



Project: Weld County, CO
Site: Sec 25-T10N-R58W
Well: Razor #25P-2445
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: 53020.9nT
Dip Angle: 67.38°
Date: 5/27/2015
Model: IGRF2010

FORMATION TOP DETAILS

MDPath	Formation
1550.00	Upper Pierre
1566.54	Hygiene
3500.00	Lower Pierre
3553.03	P200 Marker
3650.00	P300 Marker
5444.00	P350 Marker
5527.45	Sharon Springs
5464.00	Niobrara
5550.14	Top A Marl
5568.70	A Marl
5494.00	Top Upper B
5585.28	Upper B
5498.00	Base Upper B
5610.82	Top Lower B
5545.00	Lower B
5649.00	Base Lower B
5557.00	Top B Marl
5664.95	C Marl
5565.00	Top C Chalk
5675.82	Middle C Chalk
5589.00	Base C Chalk
5709.84	Lower C Chalk
5605.00	
5733.90	
5634.00	
5781.28	
5647.00	
5804.61	
5689.00	
5895.40	
5697.00	
5917.33	
5711.00	
5963.53	
5729.00	
6100.85	

WELL DETAILS: Razor #25P-2445

+N/-S	+E/-W	Northing	Ground Level: 4741.00	Eastings	Latitude	Longitude	Slot
0.00	0.00	1539996.30	3469089.09	40° 48' 12.130 N	103° 48' 19.930 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	850.00	11.00	260.00	846.63	-9.14	-51.83	2.00	260.00	-5.06	
4	4540.00	11.00	260.00	4468.63	-131.40	-745.22	0.00	0.00	-72.78	
5	5090.00	0.00	0.00	5015.46	-140.54	-797.06	2.00	180.00	-77.84	
6	5282.67	0.00	0.00	5208.13	-140.54	-797.06	0.00	0.00	-77.84	
7	6100.85	90.00	360.00	5729.00	380.33	-797.10	11.00	360.00	441.44	PBHL 2445
8	15902.83	90.00	360.00	5729.00	10182.31	-797.93	0.00	0.00	10213.53	PBHL 2445

ANNOTATIONS

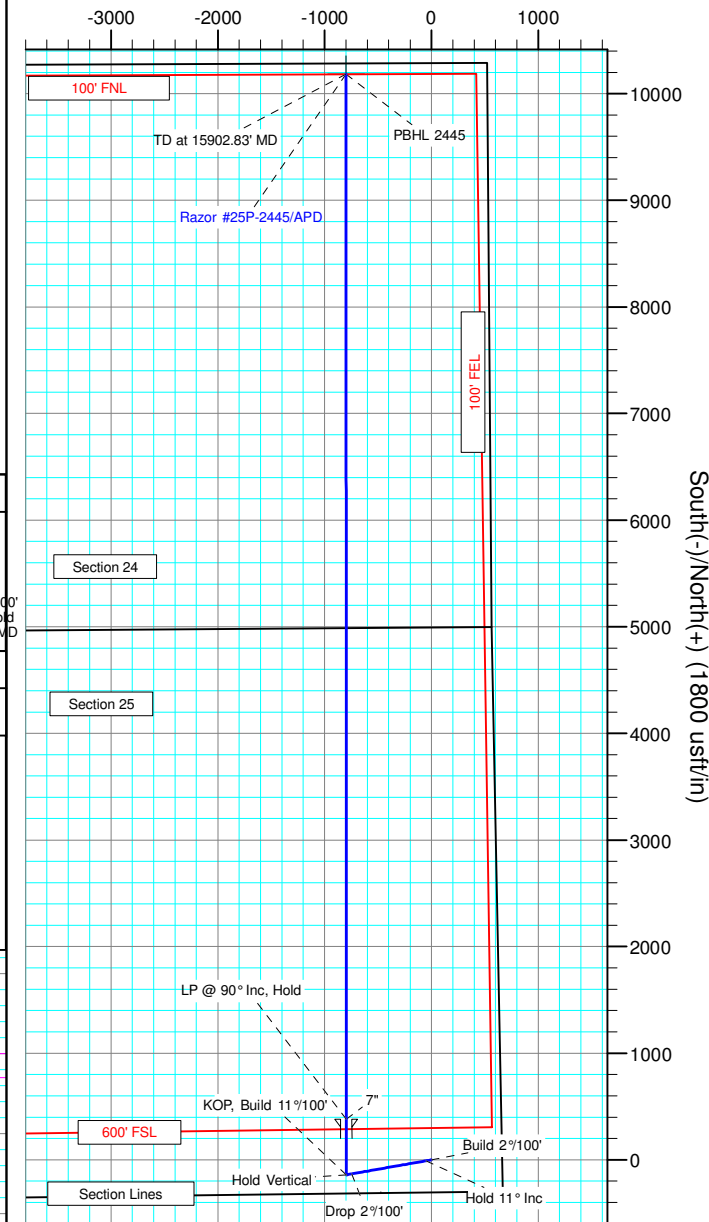
TVD	MD	Inc	Azi	+N/-S	+E/-W	VFace	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
846.63	850.00	11.00	260.00	-9.14	-51.83	-5.06	52.63	Hold 11° Inc
4468.63	4540.00	11.00	260.00	-131.40	-745.22	-72.78	756.72	Drop 2°/100'
5015.46	5090.00	0.00	0.00	-140.54	-797.06	-77.84	809.35	Hold Vertical
5208.13	5282.67	0.00	0.00	-140.54	-797.06	-77.84	809.35	KOP, Build 11°/100'
5729.00	6100.85	90.00	360.00	380.33	-797.10	441.44	1330.22	LP @ 90° Inc, Hold
5729.00	15902.83	90.00	360.00	10182.31	-797.93	10213.53	11132.21	TD at 15902.83' MD

DESIGN TARGET DETAILS

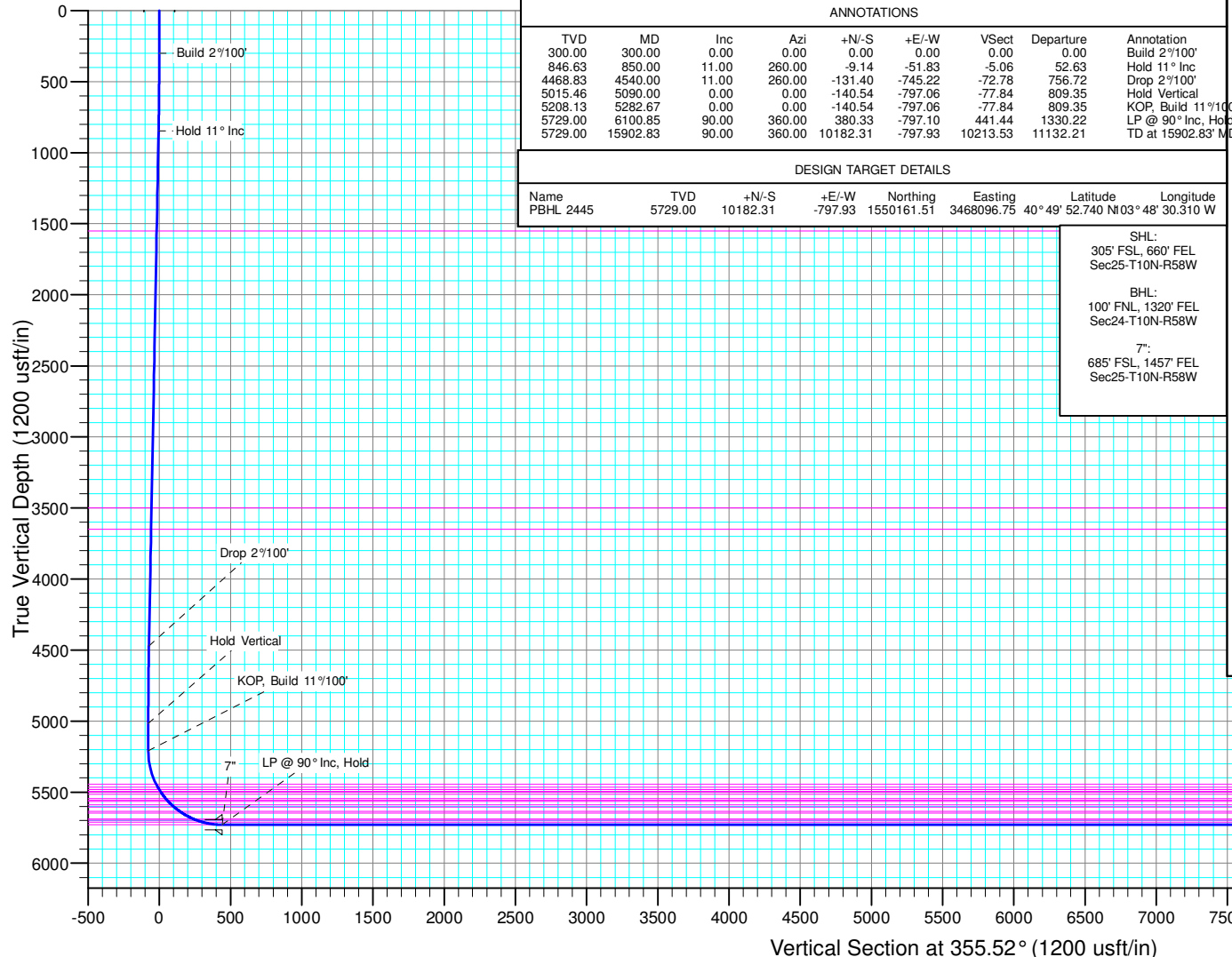
Name	TVD	+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude
PBHL 2445	5729.00	10182.31	-797.93	1550161.51	3468096.75	40° 49' 52.740 N	103° 48' 30.310 W

SHL:
305' FSL, 660' FEL
Sec25-T10N-R58W
BHL:
100' FNL, 1320' FEL
Sec24-T10N-R58W
7":
685' FSL, 1457' FEL
Sec25-T10N-R58W

West(-)/East(+) (1800 usft/in)



South(-)/North(+) (1800 usft/in)





Whiting Petroleum Corp.

**Weld County, CO
Sec 25-T10N-R58W
Razor #25P-2445**

Hz

Plan: APD

Standard Planning Report

27 May, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25P-2445
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4762.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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 25-T10N-R58W			
Site Position:		Northing:	1,544,564.45 usft	Latitude: 40° 48' 58.050 N
From:	Lat/Long	Easting:	3,464,883.62 usft	Longitude: 103° 49' 13.480 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: 1.09 °

Well	Razor #25P-2445			
Well Position	+N/-S	-4,646.98 usft	Northing:	1,539,996.31 usft
	+E/-W	4,118.19 usft	Easting:	3,469,089.09 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 4,741.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/27/2015	7.83	67.38	53,021

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	355.52

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	
850.00	11.00	260.00	846.63	-9.14	-51.83	2.00	2.00	0.00	260.00	
4,540.00	11.00	260.00	4,468.83	-131.40	-745.22	0.00	0.00	0.00	0.00	
5,090.00	0.00	0.00	5,015.46	-140.54	-797.06	2.00	-2.00	0.00	180.00	
5,282.67	0.00	0.00	5,208.13	-140.54	-797.06	0.00	0.00	0.00	0.00	
6,100.85	90.00	360.00	5,729.00	380.33	-797.10	11.00	11.00	0.00	360.00	PBHL 2445
15,902.83	90.00	360.00	5,729.00	10,182.31	-797.93	0.00	0.00	0.00	0.00	PBHL 2445



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25P-2445
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4762.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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	260.00	399.98	-0.30	-1.72	-0.17	2.00	2.00	0.00
500.00	4.00	260.00	499.84	-1.21	-6.87	-0.67	2.00	2.00	0.00
600.00	6.00	260.00	599.45	-2.73	-15.46	-1.51	2.00	2.00	0.00
700.00	8.00	260.00	698.70	-4.84	-27.46	-2.68	2.00	2.00	0.00
800.00	10.00	260.00	797.47	-7.56	-42.86	-4.19	2.00	2.00	0.00
850.00	11.00	260.00	846.63	-9.14	-51.83	-5.06	2.00	2.00	0.00
Hold 11° Inc									
900.00	11.00	260.00	895.71	-10.80	-61.23	-5.98	0.00	0.00	0.00
1,000.00	11.00	260.00	993.87	-14.11	-80.02	-7.82	0.00	0.00	0.00
1,100.00	11.00	260.00	1,092.03	-17.42	-98.81	-9.65	0.00	0.00	0.00
1,200.00	11.00	260.00	1,190.20	-20.74	-117.60	-11.49	0.00	0.00	0.00
1,300.00	11.00	260.00	1,288.36	-24.05	-136.39	-13.32	0.00	0.00	0.00
1,400.00	11.00	260.00	1,386.52	-27.36	-155.19	-15.16	0.00	0.00	0.00
1,500.00	11.00	260.00	1,484.69	-30.68	-173.98	-16.99	0.00	0.00	0.00
1,566.54	11.00	260.00	1,550.00	-32.88	-186.48	-18.21	0.00	0.00	0.00
Upper Pierre									
1,600.00	11.00	260.00	1,582.85	-33.99	-192.77	-18.83	0.00	0.00	0.00
1,700.00	11.00	260.00	1,681.01	-37.30	-211.56	-20.66	0.00	0.00	0.00
1,800.00	11.00	260.00	1,779.17	-40.62	-230.35	-22.50	0.00	0.00	0.00
1,900.00	11.00	260.00	1,877.34	-43.93	-249.14	-24.33	0.00	0.00	0.00
2,000.00	11.00	260.00	1,975.50	-47.24	-267.93	-26.17	0.00	0.00	0.00
2,100.00	11.00	260.00	2,073.66	-50.56	-286.72	-28.00	0.00	0.00	0.00
2,200.00	11.00	260.00	2,171.82	-53.87	-305.51	-29.84	0.00	0.00	0.00
2,300.00	11.00	260.00	2,269.99	-57.18	-324.30	-31.67	0.00	0.00	0.00
2,400.00	11.00	260.00	2,368.15	-60.50	-343.10	-33.51	0.00	0.00	0.00
2,500.00	11.00	260.00	2,466.31	-63.81	-361.89	-35.34	0.00	0.00	0.00
2,600.00	11.00	260.00	2,564.48	-67.12	-380.68	-37.18	0.00	0.00	0.00
2,700.00	11.00	260.00	2,662.64	-70.44	-399.47	-39.01	0.00	0.00	0.00
2,800.00	11.00	260.00	2,760.80	-73.75	-418.26	-40.85	0.00	0.00	0.00
2,900.00	11.00	260.00	2,858.96	-77.06	-437.05	-42.68	0.00	0.00	0.00
3,000.00	11.00	260.00	2,957.13	-80.38	-455.84	-44.52	0.00	0.00	0.00
3,100.00	11.00	260.00	3,055.29	-83.69	-474.63	-46.35	0.00	0.00	0.00
3,200.00	11.00	260.00	3,153.45	-87.00	-493.42	-48.19	0.00	0.00	0.00
3,300.00	11.00	260.00	3,251.61	-90.32	-512.21	-50.02	0.00	0.00	0.00
3,400.00	11.00	260.00	3,349.78	-93.63	-531.01	-51.86	0.00	0.00	0.00
3,500.00	11.00	260.00	3,447.94	-96.94	-549.80	-53.69	0.00	0.00	0.00
3,553.03	11.00	260.00	3,500.00	-98.70	-559.76	-54.67	0.00	0.00	0.00
Hygiene									
3,600.00	11.00	260.00	3,546.10	-100.26	-568.59	-55.53	0.00	0.00	0.00
3,700.00	11.00	260.00	3,644.27	-103.57	-587.38	-57.37	0.00	0.00	0.00
3,705.84	11.00	260.00	3,650.00	-103.76	-588.48	-57.47	0.00	0.00	0.00
Lower Pierre									
3,800.00	11.00	260.00	3,742.43	-106.88	-606.17	-59.20	0.00	0.00	0.00
3,900.00	11.00	260.00	3,840.59	-110.20	-624.96	-61.04	0.00	0.00	0.00
4,000.00	11.00	260.00	3,938.75	-113.51	-643.75	-62.87	0.00	0.00	0.00
4,100.00	11.00	260.00	4,036.92	-116.82	-662.54	-64.71	0.00	0.00	0.00
4,200.00	11.00	260.00	4,135.08	-120.14	-681.33	-66.54	0.00	0.00	0.00
4,300.00	11.00	260.00	4,233.24	-123.45	-700.12	-68.38	0.00	0.00	0.00
4,400.00	11.00	260.00	4,331.40	-126.76	-718.92	-70.21	0.00	0.00	0.00



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25P-2445
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4762.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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	11.00	260.00	4,429.57	-130.08	-737.71	-72.05	0.00	0.00	0.00
4,540.00	11.00	260.00	4,468.83	-131.40	-745.22	-72.78	0.00	0.00	0.00
Drop 2°/100'									
4,600.00	9.80	260.00	4,527.85	-133.28	-755.89	-73.82	2.00	-2.00	0.00
4,700.00	7.80	260.00	4,626.66	-135.94	-770.96	-75.29	2.00	-2.00	0.00
4,800.00	5.80	260.00	4,725.95	-138.00	-782.61	-76.43	2.00	-2.00	0.00
4,900.00	3.80	260.00	4,825.60	-139.45	-790.86	-77.24	2.00	-2.00	0.00
5,000.00	1.80	260.00	4,925.47	-140.30	-795.67	-77.71	2.00	-2.00	0.00
5,090.00	0.00	0.00	5,015.46	-140.54	-797.06	-77.84	2.00	-2.00	0.00
Hold Vertical									
5,100.00	0.00	0.00	5,025.46	-140.54	-797.06	-77.84	0.00	0.00	0.00
5,200.00	0.00	0.00	5,125.46	-140.54	-797.06	-77.84	0.00	0.00	0.00
5,282.67	0.00	0.00	5,208.13	-140.54	-797.06	-77.84	0.00	0.00	0.00
KOP, Build 11°/100'									
5,300.00	1.91	360.00	5,225.46	-140.25	-797.06	-77.56	11.00	11.00	0.00
5,350.00	7.41	360.00	5,275.27	-136.20	-797.06	-73.51	11.00	11.00	0.00
5,400.00	12.91	360.00	5,324.47	-127.38	-797.06	-64.72	11.00	11.00	0.00
5,450.00	18.41	360.00	5,372.60	-113.89	-797.06	-51.28	11.00	11.00	0.00
5,500.00	23.91	360.00	5,419.21	-95.86	-797.06	-33.29	11.00	11.00	0.00
5,527.45	26.93	360.00	5,444.00	-84.08	-797.06	-21.55	11.00	11.00	0.00
P200 Marker									
5,550.00	29.41	360.00	5,463.88	-73.43	-797.06	-10.94	11.00	11.00	0.00
5,550.14	29.41	360.00	5,464.00	-73.36	-797.06	-10.87	0.00	0.00	0.00
P300 Marker									
5,568.70	31.46	360.00	5,480.00	-63.96	-797.06	-1.49	11.08	11.08	0.00
P350 Marker									
5,585.28	33.29	360.00	5,494.00	-55.08	-797.06	7.36	11.00	11.00	0.00
Sharon Springs									
5,590.08	33.82	360.00	5,498.00	-52.43	-797.07	10.00	11.00	11.00	0.00
Niobrara									
5,600.00	34.91	360.00	5,506.19	-46.83	-797.07	15.58	11.00	11.00	0.00
5,610.82	36.10	360.00	5,515.00	-40.55	-797.07	21.85	11.00	11.00	0.00
Top A Chalk									
5,649.00	40.30	360.00	5,545.00	-16.94	-797.07	45.38	11.00	11.00	0.00
Top A Marl									
5,650.00	40.41	360.00	5,545.76	-16.30	-797.07	46.02	11.00	11.00	0.00
5,664.95	42.05	360.00	5,557.00	-6.45	-797.07	55.84	11.00	11.00	0.00
A Marl									
5,675.82	43.25	360.00	5,565.00	0.92	-797.07	63.19	11.00	11.00	0.00
Top Upper B									
5,700.00	45.91	360.00	5,582.22	17.89	-797.07	80.11	11.00	11.00	0.00
5,709.84	46.99	360.00	5,589.00	25.02	-797.07	87.22	11.00	11.00	0.00
Base Upper B									
5,733.90	49.64	360.00	5,605.00	42.99	-797.07	105.13	11.00	11.00	0.00
Top Lower B									
5,750.00	51.41	360.00	5,615.24	55.41	-797.07	117.52	11.00	11.00	0.00
5,781.28	54.85	360.00	5,634.00	80.43	-797.08	142.46	11.00	11.00	0.00
Base Lower B									
5,800.00	56.91	360.00	5,644.50	95.93	-797.08	157.91	11.00	11.00	0.00
5,804.61	57.41	360.00	5,647.00	99.80	-797.08	161.77	11.00	11.00	0.00
Top B Marl									
5,850.00	62.41	360.00	5,669.75	139.06	-797.08	200.91	11.00	11.00	0.00



WOG Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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)	
5,895.40	67.40	360.00	5,689.00	180.16	-797.08	241.88	11.00	11.00	0.00	
Top C Chalk										
5,900.00	67.91	360.00	5,690.75	184.42	-797.09	246.13	11.00	11.00	0.00	
5,917.33	69.81	360.00	5,697.00	200.58	-797.09	262.24	11.00	11.00	0.00	
Middle C Chalk										
5,950.00	73.41	360.00	5,707.31	231.58	-797.09	293.14	11.00	11.00	0.00	
5,963.53	74.89	360.00	5,711.00	244.59	-797.09	306.12	11.00	11.00	0.00	
Middle C Marl										
6,000.00	78.91	360.00	5,719.26	280.11	-797.09	341.52	11.00	11.00	0.00	
6,050.00	84.41	360.00	5,726.52	329.56	-797.10	390.83	11.00	11.00	0.00	
6,100.85	90.00	360.00	5,729.00	380.33	-797.10	441.44	11.00	11.00	0.00	
LP @ 90° Inc, Hold - Lower C Chalk - 7"										
6,200.00	90.00	360.00	5,729.00	479.48	-797.11	540.29	0.00	0.00	0.00	
6,300.00	90.00	360.00	5,729.00	579.48	-797.12	639.98	0.00	0.00	0.00	
6,400.00	90.00	360.00	5,729.00	679.48	-797.13	739.68	0.00	0.00	0.00	
6,500.00	90.00	360.00	5,729.00	779.48	-797.14	839.37	0.00	0.00	0.00	
6,600.00	90.00	360.00	5,729.00	879.48	-797.14	939.07	0.00	0.00	0.00	
6,700.00	90.00	360.00	5,729.00	979.48	-797.15	1,038.76	0.00	0.00	0.00	
6,800.00	90.00	360.00	5,729.00	1,079.48	-797.16	1,138.46	0.00	0.00	0.00	
6,900.00	90.00	360.00	5,729.00	1,179.48	-797.17	1,238.15	0.00	0.00	0.00	
7,000.00	90.00	360.00	5,729.00	1,279.48	-797.18	1,337.85	0.00	0.00	0.00	
7,100.00	90.00	360.00	5,729.00	1,379.48	-797.19	1,437.54	0.00	0.00	0.00	
7,200.00	90.00	360.00	5,729.00	1,479.48	-797.19	1,537.24	0.00	0.00	0.00	
7,300.00	90.00	360.00	5,729.00	1,579.48	-797.20	1,636.93	0.00	0.00	0.00	
7,400.00	90.00	360.00	5,729.00	1,679.48	-797.21	1,736.63	0.00	0.00	0.00	
7,500.00	90.00	360.00	5,729.00	1,779.48	-797.22	1,836.32	0.00	0.00	0.00	
7,600.00	90.00	360.00	5,729.00	1,879.48	-797.23	1,936.02	0.00	0.00	0.00	
7,700.00	90.00	360.00	5,729.00	1,979.48	-797.24	2,035.71	0.00	0.00	0.00	
7,800.00	90.00	360.00	5,729.00	2,079.48	-797.24	2,135.41	0.00	0.00	0.00	
7,900.00	90.00	360.00	5,729.00	2,179.48	-797.25	2,235.10	0.00	0.00	0.00	
8,000.00	90.00	360.00	5,729.00	2,279.48	-797.26	2,334.80	0.00	0.00	0.00	
8,100.00	90.00	360.00	5,729.00	2,379.48	-797.27	2,434.49	0.00	0.00	0.00	
8,200.00	90.00	360.00	5,729.00	2,479.48	-797.28	2,534.19	0.00	0.00	0.00	
8,300.00	90.00	360.00	5,729.00	2,579.48	-797.29	2,633.88	0.00	0.00	0.00	
8,400.00	90.00	360.00	5,729.00	2,679.48	-797.30	2,733.58	0.00	0.00	0.00	
8,500.00	90.00	360.00	5,729.00	2,779.48	-797.30	2,833.27	0.00	0.00	0.00	
8,600.00	90.00	360.00	5,729.00	2,879.48	-797.31	2,932.97	0.00	0.00	0.00	
8,700.00	90.00	360.00	5,729.00	2,979.48	-797.32	3,032.66	0.00	0.00	0.00	
8,800.00	90.00	360.00	5,729.00	3,079.48	-797.33	3,132.36	0.00	0.00	0.00	
8,900.00	90.00	360.00	5,729.00	3,179.48	-797.34	3,232.05	0.00	0.00	0.00	
9,000.00	90.00	360.00	5,729.00	3,279.48	-797.35	3,331.75	0.00	0.00	0.00	
9,100.00	90.00	360.00	5,729.00	3,379.48	-797.35	3,431.44	0.00	0.00	0.00	
9,200.00	90.00	360.00	5,729.00	3,479.48	-797.36	3,531.14	0.00	0.00	0.00	
9,300.00	90.00	360.00	5,729.00	3,579.48	-797.37	3,630.83	0.00	0.00	0.00	
9,400.00	90.00	360.00	5,729.00	3,679.48	-797.38	3,730.53	0.00	0.00	0.00	
9,500.00	90.00	360.00	5,729.00	3,779.48	-797.39	3,830.22	0.00	0.00	0.00	
9,600.00	90.00	360.00	5,729.00	3,879.48	-797.40	3,929.92	0.00	0.00	0.00	
9,700.00	90.00	360.00	5,729.00	3,979.48	-797.41	4,029.61	0.00	0.00	0.00	
9,800.00	90.00	360.00	5,729.00	4,079.48	-797.41	4,129.31	0.00	0.00	0.00	
9,900.00	90.00	360.00	5,729.00	4,179.48	-797.42	4,229.00	0.00	0.00	0.00	
10,000.00	90.00	360.00	5,729.00	4,279.48	-797.43	4,328.70	0.00	0.00	0.00	
10,100.00	90.00	360.00	5,729.00	4,379.48	-797.44	4,428.39	0.00	0.00	0.00	
10,200.00	90.00	360.00	5,729.00	4,479.48	-797.45	4,528.09	0.00	0.00	0.00	
10,300.00	90.00	360.00	5,729.00	4,579.48	-797.46	4,627.78	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25P-2445
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4762.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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)
10,400.00	90.00	360.00	5,729.00	4,679.48	-797.46	4,727.48	0.00	0.00	0.00
10,500.00	90.00	360.00	5,729.00	4,779.48	-797.47	4,827.17	0.00	0.00	0.00
10,600.00	90.00	360.00	5,729.00	4,879.48	-797.48	4,926.87	0.00	0.00	0.00
10,700.00	90.00	360.00	5,729.00	4,979.48	-797.49	5,026.56	0.00	0.00	0.00
10,800.00	90.00	360.00	5,729.00	5,079.48	-797.50	5,126.26	0.00	0.00	0.00
10,900.00	90.00	360.00	5,729.00	5,179.48	-797.51	5,225.95	0.00	0.00	0.00
11,000.00	90.00	360.00	5,729.00	5,279.48	-797.52	5,325.65	0.00	0.00	0.00
11,100.00	90.00	360.00	5,729.00	5,379.48	-797.52	5,425.34	0.00	0.00	0.00
11,200.00	90.00	360.00	5,729.00	5,479.48	-797.53	5,525.04	0.00	0.00	0.00
11,300.00	90.00	360.00	5,729.00	5,579.48	-797.54	5,624.73	0.00	0.00	0.00
11,400.00	90.00	360.00	5,729.00	5,679.48	-797.55	5,724.43	0.00	0.00	0.00
11,500.00	90.00	360.00	5,729.00	5,779.48	-797.56	5,824.12	0.00	0.00	0.00
11,600.00	90.00	360.00	5,729.00	5,879.48	-797.57	5,923.82	0.00	0.00	0.00
11,700.00	90.00	360.00	5,729.00	5,979.48	-797.57	6,023.51	0.00	0.00	0.00
11,800.00	90.00	360.00	5,729.00	6,079.48	-797.58	6,123.21	0.00	0.00	0.00
11,900.00	90.00	360.00	5,729.00	6,179.48	-797.59	6,222.90	0.00	0.00	0.00
12,000.00	90.00	360.00	5,729.00	6,279.48	-797.60	6,322.60	0.00	0.00	0.00
12,100.00	90.00	360.00	5,729.00	6,379.48	-797.61	6,422.29	0.00	0.00	0.00
12,200.00	90.00	360.00	5,729.00	6,479.48	-797.62	6,521.99	0.00	0.00	0.00
12,300.00	90.00	360.00	5,729.00	6,579.48	-797.62	6,621.68	0.00	0.00	0.00
12,400.00	90.00	360.00	5,729.00	6,679.48	-797.63	6,721.38	0.00	0.00	0.00
12,500.00	90.00	360.00	5,729.00	6,779.48	-797.64	6,821.07	0.00	0.00	0.00
12,600.00	90.00	360.00	5,729.00	6,879.48	-797.65	6,920.77	0.00	0.00	0.00
12,700.00	90.00	360.00	5,729.00	6,979.48	-797.66	7,020.46	0.00	0.00	0.00
12,800.00	90.00	360.00	5,729.00	7,079.48	-797.67	7,120.16	0.00	0.00	0.00
12,900.00	90.00	360.00	5,729.00	7,179.48	-797.68	7,219.85	0.00	0.00	0.00
13,000.00	90.00	360.00	5,729.00	7,279.48	-797.68	7,319.55	0.00	0.00	0.00
13,100.00	90.00	360.00	5,729.00	7,379.48	-797.69	7,419.24	0.00	0.00	0.00
13,200.00	90.00	360.00	5,729.00	7,479.48	-797.70	7,518.94	0.00	0.00	0.00
13,300.00	90.00	360.00	5,729.00	7,579.48	-797.71	7,618.63	0.00	0.00	0.00
13,400.00	90.00	360.00	5,729.00	7,679.48	-797.72	7,718.33	0.00	0.00	0.00
13,500.00	90.00	360.00	5,729.00	7,779.48	-797.73	7,818.02	0.00	0.00	0.00
13,600.00	90.00	360.00	5,729.00	7,879.48	-797.73	7,917.72	0.00	0.00	0.00
13,700.00	90.00	360.00	5,729.00	7,979.48	-797.74	8,017.41	0.00	0.00	0.00
13,800.00	90.00	360.00	5,729.00	8,079.48	-797.75	8,117.11	0.00	0.00	0.00
13,900.00	90.00	360.00	5,729.00	8,179.48	-797.76	8,216.80	0.00	0.00	0.00
14,000.00	90.00	360.00	5,729.00	8,279.48	-797.77	8,316.50	0.00	0.00	0.00
14,100.00	90.00	360.00	5,729.00	8,379.48	-797.78	8,416.19	0.00	0.00	0.00
14,200.00	90.00	360.00	5,729.00	8,479.48	-797.79	8,515.89	0.00	0.00	0.00
14,300.00	90.00	360.00	5,729.00	8,579.48	-797.79	8,615.58	0.00	0.00	0.00
14,400.00	90.00	360.00	5,729.00	8,679.48	-797.80	8,715.28	0.00	0.00	0.00
14,500.00	90.00	360.00	5,729.00	8,779.48	-797.81	8,814.97	0.00	0.00	0.00
14,600.00	90.00	360.00	5,729.00	8,879.48	-797.82	8,914.67	0.00	0.00	0.00
14,700.00	90.00	360.00	5,729.00	8,979.48	-797.83	9,014.36	0.00	0.00	0.00
14,800.00	90.00	360.00	5,729.00	9,079.48	-797.84	9,114.06	0.00	0.00	0.00
14,900.00	90.00	360.00	5,729.00	9,179.48	-797.84	9,213.75	0.00	0.00	0.00
15,000.00	90.00	360.00	5,729.00	9,279.48	-797.85	9,313.45	0.00	0.00	0.00
15,100.00	90.00	360.00	5,729.00	9,379.48	-797.86	9,413.14	0.00	0.00	0.00
15,200.00	90.00	360.00	5,729.00	9,479.48	-797.87	9,512.84	0.00	0.00	0.00
15,300.00	90.00	360.00	5,729.00	9,579.48	-797.88	9,612.53	0.00	0.00	0.00
15,400.00	90.00	360.00	5,729.00	9,679.48	-797.89	9,712.23	0.00	0.00	0.00
15,500.00	90.00	360.00	5,729.00	9,779.48	-797.89	9,811.92	0.00	0.00	0.00
15,600.00	90.00	360.00	5,729.00	9,879.48	-797.90	9,911.62	0.00	0.00	0.00
15,700.00	90.00	360.00	5,729.00	9,979.48	-797.91	10,011.31	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25P-2445
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4762.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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)
15,800.00	90.00	360.00	5,729.00	10,079.48	-797.92	10,111.01	0.00	0.00	0.00
15,902.83	90.00	360.00	5,729.00	10,182.31	-797.93	10,213.53	0.00	0.00	0.00
TD at 15902.83' MD									

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 2445 - plan hits target center - Point	0.00	0.00	5,729.00	10,182.31	-797.93	1,550,161.51	3,468,096.74	40° 49' 52.740 N	103° 48' 30.310 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,100.85	5,729.00	7"	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,566.54	1,550.00	Upper Pierre				
3,553.03	3,500.00	Hygiene				
3,705.84	3,650.00	Lower Pierre				
5,527.45	5,444.00	P200 Marker				
5,550.14	5,464.00	P300 Marker				
5,568.70	5,480.00	P350 Marker				
5,585.28	5,494.00	Sharon Springs				
5,590.08	5,498.00	Niobrara				
5,610.82	5,515.00	Top A Chalk				
5,649.00	5,545.00	Top A Marl				
5,664.95	5,557.00	A Marl				
5,675.82	5,565.00	Top Upper B				
5,709.84	5,589.00	Base Upper B				
5,733.90	5,605.00	Top Lower B				
5,781.28	5,634.00	Base Lower B				
5,804.61	5,647.00	Top B Marl				
5,895.40	5,689.00	Top C Chalk				
5,917.33	5,697.00	Middle C Chalk				
5,963.53	5,711.00	Middle C Marl				
6,100.85	5,729.00	Lower C Chalk				



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25P-2445
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4762.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4762.00usft
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25P-2445	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'
850.00	846.63	-9.14	-51.83	Hold 11° Inc
4,540.00	4,468.83	-131.40	-745.22	Drop 2°/100'
5,090.00	5,015.46	-140.54	-797.06	Hold Vertical
5,282.67	5,208.13	-140.54	-797.06	KOP, Build 11°/100'
6,100.85	5,729.00	380.33	-797.10	LP @ 90° Inc, Hold
15,902.83	5,729.00	10,182.31	-797.93	TD at 15902.83' MD