,837.00	-591.42	305.34	607.13	0.00	0.00	0.00
6,700.00	90.00	179.03	5,837.00	-691.41	307.04	707.06	0.00	0.00	0.00
6,800.00	90.00	179.03	5,837.00	-791.39	308.73	806.99	0.00	0.00	0.00
6,900.00	90.00	179.03	5,837.00	-891.38	310.42	906.92	0.00	0.00	0.00
7,000.00	90.00	179.03	5,837.00	-991.37	312.11	1,006.85	0.00	0.00	0.00
7,100.00	90.00	179.03	5,837.00	-1,091.35	313.81	1,106.78	0.00	0.00	0.00
7,200.00	90.00	179.03	5,837.00	-1,191.34	315.50	1,206.71	0.00	0.00	0.00
7,300.00	90.00	179.03	5,837.00	-1,291.32	317.19	1,306.64	0.00	0.00	0.00
7,400.00	90.00	179.03	5,837.00	-1,391.31	318.89	1,406.57	0.00	0.00	0.00
7,500.00	90.00	179.03	5,837.00	-1,491.29	320.58	1,506.50	0.00	0.00	0.00
7,600.00	90.00	179.03	5,837.00	-1,591.28	322.27	1,606.43	0.00	0.00	0.00
7,700.00	90.00	179.03	5,837.00	-1,691.27	323.96	1,706.36	0.00	0.00	0.00
7,800.00	90.00	179.03	5,837.00	-1,791.25	325.66	1,806.29	0.00	0.00	0.00
7,900.00	90.00	179.03	5,837.00	-1,891.24	327.35	1,906.22	0.00	0.00	0.00
8,000.00	90.00	179.03	5,837.00	-1,991.22	329.04	2,006.15	0.00	0.00	0.00
8,100.00	90.00	179.03	5,837.00	-2,091.21	330.74	2,106.08	0.00	0.00	0.00
8,200.00	90.00	179.03	5,837.00	-2,191.19	332.43	2,206.01	0.00	0.00	0.00
8,300.00	90.00	179.03	5,837.00	-2,291.18	334.12	2,305.94	0.00	0.00	0.00
8,400.00	90.00	179.03	5,837.00	-2,391.17	335.81	2,405.87	0.00	0.00	0.00
8,500.00	90.00	179.03	5,837.00	-2,491.15	337.51	2,505.80	0.00	0.00	0.00
8,600.00	90.00	179.03	5,837.00	-2,591.14	339.20	2,605.73	0.00	0.00	0.00
8,700.00	90.00	179.03	5,837.00	-2,691.12	340.89	2,705.66	0.00	0.00	0.00
8,800.00	90.00	179.03	5,837.00	-2,791.11	342.59	2,805.59	0.00	0.00	0.00
8,900.00	90.00	179.03	5,837.00	-2,891.09	344.28	2,905.52	0.00	0.00	0.00
9,000.00	90.00	179.03	5,837.00	-2,991.08	345.97	3,005.45	0.00	0.00	0.00
9,100.00	90.00	179.03	5,837.00	-3,091.07	347.66	3,105.38	0.00	0.00	0.00
9,200.00	90.00	179.03	5,837.00	-3,191.05	349.36	3,205.31	0.00	0.00	0.00
9,300.00	90.00	179.03	5,837.00	-3,291.04	351.05	3,305.24	0.00	0.00	0.00
9,400.00	90.00	179.03	5,837.00	-3,391.02	352.74	3,405.17	0.00	0.00	0.00
9,500.00	90.00	179.03	5,837.00	-3,491.01	354.43	3,505.10	0.00	0.00	0.00
9,600.00	90.00	179.03	5,837.00	-3,590.99	356.13	3,605.03	0.00	0.00	0.00
9,700.00	90.00	179.03	5,837.00	-3,690.98	357.82	3,704.96	0.00	0.00	0.00
9,800.00	90.00	179.03	5,837.00	-3,790.96	359.51	3,804.89	0.00	0.00	0.00
9,900.00	90.00	179.03	5,837.00	-3,890.95	361.21	3,904.82	0.00	0.00	0.00
10,000.00	90.00	179.03	5,837.00	-3,990.94	362.90	4,004.75	0.00	0.00	0.00
10,100.00	90.00	179.03	5,837.00	-4,090.92	364.59	4,104.68	0.00	0.00	0.00
10,200.00	90.00	179.03	5,837.00	-4,190.91	366.28	4,204.61	0.00	0.00	0.00
10,300.00	90.00	179.03	5,837.00	-4,290.89	367.98	4,304.54	0.00	0.00	0.00
10,400.00	90.00	179.03	5,837.00	-4,390.88	369.67	4,404.47	0.00	0.00	0.00
10,500.00	90.00	179.03	5,837.00	-4,490.86	371.36	4,504.40	0.00	0.00	0.00
10,600.00	90.00	179.03	5,837.00	-4,590.85	373.06	4,604.33	0.00	0.00	0.00
10,700.00	90.00	179.03	5,837.00	-4,690.84	374.75	4,704.26	0.00	0.00	0.00
10,800.00	90.00	179.03	5,837.00	-4,790.82	376.44	4,804.19	0.00	0.00	0.00
10,900.00	90.00	179.03	5,837.00	-4,890.81	378.13	4,904.12	0.00	0.00	0.00
11,000.00	90.00	179.03	5,837.00	-4,990.79	379.83	5,004.05	0.00	0.00	0.00
11,100.00	90.00	179.03	5,837.00	-5,090.78	381.52	5,103.98	0.00	0.00	0.00
11,200.00	90.00	179.03	5,837.00	-5,190.76	383.21	5,203.91	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07H-1816
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07H-1816	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	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)
11,300.00	90.00	179.03	5,837.00	-5,290.75	384.90	5,303.84	0.00	0.00	0.00
11,400.00	90.00	179.03	5,837.00	-5,390.74	386.60	5,403.77	0.00	0.00	0.00
11,500.00	90.00	179.03	5,837.00	-5,490.72	388.29	5,503.70	0.00	0.00	0.00
11,600.00	90.00	179.03	5,837.00	-5,590.71	389.98	5,603.63	0.00	0.00	0.00
11,700.00	90.00	179.03	5,837.00	-5,690.69	391.68	5,703.56	0.00	0.00	0.00
11,800.00	90.00	179.03	5,837.00	-5,790.68	393.37	5,803.49	0.00	0.00	0.00
11,900.00	90.00	179.03	5,837.00	-5,890.66	395.06	5,903.42	0.00	0.00	0.00
12,000.00	90.00	179.03	5,837.00	-5,990.65	396.75	6,003.35	0.00	0.00	0.00
12,100.00	90.00	179.03	5,837.00	-6,090.64	398.45	6,103.28	0.00	0.00	0.00
12,200.00	90.00	179.03	5,837.00	-6,190.62	400.14	6,203.21	0.00	0.00	0.00
12,300.00	90.00	179.03	5,837.00	-6,290.61	401.83	6,303.14	0.00	0.00	0.00
12,400.00	90.00	179.03	5,837.00	-6,390.59	403.53	6,403.07	0.00	0.00	0.00
12,500.00	90.00	179.03	5,837.00	-6,490.58	405.22	6,503.00	0.00	0.00	0.00
12,600.00	90.00	179.03	5,837.00	-6,590.56	406.91	6,602.93	0.00	0.00	0.00
12,700.00	90.00	179.03	5,837.00	-6,690.55	408.60	6,702.86	0.00	0.00	0.00
12,800.00	90.00	179.03	5,837.00	-6,790.54	410.30	6,802.80	0.00	0.00	0.00
12,900.00	90.00	179.03	5,837.00	-6,890.52	411.99	6,902.73	0.00	0.00	0.00
13,000.00	90.00	179.03	5,837.00	-6,990.51	413.68	7,002.66	0.00	0.00	0.00
13,100.00	90.00	179.03	5,837.00	-7,090.49	415.38	7,102.59	0.00	0.00	0.00
13,200.00	90.00	179.03	5,837.00	-7,190.48	417.07	7,202.52	0.00	0.00	0.00
13,300.00	90.00	179.03	5,837.00	-7,290.46	418.76	7,302.45	0.00	0.00	0.00
13,400.00	90.00	179.03	5,837.00	-7,390.45	420.45	7,402.38	0.00	0.00	0.00
13,500.00	90.00	179.03	5,837.00	-7,490.43	422.15	7,502.31	0.00	0.00	0.00
13,600.00	90.00	179.03	5,837.00	-7,590.42	423.84	7,602.24	0.00	0.00	0.00
13,700.00	90.00	179.03	5,837.00	-7,690.41	425.53	7,702.17	0.00	0.00	0.00
13,800.00	90.00	179.03	5,837.00	-7,790.39	427.22	7,802.10	0.00	0.00	0.00
13,899.67	90.00	179.03	5,837.00	-7,890.04	428.91	7,901.69	0.00	0.00	0.00
TD at 13899.67' 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 1816B	0.00	0.00	5,837.00	-7,890.04	428.91	1,550,490.96	3,474,445.01	40° 49' 54.790 N	103° 47' 7.660 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,159.32	5,837.00	7"	7.000	8.750	



# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07H-1816
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4925.90usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07H-1816	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Design #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,556.23	1,550.00	Upper Pierre				
3,517.89	3,500.00	Hygiene				
3,668.78	3,650.00	Lower Pierre				
5,545.19	5,515.00	P200 Marker				
5,561.53	5,530.00	P300 Marker				
5,583.68	5,550.00	P350 Marker				
5,775.70	5,702.00	Sharon Springs				
5,783.20	5,707.00	Niobrara				
5,814.55	5,727.00	Top A Chalk				
5,880.23	5,764.00	Top A Marl				
5,920.05	5,783.00	A Marl				
5,941.23	5,792.00	Top Upper B				
6,025.89	5,820.00	Base Upper B				
6,159.32	5,837.00	Top Lower B				

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'	
612.50	611.88	13.42	10.48	Hold 6.25° Inc	
4,612.50	4,588.11	356.57	278.58	Drop 2°/100'	
4,925.00	4,899.99	369.99	289.07	Hold Vertical	
5,341.14	5,316.13	369.99	289.07	KOP, Build 11°/100'	
6,159.32	5,837.00	-150.81	297.88	LP @ 90° Inc, Hold	
13,899.67	5,837.00	-7,890.04	428.91	TD at 13899.67' MD	