



Project: Weld County, CO  
Site: Sec 7-T10N-R57W  
Well: Horsetail Fed #07G-0642  
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	1561.33	Upper Pierre
3500.00	3534.38	Hygiene
3650.00	3686.15	Lower Pierre
5612.00	5668.16	P200 Marker
5639.00	5697.66	P300 Marker
5658.00	5718.89	P350 Marker
5667.00	5729.11	Sharon Springs
5676.00	5739.43	Niobrara
5699.00	5766.39	Top A Chalk
5738.00	5814.33	Top A Marl
5758.00	5840.29	A Marl
5769.00	5855.06	Top Upper B
5792.00	5887.27	Base Upper B
5814.00	5920.15	Top Lower B
5848.00	5976.56	Base Lower B
5855.00	5991.18	Top B Marl
5885.00	6050.85	Top C Chalk
5897.00	6080.12	Middle C Chalk
5913.00	6126.85	Middle C Marl
5937.00	6285.60	Lower C Chalk

WELL DETAILS: Horsetail Fed #07G-0642

+N/-S	+E/-W	Northing	Ground Level:	4895.00	Eastings	3472574.78	Latitude	40° 51' 12.610 N	Longitude	103° 47' 30.020 W	Slot
0.00	0.00	1558332.19									

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	738.38	8.77	231.06	736.67	-21.04	-26.04	2.00	231.06	-19.09	
4	4828.83	8.77	231.06	4779.33	-412.96	-510.96	0.00	0.00	-374.73	
5	5267.22	0.00	0.00	5216.00	-434.00	-537.00	2.00	180.00	-393.83	
6	5467.22	0.00	0.00	5416.00	-434.00	-537.00	0.00	0.00	-393.83	
7	6285.60	90.00	0.00	5937.00	87.00	-537.00	11.00	0.00	125.79	
8	13568.53	90.00	0.00	5937.00	7369.92	-537.00	0.00	0.00	7389.46	PBHL 0642

ANNOTATIONS

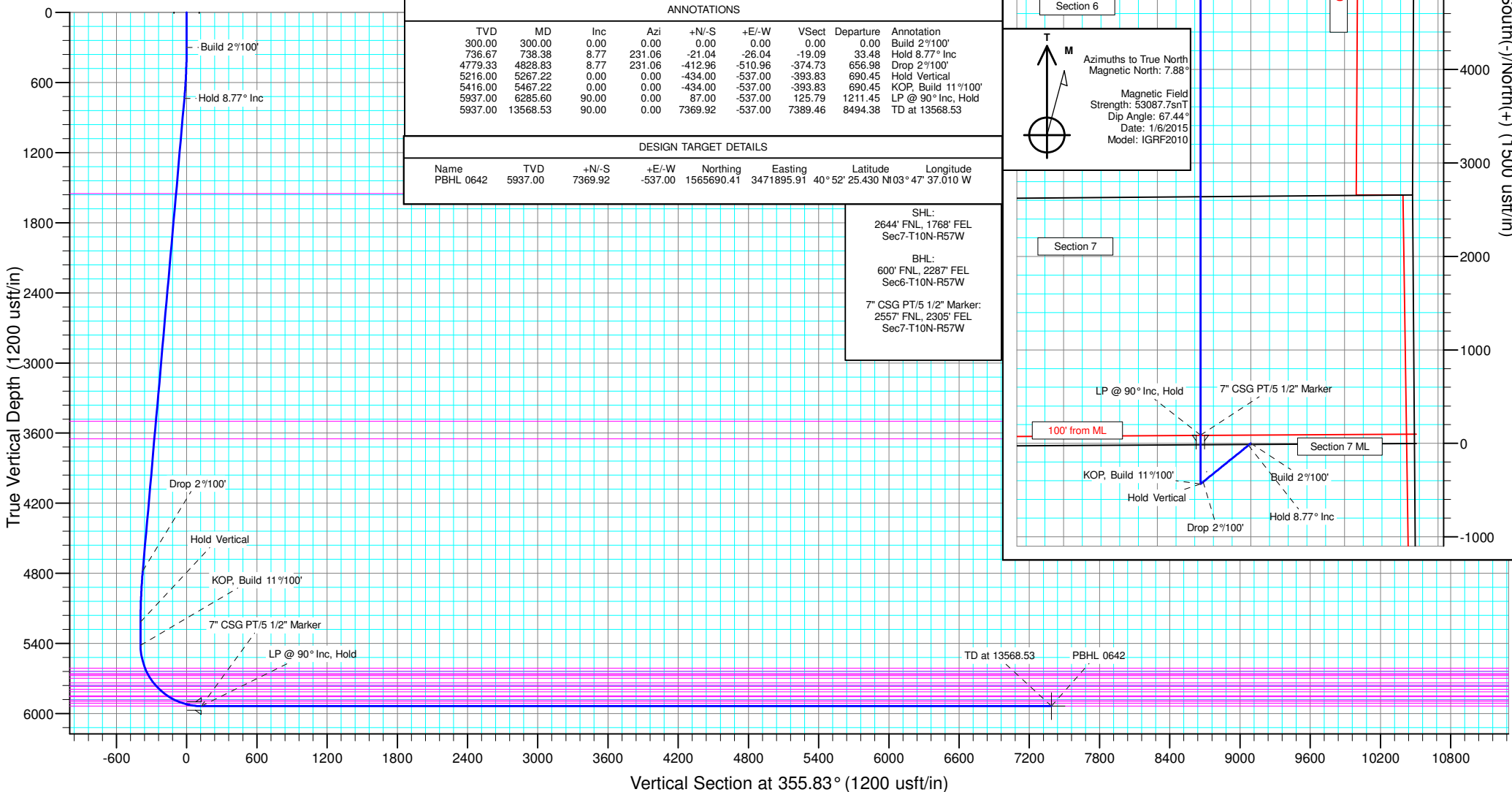
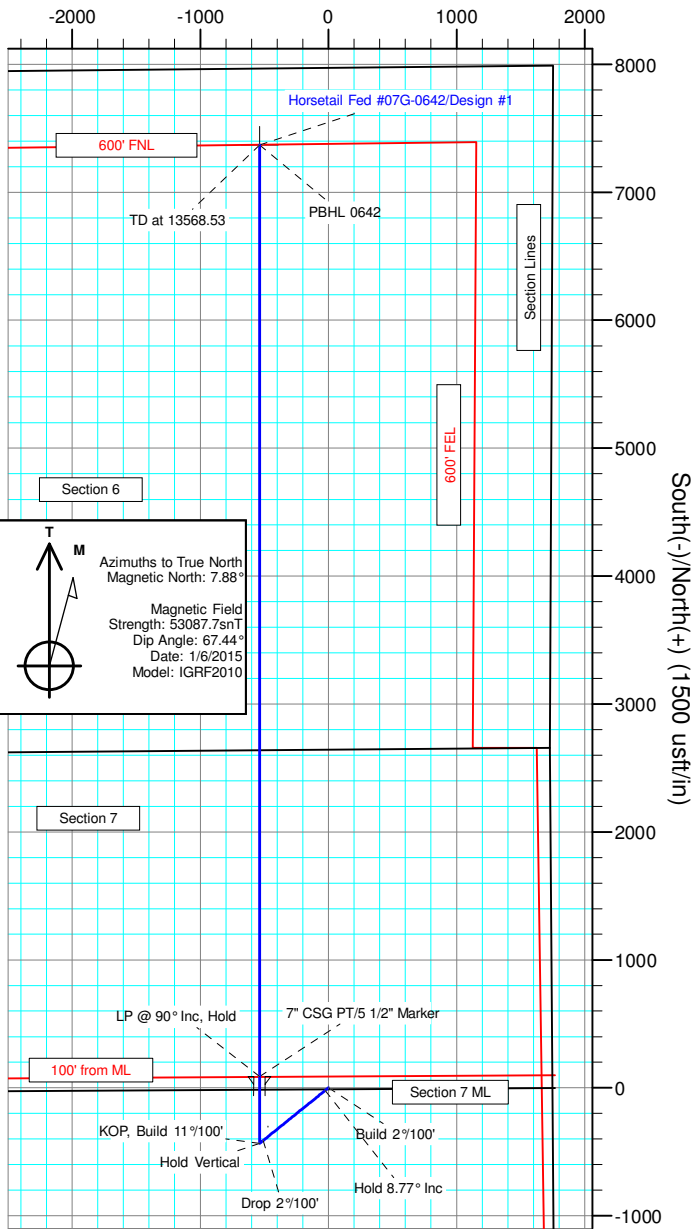
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
736.67	738.38	8.77	231.06	-21.04	-26.04	-19.09	33.48	Hold 8.77° Inc
4779.33	4828.83	8.77	231.06	-412.96	-510.96	-374.73	656.98	Drop 2°/100'
5216.00	5267.22	0.00	0.00	-434.00	-537.00	-393.83	690.45	Hold Vertical
5416.00	5467.22	0.00	0.00	-434.00	-537.00	-393.83	690.45	KOP, Build 11°/100'
5937.00	6285.60	90.00	0.00	87.00	-537.00	125.79	1211.45	LP @ 90° Inc, Hold
5937.00	13568.53	90.00	0.00	7369.92	-537.00	7389.46	8494.38	TD at 13568.53

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude
PBHL 0642	5937.00	7369.92	-537.00	1565690.41	3471895.91	40° 52' 25.430 N	103° 47' 37.010 W

SHL:  
2644' FNL, 1768' FEL  
Sec7-T10N-R57W  
  
BHL:  
600' FNL, 2287' FEL  
Sec6-T10N-R57W  
  
7" CSG PT/5 1/2" Marker:  
2557' FNL, 2305' FEL  
Sec7-T10N-R57W

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







# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail Fed #07G-0642**

**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 Fed #07G-0642
<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 Fed #07G-0642	<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 Fed #07G-0642					
Well Position	+N/-S	-170.86 usft	Northing:	1,558,332.20 usft	Latitude:	40° 51' 12.610 N
	+E/-W	2,761.86 usft	Easting:	3,472,574.77 usft	Longitude:	103° 47' 30.020 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	355.83

<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	
738.38	8.77	231.06	736.67	-21.04	-26.04	2.00	2.00	0.00	231.06	
4,828.83	8.77	231.06	4,779.33	-412.96	-510.96	0.00	0.00	0.00	0.00	
5,267.22	0.00	0.00	5,216.00	-434.00	-537.00	2.00	-2.00	0.00	180.00	
5,467.22	0.00	0.00	5,416.00	-434.00	-537.00	0.00	0.00	0.00	0.00	
6,285.60	90.00	0.00	5,937.00	87.00	-537.00	11.00	11.00	0.00	0.00	
13,568.53	90.00	0.00	5,937.00	7,369.92	-537.00	0.00	0.00	0.00	0.00	PBHL 0642D





# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07G-0642
<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 Fed #07G-0642	<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	231.06	399.98	-1.10	-1.36	-1.00	2.00	2.00	0.00
500.00	4.00	231.06	499.84	-4.39	-5.43	-3.98	2.00	2.00	0.00
600.00	6.00	231.06	599.45	-9.86	-12.21	-8.95	2.00	2.00	0.00
700.00	8.00	231.06	698.70	-17.52	-21.68	-15.90	2.00	2.00	0.00
738.38	8.77	231.06	736.67	-21.04	-26.04	-19.09	2.00	2.00	0.00
<b>Hold 8.77° Inc</b>									
800.00	8.77	231.06	797.57	-26.95	-33.34	-24.45	0.00	0.00	0.00
900.00	8.77	231.06	896.40	-36.53	-45.20	-33.15	0.00	0.00	0.00
1,000.00	8.77	231.06	995.23	-46.11	-57.05	-41.84	0.00	0.00	0.00
1,100.00	8.77	231.06	1,094.07	-55.69	-68.91	-50.53	0.00	0.00	0.00
1,200.00	8.77	231.06	1,192.90	-65.27	-80.76	-59.23	0.00	0.00	0.00
1,300.00	8.77	231.06	1,291.73	-74.85	-92.62	-67.92	0.00	0.00	0.00
1,400.00	8.77	231.06	1,390.56	-84.43	-104.47	-76.62	0.00	0.00	0.00
1,500.00	8.77	231.06	1,489.39	-94.01	-116.33	-85.31	0.00	0.00	0.00
1,561.33	8.77	231.06	1,550.00	-99.89	-123.60	-90.64	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	8.77	231.06	1,588.22	-103.60	-128.18	-94.01	0.00	0.00	0.00
1,700.00	8.77	231.06	1,687.05	-113.18	-140.04	-102.70	0.00	0.00	0.00
1,800.00	8.77	231.06	1,785.89	-122.76	-151.89	-111.40	0.00	0.00	0.00
1,900.00	8.77	231.06	1,884.72	-132.34	-163.75	-120.09	0.00	0.00	0.00
2,000.00	8.77	231.06	1,983.55	-141.92	-175.60	-128.78	0.00	0.00	0.00
2,100.00	8.77	231.06	2,082.38	-151.50	-187.46	-137.48	0.00	0.00	0.00
2,200.00	8.77	231.06	2,181.21	-161.08	-199.31	-146.17	0.00	0.00	0.00
2,300.00	8.77	231.06	2,280.04	-170.66	-211.17	-154.87	0.00	0.00	0.00
2,400.00	8.77	231.06	2,378.87	-180.25	-223.02	-163.56	0.00	0.00	0.00
2,500.00	8.77	231.06	2,477.71	-189.83	-234.88	-172.26	0.00	0.00	0.00
2,600.00	8.77	231.06	2,576.54	-199.41	-246.73	-180.95	0.00	0.00	0.00
2,700.00	8.77	231.06	2,675.37	-208.99	-258.59	-189.65	0.00	0.00	0.00
2,800.00	8.77	231.06	2,774.20	-218.57	-270.44	-198.34	0.00	0.00	0.00
2,900.00	8.77	231.06	2,873.03	-228.15	-282.30	-207.03	0.00	0.00	0.00
3,000.00	8.77	231.06	2,971.86	-237.73	-294.15	-215.73	0.00	0.00	0.00
3,100.00	8.77	231.06	3,070.69	-247.31	-306.01	-224.42	0.00	0.00	0.00
3,200.00	8.77	231.06	3,169.53	-256.90	-317.86	-233.12	0.00	0.00	0.00
3,300.00	8.77	231.06	3,268.36	-266.48	-329.72	-241.81	0.00	0.00	0.00
3,400.00	8.77	231.06	3,367.19	-276.06	-341.57	-250.51	0.00	0.00	0.00
3,500.00	8.77	231.06	3,466.02	-285.64	-353.43	-259.20	0.00	0.00	0.00
3,534.38	8.77	231.06	3,500.00	-288.93	-357.51	-262.19	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	8.77	231.06	3,564.85	-295.22	-365.28	-267.89	0.00	0.00	0.00
3,686.16	8.77	231.06	3,650.00	-303.48	-375.50	-275.39	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,700.00	8.77	231.06	3,663.68	-304.80	-377.14	-276.59	0.00	0.00	0.00
3,800.00	8.77	231.06	3,762.51	-314.38	-388.99	-285.28	0.00	0.00	0.00
3,900.00	8.77	231.06	3,861.35	-323.96	-400.85	-293.98	0.00	0.00	0.00
4,000.00	8.77	231.06	3,960.18	-333.55	-412.70	-302.67	0.00	0.00	0.00
4,100.00	8.77	231.06	4,059.01	-343.13	-424.56	-311.37	0.00	0.00	0.00
4,200.00	8.77	231.06	4,157.84	-352.71	-436.41	-320.06	0.00	0.00	0.00
4,300.00	8.77	231.06	4,256.67	-362.29	-448.27	-328.76	0.00	0.00	0.00
4,400.00	8.77	231.06	4,355.50	-371.87	-460.13	-337.45	0.00	0.00	0.00





# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07G-0642
<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 Fed #07G-0642	<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	8.77	231.06	4,454.33	-381.45	-471.98	-346.14	0.00	0.00	0.00
4,600.00	8.77	231.06	4,553.17	-391.03	-483.84	-354.84	0.00	0.00	0.00
4,700.00	8.77	231.06	4,652.00	-400.61	-495.69	-363.53	0.00	0.00	0.00
4,800.00	8.77	231.06	4,750.83	-410.20	-507.55	-372.23	0.00	0.00	0.00
4,828.83	8.77	231.06	4,779.33	-412.96	-510.96	-374.73	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,900.00	7.34	231.06	4,849.79	-419.23	-518.72	-380.42	2.00	-2.00	0.00
5,000.00	5.34	231.06	4,949.17	-426.17	-527.31	-386.73	2.00	-2.00	0.00
5,100.00	3.34	231.06	5,048.88	-430.93	-533.21	-391.05	2.00	-2.00	0.00
5,200.00	1.34	231.06	5,148.79	-433.50	-536.39	-393.38	2.00	-2.00	0.00
5,267.22	0.00	0.00	5,216.00	-434.00	-537.00	-393.83	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,300.00	0.00	0.00	5,248.78	-434.00	-537.00	-393.83	0.00	0.00	0.00
5,400.00	0.00	0.00	5,348.78	-434.00	-537.00	-393.83	0.00	0.00	0.00
5,467.22	0.00	0.00	5,416.00	-434.00	-537.00	-393.83	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,500.00	3.61	0.00	5,448.76	-432.97	-537.00	-392.80	11.00	11.00	0.00
5,550.00	9.10	0.00	5,498.44	-427.44	-537.00	-387.28	11.00	11.00	0.00
5,600.00	14.60	0.00	5,547.35	-417.17	-537.00	-377.04	11.00	11.00	0.00
5,650.00	20.10	0.00	5,595.06	-402.26	-537.00	-362.18	11.00	11.00	0.00
5,668.16	22.10	0.00	5,612.00	-395.73	-537.00	-355.66	11.00	11.00	0.00
<b>P200 Marker</b>									
5,697.66	25.34	0.00	5,639.00	-383.86	-537.00	-343.82	11.00	11.00	0.00
<b>P300 Marker</b>									
5,700.00	25.60	0.00	5,641.12	-382.86	-537.00	-342.82	11.00	11.00	0.00
5,718.89	27.68	0.00	5,658.00	-374.39	-537.00	-334.37	11.00	11.00	0.00
<b>P350 Marker</b>									
5,729.11	28.80	0.00	5,667.00	-369.55	-537.00	-329.55	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,739.43	29.94	0.00	5,676.00	-364.49	-537.00	-324.50	11.00	11.00	0.00
<b>Niobrara</b>									
5,750.00	31.10	0.00	5,685.10	-359.12	-537.00	-319.15	11.00	11.00	0.00
5,766.39	32.90	0.00	5,699.00	-350.44	-537.00	-310.49	11.00	11.00	0.00
<b>Top A Chalk</b>									
5,800.00	36.60	0.00	5,726.61	-331.28	-537.00	-291.38	11.00	11.00	0.00
5,814.33	38.17	0.00	5,738.00	-322.58	-537.00	-282.70	11.00	11.00	0.00
<b>Top A Marl</b>									
5,840.29	41.03	0.00	5,758.00	-306.04	-537.00	-266.20	11.00	11.00	0.00
<b>A Marl</b>									
5,850.00	42.10	0.00	5,765.26	-299.60	-537.00	-259.78	11.00	11.00	0.00
5,855.06	42.65	0.00	5,769.00	-296.19	-537.00	-256.38	11.00	11.00	0.00
<b>Top Upper B</b>									
5,887.27	46.19	0.00	5,792.00	-273.65	-537.00	-233.90	11.00	11.00	0.00
<b>Base Upper B</b>									
5,900.00	47.59	0.00	5,800.70	-264.35	-537.00	-224.63	11.00	11.00	0.00
5,920.15	49.81	0.00	5,814.00	-249.21	-537.00	-209.53	11.00	11.00	0.00
<b>Top Lower B</b>									
5,950.00	53.09	0.00	5,832.60	-225.87	-537.00	-186.25	11.00	11.00	0.00
5,976.56	56.01	0.00	5,848.00	-204.23	-537.00	-164.67	11.00	11.00	0.00
<b>Base Lower B</b>									
5,991.18	57.62	0.00	5,856.00	-192.00	-537.00	-152.47	11.00	11.00	0.00
<b>Top B Marl</b>									





# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07G-0642
<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 Fed #07G-0642	<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)	
6,000.00	58.59	0.00	5,860.66	-184.51	-537.00	-145.00	11.00	11.00	0.00	
6,050.00	64.09	0.00	5,884.63	-140.65	-537.00	-101.26	11.00	11.00	0.00	
6,050.85	64.18	0.00	5,885.00	-139.89	-537.00	-100.50	11.00	11.00	0.00	
Top C Chalk										
6,080.12	67.40	0.00	5,897.00	-113.20	-537.00	-73.88	11.00	11.00	0.00	
Middle C Chalk										
6,100.00	69.59	0.00	5,904.29	-94.70	-537.00	-55.43	11.00	11.00	0.00	
6,126.85	72.54	0.00	5,913.00	-69.31	-537.00	-30.10	11.00	11.00	0.00	
Middle C Marl										
6,150.00	75.09	0.00	5,919.45	-47.08	-537.00	-7.93	11.00	11.00	0.00	
6,200.00	80.59	0.00	5,929.98	1.78	-537.00	40.80	11.00	11.00	0.00	
6,250.00	86.08	0.00	5,935.78	51.43	-537.00	90.31	11.00	11.00	0.00	
6,285.60	90.00	0.00	5,937.00	87.00	-537.00	125.79	11.00	11.00	0.00	
LP @ 90° Inc, Hold - Lower C Chalk - 7" CSG PT/5 1/2" Marker										
6,300.00	90.00	0.00	5,937.00	101.40	-537.00	140.15	0.00	0.00	0.00	
6,400.00	90.00	0.00	5,937.00	201.40	-537.00	239.89	0.00	0.00	0.00	
6,500.00	90.00	0.00	5,937.00	301.40	-537.00	339.63	0.00	0.00	0.00	
6,600.00	90.00	0.00	5,937.00	401.40	-537.00	439.36	0.00	0.00	0.00	
6,700.00	90.00	0.00	5,937.00	501.40	-537.00	539.10	0.00	0.00	0.00	
6,800.00	90.00	0.00	5,937.00	601.40	-537.00	638.83	0.00	0.00	0.00	
6,900.00	90.00	0.00	5,937.00	701.40	-537.00	738.57	0.00	0.00	0.00	
7,000.00	90.00	0.00	5,937.00	801.40	-537.00	838.30	0.00	0.00	0.00	
7,100.00	90.00	0.00	5,937.00	901.40	-537.00	938.04	0.00	0.00	0.00	
7,200.00	90.00	0.00	5,937.00	1,001.40	-537.00	1,037.77	0.00	0.00	0.00	
7,300.00	90.00	0.00	5,937.00	1,101.40	-537.00	1,137.51	0.00	0.00	0.00	
7,400.00	90.00	0.00	5,937.00	1,201.40	-537.00	1,237.25	0.00	0.00	0.00	
7,500.00	90.00	0.00	5,937.00	1,301.40	-537.00	1,336.98	0.00	0.00	0.00	
7,600.00	90.00	0.00	5,937.00	1,401.40	-537.00	1,436.72	0.00	0.00	0.00	
7,700.00	90.00	0.00	5,937.00	1,501.40	-537.00	1,536.45	0.00	0.00	0.00	
7,800.00	90.00	0.00	5,937.00	1,601.40	-537.00	1,636.19	0.00	0.00	0.00	
7,900.00	90.00	0.00	5,937.00	1,701.40	-537.00	1,735.92	0.00	0.00	0.00	
8,000.00	90.00	0.00	5,937.00	1,801.40	-537.00	1,835.66	0.00	0.00	0.00	
8,100.00	90.00	0.00	5,937.00	1,901.40	-537.00	1,935.40	0.00	0.00	0.00	
8,200.00	90.00	0.00	5,937.00	2,001.40	-537.00	2,035.13	0.00	0.00	0.00	
8,300.00	90.00	0.00	5,937.00	2,101.40	-537.00	2,134.87	0.00	0.00	0.00	
8,400.00	90.00	0.00	5,937.00	2,201.40	-537.00	2,234.60	0.00	0.00	0.00	
8,500.00	90.00	0.00	5,937.00	2,301.40	-537.00	2,334.34	0.00	0.00	0.00	
8,600.00	90.00	0.00	5,937.00	2,401.40	-537.00	2,434.07	0.00	0.00	0.00	
8,700.00	90.00	0.00	5,937.00	2,501.40	-537.00	2,533.81	0.00	0.00	0.00	
8,800.00	90.00	0.00	5,937.00	2,601.40	-537.00	2,633.54	0.00	0.00	0.00	
8,900.00	90.00	0.00	5,937.00	2,701.40	-537.00	2,733.28	0.00	0.00	0.00	
9,000.00	90.00	0.00	5,937.00	2,801.40	-537.00	2,833.02	0.00	0.00	0.00	
9,100.00	90.00	0.00	5,937.00	2,901.40	-537.00	2,932.75	0.00	0.00	0.00	
9,200.00	90.00	0.00	5,937.00	3,001.40	-537.00	3,032.49	0.00	0.00	0.00	
9,300.00	90.00	0.00	5,937.00	3,101.40	-537.00	3,132.22	0.00	0.00	0.00	
9,400.00	90.00	0.00	5,937.00	3,201.40	-537.00	3,231.96	0.00	0.00	0.00	
9,500.00	90.00	0.00	5,937.00	3,301.40	-537.00	3,331.69	0.00	0.00	0.00	
9,600.00	90.00	0.00	5,937.00	3,401.40	-537.00	3,431.43	0.00	0.00	0.00	
9,700.00	90.00	0.00	5,937.00	3,501.40	-537.00	3,531.16	0.00	0.00	0.00	
9,800.00	90.00	0.00	5,937.00	3,601.40	-537.00	3,630.90	0.00	0.00	0.00	
9,900.00	90.00	0.00	5,937.00	3,701.40	-537.00	3,730.64	0.00	0.00	0.00	
10,000.00	90.00	0.00	5,937.00	3,801.40	-537.00	3,830.37	0.00	0.00	0.00	
10,100.00	90.00	0.00	5,937.00	3,901.40	-537.00	3,930.11	0.00	0.00	0.00	
10,200.00	90.00	0.00	5,937.00	4,001.40	-537.00	4,029.84	0.00	0.00	0.00	





# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail Fed #07G-0642
<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 Fed #07G-0642	<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)
10,300.00	90.00	0.00	5,937.00	4,101.40	-537.00	4,129.58	0.00	0.00	0.00
10,400.00	90.00	0.00	5,937.00	4,201.40	-537.00	4,229.31	0.00	0.00	0.00
10,500.00	90.00	0.00	5,937.00	4,301.40	-537.00	4,329.05	0.00	0.00	0.00
10,600.00	90.00	0.00	5,937.00	4,401.40	-537.00	4,428.79	0.00	0.00	0.00
10,700.00	90.00	0.00	5,937.00	4,501.40	-537.00	4,528.52	0.00	0.00	0.00
10,800.00	90.00	0.00	5,937.00	4,601.40	-537.00	4,628.26	0.00	0.00	0.00
10,900.00	90.00	0.00	5,937.00	4,701.40	-537.00	4,727.99	0.00	0.00	0.00
11,000.00	90.00	0.00	5,937.00	4,801.40	-537.00	4,827.73	0.00	0.00	0.00
11,100.00	90.00	0.00	5,937.00	4,901.40	-537.00	4,927.46	0.00	0.00	0.00
11,200.00	90.00	0.00	5,937.00	5,001.40	-537.00	5,027.20	0.00	0.00	0.00
11,300.00	90.00	0.00	5,937.00	5,101.40	-537.00	5,126.93	0.00	0.00	0.00
11,400.00	90.00	0.00	5,937.00	5,201.40	-537.00	5,226.67	0.00	0.00	0.00
11,500.00	90.00	0.00	5,937.00	5,301.40	-537.00	5,326.41	0.00	0.00	0.00
11,600.00	90.00	0.00	5,937.00	5,401.40	-537.00	5,426.14	0.00	0.00	0.00
11,700.00	90.00	0.00	5,937.00	5,501.40	-537.00	5,525.88	0.00	0.00	0.00
11,800.00	90.00	0.00	5,937.00	5,601.40	-537.00	5,625.61	0.00	0.00	0.00
11,900.00	90.00	0.00	5,937.00	5,701.40	-537.00	5,725.35	0.00	0.00	0.00
12,000.00	90.00	0.00	5,937.00	5,801.40	-537.00	5,825.08	0.00	0.00	0.00
12,100.00	90.00	0.00	5,937.00	5,901.40	-537.00	5,924.82	0.00	0.00	0.00
12,200.00	90.00	0.00	5,937.00	6,001.40	-537.00	6,024.55	0.00	0.00	0.00
12,300.00	90.00	0.00	5,937.00	6,101.40	-537.00	6,124.29	0.00	0.00	0.00
12,400.00	90.00	0.00	5,937.00	6,201.40	-537.00	6,224.03	0.00	0.00	0.00
12,500.00	90.00	0.00	5,937.00	6,301.40	-537.00	6,323.76	0.00	0.00	0.00
12,600.00	90.00	0.00	5,937.00	6,401.40	-537.00	6,423.50	0.00	0.00	0.00
12,700.00	90.00	0.00	5,937.00	6,501.40	-537.00	6,523.23	0.00	0.00	0.00
12,800.00	90.00	0.00	5,937.00	6,601.40	-537.00	6,622.97	0.00	0.00	0.00
12,900.00	90.00	0.00	5,937.00	6,701.40	-537.00	6,722.70	0.00	0.00	0.00
13,000.00	90.00	0.00	5,937.00	6,801.40	-537.00	6,822.44	0.00	0.00	0.00
13,100.00	90.00	0.00	5,937.00	6,901.40	-537.00	6,922.18	0.00	0.00	0.00
13,200.00	90.00	0.00	5,937.00	7,001.40	-537.00	7,021.91	0.00	0.00	0.00
13,300.00	90.00	0.00	5,937.00	7,101.40	-537.00	7,121.65	0.00	0.00	0.00
13,400.00	90.00	0.00	5,937.00	7,201.40	-537.00	7,221.38	0.00	0.00	0.00
13,500.00	90.00	0.00	5,937.00	7,301.40	-537.00	7,321.12	0.00	0.00	0.00
13,568.53	90.00	0.00	5,937.00	7,369.92	-537.00	7,389.46	0.00	0.00	0.00
TD at 13568.53									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL 0642D	0.00	0.00	5,937.00	7,369.92	-537.00	1,565,690.41	3,471,895.91	40° 52' 25.430 N	103° 47' 37.010 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,285.60	5,937.00	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 Fed #07G-0642
<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 Fed #07G-0642	<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 (°)	
1,561.33	1,550.00	Upper Pierre				
3,534.38	3,500.00	Hygiene				
3,686.16	3,650.00	Lower Pierre				
5,668.16	5,612.00	P200 Marker				
5,697.66	5,639.00	P300 Marker				
5,718.89	5,658.00	P350 Marker				
5,729.11	5,667.00	Sharon Springs				
5,739.43	5,676.00	Niobrara				
5,766.39	5,699.00	Top A Chalk				
5,814.33	5,738.00	Top A Marl				
5,840.29	5,758.00	A Marl				
5,855.06	5,769.00	Top Upper B				
5,887.27	5,792.00	Base Upper B				
5,920.15	5,814.00	Top Lower B				
5,976.56	5,848.00	Base Lower B				
5,991.18	5,856.00	Top B Marl				
6,050.85	5,885.00	Top C Chalk				
6,080.12	5,897.00	Middle C Chalk				
6,126.85	5,913.00	Middle C Marl				
6,285.60	5,937.00	Lower C 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'	
738.38	736.67	-21.04	-26.04	Hold 8.77° Inc	
4,828.83	4,779.33	-412.96	-510.96	Drop 2°/100'	
5,267.22	5,216.00	-434.00	-537.00	Hold Vertical	
5,467.22	5,416.00	-434.00	-537.00	KOP, Build 11°/100'	
6,285.60	5,937.00	87.00	-537.00	LP @ 90° Inc, Hold	
13,568.53	5,937.00	7,369.92	-537.00	TD at 13568.53	