



Project: Weld County, CO
Site: Sec 30-T10N-R58W
Well: Razor #30I-1913
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: 52809.6nT
Dip Angle: 67.34°
Date: 6/2/2016
Model: IGRF2015

FORMATION TOP DETAILS		
	MDPath	Formation
	1551.12	Upper Pierre
	3503.00	Hygiene
	3653.15	Lower Pierre
	5796.27	P200 Marker
	5858.36	P300 Marker
	5907.36	P350 Marker
	5934.85	Sharon Springs
	5942.14	Niobrara
	6002.83	Top A Chalk
	6208.68	Top A Marl

WELL DETAILS: Razor #30I-1913

+N/-S	+E/-W	Northing	Ground Level:	4862.00	Easting	Latitude	Longitude	Slot
0.00	0.00	1541319.88	3442465.32	40° 48' 30.090 N	103° 54' 5.760 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	425.71	2.51	172.86	425.67	-2.74	0.34	2.00	172.86	-2.74	
4	4883.16	2.51	172.86	4878.83	-196.75	24.66	0.00	-196.79	0.00	
5	5008.87	0.00	0.00	5004.50	-199.49	25.00	2.00	180.00	-199.52	
6	5208.87	0.00	0.00	5204.50	-199.49	25.00	0.00	0.00	-199.52	
7	6208.68	90.00	359.76	5841.00	437.00	22.28	9.00	359.76	436.97	
8	13943.10	90.00	359.76	5841.00	8171.35	-10.76	0.00	0.00	8171.36	PBHL 30I-1913

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'
425.67	425.71	2.51	172.86	-2.74	0.34	-2.74	2.76	Hold 2.51° Inc
4878.83	4883.16	2.51	172.86	-196.75	24.66	-196.79	198.29	Drop 2°/100'
5004.50	5008.87	0.00	0.00	-199.49	25.00	-199.52	201.05	Hold Vertical
5204.50	5208.87	0.00	0.00	-199.49	25.00	-199.52	201.05	KOP Build 9°/100'
5841.00	6208.68	90.00	359.76	437.00	22.28	436.97	837.55	LP @ 90° Inc, Hold
5841.00	13943.10	90.00	359.76	8171.35	-10.76	8171.36	8571.97	TD at 13943.10

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 30I-1913	5841.00	8171.35	-10.76	1549489.71	3442307.28	40° 49' 50.830 N	103° 54' 5.900 W
Nelson Ranches A-5	6655.00	7613.90	1317.31	1548956.28	3443645.19	40° 49' 45.321 N	103° 53' 48.624 W

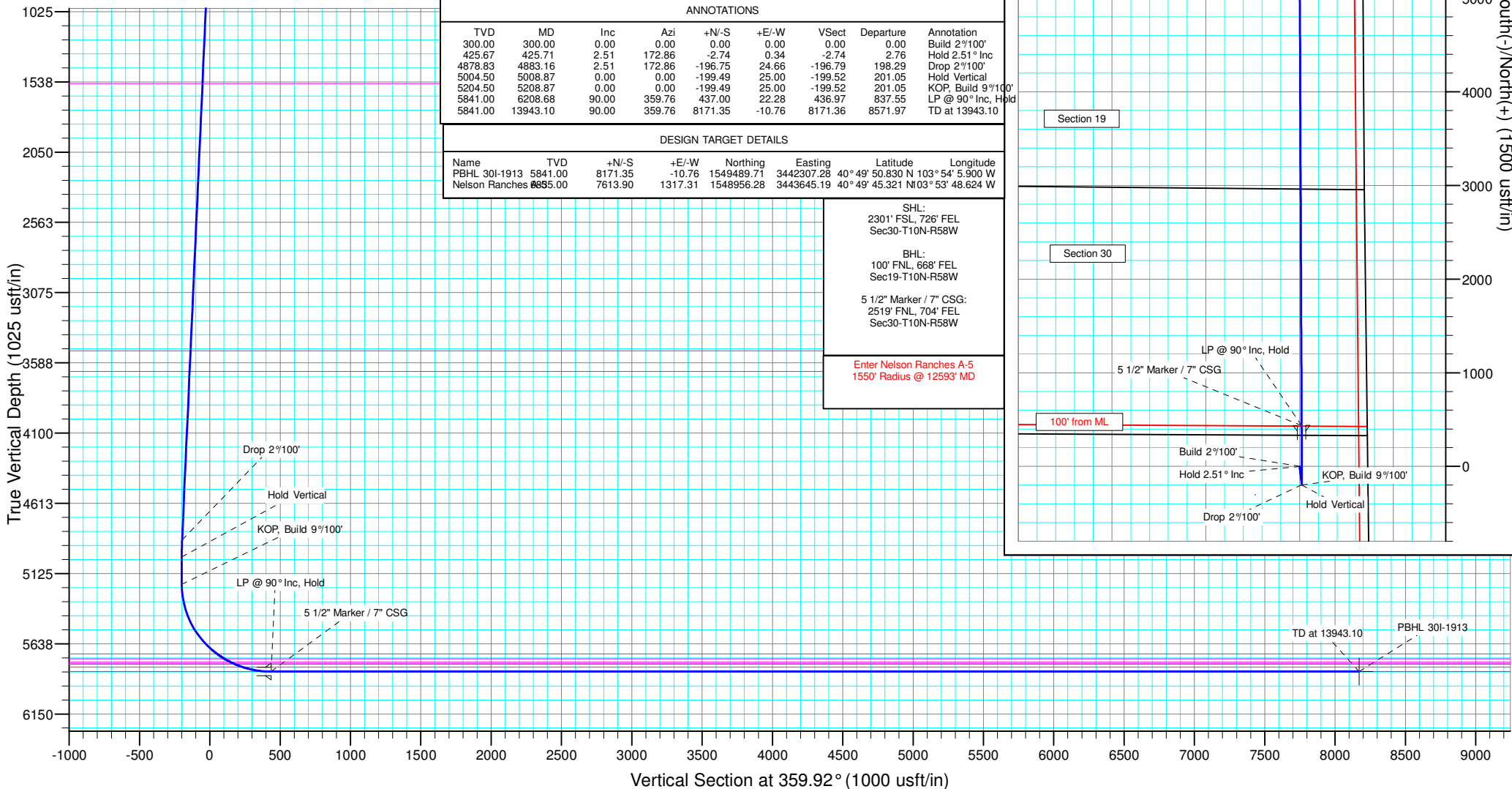
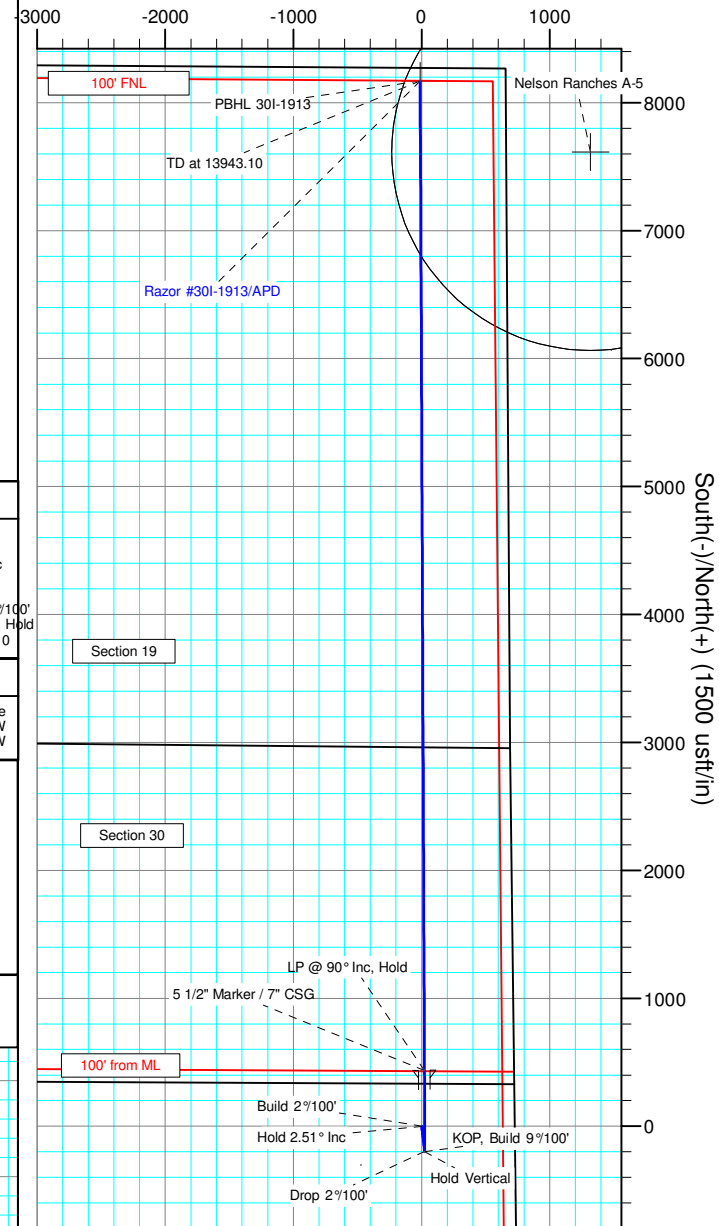
SHL:
2301' FSL, 726' FEL
Sec30-T10N-R58W

BHL:
100' FNL, 668' FEL
Sec19-T10N-R58W

5 1/2" Marker / 7" CSG:
2519' FNL, 704' FEL
Sec30-T10N-R58W

Enter Nelson Ranches A-5
1550' Radius @ 12593' MD

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





Whiting Petroleum Corp.

**Weld County, CO
Sec 30-T10N-R58W
Razor #30I-1913**

Hz

Plan: APD

Standard Planning Report

15 June, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30I-1913
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4883.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4883.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30I-1913	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 #30I-1913			
Well Position	+N/-S	2,295.81 usft	Northing:	1,541,319.88 usft
	+E/-W	4,280.11 usft	Easting:	3,442,465.32 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 4,862.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/2/2016	7.88	67.34	52,810

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	359.92

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	
425.71	2.51	172.86	425.67	-2.74	0.34	2.00	2.00	0.00	172.86	
4,883.16	2.51	172.86	4,878.83	-196.75	24.66	0.00	0.00	0.00	0.00	
5,008.87	0.00	0.00	5,004.50	-199.49	25.00	2.00	-2.00	0.00	180.00	
5,208.87	0.00	0.00	5,204.50	-199.49	25.00	0.00	0.00	0.00	0.00	
6,208.68	90.00	359.76	5,841.00	437.00	22.28	9.00	9.00	0.00	359.76	
13,943.10	90.00	359.76	5,841.00	8,171.35	-10.76	0.00	0.00	0.00	0.00	PBHL 30I-1913



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30I-1913
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4883.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4883.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30I-1913	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	172.86	399.98	-1.73	0.22	-1.73	2.00	2.00	0.00	
425.71	2.51	172.86	425.67	-2.74	0.34	-2.74	2.00	2.00	0.00	
Hold 2.51° Inc										
500.00	2.51	172.86	499.89	-5.97	0.75	-5.97	0.00	0.00	0.00	
600.00	2.51	172.86	599.79	-10.32	1.29	-10.32	0.00	0.00	0.00	
700.00	2.51	172.86	699.70	-14.68	1.84	-14.68	0.00	0.00	0.00	
800.00	2.51	172.86	799.60	-19.03	2.38	-19.03	0.00	0.00	0.00	
900.00	2.51	172.86	899.50	-23.38	2.93	-23.38	0.00	0.00	0.00	
1,000.00	2.51	172.86	999.41	-27.73	3.48	-27.74	0.00	0.00	0.00	
1,100.00	2.51	172.86	1,099.31	-32.09	4.02	-32.09	0.00	0.00	0.00	
1,200.00	2.51	172.86	1,199.21	-36.44	4.57	-36.44	0.00	0.00	0.00	
1,300.00	2.51	172.86	1,299.12	-40.79	5.11	-40.80	0.00	0.00	0.00	
1,400.00	2.51	172.86	1,399.02	-45.14	5.66	-45.15	0.00	0.00	0.00	
1,500.00	2.51	172.86	1,498.93	-49.50	6.20	-49.50	0.00	0.00	0.00	
1,551.12	2.51	172.86	1,550.00	-51.72	6.48	-51.73	0.00	0.00	0.00	
Upper Pierre										
1,600.00	2.51	172.86	1,598.83	-53.85	6.75	-53.86	0.00	0.00	0.00	
1,700.00	2.51	172.86	1,698.73	-58.20	7.29	-58.21	0.00	0.00	0.00	
1,800.00	2.51	172.86	1,798.64	-62.55	7.84	-62.56	0.00	0.00	0.00	
1,900.00	2.51	172.86	1,898.54	-66.91	8.38	-66.92	0.00	0.00	0.00	
2,000.00	2.51	172.86	1,998.44	-71.26	8.93	-71.27	0.00	0.00	0.00	
2,100.00	2.51	172.86	2,098.35	-75.61	9.48	-75.62	0.00	0.00	0.00	
2,200.00	2.51	172.86	2,198.25	-79.96	10.02	-79.98	0.00	0.00	0.00	
2,300.00	2.51	172.86	2,298.16	-84.32	10.57	-84.33	0.00	0.00	0.00	
2,400.00	2.51	172.86	2,398.06	-88.67	11.11	-88.68	0.00	0.00	0.00	
2,500.00	2.51	172.86	2,497.96	-93.02	11.66	-93.04	0.00	0.00	0.00	
2,600.00	2.51	172.86	2,597.87	-97.38	12.20	-97.39	0.00	0.00	0.00	
2,700.00	2.51	172.86	2,697.77	-101.73	12.75	-101.74	0.00	0.00	0.00	
2,800.00	2.51	172.86	2,797.67	-106.08	13.29	-106.10	0.00	0.00	0.00	
2,900.00	2.51	172.86	2,897.58	-110.43	13.84	-110.45	0.00	0.00	0.00	
3,000.00	2.51	172.86	2,997.48	-114.79	14.38	-114.81	0.00	0.00	0.00	
3,100.00	2.51	172.86	3,097.39	-119.14	14.93	-119.16	0.00	0.00	0.00	
3,200.00	2.51	172.86	3,197.29	-123.49	15.48	-123.51	0.00	0.00	0.00	
3,300.00	2.51	172.86	3,297.19	-127.84	16.02	-127.87	0.00	0.00	0.00	
3,400.00	2.51	172.86	3,397.10	-132.20	16.57	-132.22	0.00	0.00	0.00	
3,500.00	2.51	172.86	3,497.00	-136.55	17.11	-136.57	0.00	0.00	0.00	
3,503.00	2.51	172.86	3,500.00	-136.68	17.13	-136.70	0.00	0.00	0.00	
Hygiene										
3,600.00	2.51	172.86	3,596.90	-140.90	17.66	-140.93	0.00	0.00	0.00	
3,653.15	2.51	172.86	3,650.00	-143.22	17.95	-143.24	0.00	0.00	0.00	
Lower Pierre										
3,700.00	2.51	172.86	3,696.81	-145.25	18.20	-145.28	0.00	0.00	0.00	
3,800.00	2.51	172.86	3,796.71	-149.61	18.75	-149.63	0.00	0.00	0.00	
3,900.00	2.51	172.86	3,896.62	-153.96	19.29	-153.99	0.00	0.00	0.00	
4,000.00	2.51	172.86	3,996.52	-158.31	19.84	-158.34	0.00	0.00	0.00	
4,100.00	2.51	172.86	4,096.42	-162.67	20.39	-162.69	0.00	0.00	0.00	
4,200.00	2.51	172.86	4,196.33	-167.02	20.93	-167.05	0.00	0.00	0.00	
4,300.00	2.51	172.86	4,296.23	-171.37	21.48	-171.40	0.00	0.00	0.00	
4,400.00	2.51	172.86	4,396.13	-175.72	22.02	-175.75	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30I-1913
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4883.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4883.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30I-1913	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	2.51	172.86	4,496.04	-180.08	22.57	-180.11	0.00	0.00	0.00
4,600.00	2.51	172.86	4,595.94	-184.43	23.11	-184.46	0.00	0.00	0.00
4,700.00	2.51	172.86	4,695.85	-188.78	23.66	-188.81	0.00	0.00	0.00
4,800.00	2.51	172.86	4,795.75	-193.13	24.20	-193.17	0.00	0.00	0.00
4,883.16	2.51	172.86	4,878.83	-196.75	24.66	-196.79	0.00	0.00	0.00
Drop 2°/100'									
4,900.00	2.18	172.86	4,895.65	-197.44	24.74	-197.47	2.00	-2.00	0.00
5,000.00	0.18	172.86	4,995.63	-199.48	25.00	-199.51	2.00	-2.00	0.00
5,008.87	0.00	0.00	5,004.50	-199.49	25.00	-199.52	2.00	-2.00	0.00
Hold Vertical									
5,100.00	0.00	0.00	5,095.63	-199.49	25.00	-199.52	0.00	0.00	0.00
5,200.00	0.00	0.00	5,195.63	-199.49	25.00	-199.52	0.00	0.00	0.00
5,208.87	0.00	0.00	5,204.50	-199.49	25.00	-199.52	0.00	0.00	0.00
KOP, Build 9°/100'									
5,300.00	8.20	359.76	5,295.32	-192.98	24.97	-193.01	9.00	9.00	0.00
5,400.00	17.20	359.76	5,392.77	-171.01	24.88	-171.04	9.00	9.00	0.00
5,500.00	26.21	359.76	5,485.58	-134.06	24.72	-134.10	9.00	9.00	0.00
5,600.00	35.21	359.76	5,571.47	-83.05	24.50	-83.08	9.00	9.00	0.00
5,700.00	44.21	359.76	5,648.32	-19.23	24.23	-19.26	9.00	9.00	0.00
5,796.27	52.88	359.76	5,712.00	52.85	23.92	52.82	9.00	9.00	0.00
P200 Marker									
5,800.00	53.21	359.76	5,714.24	55.83	23.91	55.80	9.00	9.00	0.00
5,858.36	58.46	359.76	5,747.00	104.10	23.70	104.07	9.00	9.00	0.00
P300 Marker									
5,900.00	62.21	359.76	5,767.60	140.28	23.55	140.25	9.00	9.00	0.00
5,907.36	62.88	359.76	5,771.00	146.82	23.52	146.79	9.00	9.00	0.00
P350 Marker									
5,934.85	65.35	359.76	5,783.00	171.54	23.41	171.51	9.00	9.00	0.00
Sharon Springs									
5,942.14	66.01	359.76	5,786.00	178.18	23.39	178.15	9.00	9.00	0.00
Niobrara									
6,000.00	71.21	359.76	5,807.10	232.04	23.16	232.01	9.00	9.00	0.00
6,002.83	71.47	359.76	5,808.00	234.72	23.14	234.69	9.00	9.00	0.00
Top A Chalk									
6,100.00	80.22	359.76	5,831.74	328.85	22.74	328.82	9.00	9.00	0.00
6,200.00	89.22	359.76	5,840.94	428.32	22.32	428.29	9.00	9.00	0.00
6,208.68	90.00	359.76	5,841.00	437.00	22.28	436.97	9.00	9.00	0.00
LP @ 90° Inc, Hold - Top A Marl - 5 1/2" Marker / 7" CSG									
6,300.00	90.00	359.76	5,841.00	528.32	21.89	528.29	0.00	0.00	0.00
6,400.00	90.00	359.76	5,841.00	628.32	21.46	628.29	0.00	0.00	0.00
6,500.00	90.00	359.76	5,841.00	728.32	21.04	728.29	0.00	0.00	0.00
6,600.00	90.00	359.76	5,841.00	828.32	20.61	828.29	0.00	0.00	0.00
6,700.00	90.00	359.76	5,841.00	928.32	20.18	928.29	0.00	0.00	0.00
6,800.00	90.00	359.76	5,841.00	1,028.32	19.75	1,028.29	0.00	0.00	0.00
6,900.00	90.00	359.76	5,841.00	1,128.31	19.33	1,128.29	0.00	0.00	0.00
7,000.00	90.00	359.76	5,841.00	1,228.31	18.90	1,228.29	0.00	0.00	0.00
7,100.00	90.00	359.76	5,841.00	1,328.31	18.47	1,328.29	0.00	0.00	0.00
7,200.00	90.00	359.76	5,841.00	1,428.31	18.05	1,428.29	0.00	0.00	0.00
7,300.00	90.00	359.76	5,841.00	1,528.31	17.62	1,528.29	0.00	0.00	0.00
7,400.00	90.00	359.76	5,841.00	1,628.31	17.19	1,628.29	0.00	0.00	0.00
7,500.00	90.00	359.76	5,841.00	1,728.31	16.76	1,728.29	0.00	0.00	0.00
7,600.00	90.00	359.76	5,841.00	1,828.31	16.34	1,828.29	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30I-1913
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4883.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4883.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30I-1913	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)
7,700.00	90.00	359.76	5,841.00	1,928.31	15.91	1,928.28	0.00	0.00	0.00
7,800.00	90.00	359.76	5,841.00	2,028.31	15.48	2,028.28	0.00	0.00	0.00
7,900.00	90.00	359.76	5,841.00	2,128.31	15.06	2,128.28	0.00	0.00	0.00
8,000.00	90.00	359.76	5,841.00	2,228.30	14.63	2,228.28	0.00	0.00	0.00
8,100.00	90.00	359.76	5,841.00	2,328.30	14.20	2,328.28	0.00	0.00	0.00
8,200.00	90.00	359.76	5,841.00	2,428.30	13.77	2,428.28	0.00	0.00	0.00
8,300.00	90.00	359.76	5,841.00	2,528.30	13.35	2,528.28	0.00	0.00	0.00
8,400.00	90.00	359.76	5,841.00	2,628.30	12.92	2,628.28	0.00	0.00	0.00
8,500.00	90.00	359.76	5,841.00	2,728.30	12.49	2,728.28	0.00	0.00	0.00
8,600.00	90.00	359.76	5,841.00	2,828.30	12.06	2,828.28	0.00	0.00	0.00
8,700.00	90.00	359.76	5,841.00	2,928.30	11.64	2,928.28	0.00	0.00	0.00
8,800.00	90.00	359.76	5,841.00	3,028.30	11.21	3,028.28	0.00	0.00	0.00
8,900.00	90.00	359.76	5,841.00	3,128.30	10.78	3,128.28	0.00	0.00	0.00
9,000.00	90.00	359.76	5,841.00	3,228.30	10.36	3,228.28	0.00	0.00	0.00
9,100.00	90.00	359.76	5,841.00	3,328.29	9.93	3,328.28	0.00	0.00	0.00
9,200.00	90.00	359.76	5,841.00	3,428.29	9.50	3,428.28	0.00	0.00	0.00
9,300.00	90.00	359.76	5,841.00	3,528.29	9.07	3,528.28	0.00	0.00	0.00
9,400.00	90.00	359.76	5,841.00	3,628.29	8.65	3,628.28	0.00	0.00	0.00
9,500.00	90.00	359.76	5,841.00	3,728.29	8.22	3,728.28	0.00	0.00	0.00
9,600.00	90.00	359.76	5,841.00	3,828.29	7.79	3,828.28	0.00	0.00	0.00
9,700.00	90.00	359.76	5,841.00	3,928.29	7.37	3,928.28	0.00	0.00	0.00
9,800.00	90.00	359.76	5,841.00	4,028.29	6.94	4,028.28	0.00	0.00	0.00
9,900.00	90.00	359.76	5,841.00	4,128.29	6.51	4,128.28	0.00	0.00	0.00
10,000.00	90.00	359.76	5,841.00	4,228.29	6.08	4,228.27	0.00	0.00	0.00
10,100.00	90.00	359.76	5,841.00	4,328.29	5.66	4,328.27	0.00	0.00	0.00
10,200.00	90.00	359.76	5,841.00	4,428.28	5.23	4,428.27	0.00	0.00	0.00
10,300.00	90.00	359.76	5,841.00	4,528.28	4.80	4,528.27	0.00	0.00	0.00
10,400.00	90.00	359.76	5,841.00	4,628.28	4.37	4,628.27	0.00	0.00	0.00
10,500.00	90.00	359.76	5,841.00	4,728.28	3.95	4,728.27	0.00	0.00	0.00
10,600.00	90.00	359.76	5,841.00	4,828.28	3.52	4,828.27	0.00	0.00	0.00
10,700.00	90.00	359.76	5,841.00	4,928.28	3.09	4,928.27	0.00	0.00	0.00
10,800.00	90.00	359.76	5,841.00	5,028.28	2.67	5,028.27	0.00	0.00	0.00
10,900.00	90.00	359.76	5,841.00	5,128.28	2.24	5,128.27	0.00	0.00	0.00
11,000.00	90.00	359.76	5,841.00	5,228.28	1.81	5,228.27	0.00	0.00	0.00
11,100.00	90.00	359.76	5,841.00	5,328.28	1.38	5,328.27	0.00	0.00	0.00
11,200.00	90.00	359.76	5,841.00	5,428.28	0.96	5,428.27	0.00	0.00	0.00
11,300.00	90.00	359.76	5,841.00	5,528.27	0.53	5,528.27	0.00	0.00	0.00
11,400.00	90.00	359.76	5,841.00	5,628.27	0.10	5,628.27	0.00	0.00	0.00
11,500.00	90.00	359.76	5,841.00	5,728.27	-0.32	5,728.27	0.00	0.00	0.00
11,600.00	90.00	359.76	5,841.00	5,828.27	-0.75	5,828.27	0.00	0.00	0.00
11,700.00	90.00	359.76	5,841.00	5,928.27	-1.18	5,928.27	0.00	0.00	0.00
11,800.00	90.00	359.76	5,841.00	6,028.27	-1.61	6,028.27	0.00	0.00	0.00
11,900.00	90.00	359.76	5,841.00	6,128.27	-2.03	6,128.27	0.00	0.00	0.00
12,000.00	90.00	359.76	5,841.00	6,228.27	-2.46	6,228.27	0.00	0.00	0.00
12,100.00	90.00	359.76	5,841.00	6,328.27	-2.89	6,328.27	0.00	0.00	0.00
12,200.00	90.00	359.76	5,841.00	6,428.27	-3.32	6,428.27	0.00	0.00	0.00
12,300.00	90.00	359.76	5,841.00	6,528.27	-3.74	6,528.26	0.00	0.00	0.00
12,400.00	90.00	359.76	5,841.00	6,628.26	-4.17	6,628.26	0.00	0.00	0.00
12,500.00	90.00	359.76	5,841.00	6,728.26	-4.60	6,728.26	0.00	0.00	0.00
12,600.00	90.00	359.76	5,841.00	6,828.26	-5.02	6,828.26	0.00	0.00	0.00
12,700.00	90.00	359.76	5,841.00	6,928.26	-5.45	6,928.26	0.00	0.00	0.00
12,800.00	90.00	359.76	5,841.00	7,028.26	-5.88	7,028.26	0.00	0.00	0.00
12,900.00	90.00	359.76	5,841.00	7,128.26	-6.31	7,128.26	0.00	0.00	0.00
13,000.00	90.00	359.76	5,841.00	7,228.26	-6.73	7,228.26	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30I-1913
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4883.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4883.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30I-1913	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)
13,100.00	90.00	359.76	5,841.00	7,328.26	-7.16	7,328.26	0.00	0.00	0.00
13,200.00	90.00	359.76	5,841.00	7,428.26	-7.59	7,428.26	0.00	0.00	0.00
13,300.00	90.00	359.76	5,841.00	7,528.26	-8.01	7,528.26	0.00	0.00	0.00
13,400.00	90.00	359.76	5,841.00	7,628.26	-8.44	7,628.26	0.00	0.00	0.00
13,500.00	90.00	359.76	5,841.00	7,728.25	-8.87	7,728.26	0.00	0.00	0.00
13,600.00	90.00	359.76	5,841.00	7,828.25	-9.30	7,828.26	0.00	0.00	0.00
13,700.00	90.00	359.76	5,841.00	7,928.25	-9.72	7,928.26	0.00	0.00	0.00
13,800.00	90.00	359.76	5,841.00	8,028.25	-10.15	8,028.26	0.00	0.00	0.00
13,900.00	90.00	359.76	5,841.00	8,128.25	-10.58	8,128.26	0.00	0.00	0.00
13,943.10	90.00	359.76	5,841.00	8,171.35	-10.76	8,171.36	0.00	0.00	0.00
TD at 13943.10									

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									
PBHL 30I-1913	0.00	0.00	5,841.00	8,171.35	-10.76	1,549,489.71	3,442,307.28	40° 49' 50.830 N	103° 54' 5.900 W
- plan hits target center									
- Point									
Nelson Ranches A-5	0.00	0.00	6,835.00	7,613.90	1,317.31	1,548,956.28	3,443,645.19	40° 49' 45.321 N	103° 53' 48.624 W
- plan misses target center by 1656.95usft at 13379.98usft MD (5841.00 TVD, 7608.23 N, -8.36 E)									
- Circle (radius 1,550.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,208.68	5,841.00	5 1/2" Marker / 7" CSG	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,551.12	1,550.00	Upper Pierre				
3,503.00	3,500.00	Hygiene				
3,653.15	3,650.00	Lower Pierre				
5,796.27	5,712.00	P200 Marker				
5,858.36	5,747.00	P300 Marker				
5,907.36	5,771.00	P350 Marker				
5,934.85	5,783.00	Sharon Springs				
5,942.14	5,786.00	Niobrara				
6,002.83	5,808.00	Top A Chalk				
6,208.68	5,841.00	Top A Marl				



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #30I-1913
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4883.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4883.00usft
Site:	Sec 30-T10N-R58W	North Reference:	True
Well:	Razor #30I-1913	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'
425.71	425.67	-2.74	0.34	Hold 2.51° Inc
4,883.16	4,878.83	-196.75	24.66	Drop 2°/100'
5,008.87	5,004.50	-199.49	25.00	Hold Vertical
5,208.87	5,204.50	-199.49	25.00	KOP, Build 9°/100'
6,208.68	5,841.00	437.00	22.28	LP @ 90° Inc, Hold
13,943.10	5,841.00	8,171.35	-10.76	TD at 13943.10