



Project: Weld County, CO
Site: Sec 25-T10N-R58W
Well: Razor #25N-2406
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: 53024.2nT
Dip Angle: 67.38°
Date: 5/13/2015
Model: IGRF2010

FORMATION TOP DETAILS

	TVDPath	MDPath	Formation
	1550.00	1554.93	Upper Pierre
	3500.00	3513.93	Hygiene
	3650.00	3664.63	Lower Pierre
	5428.00	5450.07	P200 Marker
	5448.00	5470.92	P300 Marker
	5464.00	5487.78	P350 Marker
	5478.00	5502.70	Sharon Springs
	5482.00	5507.00	Niobrara
	5499.00	5525.40	Top A Chalk
	5529.00	5558.60	Top A Marl
	5541.00	5572.19	A Marl
	5549.00	5581.35	Top Upper B
	5573.00	5609.42	Base Upper B
	5589.00	5628.68	Top Lower B
	5618.00	5664.94	Base Lower B
	5631.00	5681.87	Top B Marl
	5673.00	5740.23	Top C Chalk
	5681.00	5752.14	Middle C Chalk
	5695.00	5773.77	Middle C Marl
	5713.00	5803.32	Lower C Chalk
	5730.00	5833.54	Lower C Marl
	5757.00	5888.27	Lower C Marker
	5766.00	5909.24	Top Ft. Hays
	5781.00	5949.19	Ft. Hays Marker

WELL DETAILS: Razor #25N-2406

+N/-S	+E/-W	Northing	Ground Level:	4701.00	Longitude	Slot
0.00	0.00	1539961.64	Easting	3466419.94	40° 48' 12.290 N	103° 48' 54.640 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	574.81	5.50	232.26	574.39	-8.06	-10.42	2.00	232.26	-7.71	
4	4836.62	5.50	232.26	4816.61	-257.94	-333.20	0.00	0.00	-246.52	
5	5111.44	0.00	0.00	5091.00	-266.00	-343.62	2.00	180.00	-254.23	
6	5311.44	0.00	0.00	5291.00	-266.00	-343.62	0.00	0.00	-254.23	
7	6129.82	90.00	360.00	5812.00	255.00	-343.62	11.00	360.00	266.47	
8	16031.82	90.00	360.00	5812.00	10157.00	-343.62	0.00	0.00	10162.81	PBHL 2406

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'
574.39	574.81	5.50	232.26	-8.06	-10.42	-7.71	13.17	Hold 5.50° Inc
4816.61	4836.62	5.50	232.26	-257.94	-333.20	-246.52	421.37	Drop 2°/100'
5091.00	5111.44	0.00	0.00	-266.00	-343.62	-254.23	434.54	Hold Vertical
5291.00	5311.44	0.00	0.00	-266.00	-343.62	-254.23	434.54	KOP, Build 11°/100'
5812.00	6129.82	90.00	360.00	255.00	-343.62	266.47	955.54	LP @ 90° Inc, Hold
5812.00	16031.82	90.00	360.00	10157.00	-343.62	10162.81	10857.54	TD at 16031.82

DESIGN TARGET DETAILS

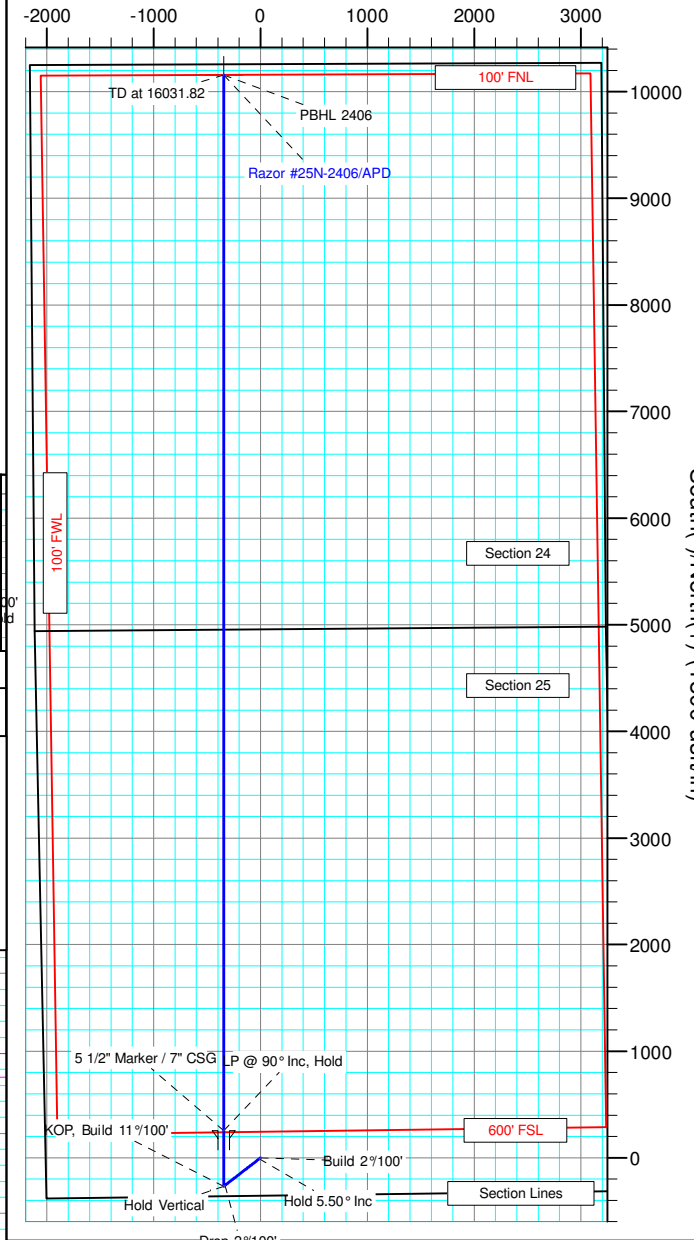
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 2406	5812.00	10157.00	-343.62	1550110.27	3465883.41	40° 49' 52.650 N	103° 48' 59.110 W

SHL:
355' FSL, 2010' FWL
Sec25-T10N-R58W

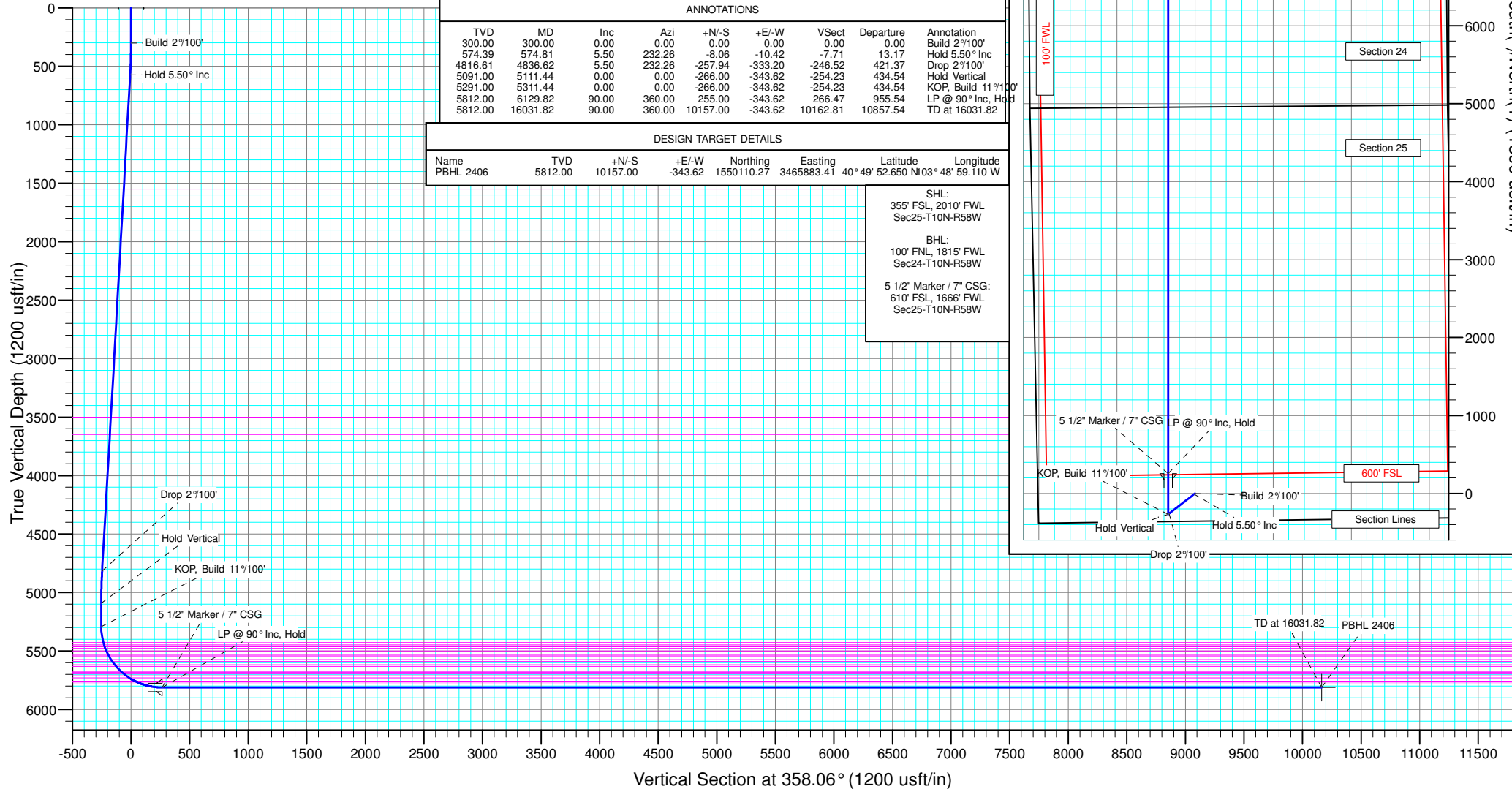
BHL:
100' FNL, 1815' FWL
Sec24-T10N-R58W

5 1/2" Marker / 7" CSG:
610' FSL, 1666' FWL
Sec25-T10N-R58W

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



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





Whiting Petroleum Corp.

**Weld County, CO
Sec 25-T10N-R58W
Razor #25N-2406**

Hz

Plan: APD

Standard Planning Report

19 February, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25N-2406
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4722.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	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 #25N-2406			
Well Position	+N/-S	-4,631.09 usft	Northing:	1,539,961.64 usft
	+E/-W	1,448.86 usft	Easting:	3,466,419.94 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 4,701.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/13/2015	7.84	67.38	53,024

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	358.06

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	
574.81	5.50	232.26	574.39	-8.06	-10.42	2.00	2.00	0.00	232.26	
4,836.62	5.50	232.26	4,816.61	-257.94	-333.20	0.00	0.00	0.00	0.00	
5,111.44	0.00	0.00	5,091.00	-266.00	-343.62	2.00	-2.00	0.00	180.00	
5,311.44	0.00	0.00	5,291.00	-266.00	-343.62	0.00	0.00	0.00	0.00	
6,129.82	90.00	360.00	5,812.00	255.00	-343.62	11.00	11.00	0.00	360.00	
16,031.82	90.00	360.00	5,812.00	10,157.00	-343.62	0.00	0.00	0.00	0.00	PBHL 2406



WOG

Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	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	232.26	399.98	-1.07	-1.38	-1.02	2.00	2.00	0.00
500.00	4.00	232.26	499.84	-4.27	-5.52	-4.08	2.00	2.00	0.00
574.81	5.50	232.26	574.39	-8.06	-10.42	-7.71	2.00	2.00	0.00
Hold 5.50° Inc									
600.00	5.50	232.26	599.46	-9.54	-12.32	-9.12	0.00	0.00	0.00
700.00	5.50	232.26	699.00	-15.40	-19.90	-14.72	0.00	0.00	0.00
800.00	5.50	232.26	798.54	-21.27	-27.47	-20.32	0.00	0.00	0.00
900.00	5.50	232.26	898.08	-27.13	-35.04	-25.93	0.00	0.00	0.00
1,000.00	5.50	232.26	997.62	-32.99	-42.62	-31.53	0.00	0.00	0.00
1,100.00	5.50	232.26	1,097.16	-38.85	-50.19	-37.14	0.00	0.00	0.00
1,200.00	5.50	232.26	1,196.70	-44.72	-57.77	-42.74	0.00	0.00	0.00
1,300.00	5.50	232.26	1,296.24	-50.58	-65.34	-48.34	0.00	0.00	0.00
1,400.00	5.50	232.26	1,395.78	-56.44	-72.91	-53.95	0.00	0.00	0.00
1,500.00	5.50	232.26	1,495.33	-62.31	-80.49	-59.55	0.00	0.00	0.00
1,554.93	5.50	232.26	1,550.00	-65.53	-84.65	-62.63	0.00	0.00	0.00
Upper Pierre									
1,600.00	5.50	232.26	1,594.87	-68.17	-88.06	-65.15	0.00	0.00	0.00
1,700.00	5.50	232.26	1,694.41	-74.03	-95.64	-70.76	0.00	0.00	0.00
1,800.00	5.50	232.26	1,793.95	-79.90	-103.21	-76.36	0.00	0.00	0.00
1,900.00	5.50	232.26	1,893.49	-85.76	-110.78	-81.96	0.00	0.00	0.00
2,000.00	5.50	232.26	1,993.03	-91.62	-118.36	-87.57	0.00	0.00	0.00
2,100.00	5.50	232.26	2,092.57	-97.49	-125.93	-93.17	0.00	0.00	0.00
2,200.00	5.50	232.26	2,192.11	-103.35	-133.51	-98.78	0.00	0.00	0.00
2,300.00	5.50	232.26	2,291.65	-109.21	-141.08	-104.38	0.00	0.00	0.00
2,400.00	5.50	232.26	2,391.19	-115.08	-148.65	-109.98	0.00	0.00	0.00
2,500.00	5.50	232.26	2,490.73	-120.94	-156.23	-115.59	0.00	0.00	0.00
2,600.00	5.50	232.26	2,590.27	-126.80	-163.80	-121.19	0.00	0.00	0.00
2,700.00	5.50	232.26	2,689.81	-132.66	-171.38	-126.79	0.00	0.00	0.00
2,800.00	5.50	232.26	2,789.35	-138.53	-178.95	-132.40	0.00	0.00	0.00
2,900.00	5.50	232.26	2,888.89	-144.39	-186.52	-138.00	0.00	0.00	0.00
3,000.00	5.50	232.26	2,988.43	-150.25	-194.10	-143.61	0.00	0.00	0.00
3,100.00	5.50	232.26	3,087.97	-156.12	-201.67	-149.21	0.00	0.00	0.00
3,200.00	5.50	232.26	3,187.51	-161.98	-209.25	-154.81	0.00	0.00	0.00
3,300.00	5.50	232.26	3,287.05	-167.84	-216.82	-160.42	0.00	0.00	0.00
3,400.00	5.50	232.26	3,386.59	-173.71	-224.39	-166.02	0.00	0.00	0.00
3,500.00	5.50	232.26	3,486.13	-179.57	-231.97	-171.62	0.00	0.00	0.00
3,513.93	5.50	232.26	3,500.00	-180.39	-233.02	-172.40	0.00	0.00	0.00
Hygiene									
3,600.00	5.50	232.26	3,585.67	-185.43	-239.54	-177.23	0.00	0.00	0.00
3,664.63	5.50	232.26	3,650.00	-189.22	-244.44	-180.85	0.00	0.00	0.00
Lower Pierre									
3,700.00	5.50	232.26	3,685.21	-191.30	-247.11	-182.83	0.00	0.00	0.00
3,800.00	5.50	232.26	3,784.75	-197.16	-254.69	-188.43	0.00	0.00	0.00
3,900.00	5.50	232.26	3,884.29	-203.02	-262.26	-194.04	0.00	0.00	0.00
4,000.00	5.50	232.26	3,983.83	-208.89	-269.84	-199.64	0.00	0.00	0.00
4,100.00	5.50	232.26	4,083.37	-214.75	-277.41	-205.25	0.00	0.00	0.00
4,200.00	5.50	232.26	4,182.91	-220.61	-284.98	-210.85	0.00	0.00	0.00
4,300.00	5.50	232.26	4,282.45	-226.47	-292.56	-216.45	0.00	0.00	0.00
4,400.00	5.50	232.26	4,381.99	-232.34	-300.13	-222.06	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25N-2406
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4722.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	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	5.50	232.26	4,481.53	-238.20	-307.71	-227.66	0.00	0.00	0.00	
4,600.00	5.50	232.26	4,581.07	-244.06	-315.28	-233.26	0.00	0.00	0.00	
4,700.00	5.50	232.26	4,680.61	-249.93	-322.85	-238.87	0.00	0.00	0.00	
4,800.00	5.50	232.26	4,780.15	-255.79	-330.43	-244.47	0.00	0.00	0.00	
4,836.62	5.50	232.26	4,816.61	-257.94	-333.20	-246.52	0.00	0.00	0.00	
Drop 2°/100'										
4,900.00	4.23	232.26	4,879.76	-261.23	-337.45	-249.67	2.00	-2.00	0.00	
5,000.00	2.23	232.26	4,979.59	-264.67	-341.90	-252.96	2.00	-2.00	0.00	
5,100.00	0.23	232.26	5,079.56	-265.99	-343.60	-254.22	2.00	-2.00	0.00	
5,111.44	0.00	0.00	5,091.00	-266.00	-343.62	-254.23	2.00	-2.00	1,116.97	
Hold Vertical										
5,200.00	0.00	0.00	5,179.56	-266.00	-343.62	-254.23	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,279.56	-266.00	-343.62	-254.23	0.00	0.00	0.00	
5,311.44	0.00	0.00	5,291.00	-266.00	-343.62	-254.23	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,400.00	9.74	360.00	5,379.14	-258.49	-343.62	-246.72	11.00	11.00	0.00	
5,450.07	15.24	360.00	5,428.00	-247.66	-343.62	-235.91	10.98	10.98	0.00	
P200 Marker										
5,470.92	17.54	360.00	5,448.00	-241.78	-343.62	-230.03	11.03	11.03	0.00	
P300 Marker										
5,487.78	19.39	360.00	5,464.00	-236.44	-343.62	-224.69	11.00	11.00	0.00	
P350 Marker										
5,500.00	20.74	360.00	5,475.47	-232.25	-343.62	-220.50	11.00	11.00	0.00	
5,502.70	21.03	360.00	5,478.00	-231.28	-343.62	-219.53	11.00	11.00	0.00	
Sharon Springs										
5,507.00	21.51	360.00	5,482.00	-229.73	-343.62	-217.98	11.00	11.00	0.00	
Niobrara										
5,525.40	23.53	360.00	5,499.00	-222.68	-343.62	-210.93	11.00	11.00	0.00	
Top A Chalk										
5,558.60	27.18	360.00	5,529.00	-208.46	-343.62	-196.72	11.00	11.00	0.00	
Top A Marl										
5,572.19	28.68	360.00	5,541.00	-202.10	-343.62	-190.37	11.00	11.00	0.00	
A Marl										
5,581.35	29.68	360.00	5,549.00	-197.63	-343.62	-185.90	11.00	11.00	0.00	
Top Upper B										
5,600.00	31.73	360.00	5,565.03	-188.11	-343.62	-176.38	11.00	11.00	0.00	
5,609.42	32.77	360.00	5,573.00	-183.08	-343.62	-171.36	11.00	11.00	0.00	
Base Upper B										
5,628.68	34.89	360.00	5,589.00	-172.36	-343.62	-160.64	11.00	11.00	0.00	
Top Lower B										
5,664.94	38.88	360.00	5,618.00	-150.60	-343.62	-138.90	11.00	11.00	0.00	
Base Lower B										
5,681.87	40.74	360.00	5,631.00	-139.77	-343.62	-128.07	11.00	11.00	0.00	
Top B Marl										
5,700.00	42.73	360.00	5,644.53	-127.70	-343.62	-116.01	11.00	11.00	0.00	
5,740.23	47.16	360.00	5,673.00	-99.28	-343.62	-87.61	11.00	11.00	0.00	
Top C Chalk										
5,752.14	48.47	360.00	5,681.00	-90.46	-343.62	-78.79	11.00	11.00	0.00	
Middle C Chalk										
5,773.77	50.84	360.00	5,695.00	-73.98	-343.62	-62.32	11.00	11.00	0.00	
Middle C Marl										



WOG

Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	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	53.73	360.00	5,711.04	-53.23	-343.62	-41.58	11.00	11.00	0.00	
5,803.32	54.09	360.00	5,713.00	-50.54	-343.62	-38.90	11.00	11.00	0.00	
Lower C Chalk										
5,833.54	57.42	360.00	5,730.00	-25.57	-343.62	-13.94	11.00	11.00	0.00	
Lower C Marl										
5,888.27	63.44	360.00	5,757.00	22.01	-343.62	33.61	11.00	11.00	0.00	
Lower C Marker										
5,900.00	64.73	360.00	5,762.13	32.56	-343.62	44.16	11.00	11.00	0.00	
5,909.24	65.74	360.00	5,766.00	40.95	-343.62	52.55	11.00	11.00	0.00	
Top Ft. Hays										
5,949.19	70.14	360.00	5,781.00	77.97	-343.62	89.54	11.00	11.00	0.00	
Ft. Hays Marker										
6,000.00	75.72	360.00	5,795.91	126.52	-343.62	138.06	11.00	11.00	0.00	
6,100.00	86.72	360.00	5,811.15	225.19	-343.62	236.68	11.00	11.00	0.00	
6,129.82	90.00	360.00	5,812.00	255.00	-343.62	266.47	11.00	11.00	0.00	
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG										
6,200.00	90.00	360.00	5,812.00	325.18	-343.62	336.61	0.00	0.00	0.00	
6,300.00	90.00	360.00	5,812.00	425.18	-343.62	436.55	0.00	0.00	0.00	
6,400.00	90.00	360.00	5,812.00	525.18	-343.62	536.50	0.00	0.00	0.00	
6,500.00	90.00	360.00	5,812.00	625.18	-343.62	636.44	0.00	0.00	0.00	
6,600.00	90.00	360.00	5,812.00	725.18	-343.62	736.38	0.00	0.00	0.00	
6,700.00	90.00	360.00	5,812.00	825.18	-343.62	836.32	0.00	0.00	0.00	
6,800.00	90.00	360.00	5,812.00	925.18	-343.62	936.27	0.00	0.00	0.00	
6,900.00	90.00	360.00	5,812.00	1,025.18	-343.62	1,036.21	0.00	0.00	0.00	
7,000.00	90.00	360.00	5,812.00	1,125.18	-343.62	1,136.15	0.00	0.00	0.00	
7,100.00	90.00	360.00	5,812.00	1,225.18	-343.62	1,236.10	0.00	0.00	0.00	
7,200.00	90.00	360.00	5,812.00	1,325.18	-343.62	1,336.04	0.00	0.00	0.00	
7,300.00	90.00	360.00	5,812.00	1,425.18	-343.62	1,435.98	0.00	0.00	0.00	
7,400.00	90.00	360.00	5,812.00	1,525.18	-343.62	1,535.92	0.00	0.00	0.00	
7,500.00	90.00	360.00	5,812.00	1,625.18	-343.62	1,635.87	0.00	0.00	0.00	
7,600.00	90.00	360.00	5,812.00	1,725.18	-343.62	1,735.81	0.00	0.00	0.00	
7,700.00	90.00	360.00	5,812.00	1,825.18	-343.62	1,835.75	0.00	0.00	0.00	
7,800.00	90.00	360.00	5,812.00	1,925.18	-343.62	1,935.70	0.00	0.00	0.00	
7,900.00	90.00	360.00	5,812.00	2,025.18	-343.62	2,035.64	0.00	0.00	0.00	
8,000.00	90.00	360.00	5,812.00	2,125.18	-343.62	2,135.58	0.00	0.00	0.00	
8,100.00	90.00	360.00	5,812.00	2,225.18	-343.62	2,235.52	0.00	0.00	0.00	
8,200.00	90.00	360.00	5,812.00	2,325.18	-343.62	2,335.47	0.00	0.00	0.00	
8,300.00	90.00	360.00	5,812.00	2,425.18	-343.62	2,435.41	0.00	0.00	0.00	
8,400.00	90.00	360.00	5,812.00	2,525.18	-343.62	2,535.35	0.00	0.00	0.00	
8,500.00	90.00	360.00	5,812.00	2,625.18	-343.62	2,635.30	0.00	0.00	0.00	
8,600.00	90.00	360.00	5,812.00	2,725.18	-343.62	2,735.24	0.00	0.00	0.00	
8,700.00	90.00	360.00	5,812.00	2,825.18	-343.62	2,835.18	0.00	0.00	0.00	
8,800.00	90.00	360.00	5,812.00	2,925.18	-343.62	2,935.12	0.00	0.00	0.00	
8,900.00	90.00	360.00	5,812.00	3,025.18	-343.62	3,035.07	0.00	0.00	0.00	
9,000.00	90.00	360.00	5,812.00	3,125.18	-343.62	3,135.01	0.00	0.00	0.00	
9,100.00	90.00	360.00	5,812.00	3,225.18	-343.62	3,234.95	0.00	0.00	0.00	
9,200.00	90.00	360.00	5,812.00	3,325.18	-343.62	3,334.90	0.00	0.00	0.00	
9,300.00	90.00	360.00	5,812.00	3,425.18	-343.62	3,434.84	0.00	0.00	0.00	
9,400.00	90.00	360.00	5,812.00	3,525.18	-343.62	3,534.78	0.00	0.00	0.00	
9,500.00	90.00	360.00	5,812.00	3,625.18	-343.62	3,634.72	0.00	0.00	0.00	
9,600.00	90.00	360.00	5,812.00	3,725.18	-343.62	3,734.67	0.00	0.00	0.00	
9,700.00	90.00	360.00	5,812.00	3,825.18	-343.62	3,834.61	0.00	0.00	0.00	
9,800.00	90.00	360.00	5,812.00	3,925.18	-343.62	3,934.55	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25N-2406
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4722.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	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)	
9,900.00	90.00	360.00	5,812.00	4,025.18	-343.62	4,034.50	0.00	0.00	0.00	
10,000.00	90.00	360.00	5,812.00	4,125.18	-343.62	4,134.44	0.00	0.00	0.00	
10,100.00	90.00	360.00	5,812.00	4,225.18	-343.62	4,234.38	0.00	0.00	0.00	
10,200.00	90.00	360.00	5,812.00	4,325.18	-343.62	4,334.32	0.00	0.00	0.00	
10,300.00	90.00	360.00	5,812.00	4,425.18	-343.62	4,434.27	0.00	0.00	0.00	
10,400.00	90.00	360.00	5,812.00	4,525.18	-343.62	4,534.21	0.00	0.00	0.00	
10,500.00	90.00	360.00	5,812.00	4,625.18	-343.62	4,634.15	0.00	0.00	0.00	
10,600.00	90.00	360.00	5,812.00	4,725.18	-343.62	4,734.09	0.00	0.00	0.00	
10,700.00	90.00	360.00	5,812.00	4,825.18	-343.62	4,834.04	0.00	0.00	0.00	
10,800.00	90.00	360.00	5,812.00	4,925.18	-343.62	4,933.98	0.00	0.00	0.00	
10,900.00	90.00	360.00	5,812.00	5,025.18	-343.62	5,033.92	0.00	0.00	0.00	
11,000.00	90.00	360.00	5,812.00	5,125.18	-343.62	5,133.87	0.00	0.00	0.00	
11,100.00	90.00	360.00	5,812.00	5,225.18	-343.62	5,233.81	0.00	0.00	0.00	
11,200.00	90.00	360.00	5,812.00	5,325.18	-343.62	5,333.75	0.00	0.00	0.00	
11,300.00	90.00	360.00	5,812.00	5,425.18	-343.62	5,433.69	0.00	0.00	0.00	
11,400.00	90.00	360.00	5,812.00	5,525.18	-343.62	5,533.64	0.00	0.00	0.00	
11,500.00	90.00	360.00	5,812.00	5,625.18	-343.62	5,633.58	0.00	0.00	0.00	
11,600.00	90.00	360.00	5,812.00	5,725.18	-343.62	5,733.52	0.00	0.00	0.00	
11,700.00	90.00	360.00	5,812.00	5,825.18	-343.62	5,833.47	0.00	0.00	0.00	
11,800.00	90.00	360.00	5,812.00	5,925.18	-343.62	5,933.41	0.00	0.00	0.00	
11,900.00	90.00	360.00	5,812.00	6,025.18	-343.62	6,033.35	0.00	0.00	0.00	
12,000.00	90.00	360.00	5,812.00	6,125.18	-343.62	6,133.29	0.00	0.00	0.00	
12,100.00	90.00	360.00	5,812.00	6,225.18	-343.62	6,233.24	0.00	0.00	0.00	
12,200.00	90.00	360.00	5,812.00	6,325.18	-343.62	6,333.18	0.00	0.00	0.00	
12,300.00	90.00	360.00	5,812.00	6,425.18	-343.62	6,433.12	0.00	0.00	0.00	
12,400.00	90.00	360.00	5,812.00	6,525.18	-343.62	6,533.07	0.00	0.00	0.00	
12,500.00	90.00	360.00	5,812.00	6,625.18	-343.62	6,633.01	0.00	0.00	0.00	
12,600.00	90.00	360.00	5,812.00	6,725.18	-343.62	6,732.95	0.00	0.00	0.00	
12,700.00	90.00	360.00	5,812.00	6,825.18	-343.62	6,832.89	0.00	0.00	0.00	
12,800.00	90.00	360.00	5,812.00	6,925.18	-343.62	6,932.84	0.00	0.00	0.00	
12,900.00	90.00	360.00	5,812.00	7,025.18	-343.62	7,032.78	0.00	0.00	0.00	
13,000.00	90.00	360.00	5,812.00	7,125.18	-343.62	7,132.72	0.00	0.00	0.00	
13,100.00	90.00	360.00	5,812.00	7,225.18	-343.62	7,232.67	0.00	0.00	0.00	
13,200.00	90.00	360.00	5,812.00	7,325.18	-343.62	7,332.61	0.00	0.00	0.00	
13,300.00	90.00	360.00	5,812.00	7,425.18	-343.62	7,432.55	0.00	0.00	0.00	
13,400.00	90.00	360.00	5,812.00	7,525.18	-343.62	7,532.49	0.00	0.00	0.00	
13,500.00	90.00	360.00	5,812.00	7,625.18	-343.62	7,632.44	0.00	0.00	0.00	
13,600.00	90.00	360.00	5,812.00	7,725.18	-343.62	7,732.38	0.00	0.00	0.00	
13,700.00	90.00	360.00	5,812.00	7,825.18	-343.62	7,832.32	0.00	0.00	0.00	
13,800.00	90.00	360.00	5,812.00	7,925.18	-343.62	7,932.27	0.00	0.00	0.00	
13,900.00	90.00	360.00	5,812.00	8,025.18	-343.62	8,032.21	0.00	0.00	0.00	
14,000.00	90.00	360.00	5,812.00	8,125.18	-343.62	8,132.15	0.00	0.00	0.00	
14,100.00	90.00	360.00	5,812.00	8,225.18	-343.62	8,232.09	0.00	0.00	0.00	
14,200.00	90.00	360.00	5,812.00	8,325.18	-343.62	8,332.04	0.00	0.00	0.00	
14,300.00	90.00	360.00	5,812.00	8,425.18	-343.62	8,431.98	0.00	0.00	0.00	
14,400.00	90.00	360.00	5,812.00	8,525.18	-343.62	8,531.92	0.00	0.00	0.00	
14,500.00	90.00	360.00	5,812.00	8,625.18	-343.62	8,631.87	0.00	0.00	0.00	
14,600.00	90.00	360.00	5,812.00	8,725.18	-343.62	8,731.81	0.00	0.00	0.00	
14,700.00	90.00	360.00	5,812.00	8,825.18	-343.62	8,831.75	0.00	0.00	0.00	
14,800.00	90.00	360.00	5,812.00	8,925.18	-343.62	8,931.69	0.00	0.00	0.00	
14,900.00	90.00	360.00	5,812.00	9,025.18	-343.62	9,031.64	0.00	0.00	0.00	
15,000.00	90.00	360.00	5,812.00	9,125.18	-343.62	9,131.58	0.00	0.00	0.00	
15,100.00	90.00	360.00	5,812.00	9,225.18	-343.62	9,231.52	0.00	0.00	0.00	
15,200.00	90.00	360.00	5,812.00	9,325.18	-343.62	9,331.46	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25N-2406
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4722.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	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	5,812.00	9,425.18	-343.62	9,431.41	0.00	0.00	0.00
15,400.00	90.00	360.00	5,812.00	9,525.18	-343.62	9,531.35	0.00	0.00	0.00
15,500.00	90.00	360.00	5,812.00	9,625.18	-343.62	9,631.29	0.00	0.00	0.00
15,600.00	90.00	360.00	5,812.00	9,725.18	-343.62	9,731.24	0.00	0.00	0.00
15,700.00	90.00	360.00	5,812.00	9,825.18	-343.62	9,831.18	0.00	0.00	0.00
15,800.00	90.00	360.00	5,812.00	9,925.18	-343.62	9,931.12	0.00	0.00	0.00
15,900.00	90.00	360.00	5,812.00	10,025.18	-343.62	10,031.06	0.00	0.00	0.00
16,000.00	90.00	360.00	5,812.00	10,125.18	-343.62	10,131.01	0.00	0.00	0.00
16,031.82	90.00	360.00	5,812.00	10,157.00	-343.62	10,162.81	0.00	0.00	0.00
TD at 16031.82									

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 2406	0.00	0.00	5,812.00	10,157.00	-343.62	1,550,110.28	3,465,883.41	40° 49' 52.650 N	103° 48' 59.110 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
6,129.82	5,812.00	5 1/2" Marker / 7" CSG		7.000	8.750



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor #25N-2406
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4722.00usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4722.00usft (Original Well Elev)
Site:	Sec 25-T10N-R58W	North Reference:	True
Well:	Razor #25N-2406	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,554.93	1,550.00	Upper Pierre				
3,513.93	3,500.00	Hygiene				
3,664.63	3,650.00	Lower Pierre				
5,450.07	5,428.00	P200 Marker				
5,470.92	5,448.00	P300 Marker				
5,487.78	5,464.00	P350 Marker				
5,502.70	5,478.00	Sharon Springs				
5,507.00	5,482.00	Niobrara				
5,525.40	5,499.00	Top A Chalk				
5,558.60	5,529.00	Top A Marl				
5,572.19	5,541.00	A Marl				
5,581.35	5,549.00	Top Upper B				
5,609.42	5,573.00	Base Upper B				
5,628.68	5,589.00	Top Lower B				
5,664.94	5,618.00	Base Lower B				
5,681.87	5,631.00	Top B Marl				
5,740.23	5,673.00	Top C Chalk				
5,752.14	5,681.00	Middle C Chalk				
5,773.77	5,695.00	Middle C Marl				
5,803.32	5,713.00	Lower C Chalk				
5,833.54	5,730.00	Lower C Marl				
5,888.27	5,757.00	Lower C Marker				
5,909.24	5,766.00	Top Ft. Hays				
5,949.19	5,781.00	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'
574.81	574.39	-8.06	-10.42	Hold 5.50° Inc
4,836.62	4,816.61	-257.94	-333.20	Drop 2°/100'
5,111.44	5,091.00	-266.00	-343.62	Hold Vertical
5,311.44	5,291.00	-266.00	-343.62	KOP, Build 11°/100'
6,129.82	5,812.00	255.00	-343.62	LP @ 90° Inc, Hold
16,031.82	5,812.00	10,157.00	-343.62	TD at 16031.82