



Project: Weld County, CO  
Site: Sec 7-T10N-R57W  
Well: Horsetail #07E-0634  
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

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1561.86	Upper Pierre
3500.00	3536.22	Hygiene
3650.00	3688.09	Lower Pierre
5515.00	5569.49	P200 Marker
5530.00	5584.64	P300 Marker
5550.00	5604.95	P350 Marker
5702.00	5767.36	Sharon Springs
5707.00	5773.09	Niobrara
5733.00	5803.50	Top A Chalk
5772.00	5851.44	Top A Marl
5792.00	5877.40	A Marl
5803.00	5892.16	Top Upper B
5826.00	5924.37	Base Upper B
5848.00	5957.26	Top Lower B
5882.00	6013.67	Base Lower B
5890.00	6028.29	Top B Marl
5919.00	6087.95	Top C Chalk
5931.00	6117.22	Middle C Chalk
5947.00	6163.96	Middle C Marl
5971.00	6322.71	Lower C Chalk

#### WELL DETAILS: Horsetail #07E-0634

+N/-S	+E/-W	Northing	Ground Level:	4925.70	Latitude	Longitude	Slot
0.00	0.00	1558397.58	Easting	3469919.53	40° 51' 13.760 N	103° 48' 4.550 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	750.43	9.01	217.08	748.57	-28.19	-21.31	2.00	217.08	-28.19	
4	4853.90	9.01	217.08	4801.43	-540.81	-408.69	0.00	0.00	-540.81	
5	5304.32	0.00	0.00	5250.00	-569.00	-430.00	2.00	180.00	-569.00	
6	5504.32	0.00	0.00	5450.00	-569.00	-430.00	0.00	0.00	-569.00	
7	6322.71	90.00	359.48	5971.00	-48.02	-434.69	11.00	359.48	-48.02	
8	13595.21	90.00	359.48	5971.00	7224.19	-500.12	0.00	0.00	7224.19	PBHL 0634D

#### 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'
748.57	750.43	9.01	217.08	-28.19	-21.31	-28.19	35.34	Hold 9.01° Inc
4801.43	4853.90	9.01	217.08	-540.81	-408.69	-540.81	677.87	Drop 2°/100'
5250.00	5304.32	0.00	0.00	-569.00	-430.00	-569.00	713.20	Hold Vertical
5450.00	5504.32	0.00	0.00	-569.00	-430.00	-569.00	713.20	KOP, Build 11°/100'
5971.00	6322.71	90.00	359.48	-48.02	-434.69	-48.02	1234.20	LP @ 90° Inc, Hold
5971.00	13595.21	90.00	359.48	7224.19	-500.12	7224.19	8506.71	TD at 13595.21

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 0634D	5971.00	7224.19	-500.12	1565610.87	3469281.12	40° 52' 25.140 N	103° 48' 11.060 W
Beffie #1	6735.70	3155.89	-174.57	1561549.55	3469684.54	40° 51' 44.942 N	103° 48' 6.822 W

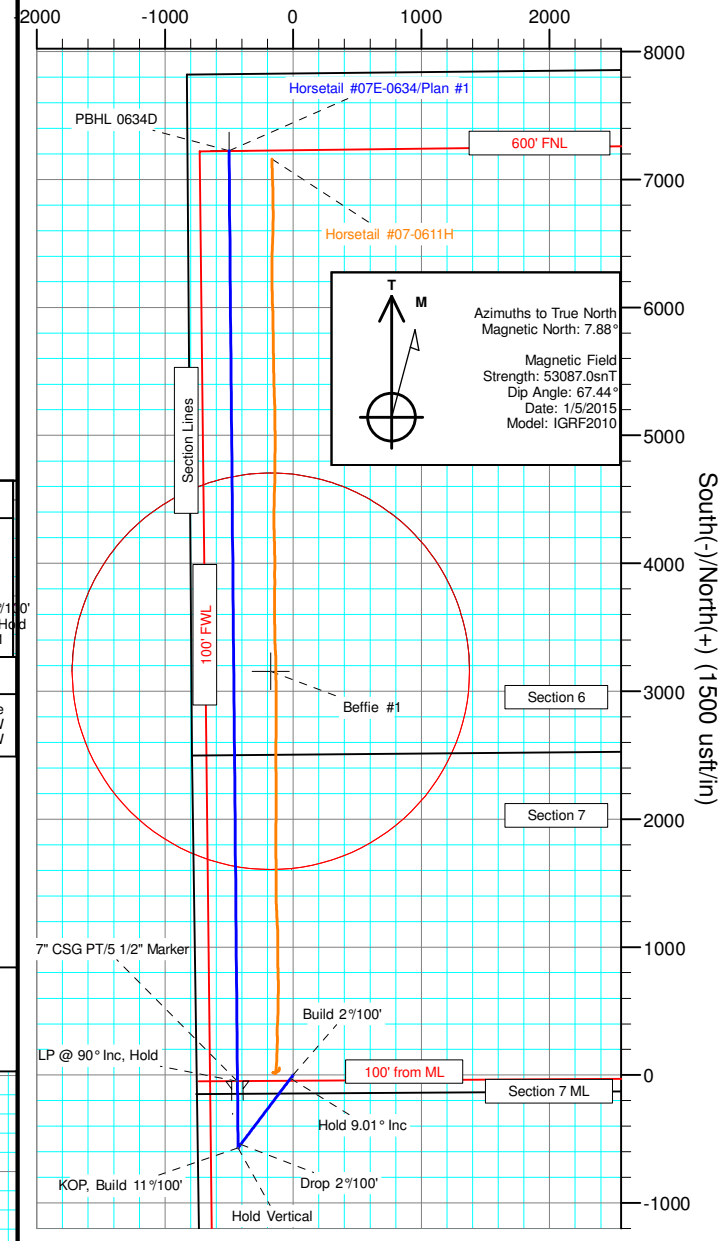
SHL:  
2505' FNL, 768' FWL  
Sec7-T10N-R57W

BHL:  
600' FNL, 325' FWL  
Sec6-T10N-R57W

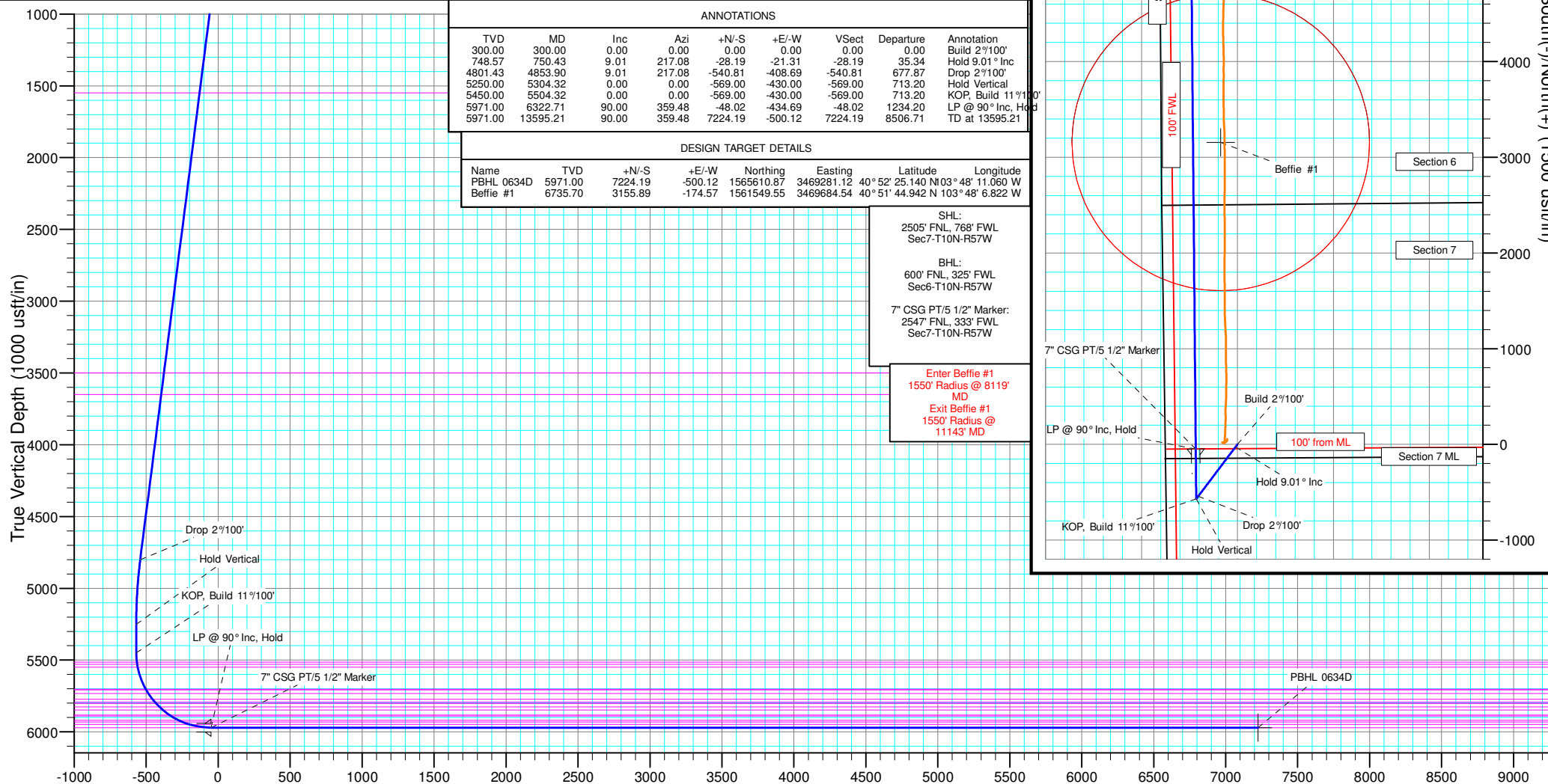
7" CSG PT/5 1/2" Marker:  
2547' FNL, 333' FWL  
Sec7-T10N-R57W

Enter Beffie #1  
1550' Radius @ 8119'  
MD  
Exit Beffie #1  
1550' Radius @  
11143' MD

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



#### Vertical Section at 0.00° (1000 usft/in)





# **Whiting Petroleum Corp.**

**Weld County, CO  
Sec 7-T10N-R57W  
Horsetail #07E-0634**

**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-0634
<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-0634	<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		

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 #07E-0634					
Well Position	+N/-S	-54.64 usft	Northing:	1,558,397.59 usft	Latitude:	40° 51' 13.760 N
	+E/-W	108.35 usft	Easting:	3,469,919.53 usft	Longitude:	103° 48' 4.550 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	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	0.00

<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	
750.43	9.01	217.08	748.57	-28.19	-21.31	2.00	2.00	0.00	217.08	
4,853.90	9.01	217.08	4,801.43	-540.81	-408.69	0.00	0.00	0.00	0.00	
5,304.32	0.00	0.00	5,250.00	-569.00	-430.00	2.00	-2.00	0.00	180.00	
5,504.32	0.00	0.00	5,450.00	-569.00	-430.00	0.00	0.00	0.00	0.00	
6,322.71	90.00	359.48	5,971.00	-48.02	-434.69	11.00	11.00	0.00	359.48	
13,595.21	90.00	359.48	5,971.00	7,224.19	-500.12	0.00	0.00	0.00	0.00	PBHL 0634D



# WOG

## Planning Report

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<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-0634	<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)
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	217.08	399.98	-1.39	-1.05	-1.39	2.00	2.00	0.00
500.00	4.00	217.08	499.84	-5.57	-4.21	-5.57	2.00	2.00	0.00
600.00	6.00	217.08	599.45	-12.52	-9.46	-12.52	2.00	2.00	0.00
700.00	8.00	217.08	698.70	-22.24	-16.81	-22.24	2.00	2.00	0.00
750.43	9.01	217.08	748.57	-28.19	-21.31	-28.19	2.00	2.00	0.00
<b>Hold 9.01° Inc</b>									
800.00	9.01	217.08	797.53	-34.39	-25.99	-34.39	0.00	0.00	0.00
900.00	9.01	217.08	896.30	-46.88	-35.43	-46.88	0.00	0.00	0.00
1,000.00	9.01	217.08	995.07	-59.37	-44.87	-59.37	0.00	0.00	0.00
1,100.00	9.01	217.08	1,093.83	-71.86	-54.31	-71.86	0.00	0.00	0.00
1,200.00	9.01	217.08	1,192.60	-84.35	-63.75	-84.35	0.00	0.00	0.00
1,300.00	9.01	217.08	1,291.37	-96.85	-73.19	-96.85	0.00	0.00	0.00
1,400.00	9.01	217.08	1,390.13	-109.34	-82.63	-109.34	0.00	0.00	0.00
1,500.00	9.01	217.08	1,488.90	-121.83	-92.07	-121.83	0.00	0.00	0.00
1,561.86	9.01	217.08	1,550.00	-129.56	-97.91	-129.56	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	9.01	217.08	1,587.67	-134.32	-101.51	-134.32	0.00	0.00	0.00
1,700.00	9.01	217.08	1,686.43	-146.82	-110.95	-146.82	0.00	0.00	0.00
1,800.00	9.01	217.08	1,785.20	-159.31	-120.39	-159.31	0.00	0.00	0.00
1,900.00	9.01	217.08	1,883.97	-171.80	-129.83	-171.80	0.00	0.00	0.00
2,000.00	9.01	217.08	1,982.73	-184.29	-139.27	-184.29	0.00	0.00	0.00
2,100.00	9.01	217.08	2,081.50	-196.78	-148.71	-196.78	0.00	0.00	0.00
2,200.00	9.01	217.08	2,180.27	-209.28	-158.15	-209.28	0.00	0.00	0.00
2,300.00	9.01	217.08	2,279.03	-221.77	-167.59	-221.77	0.00	0.00	0.00
2,400.00	9.01	217.08	2,377.80	-234.26	-177.03	-234.26	0.00	0.00	0.00
2,500.00	9.01	217.08	2,476.57	-246.75	-186.47	-246.75	0.00	0.00	0.00
2,600.00	9.01	217.08	2,575.33	-259.25	-195.91	-259.25	0.00	0.00	0.00
2,700.00	9.01	217.08	2,674.10	-271.74	-205.36	-271.74	0.00	0.00	0.00
2,800.00	9.01	217.08	2,772.86	-284.23	-214.80	-284.23	0.00	0.00	0.00
2,900.00	9.01	217.08	2,871.63	-296.72	-224.24	-296.72	0.00	0.00	0.00
3,000.00	9.01	217.08	2,970.40	-309.21	-233.68	-309.21	0.00	0.00	0.00
3,100.00	9.01	217.08	3,069.16	-321.71	-243.12	-321.71	0.00	0.00	0.00
3,200.00	9.01	217.08	3,167.93	-334.20	-252.56	-334.20	0.00	0.00	0.00
3,300.00	9.01	217.08	3,266.70	-346.69	-262.00	-346.69	0.00	0.00	0.00
3,400.00	9.01	217.08	3,365.46	-359.18	-271.44	-359.18	0.00	0.00	0.00
3,500.00	9.01	217.08	3,464.23	-371.68	-280.88	-371.68	0.00	0.00	0.00
3,536.22	9.01	217.08	3,500.00	-376.20	-284.30	-376.20	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	9.01	217.08	3,563.00	-384.17	-290.32	-384.17	0.00	0.00	0.00
3,688.09	9.01	217.08	3,650.00	-395.17	-298.64	-395.17	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,700.00	9.01	217.08	3,661.76	-396.66	-299.76	-396.66	0.00	0.00	0.00
3,800.00	9.01	217.08	3,760.53	-409.15	-309.20	-409.15	0.00	0.00	0.00
3,900.00	9.01	217.08	3,859.30	-421.64	-318.64	-421.64	0.00	0.00	0.00
4,000.00	9.01	217.08	3,958.06	-434.14	-328.08	-434.14	0.00	0.00	0.00
4,100.00	9.01	217.08	4,056.83	-446.63	-337.52	-446.63	0.00	0.00	0.00
4,200.00	9.01	217.08	4,155.60	-459.12	-346.96	-459.12	0.00	0.00	0.00
4,300.00	9.01	217.08	4,254.36	-471.61	-356.40	-471.61	0.00	0.00	0.00
4,400.00	9.01	217.08	4,353.13	-484.11	-365.84	-484.11	0.00	0.00	0.00



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<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-0634	<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)
4,500.00	9.01	217.08	4,451.90	-496.60	-375.29	-496.60	0.00	0.00	0.00
4,600.00	9.01	217.08	4,550.66	-509.09	-384.73	-509.09	0.00	0.00	0.00
4,700.00	9.01	217.08	4,649.43	-521.58	-394.17	-521.58	0.00	0.00	0.00
4,800.00	9.01	217.08	4,748.19	-534.07	-403.61	-534.07	0.00	0.00	0.00
4,853.90	9.01	217.08	4,801.43	-540.81	-408.69	-540.81	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,900.00	8.09	217.08	4,847.02	-546.27	-412.83	-546.27	2.00	-2.00	0.00
5,000.00	6.09	217.08	4,946.25	-556.12	-420.26	-556.12	2.00	-2.00	0.00
5,100.00	4.09	217.08	5,045.85	-563.19	-425.61	-563.19	2.00	-2.00	0.00
5,200.00	2.09	217.08	5,145.70	-567.48	-428.85	-567.48	2.00	-2.00	0.00
5,304.32	0.00	0.00	5,250.00	-569.00	-430.00	-569.00	2.00	-2.00	137.00
<b>Hold Vertical</b>									
5,400.00	0.00	0.00	5,345.68	-569.00	-430.00	-569.00	0.00	0.00	0.00
5,504.32	0.00	0.00	5,450.00	-569.00	-430.00	-569.00	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,550.00	5.02	359.48	5,495.62	-567.00	-430.02	-567.00	11.00	11.00	0.00
5,569.49	7.17	359.48	5,515.00	-564.93	-430.04	-564.93	11.00	11.00	0.00
<b>P200 Marker</b>									
5,584.64	8.83	359.48	5,530.00	-562.82	-430.06	-562.82	11.00	11.00	0.00
<b>P300 Marker</b>									
5,600.00	10.52	359.48	5,545.14	-560.24	-430.08	-560.24	11.00	11.00	0.00
5,604.95	11.07	359.48	5,550.00	-559.31	-430.09	-559.31	11.00	11.00	0.00
<b>P350 Marker</b>									
5,650.00	16.02	359.48	5,593.79	-548.77	-430.18	-548.77	11.00	11.00	0.00
5,700.00	21.52	359.48	5,641.11	-532.69	-430.33	-532.69	11.00	11.00	0.00
5,750.00	27.02	359.48	5,686.67	-512.14	-430.51	-512.14	11.00	11.00	0.00
5,767.36	28.93	359.48	5,702.00	-504.00	-430.58	-504.00	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,773.09	29.56	359.48	5,707.00	-501.20	-430.61	-501.20	11.00	11.00	0.00
<b>Niobrara</b>									
5,800.00	32.52	359.48	5,730.06	-487.33	-430.73	-487.33	11.00	11.00	0.00
5,803.50	32.90	359.48	5,733.00	-485.44	-430.75	-485.44	11.00	11.00	0.00
<b>Top A Chalk</b>									
5,850.00	38.01	359.48	5,770.87	-458.47	-430.99	-458.47	11.00	11.00	0.00
5,851.44	38.17	359.48	5,772.00	-457.59	-431.00	-457.59	11.00	11.00	0.00
<b>Top A Marl</b>									
5,877.40	41.03	359.48	5,792.00	-441.04	-431.15	-441.04	11.00	11.00	0.00
<b>A Marl</b>									
5,892.17	42.65	359.48	5,803.00	-431.19	-431.24	-431.19	11.00	11.00	0.00
<b>Top Upper B</b>									
5,900.00	43.51	359.48	5,808.72	-425.84	-431.29	-425.84	11.00	11.00	0.00
5,924.37	46.19	359.48	5,826.00	-408.65	-431.44	-408.65	11.00	11.00	0.00
<b>Base Upper B</b>									
5,950.00	49.01	359.48	5,843.28	-389.73	-431.61	-389.73	11.00	11.00	0.00
5,957.26	49.81	359.48	5,848.00	-384.22	-431.66	-384.22	11.00	11.00	0.00
<b>Top Lower B</b>									
6,000.00	54.51	359.48	5,874.21	-350.47	-431.97	-350.47	11.00	11.00	0.00
6,013.67	56.01	359.48	5,882.00	-339.24	-432.07	-339.24	11.00	11.00	0.00
<b>Base Lower B</b>									
6,028.29	57.62	359.48	5,890.00	-327.01	-432.18	-327.01	11.00	11.00	0.00
<b>Top B Marl</b>									
6,050.00	60.01	359.48	5,901.24	-308.44	-432.34	-308.44	11.00	11.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0634
<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-0634	<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)
6,087.95	64.18	359.48	5,919.00	-274.90	-432.65	-274.90	11.00	11.00	0.00
<b>Top C Chalk</b>									
6,100.00	65.51	359.48	5,924.12	-264.00	-432.74	-264.00	11.00	11.00	0.00
6,117.22	67.40	359.48	5,931.00	-248.21	-432.89	-248.21	11.00	11.00	0.00
<b>Middle C Chalk</b>									
6,150.00	71.01	359.48	5,942.64	-217.58	-433.16	-217.58	11.00	11.00	0.00
6,163.96	72.54	359.48	5,947.00	-204.32	-433.28	-204.32	11.00	11.00	0.00
<b>Middle C Marl</b>									
6,200.00	76.51	359.48	5,956.62	-169.59	-433.59	-169.59	11.00	11.00	0.00
6,250.00	82.00	359.48	5,965.93	-120.49	-434.04	-120.49	11.00	11.00	0.00
6,300.00	87.50	359.48	5,970.51	-70.72	-434.48	-70.72	11.00	11.00	0.00
6,322.71	90.00	359.48	5,971.00	-48.02	-434.69	-48.02	11.00	11.00	0.00
<b>LP @ 90° Inc, Hold - Lower C Chalk - 7" CSG PT/5 1/2" Marker</b>									
6,400.00	90.00	359.48	5,971.00	29.27	-435.38	29.27	0.00	0.00	0.00
6,500.00	90.00	359.48	5,971.00	129.26	-436.28	129.26	0.00	0.00	0.00
6,600.00	90.00	359.48	5,971.00	229.26	-437.18	229.26	0.00	0.00	0.00
6,700.00	90.00	359.48	5,971.00	329.26	-438.08	329.26	0.00	0.00	0.00
6,800.00	90.00	359.48	5,971.00	429.25	-438.98	429.25	0.00	0.00	0.00
6,900.00	90.00	359.48	5,971.00	529.25	-439.88	529.25	0.00	0.00	0.00
7,000.00	90.00	359.48	5,971.00	629.24	-440.78	629.24	0.00	0.00	0.00
7,100.00	90.00	359.48	5,971.00	729.24	-441.68	729.24	0.00	0.00	0.00
7,200.00	90.00	359.48	5,971.00	829.23	-442.58	829.23	0.00	0.00	0.00
7,300.00	90.00	359.48	5,971.00	929.23	-443.48	929.23	0.00	0.00	0.00
7,400.00	90.00	359.48	5,971.00	1,029.23	-444.38	1,029.23	0.00	0.00	0.00
7,500.00	90.00	359.48	5,971.00	1,129.22	-445.28	1,129.22	0.00	0.00	0.00
7,600.00	90.00	359.48	5,971.00	1,229.22	-446.18	1,229.22	0.00	0.00	0.00
7,700.00	90.00	359.48	5,971.00	1,329.21	-447.08	1,329.21	0.00	0.00	0.00
7,800.00	90.00	359.48	5,971.00	1,429.21	-447.98	1,429.21	0.00	0.00	0.00
7,900.00	90.00	359.48	5,971.00	1,529.21	-448.88	1,529.21	0.00	0.00	0.00
8,000.00	90.00	359.48	5,971.00	1,629.20	-449.78	1,629.20	0.00	0.00	0.00
8,100.00	90.00	359.48	5,971.00	1,729.20	-450.68	1,729.20	0.00	0.00	0.00
8,200.00	90.00	359.48	5,971.00	1,829.19	-451.58	1,829.19	0.00	0.00	0.00
8,300.00	90.00	359.48	5,971.00	1,929.19	-452.48	1,929.19	0.00	0.00	0.00
8,400.00	90.00	359.48	5,971.00	2,029.19	-453.38	2,029.19	0.00	0.00	0.00
8,500.00	90.00	359.48	5,971.00	2,129.18	-454.28	2,129.18	0.00	0.00	0.00
8,600.00	90.00	359.48	5,971.00	2,229.18	-455.18	2,229.18	0.00	0.00	0.00
8,700.00	90.00	359.48	5,971.00	2,329.17	-456.08	2,329.17	0.00	0.00	0.00
8,800.00	90.00	359.48	5,971.00	2,429.17	-456.98	2,429.17	0.00	0.00	0.00
8,900.00	90.00	359.48	5,971.00	2,529.17	-457.88	2,529.17	0.00	0.00	0.00
9,000.00	90.00	359.48	5,971.00	2,629.16	-458.78	2,629.16	0.00	0.00	0.00
9,100.00	90.00	359.48	5,971.00	2,729.16	-459.68	2,729.16	0.00	0.00	0.00
9,200.00	90.00	359.48	5,971.00	2,829.15	-460.58	2,829.15	0.00	0.00	0.00
9,300.00	90.00	359.48	5,971.00	2,929.15	-461.48	2,929.15	0.00	0.00	0.00
9,400.00	90.00	359.48	5,971.00	3,029.15	-462.37	3,029.15	0.00	0.00	0.00
9,500.00	90.00	359.48	5,971.00	3,129.14	-463.27	3,129.14	0.00	0.00	0.00
9,600.00	90.00	359.48	5,971.00	3,229.14	-464.17	3,229.14	0.00	0.00	0.00
9,700.00	90.00	359.48	5,971.00	3,329.13	-465.07	3,329.13	0.00	0.00	0.00
9,800.00	90.00	359.48	5,971.00	3,429.13	-465.97	3,429.13	0.00	0.00	0.00
9,900.00	90.00	359.48	5,971.00	3,529.13	-466.87	3,529.13	0.00	0.00	0.00
10,000.00	90.00	359.48	5,971.00	3,629.12	-467.77	3,629.12	0.00	0.00	0.00
10,100.00	90.00	359.48	5,971.00	3,729.12	-468.67	3,729.12	0.00	0.00	0.00
10,200.00	90.00	359.48	5,971.00	3,829.11	-469.57	3,829.11	0.00	0.00	0.00
10,300.00	90.00	359.48	5,971.00	3,929.11	-470.47	3,929.11	0.00	0.00	0.00
10,400.00	90.00	359.48	5,971.00	4,029.11	-471.37	4,029.11	0.00	0.00	0.00



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<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-0634	<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)
10,500.00	90.00	359.48	5,971.00	4,129.10	-472.27	4,129.10	0.00	0.00	0.00
10,600.00	90.00	359.48	5,971.00	4,229.10	-473.17	4,229.10	0.00	0.00	0.00
10,700.00	90.00	359.48	5,971.00	4,329.09	-474.07	4,329.09	0.00	0.00	0.00
10,800.00	90.00	359.48	5,971.00	4,429.09	-474.97	4,429.09	0.00	0.00	0.00
10,900.00	90.00	359.48	5,971.00	4,529.09	-475.87	4,529.09	0.00	0.00	0.00
11,000.00	90.00	359.48	5,971.00	4,629.08	-476.77	4,629.08	0.00	0.00	0.00
11,100.00	90.00	359.48	5,971.00	4,729.08	-477.67	4,729.08	0.00	0.00	0.00
11,200.00	90.00	359.48	5,971.00	4,829.07	-478.57	4,829.07	0.00	0.00	0.00
11,300.00	90.00	359.48	5,971.00	4,929.07	-479.47	4,929.07	0.00	0.00	0.00
11,400.00	90.00	359.48	5,971.00	5,029.06	-480.37	5,029.06	0.00	0.00	0.00
11,500.00	90.00	359.48	5,971.00	5,129.06	-481.27	5,129.06	0.00	0.00	0.00
11,600.00	90.00	359.48	5,971.00	5,229.06	-482.17	5,229.06	0.00	0.00	0.00
11,700.00	90.00	359.48	5,971.00	5,329.05	-483.07	5,329.05	0.00	0.00	0.00
11,800.00	90.00	359.48	5,971.00	5,429.05	-483.97	5,429.05	0.00	0.00	0.00
11,900.00	90.00	359.48	5,971.00	5,529.04	-484.87	5,529.04	0.00	0.00	0.00
12,000.00	90.00	359.48	5,971.00	5,629.04	-485.77	5,629.04	0.00	0.00	0.00
12,100.00	90.00	359.48	5,971.00	5,729.04	-486.67	5,729.04	0.00	0.00	0.00
12,200.00	90.00	359.48	5,971.00	5,829.03	-487.57	5,829.03	0.00	0.00	0.00
12,300.00	90.00	359.48	5,971.00	5,929.03	-488.47	5,929.03	0.00	0.00	0.00
12,400.00	90.00	359.48	5,971.00	6,029.02	-489.37	6,029.02	0.00	0.00	0.00
12,500.00	90.00	359.48	5,971.00	6,129.02	-490.27	6,129.02	0.00	0.00	0.00
12,600.00	90.00	359.48	5,971.00	6,229.02	-491.17	6,229.02	0.00	0.00	0.00
12,700.00	90.00	359.48	5,971.00	6,329.01	-492.07	6,329.01	0.00	0.00	0.00
12,800.00	90.00	359.48	5,971.00	6,429.01	-492.97	6,429.01	0.00	0.00	0.00
12,900.00	90.00	359.48	5,971.00	6,529.00	-493.87	6,529.00	0.00	0.00	0.00
13,000.00	90.00	359.48	5,971.00	6,629.00	-494.77	6,629.00	0.00	0.00	0.00
13,100.00	90.00	359.48	5,971.00	6,729.00	-495.66	6,729.00	0.00	0.00	0.00
13,200.00	90.00	359.48	5,971.00	6,828.99	-496.56	6,828.99	0.00	0.00	0.00
13,300.00	90.00	359.48	5,971.00	6,928.99	-497.46	6,928.99	0.00	0.00	0.00
13,400.00	90.00	359.48	5,971.00	7,028.98	-498.36	7,028.98	0.00	0.00	0.00
13,500.00	90.00	359.48	5,971.00	7,128.98	-499.26	7,128.98	0.00	0.00	0.00
13,595.21	90.00	359.48	5,971.00	7,224.19	-500.12	7,224.19	0.00	0.00	0.00
TD at 13595.21									

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 0634D	0.00	0.00	5,971.00	7,224.19	-500.12	1,565,610.87	3,469,281.11	40° 52' 25.140 N	103° 48' 11.060 W
- plan hits target center									
- Point									
Beffie #1	0.00	0.00	6,735.70	3,155.89	-174.57	1,561,549.56	3,469,684.53	40° 51' 44.942 N	103° 48' 6.822 W
- plan misses target center by 817.46usft at 9524.15usft MD (5971.00 TVD, 3153.29 N, -463.49 E)									
- Circle (radius 1,550.00)									



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0634
<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-0634	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Plan #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,322.71	5,971.00	7" CSG PT/5 1/2" Marker	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,561.86	1,550.00	Upper Pierre				
3,536.22	3,500.00	Hygiene				
3,688.09	3,650.00	Lower Pierre				
5,569.49	5,515.00	P200 Marker				
5,584.64	5,530.00	P300 Marker				
5,604.95	5,550.00	P350 Marker				
5,767.36	5,702.00	Sharon Springs				
5,773.09	5,707.00	Niobrara				
5,803.50	5,733.00	Top A Chalk				
5,851.44	5,772.00	Top A Marl				
5,877.40	5,792.00	A Marl				
5,892.17	5,803.00	Top Upper B				
5,924.37	5,826.00	Base Upper B				
5,957.26	5,848.00	Top Lower B				
6,013.67	5,882.00	Base Lower B				
6,028.29	5,890.00	Top B Marl				
6,087.95	5,919.00	Top C Chalk				
6,117.22	5,931.00	Middle C Chalk				
6,163.96	5,947.00	Middle C Marl				
6,322.71	5,971.00	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'	
750.43	748.57	-28.19	-21.31	Hold 9.01° Inc	
4,853.90	4,801.43	-540.81	-408.69	Drop 2°/100'	
5,304.32	5,250.00	-569.00	-430.00	Hold Vertical	
5,504.32	5,450.00	-569.00	-430.00	KOP, Build 11°/100'	
6,322.71	5,971.00	-48.02	-434.69	LP @ 90° Inc, Hold	
13,595.21	5,971.00	7,224.19	-500.12	TD at 13595.21	