



Project: Weld County, CO
Site: Sec 29-T10N-R58W
Well: Razor #29H-2047
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: 7.88°
Magnetic Field
Strength: 52822.3nT
Dip Angle: 67.35°
Date: 5/4/2016
Model: IGRF2015

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1550.00	1567.24	Upper Pierre
3500.00	3555.70	Hygiene
3650.00	3708.66	Lower Pierre
5794.00	5885.15	P200 Marker
5829.00	5923.53	P300 Marker
5853.00	5950.51	P350 Marker
5865.00	5964.23	Sharon Springs
5868.00	5967.68	Niobrara
5888.00	5991.01	Top A Chalk
5923.00	6033.20	Top A Marl
5944.00	6059.49	A Marl
5949.00	6065.88	Top Upper B
5969.00	6091.97	Base Upper B
5981.00	6108.07	Top Lower B
6001.00	6135.79	Base Lower B
6011.00	6150.11	Top B Marl
6063.00	6231.03	Top C Chalk
6070.00	6242.99	Middle C Chalk
6082.00	6264.27	Middle C Marl
6096.00	6290.54	Lower C Chalk
6110.00	6318.76	Lower C Marl
6154.00	6429.23	Lower C Marker
6158.00	6442.21	Top Ft. Hays
6174.00	6506.23	Ft. Hays Marker

WELL DETAILS: Razor #29H-2047

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude	Slot
0.00	0.00	1542140.21	4766.80	3447569.54	40° 48' 37.280 N	103° 52' 59.200 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	864.35	11.29	171.01	860.71	-54.73	8.66	2.00	171.01	-54.55	
4	4870.93	11.29	171.01	4789.79	-829.27	131.25	0.00	0.00	-826.64	
5	5435.28	0.00	0.00	5350.50	-884.00	139.91	2.00	180.00	-881.20	
6	5635.28	0.00	0.00	5550.50	-884.00	139.91	0.00	0.00	-881.20	
7	6635.09	90.00	0.00	6187.00	-247.50	139.91	9.00	0.00	-244.81	
8	14283.77	90.00	0.00	6187.00	7401.18	139.91	0.00	0.00	7402.51	PBHL Razor 29H-2047

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'
860.71	864.35	11.29	171.01	-54.73	8.66	-54.55	55.41	Hold 11.29° Inc
4789.79	4870.93	11.29	171.01	-829.27	131.25	-826.64	839.59	Drop 2°/100'
5350.50	5435.28	0.00	0.00	-884.00	139.91	-881.20	895.00	Hold Vertical
5550.50	5635.28	0.00	0.00	-884.00	139.91	-881.20	895.00	KOP, Build 9°/100'
6187.00	6635.09	90.00	0.00	-247.50	139.91	-244.81	1531.50	LP @ 90° Inc, Hold
6187.00	14283.77	90.00	0.00	7401.18	139.91	7402.51	9180.19	TD at 14283.77

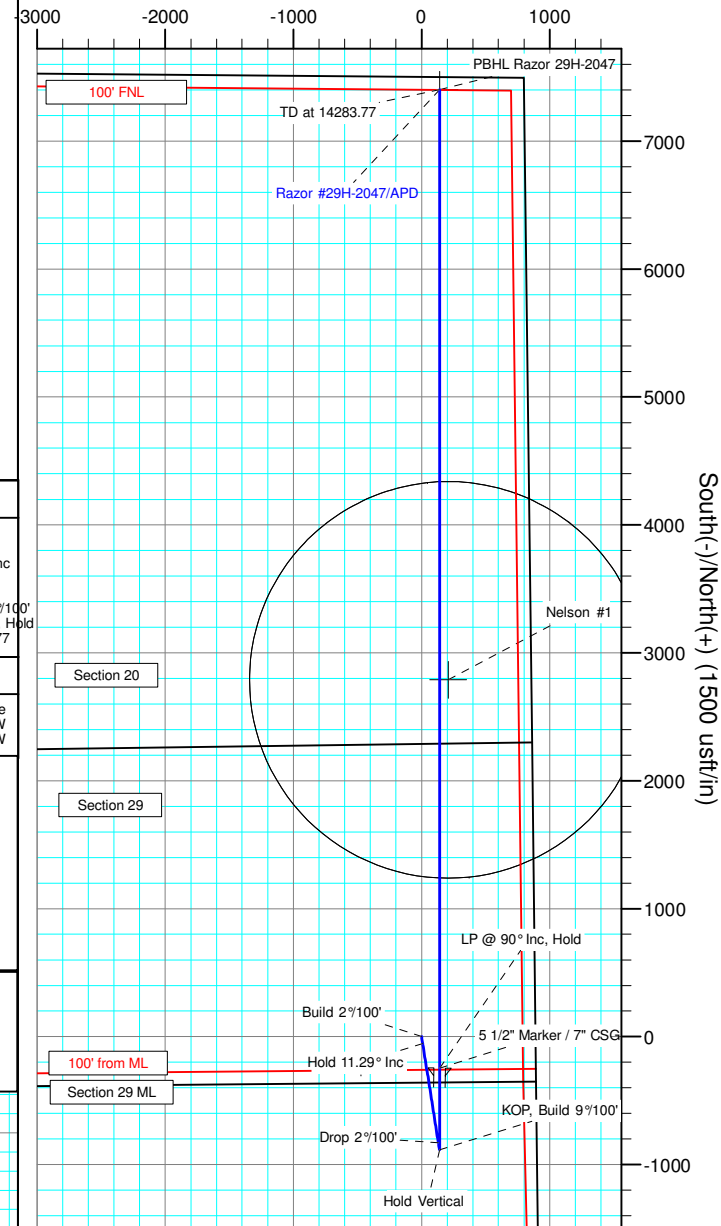
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Razor 29H-2047	6187.00	7401.18	139.91	1549542.71	3447574.48	40° 49' 50.410 N	103° 52' 57.380 W
Nelson #1	6700.80	2788.82	207.90	1544932.36	3447726.56	40° 49' 4.836 N	103° 52' 56.496 W

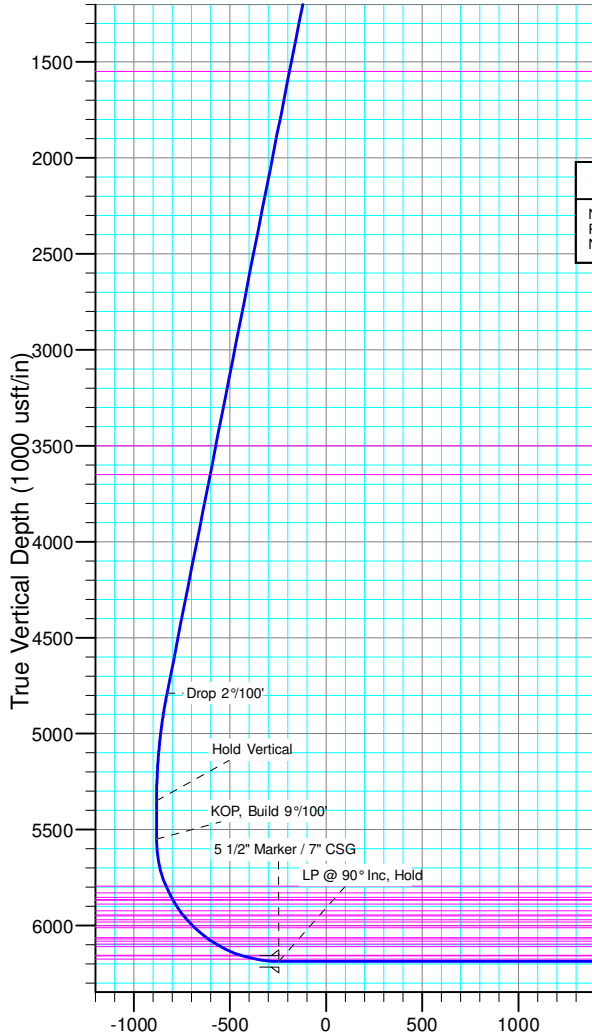
SHL:
2287' FNL, 888' FEL
Sec29-T10N-R58W
BHL:
100' FNL, 660' FEL
Sec20-T10N-R58W
5 1/2" Marker / 7" CSG:
2534' FNL, 748' FEL
Sec29-T10N-R58W

Enter Nelson #1
1550' Radius @ 8133' MD
Exit Nelson #1
1550' Radius @ 11232' MD

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



South(-)/North(+) (1500 usft/in)



Vertical Section at 1.08° (1000 usft/in)



Whiting Petroleum Corp.

**Weld County, CO
Sec 29-T10N-R58W
Razor #29H-2047**

Hz

Plan: APD

Standard Planning Report

09 May, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2047
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Project	Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec 29-T10N-R58W			
Site Position:		Northing:	1,544,286.15 usft	Latitude:	40° 48' 59.281 N
From:	Lat/Long	Easting:	3,443,100.91 usft	Longitude:	103° 53' 56.800 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.03 °

Well		Razor #29H-2047				
Well Position	+N/-S	-2,226.26 usft	Northing:	1,542,140.21 usft	Latitude:	40° 48' 37.280 N
	+E/-W	4,429.16 usft	Easting:	3,447,569.54 usft	Longitude:	103° 52' 59.200 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,766.80 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/4/2016	7.88	67.35	52,822

Design	APD				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	1.08	

Plan Sections										
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	
864.35	11.29	171.01	860.71	-54.73	8.66	2.00	2.00	0.00	171.01	
4,870.93	11.29	171.01	4,789.79	-829.27	131.25	0.00	0.00	0.00	0.00	
5,435.28	0.00	0.00	5,350.50	-884.00	139.91	2.00	-2.00	0.00	180.00	
5,635.28	0.00	0.00	5,550.50	-884.00	139.91	0.00	0.00	0.00	0.00	
6,635.09	90.00	0.00	6,187.00	-247.50	139.91	9.00	9.00	0.00	0.00	
14,283.77	90.00	0.00	6,187.00	7,401.18	139.91	0.00	0.00	0.00	0.00	PBHL Razor 29H-204



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	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
Build 2°/100'									
400.00	2.00	171.01	399.98	-1.72	0.27	-1.72	2.00	2.00	0.00
500.00	4.00	171.01	499.84	-6.89	1.09	-6.87	2.00	2.00	0.00
600.00	6.00	171.01	599.45	-15.50	2.45	-15.45	2.00	2.00	0.00
700.00	8.00	171.01	698.70	-27.54	4.36	-27.45	2.00	2.00	0.00
800.00	10.00	171.01	797.47	-42.99	6.80	-42.85	2.00	2.00	0.00
864.35	11.29	171.01	860.71	-54.73	8.66	-54.55	2.00	2.00	0.00
Hold 11.29° Inc									
900.00	11.29	171.01	895.67	-61.62	9.75	-61.42	0.00	0.00	0.00
1,000.00	11.29	171.01	993.73	-80.95	12.81	-80.69	0.00	0.00	0.00
1,100.00	11.29	171.01	1,091.80	-100.28	15.87	-99.96	0.00	0.00	0.00
1,200.00	11.29	171.01	1,189.87	-119.61	18.93	-119.23	0.00	0.00	0.00
1,300.00	11.29	171.01	1,287.93	-138.95	21.99	-138.51	0.00	0.00	0.00
1,400.00	11.29	171.01	1,386.00	-158.28	25.05	-157.78	0.00	0.00	0.00
1,500.00	11.29	171.01	1,484.06	-177.61	28.11	-177.05	0.00	0.00	0.00
1,567.24	11.29	171.01	1,550.00	-190.61	30.17	-190.00	0.00	0.00	0.00
Upper Pierre									
1,600.00	11.29	171.01	1,582.13	-196.94	31.17	-196.32	0.00	0.00	0.00
1,700.00	11.29	171.01	1,680.19	-216.27	34.23	-215.59	0.00	0.00	0.00
1,800.00	11.29	171.01	1,778.26	-235.61	37.29	-234.86	0.00	0.00	0.00
1,900.00	11.29	171.01	1,876.33	-254.94	40.35	-254.13	0.00	0.00	0.00
2,000.00	11.29	171.01	1,974.39	-274.27	43.41	-273.40	0.00	0.00	0.00
2,100.00	11.29	171.01	2,072.46	-293.60	46.47	-292.67	0.00	0.00	0.00
2,200.00	11.29	171.01	2,170.52	-312.93	49.53	-311.94	0.00	0.00	0.00
2,300.00	11.29	171.01	2,268.59	-332.26	52.59	-331.21	0.00	0.00	0.00
2,400.00	11.29	171.01	2,366.66	-351.60	55.65	-350.48	0.00	0.00	0.00
2,500.00	11.29	171.01	2,464.72	-370.93	58.71	-369.75	0.00	0.00	0.00
2,600.00	11.29	171.01	2,562.79	-390.26	61.77	-389.02	0.00	0.00	0.00
2,700.00	11.29	171.01	2,660.85	-409.59	64.82	-408.29	0.00	0.00	0.00
2,800.00	11.29	171.01	2,758.92	-428.92	67.88	-427.56	0.00	0.00	0.00
2,900.00	11.29	171.01	2,856.99	-448.26	70.94	-446.84	0.00	0.00	0.00
3,000.00	11.29	171.01	2,955.05	-467.59	74.00	-466.11	0.00	0.00	0.00
3,100.00	11.29	171.01	3,053.12	-486.92	77.06	-485.38	0.00	0.00	0.00
3,200.00	11.29	171.01	3,151.18	-506.25	80.12	-504.65	0.00	0.00	0.00
3,300.00	11.29	171.01	3,249.25	-525.58	83.18	-523.92	0.00	0.00	0.00
3,400.00	11.29	171.01	3,347.31	-544.92	86.24	-543.19	0.00	0.00	0.00
3,500.00	11.29	171.01	3,445.38	-564.25	89.30	-562.46	0.00	0.00	0.00
3,555.70	11.29	171.01	3,500.00	-575.01	91.01	-573.19	0.00	0.00	0.00
Hygiene									
3,600.00	11.29	171.01	3,543.45	-583.58	92.36	-581.73	0.00	0.00	0.00
3,700.00	11.29	171.01	3,641.51	-602.91	95.42	-601.00	0.00	0.00	0.00
3,708.66	11.29	171.01	3,650.00	-604.58	95.69	-602.67	0.00	0.00	0.00
Lower Pierre									
3,800.00	11.29	171.01	3,739.58	-622.24	98.48	-620.27	0.00	0.00	0.00
3,900.00	11.29	171.01	3,837.64	-641.57	101.54	-639.54	0.00	0.00	0.00
4,000.00	11.29	171.01	3,935.71	-660.91	104.60	-658.81	0.00	0.00	0.00
4,100.00	11.29	171.01	4,033.78	-680.24	107.66	-678.08	0.00	0.00	0.00
4,200.00	11.29	171.01	4,131.84	-699.57	110.72	-697.35	0.00	0.00	0.00
4,300.00	11.29	171.01	4,229.91	-718.90	113.78	-716.62	0.00	0.00	0.00
4,400.00	11.29	171.01	4,327.97	-738.23	116.84	-735.89	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2047
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	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	11.29	171.01	4,426.04	-757.57	119.90	-755.16	0.00	0.00	0.00
4,600.00	11.29	171.01	4,524.11	-776.90	122.96	-774.44	0.00	0.00	0.00
4,700.00	11.29	171.01	4,622.17	-796.23	126.02	-793.71	0.00	0.00	0.00
4,800.00	11.29	171.01	4,720.24	-815.56	129.08	-812.98	0.00	0.00	0.00
4,870.93	11.29	171.01	4,789.79	-829.27	131.25	-826.64	0.00	0.00	0.00
Drop 2°/100'									
4,900.00	10.71	171.01	4,818.33	-834.75	132.11	-832.10	2.00	-2.00	0.00
5,000.00	8.71	171.01	4,916.89	-851.40	134.75	-848.70	2.00	-2.00	0.00
5,100.00	6.71	171.01	5,015.99	-864.64	136.84	-861.90	2.00	-2.00	0.00
5,200.00	4.71	171.01	5,115.49	-874.46	138.40	-871.69	2.00	-2.00	0.00
5,300.00	2.71	171.01	5,215.27	-880.85	139.41	-878.05	2.00	-2.00	0.00
5,400.00	0.71	171.01	5,315.22	-883.79	139.87	-880.98	2.00	-2.00	0.00
5,435.28	0.00	0.00	5,350.50	-884.00	139.91	-881.20	2.00	-2.00	0.00
Hold Vertical									
5,500.00	0.00	0.00	5,415.22	-884.00	139.91	-881.20	0.00	0.00	0.00
5,600.00	0.00	0.00	5,515.22	-884.00	139.91	-881.20	0.00	0.00	0.00
5,635.28	0.00	0.00	5,550.50	-884.00	139.91	-881.20	0.00	0.00	0.00
KOP, Build 9°/100'									
5,700.00	5.83	0.00	5,615.11	-880.71	139.91	-877.91	9.00	9.00	0.00
5,800.00	14.83	0.00	5,713.39	-862.80	139.91	-860.01	9.00	9.00	0.00
5,885.15	22.49	0.00	5,794.00	-835.58	139.91	-832.79	9.00	9.00	0.00
P200 Marker									
5,900.00	23.83	0.00	5,807.66	-829.74	139.91	-826.95	9.00	9.00	0.00
5,923.53	25.95	0.00	5,829.00	-819.84	139.91	-817.05	9.00	9.00	0.00
P300 Marker									
5,950.51	28.38	0.00	5,853.00	-807.52	139.91	-804.73	9.00	9.00	0.00
P350 Marker									
5,964.23	29.61	0.00	5,865.00	-800.87	139.91	-798.09	9.00	9.00	0.00
Sharon Springs									
5,967.68	29.92	0.00	5,868.00	-799.16	139.91	-796.37	9.00	9.00	0.00
Niobrara									
5,991.01	32.02	0.00	5,888.00	-787.15	139.91	-784.37	9.00	9.00	0.00
Top A Chalk									
6,000.00	32.83	0.00	5,895.59	-782.33	139.91	-779.55	9.00	9.00	0.00
6,033.20	35.82	0.00	5,923.00	-763.62	139.91	-760.84	9.00	9.00	0.00
Top A Marl									
6,059.49	38.19	0.00	5,944.00	-747.79	139.91	-745.01	9.00	9.00	0.00
A Marl									
6,065.88	38.76	0.00	5,949.00	-743.82	139.91	-741.04	9.00	9.00	0.00
Top Upper B									
6,091.97	41.11	0.00	5,969.00	-727.07	139.91	-724.30	9.00	9.00	0.00
Base Upper B									
6,100.00	41.83	0.00	5,975.02	-721.75	139.91	-718.98	9.00	9.00	0.00
6,108.07	42.56	0.00	5,981.00	-716.33	139.91	-713.56	9.00	9.00	0.00
Top Lower B									
6,135.79	45.05	0.00	6,001.00	-697.15	139.91	-694.38	9.00	9.00	0.00
Base Lower B									
6,150.11	46.33	0.00	6,011.00	-686.90	139.91	-684.13	8.94	8.94	0.00
Top B Marl									
6,200.00	50.83	0.00	6,043.99	-649.49	139.91	-646.73	9.02	9.02	0.00
6,231.03	53.63	0.00	6,063.00	-624.96	139.91	-622.20	9.00	9.00	0.00
Top C Chalk									



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Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	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)
6,242.99	54.70	0.00	6,070.00	-615.27	139.91	-612.51	9.00	9.00	0.00
Middle C Chalk									
6,264.27	56.62	0.00	6,082.00	-597.70	139.91	-594.95	9.00	9.00	0.00
Middle C Marl									
6,290.54	58.98	0.00	6,096.00	-575.47	139.91	-572.72	9.00	9.00	0.00
Lower C Chalk									
6,300.00	59.84	0.00	6,100.81	-567.32	139.91	-564.58	9.00	9.00	0.00
6,318.76	61.53	0.00	6,110.00	-550.97	139.91	-548.22	9.00	9.00	0.00
Lower C Marl									
6,400.00	68.84	0.00	6,144.08	-477.28	139.91	-474.55	9.00	9.00	0.00
6,429.23	71.47	0.00	6,154.00	-449.79	139.91	-447.06	9.00	9.00	0.00
Lower C Marker									
6,442.22	72.64	0.00	6,158.00	-437.44	139.91	-434.71	9.00	9.00	0.00
Top Ft. Hays									
6,500.00	77.84	0.00	6,172.72	-381.58	139.91	-378.87	9.00	9.00	0.00
6,506.23	78.40	0.00	6,174.00	-375.48	139.91	-372.77	9.00	9.00	0.00
Ft. Hays Marker									
6,600.00	86.84	0.00	6,186.03	-282.57	139.91	-279.88	9.00	9.00	0.00
6,635.09	90.00	0.00	6,187.00	-247.50	139.91	-244.81	9.00	9.00	0.00
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG									
6,700.00	90.00	0.00	6,187.00	-182.59	139.91	-179.91	0.00	0.00	0.00
6,800.00	90.00	0.00	6,187.00	-82.59	139.91	-79.93	0.00	0.00	0.00
6,900.00	90.00	0.00	6,187.00	17.41	139.91	20.05	0.00	0.00	0.00
7,000.00	90.00	0.00	6,187.00	117.41	139.91	120.03	0.00	0.00	0.00
7,100.00	90.00	0.00	6,187.00	217.41	139.91	220.02	0.00	0.00	0.00
7,200.00	90.00	0.00	6,187.00	317.41	139.91	320.00	0.00	0.00	0.00
7,300.00	90.00	0.00	6,187.00	417.41	139.91	419.98	0.00	0.00	0.00
7,400.00	90.00	0.00	6,187.00	517.41	139.91	519.96	0.00	0.00	0.00
7,500.00	90.00	0.00	6,187.00	617.41	139.91	619.94	0.00	0.00	0.00
7,600.00	90.00	0.00	6,187.00	717.41	139.91	719.93	0.00	0.00	0.00
7,700.00	90.00	0.00	6,187.00	817.41	139.91	819.91	0.00	0.00	0.00
7,800.00	90.00	0.00	6,187.00	917.41	139.91	919.89	0.00	0.00	0.00
7,900.00	90.00	0.00	6,187.00	1,017.41	139.91	1,019.87	0.00	0.00	0.00
8,000.00	90.00	0.00	6,187.00	1,117.41	139.91	1,119.85	0.00	0.00	0.00
8,100.00	90.00	0.00	6,187.00	1,217.41	139.91	1,219.84	0.00	0.00	0.00
8,200.00	90.00	0.00	6,187.00	1,317.41	139.91	1,319.82	0.00	0.00	0.00
8,300.00	90.00	0.00	6,187.00	1,417.41	139.91	1,419.80	0.00	0.00	0.00
8,400.00	90.00	0.00	6,187.00	1,517.41	139.91	1,519.78	0.00	0.00	0.00
8,500.00	90.00	0.00	6,187.00	1,617.41	139.91	1,619.77	0.00	0.00	0.00
8,600.00	90.00	0.00	6,187.00	1,717.41	139.91	1,719.75	0.00	0.00	0.00
8,700.00	90.00	0.00	6,187.00	1,817.41	139.91	1,819.73	0.00	0.00	0.00
8,800.00	90.00	0.00	6,187.00	1,917.41	139.91	1,919.71	0.00	0.00	0.00
8,900.00	90.00	0.00	6,187.00	2,017.41	139.91	2,019.69	0.00	0.00	0.00
9,000.00	90.00	0.00	6,187.00	2,117.41	139.91	2,119.68	0.00	0.00	0.00
9,100.00	90.00	0.00	6,187.00	2,217.41	139.91	2,219.66	0.00	0.00	0.00
9,200.00	90.00	0.00	6,187.00	2,317.41	139.91	2,319.64	0.00	0.00	0.00
9,300.00	90.00	0.00	6,187.00	2,417.41	139.91	2,419.62	0.00	0.00	0.00
9,400.00	90.00	0.00	6,187.00	2,517.41	139.91	2,519.60	0.00	0.00	0.00
9,500.00	90.00	0.00	6,187.00	2,617.41	139.91	2,619.59	0.00	0.00	0.00
9,600.00	90.00	0.00	6,187.00	2,717.41	139.91	2,719.57	0.00	0.00	0.00
9,700.00	90.00	0.00	6,187.00	2,817.41	139.91	2,819.55	0.00	0.00	0.00
9,800.00	90.00	0.00	6,187.00	2,917.41	139.91	2,919.53	0.00	0.00	0.00
9,900.00	90.00	0.00	6,187.00	3,017.41	139.91	3,019.52	0.00	0.00	0.00



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2047
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	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)
10,000.00	90.00	0.00	6,187.00	3,117.41	139.91	3,119.50	0.00	0.00	0.00
10,100.00	90.00	0.00	6,187.00	3,217.41	139.91	3,219.48	0.00	0.00	0.00
10,200.00	90.00	0.00	6,187.00	3,317.41	139.91	3,319.46	0.00	0.00	0.00
10,300.00	90.00	0.00	6,187.00	3,417.41	139.91	3,419.44	0.00	0.00	0.00
10,400.00	90.00	0.00	6,187.00	3,517.41	139.91	3,519.43	0.00	0.00	0.00
10,500.00	90.00	0.00	6,187.00	3,617.41	139.91	3,619.41	0.00	0.00	0.00
10,600.00	90.00	0.00	6,187.00	3,717.41	139.91	3,719.39	0.00	0.00	0.00
10,700.00	90.00	0.00	6,187.00	3,817.41	139.91	3,819.37	0.00	0.00	0.00
10,800.00	90.00	0.00	6,187.00	3,917.41	139.91	3,919.35	0.00	0.00	0.00
10,900.00	90.00	0.00	6,187.00	4,017.41	139.91	4,019.34	0.00	0.00	0.00
11,000.00	90.00	0.00	6,187.00	4,117.41	139.91	4,119.32	0.00	0.00	0.00
11,100.00	90.00	0.00	6,187.00	4,217.41	139.91	4,219.30	0.00	0.00	0.00
11,200.00	90.00	0.00	6,187.00	4,317.41	139.91	4,319.28	0.00	0.00	0.00
11,300.00	90.00	0.00	6,187.00	4,417.41	139.91	4,419.27	0.00	0.00	0.00
11,400.00	90.00	0.00	6,187.00	4,517.41	139.91	4,519.25	0.00	0.00	0.00
11,500.00	90.00	0.00	6,187.00	4,617.41	139.91	4,619.23	0.00	0.00	0.00
11,600.00	90.00	0.00	6,187.00	4,717.41	139.91	4,719.21	0.00	0.00	0.00
11,700.00	90.00	0.00	6,187.00	4,817.41	139.91	4,819.19	0.00	0.00	0.00
11,800.00	90.00	0.00	6,187.00	4,917.41	139.91	4,919.18	0.00	0.00	0.00
11,900.00	90.00	0.00	6,187.00	5,017.41	139.91	5,019.16	0.00	0.00	0.00
12,000.00	90.00	0.00	6,187.00	5,117.41	139.91	5,119.14	0.00	0.00	0.00
12,100.00	90.00	0.00	6,187.00	5,217.41	139.91	5,219.12	0.00	0.00	0.00
12,200.00	90.00	0.00	6,187.00	5,317.41	139.91	5,319.10	0.00	0.00	0.00
12,300.00	90.00	0.00	6,187.00	5,417.41	139.91	5,419.09	0.00	0.00	0.00
12,400.00	90.00	0.00	6,187.00	5,517.41	139.91	5,519.07	0.00	0.00	0.00
12,500.00	90.00	0.00	6,187.00	5,617.41	139.91	5,619.05	0.00	0.00	0.00
12,600.00	90.00	0.00	6,187.00	5,717.41	139.91	5,719.03	0.00	0.00	0.00
12,700.00	90.00	0.00	6,187.00	5,817.41	139.91	5,819.02	0.00	0.00	0.00
12,800.00	90.00	0.00	6,187.00	5,917.41	139.91	5,919.00	0.00	0.00	0.00
12,900.00	90.00	0.00	6,187.00	6,017.41	139.91	6,018.98	0.00	0.00	0.00
13,000.00	90.00	0.00	6,187.00	6,117.41	139.91	6,118.96	0.00	0.00	0.00
13,100.00	90.00	0.00	6,187.00	6,217.41	139.91	6,218.94	0.00	0.00	0.00
13,200.00	90.00	0.00	6,187.00	6,317.41	139.91	6,318.93	0.00	0.00	0.00
13,300.00	90.00	0.00	6,187.00	6,417.41	139.91	6,418.91	0.00	0.00	0.00
13,400.00	90.00	0.00	6,187.00	6,517.41	139.91	6,518.89	0.00	0.00	0.00
13,500.00	90.00	0.00	6,187.00	6,617.41	139.91	6,618.87	0.00	0.00	0.00
13,600.00	90.00	0.00	6,187.00	6,717.41	139.91	6,718.85	0.00	0.00	0.00
13,700.00	90.00	0.00	6,187.00	6,817.41	139.91	6,818.84	0.00	0.00	0.00
13,800.00	90.00	0.00	6,187.00	6,917.41	139.91	6,918.82	0.00	0.00	0.00
13,900.00	90.00	0.00	6,187.00	7,017.41	139.91	7,018.80	0.00	0.00	0.00
14,000.00	90.00	0.00	6,187.00	7,117.41	139.91	7,118.78	0.00	0.00	0.00
14,100.00	90.00	0.00	6,187.00	7,217.41	139.91	7,218.77	0.00	0.00	0.00
14,200.00	90.00	0.00	6,187.00	7,317.41	139.91	7,318.75	0.00	0.00	0.00
14,283.77	90.00	0.00	6,187.00	7,401.18	139.91	7,402.51	0.00	0.00	0.00
TD at 14283.77									



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2047
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
PBHL Razor 29H-2047	0.00	0.00	6,187.00	7,401.18	139.91	1,549,542.71	3,447,574.48	40° 49' 50.410 N	103° 52' 57.380 W
- plan hits target center									
- Point									
Nelson #1	0.00	0.00	6,700.80	2,788.83	207.90	1,544,932.36	3,447,726.56	40° 49' 4.836 N	103° 52' 56.496 W
- plan misses target center by 518.28usft at 9671.41usft MD (6187.00 TVD, 2788.82 N, 139.91 E)									
- Circle (radius 1,550.00)									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(usft)	(usft)	Name	(in)	(in)
	6,635.09	6,187.00	5 1/2" Marker / 7" CSG	7.000	8.750

Formations						
	Measured Depth	Vertical Depth			Dip	Dip Direction
	(usft)	(usft)	Name	Lithology	(°)	(°)
	1,567.24	1,550.00	Upper Pierre			
	3,555.70	3,500.00	Hygiene			
	3,708.66	3,650.00	Lower Pierre			
	5,885.15	5,794.00	P200 Marker			
	5,923.53	5,829.00	P300 Marker			
	5,950.51	5,853.00	P350 Marker			
	5,964.23	5,865.00	Sharon Springs			
	5,967.68	5,868.00	Niobrara			
	5,991.01	5,888.00	Top A Chalk			
	6,033.20	5,923.00	Top A Marl			
	6,059.49	5,944.00	A Marl			
	6,065.88	5,949.00	Top Upper B			
	6,091.97	5,969.00	Base Upper B			
	6,108.07	5,981.00	Top Lower B			
	6,135.79	6,001.00	Base Lower B			
	6,150.11	6,011.00	Top B Marl			
	6,231.03	6,063.00	Top C Chalk			
	6,242.99	6,070.00	Middle C Chalk			
	6,264.27	6,082.00	Middle C Marl			
	6,290.54	6,096.00	Lower C Chalk			
	6,318.76	6,110.00	Lower C Marl			
	6,429.23	6,154.00	Lower C Marker			
	6,442.22	6,158.00	Top Ft. Hays			
	6,506.23	6,174.00	Ft. Hays Marker			



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #29H-2047
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4787.80usft
Project:	Weld County, CO	MD Reference:	KBE @ 4787.80usft
Site:	Sec 29-T10N-R58W	North Reference:	True
Well:	Razor #29H-2047	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Build 2°/100'
864.35	860.71	-54.73	8.66	Hold 11.29° Inc
4,870.93	4,789.79	-829.27	131.25	Drop 2°/100'
5,435.28	5,350.50	-884.00	139.91	Hold Vertical
5,635.28	5,550.50	-884.00	139.91	KOP, Build 9°/100'
6,635.09	6,187.00	-247.50	139.91	LP @ 90° Inc, Hold
14,283.77	6,187.00	7,401.18	139.91	TD at 14283.77