



Project: Weld County, CO  
Site: Sec 7-T10N-R58W  
Well: Razor #07G-0610  
Wellbore: Hz  
Design: APD

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					
Azimuths to True North	1550.00	1565.58	Formation	Upper Pierre	
Magnetic North: 7.83°	3500.00	3549.46	Hygiene		
Magnetic Field	3650.00	3702.06	Lower Pierre		
Strength: 52770.9snT	5866.00	5979.13	P200 Marker		
Dip Angle: 67.36°	5885.00	6005.01	P300 Marker		
Date: 12/12/2016	5899.00	6024.74	P350 Marker		
Model: IGRF2015	5908.00	6037.76	Sharon Springs		
	5913.00	6045.12	Niobrara		
	5941.00	6088.22	Top A Chalk		
	5972.00	6140.68	Top A Marl		
	6024.00	6247.93			
	6038.00	6284.41	Top Upper B		
	6064.00	6373.91	Base Upper B		
	6080.00	6516.92	Top Lower B		

#### WELL DETAILS: Razor #07G-0610

+N/-S	+E/-W	Northing	Ground Level:	4965.00	Longitude	Slot
0.00	0.00	1557859.05	Easting	3440972.02	40° 51' 13.750 N	103° 54' 21.310 W

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	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	830.19	10.60	170.24	827.17	-48.21	8.29	2.00	170.24	-47.94	
4	4786.92	10.60	170.24	4716.33	-765.79	131.71	0.00	0.00	-761.50	
5	5317.11	0.00	0.00	5243.50	-814.00	140.00	2.00	180.00	-809.45	
6	5517.11	0.00	0.00	5443.50	-814.00	140.00	0.00	0.00	-809.45	
7	6516.92	90.00	0.00	6080.00	-177.50	140.00	9.00	0.00	-173.23	
8	8994.42	90.00	0.00	6080.00	2300.00	140.00	0.00	0.00	2303.16	PBHL 07G-0610
9	9041.49	90.00	0.94	6080.00	2347.06	140.39	2.00	90.00	2350.21	PBHL 07G-0610
10	14244.19	90.00	0.94	6080.00	7549.06	225.86	0.00	0.00	7552.44	PBHL 07G-0610

#### ANNOTATIONS

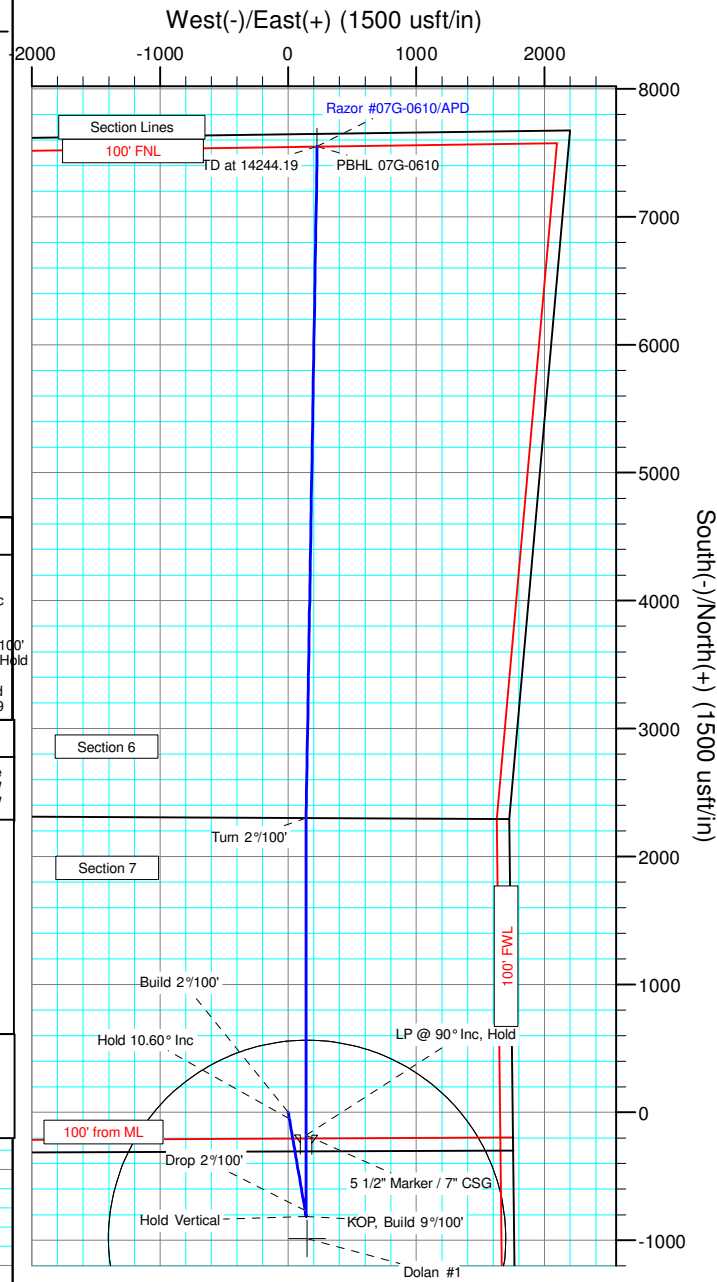
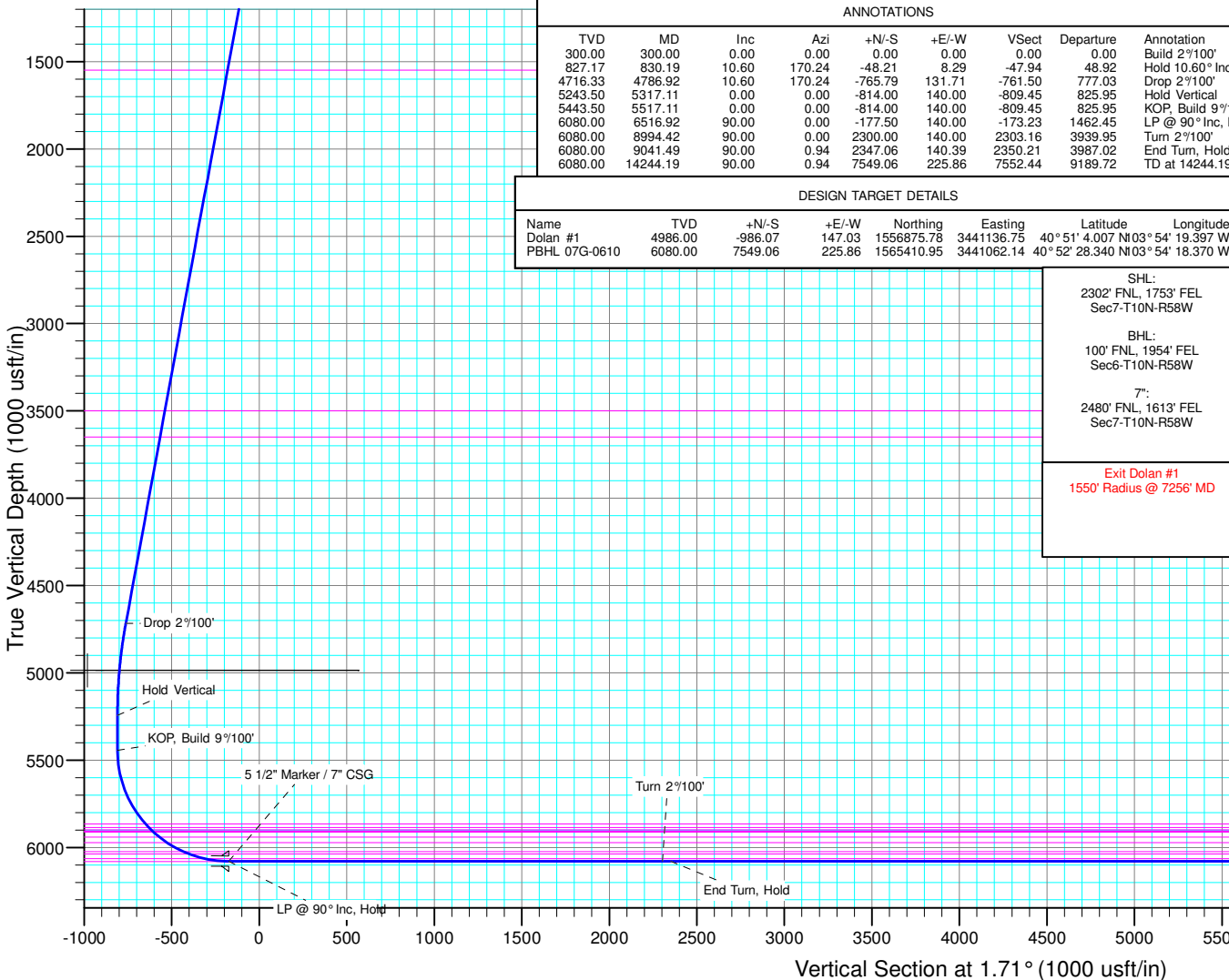
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
827.17	830.19	10.60	170.24	-48.21	8.29	-47.94	48.92	Hold 10.60° Inc
4716.33	4786.92	10.60	170.24	-765.79	131.71	-761.50	777.03	Drop 2°/100'
5243.50	5317.11	0.00	0.00	-814.00	140.00	-809.45	825.95	Hold Vertical
5443.50	5517.11	0.00	0.00	-814.00	140.00	-809.45	825.95	KOP, Build 9°/100'
6080.00	6516.92	90.00	0.00	-177.50	140.00	-173.23	1462.45	LP @ 90° Inc, Hold
6080.00	8994.42	90.00	0.00	2300.00	140.00	2303.16	3939.95	Turn 2°/100'
6080.00	9041.49	90.00	0.94	2347.06	140.39	2350.21	3987.02	End Turn, Hold
6080.00	14244.19	90.00	0.94	7549.06	225.86	7552.44	9189.72	TD at 14244.19

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Dolan #1	4986.00	-986.07	147.03	1556875.78	3441136.75	40° 51' 4.007 N	103° 54' 19.397 W
PBHL 07G-0610	6080.00	7549.06	225.86	1565410.95	3441062.14	40° 52' 28.340 N	103° 54' 18.370 W

SHL:  
2302' FNL, 1753' FEL  
Sec7-T10N-R58W  
  
BHL:  
100' FNL, 1954' FEL  
Sec6-T10N-R58W  
  
7":  
2480' FNL, 1613' FEL  
Sec7-T10N-R58W

Exit Dolan #1  
1550' Radius @ 7256' MD





# **Whiting Petroleum Corp.**

**Weld County, CO  
Sec 7-T10N-R58W  
Razor #07G-0610**

**Hz**

**Plan: APD**

## **Standard Planning Report**

**13 December, 2016**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #07G-0610
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4986.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4986.00usft
<b>Site:</b>	Sec 7-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #07G-0610	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	APD		

<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-R58W			
<b>Site Position:</b>		<b>Northing:</b>	1,560,123.46 usft	<b>Latitude:</b> 40° 51' 36.619 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,438,153.99 usft	<b>Longitude:</b> 103° 54' 57.449 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 1.02 °

<b>Well</b>	Razor #07G-0610			
<b>Well Position</b>	<b>+N/-S</b>	-2,314.38 usft	<b>Northing:</b>	1,557,859.05 usft
	<b>+E/-W</b>	2,777.12 usft	<b>Easting:</b>	3,440,972.01 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft	<b>Ground Level:</b> 4,965.00 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>
	IGRF2015	12/12/2016	7.83	67.36	52,771

<b>Design</b>	APD			
<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	1.71

<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	
830.19	10.60	170.24	827.17	-48.21	8.29	2.00	2.00	0.00	170.24	
4,786.92	10.60	170.24	4,716.33	-765.79	131.71	0.00	0.00	0.00	0.00	
5,317.11	0.00	0.00	5,243.50	-814.00	140.00	2.00	-2.00	0.00	180.00	
5,517.11	0.00	0.00	5,443.50	-814.00	140.00	0.00	0.00	0.00	0.00	
6,516.92	90.00	0.00	6,080.00	-177.50	140.00	9.00	9.00	0.00	0.00	
8,994.42	90.00	0.00	6,080.00	2,300.00	140.00	0.00	0.00	0.00	0.00	
9,041.49	90.00	0.94	6,080.00	2,347.06	140.39	2.00	0.00	2.00	90.00	PBHL 07G-0610
14,244.19	90.00	0.94	6,080.00	7,549.06	225.86	0.00	0.00	0.00	0.00	PBHL 07G-0610



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #07G-0610
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4986.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4986.00usft
<b>Site:</b>	Sec 7-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #07G-0610	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	APD		

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	170.24	399.98	-1.72	0.30	-1.71	2.00	2.00	0.00
500.00	4.00	170.24	499.84	-6.88	1.18	-6.84	2.00	2.00	0.00
600.00	6.00	170.24	599.45	-15.47	2.66	-15.38	2.00	2.00	0.00
700.00	8.00	170.24	698.70	-27.48	4.73	-27.32	2.00	2.00	0.00
800.00	10.00	170.24	797.47	-42.89	7.38	-42.65	2.00	2.00	0.00
830.19	10.60	170.24	827.17	-48.21	8.29	-47.94	2.00	2.00	0.00
<b>Hold 10.60° Inc</b>									
900.00	10.60	170.24	895.79	-60.87	10.47	-60.53	0.00	0.00	0.00
1,000.00	10.60	170.24	994.08	-79.01	13.59	-78.57	0.00	0.00	0.00
1,100.00	10.60	170.24	1,092.37	-97.15	16.71	-96.60	0.00	0.00	0.00
1,200.00	10.60	170.24	1,190.66	-115.28	19.83	-114.64	0.00	0.00	0.00
1,300.00	10.60	170.24	1,288.96	-133.42	22.95	-132.67	0.00	0.00	0.00
1,400.00	10.60	170.24	1,387.25	-151.55	26.07	-150.70	0.00	0.00	0.00
1,500.00	10.60	170.24	1,485.54	-169.69	29.18	-168.74	0.00	0.00	0.00
1,565.58	10.60	170.24	1,550.00	-181.58	31.23	-180.57	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	10.60	170.24	1,583.83	-187.82	32.30	-186.77	0.00	0.00	0.00
1,700.00	10.60	170.24	1,682.12	-205.96	35.42	-204.81	0.00	0.00	0.00
1,800.00	10.60	170.24	1,780.42	-224.09	38.54	-222.84	0.00	0.00	0.00
1,900.00	10.60	170.24	1,878.71	-242.23	41.66	-240.87	0.00	0.00	0.00
2,000.00	10.60	170.24	1,977.00	-260.36	44.78	-258.91	0.00	0.00	0.00
2,100.00	10.60	170.24	2,075.29	-278.50	47.90	-276.94	0.00	0.00	0.00
2,200.00	10.60	170.24	2,173.59	-296.64	51.02	-294.98	0.00	0.00	0.00
2,300.00	10.60	170.24	2,271.88	-314.77	54.14	-313.01	0.00	0.00	0.00
2,400.00	10.60	170.24	2,370.17	-332.91	57.26	-331.05	0.00	0.00	0.00
2,500.00	10.60	170.24	2,468.46	-351.04	60.38	-349.08	0.00	0.00	0.00
2,600.00	10.60	170.24	2,566.76	-369.18	63.49	-367.11	0.00	0.00	0.00
2,700.00	10.60	170.24	2,665.05	-387.31	66.61	-385.15	0.00	0.00	0.00
2,800.00	10.60	170.24	2,763.34	-405.45	69.73	-403.18	0.00	0.00	0.00
2,900.00	10.60	170.24	2,861.63	-423.58	72.85	-421.22	0.00	0.00	0.00
3,000.00	10.60	170.24	2,959.92	-441.72	75.97	-439.25	0.00	0.00	0.00
3,100.00	10.60	170.24	3,058.22	-459.85	79.09	-457.28	0.00	0.00	0.00
3,200.00	10.60	170.24	3,156.51	-477.99	82.21	-475.32	0.00	0.00	0.00
3,300.00	10.60	170.24	3,254.80	-496.13	85.33	-493.35	0.00	0.00	0.00
3,400.00	10.60	170.24	3,353.09	-514.26	88.45	-511.39	0.00	0.00	0.00
3,500.00	10.60	170.24	3,451.39	-532.40	91.57	-529.42	0.00	0.00	0.00
3,549.46	10.60	170.24	3,500.00	-541.37	93.11	-538.34	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	10.60	170.24	3,549.68	-550.53	94.69	-547.45	0.00	0.00	0.00
3,700.00	10.60	170.24	3,647.97	-568.67	97.81	-565.49	0.00	0.00	0.00
3,702.06	10.60	170.24	3,650.00	-569.04	97.87	-565.86	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,800.00	10.60	170.24	3,746.26	-586.80	100.92	-583.52	0.00	0.00	0.00
3,900.00	10.60	170.24	3,844.56	-604.94	104.04	-601.56	0.00	0.00	0.00
4,000.00	10.60	170.24	3,942.85	-623.07	107.16	-619.59	0.00	0.00	0.00
4,100.00	10.60	170.24	4,041.14	-641.21	110.28	-637.62	0.00	0.00	0.00
4,200.00	10.60	170.24	4,139.43	-659.35	113.40	-655.66	0.00	0.00	0.00
4,300.00	10.60	170.24	4,237.72	-677.48	116.52	-673.69	0.00	0.00	0.00
4,400.00	10.60	170.24	4,336.02	-695.62	119.64	-691.73	0.00	0.00	0.00



# WOG Planning Report

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<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4986.00usft
<b>Site:</b>	Sec 7-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #07G-0610	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	APD		

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	10.60	170.24	4,434.31	-713.75	122.76	-709.76	0.00	0.00	0.00
4,600.00	10.60	170.24	4,532.60	-731.89	125.88	-727.80	0.00	0.00	0.00
4,700.00	10.60	170.24	4,630.89	-750.02	129.00	-745.83	0.00	0.00	0.00
4,786.92	10.60	170.24	4,716.33	-765.79	131.71	-761.50	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,800.00	10.34	170.24	4,729.19	-768.13	132.11	-763.83	2.00	-2.00	0.00
4,900.00	8.34	170.24	4,827.86	-784.13	134.86	-779.74	2.00	-2.00	0.00
5,000.00	6.34	170.24	4,927.04	-796.72	137.03	-792.27	2.00	-2.00	0.00
5,100.00	4.34	170.24	5,026.60	-805.90	138.61	-801.39	2.00	-2.00	0.00
5,200.00	2.34	170.24	5,126.42	-811.64	139.59	-807.10	2.00	-2.00	0.00
5,300.00	0.34	170.24	5,226.39	-813.95	139.99	-809.40	2.00	-2.00	0.00
5,317.11	0.00	0.00	5,243.50	-814.00	140.00	-809.45	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,400.00	0.00	0.00	5,326.39	-814.00	140.00	-809.45	0.00	0.00	0.00
5,500.00	0.00	0.00	5,426.39	-814.00	140.00	-809.45	0.00	0.00	0.00
5,517.11	0.00	0.00	5,443.50	-814.00	140.00	-809.45	0.00	0.00	0.00
<b>KOP, Build 9°/100'</b>									
5,600.00	7.46	0.00	5,526.15	-808.61	140.00	-804.06	9.00	9.00	0.00
5,700.00	16.46	0.00	5,623.88	-787.91	140.00	-783.37	9.00	9.00	0.00
5,800.00	25.46	0.00	5,717.17	-752.16	140.00	-747.64	9.00	9.00	0.00
5,900.00	34.47	0.00	5,803.71	-702.27	140.00	-697.77	9.00	9.00	0.00
5,979.13	41.59	0.00	5,866.00	-653.55	140.00	-649.07	9.00	9.00	0.00
<b>P200 Marker</b>									
6,000.00	43.47	0.00	5,881.38	-639.44	140.00	-634.97	9.00	9.00	0.00
6,005.01	43.92	0.00	5,885.00	-635.99	140.00	-631.52	9.00	9.00	0.00
<b>P300 Marker</b>									
6,024.74	45.70	0.00	5,899.00	-622.08	140.00	-617.62	9.00	9.00	0.00
<b>P350 Marker</b>									
6,037.76	46.87	0.00	5,908.00	-612.67	140.00	-608.21	9.00	9.00	0.00
<b>Sharon Springs</b>									
6,045.12	47.53	0.00	5,913.00	-607.27	140.00	-602.81	9.00	9.00	0.00
<b>Niobrara</b>									
6,088.22	51.41	0.00	5,941.00	-574.52	140.00	-570.08	9.00	9.00	0.00
<b>Top A Chalk</b>									
6,100.00	52.47	0.00	5,948.27	-565.24	140.00	-560.80	9.00	9.00	0.00
6,140.68	56.13	0.00	5,972.00	-532.21	140.00	-527.79	9.00	9.00	0.00
<b>Top A Marl</b>									
6,200.00	61.47	0.00	6,002.72	-481.49	140.00	-477.09	9.00	9.00	0.00
6,247.93	65.79	0.00	6,024.00	-438.56	140.00	-434.18	9.00	9.00	0.00
<b>A Marl</b>									
6,284.41	69.07	0.00	6,038.00	-404.88	140.00	-400.51	9.00	9.00	0.00
<b>Top Upper B</b>									
6,300.00	70.47	0.00	6,043.39	-390.25	140.00	-385.89	9.00	9.00	0.00
6,373.91	77.13	0.00	6,064.00	-319.32	140.00	-314.99	9.00	9.00	0.00
<b>Base Upper B</b>									
6,400.00	79.47	0.00	6,069.29	-293.77	140.00	-289.45	9.00	9.00	0.00
6,500.00	88.48	0.00	6,079.78	-194.42	140.00	-190.15	9.00	9.00	0.00
6,516.92	90.00	0.00	6,080.00	-177.50	140.00	-173.24	9.00	9.00	0.00
<b>LP @ 90° Inc, Hold - Top Lower B - 5 1/2" Marker / 7" CSG</b>									
6,600.00	90.00	0.00	6,080.00	-94.42	140.00	-90.20	0.00	0.00	0.00
6,700.00	90.00	0.00	6,080.00	5.58	140.00	9.76	0.00	0.00	0.00
6,800.00	90.00	0.00	6,080.00	105.58	140.00	109.72	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #07G-0610
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4986.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4986.00usft
<b>Site:</b>	Sec 7-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #07G-0610	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	APD		

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)
6,900.00	90.00	0.00	6,080.00	205.58	140.00	209.67	0.00	0.00	0.00
7,000.00	90.00	0.00	6,080.00	305.58	140.00	309.63	0.00	0.00	0.00
7,100.00	90.00	0.00	6,080.00	405.58	140.00	409.58	0.00	0.00	0.00
7,200.00	90.00	0.00	6,080.00	505.58	140.00	509.54	0.00	0.00	0.00
7,300.00	90.00	0.00	6,080.00	605.58	140.00	609.49	0.00	0.00	0.00
7,400.00	90.00	0.00	6,080.00	705.58	140.00	709.45	0.00	0.00	0.00
7,500.00	90.00	0.00	6,080.00	805.58	140.00	809.40	0.00	0.00	0.00
7,600.00	90.00	0.00	6,080.00	905.58	140.00	909.36	0.00	0.00	0.00
7,700.00	90.00	0.00	6,080.00	1,005.58	140.00	1,009.31	0.00	0.00	0.00
7,800.00	90.00	0.00	6,080.00	1,105.58	140.00	1,109.27	0.00	0.00	0.00
7,900.00	90.00	0.00	6,080.00	1,205.58	140.00	1,209.22	0.00	0.00	0.00
8,000.00	90.00	0.00	6,080.00	1,305.58	140.00	1,309.18	0.00	0.00	0.00
8,100.00	90.00	0.00	6,080.00	1,405.58	140.00	1,409.13	0.00	0.00	0.00
8,200.00	90.00	0.00	6,080.00	1,505.58	140.00	1,509.09	0.00	0.00	0.00
8,300.00	90.00	0.00	6,080.00	1,605.58	140.00	1,609.04	0.00	0.00	0.00
8,400.00	90.00	0.00	6,080.00	1,705.58	140.00	1,709.00	0.00	0.00	0.00
8,500.00	90.00	0.00	6,080.00	1,805.58	140.00	1,808.96	0.00	0.00	0.00
8,600.00	90.00	0.00	6,080.00	1,905.58	140.00	1,908.91	0.00	0.00	0.00
8,700.00	90.00	0.00	6,080.00	2,005.58	140.00	2,008.87	0.00	0.00	0.00
8,800.00	90.00	0.00	6,080.00	2,105.58	140.00	2,108.82	0.00	0.00	0.00
8,900.00	90.00	0.00	6,080.00	2,205.58	140.00	2,208.78	0.00	0.00	0.00
8,994.42	90.00	0.00	6,080.00	2,300.00	140.00	2,303.16	0.00	0.00	0.00
<b>Turn 2°/100'</b>									
9,000.00	90.00	0.11	6,080.00	2,305.58	140.01	2,308.73	2.00	0.00	2.00
9,041.49	90.00	0.94	6,080.00	2,347.06	140.39	2,350.21	2.00	0.00	2.00
<b>End Turn, Hold</b>									
9,100.00	90.00	0.94	6,080.00	2,405.57	141.35	2,408.72	0.00	0.00	0.00
9,200.00	90.00	0.94	6,080.00	2,505.55	142.99	2,508.71	0.00	0.00	0.00
9,300.00	90.00	0.94	6,080.00	2,605.54	144.63	2,608.70	0.00	0.00	0.00
9,400.00	90.00	0.94	6,080.00	2,705.53	146.28	2,708.69	0.00	0.00	0.00
9,500.00	90.00	0.94	6,080.00	2,805.51	147.92	2,808.68	0.00	0.00	0.00
9,600.00	90.00	0.94	6,080.00	2,905.50	149.56	2,908.67	0.00	0.00	0.00
9,700.00	90.00	0.94	6,080.00	3,005.49	151.20	3,008.66	0.00	0.00	0.00
9,800.00	90.00	0.94	6,080.00	3,105.47	152.85	3,108.65	0.00	0.00	0.00
9,900.00	90.00	0.94	6,080.00	3,205.46	154.49	3,208.64	0.00	0.00	0.00
10,000.00	90.00	0.94	6,080.00	3,305.44	156.13	3,308.64	0.00	0.00	0.00
10,100.00	90.00	0.94	6,080.00	3,405.43	157.78	3,408.63	0.00	0.00	0.00
10,200.00	90.00	0.94	6,080.00	3,505.42	159.42	3,508.62	0.00	0.00	0.00
10,300.00	90.00	0.94	6,080.00	3,605.40	161.06	3,608.61	0.00	0.00	0.00
10,400.00	90.00	0.94	6,080.00	3,705.39	162.70	3,708.60	0.00	0.00	0.00
10,500.00	90.00	0.94	6,080.00	3,805.38	164.35	3,808.59	0.00	0.00	0.00
10,600.00	90.00	0.94	6,080.00	3,905.36	165.99	3,908.58	0.00	0.00	0.00
10,700.00	90.00	0.94	6,080.00	4,005.35	167.63	4,008.57	0.00	0.00	0.00
10,800.00	90.00	0.94	6,080.00	4,105.34	169.28	4,108.56	0.00	0.00	0.00
10,900.00	90.00	0.94	6,080.00	4,205.32	170.92	4,208.55	0.00	0.00	0.00
11,000.00	90.00	0.94	6,080.00	4,305.31	172.56	4,308.54	0.00	0.00	0.00
11,100.00	90.00	0.94	6,080.00	4,405.30	174.20	4,408.54	0.00	0.00	0.00
11,200.00	90.00	0.94	6,080.00	4,505.28	175.85	4,508.53	0.00	0.00	0.00
11,300.00	90.00	0.94	6,080.00	4,605.27	177.49	4,608.52	0.00	0.00	0.00
11,400.00	90.00	0.94	6,080.00	4,705.26	179.13	4,708.51	0.00	0.00	0.00
11,500.00	90.00	0.94	6,080.00	4,805.24	180.78	4,808.50	0.00	0.00	0.00
11,600.00	90.00	0.94	6,080.00	4,905.23	182.42	4,908.49	0.00	0.00	0.00
11,700.00	90.00	0.94	6,080.00	5,005.22	184.06	5,008.48	0.00	0.00	0.00
11,800.00	90.00	0.94	6,080.00	5,105.20	185.70	5,108.47	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #07G-0610
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4986.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4986.00usft
<b>Site:</b>	Sec 7-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #07G-0610	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	APD		

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)
11,900.00	90.00	0.94	6,080.00	5,205.19	187.35	5,208.46	0.00	0.00	0.00
12,000.00	90.00	0.94	6,080.00	5,305.17	188.99	5,308.45	0.00	0.00	0.00
12,100.00	90.00	0.94	6,080.00	5,405.16	190.63	5,408.44	0.00	0.00	0.00
12,200.00	90.00	0.94	6,080.00	5,505.15	192.28	5,508.44	0.00	0.00	0.00
12,300.00	90.00	0.94	6,080.00	5,605.13	193.92	5,608.43	0.00	0.00	0.00
12,400.00	90.00	0.94	6,080.00	5,705.12	195.56	5,708.42	0.00	0.00	0.00
12,500.00	90.00	0.94	6,080.00	5,805.11	197.20	5,808.41	0.00	0.00	0.00
12,600.00	90.00	0.94	6,080.00	5,905.09	198.85	5,908.40	0.00	0.00	0.00
12,700.00	90.00	0.94	6,080.00	6,005.08	200.49	6,008.39	0.00	0.00	0.00
12,800.00	90.00	0.94	6,080.00	6,105.07	202.13	6,108.38	0.00	0.00	0.00
12,900.00	90.00	0.94	6,080.00	6,205.05	203.78	6,208.37	0.00	0.00	0.00
13,000.00	90.00	0.94	6,080.00	6,305.04	205.42	6,308.36	0.00	0.00	0.00
13,100.00	90.00	0.94	6,080.00	6,405.03	207.06	6,408.35	0.00	0.00	0.00
13,200.00	90.00	0.94	6,080.00	6,505.01	208.70	6,508.34	0.00	0.00	0.00
13,300.00	90.00	0.94	6,080.00	6,605.00	210.35	6,608.34	0.00	0.00	0.00
13,400.00	90.00	0.94	6,080.00	6,704.99	211.99	6,708.33	0.00	0.00	0.00
13,500.00	90.00	0.94	6,080.00	6,804.97	213.63	6,808.32	0.00	0.00	0.00
13,600.00	90.00	0.94	6,080.00	6,904.96	215.28	6,908.31	0.00	0.00	0.00
13,700.00	90.00	0.94	6,080.00	7,004.95	216.92	7,008.30	0.00	0.00	0.00
13,800.00	90.00	0.94	6,080.00	7,104.93	218.56	7,108.29	0.00	0.00	0.00
13,900.00	90.00	0.94	6,080.00	7,204.92	220.20	7,208.28	0.00	0.00	0.00
14,000.00	90.00	0.94	6,080.00	7,304.90	221.85	7,308.27	0.00	0.00	0.00
14,100.00	90.00	0.94	6,080.00	7,404.89	223.49	7,408.26	0.00	0.00	0.00
14,200.00	90.00	0.94	6,080.00	7,504.88	225.13	7,508.25	0.00	0.00	0.00
14,244.19	90.00	0.94	6,080.00	7,549.06	225.86	7,552.44	0.00	0.00	0.00
TD at 14244.19									

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									
Dolan #1	0.00	0.00	4,986.00	-986.07	147.03	1,556,875.78	3,441,136.74	40° 51' 4.007 N	103° 54' 19.397 W
- plan misses target center by 183.04usft at 5076.24usft MD (5002.92 TVD, -804.03 N, 138.28 E)									
- Circle (radius 1,550.00)									
PBHL 07G-0610	0.00	0.00	6,080.00	7,549.06	225.86	1,565,410.95	3,441,062.13	40° 52' 28.340 N	103° 54' 18.370 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,516.92	6,080.00	5 1/2" Marker / 7" CSG	7.000	8.750	



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #07G-0610
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4986.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4986.00usft
<b>Site:</b>	Sec 7-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #07G-0610	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,565.58	1,550.00	Upper Pierre				
3,549.46	3,500.00	Hygiene				
3,702.06	3,650.00	Lower Pierre				
5,979.13	5,866.00	P200 Marker				
6,005.01	5,885.00	P300 Marker				
6,024.74	5,899.00	P350 Marker				
6,037.76	5,908.00	Sharon Springs				
6,045.12	5,913.00	Niobrara				
6,088.22	5,941.00	Top A Chalk				
6,140.68	5,972.00	Top A Marl				
6,247.93	6,024.00	A Marl				
6,284.41	6,038.00	Top Upper B				
6,373.91	6,064.00	Base Upper B				
6,516.92	6,080.00	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'	
830.19	827.17	-48.21	8.29	Hold 10.60° Inc	
4,786.92	4,716.33	-765.79	131.71	Drop 2°/100'	
5,317.11	5,243.50	-814.00	140.00	Hold Vertical	
5,517.11	5,443.50	-814.00	140.00	KOP, Build 9°/100'	
6,516.92	6,080.00	-177.50	140.00	LP @ 90° Inc, Hold	
8,994.42	6,080.00	2,300.00	140.00	Turn 2°/100'	
9,041.49	6,080.00	2,347.06	140.39	End Turn, Hold	
14,244.19	6,080.00	7,549.06	225.86	TD at 14244.19	