



Project: Weld County, CO  
Site: Sec 7-T10N-R57W  
Well: Horsetail Fed #07F-0606  
Wellbore: Hz  
Design: Design #1

PROJECT DETAILS: Weld County, CO

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

FORMATION TOP DETAILS

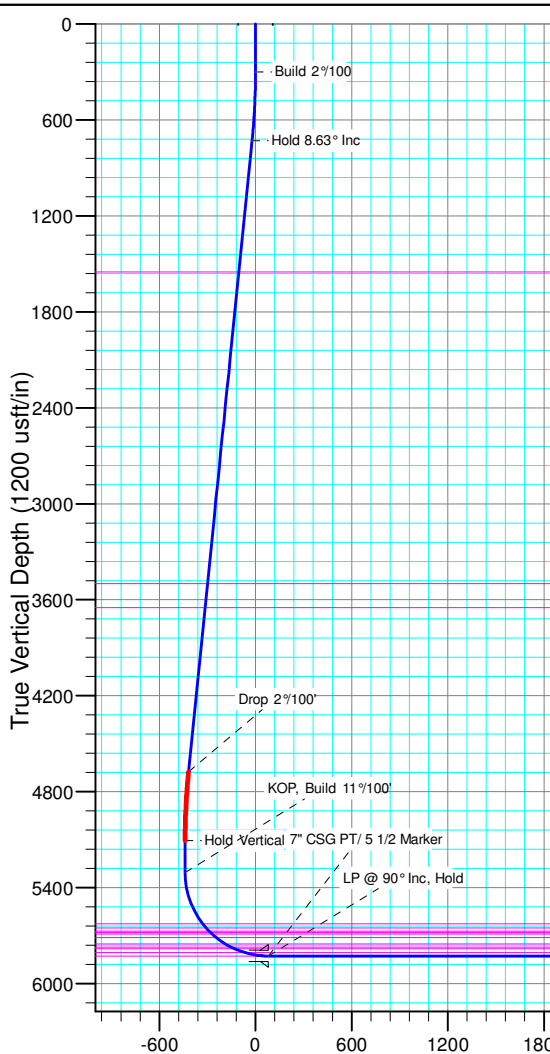
TVDPATH	MDPATH	Formation
1550.00	1561.03	Upper Pierre
3500.00	3533.38	Hygiene
3650.00	3685.10	Lower Pierre
5626.00	5698.82	P200 Marker
5653.00	5733.91	P300 Marker
5672.00	5759.91	P350 Marker
5681.00	5772.68	Sharon Springs
5690.00	5785.78	Niobrara
5713.00	5821.02	Top A Chalk
5752.00	5888.94	Top A Marl
5772.00	5930.11	A Marl
5783.00	5955.76	Top Upper B
5806.00	6021.95	Base Upper B
5828.00	6173.89	Top Lower B

WELL DETAILS: Horsetail Fed #07F-0606

+N/-S	+E/-W	Northing	Ground Level: 4899.00	Easting	Latitude	Longitude	Slot
0.00	0.00	1558347.28		3471360.86	40° 51' 12.990 N	103° 47' 45.810 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	731.71	8.63	224.96	730.08	-22.97	-22.94	2.00	224.96	-21.46	
4	4723.80	8.63	224.96	4676.92	-447.03	-446.45	0.00	0.00	-417.54	
5	5155.51	0.00	0.00	5107.00	-470.00	-469.39	2.00	180.00	-439.00	
6	5355.51	0.00	0.00	5307.00	-470.00	-469.39	0.00	0.00	-439.00	
7	6173.89	90.00	360.00	5828.00	51.00	-469.39	11.00	360.00	80.94	
8	13442.23	90.00	360.00	5828.00	7319.34	-469.39	0.00	0.00	7334.37	PBHL 0606B



ANNOTATIONS								
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
730.08	731.71	8.63	224.96	-22.97	-22.94	-21.46	32.47	Hold 8.63° Inc
4676.92	4723.80	8.63	224.96	-447.03	-446.45	-417.54	631.78	Drop 2°/100'
5107.00	5155.51	0.00	0.00	-470.00	-469.39	-439.00	664.25	Hold Vertical
5307.00	5355.51	0.00	0.00	-470.00	-469.39	-439.00	664.25	KOP, Build 11°/100'
5828.00	6173.89	90.00	360.00	51.00	-469.39	80.94	1185.25	LP @ 90° Inc, Hold
5828.00	13442.23	90.00	360.00	7319.34	-469.39	7334.37	8453.59	TD at 13442.23

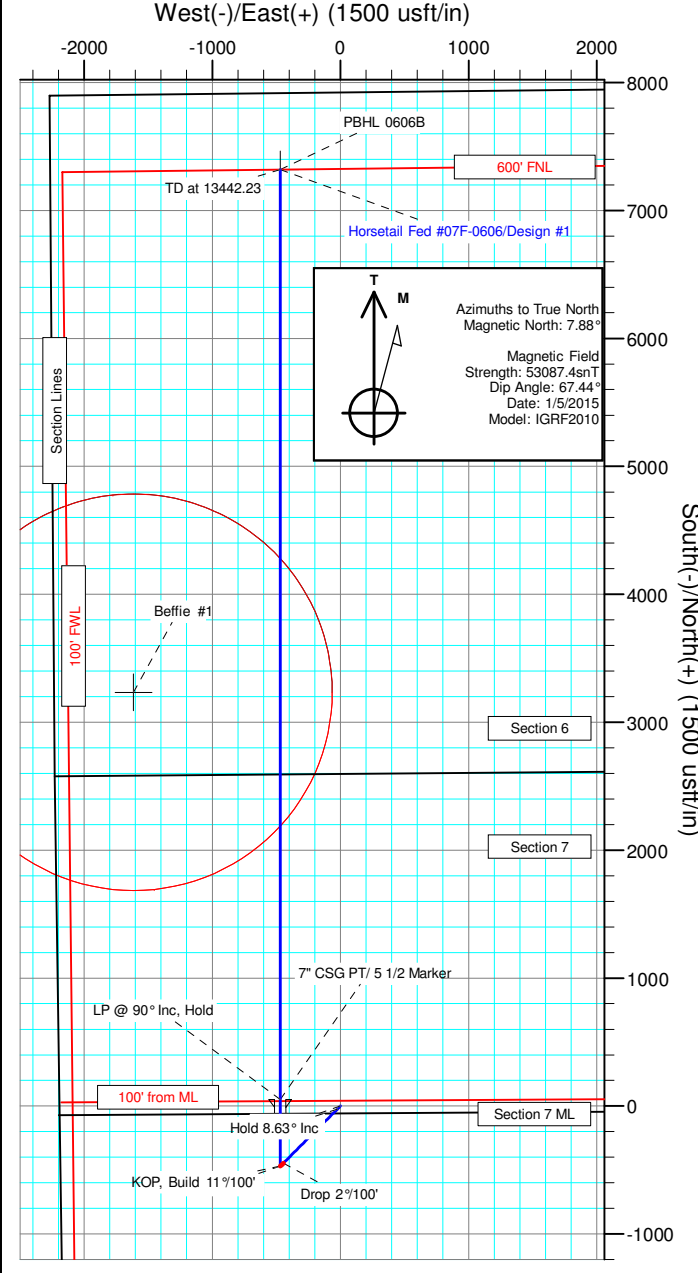
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 0606B	5828.00	7319.34	-469.39	1565656.25	3470750.92	40° 52' 25.310 N	103° 47' 51.920 W
Beffie #1	6713.00	3233.89	-1614.48	1561549.55	3469684.54	40° 51' 44.942 N	103° 48' 6.822 W

SHL:  
2596' FNL, 2207' FWL  
Sec7-T10N-R57W

BHL:  
600' FNL, 1796' FWL  
Sec6-T10N-R57W

7" CSG PT/ 5 1/2" Marker:  
2545' FNL, 1737' FWL  
Sec7-T10N-R57W

Enter Beffie #1  
1550' Radius @ 8344'  
MD  
Exit Beffie #1  
1550' Radius @ 10353' MD



Vertical Section at 356.33° (1200 usft/in)



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail Fed #07F-0606**

**Hz**

**Plan: Design #1**

## **Standard Planning Report**

**12 November, 2015**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07F-0606
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4920.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4920.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail Fed #07F-0606	<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 Fed #07F-0606			
<b>Well Position</b>	<b>+N/-S</b>	-132.53 usft	<b>Northing:</b>	1,558,347.29 usft
	<b>+E/-W</b>	1,548.45 usft	<b>Easting:</b>	3,471,360.85 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 4,899.00 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	1/5/2015	7.88	67.44	53,087

<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	356.33

<b>Plan Sections</b>										
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	
737.27	8.75	224.30	735.57	-23.84	-23.26	2.00	2.00	0.00	224.30	
4,719.42	8.75	224.30	4,671.43	-457.16	-446.13	0.00	0.00	0.00	0.00	
5,156.69	0.00	0.00	5,107.00	-481.00	-469.39	2.00	-2.00	0.00	180.00	
5,356.69	0.00	0.00	5,307.00	-481.00	-469.39	0.00	0.00	0.00	0.00	
6,175.07	90.00	360.00	5,828.00	40.00	-469.39	11.00	11.00	0.00	360.00	
13,454.41	90.00	360.00	5,828.00	7,319.34	-469.39	0.00	0.00	0.00	0.00	PBHL 0606B



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07F-0606
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4920.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4920.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail Fed #07F-0606	<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	224.30	399.98	-1.25	-1.22	-1.17	2.00	2.00	0.00
500.00	4.00	224.30	499.84	-4.99	-4.87	-4.67	2.00	2.00	0.00
600.00	6.00	224.30	599.45	-11.23	-10.96	-10.51	2.00	2.00	0.00
700.00	8.00	224.30	698.70	-19.95	-19.47	-18.67	2.00	2.00	0.00
737.27	8.75	224.30	735.57	-23.84	-23.26	-22.30	2.00	2.00	0.00
<b>Hold 8.75° Inc</b>									
800.00	8.75	224.30	797.57	-30.66	-29.92	-28.69	0.00	0.00	0.00
900.00	8.75	224.30	896.41	-41.55	-40.54	-38.87	0.00	0.00	0.00
1,000.00	8.75	224.30	995.25	-52.43	-51.16	-49.05	0.00	0.00	0.00
1,100.00	8.75	224.30	1,094.09	-63.31	-61.78	-59.22	0.00	0.00	0.00
1,200.00	8.75	224.30	1,192.92	-74.19	-72.40	-69.40	0.00	0.00	0.00
1,300.00	8.75	224.30	1,291.76	-85.07	-83.02	-79.58	0.00	0.00	0.00
1,400.00	8.75	224.30	1,390.60	-95.95	-93.64	-89.76	0.00	0.00	0.00
1,500.00	8.75	224.30	1,489.44	-106.84	-104.26	-99.94	0.00	0.00	0.00
1,561.28	8.75	224.30	1,550.00	-113.50	-110.76	-106.18	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	8.75	224.30	1,588.27	-117.72	-114.88	-110.12	0.00	0.00	0.00
1,700.00	8.75	224.30	1,687.11	-128.60	-125.49	-120.30	0.00	0.00	0.00
1,800.00	8.75	224.30	1,785.95	-139.48	-136.11	-130.48	0.00	0.00	0.00
1,900.00	8.75	224.30	1,884.79	-150.36	-146.73	-140.66	0.00	0.00	0.00
2,000.00	8.75	224.30	1,983.62	-161.24	-157.35	-150.84	0.00	0.00	0.00
2,100.00	8.75	224.30	2,082.46	-172.13	-167.97	-161.02	0.00	0.00	0.00
2,200.00	8.75	224.30	2,181.30	-183.01	-178.59	-171.20	0.00	0.00	0.00
2,300.00	8.75	224.30	2,280.14	-193.89	-189.21	-181.38	0.00	0.00	0.00
2,400.00	8.75	224.30	2,378.97	-204.77	-199.83	-191.56	0.00	0.00	0.00
2,500.00	8.75	224.30	2,477.81	-215.65	-210.45	-201.74	0.00	0.00	0.00
2,600.00	8.75	224.30	2,576.65	-226.53	-221.07	-211.92	0.00	0.00	0.00
2,700.00	8.75	224.30	2,675.48	-237.42	-231.69	-222.10	0.00	0.00	0.00
2,800.00	8.75	224.30	2,774.32	-248.30	-242.30	-232.28	0.00	0.00	0.00
2,900.00	8.75	224.30	2,873.16	-259.18	-252.92	-242.46	0.00	0.00	0.00
3,000.00	8.75	224.30	2,972.00	-270.06	-263.54	-252.64	0.00	0.00	0.00
3,100.00	8.75	224.30	3,070.83	-280.94	-274.16	-262.82	0.00	0.00	0.00
3,200.00	8.75	224.30	3,169.67	-291.82	-284.78	-273.00	0.00	0.00	0.00
3,300.00	8.75	224.30	3,268.51	-302.71	-295.40	-283.18	0.00	0.00	0.00
3,400.00	8.75	224.30	3,367.35	-313.59	-306.02	-293.36	0.00	0.00	0.00
3,500.00	8.75	224.30	3,466.18	-324.47	-316.64	-303.54	0.00	0.00	0.00
3,534.21	8.75	224.30	3,500.00	-328.19	-320.27	-307.02	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	8.75	224.30	3,565.02	-335.35	-327.26	-313.72	0.00	0.00	0.00
3,685.98	8.75	224.30	3,650.00	-344.71	-336.39	-322.47	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,700.00	8.75	224.30	3,663.86	-346.23	-337.88	-323.90	0.00	0.00	0.00
3,800.00	8.75	224.30	3,762.70	-357.11	-348.49	-334.08	0.00	0.00	0.00
3,900.00	8.75	224.30	3,861.53	-368.00	-359.11	-344.26	0.00	0.00	0.00
4,000.00	8.75	224.30	3,960.37	-378.88	-369.73	-354.44	0.00	0.00	0.00
4,100.00	8.75	224.30	4,059.21	-389.76	-380.35	-364.62	0.00	0.00	0.00
4,200.00	8.75	224.30	4,158.05	-400.64	-390.97	-374.80	0.00	0.00	0.00
4,300.00	8.75	224.30	4,256.88	-411.52	-401.59	-384.98	0.00	0.00	0.00
4,400.00	8.75	224.30	4,355.72	-422.40	-412.21	-395.16	0.00	0.00	0.00



# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07F-0606
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4920.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4920.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail Fed #07F-0606	<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	8.75	224.30	4,454.56	-433.29	-422.83	-405.34	0.00	0.00	0.00
4,600.00	8.75	224.30	4,553.39	-444.17	-433.45	-415.52	0.00	0.00	0.00
4,700.00	8.75	224.30	4,652.23	-455.05	-444.07	-425.70	0.00	0.00	0.00
4,719.42	8.75	224.30	4,671.43	-457.16	-446.13	-427.67	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,800.00	7.13	224.30	4,751.23	-465.13	-453.90	-435.13	2.00	-2.00	0.00
4,900.00	5.13	224.30	4,850.65	-472.78	-461.36	-442.28	2.00	-2.00	0.00
5,000.00	3.13	224.30	4,950.39	-477.93	-466.40	-447.11	2.00	-2.00	0.00
5,100.00	1.13	224.30	5,050.31	-480.60	-469.00	-449.60	2.00	-2.00	0.00
5,156.69	0.00	0.00	5,107.00	-481.00	-469.39	-449.97	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,200.00	0.00	0.00	5,150.31	-481.00	-469.39	-449.97	0.00	0.00	0.00
5,300.00	0.00	0.00	5,250.31	-481.00	-469.39	-449.97	0.00	0.00	0.00
5,356.69	0.00	0.00	5,307.00	-481.00	-469.39	-449.97	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,400.00	4.76	360.00	5,350.26	-479.20	-469.39	-448.18	11.00	11.00	0.00
5,450.00	10.26	360.00	5,399.81	-472.67	-469.39	-441.66	11.00	11.00	0.00
5,500.00	15.76	360.00	5,448.51	-461.41	-469.39	-430.43	11.00	11.00	0.00
5,550.00	21.26	360.00	5,495.91	-445.55	-469.39	-414.59	11.00	11.00	0.00
5,600.00	26.76	360.00	5,541.56	-425.21	-469.39	-394.30	11.00	11.00	0.00
5,650.00	32.26	360.00	5,585.06	-400.59	-469.39	-369.73	11.00	11.00	0.00
5,700.00	37.75	360.00	5,626.00	-371.92	-469.39	-341.12	11.00	11.00	0.00
<b>P200 Marker</b>									
5,735.09	41.61	360.00	5,653.00	-349.52	-469.39	-318.76	11.00	11.00	0.00
<b>P300 Marker</b>									
5,750.00	43.25	360.00	5,664.00	-339.46	-469.39	-308.72	11.00	11.00	0.00
5,761.09	44.47	360.00	5,672.00	-331.77	-469.39	-301.05	11.00	11.00	0.00
<b>P350 Marker</b>									
5,773.86	45.88	360.00	5,681.00	-322.72	-469.39	-292.02	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,786.96	47.32	360.00	5,690.00	-313.20	-469.39	-282.52	11.00	11.00	0.00
<b>Niobrara</b>									
5,800.00	48.75	360.00	5,698.72	-303.51	-469.39	-272.84	11.00	11.00	0.00
5,822.20	51.19	360.00	5,713.00	-286.50	-469.39	-255.88	11.00	11.00	0.00
<b>Top A Chalk</b>									
5,850.00	54.25	360.00	5,729.83	-264.39	-469.39	-233.81	11.00	11.00	0.00
5,890.13	58.66	360.00	5,752.00	-230.95	-469.39	-200.44	11.00	11.00	0.00
<b>Top A Marl</b>									
5,900.00	59.75	360.00	5,757.06	-222.47	-469.39	-191.98	11.00	11.00	0.00
5,931.30	63.19	360.00	5,772.00	-194.98	-469.39	-164.54	11.00	11.00	0.00
<b>A Marl</b>									
5,950.00	65.25	360.00	5,780.13	-178.14	-469.39	-147.73	11.00	11.00	0.00
5,956.94	66.01	360.00	5,783.00	-171.81	-469.39	-141.42	11.00	11.00	0.00
<b>Top Upper B</b>									
6,000.00	70.75	360.00	5,798.86	-131.80	-469.39	-101.49	11.00	11.00	0.00
6,023.13	73.29	360.00	5,806.00	-109.80	-469.39	-79.53	11.00	11.00	0.00
<b>Base Upper B</b>									
6,050.00	76.25	360.00	5,813.06	-83.88	-469.39	-53.66	11.00	11.00	0.00
6,100.00	81.74	360.00	5,822.60	-34.82	-469.39	-4.70	11.00	11.00	0.00
6,150.00	87.24	360.00	5,827.40	14.94	-469.39	44.94	11.00	11.00	0.00
6,175.07	90.00	360.00	5,828.00	40.00	-469.39	69.95	11.00	11.00	0.00
<b>LP @ 90° Inc, Hold - Top Lower B - 7" CSG PT/ 5 1/2 Marker</b>									



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07F-0606
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4920.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4920.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail Fed #07F-0606	<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)
6,200.00	90.00	360.00	5,828.00	64.93	-469.39	94.83	0.00	0.00	0.00
6,300.00	90.00	360.00	5,828.00	164.93	-469.39	194.63	0.00	0.00	0.00
6,400.00	90.00	360.00	5,828.00	264.93	-469.39	294.42	0.00	0.00	0.00
6,500.00	90.00	360.00	5,828.00	364.93	-469.39	394.22	0.00	0.00	0.00
6,600.00	90.00	360.00	5,828.00	464.93	-469.39	494.01	0.00	0.00	0.00
6,700.00	90.00	360.00	5,828.00	564.93	-469.39	593.81	0.00	0.00	0.00
6,800.00	90.00	360.00	5,828.00	664.93	-469.39	693.60	0.00	0.00	0.00
6,900.00	90.00	360.00	5,828.00	764.93	-469.39	793.40	0.00	0.00	0.00
7,000.00	90.00	360.00	5,828.00	864.93	-469.39	893.19	0.00	0.00	0.00
7,100.00	90.00	360.00	5,828.00	964.93	-469.39	992.99	0.00	0.00	0.00
7,200.00	90.00	360.00	5,828.00	1,064.93	-469.39	1,092.78	0.00	0.00	0.00
7,300.00	90.00	360.00	5,828.00	1,164.93	-469.39	1,192.58	0.00	0.00	0.00
7,400.00	90.00	360.00	5,828.00	1,264.93	-469.39	1,292.37	0.00	0.00	0.00
7,500.00	90.00	360.00	5,828.00	1,364.93	-469.39	1,392.17	0.00	0.00	0.00
7,600.00	90.00	360.00	5,828.00	1,464.93	-469.39	1,491.96	0.00	0.00	0.00
7,700.00	90.00	360.00	5,828.00	1,564.93	-469.39	1,591.76	0.00	0.00	0.00
7,800.00	90.00	360.00	5,828.00	1,664.93	-469.39	1,691.55	0.00	0.00	0.00
7,900.00	90.00	360.00	5,828.00	1,764.93	-469.39	1,791.35	0.00	0.00	0.00
8,000.00	90.00	360.00	5,828.00	1,864.93	-469.39	1,891.14	0.00	0.00	0.00
8,100.00	90.00	360.00	5,828.00	1,964.93	-469.39	1,990.94	0.00	0.00	0.00
8,200.00	90.00	360.00	5,828.00	2,064.93	-469.39	2,090.73	0.00	0.00	0.00
8,300.00	90.00	360.00	5,828.00	2,164.93	-469.39	2,190.53	0.00	0.00	0.00
8,400.00	90.00	360.00	5,828.00	2,264.93	-469.39	2,290.32	0.00	0.00	0.00
8,500.00	90.00	360.00	5,828.00	2,364.93	-469.39	2,390.12	0.00	0.00	0.00
8,600.00	90.00	360.00	5,828.00	2,464.93	-469.39	2,489.91	0.00	0.00	0.00
8,700.00	90.00	360.00	5,828.00	2,564.93	-469.39	2,589.71	0.00	0.00	0.00
8,800.00	90.00	360.00	5,828.00	2,664.93	-469.39	2,689.50	0.00	0.00	0.00
8,900.00	90.00	360.00	5,828.00	2,764.93	-469.39	2,789.30	0.00	0.00	0.00
9,000.00	90.00	360.00	5,828.00	2,864.93	-469.39	2,889.09	0.00	0.00	0.00
9,100.00	90.00	360.00	5,828.00	2,964.93	-469.39	2,988.89	0.00	0.00	0.00
9,200.00	90.00	360.00	5,828.00	3,064.93	-469.39	3,088.68	0.00	0.00	0.00
9,300.00	90.00	360.00	5,828.00	3,164.93	-469.39	3,188.48	0.00	0.00	0.00
9,400.00	90.00	360.00	5,828.00	3,264.93	-469.39	3,288.27	0.00	0.00	0.00
9,500.00	90.00	360.00	5,828.00	3,364.93	-469.39	3,388.07	0.00	0.00	0.00
9,600.00	90.00	360.00	5,828.00	3,464.93	-469.39	3,487.86	0.00	0.00	0.00
9,700.00	90.00	360.00	5,828.00	3,564.93	-469.39	3,587.66	0.00	0.00	0.00
9,800.00	90.00	360.00	5,828.00	3,664.93	-469.39	3,687.45	0.00	0.00	0.00
9,900.00	90.00	360.00	5,828.00	3,764.93	-469.39	3,787.25	0.00	0.00	0.00
10,000.00	90.00	360.00	5,828.00	3,864.93	-469.39	3,887.04	0.00	0.00	0.00
10,100.00	90.00	360.00	5,828.00	3,964.93	-469.39	3,986.84	0.00	0.00	0.00
10,200.00	90.00	360.00	5,828.00	4,064.93	-469.39	4,086.63	0.00	0.00	0.00
10,300.00	90.00	360.00	5,828.00	4,164.93	-469.39	4,186.43	0.00	0.00	0.00
10,400.00	90.00	360.00	5,828.00	4,264.93	-469.39	4,286.22	0.00	0.00	0.00
10,500.00	90.00	360.00	5,828.00	4,364.93	-469.39	4,386.02	0.00	0.00	0.00
10,600.00	90.00	360.00	5,828.00	4,464.93	-469.39	4,485.81	0.00	0.00	0.00
10,700.00	90.00	360.00	5,828.00	4,564.93	-469.39	4,585.61	0.00	0.00	0.00
10,800.00	90.00	360.00	5,828.00	4,664.93	-469.39	4,685.40	0.00	0.00	0.00
10,900.00	90.00	360.00	5,828.00	4,764.93	-469.39	4,785.20	0.00	0.00	0.00
11,000.00	90.00	360.00	5,828.00	4,864.93	-469.39	4,884.99	0.00	0.00	0.00
11,100.00	90.00	360.00	5,828.00	4,964.93	-469.39	4,984.79	0.00	0.00	0.00
11,200.00	90.00	360.00	5,828.00	5,064.93	-469.39	5,084.58	0.00	0.00	0.00
11,300.00	90.00	360.00	5,828.00	5,164.93	-469.39	5,184.38	0.00	0.00	0.00
11,400.00	90.00	360.00	5,828.00	5,264.93	-469.39	5,284.17	0.00	0.00	0.00
11,500.00	90.00	360.00	5,828.00	5,364.93	-469.39	5,383.97	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07F-0606
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4920.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4920.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail Fed #07F-0606	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H2		
<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)
11,600.00	90.00	360.00	5,828.00	5,464.93	-469.39	5,483.76	0.00	0.00	0.00
11,700.00	90.00	360.00	5,828.00	5,564.93	-469.39	5,583.56	0.00	0.00	0.00
11,800.00	90.00	360.00	5,828.00	5,664.93	-469.39	5,683.35	0.00	0.00	0.00
11,900.00	90.00	360.00	5,828.00	5,764.93	-469.39	5,783.15	0.00	0.00	0.00
12,000.00	90.00	360.00	5,828.00	5,864.93	-469.39	5,882.94	0.00	0.00	0.00
12,100.00	90.00	360.00	5,828.00	5,964.93	-469.39	5,982.74	0.00	0.00	0.00
12,200.00	90.00	360.00	5,828.00	6,064.93	-469.39	6,082.53	0.00	0.00	0.00
12,300.00	90.00	360.00	5,828.00	6,164.93	-469.39	6,182.33	0.00	0.00	0.00
12,400.00	90.00	360.00	5,828.00	6,264.93	-469.39	6,282.12	0.00	0.00	0.00
12,500.00	90.00	360.00	5,828.00	6,364.93	-469.39	6,381.92	0.00	0.00	0.00
12,600.00	90.00	360.00	5,828.00	6,464.93	-469.39	6,481.71	0.00	0.00	0.00
12,700.00	90.00	360.00	5,828.00	6,564.93	-469.39	6,581.51	0.00	0.00	0.00
12,800.00	90.00	360.00	5,828.00	6,664.93	-469.39	6,681.30	0.00	0.00	0.00
12,900.00	90.00	360.00	5,828.00	6,764.93	-469.39	6,781.10	0.00	0.00	0.00
13,000.00	90.00	360.00	5,828.00	6,864.93	-469.39	6,880.89	0.00	0.00	0.00
13,100.00	90.00	360.00	5,828.00	6,964.93	-469.39	6,980.69	0.00	0.00	0.00
13,200.00	90.00	360.00	5,828.00	7,064.93	-469.39	7,080.48	0.00	0.00	0.00
13,300.00	90.00	360.00	5,828.00	7,164.93	-469.39	7,180.28	0.00	0.00	0.00
13,400.00	90.00	360.00	5,828.00	7,264.93	-469.39	7,280.07	0.00	0.00	0.00
13,454.41	90.00	360.00	5,828.00	7,319.34	-469.39	7,334.37	0.00	0.00	0.00
TD at 13454.41									

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 0606B	0.00	0.00	5,828.00	7,319.34	-469.39	1,565,656.26	3,470,750.91	40° 52' 25.310 N	103° 47' 51.920 W
- plan hits target center									
- Point									
Beffie #1	0.00	0.00	6,713.00	3,233.89	-1,614.48	1,561,549.56	3,469,684.53	40° 51' 44.942 N	103° 48' 6.822 W
- plan misses target center by 1447.22usft at 9368.96usft MD (5828.00 TVD, 3233.89 N, -469.39 E)									
- Circle (radius 1,550.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,175.07	5,828.00	7" CSG PT/ 5 1/2 Marker	7.000	8.750	



# WOG

## Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail Fed #07F-0606
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail Fed #07F-0606	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,561.28	1,550.00	Upper Pierre				
3,534.21	3,500.00	Hygiene				
3,685.98	3,650.00	Lower Pierre				
5,700.00	5,626.00	P200 Marker				
5,735.09	5,653.00	P300 Marker				
5,761.09	5,672.00	P350 Marker				
5,773.86	5,681.00	Sharon Springs				
5,786.96	5,690.00	Niobrara				
5,822.20	5,713.00	Top A Chalk				
5,890.13	5,752.00	Top A Marl				
5,931.30	5,772.00	A Marl				
5,956.94	5,783.00	Top Upper B				
6,023.13	5,806.00	Base Upper B				
6,175.07	5,828.00	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'	
737.27	735.57	-23.84	-23.26	Hold 8.75° Inc	
4,719.42	4,671.43	-457.16	-446.13	Drop 2°/100'	
5,156.69	5,107.00	-481.00	-469.39	Hold Vertical	
5,356.69	5,307.00	-481.00	-469.39	KOP, Build 11°/100'	
6,175.07	5,828.00	40.00	-469.39	LP @ 90° Inc, Hold	
13,454.41	5,828.00	7,319.34	-469.39	TD at 13454.41	