



RKB @ 4957.80usft
Ground Level: 4936.80

Project: Weld County, Colorado (NAD 83)
Site: Sec.12-T10N-R58W
Well: Razor FED #12F-1306B
Wellbore: OH / Job# 1524100
Design: Plan 3 09-25-15
Rig:

WELL DETAILS

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.00	0.00	1558541.080	4936.80 3465340.570	40.854456	-103.817803

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00		Begin 2°/100' Build
3	847.93	6.96	86.00	847.08	1.47	21.05	2.00	86.00	-0.50		Hold 6.96° Inc @ 86° Azm
4	3653.44	6.96	86.00	3631.92	25.18	360.12	0.00	0.00	-8.50		Begin 2°/100' Drop
5	4001.38	0.00	0.00	3979.00	26.65	381.17	2.00	180.00	-9.00		Begin Vertical Hold
6	5512.51	0.00	0.00	5490.13	26.65	381.17	0.00	0.00	-9.00		KOP, Begin 11°/100' Build
7	6330.69	90.00	180.00	6011.00	-494.22	381.18	11.00	180.00	511.31		LP, Hold 90° Inc @ 180° Azm
8	14075.67	90.00	180.00	6011.00	-8239.21	381.28	0.00	0.00	8248.02	BHL_#12F-1306Bv2	TD at 14075.67' MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL_#12F-1306Bv2	6011.00	-8239.21	381.28	1550310.590	3465878.070	40.831842	-103.816425	Point

LEGEND

- Razor FED #12F-1305A, OH / Job# 1524099, Plan 2 08-04-15 V0
- Razor FED #12F-1308B, Wellbore #1 / Job #1523835, Surveys (Unit 409) V0
- Razor FED #12F-0105A, OH / Job# 1524095, Plan 2 08-04-15 V0
- Razor FED #12F-0106B, OH / Job# 1524096, Plan 2 08-04-15 V0
- Razor FED #12F-1302B, OH / Job# 1524098, Plan 2 08-04-15 V0
- Razor FED #12F-1307A, Wellbore #1 / Job #1523836, Surveys (Unit 409) V0
- Razor FED #12F-0107A, Wellbore #2 / Job #1523840, Surveys (Unit 409) V0
- Razor FED #12F-0107A, Wellbore #1 / Job #1523840, Surveys (Unit 409) V0
- Razor FED #12F-1301A, OH / Job# 1524097, Plan 2 08-04-15 V0
- Razor FED #12F-1304B, Wellbore #1, Surveys V0
- Razor FED #12F-0101A, OH / Job# 1524093, Plan 2 08-04-15 V0
- Razor FED #12F-0102B, OH / Job# 1524094, Plan 2 08-04-15 V0
- Razor FED #12F-0108B, Wellbore #1 / Job #1523841, Surveys (Unit 409) V0
- Razor FED #12F-0103A, ST01 / Job #1523839, Surveys (Unit 409) V0
- Razor FED #12F-0103A, OH / Job #1523839, Surveys (Unit 409) V0
- Razor FED #12F-0104B, Wellbore #1 / Job #1523838, Surveys (Unit 409) V0
- Razor FED #12F-1302B, OH / Job# 1524098, Surveys (Unit 409) V0
- Razor FED #12F-1303A, Wellbore #1 / Job #1523837, Surveys (Unit 409) V0
- Razor FED #12F-1303A, Wellbore #2 / Job #1523837, Surveys (Unit 409) V0
- Razor FED #12F-1303A, Wellbore #3 / Job #1523837, Surveys (Unit 409) V0
- Plan 3 09-25-15

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1600.00	1606.44	Upper Pierre	0.00	177.35
3500.00	3520.54	Hygiene	0.00	177.35
3650.00	3671.65	Lower Pierre	0.00	177.35
5705.00	5733.99	P200 Marker	0.00	177.35
5734.00	5766.30	P300 Marker	0.00	177.35
5751.00	5785.73	P350 Marker	0.00	177.35
5761.00	5797.36	Sharon Springs	0.00	177.35
5768.00	5805.60	Niobrara	0.00	177.35
5797.00	5840.66	Top A Chalk	0.00	177.35
5832.00	5885.43	Top B Marl	0.00	177.35
5853.00	5913.96	A Marl	0.00	177.35
5862.00	5926.65	Top Upper B	0.00	177.35
5886.00	5962.19	Base Upper B	0.00	177.35
5896.00	5977.86	Top Lower B	0.00	177.35
5925.00	6027.09	Base Lower B	0.00	177.35
5931.00	6038.17	Top B Marl	0.00	177.35
5972.00	6127.84	Top C Chalk	0.00	177.35
5981.00	6153.04	Mid C Chalk	0.00	177.35
5998.00	6214.06	Mid C Marl	0.00	177.35
6011.00	6329.45	Lower C Chalk	0.00	177.35

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: Colorado Northern Zone

Local Origin: Well Razor FED #12F-1306B, True North

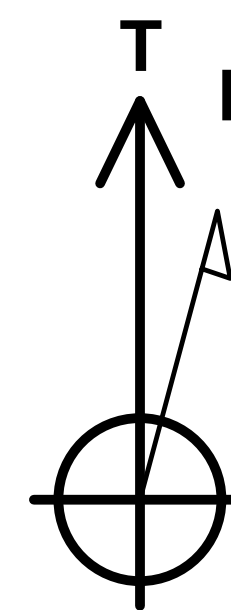
Latitude: 40.854456
Longitude: -103.817803

Grid East: 3465340.570
Grid North: 1558541.080
Scale Factor: 1.000

Geomagnetic Model: HDGM
Sample Date: 25-Sep-15
Magnetic Declination: 7.62°
Dip Angle from Horizontal: 67.35°
Magnetic Field Strength: 52957

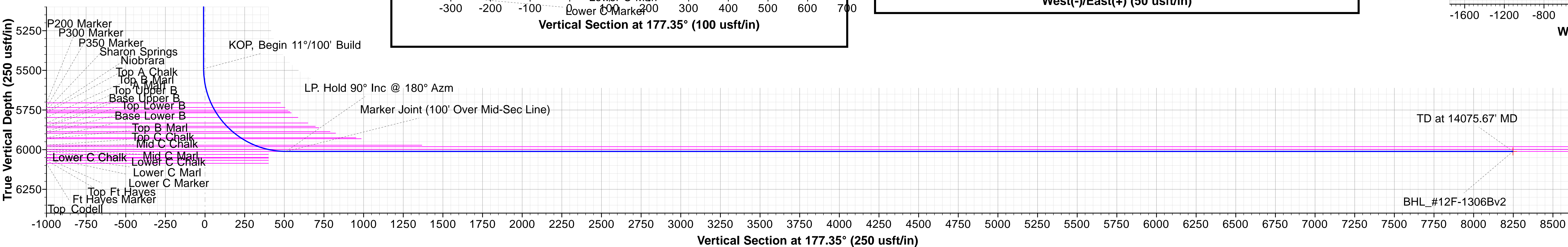
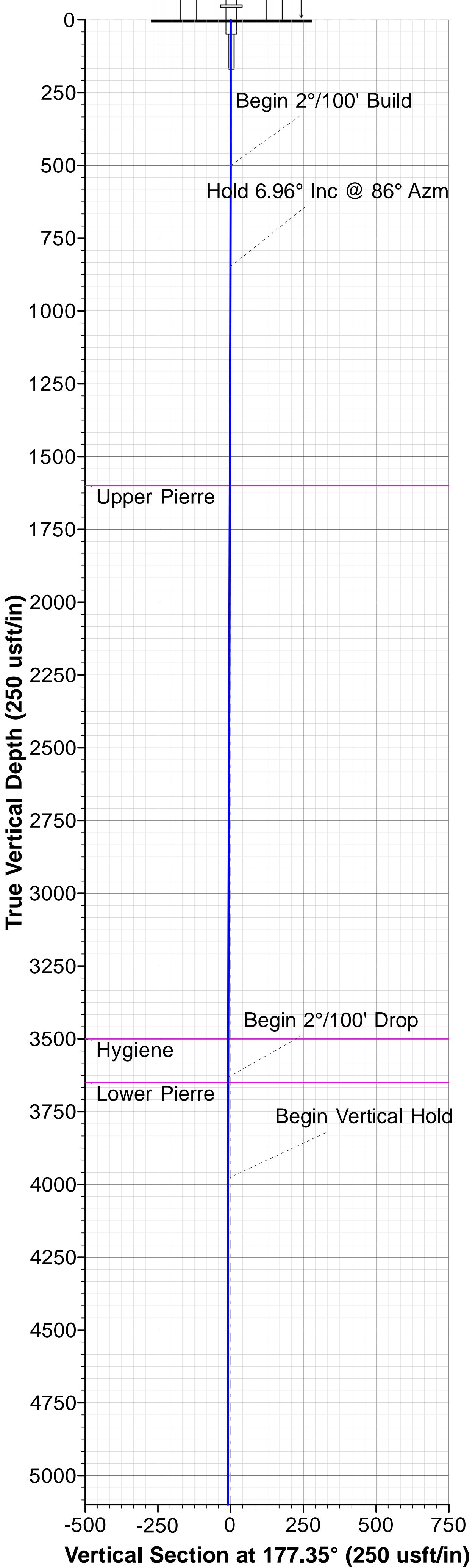
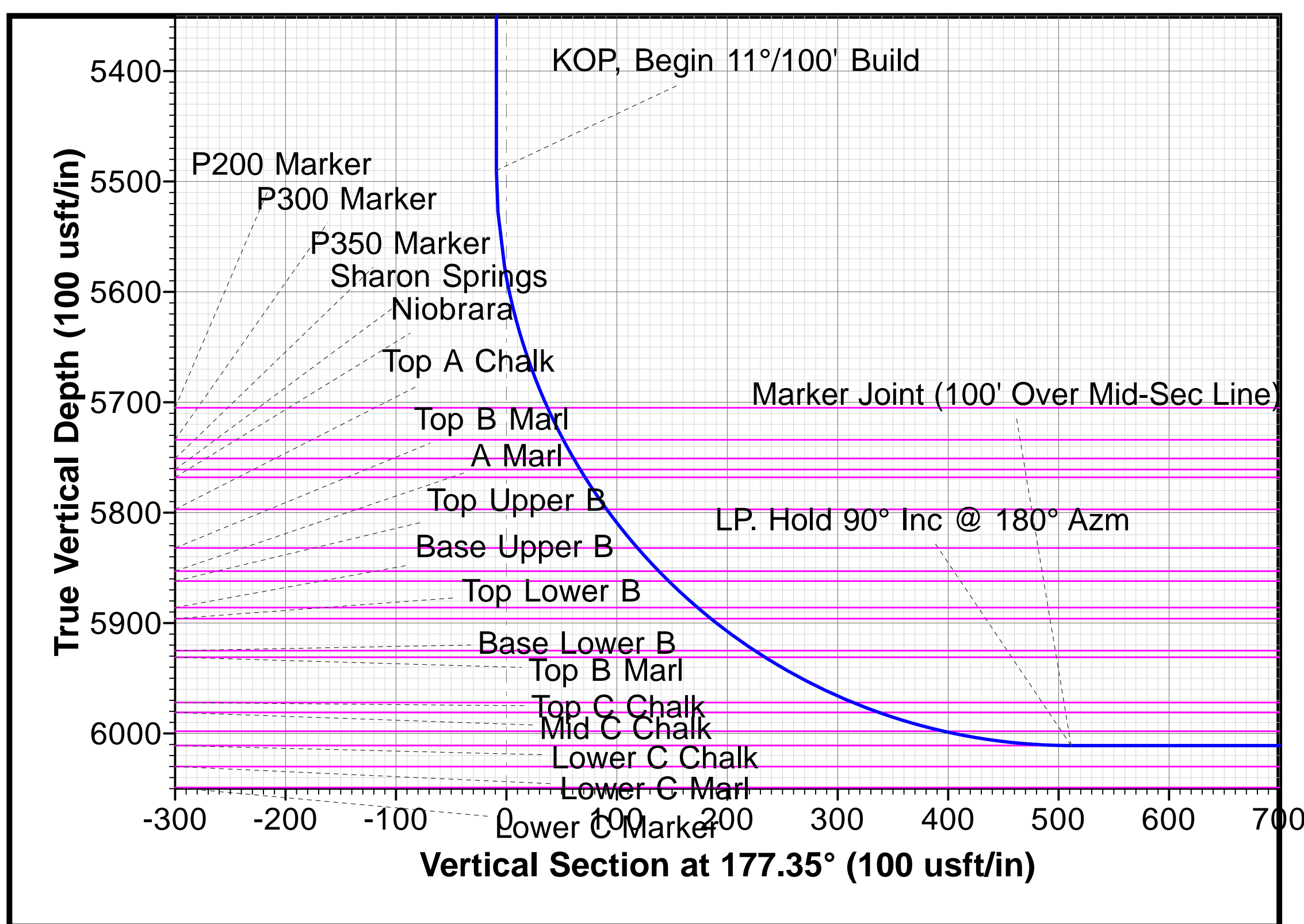
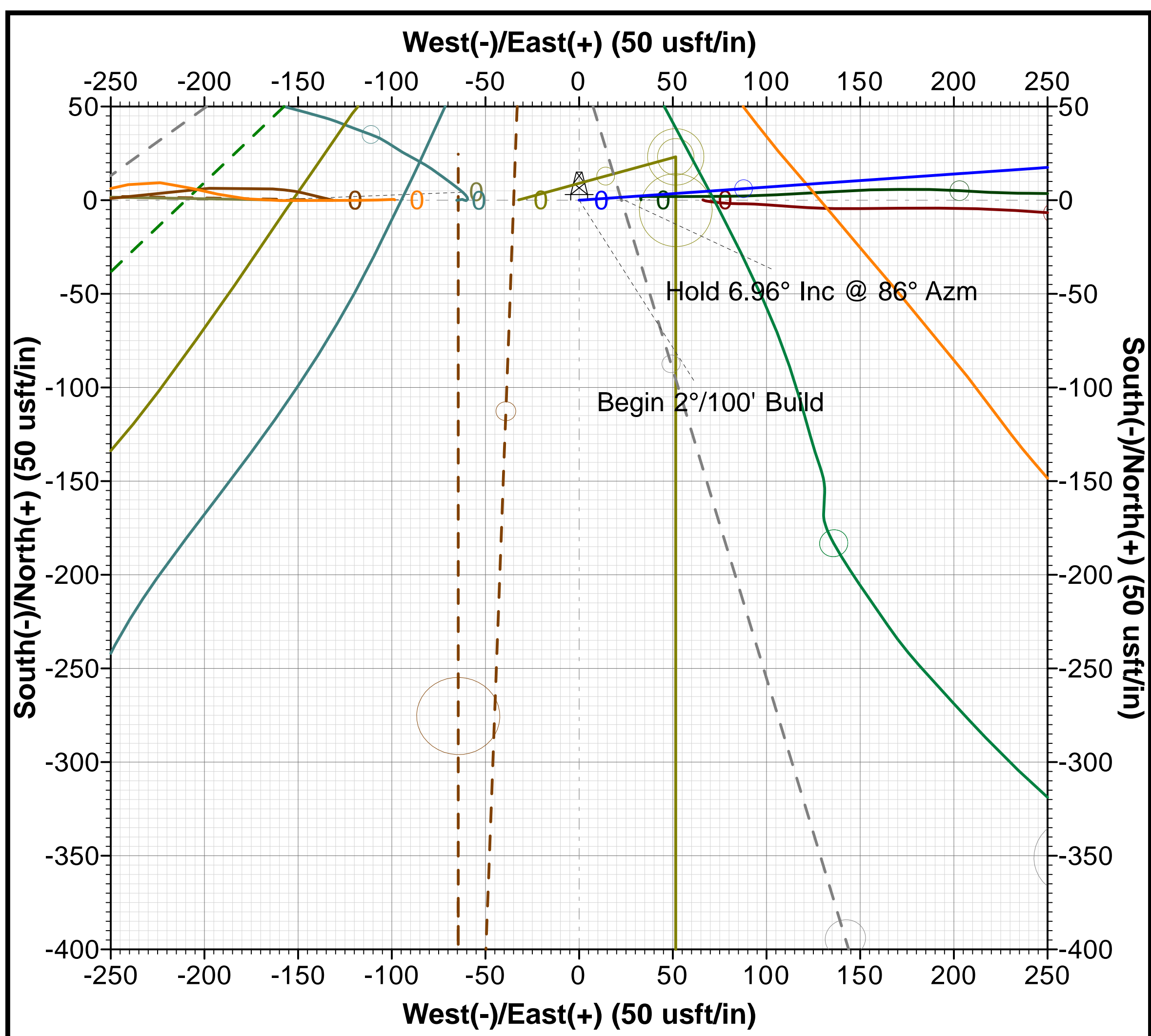
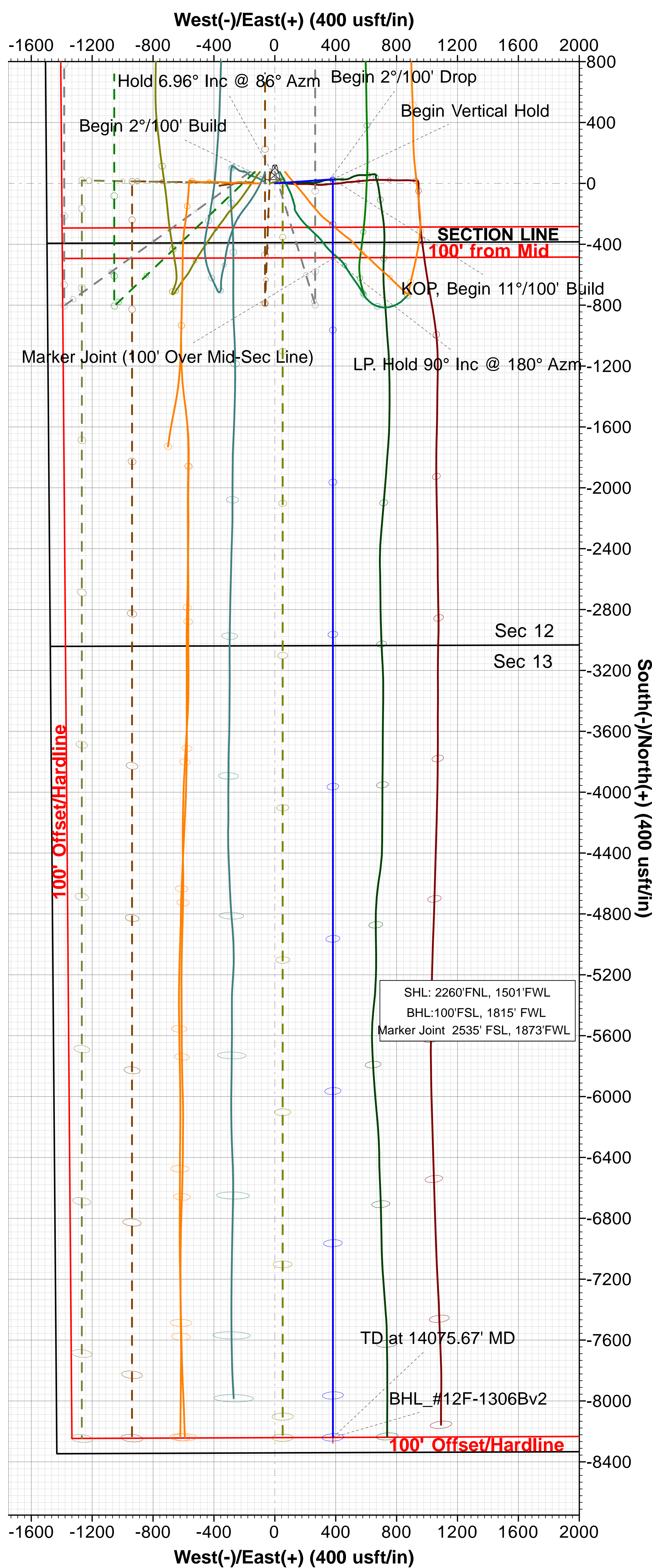
To convert a Magnetic Direction to a Grid Direction, Add 6.53°
To convert a Magnetic Direction to a True Direction, Add 7.62° East
To convert a True Direction to a Grid Direction, Subtract 1.09°

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TECHNOLOGY SERVICES



Azimuths to True North
Magnetic North: 7.62°

Magnetic Field
Strength: 52957.3snT
Dip Angle: 67.35°
Date: 9/25/2015
Model: HDGM





Whiting Oil & Gas Corporation

Weld County, Colorado (NAD 83)

Sec.12-T10N-R58W

Razor FED #12F-1306B

OH / Job# 1524100

Plan: Plan 3 09-25-15

Standard Planning Report

25 September, 2015





Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-1306B
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-1306B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524100		
Design:	Plan 3 09-25-15		

Project	Weld County, Colorado (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec.12-T10N-R58W			
Site Position:		Northing:	1,558,542.326 usft	Latitude:	40.854456
From:	Lat/Long	Easting:	3,465,406.640 usft	Longitude:	-103.817564
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.09 °

Well	Razor FED #12F-1306B					
Well Position	+N/-S	0.01 usft	Northing:	1,558,541.080 usft	Latitude:	40.854456
	+E/-W	-66.08 usft	Easting:	3,465,340.570 usft	Longitude:	-103.817803
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,936.80 usft

Wellbore	OH / Job# 1524100				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/25/2015	7.62	67.35	52,957

Design	Plan 3 09-25-15			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	177.35

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
847.93	6.96	86.00	847.08	1.47	21.05	2.00	2.00	0.00	86.00	
3,653.44	6.96	86.00	3,631.92	25.18	360.12	0.00	0.00	0.00	0.00	
4,001.38	0.00	0.00	3,979.00	26.65	381.17	2.00	-2.00	0.00	180.00	
5,512.51	0.00	0.00	5,490.13	26.65	381.17	0.00	0.00	0.00	0.00	
6,330.69	90.00	180.00	6,011.00	-494.22	381.18	11.00	11.00	22.00	180.00	
14,075.67	90.00	180.00	6,011.00	-8,239.21	381.28	0.00	0.00	0.00	0.00	BHL_#12F-1306Bv2



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-1306B
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-1306B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524100		
Design:	Plan 3 09-25-15		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin 2°/100' Build									
600.00	2.00	86.00	599.98	0.12	1.74	-0.04	2.00	2.00	0.00
700.00	4.00	86.00	699.84	0.49	6.96	-0.16	2.00	2.00	0.00
800.00	6.00	86.00	799.45	1.09	15.66	-0.37	2.00	2.00	0.00
847.93	6.96	86.00	847.08	1.47	21.05	-0.50	2.00	2.00	0.00
Hold 6.96° Inc @ 86° Azm									
900.00	6.96	86.00	898.76	1.91	27.34	-0.65	0.00	0.00	0.00
1,000.00	6.96	86.00	998.03	2.76	39.43	-0.93	0.00	0.00	0.00
1,100.00	6.96	86.00	1,097.29	3.60	51.52	-1.22	0.00	0.00	0.00
1,200.00	6.96	86.00	1,196.55	4.45	63.60	-1.50	0.00	0.00	0.00
1,300.00	6.96	86.00	1,295.82	5.29	75.69	-1.79	0.00	0.00	0.00
1,400.00	6.96	86.00	1,395.08	6.14	87.77	-2.07	0.00	0.00	0.00
1,500.00	6.96	86.00	1,494.34	6.98	99.86	-2.36	0.00	0.00	0.00
1,600.00	6.96	86.00	1,593.61	7.83	111.94	-2.64	0.00	0.00	0.00
1,606.44	6.96	86.00	1,600.00	7.88	112.72	-2.66	0.00	0.00	0.00
Upper Pierre									
1,700.00	6.96	86.00	1,692.87	8.67	124.03	-2.93	0.00	0.00	0.00
1,800.00	6.96	86.00	1,792.13	9.52	136.12	-3.21	0.00	0.00	0.00
1,900.00	6.96	86.00	1,891.40	10.36	148.20	-3.50	0.00	0.00	0.00
2,000.00	6.96	86.00	1,990.66	11.21	160.29	-3.79	0.00	0.00	0.00
2,100.00	6.96	86.00	2,089.92	12.05	172.37	-4.07	0.00	0.00	0.00
2,200.00	6.96	86.00	2,189.19	12.90	184.46	-4.36	0.00	0.00	0.00
2,300.00	6.96	86.00	2,288.45	13.74	196.54	-4.64	0.00	0.00	0.00
2,400.00	6.96	86.00	2,387.71	14.59	208.63	-4.93	0.00	0.00	0.00
2,500.00	6.96	86.00	2,486.98	15.43	220.72	-5.21	0.00	0.00	0.00
2,600.00	6.96	86.00	2,586.24	16.28	232.80	-5.50	0.00	0.00	0.00
2,700.00	6.96	86.00	2,685.50	17.12	244.89	-5.78	0.00	0.00	0.00
2,800.00	6.96	86.00	2,784.77	17.97	256.97	-6.07	0.00	0.00	0.00
2,900.00	6.96	86.00	2,884.03	18.81	269.06	-6.35	0.00	0.00	0.00
3,000.00	6.96	86.00	2,983.29	19.66	281.15	-6.64	0.00	0.00	0.00
3,100.00	6.96	86.00	3,082.56	20.50	293.23	-6.92	0.00	0.00	0.00
3,200.00	6.96	86.00	3,181.82	21.35	305.32	-7.21	0.00	0.00	0.00
3,300.00	6.96	86.00	3,281.08	22.19	317.40	-7.50	0.00	0.00	0.00
3,400.00	6.96	86.00	3,380.35	23.04	329.49	-7.78	0.00	0.00	0.00
3,500.00	6.96	86.00	3,479.61	23.88	341.57	-8.07	0.00	0.00	0.00
3,520.54	6.96	86.00	3,500.00	24.06	344.06	-8.12	0.00	0.00	0.00
Hygiene									
3,600.00	6.96	86.00	3,578.87	24.73	353.66	-8.35	0.00	0.00	0.00
3,653.44	6.96	86.00	3,631.92	25.18	360.12	-8.50	0.00	0.00	0.00
Begin 2°/100' Drop									
3,671.65	6.59	86.00	3,650.00	25.33	362.26	-8.55	2.00	-2.00	0.00
Lower Pierre									
3,700.00	6.03	86.00	3,678.18	25.55	365.37	-8.63	2.00	-2.00	0.00
3,800.00	4.03	86.00	3,777.79	26.16	374.11	-8.83	2.00	-2.00	0.00
3,900.00	2.03	86.00	3,877.65	26.52	379.38	-8.96	2.00	-2.00	0.00
4,000.00	0.03	86.00	3,977.62	26.65	381.17	-9.00	2.00	-2.00	0.00
4,001.38	0.00	0.00	3,979.00	26.65	381.17	-9.00	1.99	-1.99	0.00
Begin Vertical Hold									
5,512.51	0.00	0.00	5,490.13	26.65	381.17	-9.00	0.00	0.00	0.00
KOP, Begin 11°/100' Build									
5,600.00	9.62	180.00	5,577.21	19.32	381.17	-1.68	11.00	11.00	0.00



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-1306B
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-1306B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524100		
Design:	Plan 3 09-25-15		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,700.00	20.62	180.00	5,673.60	-6.73	381.17	24.35	11.00	11.00	0.00	
5,733.99	24.36	180.00	5,705.00	-19.73	381.17	37.33	11.00	11.00	0.00	
P200 Marker										
5,766.30	27.92	180.00	5,734.00	-33.97	381.17	51.55	11.00	11.00	0.00	
P300 Marker										
5,785.73	30.06	180.00	5,751.00	-43.38	381.17	60.96	11.00	11.00	0.00	
P350 Marker										
5,797.36	31.33	180.00	5,761.00	-49.32	381.17	66.89	11.00	11.00	0.00	
Sharon Springs										
5,800.00	31.62	180.00	5,763.25	-50.70	381.17	68.26	11.00	11.00	0.00	
5,805.60	32.24	180.00	5,768.00	-53.66	381.17	71.22	11.00	11.00	0.00	
Niobrara										
5,840.66	36.10	180.00	5,797.00	-73.34	381.17	90.89	11.00	11.00	0.00	
Top A Chalk										
5,885.43	41.02	180.00	5,832.00	-101.24	381.17	118.75	11.00	11.00	0.00	
Top B Marl										
5,900.00	42.62	180.00	5,842.86	-110.96	381.17	128.46	11.00	11.00	0.00	
5,913.96	44.16	180.00	5,853.00	-120.55	381.17	138.04	11.00	11.00	0.00	
A Marl										
5,926.65	45.56	180.00	5,862.00	-129.50	381.17	146.98	11.00	11.00	0.00	
Top Upper B										
5,962.19	49.47	180.00	5,886.00	-155.70	381.17	173.16	11.00	11.00	0.00	
Base Upper B										
5,977.86	51.19	180.00	5,896.00	-167.76	381.17	185.20	11.00	11.00	0.00	
Top Lower B										
6,000.00	53.62	180.00	5,909.51	-185.30	381.17	202.73	11.00	11.00	0.00	
6,027.09	56.60	180.00	5,925.00	-207.52	381.17	224.92	11.00	11.00	0.00	
Base Lower B										
6,038.17	57.82	180.00	5,931.00	-216.84	381.17	234.23	11.00	11.00	0.00	
Top B Marl										
6,100.00	64.62	180.00	5,960.75	-271.00	381.17	288.33	11.00	11.00	0.00	
6,127.84	67.69	180.00	5,972.00	-296.46	381.17	313.77	11.00	11.00	0.00	
Top C Chalk										
6,153.04	70.46	180.00	5,981.00	-320.00	381.17	337.28	11.00	11.00	0.00	
Mid C Chalk										
6,200.00	75.62	180.00	5,994.69	-364.90	381.18	382.13	11.00	11.00	0.00	
6,214.07	77.17	180.00	5,998.00	-378.57	381.18	395.79	11.00	11.00	0.00	
Mid C Marl										
6,300.00	86.62	180.00	6,010.10	-463.55	381.18	480.68	11.00	11.00	0.00	
6,329.45	89.86	180.00	6,011.00	-492.98	381.18	510.07	11.00	11.00	0.00	
Lower C Chalk										
6,330.69	90.00	180.00	6,011.00	-494.22	381.18	511.32	10.98	10.98	0.00	
LP. Hold 90° Inc @ 180° Azm - Marker Joint (100' Over Mid-Sec Line)										
6,400.00	90.00	180.00	6,011.00	-563.53	381.18	580.55	0.00	0.00	0.00	
6,500.00	90.00	180.00	6,011.00	-663.53	381.18	680.44	0.00	0.00	0.00	
6,600.00	90.00	180.00	6,011.00	-763.53	381.18	780.34	0.00	0.00	0.00	
6,700.00	90.00	180.00	6,011.00	-863.53	381.18	880.23	0.00	0.00	0.00	
6,800.00	90.00	180.00	6,011.00	-963.53	381.18	980.12	0.00	0.00	0.00	
6,900.00	90.00	180.00	6,011.00	-1,063.53	381.18	1,080.02	0.00	0.00	0.00	
7,000.00	90.00	180.00	6,011.00	-1,163.53	381.19	1,179.91	0.00	0.00	0.00	
7,100.00	90.00	180.00	6,011.00	-1,263.53	381.19	1,279.80	0.00	0.00	0.00	
7,200.00	90.00	180.00	6,011.00	-1,363.53	381.19	1,379.70	0.00	0.00	0.00	



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-1306B
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-1306B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524100		
Design:	Plan 3 09-25-15		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,300.00	90.00	180.00	6,011.00	-1,463.53	381.19	1,479.59	0.00	0.00	0.00
7,400.00	90.00	180.00	6,011.00	-1,563.53	381.19	1,579.48	0.00	0.00	0.00
7,500.00	90.00	180.00	6,011.00	-1,663.53	381.19	1,679.38	0.00	0.00	0.00
7,600.00	90.00	180.00	6,011.00	-1,763.53	381.19	1,779.27	0.00	0.00	0.00
7,700.00	90.00	180.00	6,011.00	-1,863.53	381.19	1,879.16	0.00	0.00	0.00
7,800.00	90.00	180.00	6,011.00	-1,963.53	381.20	1,979.06	0.00	0.00	0.00
7,900.00	90.00	180.00	6,011.00	-2,063.53	381.20	2,078.95	0.00	0.00	0.00
8,000.00	90.00	180.00	6,011.00	-2,163.53	381.20	2,178.84	0.00	0.00	0.00
8,100.00	90.00	180.00	6,011.00	-2,263.53	381.20	2,278.73	0.00	0.00	0.00
8,200.00	90.00	180.00	6,011.00	-2,363.53	381.20	2,378.63	0.00	0.00	0.00
8,300.00	90.00	180.00	6,011.00	-2,463.53	381.20	2,478.52	0.00	0.00	0.00
8,400.00	90.00	180.00	6,011.00	-2,563.53	381.20	2,578.41	0.00	0.00	0.00
8,500.00	90.00	180.00	6,011.00	-2,663.53	381.20	2,678.31	0.00	0.00	0.00
8,600.00	90.00	180.00	6,011.00	-2,763.53	381.21	2,778.20	0.00	0.00	0.00
8,700.00	90.00	180.00	6,011.00	-2,863.53	381.21	2,878.09	0.00	0.00	0.00
8,800.00	90.00	180.00	6,011.00	-2,963.53	381.21	2,977.99	0.00	0.00	0.00
8,900.00	90.00	180.00	6,011.00	-3,063.53	381.21	3,077.88	0.00	0.00	0.00
9,000.00	90.00	180.00	6,011.00	-3,163.53	381.21	3,177.77	0.00	0.00	0.00
9,100.00	90.00	180.00	6,011.00	-3,263.53	381.21	3,277.67	0.00	0.00	0.00
9,200.00	90.00	180.00	6,011.00	-3,363.53	381.21	3,377.56	0.00	0.00	0.00
9,300.00	90.00	180.00	6,011.00	-3,463.53	381.22	3,477.45	0.00	0.00	0.00
9,400.00	90.00	180.00	6,011.00	-3,563.53	381.22	3,577.35	0.00	0.00	0.00
9,500.00	90.00	180.00	6,011.00	-3,663.53	381.22	3,677.24	0.00	0.00	0.00
9,600.00	90.00	180.00	6,011.00	-3,763.53	381.22	3,777.13	0.00	0.00	0.00
9,700.00	90.00	180.00	6,011.00	-3,863.53	381.22	3,877.03	0.00	0.00	0.00
9,800.00	90.00	180.00	6,011.00	-3,963.53	381.22	3,976.92	0.00	0.00	0.00
9,900.00	90.00	180.00	6,011.00	-4,063.53	381.22	4,076.81	0.00	0.00	0.00
10,000.00	90.00	180.00	6,011.00	-4,163.53	381.22	4,176.70	0.00	0.00	0.00
10,100.00	90.00	180.00	6,011.00	-4,263.53	381.23	4,276.60	0.00	0.00	0.00
10,200.00	90.00	180.00	6,011.00	-4,363.53	381.23	4,376.49	0.00	0.00	0.00
10,300.00	90.00	180.00	6,011.00	-4,463.53	381.23	4,476.38	0.00	0.00	0.00
10,400.00	90.00	180.00	6,011.00	-4,563.53	381.23	4,576.28	0.00	0.00	0.00
10,500.00	90.00	180.00	6,011.00	-4,663.53	381.23	4,676.17	0.00	0.00	0.00
10,600.00	90.00	180.00	6,011.00	-4,763.53	381.23	4,776.06	0.00	0.00	0.00
10,700.00	90.00	180.00	6,011.00	-4,863.53	381.23	4,875.96	0.00	0.00	0.00
10,800.00	90.00	180.00	6,011.00	-4,963.53	381.23	4,975.85	0.00	0.00	0.00
10,900.00	90.00	180.00	6,011.00	-5,063.53	381.24	5,075.74	0.00	0.00	0.00
11,000.00	90.00	180.00	6,011.00	-5,163.53	381.24	5,175.64	0.00	0.00	0.00
11,100.00	90.00	180.00	6,011.00	-5,263.53	381.24	5,275.53	0.00	0.00	0.00
11,200.00	90.00	180.00	6,011.00	-5,363.53	381.24	5,375.42	0.00	0.00	0.00
11,300.00	90.00	180.00	6,011.00	-5,463.53	381.24	5,475.32	0.00	0.00	0.00
11,400.00	90.00	180.00	6,011.00	-5,563.53	381.24	5,575.21	0.00	0.00	0.00
11,500.00	90.00	180.00	6,011.00	-5,663.53	381.24	5,675.10	0.00	0.00	0.00
11,600.00	90.00	180.00	6,011.00	-5,763.53	381.24	5,775.00	0.00	0.00	0.00
11,700.00	90.00	180.00	6,011.00	-5,863.53	381.25	5,874.89	0.00	0.00	0.00
11,800.00	90.00	180.00	6,011.00	-5,963.53	381.25	5,974.78	0.00	0.00	0.00
11,900.00	90.00	180.00	6,011.00	-6,063.53	381.25	6,074.67	0.00	0.00	0.00
12,000.00	90.00	180.00	6,011.00	-6,163.53	381.25	6,174.57	0.00	0.00	0.00
12,100.00	90.00	180.00	6,011.00	-6,263.53	381.25	6,274.46	0.00	0.00	0.00
12,200.00	90.00	180.00	6,011.00	-6,363.53	381.25	6,374.35	0.00	0.00	0.00
12,300.00	90.00	180.00	6,011.00	-6,463.53	381.25	6,474.25	0.00	0.00	0.00
12,400.00	90.00	180.00	6,011.00	-6,563.53	381.26	6,574.14	0.00	0.00	0.00
12,500.00	90.00	180.00	6,011.00	-6,663.53	381.26	6,674.03	0.00	0.00	0.00
12,600.00	90.00	180.00	6,011.00	-6,763.53	381.26	6,773.93	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-1306B
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-1306B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524100		
Design:	Plan 3 09-25-15		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,700.00	90.00	180.00	6,011.00	-6,863.53	381.26	6,873.82	0.00	0.00	0.00	
12,800.00	90.00	180.00	6,011.00	-6,963.53	381.26	6,973.71	0.00	0.00	0.00	
12,900.00	90.00	180.00	6,011.00	-7,063.53	381.26	7,073.61	0.00	0.00	0.00	
13,000.00	90.00	180.00	6,011.00	-7,163.53	381.26	7,173.50	0.00	0.00	0.00	
13,100.00	90.00	180.00	6,011.00	-7,263.53	381.26	7,273.39	0.00	0.00	0.00	
13,200.00	90.00	180.00	6,011.00	-7,363.53	381.27	7,373.29	0.00	0.00	0.00	
13,300.00	90.00	180.00	6,011.00	-7,463.53	381.27	7,473.18	0.00	0.00	0.00	
13,400.00	90.00	180.00	6,011.00	-7,563.53	381.27	7,573.07	0.00	0.00	0.00	
13,500.00	90.00	180.00	6,011.00	-7,663.53	381.27	7,672.97	0.00	0.00	0.00	
13,600.00	90.00	180.00	6,011.00	-7,763.53	381.27	7,772.86	0.00	0.00	0.00	
13,700.00	90.00	180.00	6,011.00	-7,863.53	381.27	7,872.75	0.00	0.00	0.00	
13,800.00	90.00	180.00	6,011.00	-7,963.53	381.27	7,972.64	0.00	0.00	0.00	
13,900.00	90.00	180.00	6,011.00	-8,063.53	381.27	8,072.54	0.00	0.00	0.00	
14,000.00	90.00	180.00	6,011.00	-8,163.53	381.28	8,172.43	0.00	0.00	0.00	
14,075.67	90.00	180.00	6,011.00	-8,239.20	381.28	8,248.02	0.00	0.00	0.00	
TD at 14075.67' 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									
BHL_#12F-1306Bv2	0.00	0.00	6,011.00	-8,239.21	381.28	1,550,310.590	3,465,878.070	40.831842	-103.816425
- plan hits target center									
- Point									



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-1306B
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-1306B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524100		
Design:	Plan 3 09-25-15		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,606.44	1,600.00	Upper Pierre		0.00	177.35	
3,520.54	3,500.00	Hygiene		0.00	177.35	
3,671.65	3,650.00	Lower Pierre		0.00	177.35	
5,733.99	5,705.00	P200 Marker		0.00	177.35	
5,766.30	5,734.00	P300 Marker		0.00	177.35	
5,785.73	5,751.00	P350 Marker		0.00	177.35	
5,797.36	5,761.00	Sharon Springs		0.00	177.35	
5,805.60	5,768.00	Niobrara		0.00	177.35	
5,840.66	5,797.00	Top A Chalk		0.00	177.35	
5,885.43	5,832.00	Top B Marl		0.00	177.35	
5,913.96	5,853.00	A Marl		0.00	177.35	
5,926.65	5,862.00	Top Upper B		0.00	177.35	
5,962.19	5,886.00	Base Upper B		0.00	177.35	
5,977.86	5,896.00	Top Lower B		0.00	177.35	
6,027.09	5,925.00	Base Lower B		0.00	177.35	
6,038.17	5,931.00	Top B Marl		0.00	177.35	
6,127.84	5,972.00	Top C Chalk		0.00	177.35	
6,153.04	5,981.00	Mid C Chalk		0.00	177.35	
6,214.07	5,998.00	Mid C Marl		0.00	177.35	
6,329.45	6,011.00	Lower C Chalk		0.00	177.35	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.00	500.00	0.00	0.00	Begin 2°/100' Build	
847.93	847.08	1.47	21.05	Hold 6.96° Inc @ 86° Azm	
3,653.44	3,631.92	25.18	360.12	Begin 2°/100' Drop	
4,001.38	3,979.00	26.65	381.17	Begin Vertical Hold	
5,512.51	5,490.13	26.65	381.17	KOP, Begin 11°/100' Build	
6,330.69	6,011.00	-494.22	381.18	LP. Hold 90° Inc @ 180° Azm	
6,330.69	6,011.00	-494.22	381.18	Marker Joint (100' Over Mid-Sec Line)	
14,075.67	6,011.00	-8,239.20	381.28	TD at 14075.67' MD	