



Project: Weld County, CO  
Site: Sec 7-T10N-R57W  
Well: Horsetail #07G-0609  
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



Azimuths to True North  
Magnetic North: 7.88°  
Magnetic Field  
Strength: 53087.7snT  
Dip Angle: 67.44°  
Date: 1/6/2015  
Model: IGRF2010

WELL DETAILS: Horsetail #07G-0609

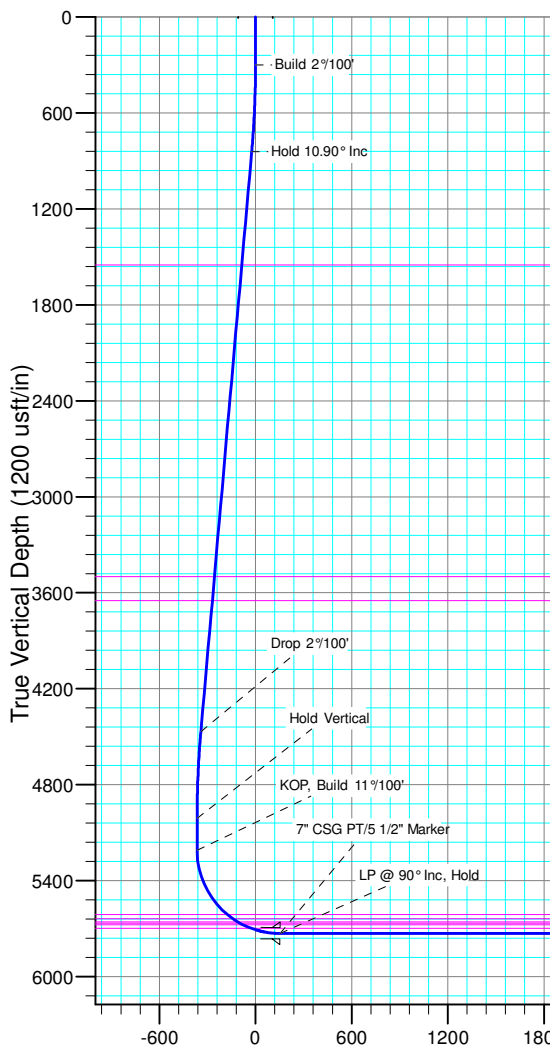
+N/-S	+E/-W	Northing	Ground Level:	4895.00	Longitude	Slot
0.00	0.00	1558332.61	Easting	3472544.02	40° 51' 12.620 N	103° 47' 30.420 W

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	845.19	10.90	237.15	841.90	-28.05	-43.45	2.00	237.15	-23.52	
4	4538.05	10.90	237.15	4468.10	-406.95	-630.31	0.00	0.00	-341.14	
5	5083.24	0.00	0.00	5010.00	-435.00	-673.76	2.00	180.00	-364.65	
6	5283.24	0.00	0.00	5210.00	-435.00	-673.76	0.00	0.00	-364.65	
7	6101.62	90.00	360.00	5731.00	86.00	-673.76	11.00	360.00	153.68	
8	12645.73	90.00	360.00	5731.00	6630.10	-673.76	0.00	0.00	6664.25	PBHL 0609

FORMATION TOP DETAILS

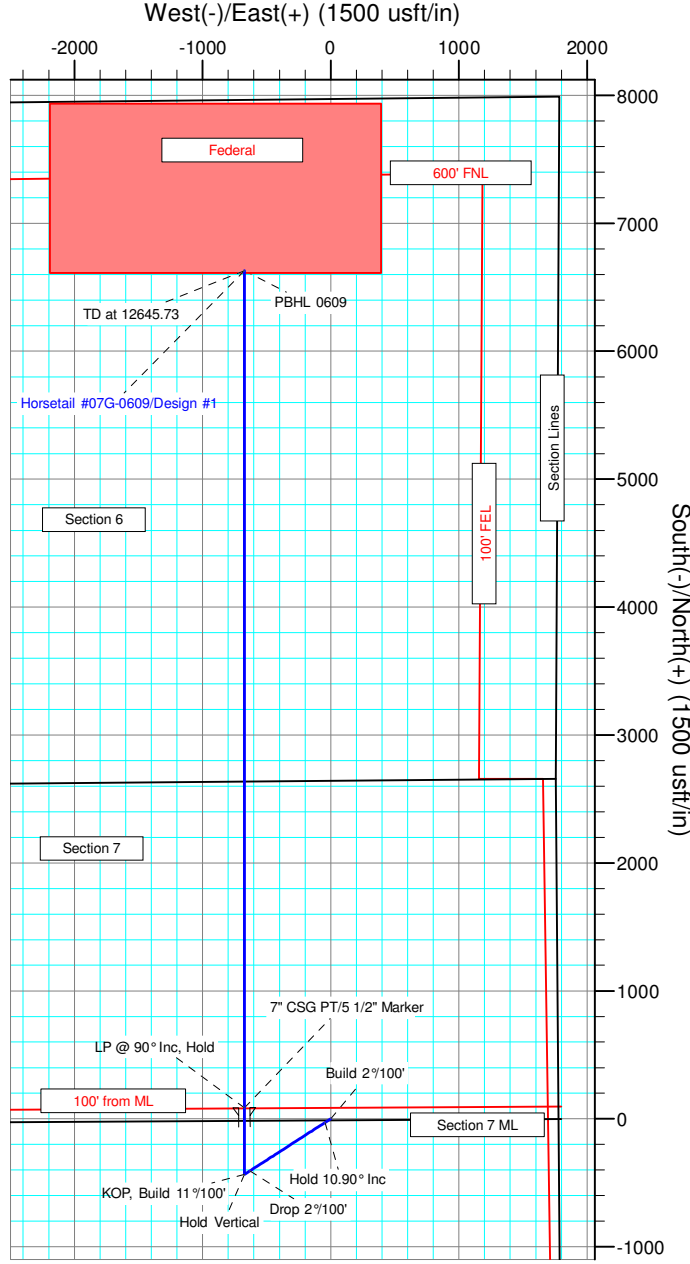
TVDPath	MDPath	Formation
1550.00	1566.30	Upper Pierre
3500.00	3552.16	Hygiene
3650.00	3704.91	Lower Pierre
5612.00	5742.42	P200 Marker
5639.00	5787.26	P300 Marker
5658.00	5822.50	P350 Marker
5667.00	5840.67	Sharon Springs
5676.00	5860.07	Niobrara
5699.00	5918.07	Top A Chalk



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'
841.90	845.19	10.90	237.15	-28.05	-43.45	-23.52	51.72	Hold 10.90° Inc
4468.10	4538.05	10.90	237.15	-406.95	-630.31	-341.14	750.26	Drop 2°/100'
5010.00	5083.24	0.00	0.00	-435.00	-673.76	-364.65	801.98	Hold Vertical
5210.00	5283.24	0.00	0.00	-435.00	-673.76	-364.65	801.98	KOP, Build 11°/100'
5731.00	6101.62	90.00	360.00	86.00	-673.76	153.68	1322.98	LP @ 90° Inc, Hold
5731.00	12645.73	90.00	360.00	6630.10	-673.76	6664.25	7867.09	TD at 12645.73

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 0609	5731.00	6630.10	-673.76	1564948.51	3471742.67	40° 52' 18.130 N	103° 47' 39.190 W

SHL:  
2643' FNL, 1798' FEL  
Sec7-T10N-R57W  
BHL:  
1337' FNL, 2450' FEL  
Sec6-T10N-R57W  
7" CSG PT/5 1/2" Marker:  
2557' FNL, 2472' FEL  
Sec7-T10N-R57W





# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail #07G-0609**

**Hz**

**Plan: Design #1**

## **Standard Planning Report**

**18 November, 2015**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07G-0609
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4916.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4916.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07G-0609	<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		

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 #07G-0609					
Well Position	+N/-S	-169.86 usft	Northing:	1,558,332.62 usft	Latitude:	40° 51' 12.620 N
	+E/-W	2,731.12 usft	Easting:	3,472,544.02 usft	Longitude:	103° 47' 30.420 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,895.00 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	1/6/2015	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	354.20

<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	
845.19	10.90	237.15	841.90	-28.05	-43.45	2.00	2.00	0.00	237.15	
4,538.05	10.90	237.15	4,468.10	-406.95	-630.31	0.00	0.00	0.00	0.00	
5,083.24	0.00	0.00	5,010.00	-435.00	-673.76	2.00	-2.00	0.00	180.00	
5,283.24	0.00	0.00	5,210.00	-435.00	-673.76	0.00	0.00	0.00	0.00	
6,101.62	90.00	360.00	5,731.00	86.00	-673.76	11.00	11.00	0.00	360.00	
12,645.73	90.00	360.00	5,731.00	6,630.10	-673.76	0.00	0.00	0.00	0.00	PBHL 0609A



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07G-0609
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4916.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4916.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07G-0609	<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)
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	237.15	399.98	-0.95	-1.47	-0.79	2.00	2.00	0.00
500.00	4.00	237.15	499.84	-3.79	-5.86	-3.17	2.00	2.00	0.00
600.00	6.00	237.15	599.45	-8.51	-13.18	-7.14	2.00	2.00	0.00
700.00	8.00	237.15	698.70	-15.12	-23.42	-12.68	2.00	2.00	0.00
800.00	10.00	237.15	797.47	-23.61	-36.56	-19.79	2.00	2.00	0.00
845.19	10.90	237.15	841.90	-28.05	-43.45	-23.52	2.00	2.00	0.00
<b>Hold 10.90° Inc</b>									
900.00	10.90	237.15	895.73	-33.68	-52.16	-28.23	0.00	0.00	0.00
1,000.00	10.90	237.15	993.92	-43.94	-68.05	-36.83	0.00	0.00	0.00
1,100.00	10.90	237.15	1,092.11	-54.20	-83.94	-45.43	0.00	0.00	0.00
1,200.00	10.90	237.15	1,190.31	-64.46	-99.84	-54.03	0.00	0.00	0.00
1,300.00	10.90	237.15	1,288.50	-74.72	-115.73	-62.63	0.00	0.00	0.00
1,400.00	10.90	237.15	1,386.70	-84.98	-131.62	-71.24	0.00	0.00	0.00
1,500.00	10.90	237.15	1,484.89	-95.24	-147.51	-79.84	0.00	0.00	0.00
1,566.30	10.90	237.15	1,550.00	-102.04	-158.05	-85.54	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	10.90	237.15	1,583.09	-105.50	-163.40	-88.44	0.00	0.00	0.00
1,700.00	10.90	237.15	1,681.28	-115.76	-179.29	-97.04	0.00	0.00	0.00
1,800.00	10.90	237.15	1,779.48	-126.02	-195.19	-105.64	0.00	0.00	0.00
1,900.00	10.90	237.15	1,877.67	-136.28	-211.08	-114.24	0.00	0.00	0.00
2,000.00	10.90	237.15	1,975.87	-146.54	-226.97	-122.84	0.00	0.00	0.00
2,100.00	10.90	237.15	2,074.06	-156.80	-242.86	-131.44	0.00	0.00	0.00
2,200.00	10.90	237.15	2,172.26	-167.06	-258.75	-140.04	0.00	0.00	0.00
2,300.00	10.90	237.15	2,270.45	-177.32	-274.65	-148.64	0.00	0.00	0.00
2,400.00	10.90	237.15	2,368.64	-187.58	-290.54	-157.24	0.00	0.00	0.00
2,500.00	10.90	237.15	2,466.84	-197.84	-306.43	-165.85	0.00	0.00	0.00
2,600.00	10.90	237.15	2,565.03	-208.10	-322.32	-174.45	0.00	0.00	0.00
2,700.00	10.90	237.15	2,663.23	-218.36	-338.21	-183.05	0.00	0.00	0.00
2,800.00	10.90	237.15	2,761.42	-228.62	-354.10	-191.65	0.00	0.00	0.00
2,900.00	10.90	237.15	2,859.62	-238.88	-370.00	-200.25	0.00	0.00	0.00
3,000.00	10.90	237.15	2,957.81	-249.14	-385.89	-208.85	0.00	0.00	0.00
3,100.00	10.90	237.15	3,056.01	-259.40	-401.78	-217.45	0.00	0.00	0.00
3,200.00	10.90	237.15	3,154.20	-269.66	-417.67	-226.05	0.00	0.00	0.00
3,300.00	10.90	237.15	3,252.40	-279.92	-433.56	-234.65	0.00	0.00	0.00
3,400.00	10.90	237.15	3,350.59	-290.18	-449.45	-243.25	0.00	0.00	0.00
3,500.00	10.90	237.15	3,448.79	-300.44	-465.35	-251.85	0.00	0.00	0.00
3,552.16	10.90	237.15	3,500.00	-305.79	-473.63	-256.34	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	10.90	237.15	3,546.98	-310.70	-481.24	-260.46	0.00	0.00	0.00
3,700.00	10.90	237.15	3,645.18	-320.96	-497.13	-269.06	0.00	0.00	0.00
3,704.91	10.90	237.15	3,650.00	-321.47	-497.91	-269.48	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,800.00	10.90	237.15	3,743.37	-331.22	-513.02	-277.66	0.00	0.00	0.00
3,900.00	10.90	237.15	3,841.56	-341.48	-528.91	-286.26	0.00	0.00	0.00
4,000.00	10.90	237.15	3,939.76	-351.74	-544.80	-294.86	0.00	0.00	0.00
4,100.00	10.90	237.15	4,037.95	-362.00	-560.70	-303.46	0.00	0.00	0.00
4,200.00	10.90	237.15	4,136.15	-372.26	-576.59	-312.06	0.00	0.00	0.00
4,300.00	10.90	237.15	4,234.34	-382.52	-592.48	-320.66	0.00	0.00	0.00
4,400.00	10.90	237.15	4,332.54	-392.78	-608.37	-329.26	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07G-0609
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4916.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4916.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07G-0609	<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	10.90	237.15	4,430.73	-403.04	-624.26	-337.86	0.00	0.00	0.00
4,538.05	10.90	237.15	4,468.10	-406.95	-630.31	-341.14	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,600.00	9.66	237.15	4,529.05	-412.95	-639.60	-346.17	2.00	-2.00	0.00
4,700.00	7.66	237.15	4,627.90	-421.12	-652.26	-353.02	2.00	-2.00	0.00
4,800.00	5.66	237.15	4,727.22	-427.41	-662.01	-358.29	2.00	-2.00	0.00
4,900.00	3.66	237.15	4,826.89	-431.82	-668.84	-361.99	2.00	-2.00	0.00
5,000.00	1.66	237.15	4,926.77	-434.34	-672.74	-364.10	2.00	-2.00	0.00
5,083.24	0.00	0.00	5,010.00	-435.00	-673.76	-364.65	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,100.00	0.00	0.00	5,026.76	-435.00	-673.76	-364.65	0.00	0.00	0.00
5,200.00	0.00	0.00	5,126.76	-435.00	-673.76	-364.65	0.00	0.00	0.00
5,283.24	0.00	0.00	5,210.00	-435.00	-673.76	-364.65	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,300.00	1.84	360.00	5,226.76	-434.73	-673.76	-364.39	11.00	11.00	0.00
5,350.00	7.34	360.00	5,276.58	-430.73	-673.76	-360.40	11.00	11.00	0.00
5,400.00	12.84	360.00	5,325.79	-421.97	-673.76	-351.69	11.00	11.00	0.00
5,450.00	18.34	360.00	5,373.93	-408.54	-673.76	-338.33	11.00	11.00	0.00
5,500.00	23.84	360.00	5,420.56	-390.56	-673.76	-320.44	11.00	11.00	0.00
5,550.00	29.34	360.00	5,465.26	-368.19	-673.76	-298.18	11.00	11.00	0.00
5,600.00	34.83	360.00	5,507.60	-341.64	-673.76	-271.77	11.00	11.00	0.00
5,650.00	40.33	360.00	5,547.21	-311.15	-673.76	-241.44	11.00	11.00	0.00
5,700.00	45.83	360.00	5,583.71	-277.01	-673.76	-207.48	11.00	11.00	0.00
5,742.42	50.50	360.00	5,612.00	-245.42	-673.76	-176.04	11.00	11.00	0.00
<b>P200 Marker</b>									
5,750.00	51.33	360.00	5,616.78	-239.53	-673.76	-170.19	11.00	11.00	0.00
5,787.26	55.43	360.00	5,639.00	-209.63	-673.76	-140.44	11.00	11.00	0.00
<b>P300 Marker</b>									
5,800.00	56.83	360.00	5,646.10	-199.06	-673.76	-129.92	11.00	11.00	0.00
5,822.50	59.30	360.00	5,658.00	-179.96	-673.76	-110.92	11.00	11.00	0.00
<b>P350 Marker</b>									
5,840.67	61.30	360.00	5,667.00	-164.18	-673.76	-95.23	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,850.00	62.33	360.00	5,671.41	-155.96	-673.76	-87.04	11.00	11.00	0.00
5,860.07	63.44	360.00	5,676.00	-146.99	-673.76	-78.12	11.00	11.00	0.00
<b>Niobrara</b>									
5,900.00	67.83	360.00	5,692.47	-110.63	-673.76	-41.95	11.00	11.00	0.00
5,918.07	69.81	360.00	5,699.00	-93.78	-673.76	-25.18	11.00	11.00	0.00
<b>Top A Chalk</b>									
5,950.00	73.33	360.00	5,709.09	-63.49	-673.76	4.95	11.00	11.00	0.00
6,000.00	78.82	360.00	5,721.12	-14.98	-673.76	53.21	11.00	11.00	0.00
6,050.00	84.32	360.00	5,728.44	34.46	-673.76	102.40	11.00	11.00	0.00
6,101.62	90.00	360.00	5,731.00	86.00	-673.76	153.67	11.00	11.00	0.00
<b>LP @ 90° Inc, Hold - 7" CSG PT/5 1/2" Marker</b>									
6,200.00	90.00	360.00	5,731.00	184.38	-673.76	251.55	0.00	0.00	0.00
6,300.00	90.00	360.00	5,731.00	284.38	-673.76	351.04	0.00	0.00	0.00
6,400.00	90.00	360.00	5,731.00	384.38	-673.76	450.52	0.00	0.00	0.00
6,500.00	90.00	360.00	5,731.00	484.38	-673.76	550.01	0.00	0.00	0.00
6,600.00	90.00	360.00	5,731.00	584.38	-673.76	649.50	0.00	0.00	0.00
6,700.00	90.00	360.00	5,731.00	684.38	-673.76	748.99	0.00	0.00	0.00
6,800.00	90.00	360.00	5,731.00	784.38	-673.76	848.47	0.00	0.00	0.00
6,900.00	90.00	360.00	5,731.00	884.38	-673.76	947.96	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07G-0609
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4916.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4916.00usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07G-0609	<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)	
7,000.00	90.00	360.00	5,731.00	984.38	-673.76	1,047.45	0.00	0.00	0.00	
7,100.00	90.00	360.00	5,731.00	1,084.38	-673.76	1,146.94	0.00	0.00	0.00	
7,200.00	90.00	360.00	5,731.00	1,184.38	-673.76	1,246.42	0.00	0.00	0.00	
7,300.00	90.00	360.00	5,731.00	1,284.38	-673.76	1,345.91	0.00	0.00	0.00	
7,400.00	90.00	360.00	5,731.00	1,384.38	-673.76	1,445.40	0.00	0.00	0.00	
7,500.00	90.00	360.00	5,731.00	1,484.38	-673.76	1,544.89	0.00	0.00	0.00	
7,600.00	90.00	360.00	5,731.00	1,584.38	-673.76	1,644.37	0.00	0.00	0.00	
7,700.00	90.00	360.00	5,731.00	1,684.38	-673.76	1,743.86	0.00	0.00	0.00	
7,800.00	90.00	360.00	5,731.00	1,784.38	-673.76	1,843.35	0.00	0.00	0.00	
7,900.00	90.00	360.00	5,731.00	1,884.38	-673.76	1,942.84	0.00	0.00	0.00	
8,000.00	90.00	360.00	5,731.00	1,984.38	-673.76	2,042.33	0.00	0.00	0.00	
8,100.00	90.00	360.00	5,731.00	2,084.38	-673.76	2,141.81	0.00	0.00	0.00	
8,200.00	90.00	360.00	5,731.00	2,184.38	-673.76	2,241.30	0.00	0.00	0.00	
8,300.00	90.00	360.00	5,731.00	2,284.38	-673.76	2,340.79	0.00	0.00	0.00	
8,400.00	90.00	360.00	5,731.00	2,384.38	-673.76	2,440.28	0.00	0.00	0.00	
8,500.00	90.00	360.00	5,731.00	2,484.38	-673.76	2,539.76	0.00	0.00	0.00	
8,600.00	90.00	360.00	5,731.00	2,584.38	-673.76	2,639.25	0.00	0.00	0.00	
8,700.00	90.00	360.00	5,731.00	2,684.38	-673.76	2,738.74	0.00	0.00	0.00	
8,800.00	90.00	360.00	5,731.00	2,784.38	-673.76	2,838.23	0.00	0.00	0.00	
8,900.00	90.00	360.00	5,731.00	2,884.38	-673.76	2,937.71	0.00	0.00	0.00	
9,000.00	90.00	360.00	5,731.00	2,984.38	-673.76	3,037.20	0.00	0.00	0.00	
9,100.00	90.00	360.00	5,731.00	3,084.38	-673.76	3,136.69	0.00	0.00	0.00	
9,200.00	90.00	360.00	5,731.00	3,184.38	-673.76	3,236.18	0.00	0.00	0.00	
9,300.00	90.00	360.00	5,731.00	3,284.38	-673.76	3,335.66	0.00	0.00	0.00	
9,400.00	90.00	360.00	5,731.00	3,384.38	-673.76	3,435.15	0.00	0.00	0.00	
9,500.00	90.00	360.00	5,731.00	3,484.38	-673.76	3,534.64	0.00	0.00	0.00	
9,600.00	90.00	360.00	5,731.00	3,584.38	-673.76	3,634.13	0.00	0.00	0.00	
9,700.00	90.00	360.00	5,731.00	3,684.38	-673.76	3,733.62	0.00	0.00	0.00	
9,800.00	90.00	360.00	5,731.00	3,784.38	-673.76	3,833.10	0.00	0.00	0.00	
9,900.00	90.00	360.00	5,731.00	3,884.38	-673.76	3,932.59	0.00	0.00	0.00	
10,000.00	90.00	360.00	5,731.00	3,984.38	-673.76	4,032.08	0.00	0.00	0.00	
10,100.00	90.00	360.00	5,731.00	4,084.38	-673.76	4,131.57	0.00	0.00	0.00	
10,200.00	90.00	360.00	5,731.00	4,184.38	-673.76	4,231.05	0.00	0.00	0.00	
10,300.00	90.00	360.00	5,731.00	4,284.38	-673.76	4,330.54	0.00	0.00	0.00	
10,400.00	90.00	360.00	5,731.00	4,384.38	-673.76	4,430.03	0.00	0.00	0.00	
10,500.00	90.00	360.00	5,731.00	4,484.38	-673.76	4,529.52	0.00	0.00	0.00	
10,600.00	90.00	360.00	5,731.00	4,584.38	-673.76	4,629.00	0.00	0.00	0.00	
10,700.00	90.00	360.00	5,731.00	4,684.38	-673.76	4,728.49	0.00	0.00	0.00	
10,800.00	90.00	360.00	5,731.00	4,784.38	-673.76	4,827.98	0.00	0.00	0.00	
10,900.00	90.00	360.00	5,731.00	4,884.38	-673.76	4,927.47	0.00	0.00	0.00	
11,000.00	90.00	360.00	5,731.00	4,984.38	-673.76	5,026.95	0.00	0.00	0.00	
11,100.00	90.00	360.00	5,731.00	5,084.38	-673.76	5,126.44	0.00	0.00	0.00	
11,200.00	90.00	360.00	5,731.00	5,184.38	-673.76	5,225.93	0.00	0.00	0.00	
11,300.00	90.00	360.00	5,731.00	5,284.38	-673.76	5,325.42	0.00	0.00	0.00	
11,400.00	90.00	360.00	5,731.00	5,384.38	-673.76	5,424.90	0.00	0.00	0.00	
11,500.00	90.00	360.00	5,731.00	5,484.38	-673.76	5,524.39	0.00	0.00	0.00	
11,600.00	90.00	360.00	5,731.00	5,584.38	-673.76	5,623.88	0.00	0.00	0.00	
11,700.00	90.00	360.00	5,731.00	5,684.38	-673.76	5,723.37	0.00	0.00	0.00	
11,800.00	90.00	360.00	5,731.00	5,784.38	-673.76	5,822.86	0.00	0.00	0.00	
11,900.00	90.00	360.00	5,731.00	5,884.38	-673.76	5,922.34	0.00	0.00	0.00	
12,000.00	90.00	360.00	5,731.00	5,984.38	-673.76	6,021.83	0.00	0.00	0.00	
12,100.00	90.00	360.00	5,731.00	6,084.38	-673.76	6,121.32	0.00	0.00	0.00	
12,200.00	90.00	360.00	5,731.00	6,184.38	-673.76	6,220.81	0.00	0.00	0.00	
12,300.00	90.00	360.00	5,731.00	6,284.38	-673.76	6,320.29	0.00	0.00	0.00	



# WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07G-0609
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4916.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4916.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07G-0609	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)
12,400.00	90.00	360.00	5,731.00	6,384.38	-673.76	6,419.78	0.00	0.00	0.00
12,500.00	90.00	360.00	5,731.00	6,484.38	-673.76	6,519.27	0.00	0.00	0.00
12,600.00	90.00	360.00	5,731.00	6,584.38	-673.76	6,618.76	0.00	0.00	0.00
12,645.73	90.00	360.00	5,731.00	6,630.10	-673.76	6,664.25	0.00	0.00	0.00
TD at 12645.73									

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 0609A	0.00	0.00	5,731.00	6,630.10	-673.76	1,564,948.51	3,471,742.67	40° 52' 18.130 N	103° 47' 39.190 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,101.62	5,731.00	7" CSG PT/5 1/2" Marker	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,566.30	1,550.00	Upper Pierre				
3,552.16	3,500.00	Hygiene				
3,704.91	3,650.00	Lower Pierre				
5,742.42	5,612.00	P200 Marker				
5,787.26	5,639.00	P300 Marker				
5,822.50	5,658.00	P350 Marker				
5,840.67	5,667.00	Sharon Springs				
5,860.07	5,676.00	Niobrara				
5,918.07	5,699.00	Top A 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'	
845.19	841.90	-28.05	-43.45	Hold 10.90° Inc	
4,538.05	4,468.10	-406.95	-630.31	Drop 2°/100'	
5,083.24	5,010.00	-435.00	-673.76	Hold Vertical	
5,283.24	5,210.00	-435.00	-673.76	KOP, Build 11°/100'	
6,101.62	5,731.00	86.00	-673.76	LP @ 90° Inc, Hold	
12,645.73	5,731.00	6,630.10	-673.76	TD at 12645.73	