



Project: Weld County, CO
Site: Sec 30-T10N-R58W
Well: Razor #30J-3143
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: 52805.0nT
Dip Angle: 67.34°
Date: 6/16/2016
Model: IGRF2015

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1550.00	1565.33	Upper Pierre
3500.00	3548.54	Hygiene
3650.00	3701.09	Lower Pierre
5715.00	5793.68	P200 Marker
5750.00	5831.86	P300 Marker
5774.00	5858.67	P350 Marker
5786.00	5872.29	Sharon Springs
5789.00	5875.72	Niobrara
5809.00	5898.88	Top A Chalk
5844.00	5940.69	Top A Marl
5865.00	5966.73	A Marl
5870.00	5973.04	Top Upper B
5890.00	5998.82	Base Upper B
5902.00	6014.72	Top Lower B
5922.00	6042.04	Base Lower B
5932.00	6056.14	Top B Marl
5984.00	6135.46	Top C Chalk
5991.00	6147.12	Middle C Chalk
6003.00	6167.82	Middle C Marl
6017.00	6193.28	Lower C Chalk
6031.00	6220.47	Lower C Marl
6075.00	6324.33	Lower C Marker
6079.00	6336.08	Top Ft. Hays
6095.00	6391.20	Ft. Hays Marker
6115.00	6551.18	Top Codell

WELL DETAILS: Razor #30J-3143

+N/-S	+E/-W	Northing	Ground Level:	4838.00	Longitude	Slot
0.00	0.00	1541355.41	Easting	3441234.89	40° 48' 30.660 N	103° 54' 21.750 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	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	824.99	10.50	14.31	822.05	46.48	11.86	2.00	14.31	-46.16	
4	4826.38	10.50	14.31	4756.45	753.02	192.14	0.00	0.00	-747.79	
5	5351.37	0.00	0.00	5278.50	799.50	204.00	2.00	180.00	-793.95	
6	5551.37	0.00	0.00	5478.50	799.50	204.00	0.00	0.00	-793.95	
7	6551.18	90.00	180.10	6115.00	163.00	202.90	9.00	180.10	-157.69	
8	14050.51	90.00	180.10	6115.00	-7336.32	189.99	0.00	0.00	7338.78	PBHL 30J-3143

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VFace	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
822.05	824.99	10.50	14.31	46.48	11.86	-46.16	47.97	Hold 10.50° Inc
4756.45	4826.38	10.50	14.31	753.02	192.14	-747.79	777.15	Drop 2°/100'
5278.50	5351.37	0.00	0.00	799.50	204.00	-793.95	825.12	Hold Vertical
5478.50	5551.37	0.00	0.00	799.50	204.00	-793.95	825.12	KOP Build 9°/100'
6115.00	6551.18	90.00	180.10	163.00	202.90	-157.69	1461.62	LP @ 90° Inc, Hold
6115.00	14050.51	90.00	180.10	-7336.32	189.99	7338.78	8960.94	TD at 14050.51

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 30J-3143	6115.00	-7336.32	189.99	1534023.69	3441556.72	40° 47' 18.170 N	103° 54' 19.280 W
Walker #1	6682.00	-3020.59	114.25	1538337.36	3441403.42	40° 48' 0.813 N	103° 54' 20.264 W

SHL:

2357' FSL, 1955' FEL
Sec30-T10N-R58W

BHL:

300' FSL, 2003' FEL
Sec31-T10N-R58W

5 1/2" Marker / 7" CSG:

2520' FSL, 1753' FEL
Sec30-T10N-R58W

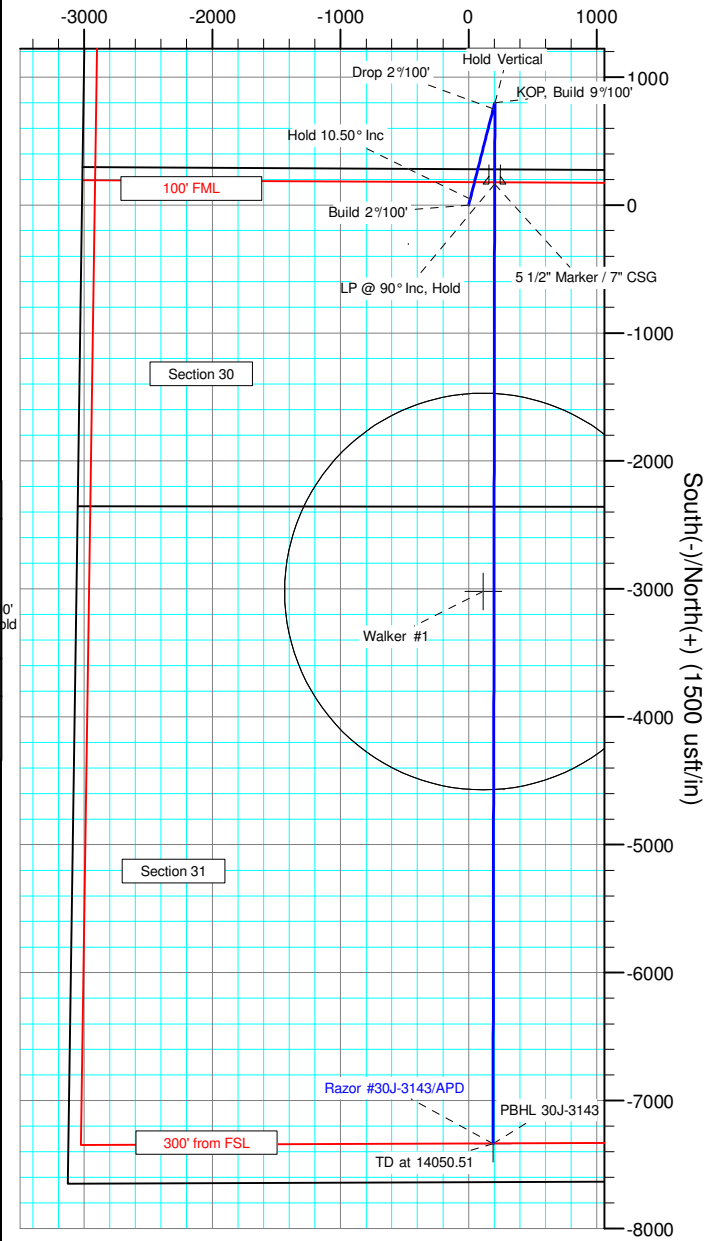
Enter Walker #1

1550' Radius @ 8194' MD

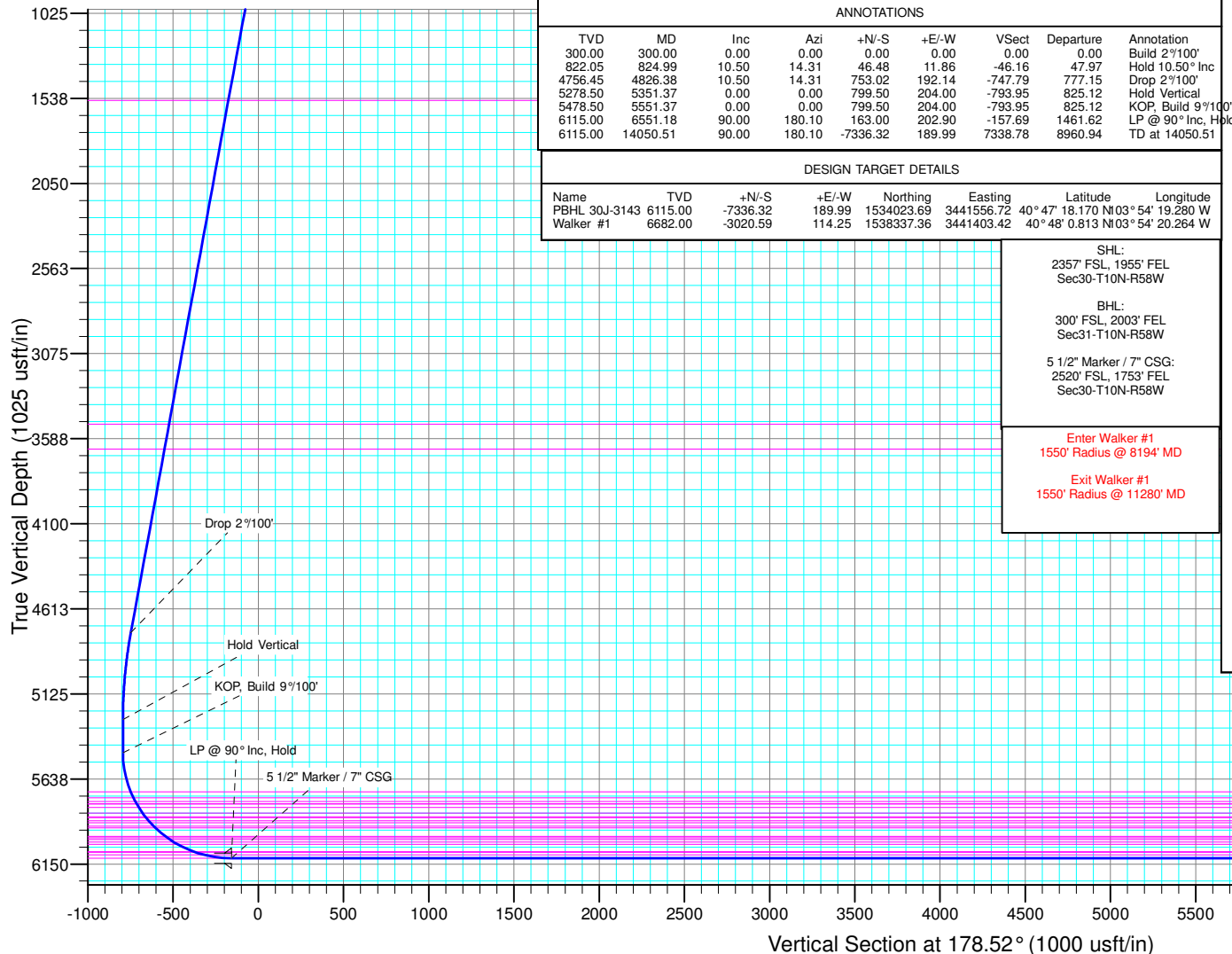
Exit Walker #1

1550' Radius @ 11280' MD

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



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





Whiting Petroleum Corp.

**Weld County, CO
Sec 30-T10N-R58W
Razor #30J-3143**

Hz

Plan: APD

Standard Planning Report

29 August, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30J-3143
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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 30-T10N-R58W			
Site Position:		Northing:	1,538,948.03 usft	Latitude: 40° 48' 7.409 N
From:	Lat/Long	Easting:	3,438,226.87 usft	Longitude: 103° 55' 1.420 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: 1.02 °

Well	Razor #30J-3143			
Well Position	+N/-S	2,353.31 usft	Northing:	1,541,355.41 usft
	+E/-W	3,050.50 usft	Easting:	3,441,234.89 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 4,838.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/16/2016	7.88	67.34	52,805

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	178.52

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	
824.99	10.50	14.31	822.05	46.48	11.86	2.00	2.00	0.00	14.31	
4,826.38	10.50	14.31	4,756.45	753.02	192.14	0.00	0.00	0.00	0.00	
5,351.37	0.00	0.00	5,278.50	799.50	204.00	2.00	-2.00	0.00	180.00	
5,551.37	0.00	0.00	5,478.50	799.50	204.00	0.00	0.00	0.00	0.00	
6,551.18	90.00	180.10	6,115.00	163.00	202.90	9.00	9.00	0.00	180.10	
14,050.51	90.00	180.10	6,115.00	-7,336.32	189.99	0.00	0.00	0.00	0.00	PBHL 30J-3143



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30J-3143
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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	14.31	399.98	1.69	0.43	-1.68	2.00	2.00	0.00
500.00	4.00	14.31	499.84	6.76	1.73	-6.71	2.00	2.00	0.00
600.00	6.00	14.31	599.45	15.21	3.88	-15.10	2.00	2.00	0.00
700.00	8.00	14.31	698.70	27.01	6.89	-26.83	2.00	2.00	0.00
800.00	10.00	14.31	797.47	42.17	10.76	-41.88	2.00	2.00	0.00
824.99	10.50	14.31	822.05	46.48	11.86	-46.16	2.00	2.00	0.00
Hold 10.50° Inc									
900.00	10.50	14.31	895.81	59.72	15.24	-59.31	0.00	0.00	0.00
1,000.00	10.50	14.31	994.14	77.38	19.74	-76.85	0.00	0.00	0.00
1,100.00	10.50	14.31	1,092.46	95.04	24.25	-94.38	0.00	0.00	0.00
1,200.00	10.50	14.31	1,190.79	112.70	28.76	-111.91	0.00	0.00	0.00
1,300.00	10.50	14.31	1,289.11	130.35	33.26	-129.45	0.00	0.00	0.00
1,400.00	10.50	14.31	1,387.44	148.01	37.77	-146.98	0.00	0.00	0.00
1,500.00	10.50	14.31	1,485.76	165.67	42.27	-164.52	0.00	0.00	0.00
1,565.33	10.50	14.31	1,550.00	177.20	45.22	-175.97	0.00	0.00	0.00
Upper Pierre									
1,600.00	10.50	14.31	1,584.09	183.33	46.78	-182.05	0.00	0.00	0.00
1,700.00	10.50	14.31	1,682.42	200.98	51.28	-199.59	0.00	0.00	0.00
1,800.00	10.50	14.31	1,780.74	218.64	55.79	-217.12	0.00	0.00	0.00
1,900.00	10.50	14.31	1,879.07	236.30	60.29	-234.66	0.00	0.00	0.00
2,000.00	10.50	14.31	1,977.39	253.96	64.80	-252.19	0.00	0.00	0.00
2,100.00	10.50	14.31	2,075.72	271.61	69.30	-269.73	0.00	0.00	0.00
2,200.00	10.50	14.31	2,174.04	289.27	73.81	-287.26	0.00	0.00	0.00
2,300.00	10.50	14.31	2,272.37	306.93	78.32	-304.80	0.00	0.00	0.00
2,400.00	10.50	14.31	2,370.69	324.59	82.82	-322.33	0.00	0.00	0.00
2,500.00	10.50	14.31	2,469.02	342.24	87.33	-339.87	0.00	0.00	0.00
2,600.00	10.50	14.31	2,567.35	359.90	91.83	-357.40	0.00	0.00	0.00
2,700.00	10.50	14.31	2,665.67	377.56	96.34	-374.94	0.00	0.00	0.00
2,800.00	10.50	14.31	2,764.00	395.21	100.84	-392.47	0.00	0.00	0.00
2,900.00	10.50	14.31	2,862.32	412.87	105.35	-410.01	0.00	0.00	0.00
3,000.00	10.50	14.31	2,960.65	430.53	109.85	-427.54	0.00	0.00	0.00
3,100.00	10.50	14.31	3,058.97	448.19	114.36	-445.08	0.00	0.00	0.00
3,200.00	10.50	14.31	3,157.30	465.84	118.86	-462.61	0.00	0.00	0.00
3,300.00	10.50	14.31	3,255.62	483.50	123.37	-480.15	0.00	0.00	0.00
3,400.00	10.50	14.31	3,353.95	501.16	127.88	-497.68	0.00	0.00	0.00
3,500.00	10.50	14.31	3,452.28	518.82	132.38	-515.22	0.00	0.00	0.00
3,548.54	10.50	14.31	3,500.00	527.39	134.57	-523.73	0.00	0.00	0.00
Hygiene									
3,600.00	10.50	14.31	3,550.60	536.47	136.89	-532.75	0.00	0.00	0.00
3,700.00	10.50	14.31	3,648.93	554.13	141.39	-550.28	0.00	0.00	0.00
3,701.09	10.50	14.31	3,650.00	554.32	141.44	-550.48	0.00	0.00	0.00
Lower Pierre									
3,800.00	10.50	14.31	3,747.25	571.79	145.90	-567.82	0.00	0.00	0.00
3,900.00	10.50	14.31	3,845.58	589.45	150.40	-585.35	0.00	0.00	0.00
4,000.00	10.50	14.31	3,943.90	607.10	154.91	-602.89	0.00	0.00	0.00
4,100.00	10.50	14.31	4,042.23	624.76	159.41	-620.42	0.00	0.00	0.00
4,200.00	10.50	14.31	4,140.55	642.42	163.92	-637.96	0.00	0.00	0.00
4,300.00	10.50	14.31	4,238.88	660.08	168.42	-655.49	0.00	0.00	0.00
4,400.00	10.50	14.31	4,337.21	677.73	172.93	-673.03	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30J-3143
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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	10.50	14.31	4,435.53	695.39	177.44	-690.56	0.00	0.00	0.00
4,600.00	10.50	14.31	4,533.86	713.05	181.94	-708.10	0.00	0.00	0.00
4,700.00	10.50	14.31	4,632.18	730.70	186.45	-725.63	0.00	0.00	0.00
4,800.00	10.50	14.31	4,730.51	748.36	190.95	-743.17	0.00	0.00	0.00
4,826.38	10.50	14.31	4,756.45	753.02	192.14	-747.79	0.00	0.00	0.00
Drop 2°/100'									
4,900.00	9.03	14.31	4,829.00	765.12	195.23	-759.81	2.00	-2.00	0.00
5,000.00	7.03	14.31	4,928.01	778.65	198.68	-773.24	2.00	-2.00	0.00
5,100.00	5.03	14.31	5,027.46	788.82	201.28	-783.35	2.00	-2.00	0.00
5,200.00	3.03	14.31	5,127.20	795.63	203.01	-790.10	2.00	-2.00	0.00
5,300.00	1.03	14.31	5,227.14	799.05	203.89	-793.51	2.00	-2.00	0.00
5,351.37	0.00	0.00	5,278.50	799.50	204.00	-793.95	2.00	-2.00	0.00
Hold Vertical									
5,400.00	0.00	0.00	5,327.13	799.50	204.00	-793.95	0.00	0.00	0.00
5,500.00	0.00	0.00	5,427.13	799.50	204.00	-793.95	0.00	0.00	0.00
5,551.37	0.00	0.00	5,478.50	799.50	204.00	-793.95	0.00	0.00	0.00
KOP, Build 9°/100'									
5,600.00	4.38	180.10	5,527.09	797.64	204.00	-792.09	9.00	9.00	0.00
5,700.00	13.38	180.10	5,625.79	782.22	203.97	-776.68	9.00	9.00	0.00
5,793.68	21.81	180.10	5,715.00	753.93	203.92	-748.40	9.00	9.00	0.00
P200 Marker									
5,800.00	22.38	180.10	5,720.86	751.55	203.92	-746.02	9.00	9.00	0.00
5,831.86	25.25	180.10	5,750.00	738.69	203.90	-733.16	9.00	9.00	0.00
P300 Marker									
5,858.67	27.66	180.10	5,774.00	726.75	203.87	-721.23	9.00	9.00	0.00
P350 Marker									
5,872.29	28.89	180.10	5,786.00	720.29	203.86	-714.77	9.00	9.00	0.00
Sharon Springs									
5,875.72	29.20	180.10	5,789.00	718.63	203.86	-713.11	9.00	9.00	0.00
Niobrara									
5,898.88	31.28	180.10	5,809.00	706.97	203.84	-701.45	9.00	9.00	0.00
Top A Chalk									
5,900.00	31.38	180.10	5,809.96	706.38	203.84	-700.87	9.00	9.00	0.00
5,940.69	35.05	180.10	5,844.00	684.10	203.80	-678.59	9.00	9.00	0.00
Top A Marl									
5,966.73	37.39	180.10	5,865.00	668.72	203.77	-663.22	9.00	9.00	0.00
A Marl									
5,973.04	37.96	180.10	5,870.00	664.86	203.77	-659.36	9.00	9.00	0.00
Top Upper B									
5,998.82	40.28	180.10	5,890.00	648.59	203.74	-643.10	9.00	9.00	0.00
Base Upper B									
6,000.00	40.38	180.10	5,890.90	647.83	203.74	-642.34	9.00	9.00	0.00
6,014.72	41.71	180.10	5,902.00	638.16	203.72	-632.68	9.00	9.00	0.00
Top Lower B									
6,042.04	44.17	180.10	5,922.00	619.55	203.69	-614.07	9.00	9.00	0.00
Base Lower B									
6,056.14	45.44	180.10	5,932.00	609.62	203.67	-604.14	9.00	9.00	0.00
Top B Marl									
6,100.00	49.39	180.10	5,961.68	577.33	203.62	-571.87	9.00	9.00	0.00
6,135.46	52.58	180.10	5,984.00	549.78	203.57	-544.33	9.00	9.00	0.00
Top C Chalk									
6,147.12	53.63	180.10	5,991.00	540.46	203.55	-535.01	9.00	9.00	0.00



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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)	
Middle C Chalk										
6,167.82	55.49	180.10	6,003.00	523.60	203.53	-518.16	9.00	9.00	0.00	
Middle C Marl										
6,193.28	57.78	180.10	6,017.00	502.34	203.49	-496.90	9.00	9.00	0.00	
Lower C Chalk										
6,200.00	58.39	180.10	6,020.55	496.63	203.48	-491.20	9.00	9.00	0.00	
6,220.47	60.23	180.10	6,031.00	479.03	203.45	-473.60	9.00	9.00	0.00	
Lower C Marl										
6,300.00	67.39	180.10	6,066.08	407.71	203.33	-402.31	9.00	9.00	0.00	
6,324.33	69.58	180.10	6,075.00	385.08	203.29	-379.69	9.00	9.00	0.00	
Lower C Marker										
6,336.08	70.64	180.10	6,079.00	374.03	203.27	-368.64	9.00	9.00	0.00	
Top Ft. Hays										
6,391.20	75.60	180.10	6,095.00	321.30	203.18	-315.94	9.00	9.00	0.00	
Ft. Hays Marker										
6,400.00	76.39	180.10	6,097.13	312.76	203.16	-307.40	9.00	9.00	0.00	
6,500.00	85.39	180.10	6,112.94	214.12	202.99	-208.80	9.00	9.00	0.00	
6,551.18	90.00	180.10	6,115.00	163.00	202.90	-157.69	9.00	9.00	0.00	
LP @ 90° Inc, Hold - Top Codell - 5 1/2" Marker / 7" CSG										
6,600.00	90.00	180.10	6,115.00	114.18	202.82	-108.89	0.00	0.00	0.00	
6,700.00	90.00	180.10	6,115.00	14.18	202.65	-8.93	0.00	0.00	0.00	
6,800.00	90.00	180.10	6,115.00	-85.82	202.48	91.03	0.00	0.00	0.00	
6,900.00	90.00	180.10	6,115.00	-185.82	202.30	190.99	0.00	0.00	0.00	
7,000.00	90.00	180.10	6,115.00	-285.82	202.13	290.96	0.00	0.00	0.00	
7,100.00	90.00	180.10	6,115.00	-385.82	201.96	390.92	0.00	0.00	0.00	
7,200.00	90.00	180.10	6,115.00	-485.82	201.79	490.88	0.00	0.00	0.00	
7,300.00	90.00	180.10	6,115.00	-585.82	201.62	590.84	0.00	0.00	0.00	
7,400.00	90.00	180.10	6,115.00	-685.82	201.44	690.80	0.00	0.00	0.00	
7,500.00	90.00	180.10	6,115.00	-785.82	201.27	790.77	0.00	0.00	0.00	
7,600.00	90.00	180.10	6,115.00	-885.82	201.10	890.73	0.00	0.00	0.00	
7,700.00	90.00	180.10	6,115.00	-985.82	200.93	990.69	0.00	0.00	0.00	
7,800.00	90.00	180.10	6,115.00	-1,085.82	200.75	1,090.65	0.00	0.00	0.00	
7,900.00	90.00	180.10	6,115.00	-1,185.82	200.58	1,190.61	0.00	0.00	0.00	
8,000.00	90.00	180.10	6,115.00	-1,285.82	200.41	1,290.58	0.00	0.00	0.00	
8,100.00	90.00	180.10	6,115.00	-1,385.82	200.24	1,390.54	0.00	0.00	0.00	
8,200.00	90.00	180.10	6,115.00	-1,485.82	200.07	1,490.50	0.00	0.00	0.00	
8,300.00	90.00	180.10	6,115.00	-1,585.82	199.89	1,590.46	0.00	0.00	0.00	
8,400.00	90.00	180.10	6,115.00	-1,685.82	199.72	1,690.42	0.00	0.00	0.00	
8,500.00	90.00	180.10	6,115.00	-1,785.82	199.55	1,790.38	0.00	0.00	0.00	
8,600.00	90.00	180.10	6,115.00	-1,885.82	199.38	1,890.35	0.00	0.00	0.00	
8,700.00	90.00	180.10	6,115.00	-1,985.82	199.21	1,990.31	0.00	0.00	0.00	
8,800.00	90.00	180.10	6,115.00	-2,085.82	199.03	2,090.27	0.00	0.00	0.00	
8,900.00	90.00	180.10	6,115.00	-2,185.82	198.86	2,190.23	0.00	0.00	0.00	
9,000.00	90.00	180.10	6,115.00	-2,285.82	198.69	2,290.19	0.00	0.00	0.00	
9,100.00	90.00	180.10	6,115.00	-2,385.82	198.52	2,390.16	0.00	0.00	0.00	
9,200.00	90.00	180.10	6,115.00	-2,485.82	198.34	2,490.12	0.00	0.00	0.00	
9,300.00	90.00	180.10	6,115.00	-2,585.82	198.17	2,590.08	0.00	0.00	0.00	
9,400.00	90.00	180.10	6,115.00	-2,685.82	198.00	2,690.04	0.00	0.00	0.00	
9,500.00	90.00	180.10	6,115.00	-2,785.82	197.83	2,790.00	0.00	0.00	0.00	
9,600.00	90.00	180.10	6,115.00	-2,885.82	197.66	2,889.97	0.00	0.00	0.00	
9,700.00	90.00	180.10	6,115.00	-2,985.82	197.48	2,989.93	0.00	0.00	0.00	
9,800.00	90.00	180.10	6,115.00	-3,085.82	197.31	3,089.89	0.00	0.00	0.00	
9,900.00	90.00	180.10	6,115.00	-3,185.81	197.14	3,189.85	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30J-3143
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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	180.10	6,115.00	-3,285.81	196.97	3,289.81	0.00	0.00	0.00
10,100.00	90.00	180.10	6,115.00	-3,385.81	196.80	3,389.77	0.00	0.00	0.00
10,200.00	90.00	180.10	6,115.00	-3,485.81	196.62	3,489.74	0.00	0.00	0.00
10,300.00	90.00	180.10	6,115.00	-3,585.81	196.45	3,589.70	0.00	0.00	0.00
10,400.00	90.00	180.10	6,115.00	-3,685.81	196.28	3,689.66	0.00	0.00	0.00
10,500.00	90.00	180.10	6,115.00	-3,785.81	196.11	3,789.62	0.00	0.00	0.00
10,600.00	90.00	180.10	6,115.00	-3,885.81	195.93	3,889.58	0.00	0.00	0.00
10,700.00	90.00	180.10	6,115.00	-3,985.81	195.76	3,989.55	0.00	0.00	0.00
10,800.00	90.00	180.10	6,115.00	-4,085.81	195.59	4,089.51	0.00	0.00	0.00
10,900.00	90.00	180.10	6,115.00	-4,185.81	195.42	4,189.47	0.00	0.00	0.00
11,000.00	90.00	180.10	6,115.00	-4,285.81	195.25	4,289.43	0.00	0.00	0.00
11,100.00	90.00	180.10	6,115.00	-4,385.81	195.07	4,389.39	0.00	0.00	0.00
11,200.00	90.00	180.10	6,115.00	-4,485.81	194.90	4,489.36	0.00	0.00	0.00
11,300.00	90.00	180.10	6,115.00	-4,585.81	194.73	4,589.32	0.00	0.00	0.00
11,400.00	90.00	180.10	6,115.00	-4,685.81	194.56	4,689.28	0.00	0.00	0.00
11,500.00	90.00	180.10	6,115.00	-4,785.81	194.38	4,789.24	0.00	0.00	0.00
11,600.00	90.00	180.10	6,115.00	-4,885.81	194.21	4,889.20	0.00	0.00	0.00
11,700.00	90.00	180.10	6,115.00	-4,985.81	194.04	4,989.16	0.00	0.00	0.00
11,800.00	90.00	180.10	6,115.00	-5,085.81	193.87	5,089.13	0.00	0.00	0.00
11,900.00	90.00	180.10	6,115.00	-5,185.81	193.70	5,189.09	0.00	0.00	0.00
12,000.00	90.00	180.10	6,115.00	-5,285.81	193.52	5,289.05	0.00	0.00	0.00
12,100.00	90.00	180.10	6,115.00	-5,385.81	193.35	5,389.01	0.00	0.00	0.00
12,200.00	90.00	180.10	6,115.00	-5,485.81	193.18	5,488.97	0.00	0.00	0.00
12,300.00	90.00	180.10	6,115.00	-5,585.81	193.01	5,588.94	0.00	0.00	0.00
12,400.00	90.00	180.10	6,115.00	-5,685.81	192.84	5,688.90	0.00	0.00	0.00
12,500.00	90.00	180.10	6,115.00	-5,785.81	192.66	5,788.86	0.00	0.00	0.00
12,600.00	90.00	180.10	6,115.00	-5,885.81	192.49	5,888.82	0.00	0.00	0.00
12,700.00	90.00	180.10	6,115.00	-5,985.81	192.32	5,988.78	0.00	0.00	0.00
12,800.00	90.00	180.10	6,115.00	-6,085.81	192.15	6,088.75	0.00	0.00	0.00
12,900.00	90.00	180.10	6,115.00	-6,185.81	191.97	6,188.71	0.00	0.00	0.00
13,000.00	90.00	180.10	6,115.00	-6,285.81	191.80	6,288.67	0.00	0.00	0.00
13,100.00	90.00	180.10	6,115.00	-6,385.81	191.63	6,388.63	0.00	0.00	0.00
13,200.00	90.00	180.10	6,115.00	-6,485.81	191.46	6,488.59	0.00	0.00	0.00
13,300.00	90.00	180.10	6,115.00	-6,585.81	191.29	6,588.55	0.00	0.00	0.00
13,400.00	90.00	180.10	6,115.00	-6,685.81	191.11	6,688.52	0.00	0.00	0.00
13,500.00	90.00	180.10	6,115.00	-6,785.81	190.94	6,788.48	0.00	0.00	0.00
13,600.00	90.00	180.10	6,115.00	-6,885.81	190.77	6,888.44	0.00	0.00	0.00
13,700.00	90.00	180.10	6,115.00	-6,985.81	190.60	6,988.40	0.00	0.00	0.00
13,800.00	90.00	180.10	6,115.00	-7,085.81	190.43	7,088.36	0.00	0.00	0.00
13,900.00	90.00	180.10	6,115.00	-7,185.81	190.25	7,188.33	0.00	0.00	0.00
14,000.00	90.00	180.10	6,115.00	-7,285.81	190.08	7,288.29	0.00	0.00	0.00
14,050.51	90.00	180.10	6,115.00	-7,336.32	189.99	7,338.78	0.00	0.00	0.00
TD at 14050.51									



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30J-3143
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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 30J-3143	0.00	0.00	6,115.00	-7,336.32	189.99	1,534,023.70	3,441,556.71	40° 47' 18.170 N	103° 54' 19.280 W
- plan hits target center									
- Point									
Walker #1	0.00	0.00	6,682.00	-3,020.59	114.25	1,538,337.37	3,441,403.41	40° 48' 0.813 N	103° 54' 20.264 W
- plan misses target center by 573.07usft at 9734.92usft MD (6115.00 TVD, -3020.73 N, 197.42 E)									
- Circle (radius 1,550.00)									

Casing Points				
Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
(usft)	(usft)	Name	(in)	(in)
6,551.18	6,115.00	5 1/2" Marker / 7" CSG	7.000	8.750

Formations						
Measured Depth	Vertical Depth			Dip	Dip Direction	
(usft)	(usft)	Name	Lithology	(°)	(°)	
1,565.33	1,550.00	Upper Pierre				
3,548.54	3,500.00	Hygiene				
3,701.09	3,650.00	Lower Pierre				
5,793.68	5,715.00	P200 Marker				
5,831.86	5,750.00	P300 Marker				
5,858.67	5,774.00	P350 Marker				
5,872.29	5,786.00	Sharon Springs				
5,875.72	5,789.00	Niobrara				
5,898.88	5,809.00	Top A Chalk				
5,940.69	5,844.00	Top A Marl				
5,966.73	5,865.00	A Marl				
5,973.04	5,870.00	Top Upper B				
5,998.82	5,890.00	Base Upper B				
6,014.72	5,902.00	Top Lower B				
6,042.04	5,922.00	Base Lower B				
6,056.14	5,932.00	Top B Marl				
6,135.46	5,984.00	Top C Chalk				
6,147.12	5,991.00	Middle C Chalk				
6,167.82	6,003.00	Middle C Marl				
6,193.28	6,017.00	Lower C Chalk				
6,220.47	6,031.00	Lower C Marl				
6,324.33	6,075.00	Lower C Marker				
6,336.08	6,079.00	Top Ft. Hays				
6,391.20	6,095.00	Ft. Hays Marker				
6,551.18	6,115.00	Top Codell				



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30J-3143
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4859.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4859.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30J-3143	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'
824.99	822.05	46.48	11.86	Hold 10.50° Inc
4,826.38	4,756.45	753.02	192.14	Drop 2°/100'
5,351.37	5,278.50	799.50	204.00	Hold Vertical
5,551.37	5,478.50	799.50	204.00	KOP, Build 9°/100'
6,551.18	6,115.00	163.00	202.90	LP @ 90° Inc, Hold
14,050.51	6,115.00	-7,336.32	189.99	TD at 14050.51