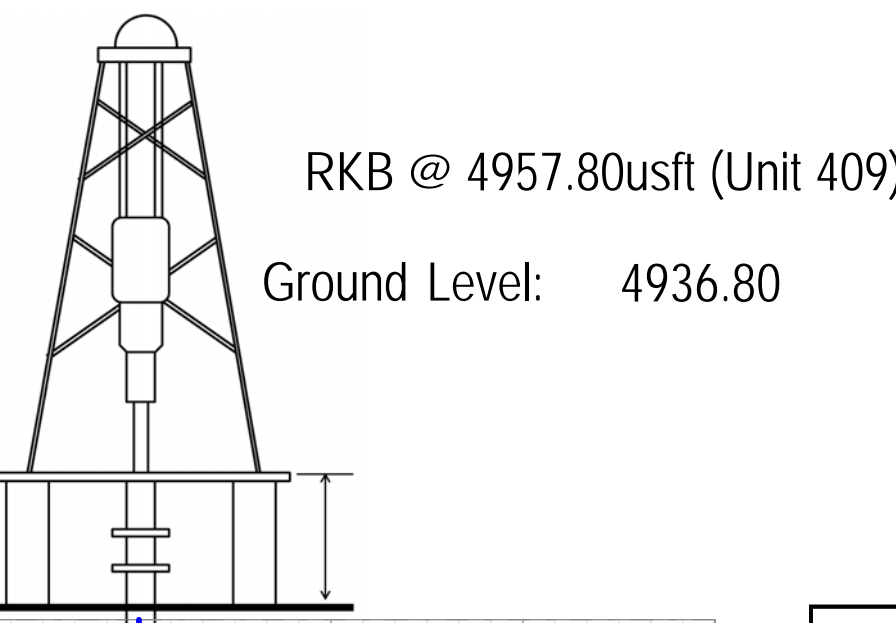




Project: Weld County, Colorado (NAD 83)  
Site: Sec.12-T10N-R58W  
Well: Razor FED #12F-1305A  
Wellbore: OH / Job# 1524099  
Design: Plan 2 08-04-15  
Rig: Unit 409



RKB @ 4957.80usft (Unit 409)  
Ground Level: 4936.80

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1600.00	1601.32	Upper Pierre	0.00	179.42
3500.00	3501.98	Hygiene	0.00	179.42
3650.00	3651.98	Lower Pierre	0.00	179.42
5705.00	5734.33	P200 Marker	0.00	179.42
5734.00	5773.01	P300 Marker	0.00	179.42
5751.00	5797.00	P350 Marker	0.00	179.42
5761.00	5811.66	Sharon Springs	0.00	179.42
5768.00	5822.20	Niobrara	0.00	179.42
5797.00	5868.83	Top A Chalk	0.00	179.42
5832.00	5934.36	Top B Marl	0.00	179.42
5853.00	5982.15	A Marl	0.00	179.42
5862.00	6006.05	Top Upper B	0.00	179.42
5886.00	6093.05	Base Upper B	0.00	179.42
5896.00	6193.75	Top Lower B	0.00	179.42

WELL DETAILS

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.00	0.00	1558540.625	3465308.298	40.854456	-103.817919

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target	Annotation
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		Begin 2°/100' Build
3	433.53	2.67	74.66	433.49	0.82	3.00	2.00	74.66	-0.79		Hold 2.67° Inc @ 74.66° Azm
4	2165.97	2.67	74.66	2164.04	22.18	80.85	0.00	0.00	-21.35		Begin 2°/100' Drop
5	2299.51	0.00	0.00	2297.53	23.00	83.85	2.00	180.00	-22.15		Begin Vertical Hold
6	5377.11	0.00	0.00	5375.13	23.00	83.85	0.00	0.00	-22.15		KOP, Begin 11°/100' Build
7	6195.29	90.00	180.00	5896.00	-497.87	83.85	11.00	180.00	498.70		LP, Hold 90° Inc @ 180° Azm
8	13938.81	90.00	180.00	5896.00	-8241.39	83.79	0.00	0.00	8241.81	BHL_#12F-1305Av2	TD at 13938.81° MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL_#12F-1305Av2	5896.00	-8241.39	83.79	1550302.310	3465548.390	40.831836	-103.817617	Point

LEGEND

- 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-0103A, Wellbore #1 / Job #1523839, Plan 2 08-04-15 V0
- Razor FED #12F-0104B, Wellbore #1 / Job #1523838, Plan 2 08-04-15 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-0107A, Wellbore #1 / Job #1523840, Plan 2 08-04-15 V0
- Razor FED #12F-0108B, Wellbore #1 / Job #1523841, Surveys (Unit 409) V0
- Razor FED #12F-1301A, OH / Job# 1524097, Plan 2 08-04-15 V0
- Razor FED #12F-1302B, OH / Job# 1524098, Plan 2 08-04-15 V0
- Razor FED #12F-1303A, Wellbore #1 / Job #1523837, Plan 2 08-04-15 V0
- Razor FED #12F-1304B, Wellbore #1, Surveys V0
- Razor FED #12F-1306B, OH / Job# 1524100, Plan 2 08-04-15 V0
- Razor FED #12F-1307A, Wellbore #1 / Job #1523836, Surveys (Unit 409) V0
- Razor FED #12F-1308B, Wellbore #1 / Job #1523835, Surveys (Unit 409) V0
- Plan 2 08-04-15

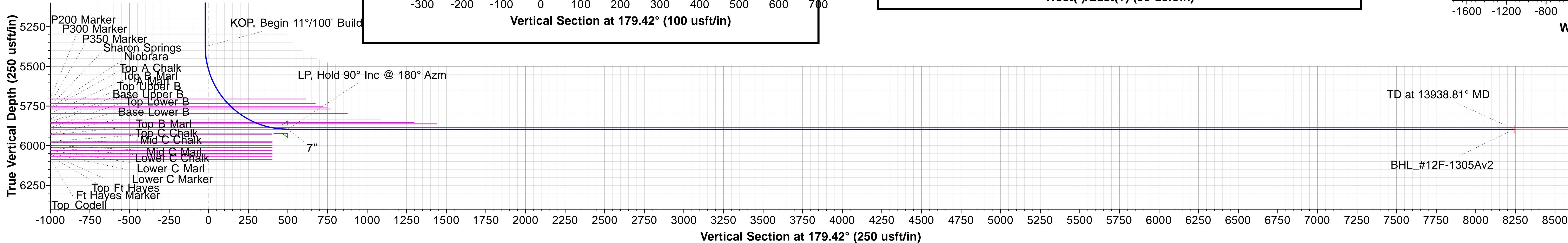
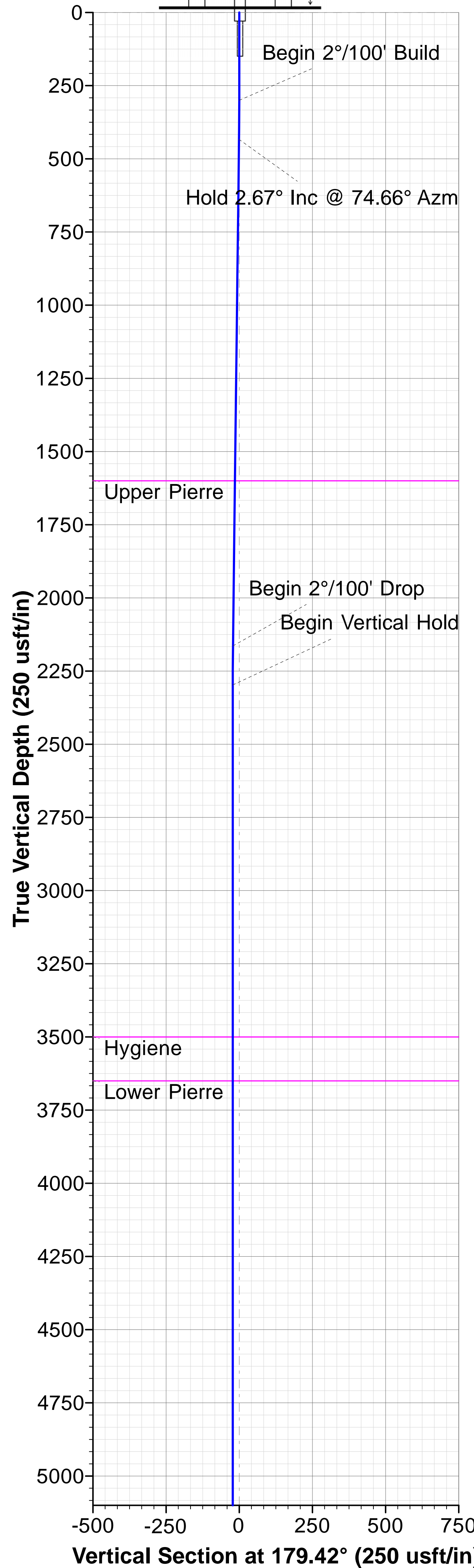
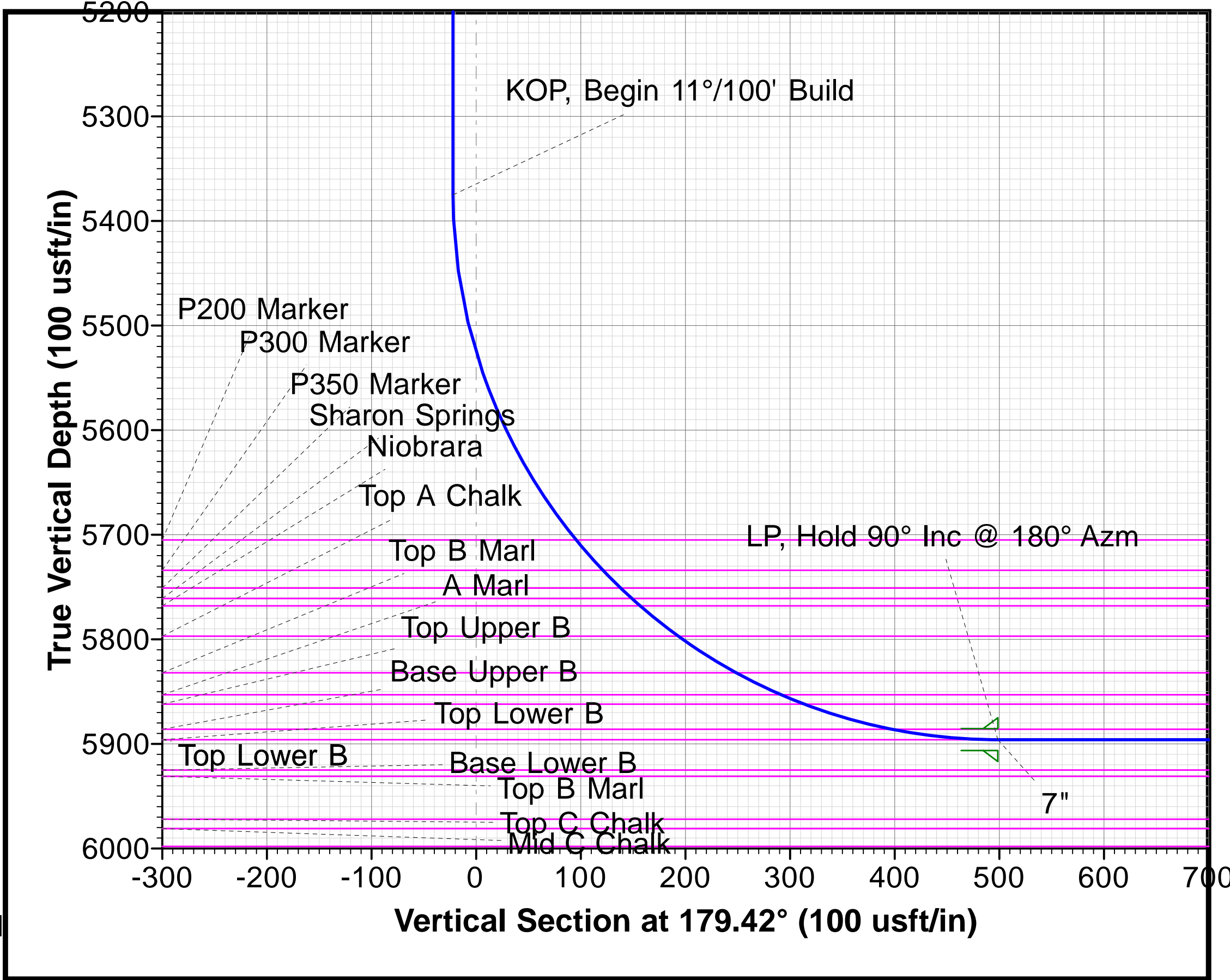
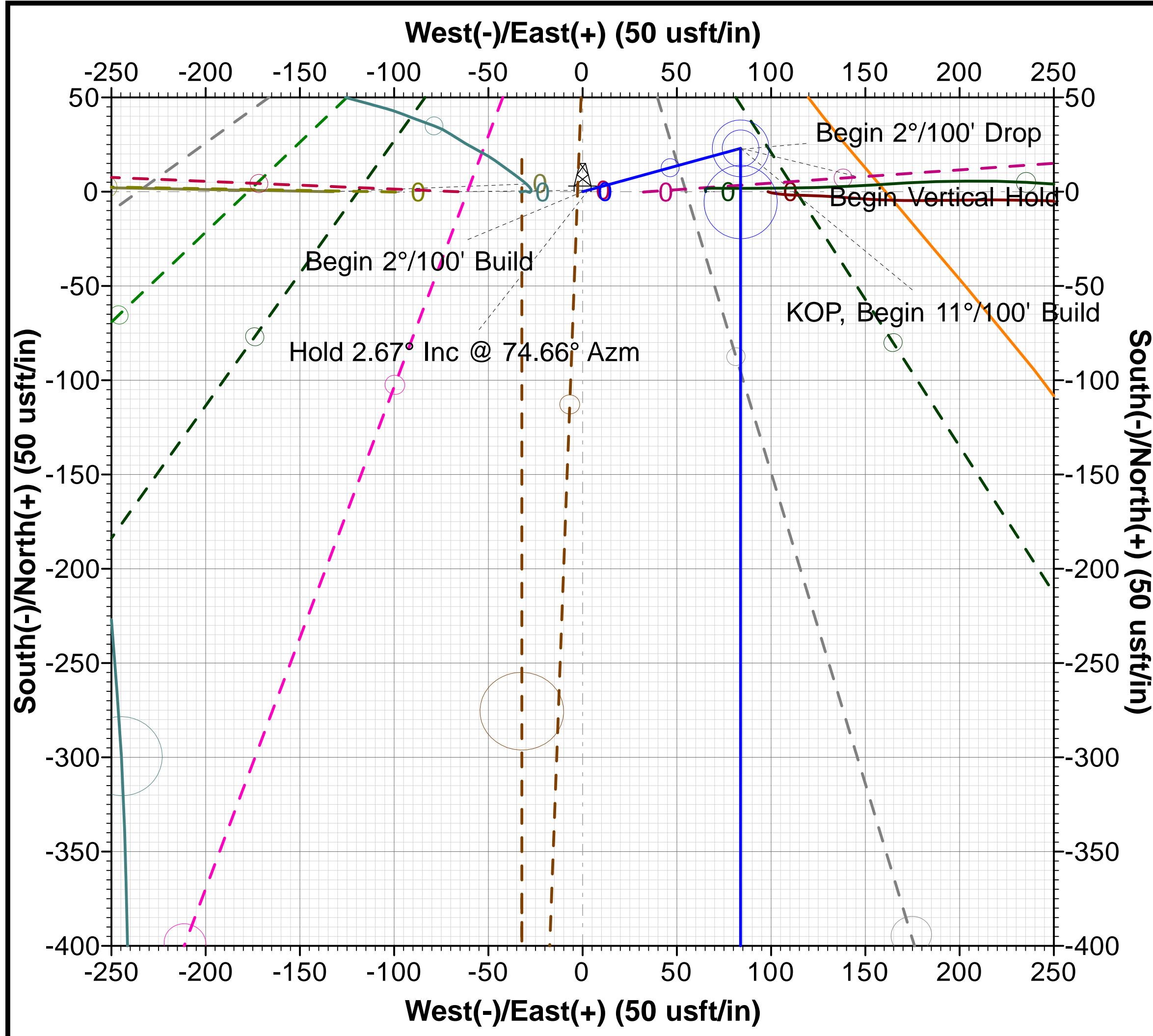
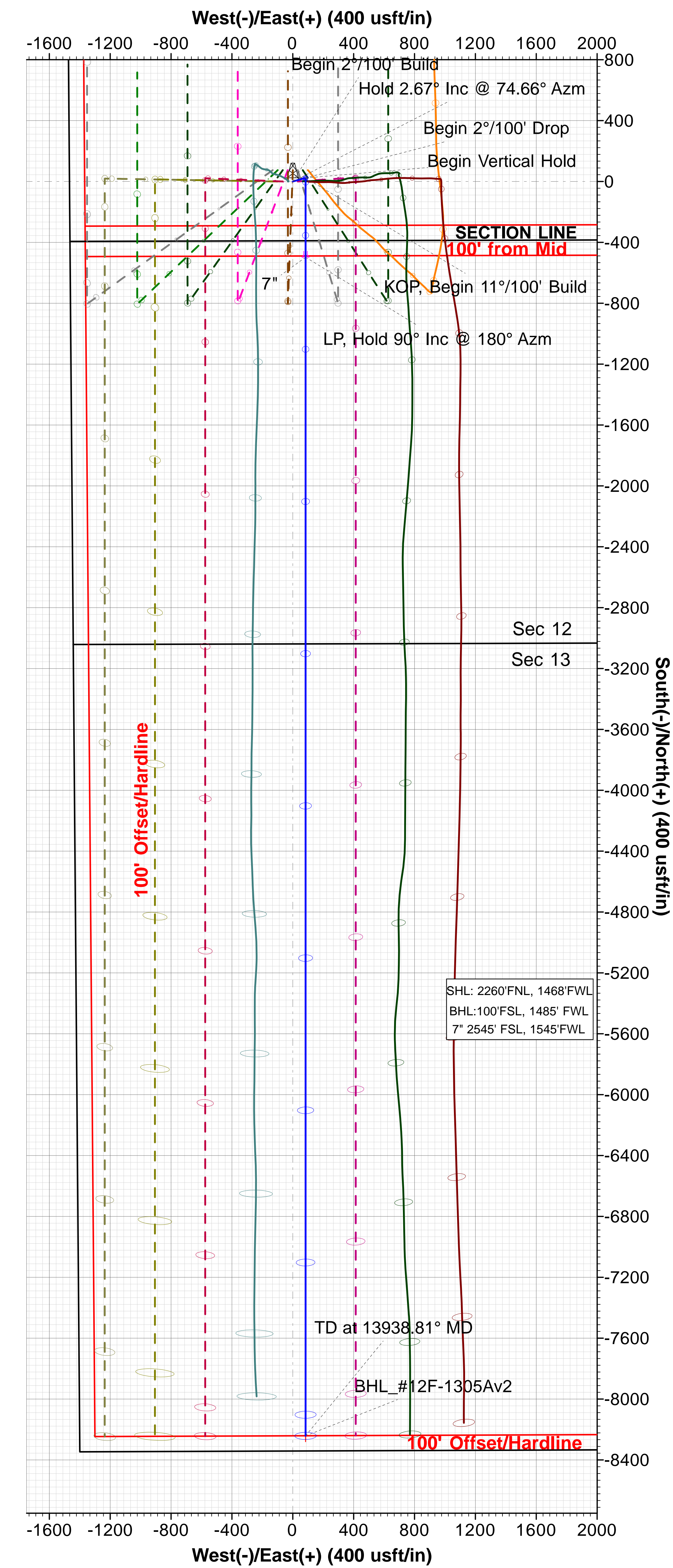
Map System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone Name: Colorado Northern Zone  
Local Origin: Well Razor FED #12F-1305A, True North

Latitude: 40.854456  
Longitude: -103.817919

Grid East: 3465308.298  
Grid North: 1558540.625  
Scale Factor: 1.000

Geomagnetic Model: HDGM  
Sample Date: 04-Aug-15  
Magnetic Declination: 7.63°  
Dip Angle from Horizontal: 67.35°  
Magnetic Field Strength: 52974

To convert a Magnetic Direction to a Grid Direction, Add 6.55°  
To convert a Magnetic Direction to a True Direction, Add 7.63° East  
To convert a True Direction to a Grid Direction, Subtract 1.09°







# **Whiting Oil & Gas Corporation**

**Weld County, Colorado (NAD 83)**

**Sec.12-T10N-R58W**

**Razor FED #12F-1305A**

**OH / Job# 1524099**

**Plan: Plan 2 08-04-15**

## **Standard Planning Report**

**05 August, 2015**





# Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-1305A
<b>Company:</b>	Whiting Oil & Gas Corporation	<b>TVD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Site:</b>	Sec.12-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor FED #12F-1305A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH / Job# 1524099		
<b>Design:</b>	Plan 2 08-04-15		

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

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

<b>Well</b>	Razor FED #12F-1305A			
<b>Well Position</b>	<b>+N/-S</b>	0.16 usft	<b>Northing:</b>	1,558,540.625 usft
	<b>+E/-W</b>	-98.36 usft	<b>Easting:</b>	3,465,308.298 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft	<b>Ground Level:</b> 4,936.80 usft

<b>Wellbore</b>	OH / Job# 1524099				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	8/4/2015	7.63	67.35	52,974

<b>Design</b>	Plan 2 08-04-15			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	179.42

<b>Plan Sections</b>										
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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
433.53	2.67	74.66	433.49	0.82	3.00	2.00	2.00	0.00	74.66	
2,165.97	2.67	74.66	2,164.04	22.18	80.85	0.00	0.00	0.00	0.00	
2,299.51	0.00	0.00	2,297.53	23.00	83.85	2.00	-2.00	0.00	180.00	
5,377.11	0.00	0.00	5,375.13	23.00	83.85	0.00	0.00	0.00	0.00	
6,195.29	90.00	180.00	5,896.00	-497.87	83.85	11.00	11.00	-22.00	180.00	
13,938.81	90.00	180.00	5,896.00	-8,241.39	83.79	0.00	0.00	0.00	0.00	BHL_#12F-1305Av2



## Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-1305A
<b>Company:</b>	Whiting Oil & Gas Corporation	<b>TVD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Site:</b>	Sec.12-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor FED #12F-1305A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH / Job# 1524099		
<b>Design:</b>	Plan 2 08-04-15		

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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin 2°/100' Build</b>									
400.00	2.00	74.66	399.98	0.46	1.68	-0.44	2.00	2.00	0.00
433.53	2.67	74.66	433.49	0.82	3.00	-0.79	2.00	2.00	0.00
<b>Hold 2.67° Inc @ 74.66° Azm</b>									
500.00	2.67	74.66	499.88	1.64	5.99	-1.58	0.00	0.00	0.00
600.00	2.67	74.66	599.77	2.87	10.48	-2.77	0.00	0.00	0.00
700.00	2.67	74.66	699.66	4.11	14.97	-3.96	0.00	0.00	0.00
800.00	2.67	74.66	799.55	5.34	19.47	-5.14	0.00	0.00	0.00
900.00	2.67	74.66	899.45	6.57	23.96	-6.33	0.00	0.00	0.00
1,000.00	2.67	74.66	999.34	7.81	28.46	-7.52	0.00	0.00	0.00
1,100.00	2.67	74.66	1,099.23	9.04	32.95	-8.70	0.00	0.00	0.00
1,200.00	2.67	74.66	1,199.12	10.27	37.44	-9.89	0.00	0.00	0.00
1,300.00	2.67	74.66	1,299.01	11.50	41.94	-11.08	0.00	0.00	0.00
1,400.00	2.67	74.66	1,398.90	12.74	46.43	-12.26	0.00	0.00	0.00
1,500.00	2.67	74.66	1,498.79	13.97	50.92	-13.45	0.00	0.00	0.00
1,600.00	2.67	74.66	1,598.68	15.20	55.42	-14.64	0.00	0.00	0.00
1,601.32	2.67	74.66	1,600.00	15.22	55.48	-14.65	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,700.00	2.67	74.66	1,698.58	16.43	59.91	-15.82	0.00	0.00	0.00
1,800.00	2.67	74.66	1,798.47	17.67	64.40	-17.01	0.00	0.00	0.00
1,900.00	2.67	74.66	1,898.36	18.90	68.90	-18.20	0.00	0.00	0.00
2,000.00	2.67	74.66	1,998.25	20.13	73.39	-19.38	0.00	0.00	0.00
2,100.00	2.67	74.66	2,098.14	21.36	77.88	-20.57	0.00	0.00	0.00
2,165.97	2.67	74.66	2,164.04	22.18	80.85	-21.35	0.00	0.00	0.00
<b>Begin 2°/100' Drop</b>									
2,200.00	1.99	74.66	2,198.04	22.54	82.18	-21.71	2.00	-2.00	0.00
2,299.51	0.00	0.00	2,297.53	23.00	83.85	-22.15	2.00	-2.00	0.00
<b>Begin Vertical Hold</b>									
3,501.98	0.00	0.00	3,500.00	23.00	83.85	-22.15	0.00	0.00	0.00
<b>Hygiene</b>									
3,651.98	0.00	0.00	3,650.00	23.00	83.85	-22.15	0.00	0.00	0.00
<b>Lower Pierre</b>									
5,377.11	0.00	0.00	5,375.13	23.00	83.85	-22.15	0.00	0.00	0.00
<b>KOP, Begin 11°/100' Build</b>									
5,400.00	2.52	180.00	5,398.01	22.50	83.85	-21.64	11.00	11.00	0.00
5,500.00	13.52	180.00	5,496.88	8.57	83.85	-7.72	11.00	11.00	0.00
5,600.00	24.52	180.00	5,591.28	-23.97	83.85	24.82	11.00	11.00	0.00
5,700.00	35.52	180.00	5,677.74	-73.92	83.85	74.76	11.00	11.00	0.00
5,734.33	39.29	180.00	5,705.00	-94.77	83.85	95.61	11.00	11.00	0.00
<b>P200 Marker</b>									
5,773.01	43.55	180.00	5,734.00	-120.35	83.85	121.20	11.00	11.00	0.00
<b>P300 Marker</b>									
5,797.00	46.19	180.00	5,751.00	-137.28	83.85	138.12	11.00	11.00	0.00
<b>P350 Marker</b>									
5,800.00	46.52	180.00	5,753.07	-139.45	83.85	140.29	11.00	11.00	0.00
5,811.66	47.80	180.00	5,761.00	-148.00	83.85	148.84	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,822.20	48.96	180.00	5,768.00	-155.88	83.85	156.72	11.00	11.00	0.00
<b>Niobrara</b>									
5,868.83	54.09	180.00	5,797.00	-192.37	83.85	193.21	11.00	11.00	0.00
<b>Top A Chalk</b>									



## Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-1305A
<b>Company:</b>	Whiting Oil & Gas Corporation	<b>TVD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Site:</b>	Sec.12-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor FED #12F-1305A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH / Job# 1524099		
<b>Design:</b>	Plan 2 08-04-15		

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)	
5,900.00	57.52	180.00	5,814.52	-218.14	83.85	218.99	11.00	11.00	0.00	
5,934.36	61.30	180.00	5,832.00	-247.72	83.85	248.56	11.00	11.00	0.00	
Top B Marl										
5,982.15	66.55	180.00	5,853.00	-290.63	83.85	291.47	11.00	11.00	0.00	
A Marl										
6,000.00	68.52	180.00	5,859.82	-307.12	83.85	307.96	11.00	11.00	0.00	
6,006.05	69.18	180.00	5,862.00	-312.76	83.85	313.60	11.00	11.00	0.00	
Top Upper B										
6,093.05	78.75	180.00	5,886.00	-396.28	83.85	397.12	11.00	11.00	0.00	
Base Upper B										
6,100.00	79.52	180.00	5,887.31	-403.11	83.85	403.94	11.00	11.00	0.00	
6,193.75	89.83	180.00	5,896.00	-496.33	83.85	497.15	11.00	11.00	0.00	
Top Lower B										
6,195.29	90.00	180.00	5,896.00	-497.87	83.85	498.70	11.00	11.00	0.00	
LP, Hold 90° Inc @ 180° Azm - 7"										
6,200.00	90.00	180.00	5,896.00	-502.58	83.85	503.41	0.00	0.00	0.00	
6,300.00	90.00	180.00	5,896.00	-602.58	83.85	603.40	0.00	0.00	0.00	
6,400.00	90.00	180.00	5,896.00	-702.58	83.84	703.39	0.00	0.00	0.00	
6,500.00	90.00	180.00	5,896.00	-802.58	83.84	803.39	0.00	0.00	0.00	
6,600.00	90.00	180.00	5,896.00	-902.58	83.84	903.38	0.00	0.00	0.00	
6,700.00	90.00	180.00	5,896.00	-1,002.58	83.84	1,003.38	0.00	0.00	0.00	
6,800.00	90.00	180.00	5,896.00	-1,102.58	83.84	1,103.37	0.00	0.00	0.00	
6,900.00	90.00	180.00	5,896.00	-1,202.58	83.84	1,203.37	0.00	0.00	0.00	
7,000.00	90.00	180.00	5,896.00	-1,302.58	83.84	1,303.36	0.00	0.00	0.00	
7,100.00	90.00	180.00	5,896.00	-1,402.58	83.84	1,403.36	0.00	0.00	0.00	
7,200.00	90.00	180.00	5,896.00	-1,502.58	83.84	1,503.35	0.00	0.00	0.00	
7,300.00	90.00	180.00	5,896.00	-1,602.58	83.84	1,603.35	0.00	0.00	0.00	
7,400.00	90.00	180.00	5,896.00	-1,702.58	83.84	1,703.34	0.00	0.00	0.00	
7,500.00	90.00	180.00	5,896.00	-1,802.58	83.84	1,803.34	0.00	0.00	0.00	
7,600.00	90.00	180.00	5,896.00	-1,902.58	83.83	1,903.33	0.00	0.00	0.00	
7,700.00	90.00	180.00	5,896.00	-2,002.58	83.83	2,003.33	0.00	0.00	0.00	
7,800.00	90.00	180.00	5,896.00	-2,102.58	83.83	2,103.32	0.00	0.00	0.00	
7,900.00	90.00	180.00	5,896.00	-2,202.58	83.83	2,203.32	0.00	0.00	0.00	
8,000.00	90.00	180.00	5,896.00	-2,302.58	83.83	2,303.31	0.00	0.00	0.00	
8,100.00	90.00	180.00	5,896.00	-2,402.58	83.83	2,403.31	0.00	0.00	0.00	
8,200.00	90.00	180.00	5,896.00	-2,502.58	83.83	2,503.30	0.00	0.00	0.00	
8,300.00	90.00	180.00	5,896.00	-2,602.58	83.83	2,603.30	0.00	0.00	0.00	
8,400.00	90.00	180.00	5,896.00	-2,702.58	83.83	2,703.29	0.00	0.00	0.00	
8,500.00	90.00	180.00	5,896.00	-2,802.58	83.83	2,803.29	0.00	0.00	0.00	
8,600.00	90.00	180.00	5,896.00	-2,902.58	83.83	2,903.28	0.00	0.00	0.00	
8,700.00	90.00	180.00	5,896.00	-3,002.58	83.83	3,003.28	0.00	0.00	0.00	
8,800.00	90.00	180.00	5,896.00	-3,102.58	83.83	3,103.27	0.00	0.00	0.00	
8,900.00	90.00	180.00	5,896.00	-3,202.58	83.82	3,203.27	0.00	0.00	0.00	
9,000.00	90.00	180.00	5,896.00	-3,302.58	83.82	3,303.26	0.00	0.00	0.00	
9,100.00	90.00	180.00	5,896.00	-3,402.58	83.82	3,403.26	0.00	0.00	0.00	
9,200.00	90.00	180.00	5,896.00	-3,502.58	83.82	3,503.25	0.00	0.00	0.00	
9,300.00	90.00	180.00	5,896.00	-3,602.58	83.82	3,603.24	0.00	0.00	0.00	
9,400.00	90.00	180.00	5,896.00	-3,702.58	83.82	3,703.24	0.00	0.00	0.00	
9,500.00	90.00	180.00	5,896.00	-3,802.58	83.82	3,803.23	0.00	0.00	0.00	
9,600.00	90.00	180.00	5,896.00	-3,902.58	83.82	3,903.23	0.00	0.00	0.00	
9,700.00	90.00	180.00	5,896.00	-4,002.58	83.82	4,003.22	0.00	0.00	0.00	
9,800.00	90.00	180.00	5,896.00	-4,102.58	83.82	4,103.22	0.00	0.00	0.00	
9,900.00	90.00	180.00	5,896.00	-4,202.58	83.82	4,203.21	0.00	0.00	0.00	



# Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-1305A
<b>Company:</b>	Whiting Oil & Gas Corporation	<b>TVD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Site:</b>	Sec.12-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor FED #12F-1305A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH / Job# 1524099		
<b>Design:</b>	Plan 2 08-04-15		

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)	
10,000.00	90.00	180.00	5,896.00	-4,302.58	83.82	4,303.21	0.00	0.00	0.00	
10,100.00	90.00	180.00	5,896.00	-4,402.58	83.82	4,403.20	0.00	0.00	0.00	
10,200.00	90.00	180.00	5,896.00	-4,502.58	83.81	4,503.20	0.00	0.00	0.00	
10,300.00	90.00	180.00	5,896.00	-4,602.58	83.81	4,603.19	0.00	0.00	0.00	
10,400.00	90.00	180.00	5,896.00	-4,702.58	83.81	4,703.19	0.00	0.00	0.00	
10,500.00	90.00	180.00	5,896.00	-4,802.58	83.81	4,803.18	0.00	0.00	0.00	
10,600.00	90.00	180.00	5,896.00	-4,902.58	83.81	4,903.18	0.00	0.00	0.00	
10,700.00	90.00	180.00	5,896.00	-5,002.58	83.81	5,003.17	0.00	0.00	0.00	
10,800.00	90.00	180.00	5,896.00	-5,102.58	83.81	5,103.17	0.00	0.00	0.00	
10,900.00	90.00	180.00	5,896.00	-5,202.58	83.81	5,203.16	0.00	0.00	0.00	
11,000.00	90.00	180.00	5,896.00	-5,302.58	83.81	5,303.16	0.00	0.00	0.00	
11,100.00	90.00	180.00	5,896.00	-5,402.58	83.81	5,403.15	0.00	0.00	0.00	
11,200.00	90.00	180.00	5,896.00	-5,502.58	83.81	5,503.15	0.00	0.00	0.00	
11,300.00	90.00	180.00	5,896.00	-5,602.58	83.81	5,603.14	0.00	0.00	0.00	
11,400.00	90.00	180.00	5,896.00	-5,702.58	83.81	5,703.14	0.00	0.00	0.00	
11,500.00	90.00	180.00	5,896.00	-5,802.58	83.80	5,803.13	0.00	0.00	0.00	
11,600.00	90.00	180.00	5,896.00	-5,902.58	83.80	5,903.13	0.00	0.00	0.00	
11,700.00	90.00	180.00	5,896.00	-6,002.58	83.80	6,003.12	0.00	0.00	0.00	
11,800.00	90.00	180.00	5,896.00	-6,102.58	83.80	6,103.12	0.00	0.00	0.00	
11,900.00	90.00	180.00	5,896.00	-6,202.58	83.80	6,203.11	0.00	0.00	0.00	
12,000.00	90.00	180.00	5,896.00	-6,302.58	83.80	6,303.11	0.00	0.00	0.00	
12,100.00	90.00	180.00	5,896.00	-6,402.58	83.80	6,403.10	0.00	0.00	0.00	
12,200.00	90.00	180.00	5,896.00	-6,502.58	83.80	6,503.09	0.00	0.00	0.00	
12,300.00	90.00	180.00	5,896.00	-6,602.58	83.80	6,603.09	0.00	0.00	0.00	
12,400.00	90.00	180.00	5,896.00	-6,702.58	83.80	6,703.08	0.00	0.00	0.00	
12,500.00	90.00	180.00	5,896.00	-6,802.58	83.80	6,803.08	0.00	0.00	0.00	
12,600.00	90.00	180.00	5,896.00	-6,902.58	83.80	6,903.07	0.00	0.00	0.00	
12,700.00	90.00	180.00	5,896.00	-7,002.58	83.79	7,003.07	0.00	0.00	0.00	
12,800.00	90.00	180.00	5,896.00	-7,102.58	83.79	7,103.06	0.00	0.00	0.00	
12,900.00	90.00	180.00	5,896.00	-7,202.58	83.79	7,203.06	0.00	0.00	0.00	
13,000.00	90.00	180.00	5,896.00	-7,302.58	83.79	7,303.05	0.00	0.00	0.00	
13,100.00	90.00	180.00	5,896.00	-7,402.58	83.79	7,403.05	0.00	0.00	0.00	
13,200.00	90.00	180.00	5,896.00	-7,502.58	83.79	7,503.04	0.00	0.00	0.00	
13,300.00	90.00	180.00	5,896.00	-7,602.58	83.79	7,603.04	0.00	0.00	0.00	
13,400.00	90.00	180.00	5,896.00	-7,702.58	83.79	7,703.03	0.00	0.00	0.00	
13,500.00	90.00	180.00	5,896.00	-7,802.58	83.79	7,803.03	0.00	0.00	0.00	
13,600.00	90.00	180.00	5,896.00	-7,902.58	83.79	7,903.02	0.00	0.00	0.00	
13,700.00	90.00	180.00	5,896.00	-8,002.58	83.79	8,003.02	0.00	0.00	0.00	
13,800.00	90.00	180.00	5,896.00	-8,102.58	83.79	8,103.01	0.00	0.00	0.00	
13,900.00	90.00	180.00	5,896.00	-8,202.58	83.79	8,203.01	0.00	0.00	0.00	
13,938.81	90.00	180.00	5,896.00	-8,241.39	83.79	8,241.81	0.00	0.00	0.00	
TD at 13938.81° 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-1305Av2	0.00	0.00	5,896.00	-8,241.39	83.79	1,550,302.310	3,465,548.390	40.831836		-103.817617
- plan hits target center										
- Point										



# Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-1305A
<b>Company:</b>	Whiting Oil & Gas Corporation	<b>TVD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	RKB @ 4957.80usft (Unit 409)
<b>Site:</b>	Sec.12-T10N-R58W	<b>North Reference:</b>	True
<b>Well:</b>	Razor FED #12F-1305A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH / Job# 1524099		
<b>Design:</b>	Plan 2 08-04-15		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,195.29	5,896.00	7"	7	7-1/2	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,601.32	1,600.00	Upper Pierre		0.00	179.42	
3,501.98	3,500.00	Hygiene		0.00	179.42	
3,651.98	3,650.00	Lower Pierre		0.00	179.42	
5,734.33	5,705.00	P200 Marker		0.00	179.42	
5,773.01	5,734.00	P300 Marker		0.00	179.42	
5,797.00	5,751.00	P350 Marker		0.00	179.42	
5,811.66	5,761.00	Sharon Springs		0.00	179.42	
5,822.20	5,768.00	Niobrara		0.00	179.42	
5,868.83	5,797.00	Top A Chalk		0.00	179.42	
5,934.36	5,832.00	Top B Marl		0.00	179.42	
5,982.15	5,853.00	A Marl		0.00	179.42	
6,006.05	5,862.00	Top Upper B		0.00	179.42	
6,093.05	5,886.00	Base Upper B		0.00	179.42	
6,193.75	5,896.00	Top Lower B		0.00	179.42	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Begin 2"/100' Build	
433.53	433.49	0.82	3.00	Hold 2.67° Inc @ 74.66° Azm	
2,165.97	2,164.04	22.18	80.85	Begin 2"/100' Drop	
2,299.51	2,297.53	23.00	83.85	Begin Vertical Hold	
5,377.11	5,375.13	23.00	83.85	KOP, Begin 11"/100' Build	
6,195.29	5,896.00	-497.87	83.85	LP, Hold 90° Inc @ 180° Azm	
13,938.81	5,896.00	-8,241.39	83.79	TD at 13938.81° MD	