



Project: Weld County, CO  
Site: Sec 7-T10N-R57W  
Well: Horsetail #07E-1804  
Wellbore: Hz  
Design: Plan #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: 53087.1nT  
Dip Angle: 67.44°  
Date: 1/5/2015  
Model: IGRF2010

WELL DETAILS: Horsetail #07E-1804

+N/-S	+E/-W	Northing	Ground Level:	4925.70	Easting	3470040.06	Latitude	40° 51' 14.270 N	Longitude	103° 48' 2.968 W	Slot
0.00	0.00	1558451.53									

#### 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	541.50	4.83	54.14	541.21	5.96	8.24	2.00	54.14	-5.60	
4	4901.56	4.83	54.14	4885.79	221.04	305.76	0.00	0.00	-207.51	
5	5143.05	0.00	0.00	5127.00	227.00	314.00	2.00	180.00	-213.10	
6	5343.05	0.00	0.00	5327.00	227.00	314.00	0.00	0.00	-213.10	
7	6161.44	90.00	179.74	5848.00	-293.99	316.33	11.00	179.74	307.50	
8	13914.44	90.00	179.74	5848.00	-8046.91	351.00	0.00	0.00	8054.56	PBHL 1804B

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1553.88	Upper Pierre
3500.00	3510.83	Hygiene
3650.00	3661.36	Lower Pierre
5515.00	5535.39	P200 Marker
5530.00	5551.58	P300 Marker
5550.00	5573.50	P350 Marker
5702.00	5761.66	Sharon Springs
5707.00	5768.92	Niobrara
5733.00	5808.57	Top A Chalk
5772.00	5876.49	Top A Marl
5792.00	5917.66	A Marl
5803.00	5943.31	Top Upper B
5826.00	6009.49	Base Upper B
5848.00	6161.44	Top Lower B

#### ANNOTATIONS

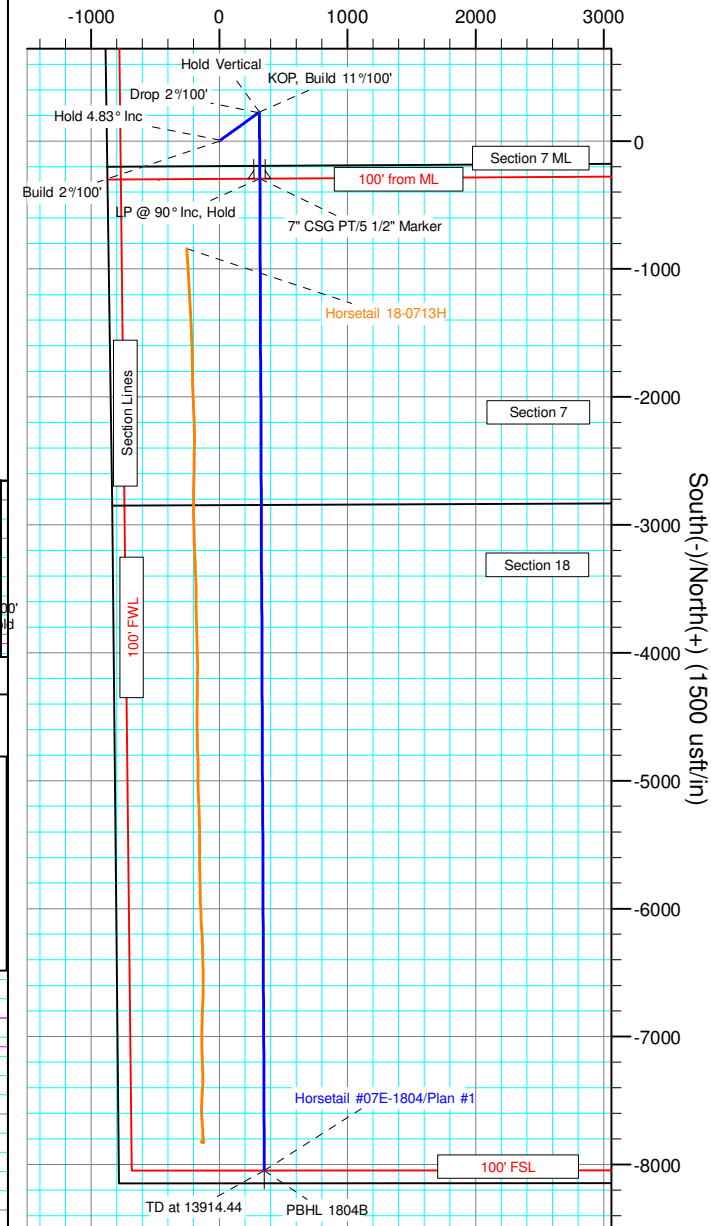
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
541.21	541.50	4.83	54.14	5.96	8.24	-5.60	10.17	Hold 4.83° Inc
4885.79	4901.56	4.83	54.14	221.04	305.76	-207.51	377.29	Drop 2°/100'
5127.00	5143.05	0.00	0.00	227.00	314.00	-213.10	387.46	Hold Vertical
5327.00	5343.05	0.00	0.00	227.00	314.00	-213.10	387.46	KOP, Build 11°/100'
5848.00	6161.44	90.00	179.74	-293.99	316.33	307.50	908.46	LP @ 90° Inc, Hold
5848.00	13914.44	90.00	179.74	-8046.91	351.00	8054.56	8661.46	TD at 13914.44

#### DESIGN TARGET DETAILS

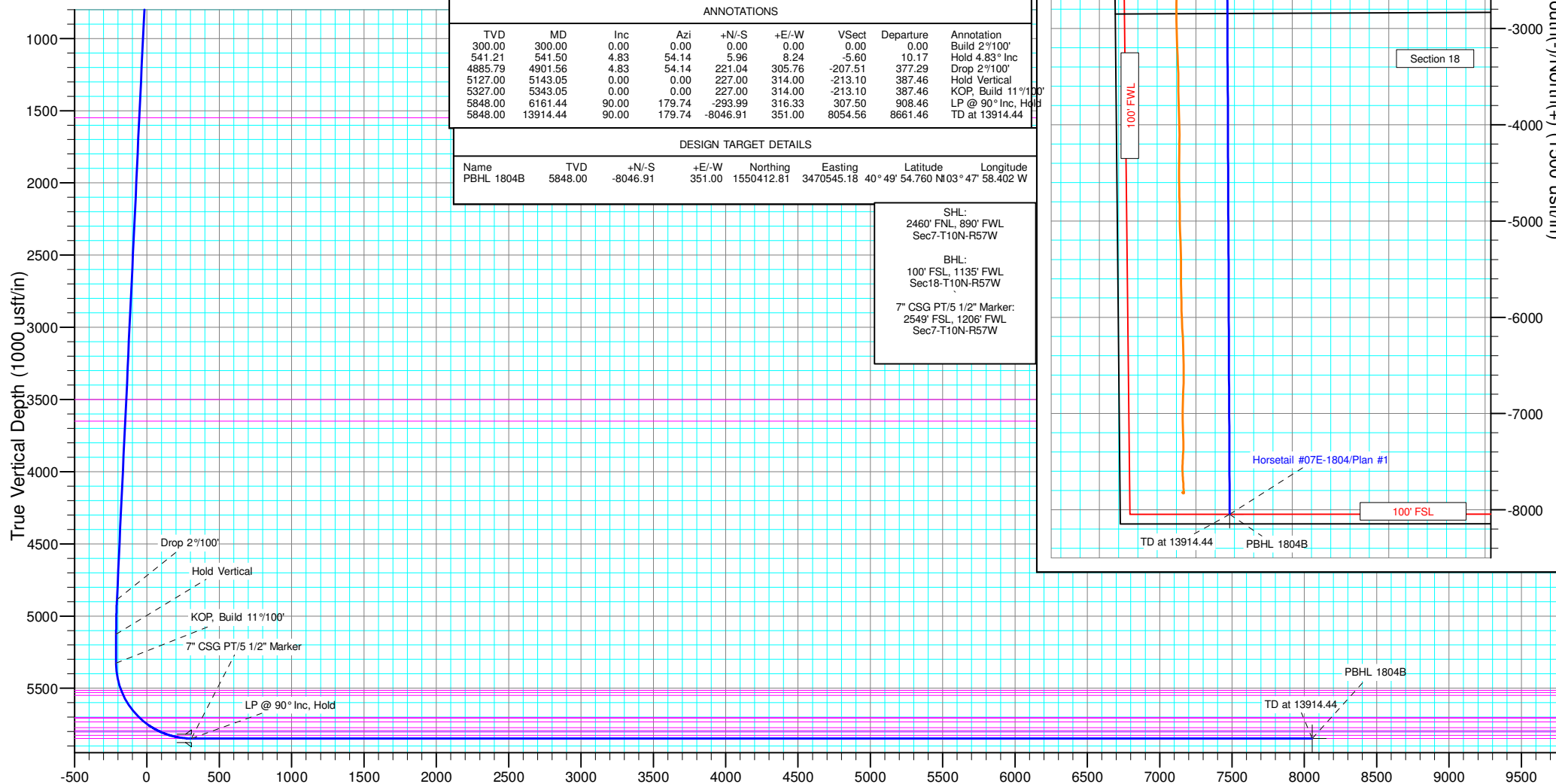
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 1804B	5848.00	-8046.91	351.00	1550412.81	3470545.18	40° 49' 54.760 N	103° 47' 58.402 W

SHL:  
2460' FNL, 890' FWL  
Sec7-T10N-R57W  
BHL:  
100' FSL, 1135' FWL  
Sec18-T10N-R57W  
7" CSG PT/5 1/2" Marker:  
2549' FSL, 1206' FWL  
Sec7-T10N-R57W

West(-)/East(+) (1500 usft/in)



South(-)/North(+) (1500 usft/in)



Vertical Section at 177.50° (1000 usft/in)



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail #07E-1804**

**Hz**

**Plan: Plan #1**

## **Standard Planning Report**

**10 November, 2015**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1804
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1804	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Plan #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 #07E-1804			
<b>Well Position</b>	<b>+N/-S</b>	-3.01 usft	<b>Northing:</b>	1,558,451.53 usft
	<b>+E/-W</b>	229.89 usft	<b>Easting:</b>	3,470,040.05 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>		<b>Latitude:</b> 40° 51' 14.270 N
				<b>Longitude:</b> 103° 48' 2.968 W
				<b>Ground Level:</b> 4,925.70 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	7.89	67.44	53,087

<b>Design</b>	Plan #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	177.50

<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	
541.50	4.83	54.14	541.21	5.96	8.24	2.00	2.00	0.00	54.14	
4,901.56	4.83	54.14	4,885.79	221.04	305.76	0.00	0.00	0.00	0.00	
5,143.05	0.00	0.00	5,127.00	227.00	314.00	2.00	-2.00	0.00	180.00	
5,343.05	0.00	0.00	5,327.00	227.00	314.00	0.00	0.00	0.00	0.00	
6,161.44	90.00	179.74	5,848.00	-293.99	316.33	11.00	11.00	0.00	179.74	
13,914.44	90.00	179.74	5,848.00	-8,046.91	351.00	0.00	0.00	0.00	0.00	PBHL 1804B



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1804
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1804	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H2		
<b>Design:</b>	Plan #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	54.14	399.98	1.02	1.41	-0.96	2.00	2.00	0.00
500.00	4.00	54.14	499.84	4.09	5.66	-3.84	2.00	2.00	0.00
541.50	4.83	54.14	541.21	5.96	8.24	-5.60	2.00	2.00	0.00
<b>Hold 4.83° Inc</b>									
600.00	4.83	54.14	599.51	8.85	12.24	-8.30	0.00	0.00	0.00
700.00	4.83	54.14	699.15	13.78	19.06	-12.94	0.00	0.00	0.00
800.00	4.83	54.14	798.80	18.71	25.88	-17.57	0.00	0.00	0.00
900.00	4.83	54.14	898.44	23.64	32.71	-22.20	0.00	0.00	0.00
1,000.00	4.83	54.14	998.09	28.58	39.53	-26.83	0.00	0.00	0.00
1,100.00	4.83	54.14	1,097.73	33.51	46.35	-31.46	0.00	0.00	0.00
1,200.00	4.83	54.14	1,197.38	38.44	53.18	-36.09	0.00	0.00	0.00
1,300.00	4.83	54.14	1,297.02	43.38	60.00	-40.72	0.00	0.00	0.00
1,400.00	4.83	54.14	1,396.67	48.31	66.82	-45.35	0.00	0.00	0.00
1,500.00	4.83	54.14	1,496.31	53.24	73.65	-49.98	0.00	0.00	0.00
1,553.88	4.83	54.14	1,550.00	55.90	77.32	-52.48	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	4.83	54.14	1,595.96	58.18	80.47	-54.61	0.00	0.00	0.00
1,700.00	4.83	54.14	1,695.60	63.11	87.30	-59.24	0.00	0.00	0.00
1,800.00	4.83	54.14	1,795.25	68.04	94.12	-63.88	0.00	0.00	0.00
1,900.00	4.83	54.14	1,894.89	72.97	100.94	-68.51	0.00	0.00	0.00
2,000.00	4.83	54.14	1,994.53	77.91	107.77	-73.14	0.00	0.00	0.00
2,100.00	4.83	54.14	2,094.18	82.84	114.59	-77.77	0.00	0.00	0.00
2,200.00	4.83	54.14	2,193.82	87.77	121.41	-82.40	0.00	0.00	0.00
2,300.00	4.83	54.14	2,293.47	92.71	128.24	-87.03	0.00	0.00	0.00
2,400.00	4.83	54.14	2,393.11	97.64	135.06	-91.66	0.00	0.00	0.00
2,500.00	4.83	54.14	2,492.76	102.57	141.88	-96.29	0.00	0.00	0.00
2,600.00	4.83	54.14	2,592.40	107.51	148.71	-100.92	0.00	0.00	0.00
2,700.00	4.83	54.14	2,692.05	112.44	155.53	-105.55	0.00	0.00	0.00
2,800.00	4.83	54.14	2,791.69	117.37	162.35	-110.18	0.00	0.00	0.00
2,900.00	4.83	54.14	2,891.34	122.30	169.18	-114.82	0.00	0.00	0.00
3,000.00	4.83	54.14	2,990.98	127.24	176.00	-119.45	0.00	0.00	0.00
3,100.00	4.83	54.14	3,090.63	132.17	182.83	-124.08	0.00	0.00	0.00
3,200.00	4.83	54.14	3,190.27	137.10	189.65	-128.71	0.00	0.00	0.00
3,300.00	4.83	54.14	3,289.92	142.04	196.47	-133.34	0.00	0.00	0.00
3,400.00	4.83	54.14	3,389.56	146.97	203.30	-137.97	0.00	0.00	0.00
3,500.00	4.83	54.14	3,489.21	151.90	210.12	-142.60	0.00	0.00	0.00
3,510.83	4.83	54.14	3,500.00	152.44	210.86	-143.10	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	4.83	54.14	3,588.85	156.83	216.94	-147.23	0.00	0.00	0.00
3,661.36	4.83	54.14	3,650.00	159.86	221.13	-150.07	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,700.00	4.83	54.14	3,688.50	161.77	223.77	-151.86	0.00	0.00	0.00
3,800.00	4.83	54.14	3,788.14	166.70	230.59	-156.49	0.00	0.00	0.00
3,900.00	4.83	54.14	3,887.79	171.63	237.41	-161.12	0.00	0.00	0.00
4,000.00	4.83	54.14	3,987.43	176.57	244.24	-165.76	0.00	0.00	0.00
4,100.00	4.83	54.14	4,087.08	181.50	251.06	-170.39	0.00	0.00	0.00
4,200.00	4.83	54.14	4,186.72	186.43	257.88	-175.02	0.00	0.00	0.00
4,300.00	4.83	54.14	4,286.37	191.37	264.71	-179.65	0.00	0.00	0.00
4,400.00	4.83	54.14	4,386.01	196.30	271.53	-184.28	0.00	0.00	0.00



# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1804
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1804	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Plan #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	4.83	54.14	4,485.66	201.23	278.36	-188.91	0.00	0.00	0.00	
4,600.00	4.83	54.14	4,585.30	206.16	285.18	-193.54	0.00	0.00	0.00	
4,700.00	4.83	54.14	4,684.95	211.10	292.00	-198.17	0.00	0.00	0.00	
4,800.00	4.83	54.14	4,784.59	216.03	298.83	-202.80	0.00	0.00	0.00	
4,901.56	4.83	54.14	4,885.79	221.04	305.76	-207.51	0.00	0.00	0.00	
<b>Drop 2°/100'</b>										
5,000.00	2.86	54.14	4,984.00	224.91	311.11	-211.14	2.00	-2.00	0.00	
5,100.00	0.86	54.14	5,083.95	226.81	313.74	-212.92	2.00	-2.00	0.00	
5,143.05	0.00	0.00	5,127.00	227.00	314.00	-213.10	2.00	-2.00	0.00	
<b>Hold Vertical</b>										
5,200.00	0.00	0.00	5,183.95	227.00	314.00	-213.10	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,283.95	227.00	314.00	-213.10	0.00	0.00	0.00	
5,343.05	0.00	0.00	5,327.00	227.00	314.00	-213.10	0.00	0.00	0.00	
<b>KOP, Build 11°/100'</b>										
5,350.00	0.76	179.74	5,333.95	226.95	314.00	-213.05	11.00	11.00	0.00	
5,400.00	6.26	179.74	5,383.83	223.89	314.01	-209.99	11.00	11.00	0.00	
5,450.00	11.76	179.74	5,433.20	216.06	314.05	-202.17	11.00	11.00	0.00	
5,500.00	17.26	179.74	5,481.58	203.54	314.10	-189.66	11.00	11.00	0.00	
5,535.39	21.15	179.74	5,515.00	191.90	314.16	-178.03	11.00	11.00	0.00	
<b>P200 Marker</b>										
5,550.00	22.76	179.74	5,528.55	186.44	314.18	-172.57	11.00	11.00	0.00	
5,551.58	22.93	179.74	5,530.00	185.83	314.18	-171.96	11.00	11.00	0.00	
<b>P300 Marker</b>										
5,573.50	25.34	179.74	5,550.00	176.86	314.22	-163.00	11.00	11.00	0.00	
<b>P350 Marker</b>										
5,600.00	28.26	179.74	5,573.66	164.91	314.28	-151.06	11.00	11.00	0.00	
5,650.00	33.76	179.74	5,616.49	139.17	314.39	-125.34	11.00	11.00	0.00	
5,700.00	39.25	179.74	5,656.67	109.44	314.53	-95.63	11.00	11.00	0.00	
5,750.00	44.75	179.74	5,693.81	75.99	314.68	-62.20	11.00	11.00	0.00	
5,761.66	46.04	179.74	5,702.00	67.69	314.71	-53.91	11.00	11.00	0.00	
<b>Sharon Springs</b>										
5,768.92	46.83	179.74	5,707.00	62.43	314.74	-48.65	11.00	11.00	0.00	
<b>Niobrara</b>										
5,800.00	50.25	179.74	5,727.58	39.14	314.84	-25.38	11.00	11.00	0.00	
5,808.57	51.19	179.74	5,733.00	32.51	314.87	-18.75	11.00	11.00	0.00	
<b>Top A Chalk</b>										
5,850.00	55.75	179.74	5,757.65	-0.78	315.02	14.50	11.00	11.00	0.00	
5,876.49	58.66	179.74	5,772.00	-23.04	315.12	36.75	11.00	11.00	0.00	
<b>Top A Marl</b>										
5,900.00	61.25	179.74	5,783.77	-43.39	315.21	57.09	11.00	11.00	0.00	
5,917.66	63.19	179.74	5,792.00	-59.02	315.28	72.70	11.00	11.00	0.00	
<b>A Marl</b>										
5,943.31	66.01	179.74	5,803.00	-82.18	315.38	95.85	11.00	11.00	0.00	
<b>Top Upper B</b>										
5,950.00	66.75	179.74	5,805.68	-88.31	315.41	101.97	11.00	11.00	0.00	
6,000.00	72.25	179.74	5,823.19	-135.13	315.62	148.75	11.00	11.00	0.00	
6,009.50	73.29	179.74	5,826.00	-144.20	315.66	157.82	11.00	11.00	0.00	
<b>Base Upper B</b>										
6,050.00	77.74	179.74	5,836.13	-183.40	315.84	196.99	11.00	11.00	0.00	
6,100.00	83.24	179.74	5,844.38	-232.70	316.06	246.25	11.00	11.00	0.00	
6,150.00	88.74	179.74	5,847.87	-282.56	316.28	296.07	11.00	11.00	0.00	
6,161.44	90.00	179.74	5,848.00	-294.00	316.33	307.50	11.00	11.00	0.00	



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1804
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1804	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Plan #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)
LP @ 90° Inc, Hold - Top Lower B - 7" CSG PT/5 1/2" Marker									
6,200.00	90.00	179.74	5,848.00	-332.55	316.50	346.03	0.00	0.00	0.00
6,300.00	90.00	179.74	5,848.00	-432.55	316.95	445.95	0.00	0.00	0.00
6,400.00	90.00	179.74	5,848.00	-532.55	317.40	545.88	0.00	0.00	0.00
6,500.00	90.00	179.74	5,848.00	-632.55	317.84	645.80	0.00	0.00	0.00
6,600.00	90.00	179.74	5,848.00	-732.55	318.29	745.73	0.00	0.00	0.00
6,700.00	90.00	179.74	5,848.00	-832.55	318.74	845.65	0.00	0.00	0.00
6,800.00	90.00	179.74	5,848.00	-932.55	319.19	945.57	0.00	0.00	0.00
6,900.00	90.00	179.74	5,848.00	-1,032.55	319.63	1,045.50	0.00	0.00	0.00
7,000.00	90.00	179.74	5,848.00	-1,132.55	320.08	1,145.42	0.00	0.00	0.00
7,100.00	90.00	179.74	5,848.00	-1,232.55	320.53	1,245.34	0.00	0.00	0.00
7,200.00	90.00	179.74	5,848.00	-1,332.54	320.97	1,345.27	0.00	0.00	0.00
7,300.00	90.00	179.74	5,848.00	-1,432.54	321.42	1,445.19	0.00	0.00	0.00
7,400.00	90.00	179.74	5,848.00	-1,532.54	321.87	1,545.11	0.00	0.00	0.00
7,500.00	90.00	179.74	5,848.00	-1,632.54	322.32	1,645.04	0.00	0.00	0.00
7,600.00	90.00	179.74	5,848.00	-1,732.54	322.76	1,744.96	0.00	0.00	0.00
7,700.00	90.00	179.74	5,848.00	-1,832.54	323.21	1,844.88	0.00	0.00	0.00
7,800.00	90.00	179.74	5,848.00	-1,932.54	323.66	1,944.81	0.00	0.00	0.00
7,900.00	90.00	179.74	5,848.00	-2,032.54	324.10	2,044.73	0.00	0.00	0.00
8,000.00	90.00	179.74	5,848.00	-2,132.54	324.55	2,144.65	0.00	0.00	0.00
8,100.00	90.00	179.74	5,848.00	-2,232.54	325.00	2,244.58	0.00	0.00	0.00
8,200.00	90.00	179.74	5,848.00	-2,332.53	325.45	2,344.50	0.00	0.00	0.00
8,300.00	90.00	179.74	5,848.00	-2,432.53	325.89	2,444.42	0.00	0.00	0.00
8,400.00	90.00	179.74	5,848.00	-2,532.53	326.34	2,544.35	0.00	0.00	0.00
8,500.00	90.00	179.74	5,848.00	-2,632.53	326.79	2,644.27	0.00	0.00	0.00
8,600.00	90.00	179.74	5,848.00	-2,732.53	327.23	2,744.20	0.00	0.00	0.00
8,700.00	90.00	179.74	5,848.00	-2,832.53	327.68	2,844.12	0.00	0.00	0.00
8,800.00	90.00	179.74	5,848.00	-2,932.53	328.13	2,944.04	0.00	0.00	0.00
8,900.00	90.00	179.74	5,848.00	-3,032.53	328.58	3,043.97	0.00	0.00	0.00
9,000.00	90.00	179.74	5,848.00	-3,132.53	329.02	3,143.89	0.00	0.00	0.00
9,100.00	90.00	179.74	5,848.00	-3,232.53	329.47	3,243.81	0.00	0.00	0.00
9,200.00	90.00	179.74	5,848.00	-3,332.52	329.92	3,343.74	0.00	0.00	0.00
9,300.00	90.00	179.74	5,848.00	-3,432.52	330.36	3,443.66	0.00	0.00	0.00
9,400.00	90.00	179.74	5,848.00	-3,532.52	330.81	3,543.58	0.00	0.00	0.00
9,500.00	90.00	179.74	5,848.00	-3,632.52	331.26	3,643.51	0.00	0.00	0.00
9,600.00	90.00	179.74	5,848.00	-3,732.52	331.71	3,743.43	0.00	0.00	0.00
9,700.00	90.00	179.74	5,848.00	-3,832.52	332.15	3,843.35	0.00	0.00	0.00
9,800.00	90.00	179.74	5,848.00	-3,932.52	332.60	3,943.28	0.00	0.00	0.00
9,900.00	90.00	179.74	5,848.00	-4,032.52	333.05	4,043.20	0.00	0.00	0.00
10,000.00	90.00	179.74	5,848.00	-4,132.52	333.50	4,143.12	0.00	0.00	0.00
10,100.00	90.00	179.74	5,848.00	-4,232.52	333.94	4,243.05	0.00	0.00	0.00
10,200.00	90.00	179.74	5,848.00	-4,332.51	334.39	4,342.97	0.00	0.00	0.00
10,300.00	90.00	179.74	5,848.00	-4,432.51	334.84	4,442.89	0.00	0.00	0.00
10,400.00	90.00	179.74	5,848.00	-4,532.51	335.28	4,542.82	0.00	0.00	0.00
10,500.00	90.00	179.74	5,848.00	-4,632.51	335.73	4,642.74	0.00	0.00	0.00
10,600.00	90.00	179.74	5,848.00	-4,732.51	336.18	4,742.67	0.00	0.00	0.00
10,700.00	90.00	179.74	5,848.00	-4,832.51	336.63	4,842.59	0.00	0.00	0.00
10,800.00	90.00	179.74	5,848.00	-4,932.51	337.07	4,942.51	0.00	0.00	0.00
10,900.00	90.00	179.74	5,848.00	-5,032.51	337.52	5,042.44	0.00	0.00	0.00
11,000.00	90.00	179.74	5,848.00	-5,132.51	337.97	5,142.36	0.00	0.00	0.00
11,100.00	90.00	179.74	5,848.00	-5,232.51	338.41	5,242.28	0.00	0.00	0.00
11,200.00	90.00	179.74	5,848.00	-5,332.50	338.86	5,342.21	0.00	0.00	0.00
11,300.00	90.00	179.74	5,848.00	-5,432.50	339.31	5,442.13	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1804
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1804	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H2		
<b>Design:</b>	Plan #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)	
11,400.00	90.00	179.74	5,848.00	-5,532.50	339.76	5,542.05	0.00	0.00	0.00	
11,500.00	90.00	179.74	5,848.00	-5,632.50	340.20	5,641.98	0.00	0.00	0.00	
11,600.00	90.00	179.74	5,848.00	-5,732.50	340.65	5,741.90	0.00	0.00	0.00	
11,700.00	90.00	179.74	5,848.00	-5,832.50	341.10	5,841.82	0.00	0.00	0.00	
11,800.00	90.00	179.74	5,848.00	-5,932.50	341.54	5,941.75	0.00	0.00	0.00	
11,900.00	90.00	179.74	5,848.00	-6,032.50	341.99	6,041.67	0.00	0.00	0.00	
12,000.00	90.00	179.74	5,848.00	-6,132.50	342.44	6,141.59	0.00	0.00	0.00	
12,100.00	90.00	179.74	5,848.00	-6,232.50	342.89	6,241.52	0.00	0.00	0.00	
12,200.00	90.00	179.74	5,848.00	-6,332.49	343.33	6,341.44	0.00	0.00	0.00	
12,300.00	90.00	179.74	5,848.00	-6,432.49	343.78	6,441.36	0.00	0.00	0.00	
12,400.00	90.00	179.74	5,848.00	-6,532.49	344.23	6,541.29	0.00	0.00	0.00	
12,500.00	90.00	179.74	5,848.00	-6,632.49	344.67	6,641.21	0.00	0.00	0.00	
12,600.00	90.00	179.74	5,848.00	-6,732.49	345.12	6,741.14	0.00	0.00	0.00	
12,700.00	90.00	179.74	5,848.00	-6,832.49	345.57	6,841.06	0.00	0.00	0.00	
12,800.00	90.00	179.74	5,848.00	-6,932.49	346.02	6,940.98	0.00	0.00	0.00	
12,900.00	90.00	179.74	5,848.00	-7,032.49	346.46	7,040.91	0.00	0.00	0.00	
13,000.00	90.00	179.74	5,848.00	-7,132.49	346.91	7,140.83	0.00	0.00	0.00	
13,100.00	90.00	179.74	5,848.00	-7,232.49	347.36	7,240.75	0.00	0.00	0.00	
13,200.00	90.00	179.74	5,848.00	-7,332.49	347.81	7,340.68	0.00	0.00	0.00	
13,300.00	90.00	179.74	5,848.00	-7,432.48	348.25	7,440.60	0.00	0.00	0.00	
13,400.00	90.00	179.74	5,848.00	-7,532.48	348.70	7,540.52	0.00	0.00	0.00	
13,500.00	90.00	179.74	5,848.00	-7,632.48	349.15	7,640.45	0.00	0.00	0.00	
13,600.00	90.00	179.74	5,848.00	-7,732.48	349.59	7,740.37	0.00	0.00	0.00	
13,700.00	90.00	179.74	5,848.00	-7,832.48	350.04	7,840.29	0.00	0.00	0.00	
13,800.00	90.00	179.74	5,848.00	-7,932.48	350.49	7,940.22	0.00	0.00	0.00	
13,900.00	90.00	179.74	5,848.00	-8,032.48	350.94	8,040.14	0.00	0.00	0.00	
13,914.44	90.00	179.74	5,848.00	-8,046.91	351.00	8,054.56	0.00	0.00	0.00	
TD at 13914.44										

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 1804B	0.00	0.00	5,848.00	-8,046.91	351.00	1,550,412.82	3,470,545.17	40° 49' 54.760 N	103° 47' 58.402 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,161.44	5,848.00	7" CSG PT/5 1/2" Marker	7.000	8.750	



# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1804
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1804	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,553.88	1,550.00	Upper Pierre				
3,510.83	3,500.00	Hygiene				
3,661.36	3,650.00	Lower Pierre				
5,535.39	5,515.00	P200 Marker				
5,551.58	5,530.00	P300 Marker				
5,573.50	5,550.00	P350 Marker				
5,761.66	5,702.00	Sharon Springs				
5,768.92	5,707.00	Niobrara				
5,808.57	5,733.00	Top A Chalk				
5,876.49	5,772.00	Top A Marl				
5,917.66	5,792.00	A Marl				
5,943.31	5,803.00	Top Upper B				
6,009.50	5,826.00	Base Upper B				
6,161.44	5,848.00	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'	
541.50	541.21	5.96	8.24	Hold 4.83° Inc	
4,901.56	4,885.79	221.04	305.76	Drop 2°/100'	
5,143.05	5,127.00	227.00	314.00	Hold Vertical	
5,343.05	5,327.00	227.00	314.00	KOP, Build 11°/100'	
6,161.44	5,848.00	-293.99	316.33	LP @ 90° Inc, Hold	
13,914.44	5,848.00	-8,046.91	351.00	TD at 13914.44	