



Project: Weld County, CO  
Site: Sec 7-T10N-R57W  
Well: Horsetail #07E-1801  
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-1801

+N/-S	+E/-W	Northing	Ground Level:	4925.60	Longitude	Slot
0.00	0.00	1558448.64	Easting	3469890.11	40° 51' 14.270 N	103° 48' 4.920 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	637.92	6.76	294.49	637.14	8.25	-18.12	2.00	294.49	-7.17	
4	4728.07	6.76	294.49	4698.86	207.75	-456.17	0.00	0.00	-180.55	
5	5065.99	0.00	0.00	5036.00	216.00	-474.29	2.00	180.00	-187.72	
6	5265.99	0.00	0.00	5236.00	216.00	-474.29	0.00	0.00	-187.72	
7	6084.37	90.00	180.00	5757.00	-305.00	-474.29	11.00	180.00	332.38	
8	13826.28	90.00	180.00	5757.00	-8046.90	-474.29	0.00	0.00	8060.87	1801 PBHL

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1557.17	Upper Pierre
3500.00	3520.82	Hygiene
3650.00	3671.87	Lower Pierre
5515.00	5560.41	P200 Marker
5530.00	5578.37	P300 Marker
5550.00	5603.00	P350 Marker
5702.00	5842.82	Sharon Springs
5707.00	5854.25	Niobrara
5733.00	5925.62	Top A Chalk

#### 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'
637.14	637.92	6.76	294.49	8.25	-18.12	-7.17	19.91	Hold 6.76° Inc
4698.86	4728.07	6.76	294.49	207.75	-456.17	-180.55	501.25	Drop 2°/100'
5036.00	5065.99	0.00	0.00	216.00	-474.29	-187.72	521.16	Hold Vertical
5236.00	5265.99	0.00	0.00	216.00	-474.29	-187.72	521.16	KOP, Build 11°/100'
5757.00	6084.37	90.00	180.00	-305.00	-474.29	332.38	1042.16	LP @ 90° Inc, Hold
5757.00	13826.28	90.00	180.00	-8046.90	-474.29	8060.87	8784.06	TD at 13826.28

#### DESIGN TARGET DETAILS

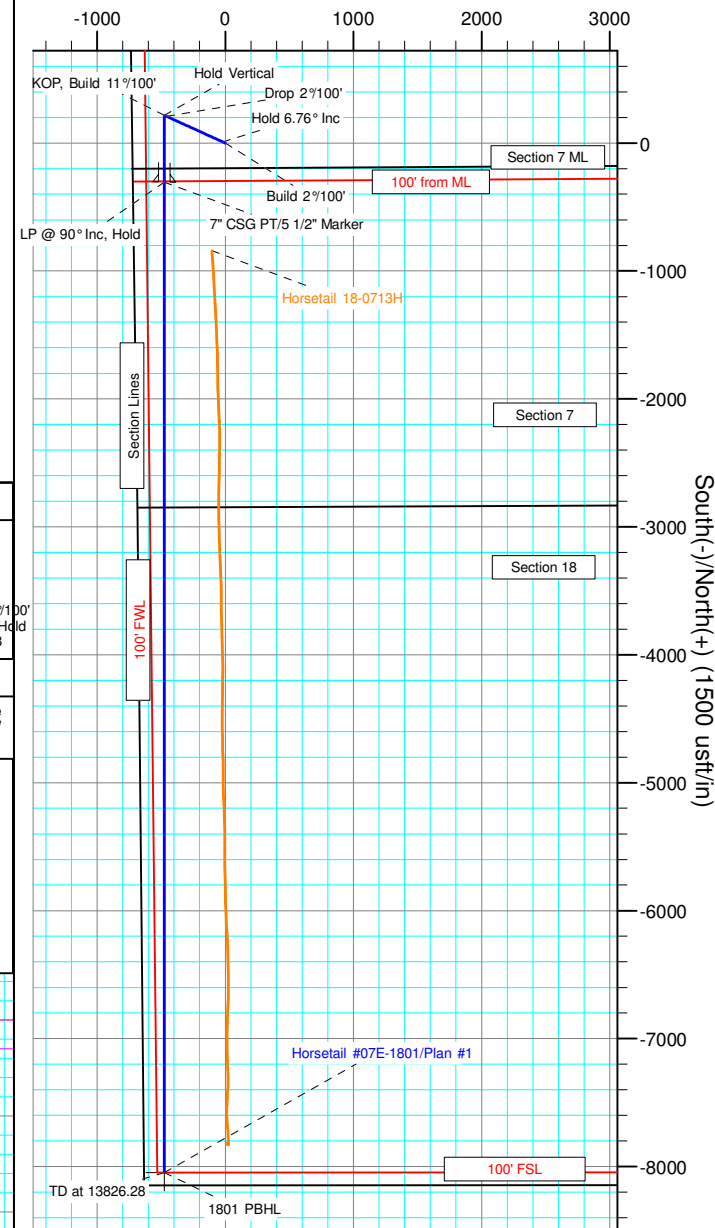
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
1801 PBHL	5757.00	-8046.90	-474.29	1550394.13	3469570.04	40° 49' 54.760 N	103° 48' 11.090 W

SHL:  
2454' FNL, 740' FWL  
Sec7-T10N-R57W

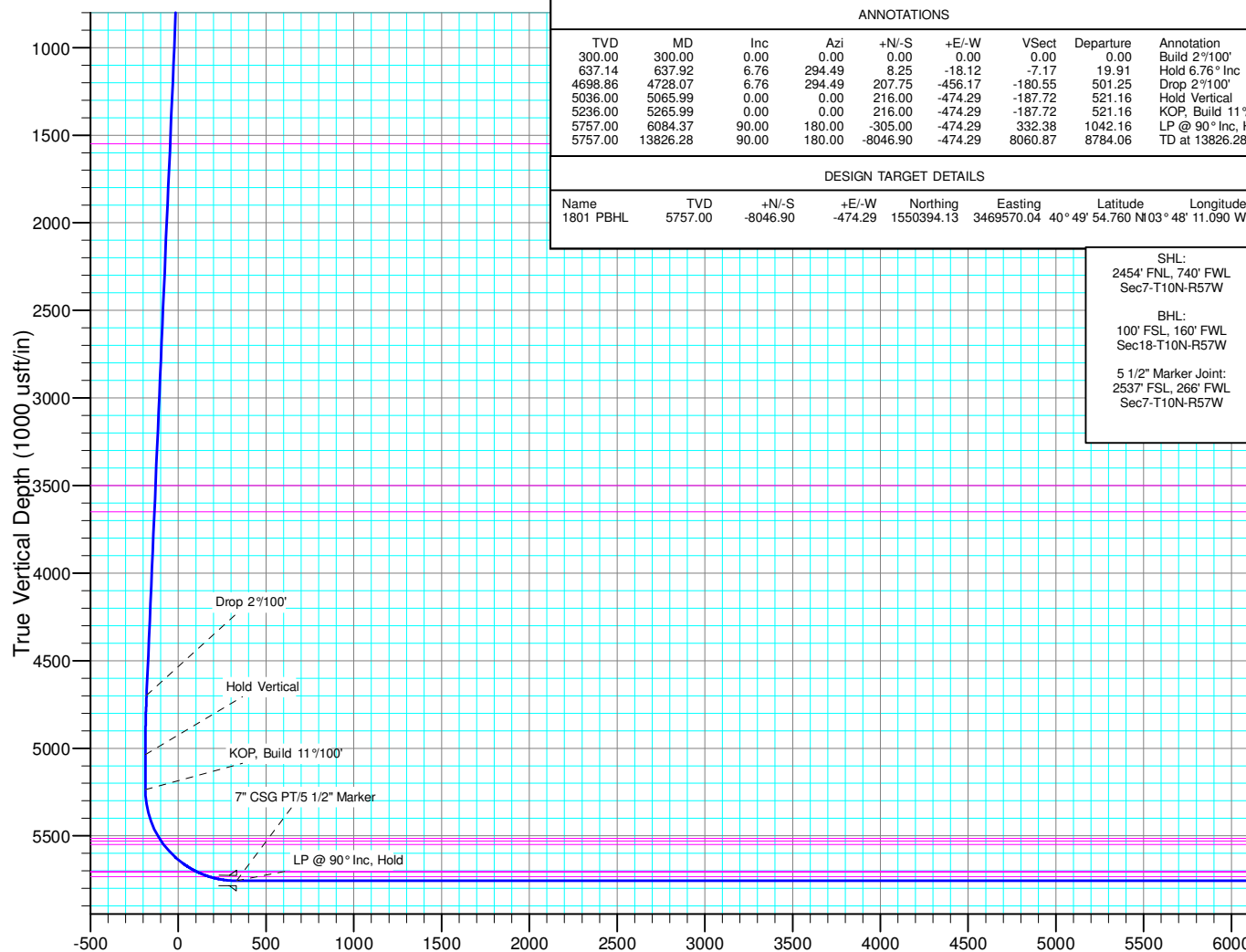
BHL:  
100' FSL, 160' FWL  
Sec18-T10N-R57W

5 1/2" Marker Joint:  
2537' FSL, 266' FWL  
Sec7-T10N-R57W

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



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



Vertical Section at 183.37° (1000 usft/in)



# **Whiting Petroleum Corp.**

**Weld County, CO  
Sec 7-T10N-R57W  
Horsetail #07E-1801**

**Hz**

**Plan: Plan #1**

## **Standard Planning Report**

**08 December, 2015**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1801
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4946.60usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4946.60usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1801	<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-1801			
<b>Well Position</b>	<b>+N/-S</b>	-3.02 usft	<b>Northing:</b>	1,558,448.65 usft
	<b>+E/-W</b>	79.92 usft	<b>Easting:</b>	3,469,890.11 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 4,925.60 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	183.37

<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	
637.92	6.76	294.49	637.14	8.25	-18.12	2.00	2.00	0.00	294.49	
4,728.07	6.76	294.49	4,698.86	207.75	-456.17	0.00	0.00	0.00	0.00	
5,065.99	0.00	0.00	5,036.00	216.00	-474.29	2.00	-2.00	0.00	180.00	
5,265.99	0.00	0.00	5,236.00	216.00	-474.29	0.00	0.00	0.00	0.00	
6,084.37	90.00	180.00	5,757.00	-305.00	-474.29	11.00	11.00	0.00	180.00	
13,826.28	90.00	180.00	5,757.00	-8,046.90	-474.29	0.00	0.00	0.00	0.00	1801 PBHL



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## Planning Report

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<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4946.60usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4946.60usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1801	<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	294.49	399.98	0.72	-1.59	-0.63	2.00	2.00	0.00
500.00	4.00	294.49	499.84	2.89	-6.35	-2.51	2.00	2.00	0.00
600.00	6.00	294.49	599.45	6.50	-14.28	-5.65	2.00	2.00	0.00
637.92	6.76	294.49	637.14	8.25	-18.12	-7.17	2.00	2.00	0.00
<b>Hold 6.76° Inc</b>									
700.00	6.76	294.49	698.79	11.28	-24.77	-9.80	0.00	0.00	0.00
800.00	6.76	294.49	798.09	16.16	-35.48	-14.04	0.00	0.00	0.00
900.00	6.76	294.49	897.40	21.03	-46.19	-18.28	0.00	0.00	0.00
1,000.00	6.76	294.49	996.70	25.91	-56.90	-22.52	0.00	0.00	0.00
1,100.00	6.76	294.49	1,096.01	30.79	-67.61	-26.76	0.00	0.00	0.00
1,200.00	6.76	294.49	1,195.31	35.67	-78.32	-31.00	0.00	0.00	0.00
1,300.00	6.76	294.49	1,294.62	40.54	-89.03	-35.24	0.00	0.00	0.00
1,400.00	6.76	294.49	1,393.92	45.42	-99.74	-39.47	0.00	0.00	0.00
1,500.00	6.76	294.49	1,493.23	50.30	-110.45	-43.71	0.00	0.00	0.00
1,557.17	6.76	294.49	1,550.00	53.09	-116.57	-46.14	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	6.76	294.49	1,592.53	55.18	-121.16	-47.95	0.00	0.00	0.00
1,700.00	6.76	294.49	1,691.84	60.05	-131.87	-52.19	0.00	0.00	0.00
1,800.00	6.76	294.49	1,791.14	64.93	-142.58	-56.43	0.00	0.00	0.00
1,900.00	6.76	294.49	1,890.45	69.81	-153.29	-60.67	0.00	0.00	0.00
2,000.00	6.76	294.49	1,989.75	74.69	-164.00	-64.91	0.00	0.00	0.00
2,100.00	6.76	294.49	2,089.06	79.56	-174.71	-69.15	0.00	0.00	0.00
2,200.00	6.76	294.49	2,188.36	84.44	-185.42	-73.39	0.00	0.00	0.00
2,300.00	6.76	294.49	2,287.67	89.32	-196.13	-77.62	0.00	0.00	0.00
2,400.00	6.76	294.49	2,386.97	94.20	-206.84	-81.86	0.00	0.00	0.00
2,500.00	6.76	294.49	2,486.28	99.07	-217.55	-86.10	0.00	0.00	0.00
2,600.00	6.76	294.49	2,585.58	103.95	-228.26	-90.34	0.00	0.00	0.00
2,700.00	6.76	294.49	2,684.89	108.83	-238.97	-94.58	0.00	0.00	0.00
2,800.00	6.76	294.49	2,784.19	113.71	-249.68	-98.82	0.00	0.00	0.00
2,900.00	6.76	294.49	2,883.50	118.58	-260.39	-103.06	0.00	0.00	0.00
3,000.00	6.76	294.49	2,982.80	123.46	-271.10	-107.30	0.00	0.00	0.00
3,100.00	6.76	294.49	3,082.11	128.34	-281.81	-111.54	0.00	0.00	0.00
3,200.00	6.76	294.49	3,181.41	133.22	-292.52	-115.77	0.00	0.00	0.00
3,300.00	6.76	294.49	3,280.72	138.09	-303.23	-120.01	0.00	0.00	0.00
3,400.00	6.76	294.49	3,380.02	142.97	-313.94	-124.25	0.00	0.00	0.00
3,500.00	6.76	294.49	3,479.33	147.85	-324.65	-128.49	0.00	0.00	0.00
3,520.82	6.76	294.49	3,500.00	148.87	-326.88	-129.37	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	6.76	294.49	3,578.63	152.73	-335.36	-132.73	0.00	0.00	0.00
3,671.87	6.76	294.49	3,650.00	156.23	-343.05	-135.78	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,700.00	6.76	294.49	3,677.94	157.60	-346.07	-136.97	0.00	0.00	0.00
3,800.00	6.76	294.49	3,777.24	162.48	-356.78	-141.21	0.00	0.00	0.00
3,900.00	6.76	294.49	3,876.55	167.36	-367.49	-145.45	0.00	0.00	0.00
4,000.00	6.76	294.49	3,975.85	172.24	-378.20	-149.69	0.00	0.00	0.00
4,100.00	6.76	294.49	4,075.16	177.12	-388.91	-153.93	0.00	0.00	0.00
4,200.00	6.76	294.49	4,174.46	181.99	-399.62	-158.16	0.00	0.00	0.00
4,300.00	6.76	294.49	4,273.77	186.87	-410.33	-162.40	0.00	0.00	0.00
4,400.00	6.76	294.49	4,373.07	191.75	-421.04	-166.64	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1801
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4946.60usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4946.60usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1801	<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	6.76	294.49	4,472.38	196.63	-431.75	-170.88	0.00	0.00	0.00
4,600.00	6.76	294.49	4,571.68	201.50	-442.46	-175.12	0.00	0.00	0.00
4,700.00	6.76	294.49	4,670.99	206.38	-453.17	-179.36	0.00	0.00	0.00
4,728.07	6.76	294.49	4,698.86	207.75	-456.17	-180.55	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,800.00	5.32	294.49	4,770.39	210.89	-463.06	-183.27	2.00	-2.00	0.00
4,900.00	3.32	294.49	4,870.10	214.01	-469.91	-185.99	2.00	-2.00	0.00
5,000.00	1.32	294.49	4,970.02	215.69	-473.60	-187.45	2.00	-2.00	0.00
5,065.99	0.00	0.00	5,036.00	216.00	-474.29	-187.72	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,100.00	0.00	0.00	5,070.01	216.00	-474.29	-187.72	0.00	0.00	0.00
5,200.00	0.00	0.00	5,170.01	216.00	-474.29	-187.72	0.00	0.00	0.00
5,265.99	0.00	0.00	5,236.00	216.00	-474.29	-187.72	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,300.00	3.74	180.00	5,269.99	214.89	-474.29	-186.61	11.00	11.00	0.00
5,400.00	14.74	180.00	5,368.54	198.86	-474.29	-170.61	11.00	11.00	0.00
5,500.00	25.73	180.00	5,462.22	164.32	-474.29	-136.13	11.00	11.00	0.00
5,560.41	32.38	180.00	5,515.00	135.00	-474.29	-106.86	11.00	11.00	0.00
<b>P200 Marker</b>									
5,578.37	34.35	180.00	5,530.00	125.12	-474.29	-97.00	11.00	11.00	0.00
<b>P300 Marker</b>									
5,600.00	36.73	180.00	5,547.60	112.55	-474.29	-84.45	11.00	11.00	0.00
5,603.00	37.06	180.00	5,550.00	110.75	-474.29	-82.65	11.00	11.00	0.00
<b>P350 Marker</b>									
5,700.00	47.73	180.00	5,621.53	45.44	-474.29	-17.46	11.00	11.00	0.00
5,800.00	58.73	180.00	5,681.30	-34.54	-474.29	62.39	11.00	11.00	0.00
5,842.82	63.44	180.00	5,702.00	-72.01	-474.29	99.79	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,854.25	64.69	180.00	5,707.00	-82.29	-474.29	110.05	11.00	11.00	0.00
<b>Niobrara</b>									
5,900.00	69.72	180.00	5,724.72	-124.45	-474.29	152.14	11.00	11.00	0.00
5,925.62	72.54	180.00	5,733.00	-148.69	-474.29	176.34	11.00	11.00	0.00
<b>Top A Chalk</b>									
6,000.00	80.72	180.00	5,750.18	-221.00	-474.29	248.52	11.00	11.00	0.00
6,084.37	90.00	180.00	5,757.00	-305.00	-474.29	332.38	11.00	11.00	0.00
<b>LP @ 90° Inc, Hold - 7" CSG PT/5 1/2" Marker</b>									
6,100.00	90.00	180.00	5,757.00	-320.63	-474.29	347.98	0.00	0.00	0.00
6,200.00	90.00	180.00	5,757.00	-420.63	-474.29	447.80	0.00	0.00	0.00
6,300.00	90.00	180.00	5,757.00	-520.63	-474.29	547.63	0.00	0.00	0.00
6,400.00	90.00	180.00	5,757.00	-620.63	-474.29	647.46	0.00	0.00	0.00
6,500.00	90.00	180.00	5,757.00	-720.63	-474.29	747.29	0.00	0.00	0.00
6,600.00	90.00	180.00	5,757.00	-820.63	-474.29	847.11	0.00	0.00	0.00
6,700.00	90.00	180.00	5,757.00	-920.63	-474.29	946.94	0.00	0.00	0.00
6,800.00	90.00	180.00	5,757.00	-1,020.63	-474.29	1,046.77	0.00	0.00	0.00
6,900.00	90.00	180.00	5,757.00	-1,120.63	-474.29	1,146.59	0.00	0.00	0.00
7,000.00	90.00	180.00	5,757.00	-1,220.63	-474.29	1,246.42	0.00	0.00	0.00
7,100.00	90.00	180.00	5,757.00	-1,320.63	-474.29	1,346.25	0.00	0.00	0.00
7,200.00	90.00	180.00	5,757.00	-1,420.63	-474.29	1,446.07	0.00	0.00	0.00
7,300.00	90.00	180.00	5,757.00	-1,520.63	-474.29	1,545.90	0.00	0.00	0.00
7,400.00	90.00	180.00	5,757.00	-1,620.63	-474.29	1,645.73	0.00	0.00	0.00
7,500.00	90.00	180.00	5,757.00	-1,720.63	-474.29	1,745.55	0.00	0.00	0.00
7,600.00	90.00	180.00	5,757.00	-1,820.63	-474.29	1,845.38	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1801
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4946.60usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4946.60usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1801	<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)	
7,700.00	90.00	180.00	5,757.00	-1,920.63	-474.29	1,945.21	0.00	0.00	0.00	
7,800.00	90.00	180.00	5,757.00	-2,020.63	-474.29	2,045.03	0.00	0.00	0.00	
7,900.00	90.00	180.00	5,757.00	-2,120.63	-474.29	2,144.86	0.00	0.00	0.00	
8,000.00	90.00	180.00	5,757.00	-2,220.63	-474.29	2,244.69	0.00	0.00	0.00	
8,100.00	90.00	180.00	5,757.00	-2,320.63	-474.29	2,344.51	0.00	0.00	0.00	
8,200.00	90.00	180.00	5,757.00	-2,420.63	-474.29	2,444.34	0.00	0.00	0.00	
8,300.00	90.00	180.00	5,757.00	-2,520.63	-474.29	2,544.17	0.00	0.00	0.00	
8,400.00	90.00	180.00	5,757.00	-2,620.63	-474.29	2,643.99	0.00	0.00	0.00	
8,500.00	90.00	180.00	5,757.00	-2,720.63	-474.29	2,743.82	0.00	0.00	0.00	
8,600.00	90.00	180.00	5,757.00	-2,820.63	-474.29	2,843.65	0.00	0.00	0.00	
8,700.00	90.00	180.00	5,757.00	-2,920.63	-474.29	2,943.47	0.00	0.00	0.00	
8,800.00	90.00	180.00	5,757.00	-3,020.63	-474.29	3,043.30	0.00	0.00	0.00	
8,900.00	90.00	180.00	5,757.00	-3,120.63	-474.29	3,143.13	0.00	0.00	0.00	
9,000.00	90.00	180.00	5,757.00	-3,220.63	-474.29	3,242.95	0.00	0.00	0.00	
9,100.00	90.00	180.00	5,757.00	-3,320.63	-474.29	3,342.78	0.00	0.00	0.00	
9,200.00	90.00	180.00	5,757.00	-3,420.63	-474.29	3,442.61	0.00	0.00	0.00	
9,300.00	90.00	180.00	5,757.00	-3,520.63	-474.29	3,542.43	0.00	0.00	0.00	
9,400.00	90.00	180.00	5,757.00	-3,620.63	-474.29	3,642.26	0.00	0.00	0.00	
9,500.00	90.00	180.00	5,757.00	-3,720.63	-474.29	3,742.09	0.00	0.00	0.00	
9,600.00	90.00	180.00	5,757.00	-3,820.63	-474.29	3,841.91	0.00	0.00	0.00	
9,700.00	90.00	180.00	5,757.00	-3,920.63	-474.29	3,941.74	0.00	0.00	0.00	
9,800.00	90.00	180.00	5,757.00	-4,020.63	-474.29	4,041.57	0.00	0.00	0.00	
9,900.00	90.00	180.00	5,757.00	-4,120.63	-474.29	4,141.39	0.00	0.00	0.00	
10,000.00	90.00	180.00	5,757.00	-4,220.63	-474.29	4,241.22	0.00	0.00	0.00	
10,100.00	90.00	180.00	5,757.00	-4,320.63	-474.29	4,341.05	0.00	0.00	0.00	
10,200.00	90.00	180.00	5,757.00	-4,420.63	-474.29	4,440.88	0.00	0.00	0.00	
10,300.00	90.00	180.00	5,757.00	-4,520.63	-474.29	4,540.70	0.00	0.00	0.00	
10,400.00	90.00	180.00	5,757.00	-4,620.63	-474.29	4,640.53	0.00	0.00	0.00	
10,500.00	90.00	180.00	5,757.00	-4,720.63	-474.29	4,740.36	0.00	0.00	0.00	
10,600.00	90.00	180.00	5,757.00	-4,820.63	-474.29	4,840.18	0.00	0.00	0.00	
10,700.00	90.00	180.00	5,757.00	-4,920.63	-474.29	4,940.01	0.00	0.00	0.00	
10,800.00	90.00	180.00	5,757.00	-5,020.63	-474.29	5,039.84	0.00	0.00	0.00	
10,900.00	90.00	180.00	5,757.00	-5,120.63	-474.29	5,139.66	0.00	0.00	0.00	
11,000.00	90.00	180.00	5,757.00	-5,220.63	-474.29	5,239.49	0.00	0.00	0.00	
11,100.00	90.00	180.00	5,757.00	-5,320.63	-474.29	5,339.32	0.00	0.00	0.00	
11,200.00	90.00	180.00	5,757.00	-5,420.63	-474.29	5,439.14	0.00	0.00	0.00	
11,300.00	90.00	180.00	5,757.00	-5,520.63	-474.29	5,538.97	0.00	0.00	0.00	
11,400.00	90.00	180.00	5,757.00	-5,620.63	-474.29	5,638.80	0.00	0.00	0.00	
11,500.00	90.00	180.00	5,757.00	-5,720.63	-474.29	5,738.62	0.00	0.00	0.00	
11,600.00	90.00	180.00	5,757.00	-5,820.63	-474.29	5,838.45	0.00	0.00	0.00	
11,700.00	90.00	180.00	5,757.00	-5,920.63	-474.29	5,938.28	0.00	0.00	0.00	
11,800.00	90.00	180.00	5,757.00	-6,020.63	-474.29	6,038.10	0.00	0.00	0.00	
11,900.00	90.00	180.00	5,757.00	-6,120.63	-474.29	6,137.93	0.00	0.00	0.00	
12,000.00	90.00	180.00	5,757.00	-6,220.63	-474.29	6,237.76	0.00	0.00	0.00	
12,100.00	90.00	180.00	5,757.00	-6,320.63	-474.29	6,337.58	0.00	0.00	0.00	
12,200.00	90.00	180.00	5,757.00	-6,420.63	-474.29	6,437.41	0.00	0.00	0.00	
12,300.00	90.00	180.00	5,757.00	-6,520.63	-474.29	6,537.24	0.00	0.00	0.00	
12,400.00	90.00	180.00	5,757.00	-6,620.63	-474.29	6,637.06	0.00	0.00	0.00	
12,500.00	90.00	180.00	5,757.00	-6,720.63	-474.29	6,736.89	0.00	0.00	0.00	
12,600.00	90.00	180.00	5,757.00	-6,820.63	-474.29	6,836.72	0.00	0.00	0.00	
12,700.00	90.00	180.00	5,757.00	-6,920.63	-474.29	6,936.54	0.00	0.00	0.00	
12,800.00	90.00	180.00	5,757.00	-7,020.63	-474.29	7,036.37	0.00	0.00	0.00	
12,900.00	90.00	180.00	5,757.00	-7,120.63	-474.29	7,136.20	0.00	0.00	0.00	
13,000.00	90.00	180.00	5,757.00	-7,220.63	-474.29	7,236.02	0.00	0.00	0.00	



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1801
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4946.60usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4946.60usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1801	<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)	
13,100.00	90.00	180.00	5,757.00	-7,320.63	-474.29	7,335.85	0.00	0.00	0.00	
13,200.00	90.00	180.00	5,757.00	-7,420.63	-474.29	7,435.68	0.00	0.00	0.00	
13,300.00	90.00	180.00	5,757.00	-7,520.63	-474.29	7,535.50	0.00	0.00	0.00	
13,400.00	90.00	180.00	5,757.00	-7,620.63	-474.29	7,635.33	0.00	0.00	0.00	
13,500.00	90.00	180.00	5,757.00	-7,720.63	-474.29	7,735.16	0.00	0.00	0.00	
13,600.00	90.00	180.00	5,757.00	-7,820.63	-474.29	7,834.98	0.00	0.00	0.00	
13,700.00	90.00	180.00	5,757.00	-7,920.63	-474.29	7,934.81	0.00	0.00	0.00	
13,800.00	90.00	180.00	5,757.00	-8,020.63	-474.29	8,034.64	0.00	0.00	0.00	
13,826.28	90.00	180.00	5,757.00	-8,046.90	-474.29	8,060.87	0.00	0.00	0.00	
TD at 13826.28										

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									
1801 PBHL	0.00	0.00	5,757.00	-8,046.90	-474.29	1,550,394.13	3,469,570.04	40° 49' 54.760 N	103° 48' 11.090 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,084.37	5,757.00	7" CSG PT/5 1/2" Marker	5.500	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,557.17	1,550.00	Upper Pierre				
3,520.82	3,500.00	Hygiene				
3,671.87	3,650.00	Lower Pierre				
5,560.41	5,515.00	P200 Marker				
5,578.37	5,530.00	P300 Marker				
5,603.00	5,550.00	P350 Marker				
5,842.82	5,702.00	Sharon Springs				
5,854.25	5,707.00	Niobrara				
5,925.62	5,733.00	Top A Chalk				



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-1801
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4946.60usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4946.60usft
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07E-1801	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H <sub>z</sub>		
<b>Design:</b>	Plan #1		

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'
637.92	637.14	8.25	-18.12	Hold 6.76° Inc
4,728.07	4,698.86	207.75	-456.17	Drop 2°/100'
5,065.99	5,036.00	216.00	-474.29	Hold Vertical
5,265.99	5,236.00	216.00	-474.29	KOP, Build 11°/100'
6,084.37	5,757.00	-305.00	-474.29	LP @ 90° Inc, Hold
13,826.28	5,757.00	-8,046.90	-474.29	TD at 13826.28