



Project: Weld County, CO
Site: Sec 26-T10N-R58W
Well: Razor Federal #261-3547
Wellbore: Hz
Design: ST#1

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: 52807.6nT
Dip Angle: 67.35°
Date: 7/7/2016
Model: IGRF2015

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1550.00	1566.03	Upper Pierre
3500.00	3541.40	Hygiene
3650.00	3691.46	Lower Pierre
5458.00	5506.33	P200 Marker
5478.00	5528.12	P300 Marker
5494.00	5545.79	P350 Marker
5508.00	5561.46	Sharon Springs
5512.00	5565.97	Niobrara
5529.00	5585.34	Top A Chalk
5559.00	5620.37	Top A Marl
5571.00	5634.73	A Marl
5579.00	5644.43	Top Upper B
5603.00	5674.16	Base Upper B
5619.00	5694.58	Top Lower B
5648.00	5733.05	Base Lower B
5661.00	5751.01	Top B Marl
5703.00	5812.85	Top C Chalk
5711.00	5825.45	Middle C Chalk
5725.00	5848.26	Middle C Marl
5743.00	5879.32	Lower C Chalk
5760.00	5910.87	Lower C Marl
5787.00	5967.19	Lower C Marker
5796.00	5988.36	Top Ft. Hays
5811.00	6027.65	Ft. Hays Marker
5846.00	6169.89	Top Codell

WELL DETAILS: Razor Federal #261-3547

+N/-S	+E/-W	Northing	Ground Level:	4711.00	Easting	3463536.43	Latitude	40° 48' 32.080 N	Longitude	103° 49' 31.650 W	Slot
0.00	0.00	1541910.22									

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	2502.00	13.61	14.50	2467.29	358.82	55.68	0.00	0.00	-356.38	
2	3166.51	1.70	90.18	3125.28	434.82	85.23	2.00	172.83	-431.18	
3	4972.65	1.70	90.18	4930.63	434.65	138.74	0.00	0.00	-428.94	
4	5057.54	0.00	0.00	5015.50	434.65	140.00	2.00	180.00	-428.88	
5	5257.54	0.00	0.00	5215.50	434.65	140.00	0.00	0.00	-428.88	
6	6257.35	90.00	178.97	5852.00	-201.75	151.49	9.00	178.97	207.48	
7	13161.30	90.00	178.97	5852.00	-7104.57	276.14	0.00	0.00	7109.94	PBHL 261-3547

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
2502.00	13.61	14.50	2467.29	358.82	55.68	-356.38	0.00	Tie-in Surveys, Build 2°/100'
3166.51	1.70	90.18	3125.28	434.82	85.23	-431.18	88.35	Hold 1.70° Inc
4972.65	1.70	90.18	4930.63	434.65	138.74	-428.94	141.86	Drop 2°/100'
5057.54	0.00	0.00	5015.50	434.65	140.00	-428.88	143.11	Hold Vertical
5257.54	0.00	0.00	5215.50	434.65	140.00	-428.88	143.11	KOP, Build 9°/100'
6257.35	90.00	178.97	5852.00	-201.75	151.49	207.48	779.61	LP @ 90° Inc, Hold
13161.30	90.00	178.97	5852.00	-7104.57	276.14	7109.94	7683.57	TD at 13161.30

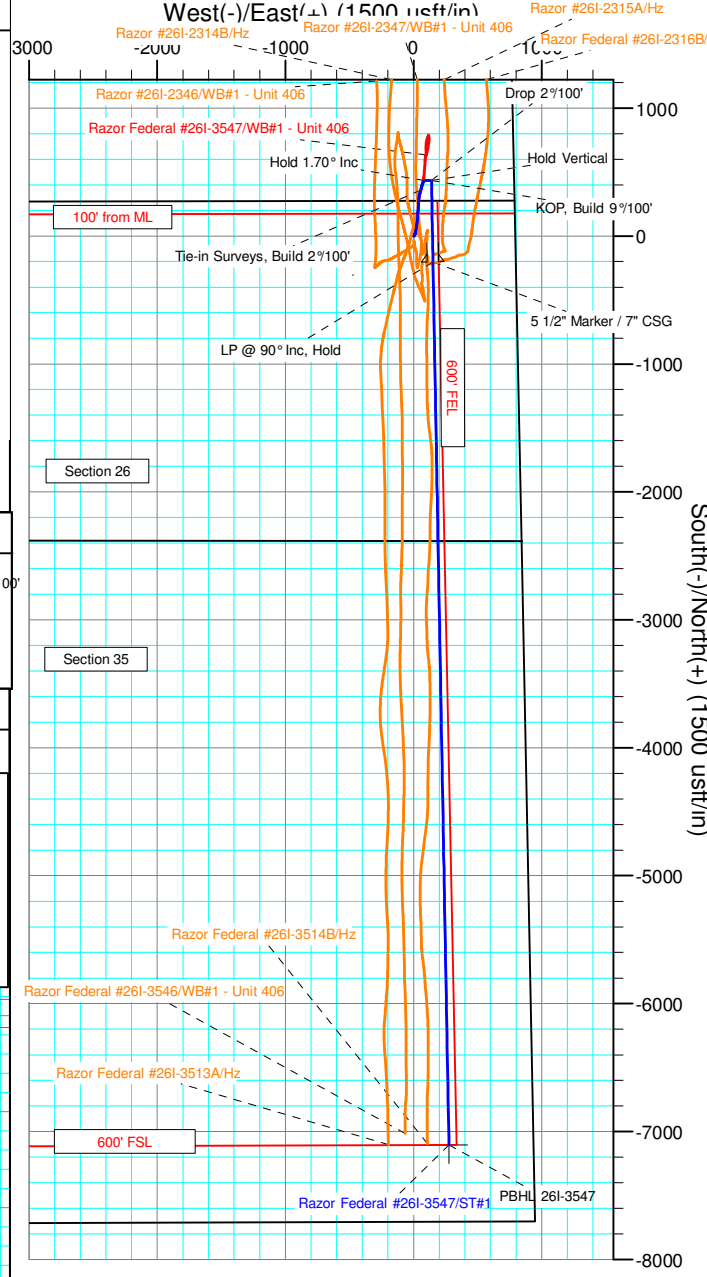
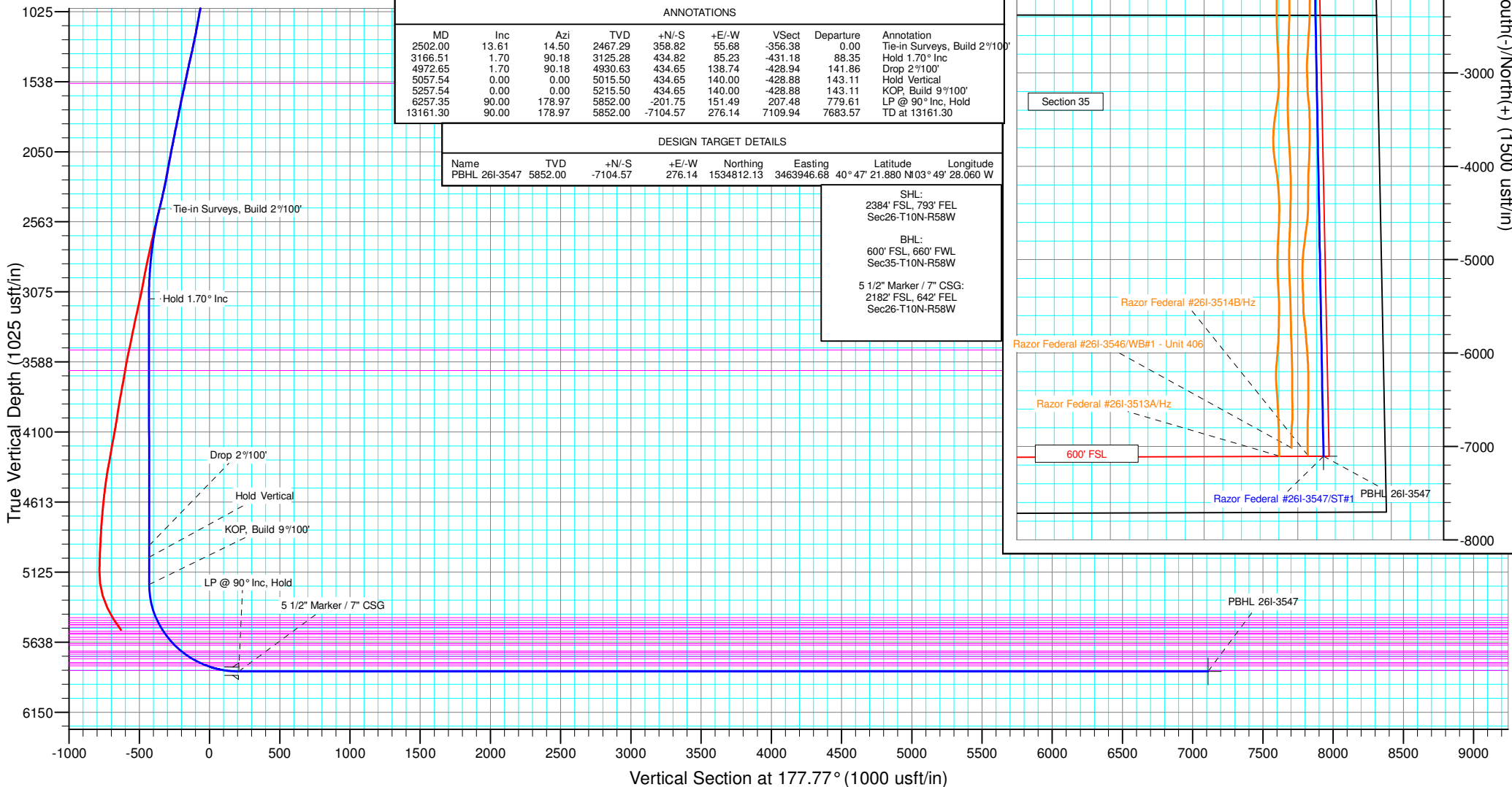
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 261-3547	5852.00	-7104.57	276.14	1534812.13	3463946.68	40° 47' 21.880 N	103° 49' 28.060 W

SHL:
2384' FSL, 793' FEL
Sec26-T10N-R58W

BHL:
600' FSL, 660' FWL
Sec35-T10N-R58W

5 1/2" Marker / 7" CSG:
2182' FSL, 642' FEL
Sec26-T10N-R58W





Whiting Petroleum Corp.

Weld County, CO

Sec 26-T10N-R58W

Razor Federal #26I-3547

Hz

Plan: ST#1

Standard Planning Report

12 June, 2017



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor Federal #26I-3547
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	ST#1		

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 26-T10N-R58W			
Site Position:		Northing:	1,541,803.23 usft	Latitude:	40° 48' 31.490 N
From:	Lat/Long	Easting:	3,461,028.06 usft	Longitude:	103° 50' 4.290 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.08 °

Well	Razor Federal #26I-3547					
Well Position	+N/-S	59.86 usft	Northing:	1,541,910.22 usft	Latitude:	40° 48' 32.080 N
	+E/-W	2,509.93 usft	Easting:	3,463,536.43 usft	Longitude:	103° 49' 31.650 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,711.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/7/2016	7.83	67.35	52,807.59864843

Design	ST#1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	2,502.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	177.77	

Plan Survey Tool Program		Date	6/12/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	225.00	2,502.00	OWB (Hz)	OWSG Rev2 MWD+IFR1+SA(OWSG MWD + IFR1 + Sag Co	
2	2,502.00	13,087.44	ST#1 (Hz)	OWSG Rev2 MWD+IFR1+SA(OWSG MWD + IFR1 + Sag Co	



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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	ST#1		

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
2,502.00	13.61	14.50	2,467.29	358.82	55.68	0.00	0.00	0.00	0.00	
3,166.51	1.70	90.18	3,125.28	434.82	85.23	2.00	-1.79	11.39	172.83	
4,972.65	1.70	90.18	4,930.63	434.65	138.74	0.00	0.00	0.00	0.00	
5,057.54	0.00	0.00	5,015.50	434.65	140.00	2.00	-2.00	0.00	180.00	
5,257.54	0.00	0.00	5,215.50	434.65	140.00	0.00	0.00	0.00	0.00	
6,257.35	90.00	178.97	5,852.00	-201.75	151.49	9.00	9.00	0.00	178.97	
13,161.30	90.00	178.97	5,852.00	-7,104.57	276.14	0.00	0.00	0.00	0.00	PBHL 26I-3547



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor Federal #26I-3547
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	ST#1		

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)
2,502.00	13.61	14.50	2,467.29	358.82	55.68	-356.38	0.00	0.00	0.00
Tie-in Surveys, Build 2°/100'									
2,600.00	11.67	15.71	2,562.91	379.52	61.25	-376.86	2.00	-1.98	1.23
2,700.00	9.69	17.44	2,661.17	397.29	66.51	-394.41	2.00	-1.97	1.73
2,800.00	7.73	20.03	2,760.01	411.64	71.34	-408.56	2.00	-1.96	2.59
2,900.00	5.80	24.36	2,859.31	422.56	75.73	-419.30	2.00	-1.94	4.33
3,000.00	3.93	32.89	2,958.95	430.04	79.67	-426.62	2.00	-1.87	8.53
3,100.00	2.29	54.93	3,058.80	434.06	83.16	-430.50	2.00	-1.64	22.05
3,166.51	1.70	90.18	3,125.28	434.82	85.23	-431.18	2.00	-0.89	52.99
Hold 1.70° Inc									
3,200.00	1.70	90.18	3,158.75	434.82	86.23	-431.14	0.00	0.00	0.00
3,300.00	1.70	90.18	3,258.71	434.81	89.19	-431.02	0.00	0.00	0.00
3,400.00	1.70	90.18	3,358.66	434.80	92.15	-430.89	0.00	0.00	0.00
3,500.00	1.70	90.18	3,458.62	434.79	95.11	-430.77	0.00	0.00	0.00
3,541.40	1.70	90.18	3,500.00	434.79	96.34	-430.72	0.00	0.00	0.00
Hygiene									
3,600.00	1.70	90.18	3,558.58	434.78	98.08	-430.64	0.00	0.00	0.00
3,691.46	1.70	90.18	3,650.00	434.77	100.79	-430.53	0.00	0.00	0.00
Lower Pierre									
3,700.00	1.70	90.18	3,658.53	434.77	101.04	-430.52	0.00	0.00	0.00
3,800.00	1.70	90.18	3,758.49	434.76	104.00	-430.39	0.00	0.00	0.00
3,900.00	1.70	90.18	3,858.44	434.75	106.96	-430.27	0.00	0.00	0.00
4,000.00	1.70	90.18	3,958.40	434.74	109.93	-430.15	0.00	0.00	0.00
4,100.00	1.70	90.18	4,058.36	434.73	112.89	-430.02	0.00	0.00	0.00
4,200.00	1.70	90.18	4,158.31	434.73	115.85	-429.90	0.00	0.00	0.00
4,300.00	1.70	90.18	4,258.27	434.72	118.81	-429.77	0.00	0.00	0.00
4,400.00	1.70	90.18	4,358.22	434.71	121.78	-429.65	0.00	0.00	0.00
4,500.00	1.70	90.18	4,458.18	434.70	124.74	-429.52	0.00	0.00	0.00
4,600.00	1.70	90.18	4,558.14	434.69	127.70	-429.40	0.00	0.00	0.00
4,700.00	1.70	90.18	4,658.09	434.68	130.66	-429.28	0.00	0.00	0.00
4,800.00	1.70	90.18	4,758.05	434.67	133.63	-429.15	0.00	0.00	0.00
4,900.00	1.70	90.18	4,858.01	434.66	136.59	-429.03	0.00	0.00	0.00
4,972.65	1.70	90.18	4,930.63	434.65	138.74	-428.94	0.00	0.00	0.00
Drop 2°/100'									
5,000.00	1.15	90.18	4,957.96	434.65	139.42	-428.91	2.00	-2.00	0.00
5,057.54	0.00	0.00	5,015.50	434.65	140.00	-428.88	2.00	-2.00	0.00
Hold Vertical									
5,100.00	0.00	0.00	5,057.96	434.65	140.00	-428.88	0.00	0.00	0.00
5,200.00	0.00	0.00	5,157.96	434.65	140.00	-428.88	0.00	0.00	0.00
5,257.54	0.00	0.00	5,215.50	434.65	140.00	-428.88	0.00	0.00	0.00
KOP, Build 9°/100'									
5,300.00	3.82	178.97	5,257.93	433.23	140.03	-427.47	9.00	9.00	0.00
5,400.00	12.82	178.97	5,356.77	418.78	140.29	-413.01	9.00	9.00	0.00
5,500.00	21.83	178.97	5,452.14	389.03	140.82	-383.27	9.00	9.00	0.00
5,506.33	22.40	178.97	5,458.00	386.65	140.87	-380.89	9.00	9.00	0.00
P200 Marker									
5,528.12	24.36	178.97	5,478.00	378.01	141.02	-372.25	9.00	9.00	0.00
P300 Marker									
5,545.79	25.95	178.97	5,494.00	370.50	141.16	-364.74	9.00	9.00	0.00
P350 Marker									
5,561.46	27.36	178.97	5,508.00	363.47	141.29	-357.71	9.00	9.00	0.00
Sharon Springs									
5,565.97	27.76	178.97	5,512.00	361.38	141.32	-355.62	9.00	9.00	0.00



WOG Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	ST#1		

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)	
Niobrara										
5,585.34	29.51	178.97	5,529.00	352.10	141.49	-346.34	9.00	9.00	0.00	
Top A Chalk										
5,600.00	30.83	178.97	5,541.68	344.74	141.62	-338.98	9.00	9.00	0.00	
5,620.37	32.66	178.97	5,559.00	334.02	141.82	-328.26	9.00	9.00	0.00	
Top A Marl										
5,634.73	33.95	178.97	5,571.00	326.14	141.96	-320.38	9.00	9.00	0.00	
A Marl										
5,644.43	34.83	178.97	5,579.00	320.66	142.06	-314.90	9.00	9.00	0.00	
Top Upper B										
5,674.16	37.50	178.97	5,603.00	303.12	142.38	-297.36	9.00	9.00	0.00	
Base Upper B										
5,694.58	39.34	178.97	5,619.00	290.43	142.60	-284.68	9.00	9.00	0.00	
Top Lower B										
5,700.00	39.83	178.97	5,623.18	286.98	142.67	-281.22	9.00	9.00	0.00	
5,733.05	42.80	178.97	5,648.00	265.16	143.06	-259.41	9.00	9.00	0.00	
Base Lower B										
5,751.01	44.42	178.97	5,661.00	252.78	143.28	-247.02	9.00	9.00	0.00	
Top B Marl										
5,800.00	48.83	178.97	5,694.64	217.19	143.93	-211.43	9.00	9.00	0.00	
5,812.85	49.99	178.97	5,703.00	207.43	144.10	-201.67	9.00	9.00	0.00	
Top C Chalk										
5,825.45	51.12	178.97	5,711.00	197.70	144.28	-191.95	9.00	9.00	0.00	
Middle C Chalk										
5,848.26	53.18	178.97	5,725.00	179.69	144.60	-173.94	9.00	9.00	0.00	
Middle C Marl										
5,879.32	55.97	178.97	5,743.00	154.39	145.06	-148.64	9.00	9.00	0.00	
Lower C Chalk										
5,900.00	57.83	178.97	5,754.29	137.07	145.37	-131.32	9.00	9.00	0.00	
5,910.87	58.81	178.97	5,760.00	127.82	145.54	-122.07	9.00	9.00	0.00	
Lower C Marl										
5,967.19	63.88	178.97	5,787.00	78.42	146.43	-72.68	9.00	9.00	0.00	
Lower C Marker										
5,988.36	65.79	178.97	5,796.00	59.27	146.78	-53.53	9.00	9.00	0.00	
Top Ft. Hays										
6,000.00	66.83	178.97	5,800.68	48.61	146.97	-42.86	9.00	9.00	0.00	
6,027.65	69.32	178.97	5,811.00	22.97	147.43	-17.22	9.00	9.00	0.00	
Ft. Hays Marker										
6,100.00	75.84	178.97	5,832.65	-46.02	148.68	51.76	9.00	9.00	0.00	
6,169.89	82.13	178.97	5,846.00	-114.57	149.92	120.31	9.00	9.00	0.00	
Top Codell										
6,200.00	84.84	178.97	5,849.42	-144.48	150.46	150.22	9.00	9.00	0.00	
6,257.35	90.00	178.97	5,852.00	-201.74	151.49	207.48	9.00	9.00	0.00	
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG										
6,300.00	90.00	178.97	5,852.00	-244.39	152.26	250.12	0.00	0.00	0.00	
6,400.00	90.00	178.97	5,852.00	-344.37	154.07	350.10	0.00	0.00	0.00	
6,500.00	90.00	178.97	5,852.00	-444.36	155.87	450.07	0.00	0.00	0.00	
6,600.00	90.00	178.97	5,852.00	-544.34	157.68	550.05	0.00	0.00	0.00	
6,700.00	90.00	178.97	5,852.00	-644.32	159.48	650.03	0.00	0.00	0.00	
6,800.00	90.00	178.97	5,852.00	-744.31	161.29	750.01	0.00	0.00	0.00	
6,900.00	90.00	178.97	5,852.00	-844.29	163.09	849.99	0.00	0.00	0.00	
7,000.00	90.00	178.97	5,852.00	-944.27	164.90	949.97	0.00	0.00	0.00	



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	ST#1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,100.00	90.00	178.97	5,852.00	-1,044.26	166.71	1,049.94	0.00	0.00	0.00
7,200.00	90.00	178.97	5,852.00	-1,144.24	168.51	1,149.92	0.00	0.00	0.00
7,300.00	90.00	178.97	5,852.00	-1,244.23	170.32	1,249.90	0.00	0.00	0.00
7,400.00	90.00	178.97	5,852.00	-1,344.21	172.12	1,349.88	0.00	0.00	0.00
7,500.00	90.00	178.97	5,852.00	-1,444.19	173.93	1,449.86	0.00	0.00	0.00
7,600.00	90.00	178.97	5,852.00	-1,544.18	175.73	1,549.84	0.00	0.00	0.00
7,700.00	90.00	178.97	5,852.00	-1,644.16	177.54	1,649.81	0.00	0.00	0.00
7,800.00	90.00	178.97	5,852.00	-1,744.14	179.34	1,749.79	0.00	0.00	0.00
7,900.00	90.00	178.97	5,852.00	-1,844.13	181.15	1,849.77	0.00	0.00	0.00
8,000.00	90.00	178.97	5,852.00	-1,944.11	182.96	1,949.75	0.00	0.00	0.00
8,100.00	90.00	178.97	5,852.00	-2,044.09	184.76	2,049.73	0.00	0.00	0.00
8,200.00	90.00	178.97	5,852.00	-2,144.08	186.57	2,149.71	0.00	0.00	0.00
8,300.00	90.00	178.97	5,852.00	-2,244.06	188.37	2,249.69	0.00	0.00	0.00
8,400.00	90.00	178.97	5,852.00	-2,344.05	190.18	2,349.66	0.00	0.00	0.00
8,500.00	90.00	178.97	5,852.00	-2,444.03	191.98	2,449.64	0.00	0.00	0.00
8,600.00	90.00	178.97	5,852.00	-2,544.01	193.79	2,549.62	0.00	0.00	0.00
8,700.00	90.00	178.97	5,852.00	-2,644.00	195.59	2,649.60	0.00	0.00	0.00
8,800.00	90.00	178.97	5,852.00	-2,743.98	197.40	2,749.58	0.00	0.00	0.00
8,900.00	90.00	178.97	5,852.00	-2,843.96	199.20	2,849.56	0.00	0.00	0.00
9,000.00	90.00	178.97	5,852.00	-2,943.95	201.01	2,949.53	0.00	0.00	0.00
9,100.00	90.00	178.97	5,852.00	-3,043.93	202.82	3,049.51	0.00	0.00	0.00
9,200.00	90.00	178.97	5,852.00	-3,143.92	204.62	3,149.49	0.00	0.00	0.00
9,300.00	90.00	178.97	5,852.00	-3,243.90	206.43	3,249.47	0.00	0.00	0.00
9,400.00	90.00	178.97	5,852.00	-3,343.88	208.23	3,349.45	0.00	0.00	0.00
9,500.00	90.00	178.97	5,852.00	-3,443.87	210.04	3,449.43	0.00	0.00	0.00
9,600.00	90.00	178.97	5,852.00	-3,543.85	211.84	3,549.40	0.00	0.00	0.00
9,700.00	90.00	178.97	5,852.00	-3,643.83	213.65	3,649.38	0.00	0.00	0.00
9,800.00	90.00	178.97	5,852.00	-3,743.82	215.45	3,749.36	0.00	0.00	0.00
9,900.00	90.00	178.97	5,852.00	-3,843.80	217.26	3,849.34	0.00	0.00	0.00
10,000.00	90.00	178.97	5,852.00	-3,943.79	219.06	3,949.32	0.00	0.00	0.00
10,100.00	90.00	178.97	5,852.00	-4,043.77	220.87	4,049.30	0.00	0.00	0.00
10,200.00	90.00	178.97	5,852.00	-4,143.75	222.68	4,149.27	0.00	0.00	0.00
10,300.00	90.00	178.97	5,852.00	-4,243.74	224.48	4,249.25	0.00	0.00	0.00
10,400.00	90.00	178.97	5,852.00	-4,343.72	226.29	4,349.23	0.00	0.00	0.00
10,500.00	90.00	178.97	5,852.00	-4,443.70	228.09	4,449.21	0.00	0.00	0.00
10,600.00	90.00	178.97	5,852.00	-4,543.69	229.90	4,549.19	0.00	0.00	0.00
10,700.00	90.00	178.97	5,852.00	-4,643.67	231.70	4,649.17	0.00	0.00	0.00
10,800.00	90.00	178.97	5,852.00	-4,743.65	233.51	4,749.14	0.00	0.00	0.00
10,900.00	90.00	178.97	5,852.00	-4,843.64	235.31	4,849.12	0.00	0.00	0.00
11,000.00	90.00	178.97	5,852.00	-4,943.62	237.12	4,949.10	0.00	0.00	0.00
11,100.00	90.00	178.97	5,852.00	-5,043.61	238.92	5,049.08	0.00	0.00	0.00
11,200.00	90.00	178.97	5,852.00	-5,143.59	240.73	5,149.06	0.00	0.00	0.00
11,300.00	90.00	178.97	5,852.00	-5,243.57	242.54	5,249.04	0.00	0.00	0.00
11,400.00	90.00	178.97	5,852.00	-5,343.56	244.34	5,349.01	0.00	0.00	0.00
11,500.00	90.00	178.97	5,852.00	-5,443.54	246.15	5,448.99	0.00	0.00	0.00
11,600.00	90.00	178.97	5,852.00	-5,543.52	247.95	5,548.97	0.00	0.00	0.00
11,700.00	90.00	178.97	5,852.00	-5,643.51	249.76	5,648.95	0.00	0.00	0.00
11,800.00	90.00	178.97	5,852.00	-5,743.49	251.56	5,748.93	0.00	0.00	0.00
11,900.00	90.00	178.97	5,852.00	-5,843.48	253.37	5,848.91	0.00	0.00	0.00
12,000.00	90.00	178.97	5,852.00	-5,943.46	255.17	5,948.89	0.00	0.00	0.00
12,100.00	90.00	178.97	5,852.00	-6,043.44	256.98	6,048.86	0.00	0.00	0.00
12,200.00	90.00	178.97	5,852.00	-6,143.43	258.79	6,148.84	0.00	0.00	0.00
12,300.00	90.00	178.97	5,852.00	-6,243.41	260.59	6,248.82	0.00	0.00	0.00
12,400.00	90.00	178.97	5,852.00	-6,343.39	262.40	6,348.80	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor Federal #26I-3547
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	ST#1		

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)
12,500.00	90.00	178.97	5,852.00	-6,443.38	264.20	6,448.78	0.00	0.00	0.00
12,600.00	90.00	178.97	5,852.00	-6,543.36	266.01	6,548.76	0.00	0.00	0.00
12,700.00	90.00	178.97	5,852.00	-6,643.34	267.81	6,648.73	0.00	0.00	0.00
12,800.00	90.00	178.97	5,852.00	-6,743.33	269.62	6,748.71	0.00	0.00	0.00
12,900.00	90.00	178.97	5,852.00	-6,843.31	271.42	6,848.69	0.00	0.00	0.00
13,000.00	90.00	178.97	5,852.00	-6,943.30	273.23	6,948.67	0.00	0.00	0.00
13,100.00	90.00	178.97	5,852.00	-7,043.28	275.03	7,048.65	0.00	0.00	0.00
13,161.30	90.00	178.97	5,852.00	-7,104.57	276.14	7,109.94	0.00	0.00	0.00
TD at 13161.30									

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 26I-3547	0.00	0.00	5,852.00	-7,104.57	276.14	1,534,812.13	3,463,946.67	40° 47' 21.880 N	103° 49' 28.060 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,257.35	5,852.00	5 1/2" Marker / 7" CSG	7.000	8.750	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Razor Federal #26I-3547
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4732.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4732.00usft
Site:	Sec 26-T10N-R58W	North Reference:	True
Well:	Razor Federal #26I-3547	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	ST#1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,566.03	1,550.00	Upper Pierre				
3,541.40	3,500.00	Hygiene				
3,691.46	3,650.00	Lower Pierre				
5,506.33	5,458.00	P200 Marker				
5,528.12	5,478.00	P300 Marker				
5,545.79	5,494.00	P350 Marker				
5,561.46	5,508.00	Sharon Springs				
5,565.97	5,512.00	Niobrara				
5,585.34	5,529.00	Top A Chalk				
5,620.37	5,559.00	Top A Marl				
5,634.73	5,571.00	A Marl				
5,644.43	5,579.00	Top Upper B				
5,674.16	5,603.00	Base Upper B				
5,694.58	5,619.00	Top Lower B				
5,733.05	5,648.00	Base Lower B				
5,751.01	5,661.00	Top B Marl				
5,812.85	5,703.00	Top C Chalk				
5,825.45	5,711.00	Middle C Chalk				
5,848.26	5,725.00	Middle C Marl				
5,879.32	5,743.00	Lower C Chalk				
5,910.87	5,760.00	Lower C Marl				
5,967.19	5,787.00	Lower C Marker				
5,988.36	5,796.00	Top Ft. Hays				
6,027.65	5,811.00	Ft. Hays Marker				
6,169.89	5,846.00	Top Codell				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,502.00	2,467.29	358.82	55.68	Tie-in Surveys, Build 2°/100'
3,166.51	3,125.28	434.82	85.23	Hold 1.70° Inc
4,972.65	4,930.63	434.65	138.74	Drop 2°/100'
5,057.54	5,015.50	434.65	140.00	Hold Vertical
5,257.54	5,215.50	434.65	140.00	KOP, Build 9°/100'
6,257.35	5,852.00	-201.75	151.49	LP @ 90° Inc, Hold
13,161.30	5,852.00	-7,104.57	276.14	TD at 13161.30