



Project: Weld County, CO
Site: Sec 25-T10N-R58W
Well: Razor #250-2443
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: 7.84°
Magnetic Field
Strength: 53022.2snT
Dip Angle: 67.38°
Date: 5/21/2015
Model: IGRF2010

FORMATION TOP DETAILS

	TVDPath	MDPath	Formation
	1550.00	1551.75	Upper Pierre
	3500.00	3504.74	Hygiene
	3650.00	3654.97	Lower Pierre
	5435.00	5443.66	P200 Marker
	5455.00	5464.51	P300 Marker
	5471.00	5481.38	P350 Marker
	5485.00	5496.30	Sharon Springs
	5489.00	5500.59	Niobrara
	5506.00	5518.99	Top A Chalk
	5536.00	5552.20	Top A Marl
	5548.00	5565.78	A Marl
	5556.00	5574.94	Top Upper B
	5580.00	5603.01	Base Upper B
	5596.00	5622.27	Top Lower B
	5625.00	5658.54	Base Lower B
	5638.00	5675.46	Top B Marl
	5680.00	5733.82	Top C Chalk
	5688.00	5745.74	Middle C Chalk
	5702.00	5767.36	Middle C Marl
	5720.00	5796.91	Lower C Chalk
	5737.00	5827.13	Lower C Marl
	5764.00	5881.86	Lower C Marker
	5773.00	5902.84	Top Ft. Hays
	5788.00	5942.78	Ft. Hays Marker

WELL DETAILS: Razor #250-2443

+N/-S	+E/-W	Northing	Ground Level:	4717.00	Eastings	Latitude	Longitude	Slot
0.00	0.00	1539953.92	3467769.99	40° 48' 11.960 N	103° 48' 37.090 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	458.49	3.17	212.79	458.41	-3.68	-2.37	2.00	212.79	-3.65	
4	4946.54	3.17	212.79	4939.59	-212.32	-136.76	0.00	0.00	-210.43	
5	5105.03	0.00	0.00	5098.00	-216.00	-139.14	2.00	180.00	-214.08	
6	5305.03	0.00	0.00	5298.00	-216.00	-139.14	0.00	0.00	-214.08	
7	6123.41	90.00	360.00	5819.00	305.00	-139.14	11.00	360.00	306.87	
8	16014.88	90.00	360.00	5819.00	10196.47	-139.14	0.00	0.00	10197.42	PBHL 2443

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'
458.41	458.49	3.17	212.79	-3.68	-2.37	-3.65	4.38	Hold 3.17° Inc
4939.59	4946.54	3.17	212.79	-212.32	-136.76	-210.43	252.55	Drop 2°/100'
5098.00	5105.03	0.00	0.00	-216.00	-139.14	-214.08	256.93	Hold Vertical
5298.00	5305.03	0.00	0.00	-216.00	-139.14	-214.08	256.93	KOP, Build 11°/100'
5819.00	6123.41	90.00	360.00	305.00	-139.14	306.87	777.93	LP @ 90° Inc, Hold
5819.00	16014.88	90.00	360.00	10196.47	-139.14	10197.42	10669.40	TD at 16014.88

DESIGN TARGET DETAILS

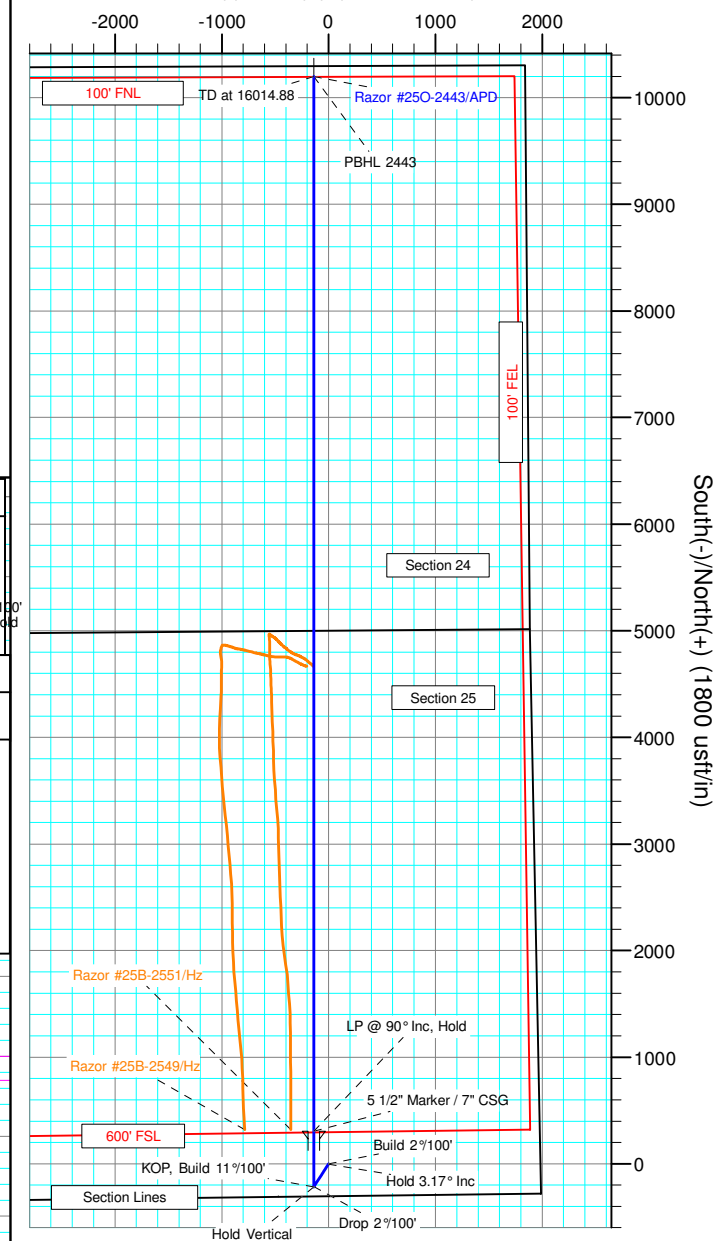
Name	TVD	+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude
PBHL 2443	5819.00	10196.47	-139.14	1550145.89	3467436.60	40° 49' 52.710 N	103° 48' 38.900 W

SHL:
305' FSL, 1980' FEL
Sec25-T10N-R58W

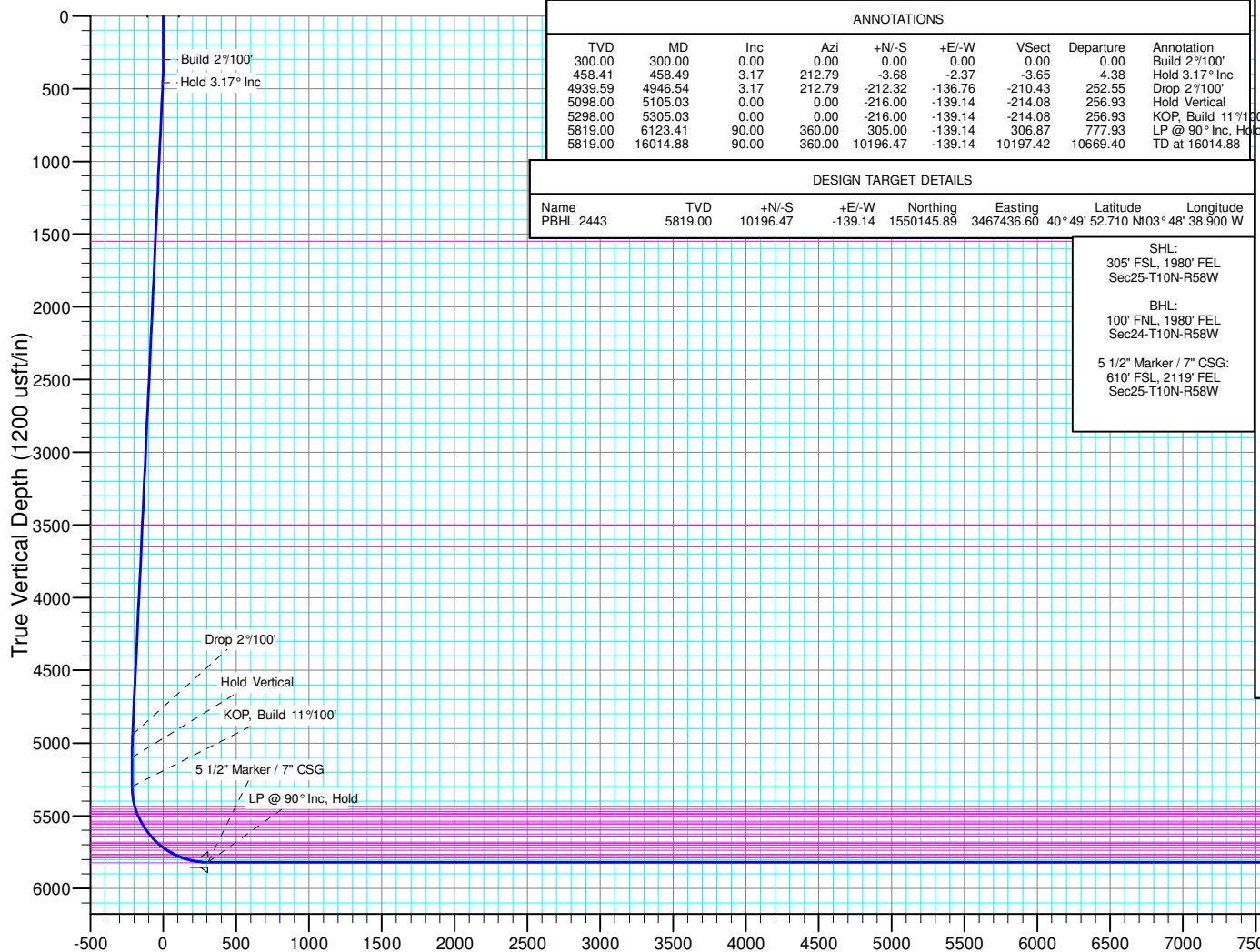
BHL:
100' FNL, 1980' FEL
Sec24-T10N-R58W

5 1/2" Marker / 7" CSG:
610' FSL, 2119' FEL
Sec25-T10N-R58W

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



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



Vertical Section at 359.22° (1200 usft/in)



Whiting Petroleum Corp.

**Weld County, CO
Sec 25-T10N-R58W
Razor #25O-2443**

Hz

Plan: APD

Standard Planning Report

26 February, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25O-2443
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4738.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	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 #25O-2443				
Well Position	+N/-S	-4,664.37 usft	Northing:	1,539,953.92 usft	Latitude:	40° 48' 11.960 N
	+E/-W	2,798.53 usft	Easting:	3,467,769.99 usft	Longitude:	103° 48' 37.090 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,717.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/21/2015	7.84	67.38	53,022

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	359.22

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	
458.49	3.17	212.79	458.41	-3.68	-2.37	2.00	2.00	0.00	212.79	
4,946.54	3.17	212.79	4,939.59	-212.32	-136.76	0.00	0.00	0.00	0.00	
5,105.03	0.00	0.00	5,098.00	-216.00	-139.14	2.00	-2.00	0.00	180.00	
5,305.03	0.00	0.00	5,298.00	-216.00	-139.14	0.00	0.00	0.00	0.00	
6,123.41	90.00	360.00	5,819.00	305.00	-139.14	11.00	11.00	0.00	360.00	
16,014.88	90.00	360.00	5,819.00	10,196.47	-139.14	0.00	0.00	0.00	0.00	PBHL 2443



WOG

Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	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	212.79	399.98	-1.47	-0.95	-1.45	2.00	2.00	0.00
458.49	3.17	212.79	458.41	-3.68	-2.37	-3.65	2.00	2.00	0.00
Hold 3.17° Inc									
500.00	3.17	212.79	499.86	-5.61	-3.62	-5.56	0.00	0.00	0.00
600.00	3.17	212.79	599.70	-10.26	-6.61	-10.17	0.00	0.00	0.00
700.00	3.17	212.79	699.55	-14.91	-9.61	-14.78	0.00	0.00	0.00
800.00	3.17	212.79	799.40	-19.56	-12.60	-19.39	0.00	0.00	0.00
900.00	3.17	212.79	899.24	-24.21	-15.59	-23.99	0.00	0.00	0.00
1,000.00	3.17	212.79	999.09	-28.86	-18.59	-28.60	0.00	0.00	0.00
1,100.00	3.17	212.79	1,098.94	-33.51	-21.58	-33.21	0.00	0.00	0.00
1,200.00	3.17	212.79	1,198.78	-38.15	-24.58	-37.82	0.00	0.00	0.00
1,300.00	3.17	212.79	1,298.63	-42.80	-27.57	-42.42	0.00	0.00	0.00
1,400.00	3.17	212.79	1,398.48	-47.45	-30.57	-47.03	0.00	0.00	0.00
1,500.00	3.17	212.79	1,498.33	-52.10	-33.56	-51.64	0.00	0.00	0.00
1,551.75	3.17	212.79	1,550.00	-54.51	-35.11	-54.02	0.00	0.00	0.00
Upper Pierre									
1,600.00	3.17	212.79	1,598.17	-56.75	-36.56	-56.24	0.00	0.00	0.00
1,700.00	3.17	212.79	1,698.02	-61.40	-39.55	-60.85	0.00	0.00	0.00
1,800.00	3.17	212.79	1,797.87	-66.05	-42.54	-65.46	0.00	0.00	0.00
1,900.00	3.17	212.79	1,897.71	-70.69	-45.54	-70.07	0.00	0.00	0.00
2,000.00	3.17	212.79	1,997.56	-75.34	-48.53	-74.67	0.00	0.00	0.00
2,100.00	3.17	212.79	2,097.41	-79.99	-51.53	-79.28	0.00	0.00	0.00
2,200.00	3.17	212.79	2,197.25	-84.64	-54.52	-83.89	0.00	0.00	0.00
2,300.00	3.17	212.79	2,297.10	-89.29	-57.52	-88.50	0.00	0.00	0.00
2,400.00	3.17	212.79	2,396.95	-93.94	-60.51	-93.10	0.00	0.00	0.00
2,500.00	3.17	212.79	2,496.80	-98.59	-63.50	-97.71	0.00	0.00	0.00
2,600.00	3.17	212.79	2,596.64	-103.23	-66.50	-102.32	0.00	0.00	0.00
2,700.00	3.17	212.79	2,696.49	-107.88	-69.49	-106.92	0.00	0.00	0.00
2,800.00	3.17	212.79	2,796.34	-112.53	-72.49	-111.53	0.00	0.00	0.00
2,900.00	3.17	212.79	2,896.18	-117.18	-75.48	-116.14	0.00	0.00	0.00
3,000.00	3.17	212.79	2,996.03	-121.83	-78.48	-120.75	0.00	0.00	0.00
3,100.00	3.17	212.79	3,095.88	-126.48	-81.47	-125.35	0.00	0.00	0.00
3,200.00	3.17	212.79	3,195.72	-131.13	-84.47	-129.96	0.00	0.00	0.00
3,300.00	3.17	212.79	3,295.57	-135.77	-87.46	-134.57	0.00	0.00	0.00
3,400.00	3.17	212.79	3,395.42	-140.42	-90.45	-139.18	0.00	0.00	0.00
3,500.00	3.17	212.79	3,495.27	-145.07	-93.45	-143.78	0.00	0.00	0.00
3,504.74	3.17	212.79	3,500.00	-145.29	-93.59	-144.00	0.00	0.00	0.00
Hygiene									
3,600.00	3.17	212.79	3,595.11	-149.72	-96.44	-148.39	0.00	0.00	0.00
3,654.97	3.17	212.79	3,650.00	-152.28	-98.09	-150.92	0.00	0.00	0.00
Lower Pierre									
3,700.00	3.17	212.79	3,694.96	-154.37	-99.44	-153.00	0.00	0.00	0.00
3,800.00	3.17	212.79	3,794.81	-159.02	-102.43	-157.61	0.00	0.00	0.00
3,900.00	3.17	212.79	3,894.65	-163.67	-105.43	-162.21	0.00	0.00	0.00
4,000.00	3.17	212.79	3,994.50	-168.31	-108.42	-166.82	0.00	0.00	0.00
4,100.00	3.17	212.79	4,094.35	-172.96	-111.42	-171.43	0.00	0.00	0.00
4,200.00	3.17	212.79	4,194.19	-177.61	-114.41	-176.03	0.00	0.00	0.00
4,300.00	3.17	212.79	4,294.04	-182.26	-117.40	-180.64	0.00	0.00	0.00
4,400.00	3.17	212.79	4,393.89	-186.91	-120.40	-185.25	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25O-2443
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4738.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	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	3.17	212.79	4,493.74	-191.56	-123.39	-189.86	0.00	0.00	0.00	
4,600.00	3.17	212.79	4,593.58	-196.21	-126.39	-194.46	0.00	0.00	0.00	
4,700.00	3.17	212.79	4,693.43	-200.85	-129.38	-199.07	0.00	0.00	0.00	
4,800.00	3.17	212.79	4,793.28	-205.50	-132.38	-203.68	0.00	0.00	0.00	
4,900.00	3.17	212.79	4,893.12	-210.15	-135.37	-208.29	0.00	0.00	0.00	
4,946.54	3.17	212.79	4,939.59	-212.32	-136.76	-210.43	0.00	0.00	0.00	
Drop 2°/100'										
5,000.00	2.10	212.79	4,993.00	-214.38	-138.10	-212.48	2.00	-2.00	0.00	
5,100.00	0.10	212.79	5,092.97	-216.00	-139.14	-214.08	2.00	-2.00	0.00	
5,105.03	0.00	0.00	5,098.00	-216.00	-139.14	-214.08	2.00	-2.00	0.00	
Hold Vertical										
5,200.00	0.00	0.00	5,192.97	-216.00	-139.14	-214.08	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,292.97	-216.00	-139.14	-214.08	0.00	0.00	0.00	
5,305.03	0.00	0.00	5,298.00	-216.00	-139.14	-214.08	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,400.00	10.44	360.00	5,392.45	-207.37	-139.14	-205.45	11.00	11.00	0.00	
5,443.66	15.25	360.00	5,435.00	-197.66	-139.14	-195.75	11.00	11.00	0.00	
P200 Marker										
5,464.51	17.54	360.00	5,455.00	-191.78	-139.14	-189.87	11.00	11.00	0.00	
P300 Marker										
5,481.38	19.39	360.00	5,471.00	-186.44	-139.14	-184.52	11.00	11.00	0.00	
P350 Marker										
5,496.30	21.03	360.00	5,485.00	-181.28	-139.14	-179.37	11.00	11.00	0.00	
Sharon Springs										
5,500.00	21.44	360.00	5,488.45	-179.94	-139.14	-178.03	11.00	11.00	0.00	
5,500.59	21.51	360.00	5,489.00	-179.73	-139.14	-177.81	11.00	11.00	0.00	
Niobrara										
5,518.99	23.53	360.00	5,506.00	-172.68	-139.14	-170.76	11.00	11.00	0.00	
Top A Chalk										
5,552.20	27.18	360.00	5,536.00	-158.46	-139.14	-156.55	11.00	11.00	0.00	
Top A Marl										
5,565.78	28.68	360.00	5,548.00	-152.10	-139.14	-150.19	11.00	11.00	0.00	
A Marl										
5,574.94	29.68	360.00	5,556.00	-147.63	-139.14	-145.72	11.00	11.00	0.00	
Top Upper B										
5,600.00	32.44	360.00	5,577.46	-134.71	-139.14	-132.79	11.00	11.00	0.00	
5,603.01	32.77	360.00	5,580.00	-133.08	-139.14	-131.17	11.00	11.00	0.00	
Base Upper B										
5,622.27	34.89	360.00	5,596.00	-122.36	-139.14	-120.45	11.00	11.00	0.00	
Top Lower B										
5,658.54	38.88	360.00	5,625.00	-100.60	-139.14	-98.69	11.00	11.00	0.00	
Base Lower B										
5,675.46	40.74	360.00	5,638.00	-89.77	-139.14	-87.86	11.00	11.00	0.00	
Top B Marl										
5,700.00	43.44	360.00	5,656.21	-73.32	-139.14	-71.41	11.00	11.00	0.00	
5,733.82	47.16	360.00	5,680.00	-49.28	-139.14	-47.38	11.00	11.00	0.00	
Top C Chalk										
5,745.74	48.47	360.00	5,688.00	-40.46	-139.14	-38.56	11.00	11.00	0.00	
Middle C Chalk										
5,767.36	50.84	360.00	5,702.00	-23.98	-139.14	-22.07	11.00	11.00	0.00	
Middle C Marl										



WOG

Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	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)	
5,796.91	54.09	360.00	5,720.00	-0.54	-139.14	1.35	11.00	11.00	0.00	
Lower C Chalk										
5,800.00	54.43	360.00	5,721.80	1.96	-139.14	3.86	11.00	11.00	0.00	
5,827.13	57.42	360.00	5,737.00	24.43	-139.14	26.33	11.00	11.00	0.00	
Lower C Marl										
5,881.86	63.44	360.00	5,764.00	72.01	-139.14	73.90	11.00	11.00	0.00	
Lower C Marker										
5,900.00	65.43	360.00	5,771.83	88.37	-139.14	90.26	11.00	11.00	0.00	
5,902.84	65.74	360.00	5,773.00	90.95	-139.14	92.84	11.00	11.00	0.00	
Top Ft. Hays										
5,942.78	70.14	360.00	5,788.00	127.97	-139.14	129.85	11.00	11.00	0.00	
Ft. Hays Marker										
6,000.00	76.43	360.00	5,804.45	182.74	-139.14	184.62	11.00	11.00	0.00	
6,100.00	87.43	360.00	5,818.47	281.59	-139.14	283.47	11.00	11.00	0.00	
6,123.41	90.00	360.00	5,819.00	305.00	-139.14	306.87	11.00	11.00	0.00	
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG										
6,200.00	90.00	360.00	5,819.00	381.59	-139.14	383.45	0.00	0.00	0.00	
6,300.00	90.00	360.00	5,819.00	481.59	-139.14	483.44	0.00	0.00	0.00	
6,400.00	90.00	360.00	5,819.00	581.59	-139.14	583.43	0.00	0.00	0.00	
6,500.00	90.00	360.00	5,819.00	681.59	-139.14	683.42	0.00	0.00	0.00	
6,600.00	90.00	360.00	5,819.00	781.59	-139.14	783.41	0.00	0.00	0.00	
6,700.00	90.00	360.00	5,819.00	881.59	-139.14	883.40	0.00	0.00	0.00	
6,800.00	90.00	360.00	5,819.00	981.59	-139.14	983.39	0.00	0.00	0.00	
6,900.00	90.00	360.00	5,819.00	1,081.59	-139.14	1,083.38	0.00	0.00	0.00	
7,000.00	90.00	360.00	5,819.00	1,181.59	-139.14	1,183.38	0.00	0.00	0.00	
7,100.00	90.00	360.00	5,819.00	1,281.59	-139.14	1,283.37	0.00	0.00	0.00	
7,200.00	90.00	360.00	5,819.00	1,381.59	-139.14	1,383.36	0.00	0.00	0.00	
7,300.00	90.00	360.00	5,819.00	1,481.59	-139.14	1,483.35	0.00	0.00	0.00	
7,400.00	90.00	360.00	5,819.00	1,581.59	-139.14	1,583.34	0.00	0.00	0.00	
7,500.00	90.00	360.00	5,819.00	1,681.59	-139.14	1,683.33	0.00	0.00	0.00	
7,600.00	90.00	360.00	5,819.00	1,781.59	-139.14	1,783.32	0.00	0.00	0.00	
7,700.00	90.00	360.00	5,819.00	1,881.59	-139.14	1,883.31	0.00	0.00	0.00	
7,800.00	90.00	360.00	5,819.00	1,981.59	-139.14	1,983.30	0.00	0.00	0.00	
7,900.00	90.00	360.00	5,819.00	2,081.59	-139.14	2,083.29	0.00	0.00	0.00	
8,000.00	90.00	360.00	5,819.00	2,181.59	-139.14	2,183.28	0.00	0.00	0.00	
8,100.00	90.00	360.00	5,819.00	2,281.59	-139.14	2,283.27	0.00	0.00	0.00	
8,200.00	90.00	360.00	5,819.00	2,381.59	-139.14	2,383.26	0.00	0.00	0.00	
8,300.00	90.00	360.00	5,819.00	2,481.59	-139.14	2,483.25	0.00	0.00	0.00	
8,400.00	90.00	360.00	5,819.00	2,581.59	-139.14	2,583.25	0.00	0.00	0.00	
8,500.00	90.00	360.00	5,819.00	2,681.59	-139.14	2,683.24	0.00	0.00	0.00	
8,600.00	90.00	360.00	5,819.00	2,781.59	-139.14	2,783.23	0.00	0.00	0.00	
8,700.00	90.00	360.00	5,819.00	2,881.59	-139.14	2,883.22	0.00	0.00	0.00	
8,800.00	90.00	360.00	5,819.00	2,981.59	-139.14	2,983.21	0.00	0.00	0.00	
8,900.00	90.00	360.00	5,819.00	3,081.59	-139.14	3,083.20	0.00	0.00	0.00	
9,000.00	90.00	360.00	5,819.00	3,181.59	-139.14	3,183.19	0.00	0.00	0.00	
9,100.00	90.00	360.00	5,819.00	3,281.59	-139.14	3,283.18	0.00	0.00	0.00	
9,200.00	90.00	360.00	5,819.00	3,381.59	-139.14	3,383.17	0.00	0.00	0.00	
9,300.00	90.00	360.00	5,819.00	3,481.59	-139.14	3,483.16	0.00	0.00	0.00	
9,400.00	90.00	360.00	5,819.00	3,581.59	-139.14	3,583.15	0.00	0.00	0.00	
9,500.00	90.00	360.00	5,819.00	3,681.59	-139.14	3,683.14	0.00	0.00	0.00	
9,600.00	90.00	360.00	5,819.00	3,781.59	-139.14	3,783.13	0.00	0.00	0.00	
9,700.00	90.00	360.00	5,819.00	3,881.59	-139.14	3,883.12	0.00	0.00	0.00	
9,800.00	90.00	360.00	5,819.00	3,981.59	-139.14	3,983.11	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25O-2443
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4738.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
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)
9,900.00	90.00	360.00	5,819.00	4,081.59	-139.14	4,083.11	0.00	0.00	0.00
10,000.00	90.00	360.00	5,819.00	4,181.59	-139.14	4,183.10	0.00	0.00	0.00
10,100.00	90.00	360.00	5,819.00	4,281.59	-139.14	4,283.09	0.00	0.00	0.00
10,200.00	90.00	360.00	5,819.00	4,381.59	-139.14	4,383.08	0.00	0.00	0.00
10,300.00	90.00	360.00	5,819.00	4,481.59	-139.14	4,483.07	0.00	0.00	0.00
10,400.00	90.00	360.00	5,819.00	4,581.59	-139.14	4,583.06	0.00	0.00	0.00
10,500.00	90.00	360.00	5,819.00	4,681.59	-139.14	4,683.05	0.00	0.00	0.00
10,600.00	90.00	360.00	5,819.00	4,781.59	-139.14	4,783.04	0.00	0.00	0.00
10,700.00	90.00	360.00	5,819.00	4,881.59	-139.14	4,883.03	0.00	0.00	0.00
10,800.00	90.00	360.00	5,819.00	4,981.59	-139.14	4,983.02	0.00	0.00	0.00
10,900.00	90.00	360.00	5,819.00	5,081.59	-139.14	5,083.01	0.00	0.00	0.00
11,000.00	90.00	360.00	5,819.00	5,181.59	-139.14	5,183.00	0.00	0.00	0.00
11,100.00	90.00	360.00	5,819.00	5,281.59	-139.14	5,282.99	0.00	0.00	0.00
11,200.00	90.00	360.00	5,819.00	5,381.59	-139.14	5,382.98	0.00	0.00	0.00
11,300.00	90.00	360.00	5,819.00	5,481.59	-139.14	5,482.98	0.00	0.00	0.00
11,400.00	90.00	360.00	5,819.00	5,581.59	-139.14	5,582.97	0.00	0.00	0.00
11,500.00	90.00	360.00	5,819.00	5,681.59	-139.14	5,682.96	0.00	0.00	0.00
11,600.00	90.00	360.00	5,819.00	5,781.59	-139.14	5,782.95	0.00	0.00	0.00
11,700.00	90.00	360.00	5,819.00	5,881.59	-139.14	5,882.94	0.00	0.00	0.00
11,800.00	90.00	360.00	5,819.00	5,981.59	-139.14	5,982.93	0.00	0.00	0.00
11,900.00	90.00	360.00	5,819.00	6,081.59	-139.14	6,082.92	0.00	0.00	0.00
12,000.00	90.00	360.00	5,819.00	6,181.59	-139.14	6,182.91	0.00	0.00	0.00
12,100.00	90.00	360.00	5,819.00	6,281.59	-139.14	6,282.90	0.00	0.00	0.00
12,200.00	90.00	360.00	5,819.00	6,381.59	-139.14	6,382.89	0.00	0.00	0.00
12,300.00	90.00	360.00	5,819.00	6,481.59	-139.14	6,482.88	0.00	0.00	0.00
12,400.00	90.00	360.00	5,819.00	6,581.59	-139.14	6,582.87	0.00	0.00	0.00
12,500.00	90.00	360.00	5,819.00	6,681.59	-139.14	6,682.86	0.00	0.00	0.00
12,600.00	90.00	360.00	5,819.00	6,781.59	-139.14	6,782.85	0.00	0.00	0.00
12,700.00	90.00	360.00	5,819.00	6,881.59	-139.14	6,882.84	0.00	0.00	0.00
12,800.00	90.00	360.00	5,819.00	6,981.59	-139.14	6,982.84	0.00	0.00	0.00
12,900.00	90.00	360.00	5,819.00	7,081.59	-139.14	7,082.83	0.00	0.00	0.00
13,000.00	90.00	360.00	5,819.00	7,181.59	-139.14	7,182.82	0.00	0.00	0.00
13,100.00	90.00	360.00	5,819.00	7,281.59	-139.14	7,282.81	0.00	0.00	0.00
13,200.00	90.00	360.00	5,819.00	7,381.59	-139.14	7,382.80	0.00	0.00	0.00
13,300.00	90.00	360.00	5,819.00	7,481.59	-139.14	7,482.79	0.00	0.00	0.00
13,400.00	90.00	360.00	5,819.00	7,581.59	-139.14	7,582.78	0.00	0.00	0.00
13,500.00	90.00	360.00	5,819.00	7,681.59	-139.14	7,682.77	0.00	0.00	0.00
13,600.00	90.00	360.00	5,819.00	7,781.59	-139.14	7,782.76	0.00	0.00	0.00
13,700.00	90.00	360.00	5,819.00	7,881.59	-139.14	7,882.75	0.00	0.00	0.00
13,800.00	90.00	360.00	5,819.00	7,981.59	-139.14	7,982.74	0.00	0.00	0.00
13,900.00	90.00	360.00	5,819.00	8,081.59	-139.14	8,082.73	0.00	0.00	0.00
14,000.00	90.00	360.00	5,819.00	8,181.59	-139.14	8,182.72	0.00	0.00	0.00
14,100.00	90.00	360.00	5,819.00	8,281.59	-139.14	8,282.71	0.00	0.00	0.00
14,200.00	90.00	360.00	5,819.00	8,381.59	-139.14	8,382.71	0.00	0.00	0.00
14,300.00	90.00	360.00	5,819.00	8,481.59	-139.14	8,482.70	0.00	0.00	0.00
14,400.00	90.00	360.00	5,819.00	8,581.59	-139.14	8,582.69	0.00	0.00	0.00
14,500.00	90.00	360.00	5,819.00	8,681.59	-139.14	8,682.68	0.00	0.00	0.00
14,600.00	90.00	360.00	5,819.00	8,781.59	-139.14	8,782.67	0.00	0.00	0.00
14,700.00	90.00	360.00	5,819.00	8,881.59	-139.14	8,882.66	0.00	0.00	0.00
14,800.00	90.00	360.00	5,819.00	8,981.59	-139.14	8,982.65	0.00	0.00	0.00
14,900.00	90.00	360.00	5,819.00	9,081.59	-139.14	9,082.64	0.00	0.00	0.00
15,000.00	90.00	360.00	5,819.00	9,181.59	-139.14	9,182.63	0.00	0.00	0.00
15,100.00	90.00	360.00	5,819.00	9,281.59	-139.14	9,282.62	0.00	0.00	0.00
15,200.00	90.00	360.00	5,819.00	9,381.59	-139.14	9,382.61	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25O-2443
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4738.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	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)
15,300.00	90.00	360.00	5,819.00	9,481.59	-139.14	9,482.60	0.00	0.00	0.00
15,400.00	90.00	360.00	5,819.00	9,581.59	-139.14	9,582.59	0.00	0.00	0.00
15,500.00	90.00	360.00	5,819.00	9,681.59	-139.14	9,682.58	0.00	0.00	0.00
15,600.00	90.00	360.00	5,819.00	9,781.59	-139.14	9,782.58	0.00	0.00	0.00
15,700.00	90.00	360.00	5,819.00	9,881.59	-139.14	9,882.57	0.00	0.00	0.00
15,800.00	90.00	360.00	5,819.00	9,981.59	-139.14	9,982.56	0.00	0.00	0.00
15,900.00	90.00	360.00	5,819.00	10,081.59	-139.14	10,082.55	0.00	0.00	0.00
16,000.00	90.00	360.00	5,819.00	10,181.59	-139.14	10,182.54	0.00	0.00	0.00
16,014.88	90.00	360.00	5,819.00	10,196.47	-139.14	10,197.42	0.00	0.00	0.00
TD at 16014.88									

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 2443	0.00	0.00	5,819.00	10,196.47	-139.14	1,550,145.89	3,467,436.59	40° 49' 52.710 N	103° 48' 38.900 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,123.41	5,819.00	5 1/2" Marker / 7" CSG	7.000	8.750	



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25O-2443
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4738.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4738.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25O-2443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,551.75	1,550.00	Upper Pierre				
3,504.74	3,500.00	Hygiene				
3,654.97	3,650.00	Lower Pierre				
5,443.66	5,435.00	P200 Marker				
5,464.51	5,455.00	P300 Marker				
5,481.38	5,471.00	P350 Marker				
5,496.30	5,485.00	Sharon Springs				
5,500.59	5,489.00	Niobrara				
5,518.99	5,506.00	Top A Chalk				
5,552.20	5,536.00	Top A Marl				
5,565.78	5,548.00	A Marl				
5,574.94	5,556.00	Top Upper B				
5,603.01	5,580.00	Base Upper B				
5,622.27	5,596.00	Top Lower B				
5,658.54	5,625.00	Base Lower B				
5,675.46	5,638.00	Top B Marl				
5,733.82	5,680.00	Top C Chalk				
5,745.74	5,688.00	Middle C Chalk				
5,767.36	5,702.00	Middle C Marl				
5,796.91	5,720.00	Lower C Chalk				
5,827.13	5,737.00	Lower C Marl				
5,881.86	5,764.00	Lower C Marker				
5,902.84	5,773.00	Top Ft. Hays				
5,942.78	5,788.00	Ft. Hays Marker				

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'
458.49	458.41	-3.68	-2.37	Hold 3.17° Inc
4,946.54	4,939.59	-212.32	-136.76	Drop 2°/100'
5,105.03	5,098.00	-216.00	-139.14	Hold Vertical
5,305.03	5,298.00	-216.00	-139.14	KOP, Build 11°/100'
6,123.41	5,819.00	305.00	-139.14	LP @ 90° Inc, Hold
16,014.88	5,819.00	10,196.47	-139.14	TD at 16014.88