



Project: Weld County, CO
Site: Sec 25-T10N-R58W
Well: Razor #25B-2451
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: 7.85°
Magnetic Field
Strength: 53038.4nT
Dip Angle: 67.40°
Date: 4/17/2015
Model: IGRF2010

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
1550.00	1554.14	Upper Pierre
3500.00	3511.59	Hygiene
3650.00	3662.16	Lower Pierre
5480.00	5496.68	P200 Marker
5500.00	5517.52	P300 Marker
5516.00	5534.38	P350 Marker
5530.00	5549.28	Sharon Springs
5534.00	5553.57	Niobrara
5551.00	5571.96	Top A Chalk
5581.00	5605.13	Top A Marl
5593.00	5618.69	A Marl
5601.00	5627.84	Top Upper B
5625.00	5655.87	Base Upper B
5641.00	5675.10	Top Lower B
5670.00	5711.30	Base Lower B
5683.00	5728.18	Top B Marl
5725.00	5786.39	Top C Chalk
5733.00	5798.27	Middle C Chalk
5747.00	5819.81	Middle C Marl
5765.00	5849.24	Lower C Chalk
5782.00	5879.30	Lower C Marl
5809.00	5933.65	Lower C Marker
5818.00	5954.43	Top Ft. Hays
5833.00	5993.87	Ft. Hays Marker

WELL DETAILS: Razor #25B-2451

+N/-S	+E/-W	Northing	Ground Level:	4757.00	Eastings	Latitude	Longitude	Slot
0.00	0.00	1544669.57	3467538.62	40° 48' 58.590 N	103° 48' 38.930 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	550.00	5.00	248.00	549.68	-4.08	-10.11	2.00	248.00	-3.47	
4	4350.00	5.00	248.00	4335.22	-128.15	-317.18	0.00	0.00	-108.99	
5	4600.00	0.00	0.00	4584.90	-132.23	-327.29	2.00	180.00	-112.46	
6	5359.23	0.00	0.00	5344.13	-132.23	-327.29	0.00	0.00	-112.46	
7	6177.41	90.00	360.00	5865.00	388.64	-327.31	11.00	360.00	407.48	PBHL 2451
8	11265.03	90.00	360.00	5865.00	5476.25	-327.47	0.00	0.00	5486.04	PBHL 2451

ANNOTATIONS

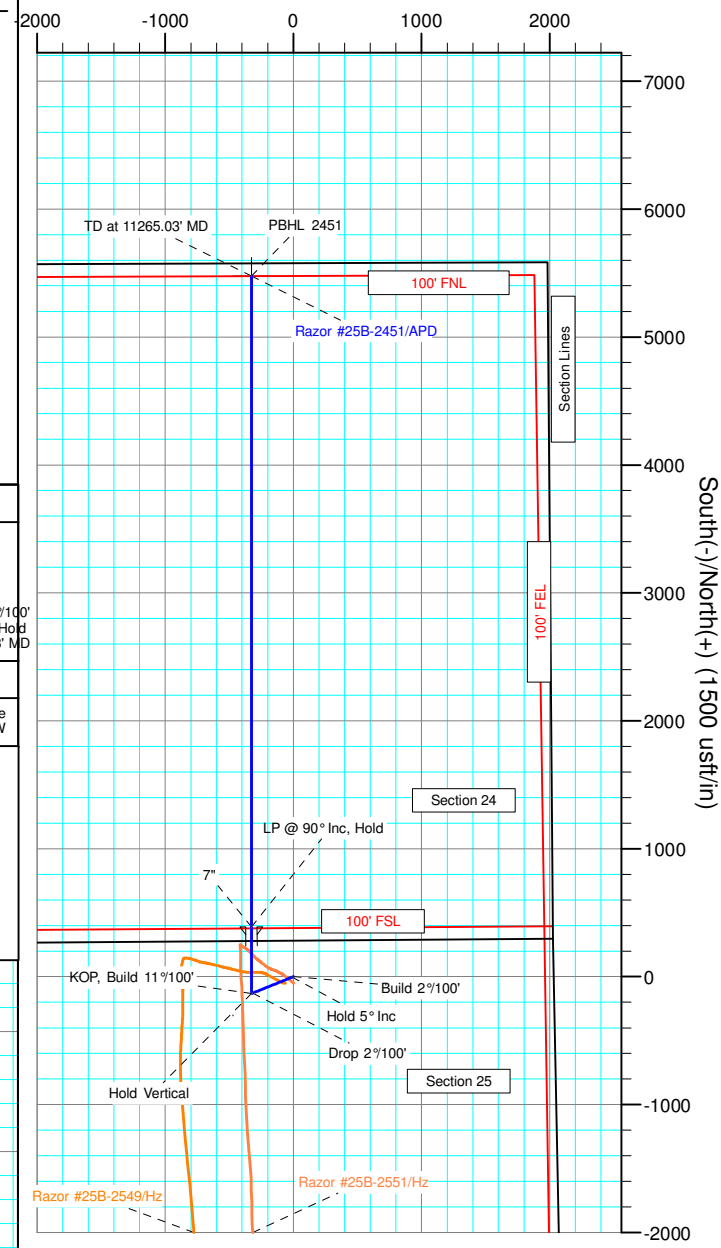
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
549.68	550.00	5.00	248.00	-4.08	-10.11	-3.47	10.90	Hold 5° Inc
4335.22	4350.00	5.00	248.00	-128.15	-317.18	-108.99	342.09	Drop 2°/100'
4584.90	4600.00	0.00	0.00	-132.23	-327.29	-112.46	352.99	Hold Vertical
5344.13	5359.23	0.00	0.00	-132.23	-327.29	-112.46	352.99	KOP, Build 11°/100'
5865.00	6177.41	90.00	360.00	388.64	-327.31	407.48	873.86	LP @ 90° Inc, Hold
5865.00	11265.03	90.00	360.00	5476.25	-327.47	5486.04	5961.48	TD at 11265.03' MD

DESIGN TARGET DETAILS

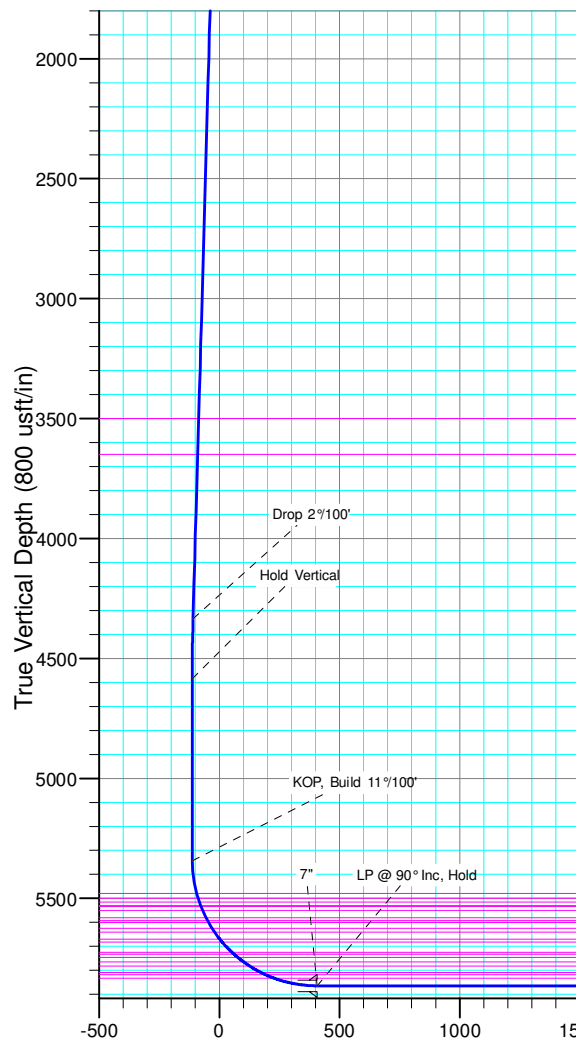
Name	TVD	+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude
PBHL 2451	5865.00	5476.25	-327.47	1550138.59	3467106.90	40° 49' 52.700 N	103° 48' 43.190 W

SHL:
280' FNL, 2029' FEL
Sec25-T10N-R58W
BHL:
100' FNL, 2310' FEL
Sec24-T10N-R58W
7":
109' FSL, 2356' FEL
Sec24-T10N-R58W

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



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



Vertical Section at 356.58° (800 usft/in)



Whiting Petroleum Corp.

**Weld County, CO
Sec 25-T10N-R58W
Razor #25B-2451**

Hz

Plan: APD

Standard Planning Report

22 April, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25B-2451
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4778.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4778.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25B-2451	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 #25B-2451					
Well Position	+N/-S	54.82 usft	Northing:	1,544,669.58 usft	Latitude:	40° 48' 58.590 N
	+E/-W	2,656.51 usft	Easting:	3,467,538.62 usft	Longitude:	103° 48' 38.930 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,757.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/17/2015	7.85	67.40	53,038

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	356.58

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	
550.00	5.00	248.00	549.68	-4.08	-10.11	2.00	2.00	0.00	248.00	
4,350.00	5.00	248.00	4,335.22	-128.15	-317.18	0.00	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,584.90	-132.23	-327.29	2.00	-2.00	0.00	180.00	
5,359.23	0.00	0.00	5,344.13	-132.23	-327.29	0.00	0.00	0.00	0.00	
6,177.41	90.00	360.00	5,865.00	388.64	-327.31	11.00	11.00	0.00	360.00	PBHL 2451
11,265.03	90.00	360.00	5,865.00	5,476.25	-327.47	0.00	0.00	0.00	0.00	PBHL 2451



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Project:	Weld County, CO	MD Reference:	KBE @ 4778.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25B-2451	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	248.00	399.98	-0.65	-1.62	-0.56	2.00	2.00	0.00
500.00	4.00	248.00	499.84	-2.61	-6.47	-2.22	2.00	2.00	0.00
550.00	5.00	248.00	549.68	-4.08	-10.11	-3.47	2.00	2.00	0.00
Hold 5° Inc									
600.00	5.00	248.00	599.49	-5.72	-14.15	-4.86	0.00	0.00	0.00
700.00	5.00	248.00	699.11	-8.98	-22.23	-7.64	0.00	0.00	0.00
800.00	5.00	248.00	798.73	-12.25	-30.31	-10.41	0.00	0.00	0.00
900.00	5.00	248.00	898.35	-15.51	-38.39	-13.19	0.00	0.00	0.00
1,000.00	5.00	248.00	997.97	-18.78	-46.47	-15.97	0.00	0.00	0.00
1,100.00	5.00	248.00	1,097.59	-22.04	-54.55	-18.75	0.00	0.00	0.00
1,200.00	5.00	248.00	1,197.21	-25.31	-62.63	-21.52	0.00	0.00	0.00
1,300.00	5.00	248.00	1,296.83	-28.57	-70.71	-24.30	0.00	0.00	0.00
1,400.00	5.00	248.00	1,396.45	-31.84	-78.80	-27.08	0.00	0.00	0.00
1,500.00	5.00	248.00	1,496.07	-35.10	-86.88	-29.85	0.00	0.00	0.00
1,554.14	5.00	248.00	1,550.00	-36.87	-91.25	-31.36	0.00	0.00	0.00
Upper Pierre									
1,600.00	5.00	248.00	1,595.69	-38.37	-94.96	-32.63	0.00	0.00	0.00
1,700.00	5.00	248.00	1,695.31	-41.63	-103.04	-35.41	0.00	0.00	0.00
1,800.00	5.00	248.00	1,794.93	-44.90	-111.12	-38.18	0.00	0.00	0.00
1,900.00	5.00	248.00	1,894.55	-48.16	-119.20	-40.96	0.00	0.00	0.00
2,000.00	5.00	248.00	1,994.17	-51.42	-127.28	-43.74	0.00	0.00	0.00
2,100.00	5.00	248.00	2,093.78	-54.69	-135.36	-46.51	0.00	0.00	0.00
2,200.00	5.00	248.00	2,193.40	-57.95	-143.44	-49.29	0.00	0.00	0.00
2,300.00	5.00	248.00	2,293.02	-61.22	-151.52	-52.07	0.00	0.00	0.00
2,400.00	5.00	248.00	2,392.64	-64.48	-159.60	-54.84	0.00	0.00	0.00
2,500.00	5.00	248.00	2,492.26	-67.75	-167.69	-57.62	0.00	0.00	0.00
2,600.00	5.00	248.00	2,591.88	-71.01	-175.77	-60.40	0.00	0.00	0.00
2,700.00	5.00	248.00	2,691.50	-74.28	-183.85	-63.17	0.00	0.00	0.00
2,800.00	5.00	248.00	2,791.12	-77.54	-191.93	-65.95	0.00	0.00	0.00
2,900.00	5.00	248.00	2,890.74	-80.81	-200.01	-68.73	0.00	0.00	0.00
3,000.00	5.00	248.00	2,990.36	-84.07	-208.09	-71.50	0.00	0.00	0.00
3,100.00	5.00	248.00	3,089.98	-87.34	-216.17	-74.28	0.00	0.00	0.00
3,200.00	5.00	248.00	3,189.60	-90.60	-224.25	-77.06	0.00	0.00	0.00
3,300.00	5.00	248.00	3,289.22	-93.87	-232.33	-79.83	0.00	0.00	0.00
3,400.00	5.00	248.00	3,388.84	-97.13	-240.41	-82.61	0.00	0.00	0.00
3,500.00	5.00	248.00	3,488.46	-100.40	-248.50	-85.39	0.00	0.00	0.00
3,511.59	5.00	248.00	3,500.00	-100.78	-249.43	-85.71	0.00	0.00	0.00
Hygiene									
3,600.00	5.00	248.00	3,588.08	-103.66	-256.58	-88.16	0.00	0.00	0.00
3,662.16	5.00	248.00	3,650.00	-105.69	-261.60	-89.89	0.00	0.00	0.00
Lower Pierre									
3,700.00	5.00	248.00	3,687.70	-106.93	-264.66	-90.94	0.00	0.00	0.00
3,800.00	5.00	248.00	3,787.32	-110.19	-272.74	-93.72	0.00	0.00	0.00
3,900.00	5.00	248.00	3,886.94	-113.46	-280.82	-96.49	0.00	0.00	0.00
4,000.00	5.00	248.00	3,986.55	-116.72	-288.90	-99.27	0.00	0.00	0.00
4,100.00	5.00	248.00	4,086.17	-119.99	-296.98	-102.05	0.00	0.00	0.00
4,200.00	5.00	248.00	4,185.79	-123.25	-305.06	-104.82	0.00	0.00	0.00
4,300.00	5.00	248.00	4,285.41	-126.52	-313.14	-107.60	0.00	0.00	0.00
4,350.00	5.00	248.00	4,335.22	-128.15	-317.18	-108.99	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25B-2451
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4778.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4778.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25B-2451	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)	
Drop 2°/100'										
4,400.00	4.00	248.00	4,385.07	-129.62	-320.82	-110.24	2.00	-2.00	0.00	
4,500.00	2.00	248.00	4,484.93	-131.58	-325.67	-111.91	2.00	-2.00	0.00	
4,600.00	0.00	0.00	4,584.90	-132.23	-327.29	-112.46	2.00	-2.00	0.00	
Hold Vertical										
4,700.00	0.00	0.00	4,684.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,784.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,884.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,984.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,084.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,184.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,284.91	-132.23	-327.29	-112.46	0.00	0.00	0.00	
5,359.23	0.00	0.00	5,344.13	-132.23	-327.29	-112.46	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,400.00	4.48	360.00	5,384.86	-130.64	-327.29	-110.87	11.00	11.00	0.00	
5,450.00	9.98	360.00	5,434.45	-124.34	-327.29	-104.59	11.00	11.00	0.00	
5,496.68	15.12	360.00	5,480.00	-114.20	-327.29	-94.46	11.00	11.00	0.00	
P200 Marker										
5,500.00	15.48	360.00	5,483.20	-113.33	-327.29	-93.59	11.00	11.00	0.00	
5,517.52	17.41	360.00	5,500.00	-108.37	-327.29	-88.64	11.00	11.00	0.00	
P300 Marker										
5,534.38	19.27	360.00	5,516.00	-103.06	-327.29	-83.34	11.00	11.00	0.00	
P350 Marker										
5,549.28	20.91	360.00	5,530.00	-97.94	-327.29	-78.23	11.00	11.00	0.00	
Sharon Springs										
5,550.00	20.98	360.00	5,530.67	-97.69	-327.29	-77.98	11.00	11.00	0.00	
5,553.57	21.38	360.00	5,534.00	-96.40	-327.29	-76.69	11.00	11.00	0.00	
Niobrara										
5,571.96	23.40	360.00	5,551.00	-89.39	-327.29	-69.70	11.00	11.00	0.00	
Top A Chalk										
5,600.00	26.48	360.00	5,576.42	-77.57	-327.29	-57.89	11.00	11.00	0.00	
5,605.13	27.05	360.00	5,581.00	-75.26	-327.29	-55.59	11.00	11.00	0.00	
Top A Marl										
5,618.69	28.54	360.00	5,593.00	-68.94	-327.29	-49.28	11.00	11.00	0.00	
A Marl										
5,627.84	29.55	360.00	5,601.00	-64.49	-327.29	-44.84	11.00	11.00	0.00	
Top Upper B										
5,650.00	31.98	360.00	5,620.04	-53.16	-327.29	-33.53	11.00	11.00	0.00	
5,655.87	32.63	360.00	5,625.00	-50.02	-327.29	-30.40	11.00	11.00	0.00	
Base Upper B										
5,675.10	34.75	360.00	5,641.00	-39.36	-327.29	-19.75	11.00	11.00	0.00	
Top Lower B										
5,700.00	37.48	360.00	5,661.11	-24.68	-327.29	-5.10	11.00	11.00	0.00	
5,711.30	38.73	360.00	5,670.00	-17.71	-327.29	1.86	11.00	11.00	0.00	
Base Lower B										
5,728.18	40.59	360.00	5,683.00	-6.93	-327.29	12.62	11.00	11.00	0.00	
Top B Marl										
5,750.00	42.98	360.00	5,699.27	7.60	-327.30	27.13	11.00	11.00	0.00	
5,786.39	46.99	360.00	5,725.00	33.32	-327.30	52.80	11.00	11.00	0.00	
Top C Chalk										
5,798.27	48.29	360.00	5,733.00	42.10	-327.30	61.56	11.00	11.00	0.00	
Middle C Chalk										



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Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25B-2451	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)	
5,800.00	48.48	360.00	5,734.15	43.39	-327.30	62.85	11.00	11.00	0.00	
5,819.81	50.66	360.00	5,747.00	58.48	-327.30	77.91	11.00	11.00	0.00	
Middle C Marl										
5,849.24	53.90	360.00	5,765.00	81.75	-327.30	101.14	11.00	11.00	0.00	
Lower C Chalk										
5,850.00	53.98	360.00	5,765.45	82.37	-327.30	101.76	11.00	11.00	0.00	
5,879.30	57.21	360.00	5,782.00	106.54	-327.30	125.89	11.00	11.00	0.00	
Lower C Marl										
5,900.00	59.48	360.00	5,792.86	124.16	-327.30	143.47	11.00	11.00	0.00	
5,933.65	63.19	360.00	5,809.00	153.68	-327.30	172.94	11.00	11.00	0.00	
Lower C Marker										
5,950.00	64.98	360.00	5,816.14	168.38	-327.30	187.62	11.00	11.00	0.00	
5,954.43	65.47	360.00	5,818.00	172.40	-327.30	191.63	11.00	11.00	0.00	
Top Ft. Hays										
5,993.87	69.81	360.00	5,833.00	208.87	-327.30	228.03	11.00	11.00	0.00	
Ft. Hays Marker										
6,000.00	70.48	360.00	5,835.08	214.64	-327.30	233.79	11.00	11.00	0.00	
6,050.00	75.98	360.00	5,849.50	262.49	-327.30	281.56	11.00	11.00	0.00	
6,100.00	81.48	360.00	5,859.26	311.51	-327.31	330.49	11.00	11.00	0.00	
6,150.00	86.98	360.00	5,864.28	361.24	-327.31	380.13	11.00	11.00	0.00	
6,177.41	90.00	360.00	5,865.00	388.64	-327.31	407.48	11.00	11.00	0.00	
LP @ 90° Inc, Hold - 7"										
6,200.00	90.00	360.00	5,865.00	411.23	-327.31	430.03	0.00	0.00	0.00	
6,300.00	90.00	360.00	5,865.00	511.23	-327.31	529.85	0.00	0.00	0.00	
6,400.00	90.00	360.00	5,865.00	611.23	-327.32	629.67	0.00	0.00	0.00	
6,500.00	90.00	360.00	5,865.00	711.23	-327.32	729.50	0.00	0.00	0.00	
6,600.00	90.00	360.00	5,865.00	811.23	-327.32	829.32	0.00	0.00	0.00	
6,700.00	90.00	360.00	5,865.00	911.23	-327.32	929.14	0.00	0.00	0.00	
6,800.00	90.00	360.00	5,865.00	1,011.23	-327.33	1,028.96	0.00	0.00	0.00	
6,900.00	90.00	360.00	5,865.00	1,111.23	-327.33	1,128.78	0.00	0.00	0.00	
7,000.00	90.00	360.00	5,865.00	1,211.23	-327.33	1,228.61	0.00	0.00	0.00	
7,100.00	90.00	360.00	5,865.00	1,311.23	-327.34	1,328.43	0.00	0.00	0.00	
7,200.00	90.00	360.00	5,865.00	1,411.23	-327.34	1,428.25	0.00	0.00	0.00	
7,300.00	90.00	360.00	5,865.00	1,511.23	-327.34	1,528.07	0.00	0.00	0.00	
7,400.00	90.00	360.00	5,865.00	1,611.23	-327.35	1,627.89	0.00	0.00	0.00	
7,500.00	90.00	360.00	5,865.00	1,711.23	-327.35	1,727.72	0.00	0.00	0.00	
7,600.00	90.00	360.00	5,865.00	1,811.23	-327.35	1,827.54	0.00	0.00	0.00	
7,700.00	90.00	360.00	5,865.00	1,911.23	-327.36	1,927.36	0.00	0.00	0.00	
7,800.00	90.00	360.00	5,865.00	2,011.23	-327.36	2,027.18	0.00	0.00	0.00	
7,900.00	90.00	360.00	5,865.00	2,111.23	-327.36	2,127.00	0.00	0.00	0.00	
8,000.00	90.00	360.00	5,865.00	2,211.23	-327.37	2,226.82	0.00	0.00	0.00	
8,100.00	90.00	360.00	5,865.00	2,311.23	-327.37	2,326.65	0.00	0.00	0.00	
8,200.00	90.00	360.00	5,865.00	2,411.23	-327.37	2,426.47	0.00	0.00	0.00	
8,300.00	90.00	360.00	5,865.00	2,511.23	-327.38	2,526.29	0.00	0.00	0.00	
8,400.00	90.00	360.00	5,865.00	2,611.23	-327.38	2,626.11	0.00	0.00	0.00	
8,500.00	90.00	360.00	5,865.00	2,711.23	-327.38	2,725.93	0.00	0.00	0.00	
8,600.00	90.00	360.00	5,865.00	2,811.23	-327.39	2,825.76	0.00	0.00	0.00	
8,700.00	90.00	360.00	5,865.00	2,911.23	-327.39	2,925.58	0.00	0.00	0.00	
8,800.00	90.00	360.00	5,865.00	3,011.23	-327.39	3,025.40	0.00	0.00	0.00	
8,900.00	90.00	360.00	5,865.00	3,111.23	-327.40	3,125.22	0.00	0.00	0.00	
9,000.00	90.00	360.00	5,865.00	3,211.23	-327.40	3,225.04	0.00	0.00	0.00	
9,100.00	90.00	360.00	5,865.00	3,311.23	-327.40	3,324.87	0.00	0.00	0.00	
9,200.00	90.00	360.00	5,865.00	3,411.23	-327.41	3,424.69	0.00	0.00	0.00	



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25B-2451
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4778.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4778.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25B-2451	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)	
9,300.00	90.00	360.00	5,865.00	3,511.23	-327.41	3,524.51	0.00	0.00	0.00	
9,400.00	90.00	360.00	5,865.00	3,611.23	-327.41	3,624.33	0.00	0.00	0.00	
9,500.00	90.00	360.00	5,865.00	3,711.23	-327.42	3,724.15	0.00	0.00	0.00	
9,600.00	90.00	360.00	5,865.00	3,811.23	-327.42	3,823.97	0.00	0.00	0.00	
9,700.00	90.00	360.00	5,865.00	3,911.23	-327.42	3,923.80	0.00	0.00	0.00	
9,800.00	90.00	360.00	5,865.00	4,011.23	-327.43	4,023.62	0.00	0.00	0.00	
9,900.00	90.00	360.00	5,865.00	4,111.23	-327.43	4,123.44	0.00	0.00	0.00	
10,000.00	90.00	360.00	5,865.00	4,211.23	-327.43	4,223.26	0.00	0.00	0.00	
10,100.00	90.00	360.00	5,865.00	4,311.23	-327.44	4,323.08	0.00	0.00	0.00	
10,200.00	90.00	360.00	5,865.00	4,411.23	-327.44	4,422.91	0.00	0.00	0.00	
10,300.00	90.00	360.00	5,865.00	4,511.23	-327.44	4,522.73	0.00	0.00	0.00	
10,400.00	90.00	360.00	5,865.00	4,611.23	-327.45	4,622.55	0.00	0.00	0.00	
10,500.00	90.00	360.00	5,865.00	4,711.23	-327.45	4,722.37	0.00	0.00	0.00	
10,600.00	90.00	360.00	5,865.00	4,811.23	-327.45	4,822.19	0.00	0.00	0.00	
10,700.00	90.00	360.00	5,865.00	4,911.23	-327.46	4,922.02	0.00	0.00	0.00	
10,800.00	90.00	360.00	5,865.00	5,011.23	-327.46	5,021.84	0.00	0.00	0.00	
10,900.00	90.00	360.00	5,865.00	5,111.23	-327.46	5,121.66	0.00	0.00	0.00	
11,000.00	90.00	360.00	5,865.00	5,211.23	-327.47	5,221.48	0.00	0.00	0.00	
11,100.00	90.00	360.00	5,865.00	5,311.23	-327.47	5,321.30	0.00	0.00	0.00	
11,200.00	90.00	360.00	5,865.00	5,411.23	-327.47	5,421.12	0.00	0.00	0.00	
11,265.03	90.00	360.00	5,865.00	5,476.25	-327.47	5,486.04	0.00	0.00	0.00	
TD at 11265.03' MD										

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 2451	0.00	0.00	5,865.00	5,476.25	-327.47	1,550,138.60	3,467,106.89	40° 49' 52.700 N		103° 48' 43.190 W
- plan hits target center										
- Point										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name			Casing Diameter (in)	Hole Diameter (in)
6,177.41	5,865.00	7"			7.000	8.750



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25B-2451
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4778.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4778.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25B-2451	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,554.14	1,550.00	Upper Pierre				
3,511.59	3,500.00	Hygiene				
3,662.16	3,650.00	Lower Pierre				
5,496.68	5,480.00	P200 Marker				
5,517.52	5,500.00	P300 Marker				
5,534.38	5,516.00	P350 Marker				
5,549.28	5,530.00	Sharon Springs				
5,553.57	5,534.00	Niobrara				
5,571.96	5,551.00	Top A Chalk				
5,605.13	5,581.00	Top A Marl				
5,618.69	5,593.00	A Marl				
5,627.84	5,601.00	Top Upper B				
5,655.87	5,625.00	Base Upper B				
5,675.10	5,641.00	Top Lower B				
5,711.30	5,670.00	Base Lower B				
5,728.18	5,683.00	Top B Marl				
5,786.39	5,725.00	Top C Chalk				
5,798.27	5,733.00	Middle C Chalk				
5,819.81	5,747.00	Middle C Marl				
5,849.24	5,765.00	Lower C Chalk				
5,879.30	5,782.00	Lower C Marl				
5,933.65	5,809.00	Lower C Marker				
5,954.43	5,818.00	Top Ft. Hays				
5,993.87	5,833.00	Ft. Hays Marker				

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'	
550.00	549.68	-4.08	-10.11	Hold 5° Inc	
4,350.00	4,335.22	-128.15	-317.18	Drop 2°/100'	
4,600.00	4,584.90	-132.23	-327.29	Hold Vertical	
5,359.23	5,344.13	-132.23	-327.29	KOP, Build 11°/100'	
6,177.41	5,865.00	388.64	-327.31	LP @ 90° Inc, Hold	
11,265.03	5,865.00	5,476.25	-327.47	TD at 11265.03' MD	