



Project: Weld County, CO  
Site: Sec 26-T10N-R58W  
Well: Razor Federal #261-3547  
Wellbore: Hz  
Design: APD

JECT DETAILS: Weld County, CO  
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: 52807.6nT  
Dip Angle: 67.35°  
Date: 7/7/2016  
Model: IGRF2015

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1550.00	1567.26	Upper Pierre
3500.00	3555.79	Hygiene
3650.00	3708.76	Lower Pierre
5458.00	5542.97	P200 Marker
5478.00	5564.86	P300 Marker
5494.00	5582.62	P350 Marker
5508.00	5598.37	Sharon Springs
5512.00	5602.91	Niobrara
5529.00	5622.40	Top A Chalk
5559.00	5657.67	Top A Marl
5571.00	5672.14	Top Upper B
5579.00	5681.91	Base Upper B
5603.00	5711.90	Top Lower B
5619.00	5732.52	Base Lower B
5648.00	5771.42	Top B Marl
5661.00	5789.61	Top C Chalk
5703.00	5852.41	Middle C Chalk
5711.00	5865.24	Middle C Marl
5725.00	5888.52	Lower C Chalk
5743.00	5920.32	Lower C Marl
5760.00	5952.78	Lower C Marker
5787.00	6011.27	Top Ft. Hays
5796.00	6033.52	Ft. Hays Marker
5811.00	6075.43	Top Codell
5846.00	6287.49	

WELL DETAILS: Razor Federal #261-3547

+N/-S	+E/-W	Northing	Ground Level:	4711.00	Longitude	Slot
0.00	0.00	1541910.22	Easting	3463536.43	40° 48' 32.080 N	103° 49' 31.650 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	864.86	11.30	13.27	861.21	54.03	12.74	2.00	13.27	-53.49	
4	4522.82	11.30	13.27	4448.29	751.47	177.26	0.00	0.00	-744.02	
5	5087.68	0.00	0.00	5009.50	805.50	190.00	2.00	180.00	-797.51	
6	5287.68	0.00	0.00	5209.50	805.50	190.00	0.00	0.00	-797.51	
7	6287.49	90.00	179.38	5846.00	169.04	196.93	9.00	179.38	-161.26	
8	13561.54	90.00	179.38	5846.00	-7104.57	276.14	0.00	0.00	7109.94	PBHL 261-3547

#### 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'
861.21	864.86	11.30	13.27	54.03	12.74	-53.49	55.51	Hold 11.30° Inc
4448.29	4522.82	11.30	13.27	751.47	177.26	-744.02	772.10	Drop 2°/100'
5009.50	5087.68	0.00	0.00	805.50	190.00	-797.51	827.61	Hold Vertical
5209.50	5287.68	0.00	0.00	805.50	190.00	-797.51	827.61	KOP Build 9°/100'
5846.00	6287.49	90.00	179.38	169.04	196.93	-161.26	1464.11	LP @ 90° Inc, Hold
5846.00	13561.54	90.00	179.38	-7104.57	276.14	7109.94	8738.15	TD at 13561.54

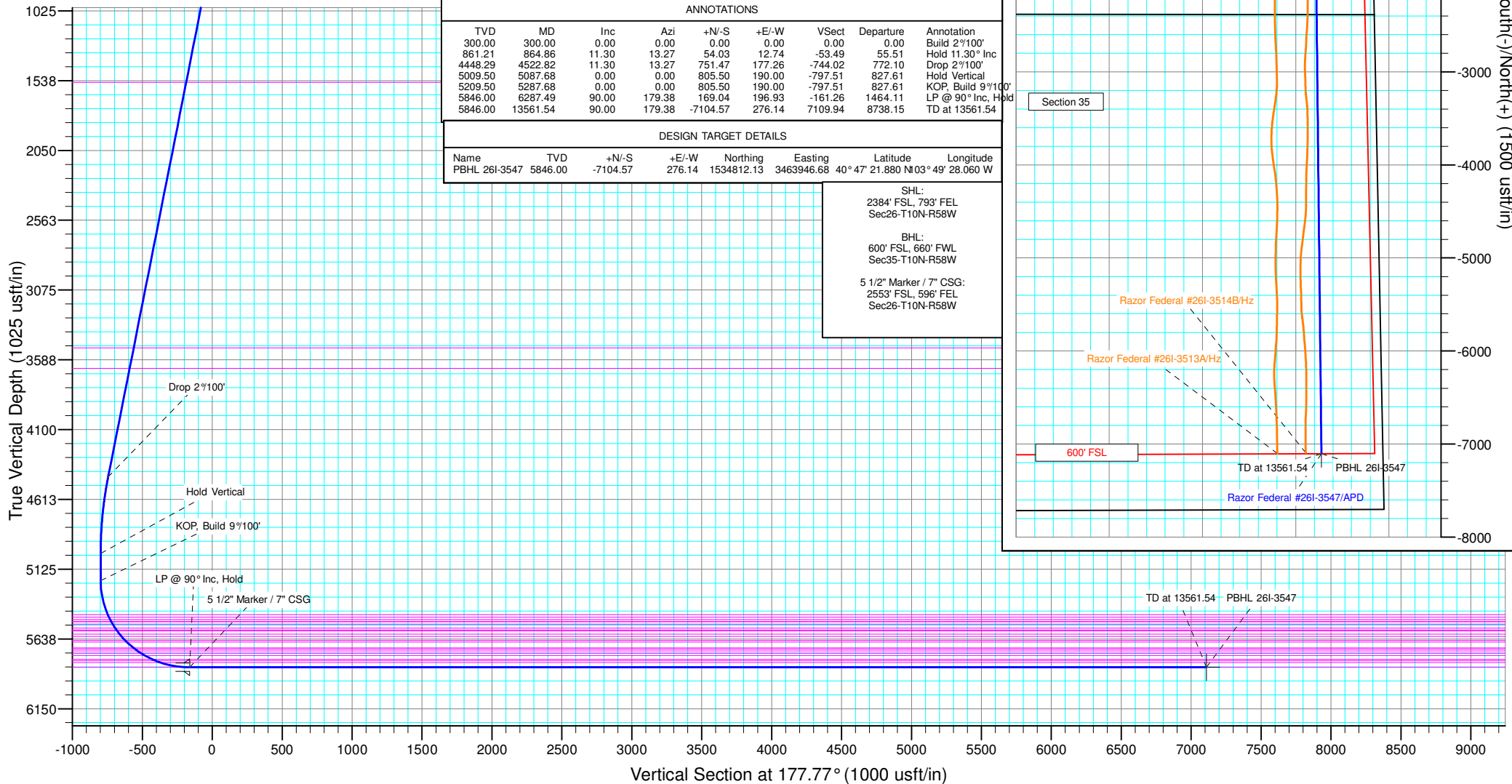
#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 261-3547	5846.00	-7104.57	276.14	1534812.13	3463946.68	40° 47' 21.880 N	103° 49' 28.060 W

SHL:  
2384' FSL, 793' FEL  
Sec26-T10N-R58W

BHL:  
600' FSL, 660' FWL  
Sec35-T10N-R58W

5 1/2" Marker / 7" CSG:  
2553' FSL, 596' FEL  
Sec26-T10N-R58W





# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 26-T10N-R58W**

**Razor Federal #26I-3547**

**Hz**

**Plan: APD**

## **Standard Planning Report**

**08 July, 2016**



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor Federal #26I-3547
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4732.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4732.00usft
<b>Site:</b>	Sec 26-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor Federal #26I-3547	<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 26-T10N-R58W			
Site Position:		Northing:	1,541,803.23 usft	Latitude:	40° 48' 31.490 N
From:	Lat/Long	Easting:	3,461,028.06 usft	Longitude:	103° 50' 4.290 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.08 °

Well	Razor Federal #26I-3547					
Well Position	+N/-S	59.86 usft	Northing:	1,541,910.22 usft	Latitude:	40° 48' 32.080 N
	+E/-W	2,509.93 usft	Easting:	3,463,536.43 usft	Longitude:	103° 49' 31.650 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,711.00 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	7/7/2016	7.83	67.35	52,808

<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	177.77

<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	
864.86	11.30	13.27	861.21	54.03	12.74	2.00	2.00	0.00	13.27	
4,522.82	11.30	13.27	4,448.29	751.47	177.26	0.00	0.00	0.00	0.00	
5,087.68	0.00	0.00	5,009.50	805.50	190.00	2.00	-2.00	0.00	180.00	
5,287.68	0.00	0.00	5,209.50	805.50	190.00	0.00	0.00	0.00	0.00	
6,287.49	90.00	179.38	5,846.00	169.04	196.93	9.00	9.00	0.00	179.38	
13,561.54	90.00	179.38	5,846.00	-7,104.57	276.14	0.00	0.00	0.00	0.00	PBHL 26I-3547



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor Federal #26I-3547
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4732.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4732.00usft
<b>Site:</b>	Sec 26-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor Federal #26I-3547	<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	13.27	399.98	1.70	0.40	-1.68	2.00	2.00	0.00
500.00	4.00	13.27	499.84	6.79	1.60	-6.72	2.00	2.00	0.00
600.00	6.00	13.27	599.45	15.27	3.60	-15.12	2.00	2.00	0.00
700.00	8.00	13.27	698.70	27.14	6.40	-26.87	2.00	2.00	0.00
800.00	10.00	13.27	797.47	42.36	9.99	-41.94	2.00	2.00	0.00
864.86	11.30	13.27	861.21	54.03	12.74	-53.49	2.00	2.00	0.00
<b>Hold 11.30° Inc</b>									
900.00	11.30	13.27	895.67	60.73	14.32	-60.12	0.00	0.00	0.00
1,000.00	11.30	13.27	993.73	79.79	18.82	-79.00	0.00	0.00	0.00
1,100.00	11.30	13.27	1,091.79	98.86	23.32	-97.88	0.00	0.00	0.00
1,200.00	11.30	13.27	1,189.85	117.92	27.82	-116.76	0.00	0.00	0.00
1,300.00	11.30	13.27	1,287.92	136.99	32.31	-135.63	0.00	0.00	0.00
1,400.00	11.30	13.27	1,385.98	156.06	36.81	-154.51	0.00	0.00	0.00
1,500.00	11.30	13.27	1,484.04	175.12	41.31	-173.39	0.00	0.00	0.00
1,567.26	11.30	13.27	1,550.00	187.95	44.33	-186.09	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	11.30	13.27	1,582.10	194.19	45.81	-192.27	0.00	0.00	0.00
1,700.00	11.30	13.27	1,680.17	213.26	50.30	-211.14	0.00	0.00	0.00
1,800.00	11.30	13.27	1,778.23	232.32	54.80	-230.02	0.00	0.00	0.00
1,900.00	11.30	13.27	1,876.29	251.39	59.30	-248.90	0.00	0.00	0.00
2,000.00	11.30	13.27	1,974.35	270.46	63.80	-267.78	0.00	0.00	0.00
2,100.00	11.30	13.27	2,072.42	289.52	68.29	-286.65	0.00	0.00	0.00
2,200.00	11.30	13.27	2,170.48	308.59	72.79	-305.53	0.00	0.00	0.00
2,300.00	11.30	13.27	2,268.54	327.66	77.29	-324.41	0.00	0.00	0.00
2,400.00	11.30	13.27	2,366.60	346.72	81.78	-343.29	0.00	0.00	0.00
2,500.00	11.30	13.27	2,464.66	365.79	86.28	-362.16	0.00	0.00	0.00
2,600.00	11.30	13.27	2,562.73	384.86	90.78	-381.04	0.00	0.00	0.00
2,700.00	11.30	13.27	2,660.79	403.92	95.28	-399.92	0.00	0.00	0.00
2,800.00	11.30	13.27	2,758.85	422.99	99.77	-418.80	0.00	0.00	0.00
2,900.00	11.30	13.27	2,856.91	442.06	104.27	-437.67	0.00	0.00	0.00
3,000.00	11.30	13.27	2,954.98	461.12	108.77	-456.55	0.00	0.00	0.00
3,100.00	11.30	13.27	3,053.04	480.19	113.27	-475.43	0.00	0.00	0.00
3,200.00	11.30	13.27	3,151.10	499.26	117.76	-494.31	0.00	0.00	0.00
3,300.00	11.30	13.27	3,249.16	518.32	122.26	-513.18	0.00	0.00	0.00
3,400.00	11.30	13.27	3,347.23	537.39	126.76	-532.06	0.00	0.00	0.00
3,500.00	11.30	13.27	3,445.29	556.46	131.26	-550.94	0.00	0.00	0.00
3,555.79	11.30	13.27	3,500.00	567.10	133.77	-561.47	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	11.30	13.27	3,543.35	575.52	135.75	-569.82	0.00	0.00	0.00
3,700.00	11.30	13.27	3,641.41	594.59	140.25	-588.70	0.00	0.00	0.00
3,708.76	11.30	13.27	3,650.00	596.26	140.64	-590.35	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,800.00	11.30	13.27	3,739.48	613.66	144.75	-607.57	0.00	0.00	0.00
3,900.00	11.30	13.27	3,837.54	632.72	149.25	-626.45	0.00	0.00	0.00
4,000.00	11.30	13.27	3,935.60	651.79	153.74	-645.33	0.00	0.00	0.00
4,100.00	11.30	13.27	4,033.66	670.86	158.24	-664.21	0.00	0.00	0.00
4,200.00	11.30	13.27	4,131.73	689.92	162.74	-683.08	0.00	0.00	0.00
4,300.00	11.30	13.27	4,229.79	708.99	167.24	-701.96	0.00	0.00	0.00
4,400.00	11.30	13.27	4,327.85	728.06	171.73	-720.84	0.00	0.00	0.00



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor Federal #26I-3547
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4732.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4732.00usft
<b>Site:</b>	Sec 26-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor Federal #26I-3547	<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	11.30	13.27	4,425.91	747.12	176.23	-739.72	0.00	0.00	0.00
4,522.82	11.30	13.27	4,448.29	751.47	177.26	-744.02	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
4,600.00	9.75	13.27	4,524.17	765.20	180.49	-757.61	2.00	-2.00	0.00
4,700.00	7.75	13.27	4,623.00	780.01	183.99	-772.27	2.00	-2.00	0.00
4,800.00	5.75	13.27	4,722.30	791.45	186.69	-783.61	2.00	-2.00	0.00
4,900.00	3.75	13.27	4,821.95	799.52	188.59	-791.59	2.00	-2.00	0.00
5,000.00	1.75	13.27	4,921.83	804.19	189.69	-796.22	2.00	-2.00	0.00
5,087.68	0.00	0.00	5,009.50	805.50	190.00	-797.51	2.00	-2.00	0.00
<b>Hold Vertical</b>									
5,100.00	0.00	0.00	5,021.82	805.50	190.00	-797.51	0.00	0.00	0.00
5,200.00	0.00	0.00	5,121.82	805.50	190.00	-797.51	0.00	0.00	0.00
5,287.68	0.00	0.00	5,209.50	805.50	190.00	-797.51	0.00	0.00	0.00
<b>KOP, Build 9°/100'</b>									
5,300.00	1.11	179.38	5,221.82	805.38	190.00	-797.39	9.00	9.00	0.00
5,400.00	10.11	179.38	5,321.24	795.62	190.11	-787.63	9.00	9.00	0.00
5,500.00	19.11	179.38	5,417.90	770.42	190.38	-762.44	9.00	9.00	0.00
5,542.97	22.98	179.38	5,458.00	754.99	190.55	-747.02	9.00	9.00	0.00
<b>P200 Marker</b>									
5,564.86	24.95	179.38	5,478.00	746.10	190.65	-738.13	9.00	9.00	0.00
<b>P300 Marker</b>									
5,582.62	26.55	179.38	5,494.00	738.38	190.73	-730.42	9.00	9.00	0.00
<b>P350 Marker</b>									
5,598.37	27.97	179.38	5,508.00	731.17	190.81	-723.21	9.00	9.00	0.00
<b>Sharon Springs</b>									
5,600.00	28.11	179.38	5,509.44	730.41	190.82	-722.44	9.00	9.00	0.00
5,602.91	28.38	179.38	5,512.00	729.03	190.83	-721.07	9.00	9.00	0.00
<b>Niobrara</b>									
5,622.40	30.13	179.38	5,529.00	719.51	190.94	-711.55	9.00	9.00	0.00
<b>Top A Chalk</b>									
5,657.67	33.31	179.38	5,559.00	700.97	191.14	-693.01	9.00	9.00	0.00
<b>Top A Marl</b>									
5,672.14	34.61	179.38	5,571.00	692.89	191.23	-684.94	9.00	9.00	0.00
<b>A Marl</b>									
5,681.91	35.49	179.38	5,579.00	687.28	191.29	-679.33	9.00	9.00	0.00
<b>Top Upper B</b>									
5,700.00	37.12	179.38	5,593.58	676.57	191.40	-668.62	9.00	9.00	0.00
5,711.90	38.19	179.38	5,603.00	669.30	191.48	-661.36	9.00	9.00	0.00
<b>Base Upper B</b>									
5,732.52	40.04	179.38	5,619.00	656.29	191.62	-648.35	9.00	9.00	0.00
<b>Top Lower B</b>									
5,771.42	43.54	179.38	5,648.00	630.37	191.91	-622.44	9.00	9.00	0.00
<b>Base Lower B</b>									
5,789.61	45.18	179.38	5,661.00	617.65	192.05	-609.73	9.00	9.00	0.00
<b>Top B Marl</b>									
5,800.00	46.12	179.38	5,668.26	610.22	192.13	-602.30	9.00	9.00	0.00
5,852.41	50.84	179.38	5,703.00	571.00	192.55	-563.09	9.00	9.00	0.00
<b>Top C Chalk</b>									
5,865.24	51.99	179.38	5,711.00	560.97	192.66	-553.07	9.00	9.00	0.00
<b>Middle C Chalk</b>									
5,888.52	54.09	179.38	5,725.00	542.37	192.87	-534.47	9.00	9.00	0.00



# WOG

## Planning Report

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<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4732.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4732.00usft
<b>Site:</b>	Sec 26-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor Federal #26I-3547	<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)	
Middle C Marl										
5,900.00	55.12	179.38	5,731.65	533.01	192.97	-525.12	9.00	9.00	0.00	
5,920.32	56.95	179.38	5,743.00	516.16	193.15	-508.27	9.00	9.00	0.00	
Lower C Chalk										
5,952.78	59.87	179.38	5,760.00	488.52	193.45	-480.64	9.00	9.00	0.00	
Lower C Marl										
6,000.00	64.12	179.38	5,782.17	446.84	193.91	-438.97	9.00	9.00	0.00	
6,011.28	65.14	179.38	5,787.00	436.65	194.02	-428.79	9.00	9.00	0.00	
Lower C Marker										
6,033.52	67.14	179.38	5,796.00	416.31	194.24	-408.45	9.00	9.00	0.00	
Top Ft. Hays										
6,075.43	70.91	179.38	5,811.00	377.18	194.66	-369.34	9.00	9.00	0.00	
Ft. Hays Marker										
6,100.00	73.12	179.38	5,818.58	353.82	194.92	-345.98	9.00	9.00	0.00	
6,200.00	82.12	179.38	5,840.00	256.25	195.98	-248.45	9.00	9.00	0.00	
6,287.49	90.00	179.38	5,846.00	169.04	196.93	-161.26	9.00	9.00	0.00	
LP @ 90° Inc, Hold - Top Codell										
6,287.96	90.00	179.38	5,846.00	168.57	196.94	-160.80	0.00	0.00	0.00	
5 1/2" Marker / 7" CSG										
6,300.00	90.00	179.38	5,846.00	156.53	197.07	-148.76	0.00	0.00	0.00	
6,400.00	90.00	179.38	5,846.00	56.54	198.16	-48.80	0.00	0.00	0.00	
6,500.00	90.00	179.38	5,846.00	-43.46	199.25	51.16	0.00	0.00	0.00	
6,600.00	90.00	179.38	5,846.00	-143.45	200.33	151.12	0.00	0.00	0.00	
6,700.00	90.00	179.38	5,846.00	-243.44	201.42	251.08	0.00	0.00	0.00	
6,800.00	90.00	179.38	5,846.00	-343.44	202.51	351.04	0.00	0.00	0.00	
6,900.00	90.00	179.38	5,846.00	-443.43	203.60	451.00	0.00	0.00	0.00	
7,000.00	90.00	179.38	5,846.00	-543.43	204.69	550.97	0.00	0.00	0.00	
7,100.00	90.00	179.38	5,846.00	-643.42	205.78	650.93	0.00	0.00	0.00	
7,200.00	90.00	179.38	5,846.00	-743.41	206.87	750.89	0.00	0.00	0.00	
7,300.00	90.00	179.38	5,846.00	-843.41	207.96	850.85	0.00	0.00	0.00	
7,400.00	90.00	179.38	5,846.00	-943.40	209.05	950.81	0.00	0.00	0.00	
7,500.00	90.00	179.38	5,846.00	-1,043.40	210.13	1,050.77	0.00	0.00	0.00	
7,600.00	90.00	179.38	5,846.00	-1,143.39	211.22	1,150.73	0.00	0.00	0.00	
7,700.00	90.00	179.38	5,846.00	-1,243.38	212.31	1,250.69	0.00	0.00	0.00	
7,800.00	90.00	179.38	5,846.00	-1,343.38	213.40	1,350.65	0.00	0.00	0.00	
7,900.00	90.00	179.38	5,846.00	-1,443.37	214.49	1,450.61	0.00	0.00	0.00	
8,000.00	90.00	179.38	5,846.00	-1,543.37	215.58	1,550.57	0.00	0.00	0.00	
8,100.00	90.00	179.38	5,846.00	-1,643.36	216.67	1,650.54	0.00	0.00	0.00	
8,200.00	90.00	179.38	5,846.00	-1,743.35	217.76	1,750.50	0.00	0.00	0.00	
8,300.00	90.00	179.38	5,846.00	-1,843.35	218.85	1,850.46	0.00	0.00	0.00	
8,400.00	90.00	179.38	5,846.00	-1,943.34	219.94	1,950.42	0.00	0.00	0.00	
8,500.00	90.00	179.38	5,846.00	-2,043.34	221.02	2,050.38	0.00	0.00	0.00	
8,600.00	90.00	179.38	5,846.00	-2,143.33	222.11	2,150.34	0.00	0.00	0.00	
8,700.00	90.00	179.38	5,846.00	-2,243.33	223.20	2,250.30	0.00	0.00	0.00	
8,800.00	90.00	179.38	5,846.00	-2,343.32	224.29	2,350.26	0.00	0.00	0.00	
8,900.00	90.00	179.38	5,846.00	-2,443.31	225.38	2,450.22	0.00	0.00	0.00	
9,000.00	90.00	179.38	5,846.00	-2,543.31	226.47	2,550.18	0.00	0.00	0.00	
9,100.00	90.00	179.38	5,846.00	-2,643.30	227.56	2,650.14	0.00	0.00	0.00	
9,200.00	90.00	179.38	5,846.00	-2,743.30	228.65	2,750.11	0.00	0.00	0.00	
9,300.00	90.00	179.38	5,846.00	-2,843.29	229.74	2,850.07	0.00	0.00	0.00	
9,400.00	90.00	179.38	5,846.00	-2,943.28	230.82	2,950.03	0.00	0.00	0.00	
9,500.00	90.00	179.38	5,846.00	-3,043.28	231.91	3,049.99	0.00	0.00	0.00	
9,600.00	90.00	179.38	5,846.00	-3,143.27	233.00	3,149.95	0.00	0.00	0.00	



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor Federal #26I-3547
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4732.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4732.00usft
<b>Site:</b>	Sec 26-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor Federal #26I-3547	<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)
9,700.00	90.00	179.38	5,846.00	-3,243.27	234.09	3,249.91	0.00	0.00	0.00
9,800.00	90.00	179.38	5,846.00	-3,343.26	235.18	3,349.87	0.00	0.00	0.00
9,900.00	90.00	179.38	5,846.00	-3,443.25	236.27	3,449.83	0.00	0.00	0.00
10,000.00	90.00	179.38	5,846.00	-3,543.25	237.36	3,549.79	0.00	0.00	0.00
10,100.00	90.00	179.38	5,846.00	-3,643.24	238.45	3,649.75	0.00	0.00	0.00
10,200.00	90.00	179.38	5,846.00	-3,743.24	239.54	3,749.72	0.00	0.00	0.00
10,300.00	90.00	179.38	5,846.00	-3,843.23	240.63	3,849.68	0.00	0.00	0.00
10,400.00	90.00	179.38	5,846.00	-3,943.22	241.71	3,949.64	0.00	0.00	0.00
10,500.00	90.00	179.38	5,846.00	-4,043.22	242.80	4,049.60	0.00	0.00	0.00
10,600.00	90.00	179.38	5,846.00	-4,143.21	243.89	4,149.56	0.00	0.00	0.00
10,700.00	90.00	179.38	5,846.00	-4,243.21	244.98	4,249.52	0.00	0.00	0.00
10,800.00	90.00	179.38	5,846.00	-4,343.20	246.07	4,349.48	0.00	0.00	0.00
10,900.00	90.00	179.38	5,846.00	-4,443.19	247.16	4,449.44	0.00	0.00	0.00
11,000.00	90.00	179.38	5,846.00	-4,543.19	248.25	4,549.40	0.00	0.00	0.00
11,100.00	90.00	179.38	5,846.00	-4,643.18	249.34	4,649.36	0.00	0.00	0.00
11,200.00	90.00	179.38	5,846.00	-4,743.18	250.43	4,749.32	0.00	0.00	0.00
11,300.00	90.00	179.38	5,846.00	-4,843.17	251.51	4,849.29	0.00	0.00	0.00
11,400.00	90.00	179.38	5,846.00	-4,943.17	252.60	4,949.25	0.00	0.00	0.00
11,500.00	90.00	179.38	5,846.00	-5,043.16	253.69	5,049.21	0.00	0.00	0.00
11,600.00	90.00	179.38	5,846.00	-5,143.15	254.78	5,149.17	0.00	0.00	0.00
11,700.00	90.00	179.38	5,846.00	-5,243.15	255.87	5,249.13	0.00	0.00	0.00
11,800.00	90.00	179.38	5,846.00	-5,343.14	256.96	5,349.09	0.00	0.00	0.00
11,900.00	90.00	179.38	5,846.00	-5,443.14	258.05	5,449.05	0.00	0.00	0.00
12,000.00	90.00	179.38	5,846.00	-5,543.13	259.14	5,549.01	0.00	0.00	0.00
12,100.00	90.00	179.38	5,846.00	-5,643.12	260.23	5,648.97	0.00	0.00	0.00
12,200.00	90.00	179.38	5,846.00	-5,743.12	261.31	5,748.93	0.00	0.00	0.00
12,300.00	90.00	179.38	5,846.00	-5,843.11	262.40	5,848.89	0.00	0.00	0.00
12,400.00	90.00	179.38	5,846.00	-5,943.11	263.49	5,948.86	0.00	0.00	0.00
12,500.00	90.00	179.38	5,846.00	-6,043.10	264.58	6,048.82	0.00	0.00	0.00
12,600.00	90.00	179.38	5,846.00	-6,143.09	265.67	6,148.78	0.00	0.00	0.00
12,700.00	90.00	179.38	5,846.00	-6,243.09	266.76	6,248.74	0.00	0.00	0.00
12,800.00	90.00	179.38	5,846.00	-6,343.08	267.85	6,348.70	0.00	0.00	0.00
12,900.00	90.00	179.38	5,846.00	-6,443.08	268.94	6,448.66	0.00	0.00	0.00
13,000.00	90.00	179.38	5,846.00	-6,543.07	270.03	6,548.62	0.00	0.00	0.00
13,100.00	90.00	179.38	5,846.00	-6,643.06	271.12	6,648.58	0.00	0.00	0.00
13,200.00	90.00	179.38	5,846.00	-6,743.06	272.20	6,748.54	0.00	0.00	0.00
13,300.00	90.00	179.38	5,846.00	-6,843.05	273.29	6,848.50	0.00	0.00	0.00
13,400.00	90.00	179.38	5,846.00	-6,943.05	274.38	6,948.46	0.00	0.00	0.00
13,500.00	90.00	179.38	5,846.00	-7,043.04	275.47	7,048.43	0.00	0.00	0.00
13,561.54	90.00	179.38	5,846.00	-7,104.57	276.14	7,109.94	0.00	0.00	0.00
TD at 13561.54									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL 26I-3547	0.00	0.00	5,846.00	-7,104.57	276.14	1,534,812.13	3,463,946.67	40° 47' 21.880 N	103° 49' 28.060 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									



# WOG

## Planning Report

<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Razor Federal #26I-3547
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4732.00usft
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4732.00usft
<b>Site:</b>	Sec 26-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor Federal #26I-3547	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	APD		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,287.96	5,846.00	5 1/2" Marker / 7" CSG	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,567.26	1,550.00	Upper Pierre				
3,555.79	3,500.00	Hygiene				
3,708.76	3,650.00	Lower Pierre				
5,542.97	5,458.00	P200 Marker				
5,564.86	5,478.00	P300 Marker				
5,582.62	5,494.00	P350 Marker				
5,598.37	5,508.00	Sharon Springs				
5,602.91	5,512.00	Niobrara				
5,622.40	5,529.00	Top A Chalk				
5,657.67	5,559.00	Top A Marl				
5,672.14	5,571.00	A Marl				
5,681.91	5,579.00	Top Upper B				
5,711.90	5,603.00	Base Upper B				
5,732.52	5,619.00	Top Lower B				
5,771.42	5,648.00	Base Lower B				
5,789.61	5,661.00	Top B Marl				
5,852.41	5,703.00	Top C Chalk				
5,865.24	5,711.00	Middle C Chalk				
5,888.52	5,725.00	Middle C Marl				
5,920.32	5,743.00	Lower C Chalk				
5,952.78	5,760.00	Lower C Marl				
6,011.28	5,787.00	Lower C Marker				
6,033.52	5,796.00	Top Ft. Hays				
6,075.43	5,811.00	Ft. Hays Marker				
6,287.49	5,846.00	Top Codell				

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'	
864.86	861.21	54.03	12.74	Hold 11.30° Inc	
4,522.82	4,448.29	751.47	177.26	Drop 2°/100'	
5,087.68	5,009.50	805.50	190.00	Hold Vertical	
5,287.68	5,209.50	805.50	190.00	KOP, Build 9°/100'	
6,287.49	5,846.00	169.04	196.93	LP @ 90° Inc, Hold	
13,561.54	5,846.00	-7,104.57	276.14	TD at 13561.54	