



Project: Weld County, CO  
Site: Sec 8-T10N-R58W  
Well: Razor #08E-0504  
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



Azimuths to True North  
Magnetic North: 7.83°  
Magnetic Field  
Strength: 52769.4nT  
Dip Angle: 67.36°  
Date: 12/20/2016  
Model: IGRF2015

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1572.92	Upper Pierre
3500.00	3578.94	Hygiene
3650.00	3733.25	Lower Pierre
5812.00	5963.05	P200 Marker
5850.00	6014.79	P300 Marker
5868.00	6040.81	P350 Marker
5877.00	6054.26	Sharon Springs
5885.00	6066.49	Niobrara
5910.00	6106.68	Top A Chalk
5947.00	6173.45	Top A Marl
5985.00	6257.56	A Marl
5995.00	6284.39	Top Upper B
6019.00	6366.65	Base Upper B
6031.00	6434.26	Top Lower B

#### WELL DETAILS: Razor #08E-0504

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude	Slot
0.00	0.00	1557922.72	4962.00	3443492.60	40° 51' 13.930 N	103° 53' 48.500 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	978.61	13.57	144.22	972.28	-64.90	46.78	2.00	144.22	-61.02	
4	4635.67	13.57	144.22	4527.22	-761.10	548.59	0.00	0.00	-715.66	
5	5314.28	0.00	0.00	5199.50	-826.00	595.37	2.00	180.00	-776.69	
6	5514.28	0.00	0.00	5399.50	-826.00	595.37	0.00	0.00	-776.69	
7	6514.09	90.00	0.00	6036.00	-189.50	595.37	9.00	0.00	-142.15	
8	14260.75	90.00	0.00	6036.00	7557.16	595.37	0.00	0.00	7580.57	PBHL Razor 08E-0504

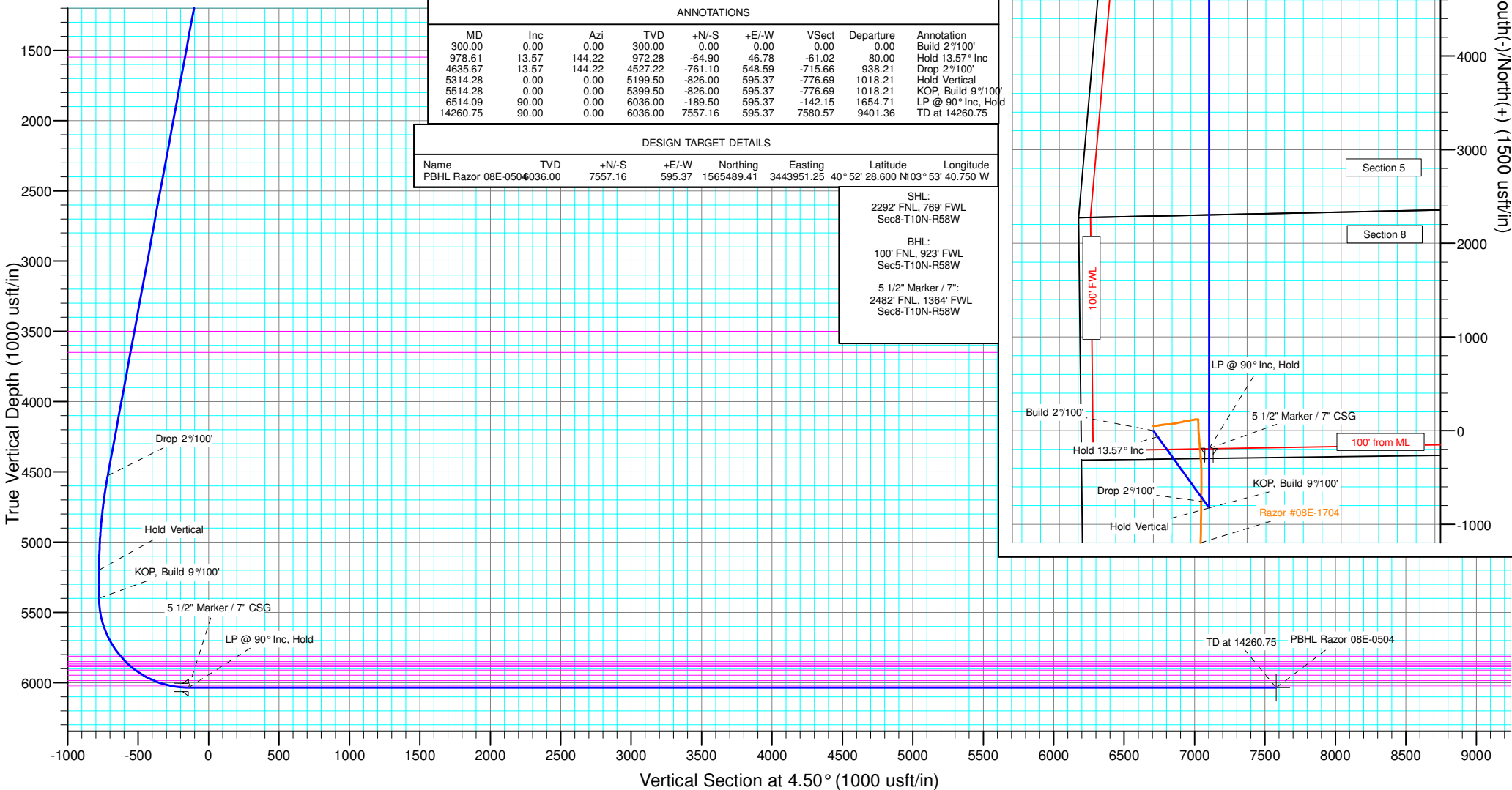
#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	Build 2°/100'
978.61	13.57	144.22	972.28	-64.90	46.78	-61.02	80.00	Hold 13.57° Inc
4635.67	13.57	144.22	4527.22	-761.10	548.59	-715.66	938.21	Drop 2°/100'
5314.28	0.00	0.00	5199.50	-826.00	595.37	-776.69	1018.21	Hold Vertical
5514.28	0.00	0.00	5399.50	-826.00	595.37	-776.69	1018.21	KOP, Build 9°/100'
6514.09	90.00	0.00	6036.00	-189.50	595.37	-142.15	1654.71	LP @ 90° Inc, Hold
14260.75	90.00	0.00	6036.00	7557.16	595.37	7580.57	9401.36	TD at 14260.75

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Razor 08E-0504	6036.00	7557.16	595.37	1565489.41	3443951.25	40° 52' 28.600 N	103° 53' 40.750 W

SHL:  
2292' FNL, 769' FWL  
Sec8-T10N-R58W  
  
BHL:  
100' FNL, 923' FWL  
Sec5-T10N-R58W  
  
5 1/2" Marker / 7" CSG  
2482' FNL, 1364' FWL  
Sec8-T10N-R58W





# **Whiting Petroleum Corp.**

**Weld County, CO  
Sec 8-T10N-R58W  
Razor #08E-0504**

**Hz**

**Plan: APD**

## **Standard Planning Report**

**21 December, 2016**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #08E-0504
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4983.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4983.00usft
<b>Site:</b>	Sec 8-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #08E-0504	<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		

Site		Sec 8-T10N-R58W			
Site Position:		Northing:	1,560,182.07 usft	Latitude:	40° 51' 36.400 N
From:	Lat/Long	Easting:	3,442,656.21 usft	Longitude:	103° 53' 58.852 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.03 °

Well	Razor #08E-0504					
Well Position	+N/-S	-2,274.07 usft	Northing:	1,557,922.73 usft	Latitude:	40° 51' 13.930 N
	+E/-W	795.48 usft	Easting:	3,443,492.59 usft	Longitude:	103° 53' 48.500 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,962.00 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	12/20/2016	7.83	67.36	52,769

<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	4.50

<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	
978.61	13.57	144.22	972.28	-64.90	46.78	2.00	2.00	0.00	144.22	
4,635.67	13.57	144.22	4,527.22	-761.10	548.59	0.00	0.00	0.00	0.00	
5,314.28	0.00	0.00	5,199.50	-826.00	595.37	2.00	-2.00	0.00	180.00	
5,514.28	0.00	0.00	5,399.50	-826.00	595.37	0.00	0.00	0.00	0.00	
6,514.09	90.00	0.00	6,036.00	-189.50	595.37	9.00	9.00	0.00	0.00	
14,260.75	90.00	0.00	6,036.00	7,557.16	595.37	0.00	0.00	0.00	0.00	PBHL Razor 08E-050



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #08E-0504
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4983.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4983.00usft
<b>Site:</b>	Sec 8-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #08E-0504	<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	144.22	399.98	-1.42	1.02	-1.33	2.00	2.00	0.00
500.00	4.00	144.22	499.84	-5.66	4.08	-5.32	2.00	2.00	0.00
600.00	6.00	144.22	599.45	-12.73	9.18	-11.97	2.00	2.00	0.00
700.00	8.00	144.22	698.70	-22.62	16.30	-21.27	2.00	2.00	0.00
800.00	10.00	144.22	797.47	-35.31	25.45	-33.20	2.00	2.00	0.00
900.00	12.00	144.22	895.62	-50.79	36.61	-47.75	2.00	2.00	0.00
978.61	13.57	144.22	972.28	-64.90	46.78	-61.02	2.00	2.00	0.00
<b>Hold 13.57° Inc</b>									
1,000.00	13.57	144.22	993.07	-68.97	49.71	-64.85	0.00	0.00	0.00
1,100.00	13.57	144.22	1,090.28	-88.01	63.43	-82.75	0.00	0.00	0.00
1,200.00	13.57	144.22	1,187.49	-107.04	77.16	-100.65	0.00	0.00	0.00
1,300.00	13.57	144.22	1,284.70	-126.08	90.88	-118.55	0.00	0.00	0.00
1,400.00	13.57	144.22	1,381.90	-145.12	104.60	-136.46	0.00	0.00	0.00
1,500.00	13.57	144.22	1,479.11	-164.16	118.32	-154.36	0.00	0.00	0.00
1,572.92	13.57	144.22	1,550.00	-178.04	128.33	-167.41	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	13.57	144.22	1,576.32	-183.19	132.04	-172.26	0.00	0.00	0.00
1,700.00	13.57	144.22	1,673.53	-202.23	145.77	-190.16	0.00	0.00	0.00
1,800.00	13.57	144.22	1,770.73	-221.27	159.49	-208.06	0.00	0.00	0.00
1,900.00	13.57	144.22	1,867.94	-240.31	173.21	-225.96	0.00	0.00	0.00
2,000.00	13.57	144.22	1,965.15	-259.34	186.93	-243.86	0.00	0.00	0.00
2,100.00	13.57	144.22	2,062.36	-278.38	200.65	-261.76	0.00	0.00	0.00
2,200.00	13.57	144.22	2,159.56	-297.42	214.37	-279.66	0.00	0.00	0.00
2,300.00	13.57	144.22	2,256.77	-316.45	228.10	-297.56	0.00	0.00	0.00
2,400.00	13.57	144.22	2,353.98	-335.49	241.82	-315.46	0.00	0.00	0.00
2,500.00	13.57	144.22	2,451.19	-354.53	255.54	-333.36	0.00	0.00	0.00
2,600.00	13.57	144.22	2,548.39	-373.57	269.26	-351.26	0.00	0.00	0.00
2,700.00	13.57	144.22	2,645.60	-392.60	282.98	-369.17	0.00	0.00	0.00
2,800.00	13.57	144.22	2,742.81	-411.64	296.71	-387.07	0.00	0.00	0.00
2,900.00	13.57	144.22	2,840.02	-430.68	310.43	-404.97	0.00	0.00	0.00
3,000.00	13.57	144.22	2,937.22	-449.72	324.15	-422.87	0.00	0.00	0.00
3,100.00	13.57	144.22	3,034.43	-468.75	337.87	-440.77	0.00	0.00	0.00
3,200.00	13.57	144.22	3,131.64	-487.79	351.59	-458.67	0.00	0.00	0.00
3,300.00	13.57	144.22	3,228.85	-506.83	365.31	-476.57	0.00	0.00	0.00
3,400.00	13.57	144.22	3,326.05	-525.86	379.04	-494.47	0.00	0.00	0.00
3,500.00	13.57	144.22	3,423.26	-544.90	392.76	-512.37	0.00	0.00	0.00
3,578.94	13.57	144.22	3,500.00	-559.93	403.59	-526.50	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	13.57	144.22	3,520.47	-563.94	406.48	-530.27	0.00	0.00	0.00
3,700.00	13.57	144.22	3,617.68	-582.98	420.20	-548.17	0.00	0.00	0.00
3,733.25	13.57	144.22	3,650.00	-589.31	424.76	-554.13	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,800.00	13.57	144.22	3,714.88	-602.01	433.92	-566.07	0.00	0.00	0.00
3,900.00	13.57	144.22	3,812.09	-621.05	447.64	-583.97	0.00	0.00	0.00
4,000.00	13.57	144.22	3,909.30	-640.09	461.37	-601.87	0.00	0.00	0.00
4,100.00	13.57	144.22	4,006.51	-659.12	475.09	-619.78	0.00	0.00	0.00
4,200.00	13.57	144.22	4,103.71	-678.16	488.81	-637.68	0.00	0.00	0.00
4,300.00	13.57	144.22	4,200.92	-697.20	502.53	-655.58	0.00	0.00	0.00
4,400.00	13.57	144.22	4,298.13	-716.24	516.25	-673.48	0.00	0.00	0.00



# WOG Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #08E-0504
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4983.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4983.00usft
<b>Site:</b>	Sec 8-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #08E-0504	<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	13.57	144.22	4,395.34	-735.27	529.98	-691.38	0.00	0.00	0.00
4,600.00	13.57	144.22	4,492.54	-754.31	543.70	-709.28	0.00	0.00	0.00
4,635.67	13.57	144.22	4,527.22	-761.10	548.59	-715.66	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,700.00	12.29	144.22	4,589.92	-772.78	557.01	-726.64	2.00	-2.00	0.00
4,800.00	10.29	144.22	4,687.98	-788.65	568.45	-741.57	2.00	-2.00	0.00
4,900.00	8.29	144.22	4,786.66	-801.74	577.89	-753.88	2.00	-2.00	0.00
5,000.00	6.29	144.22	4,885.85	-812.03	585.30	-763.55	2.00	-2.00	0.00
5,100.00	4.29	144.22	4,985.42	-819.50	590.69	-770.58	2.00	-2.00	0.00
5,200.00	2.29	144.22	5,085.25	-824.15	594.04	-774.95	2.00	-2.00	0.00
5,300.00	0.29	144.22	5,185.22	-825.97	595.35	-776.66	2.00	-2.00	0.00
5,314.28	0.00	0.00	5,199.50	-826.00	595.37	-776.69	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,400.00	0.00	0.00	5,285.22	-826.00	595.37	-776.69	0.00	0.00	0.00
5,500.00	0.00	0.00	5,385.22	-826.00	595.37	-776.69	0.00	0.00	0.00
5,514.28	0.00	0.00	5,399.50	-826.00	595.37	-776.69	0.00	0.00	0.00
<b>KOP, Build 9°/100'</b>									
5,600.00	7.72	0.00	5,484.96	-820.24	595.37	-770.94	9.00	9.00	0.00
5,700.00	16.72	0.00	5,582.59	-799.10	595.37	-749.87	9.00	9.00	0.00
5,800.00	25.72	0.00	5,675.72	-762.94	595.37	-713.82	9.00	9.00	0.00
5,900.00	34.72	0.00	5,762.04	-712.66	595.37	-663.70	9.00	9.00	0.00
5,963.05	40.40	0.00	5,812.00	-674.24	595.37	-625.40	9.00	9.00	0.00
<b>P200 Marker</b>									
6,000.00	43.72	0.00	5,839.43	-649.49	595.37	-600.73	9.00	9.00	0.00
6,014.79	45.05	0.00	5,850.00	-639.15	595.37	-590.41	9.00	9.00	0.00
<b>P300 Marker</b>									
6,040.81	47.40	0.00	5,868.00	-620.36	595.37	-571.68	9.00	9.00	0.00
<b>P350 Marker</b>									
6,054.26	48.61	0.00	5,877.00	-610.36	595.37	-561.72	9.00	9.00	0.00
<b>Sharon Springs</b>									
6,066.49	49.71	0.00	5,885.00	-601.11	595.37	-552.49	9.00	9.00	0.00
<b>Niobrara</b>									
6,100.00	52.72	0.00	5,905.98	-574.99	595.37	-526.46	9.00	9.00	0.00
6,106.68	53.33	0.00	5,910.00	-569.66	595.37	-521.14	9.00	9.00	0.00
<b>Top A Chalk</b>									
6,173.45	59.34	0.00	5,947.00	-514.12	595.37	-465.77	9.00	9.00	0.00
<b>Top A Marl</b>									
6,200.00	61.73	0.00	5,960.06	-491.00	595.37	-442.72	9.00	9.00	0.00
6,257.56	66.91	0.00	5,985.00	-439.14	595.37	-391.03	9.00	9.00	0.00
<b>A Marl</b>									
6,284.39	69.32	0.00	5,995.00	-414.25	595.37	-366.21	9.00	9.00	0.00
<b>Top Upper B</b>									
6,300.00	70.73	0.00	6,000.33	-399.58	595.37	-351.58	9.00	9.00	0.00
6,366.65	76.73	0.00	6,019.00	-335.62	595.37	-287.83	9.00	9.00	0.00
<b>Base Upper B</b>									
6,400.00	79.73	0.00	6,025.80	-302.98	595.37	-255.29	9.00	9.00	0.00
6,434.26	82.81	0.00	6,031.00	-269.12	595.37	-221.53	9.00	9.00	0.00
<b>Top Lower B</b>									
6,500.00	88.73	0.00	6,035.84	-203.59	595.37	-156.20	9.00	9.00	0.00
6,514.09	90.00	0.00	6,036.00	-189.50	595.37	-142.16	9.00	9.00	0.00
<b>LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG</b>									
6,600.00	90.00	0.00	6,036.00	-103.59	595.37	-56.51	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #08E-0504
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4983.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4983.00usft
<b>Site:</b>	Sec 8-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #08E-0504	<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)
6,700.00	90.00	0.00	6,036.00	-3.59	595.37	43.18	0.00	0.00	0.00
6,800.00	90.00	0.00	6,036.00	96.41	595.37	142.87	0.00	0.00	0.00
6,900.00	90.00	0.00	6,036.00	196.41	595.37	242.56	0.00	0.00	0.00
7,000.00	90.00	0.00	6,036.00	296.41	595.37	342.25	0.00	0.00	0.00
7,100.00	90.00	0.00	6,036.00	396.41	595.37	441.94	0.00	0.00	0.00
7,200.00	90.00	0.00	6,036.00	496.41	595.37	541.63	0.00	0.00	0.00
7,300.00	90.00	0.00	6,036.00	596.41	595.37	641.32	0.00	0.00	0.00
7,400.00	90.00	0.00	6,036.00	696.41	595.37	741.02	0.00	0.00	0.00
7,500.00	90.00	0.00	6,036.00	796.41	595.37	840.71	0.00	0.00	0.00
7,600.00	90.00	0.00	6,036.00	896.41	595.37	940.40	0.00	0.00	0.00
7,700.00	90.00	0.00	6,036.00	996.41	595.37	1,040.09	0.00	0.00	0.00
7,800.00	90.00	0.00	6,036.00	1,096.41	595.37	1,139.78	0.00	0.00	0.00
7,900.00	90.00	0.00	6,036.00	1,196.41	595.37	1,239.47	0.00	0.00	0.00
8,000.00	90.00	0.00	6,036.00	1,296.41	595.37	1,339.16	0.00	0.00	0.00
8,100.00	90.00	0.00	6,036.00	1,396.41	595.37	1,438.85	0.00	0.00	0.00
8,200.00	90.00	0.00	6,036.00	1,496.41	595.37	1,538.54	0.00	0.00	0.00
8,300.00	90.00	0.00	6,036.00	1,596.41	595.37	1,638.24	0.00	0.00	0.00
8,400.00	90.00	0.00	6,036.00	1,696.41	595.37	1,737.93	0.00	0.00	0.00
8,500.00	90.00	0.00	6,036.00	1,796.41	595.37	1,837.62	0.00	0.00	0.00
8,600.00	90.00	0.00	6,036.00	1,896.41	595.37	1,937.31	0.00	0.00	0.00
8,700.00	90.00	0.00	6,036.00	1,996.41	595.37	2,037.00	0.00	0.00	0.00
8,800.00	90.00	0.00	6,036.00	2,096.41	595.37	2,136.69	0.00	0.00	0.00
8,900.00	90.00	0.00	6,036.00	2,196.41	595.37	2,236.38	0.00	0.00	0.00
9,000.00	90.00	0.00	6,036.00	2,296.41	595.37	2,336.07	0.00	0.00	0.00
9,100.00	90.00	0.00	6,036.00	2,396.41	595.37	2,435.76	0.00	0.00	0.00
9,200.00	90.00	0.00	6,036.00	2,496.41	595.37	2,535.46	0.00	0.00	0.00
9,300.00	90.00	0.00	6,036.00	2,596.41	595.37	2,635.15	0.00	0.00	0.00
9,400.00	90.00	0.00	6,036.00	2,696.41	595.37	2,734.84	0.00	0.00	0.00
9,500.00	90.00	0.00	6,036.00	2,796.41	595.37	2,834.53	0.00	0.00	0.00
9,600.00	90.00	0.00	6,036.00	2,896.41	595.37	2,934.22	0.00	0.00	0.00
9,700.00	90.00	0.00	6,036.00	2,996.41	595.37	3,033.91	0.00	0.00	0.00
9,800.00	90.00	0.00	6,036.00	3,096.41	595.37	3,133.60	0.00	0.00	0.00
9,900.00	90.00	0.00	6,036.00	3,196.41	595.37	3,233.29	0.00	0.00	0.00
10,000.00	90.00	0.00	6,036.00	3,296.41	595.37	3,332.98	0.00	0.00	0.00
10,100.00	90.00	0.00	6,036.00	3,396.41	595.37	3,432.68	0.00	0.00	0.00
10,200.00	90.00	0.00	6,036.00	3,496.41	595.37	3,532.37	0.00	0.00	0.00
10,300.00	90.00	0.00	6,036.00	3,596.41	595.37	3,632.06	0.00	0.00	0.00
10,400.00	90.00	0.00	6,036.00	3,696.41	595.37	3,731.75	0.00	0.00	0.00
10,500.00	90.00	0.00	6,036.00	3,796.41	595.37	3,831.44	0.00	0.00	0.00
10,600.00	90.00	0.00	6,036.00	3,896.41	595.37	3,931.13	0.00	0.00	0.00
10,700.00	90.00	0.00	6,036.00	3,996.41	595.37	4,030.82	0.00	0.00	0.00
10,800.00	90.00	0.00	6,036.00	4,096.41	595.37	4,130.51	0.00	0.00	0.00
10,900.00	90.00	0.00	6,036.00	4,196.41	595.37	4,230.20	0.00	0.00	0.00
11,000.00	90.00	0.00	6,036.00	4,296.41	595.37	4,329.90	0.00	0.00	0.00
11,100.00	90.00	0.00	6,036.00	4,396.41	595.37	4,429.59	0.00	0.00	0.00
11,200.00	90.00	0.00	6,036.00	4,496.41	595.37	4,529.28	0.00	0.00	0.00
11,300.00	90.00	0.00	6,036.00	4,596.41	595.37	4,628.97	0.00	0.00	0.00
11,400.00	90.00	0.00	6,036.00	4,696.41	595.37	4,728.66	0.00	0.00	0.00
11,500.00	90.00	0.00	6,036.00	4,796.41	595.37	4,828.35	0.00	0.00	0.00
11,600.00	90.00	0.00	6,036.00	4,896.41	595.37	4,928.04	0.00	0.00	0.00
11,700.00	90.00	0.00	6,036.00	4,996.41	595.37	5,027.73	0.00	0.00	0.00
11,800.00	90.00	0.00	6,036.00	5,096.41	595.37	5,127.42	0.00	0.00	0.00
11,900.00	90.00	0.00	6,036.00	5,196.41	595.37	5,227.12	0.00	0.00	0.00
12,000.00	90.00	0.00	6,036.00	5,296.41	595.37	5,326.81	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor #08E-0504
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4983.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4983.00usft
<b>Site:</b>	Sec 8-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #08E-0504	<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)
12,100.00	90.00	0.00	6,036.00	5,396.41	595.37	5,426.50	0.00	0.00	0.00
12,200.00	90.00	0.00	6,036.00	5,496.41	595.37	5,526.19	0.00	0.00	0.00
12,300.00	90.00	0.00	6,036.00	5,596.41	595.37	5,625.88	0.00	0.00	0.00
12,400.00	90.00	0.00	6,036.00	5,696.41	595.37	5,725.57	0.00	0.00	0.00
12,500.00	90.00	0.00	6,036.00	5,796.41	595.37	5,825.26	0.00	0.00	0.00
12,600.00	90.00	0.00	6,036.00	5,896.41	595.37	5,924.95	0.00	0.00	0.00
12,700.00	90.00	0.00	6,036.00	5,996.41	595.37	6,024.64	0.00	0.00	0.00
12,800.00	90.00	0.00	6,036.00	6,096.41	595.37	6,124.34	0.00	0.00	0.00
12,900.00	90.00	0.00	6,036.00	6,196.41	595.37	6,224.03	0.00	0.00	0.00
13,000.00	90.00	0.00	6,036.00	6,296.41	595.37	6,323.72	0.00	0.00	0.00
13,100.00	90.00	0.00	6,036.00	6,396.41	595.37	6,423.41	0.00	0.00	0.00
13,200.00	90.00	0.00	6,036.00	6,496.41	595.37	6,523.10	0.00	0.00	0.00
13,300.00	90.00	0.00	6,036.00	6,596.41	595.37	6,622.79	0.00	0.00	0.00
13,400.00	90.00	0.00	6,036.00	6,696.41	595.37	6,722.48	0.00	0.00	0.00
13,500.00	90.00	0.00	6,036.00	6,796.41	595.37	6,822.17	0.00	0.00	0.00
13,600.00	90.00	0.00	6,036.00	6,896.41	595.37	6,921.86	0.00	0.00	0.00
13,700.00	90.00	0.00	6,036.00	6,996.41	595.37	7,021.56	0.00	0.00	0.00
13,800.00	90.00	0.00	6,036.00	7,096.41	595.37	7,121.25	0.00	0.00	0.00
13,900.00	90.00	0.00	6,036.00	7,196.41	595.37	7,220.94	0.00	0.00	0.00
14,000.00	90.00	0.00	6,036.00	7,296.41	595.37	7,320.63	0.00	0.00	0.00
14,100.00	90.00	0.00	6,036.00	7,396.41	595.37	7,420.32	0.00	0.00	0.00
14,200.00	90.00	0.00	6,036.00	7,496.41	595.37	7,520.01	0.00	0.00	0.00
14,260.75	90.00	0.00	6,036.00	7,557.16	595.37	7,580.57	0.00	0.00	0.00
TD at 14260.75									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Razor 08E-0504 - plan hits target center - Point	0.00	0.00	6,036.00	7,557.16	595.37	1,565,489.41	3,443,951.25	40° 52' 28.600 N	103° 53' 40.750 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,514.09	6,036.00	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 #08E-0504
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4983.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4983.00usft
<b>Site:</b>	Sec 8-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor #08E-0504	<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 (°)	
1,572.92	1,550.00	Upper Pierre				
3,578.94	3,500.00	Hygiene				
3,733.25	3,650.00	Lower Pierre				
5,963.05	5,812.00	P200 Marker				
6,014.79	5,850.00	P300 Marker				
6,040.81	5,868.00	P350 Marker				
6,054.26	5,877.00	Sharon Springs				
6,066.49	5,885.00	Niobrara				
6,106.68	5,910.00	Top A Chalk				
6,173.45	5,947.00	Top A Marl				
6,257.56	5,985.00	A Marl				
6,284.39	5,995.00	Top Upper B				
6,366.65	6,019.00	Base Upper B				
6,434.26	6,031.00	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'	
978.61	972.28	-64.90	46.78	Hold 13.57° Inc	
4,635.67	4,527.22	-761.10	548.59	Drop 2°/100'	
5,314.28	5,199.50	-826.00	595.37	Hold Vertical	
5,514.28	5,399.50	-826.00	595.37	KOP, Build 9°/100'	
6,514.09	6,036.00	-189.50	595.37	LP @ 90° Inc, Hold	
14,260.75	6,036.00	7,557.16	595.37	TD at 14260.75	