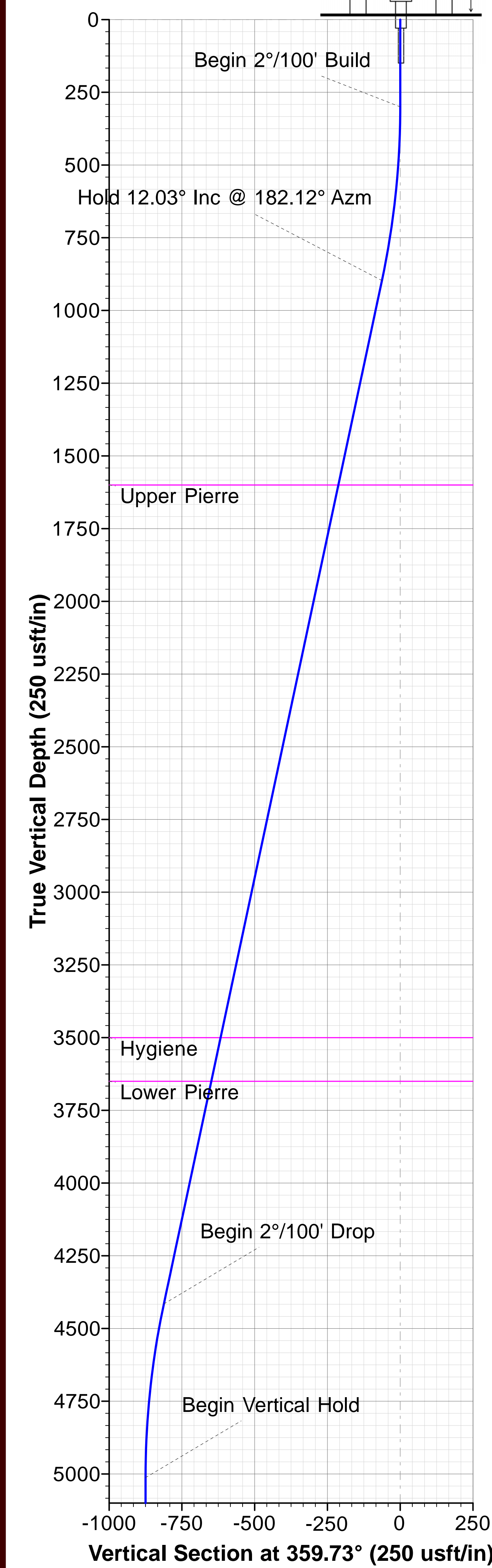




Project: Weld County, Colorado (NAD 83)
Site: Sec.12-T10N-R58W
Well: Razor FED #12F-0105A
Wellbore: OH / Job# 1524095
Design: Plan 2 08-04-15
Rig: Unit 409

Ground Level: 4936.80

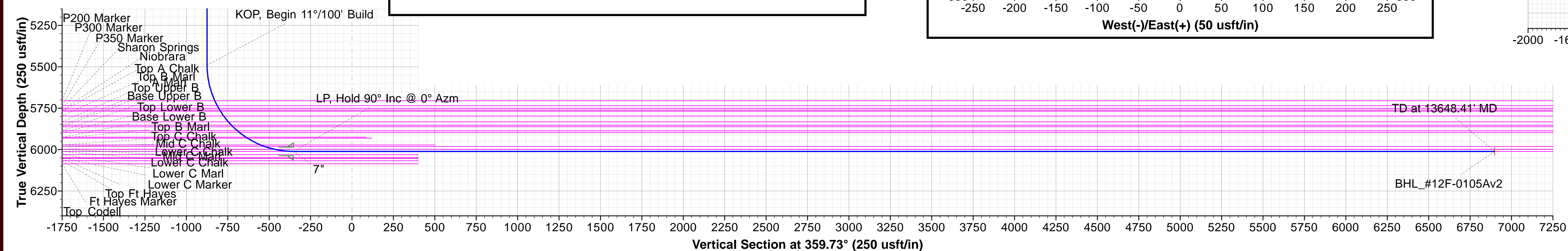
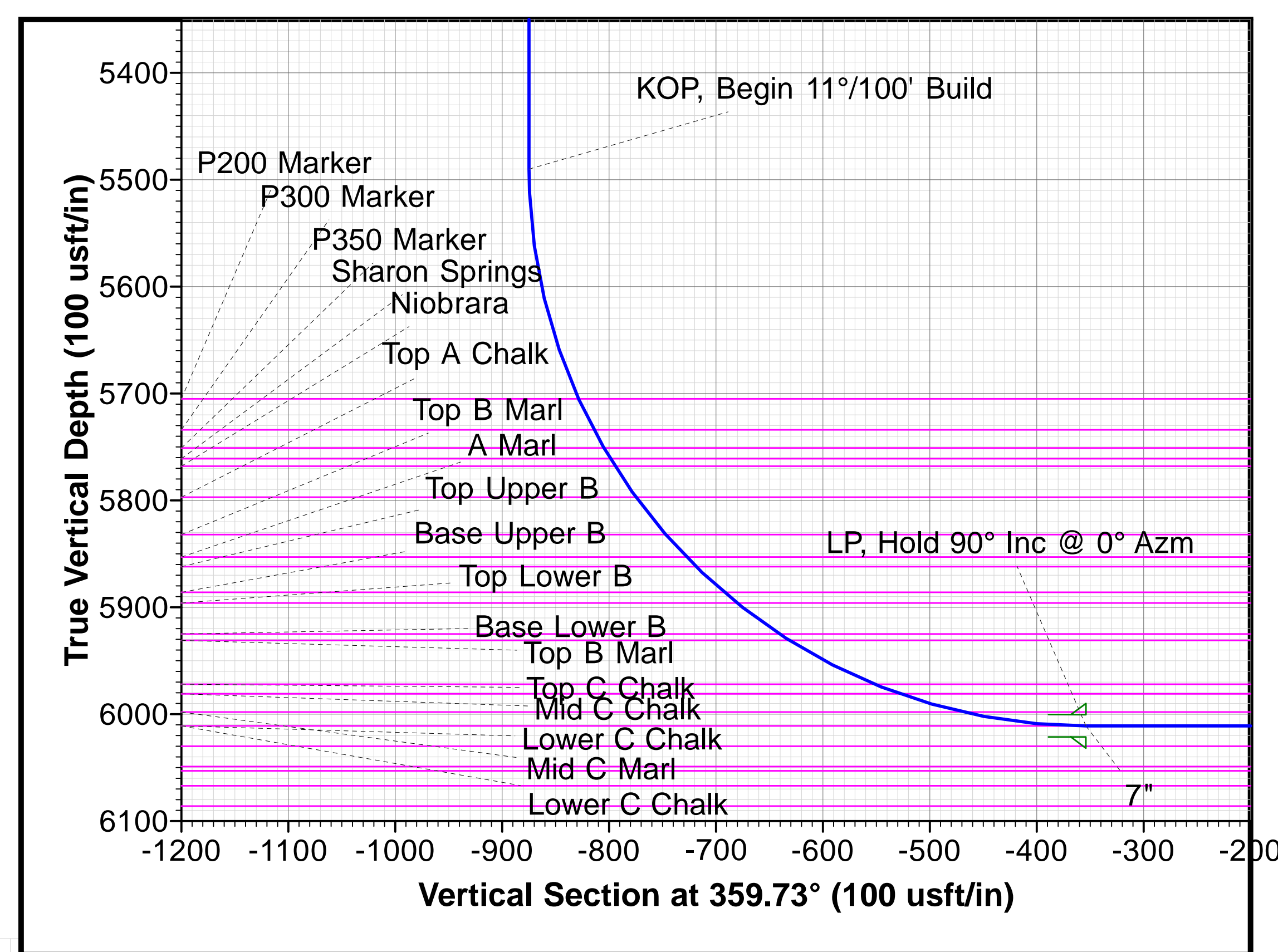


WELL DETAILS											
Level:		4936.80									
		+N/-S	+E/-W	Northing	Ground Level:	4936.80		Easting	Latitude	Longitude	
		0.00	0.00	1558615.334				3465307.002	40.854661	-103.817919	
SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target	Annotation
1	0.00	0.00	0.00	0.00	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	901.49	12.03	182.12	897.08	-62.87	-2.33	2.00	182.12	-62.86		Hold 12.03° Inc @ 182.12° Azm
4	4498.91	12.03	182.12	4415.50	-812.13	-30.03	0.00	0.00	-811.98		Begin 2°/100' Drop
5	5100.40	0.00	0.00	5012.58	-875.00	-32.36	2.00	180.00	-874.84		Begin Vertical Hold
6	5577.95	0.00	0.00	5490.13	-875.00	-32.36	0.00	0.00	-874.84		KOP, Begin 11°/100' Build
7	6396.13	90.00	0.00	6011.00	-354.13	-32.36	11.00	0.00	-353.97		LP, Hold 90° Inc @ 0° Azm
8	13648.41	90.00	0.00	6011.00	6898.15	-32.36	0.00	0.00	6898.22	BHL_#12F-0105Av2	TD at 13648.41° MD

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL_#12F-0105Av2	6011.00	6898.15	-32.36	1565511.626	3465143.806	40.873594	-103.818036	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-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-0104B, Wellbore #1 / Job #1523838, Plan 2 08-04-15 V0
- Razor FED #12F-1301A, OH / Job# 1524097, Plan 2 08-04-15 V0
- Razor FED #12F-0108B, Wellbore #1 / Job #1523841, Plan 2 07-27-15 V0
- Razor FED #12F-1307A, Wellbore #1 / Job #1523836, Surveys (Unit 409) V0
- Razor FED #12F-1303A, Wellbore #1 / Job #1523837, Plan 2 08-04-15 V0
- Razor FED #12F-0107A, Wellbore #1 / Job #1523840, 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-1306B, OH / Job# 1524100, Plan 2 08-04-15 V0
- Razor FED #12F-0103A, Wellbore #1 / Job #1523839, 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
- Plan 2 08-04-15



FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
1600.00	1620.19	Upper Pierre	0.00	359.7
3500.00	3562.85	Hygiene	0.00	359.7
3650.00	3716.22	Lower Pierre	0.00	359.7
5705.00	5799.43	P200 Marker	0.00	359.7
5734.00	5831.74	P300 Marker	0.00	359.7
5751.00	5851.18	P350 Marker	0.00	359.7
5761.00	5862.81	Sharon Springs	0.00	359.7
5768.00	5871.04	Niobrara	0.00	359.7
5797.00	5906.10	Top A Chalk	0.00	359.7
5832.00	5950.87	Top B Marl	0.00	359.7
5853.00	5979.40	A Marl	0.00	359.7
5862.00	5992.10	Top Upper B	0.00	359.7
5886.00	6027.64	Base Upper B	0.00	359.7
5896.00	6043.30	Top Lower B	0.00	359.7
5925.00	6092.54	Base Lower B	0.00	359.7
5931.00	6103.62	Top B Marl	0.00	359.7
5972.00	6193.29	Top C Chalk	0.00	359.7
5981.00	6218.49	Mid C Chalk	0.00	359.7
5998.00	6279.51	Mid C Marl	0.00	359.7
6011.00	6395.43	Lower C Chalk	0.00	359.7

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

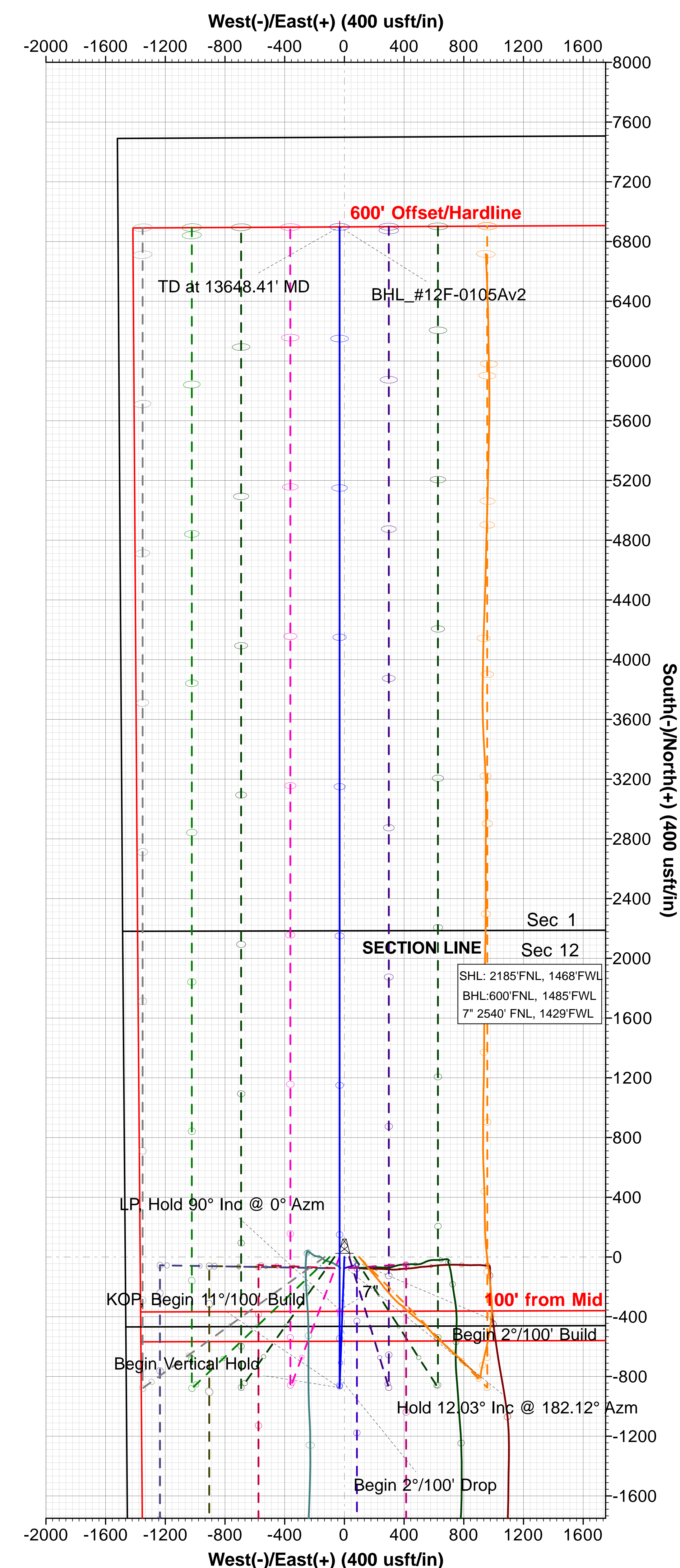
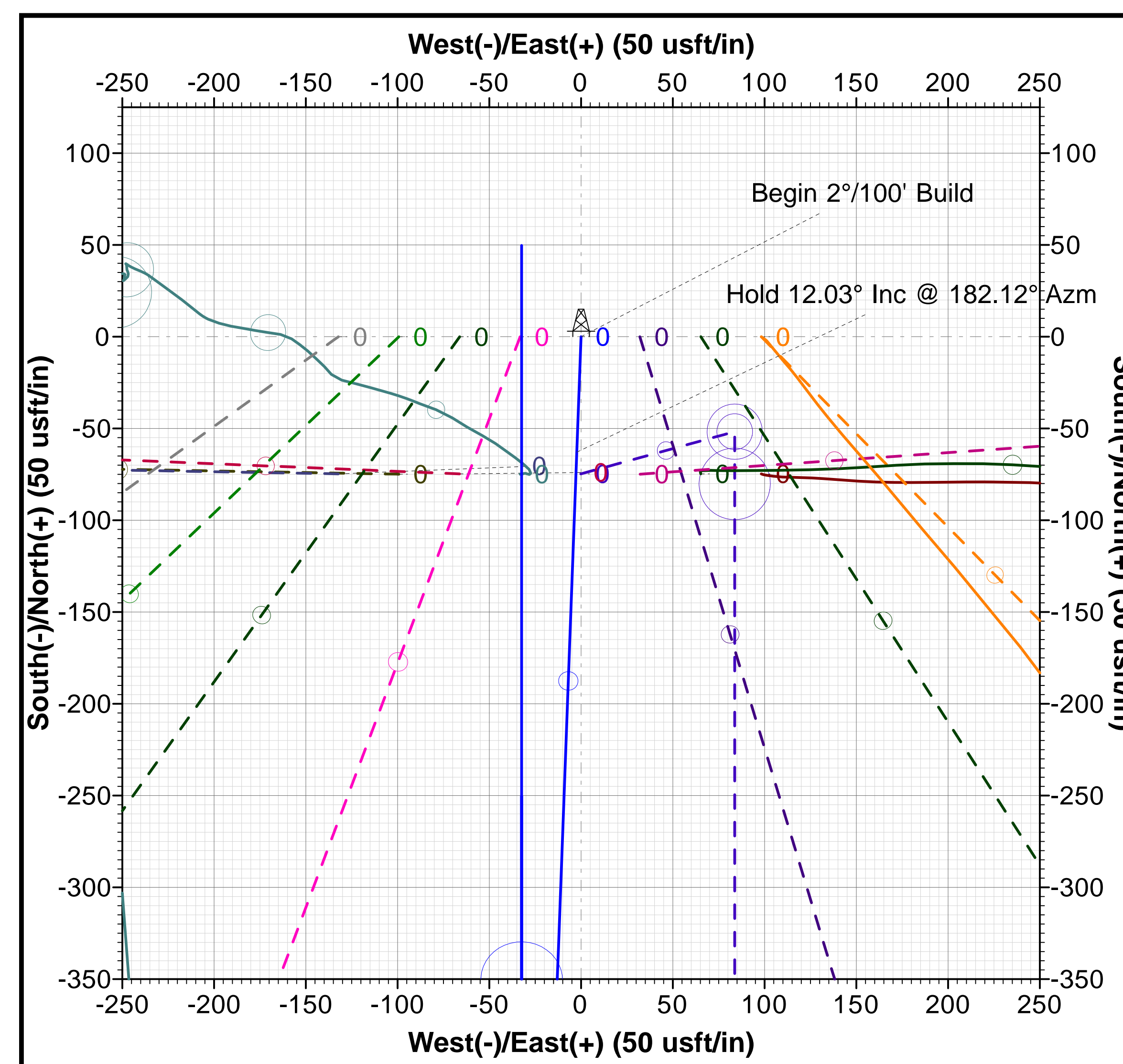
Local Origin: Well Razor FED #12F-0105A, True North

Latitude: 40.854661
Longitude: -103.817919

Grid East: 3465307.002
Grid North: 1558615.334
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: 52976

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-0105A

OH / Job# 1524095

Plan: Plan 2 08-04-15

Standard Planning Report

04 August, 2015





Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0105A
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-0105A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524095		
Design:	Plan 2 08-04-15		

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-0105A					
Well Position	+N/-S	74.89 usft	Northing:	1,558,615.334 usft	Latitude:	40.854661
	+E/-W	-98.23 usft	Easting:	3,465,307.003 usft	Longitude:	-103.817919
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,936.80 usft

Wellbore	OH / Job# 1524095				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/4/2015	7.63	67.35	52,976

Design	Plan 2 08-04-15			
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	359.73

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
901.49	12.03	182.12	897.08	-62.87	-2.33	2.00	2.00	0.00	182.12	
4,498.91	12.03	182.12	4,415.50	-812.13	-30.03	0.00	0.00	0.00	0.00	
5,100.40	0.00	0.00	5,012.58	-875.00	-32.36	2.00	-2.00	0.00	180.00	
5,577.95	0.00	0.00	5,490.13	-875.00	-32.36	0.00	0.00	0.00	0.00	
6,396.13	90.00	0.00	6,011.00	-354.13	-32.36	11.00	11.00	0.00	0.00	
13,648.41	90.00	0.00	6,011.00	6,898.15	-32.36	0.00	0.00	0.00	0.00	BHL_#12F-0105Av2



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0105A
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-0105A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524095		
Design:	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
Begin 2°/100' Build									
400.00	2.00	182.12	399.98	-1.74	-0.06	-1.74	2.00	2.00	0.00
500.00	4.00	182.12	499.84	-6.97	-0.26	-6.97	2.00	2.00	0.00
600.00	6.00	182.12	599.45	-15.68	-0.58	-15.68	2.00	2.00	0.00
700.00	8.00	182.12	698.70	-27.86	-1.03	-27.86	2.00	2.00	0.00
800.00	10.00	182.12	797.47	-43.49	-1.61	-43.48	2.00	2.00	0.00
900.00	12.00	182.12	895.62	-62.56	-2.31	-62.55	2.00	2.00	0.00
901.49	12.03	182.12	897.08	-62.87	-2.33	-62.86	2.00	2.00	0.00
Hold 12.03° Inc @ 182.12° Azm									
1,000.00	12.03	182.12	993.43	-83.39	-3.08	-83.37	0.00	0.00	0.00
1,100.00	12.03	182.12	1,091.23	-104.21	-3.85	-104.20	0.00	0.00	0.00
1,200.00	12.03	182.12	1,189.04	-125.04	-4.62	-125.02	0.00	0.00	0.00
1,300.00	12.03	182.12	1,286.84	-145.87	-5.39	-145.84	0.00	0.00	0.00
1,400.00	12.03	182.12	1,384.64	-166.70	-6.16	-166.67	0.00	0.00	0.00
1,500.00	12.03	182.12	1,482.45	-187.53	-6.94	-187.49	0.00	0.00	0.00
1,600.00	12.03	182.12	1,580.25	-208.35	-7.71	-208.31	0.00	0.00	0.00
1,620.19	12.03	182.12	1,600.00	-212.56	-7.86	-212.52	0.00	0.00	0.00
Upper Pierre									
1,700.00	12.03	182.12	1,678.05	-229.18	-8.48	-229.14	0.00	0.00	0.00
1,800.00	12.03	182.12	1,775.86	-250.01	-9.25	-249.96	0.00	0.00	0.00
1,900.00	12.03	182.12	1,873.66	-270.84	-10.02	-270.79	0.00	0.00	0.00
2,000.00	12.03	182.12	1,971.47	-291.66	-10.79	-291.61	0.00	0.00	0.00
2,100.00	12.03	182.12	2,069.27	-312.49	-11.56	-312.43	0.00	0.00	0.00
2,200.00	12.03	182.12	2,167.07	-333.32	-12.33	-333.26	0.00	0.00	0.00
2,300.00	12.03	182.12	2,264.88	-354.15	-13.10	-354.08	0.00	0.00	0.00
2,400.00	12.03	182.12	2,362.68	-374.98	-13.87	-374.91	0.00	0.00	0.00
2,500.00	12.03	182.12	2,460.49	-395.80	-14.64	-395.73	0.00	0.00	0.00
2,600.00	12.03	182.12	2,558.29	-416.63	-15.41	-416.55	0.00	0.00	0.00
2,700.00	12.03	182.12	2,656.09	-437.46	-16.18	-437.38	0.00	0.00	0.00
2,800.00	12.03	182.12	2,753.90	-458.29	-16.95	-458.20	0.00	0.00	0.00
2,900.00	12.03	182.12	2,851.70	-479.11	-17.72	-479.03	0.00	0.00	0.00
3,000.00	12.03	182.12	2,949.51	-499.94	-18.49	-499.85	0.00	0.00	0.00
3,100.00	12.03	182.12	3,047.31	-520.77	-19.26	-520.67	0.00	0.00	0.00
3,200.00	12.03	182.12	3,145.11	-541.60	-20.03	-541.50	0.00	0.00	0.00
3,300.00	12.03	182.12	3,242.92	-562.42	-20.80	-562.32	0.00	0.00	0.00
3,400.00	12.03	182.12	3,340.72	-583.25	-21.57	-583.14	0.00	0.00	0.00
3,500.00	12.03	182.12	3,438.53	-604.08	-22.34	-603.97	0.00	0.00	0.00
3,562.85	12.03	182.12	3,500.00	-617.17	-22.82	-617.06	0.00	0.00	0.00
Hygiene									
3,600.00	12.03	182.12	3,536.33	-624.91	-23.11	-624.79	0.00	0.00	0.00
3,700.00	12.03	182.12	3,634.13	-645.74	-23.88	-645.62	0.00	0.00	0.00
3,716.22	12.03	182.12	3,650.00	-649.11	-24.01	-648.99	0.00	0.00	0.00
Lower Pierre									
3,800.00	12.03	182.12	3,731.94	-666.56	-24.65	-666.44	0.00	0.00	0.00
3,900.00	12.03	182.12	3,829.74	-687.39	-25.42	-687.26	0.00	0.00	0.00
4,000.00	12.03	182.12	3,927.55	-708.22	-26.19	-708.09	0.00	0.00	0.00
4,100.00	12.03	182.12	4,025.35	-729.05	-26.96	-728.91	0.00	0.00	0.00
4,200.00	12.03	182.12	4,123.15	-749.87	-27.73	-749.74	0.00	0.00	0.00
4,300.00	12.03	182.12	4,220.96	-770.70	-28.50	-770.56	0.00	0.00	0.00
4,400.00	12.03	182.12	4,318.76	-791.53	-29.27	-791.38	0.00	0.00	0.00
4,498.91	12.03	182.12	4,415.50	-812.13	-30.03	-811.98	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0105A
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-0105A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524095		
Design:	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)
Begin 2°/100' Drop									
4,500.00	12.01	182.12	4,416.57	-812.36	-30.04	-812.21	2.00	-2.00	0.00
4,600.00	10.01	182.12	4,514.72	-831.44	-30.75	-831.28	2.00	-2.00	0.00
4,700.00	8.01	182.12	4,613.48	-847.08	-31.33	-846.93	2.00	-2.00	0.00
4,800.00	6.01	182.12	4,712.73	-859.28	-31.78	-859.12	2.00	-2.00	0.00
4,900.00	4.01	182.12	4,812.34	-868.00	-32.10	-867.84	2.00	-2.00	0.00
5,000.00	2.01	182.12	4,912.20	-873.24	-32.29	-873.08	2.00	-2.00	0.00
5,100.00	0.01	182.12	5,012.18	-875.00	-32.36	-874.84	2.00	-2.00	0.00
5,100.40	0.00	0.00	5,012.58	-875.00	-32.36	-874.84	2.00	-2.00	0.00
Begin Vertical Hold									
5,577.95	0.00	0.00	5,490.13	-875.00	-32.36	-874.84	0.00	0.00	0.00
KOP, Begin 11°/100' Build									
5,600.00	2.43	0.00	5,512.17	-874.53	-32.36	-874.37	11.00	11.00	0.00
5,700.00	13.43	0.00	5,611.07	-860.77	-32.36	-860.60	11.00	11.00	0.00
5,799.43	24.36	0.00	5,705.00	-828.62	-32.36	-828.45	11.00	11.00	0.00
P200 Marker									
5,800.00	24.43	0.00	5,705.51	-828.38	-32.36	-828.22	11.00	11.00	0.00
5,831.74	27.92	0.00	5,734.00	-814.38	-32.36	-814.22	11.00	11.00	0.00
P300 Marker									
5,851.18	30.06	0.00	5,751.00	-804.97	-32.36	-804.80	11.00	11.00	0.00
P350 Marker									
5,862.81	31.33	0.00	5,761.00	-799.03	-32.36	-798.87	11.00	11.00	0.00
Sharon Springs									
5,871.04	32.24	0.00	5,768.00	-794.69	-32.36	-794.53	11.00	11.00	0.00
Niobrara									
5,900.00	35.43	0.00	5,792.05	-778.57	-32.36	-778.41	11.00	11.00	0.00
5,906.10	36.10	0.00	5,797.00	-775.01	-32.36	-774.85	11.00	11.00	0.00
Top A Chalk									
5,950.87	41.02	0.00	5,832.00	-747.11	-32.36	-746.95	11.00	11.00	0.00
Top B Marl									
5,979.40	44.16	0.00	5,853.00	-727.80	-32.36	-727.64	11.00	11.00	0.00
A Marl									
5,992.10	45.56	0.00	5,862.00	-718.85	-32.36	-718.69	11.00	11.00	0.00
Top Upper B									
6,000.00	46.43	0.00	5,867.49	-713.16	-32.36	-713.00	11.00	11.00	0.00
6,027.64	49.47	0.00	5,886.00	-692.65	-32.36	-692.49	11.00	11.00	0.00
Base Upper B									
6,043.30	51.19	0.00	5,896.00	-680.59	-32.36	-680.43	11.00	11.00	0.00
Top Lower B									
6,092.54	56.60	0.00	5,925.00	-640.82	-32.36	-640.67	11.00	11.00	0.00
Base Lower B									
6,100.00	57.43	0.00	5,929.06	-634.56	-32.36	-634.41	11.00	11.00	0.00
6,103.62	57.82	0.00	5,931.00	-631.51	-32.36	-631.35	11.00	11.00	0.00
Top B Marl									
6,193.29	67.69	0.00	5,972.00	-551.89	-32.36	-551.73	11.00	11.00	0.00
Top C Chalk									
6,200.00	68.43	0.00	5,974.51	-545.66	-32.36	-545.50	11.00	11.00	0.00
6,218.49	70.46	0.00	5,981.00	-528.35	-32.36	-528.19	11.00	11.00	0.00
Mid C Chalk									
6,279.51	77.17	0.00	5,998.00	-469.78	-32.36	-469.62	11.00	11.00	0.00
Mid C Marl									



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0105A
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-0105A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524095		
Design:	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)
6,300.00	79.43	0.00	6,002.15	-449.72	-32.36	-449.56	11.00	11.00	0.00
6,395.43	89.92	0.00	6,011.00	-354.83	-32.36	-354.68	11.00	11.00	0.00
Lower C Chalk									
6,396.13	90.00	0.00	6,011.00	-354.13	-32.36	-353.98	11.00	11.00	0.00
LP, Hold 90° Inc @ 0° Azm - 7"									
6,400.00	90.00	0.00	6,011.00	-350.26	-32.36	-350.11	0.01	0.01	0.00
6,500.00	90.00	0.00	6,011.00	-250.26	-32.36	-250.11	0.00	0.00	0.00
6,600.00	90.00	0.00	6,011.00	-150.26	-32.36	-150.11	0.00	0.00	0.00
6,700.00	90.00	0.00	6,011.00	-50.26	-32.36	-50.11	0.00	0.00	0.00
6,800.00	90.00	0.00	6,011.00	49.74	-32.36	49.89	0.00	0.00	0.00
6,900.00	90.00	0.00	6,011.00	149.74	-32.36	149.89	0.00	0.00	0.00
7,000.00	90.00	0.00	6,011.00	249.74	-32.36	249.89	0.00	0.00	0.00
7,100.00	90.00	0.00	6,011.00	349.74	-32.36	349.89	0.00	0.00	0.00
7,200.00	90.00	0.00	6,011.00	449.74	-32.36	449.89	0.00	0.00	0.00
7,300.00	90.00	0.00	6,011.00	549.74	-32.36	549.88	0.00	0.00	0.00
7,400.00	90.00	0.00	6,011.00	649.74	-32.36	649.88	0.00	0.00	0.00
7,500.00	90.00	0.00	6,011.00	749.74	-32.36	749.88	0.00	0.00	0.00
7,600.00	90.00	0.00	6,011.00	849.74	-32.36	849.88	0.00	0.00	0.00
7,700.00	90.00	0.00	6,011.00	949.74	-32.36	949.88	0.00	0.00	0.00
7,800.00	90.00	0.00	6,011.00	1,049.74	-32.36	1,049.88	0.00	0.00	0.00
7,900.00	90.00	0.00	6,011.00	1,149.74	-32.36	1,149.88	0.00	0.00	0.00
8,000.00	90.00	0.00	6,011.00	1,249.74	-32.36	1,249.88	0.00	0.00	0.00
8,100.00	90.00	0.00	6,011.00	1,349.74	-32.36	1,349.88	0.00	0.00	0.00
8,200.00	90.00	0.00	6,011.00	1,449.74	-32.36	1,449.87	0.00	0.00	0.00
8,300.00	90.00	0.00	6,011.00	1,549.74	-32.36	1,549.87	0.00	0.00	0.00
8,400.00	90.00	0.00	6,011.00	1,649.74	-32.36	1,649.87	0.00	0.00	0.00
8,500.00	90.00	0.00	6,011.00	1,749.74	-32.36	1,749.87	0.00	0.00	0.00
8,600.00	90.00	0.00	6,011.00	1,849.74	-32.36	1,849.87	0.00	0.00	0.00
8,700.00	90.00	0.00	6,011.00	1,949.74	-32.36	1,949.87	0.00	0.00	0.00
8,800.00	90.00	0.00	6,011.00	2,049.74	-32.36	2,049.87	0.00	0.00	0.00
8,900.00	90.00	0.00	6,011.00	2,149.74	-32.36	2,149.87	0.00	0.00	0.00
9,000.00	90.00	0.00	6,011.00	2,249.74	-32.36	2,249.87	0.00	0.00	0.00
9,100.00	90.00	0.00	6,011.00	2,349.74	-32.36	2,349.86	0.00	0.00	0.00
9,200.00	90.00	0.00	6,011.00	2,449.74	-32.36	2,449.86	0.00	0.00	0.00
9,300.00	90.00	0.00	6,011.00	2,549.74	-32.36	2,549.86	0.00	0.00	0.00
9,400.00	90.00	0.00	6,011.00	2,649.74	-32.36	2,649.86	0.00	0.00	0.00
9,500.00	90.00	0.00	6,011.00	2,749.74	-32.36	2,749.86	0.00	0.00	0.00
9,600.00	90.00	0.00	6,011.00	2,849.74	-32.36	2,849.86	0.00	0.00	0.00
9,700.00	90.00	0.00	6,011.00	2,949.74	-32.36	2,949.86	0.00	0.00	0.00
9,800.00	90.00	0.00	6,011.00	3,049.74	-32.36	3,049.86	0.00	0.00	0.00
9,900.00	90.00	0.00	6,011.00	3,149.74	-32.36	3,149.86	0.00	0.00	0.00
10,000.00	90.00	0.00	6,011.00	3,249.74	-32.36	3,249.86	0.00	0.00	0.00
10,100.00	90.00	0.00	6,011.00	3,349.74	-32.36	3,349.85	0.00	0.00	0.00
10,200.00	90.00	0.00	6,011.00	3,449.74	-32.36	3,449.85	0.00	0.00	0.00
10,300.00	90.00	0.00	6,011.00	3,549.74	-32.36	3,549.85	0.00	0.00	0.00
10,400.00	90.00	0.00	6,011.00	3,649.74	-32.36	3,649.85	0.00	0.00	0.00
10,500.00	90.00	0.00	6,011.00	3,749.74	-32.36	3,749.85	0.00	0.00	0.00
10,600.00	90.00	0.00	6,011.00	3,849.74	-32.36	3,849.85	0.00	0.00	0.00
10,700.00	90.00	0.00	6,011.00	3,949.74	-32.36	3,949.85	0.00	0.00	0.00
10,800.00	90.00	0.00	6,011.00	4,049.74	-32.36	4,049.85	0.00	0.00	0.00
10,900.00	90.00	0.00	6,011.00	4,149.74	-32.36	4,149.85	0.00	0.00	0.00
11,000.00	90.00	0.00	6,011.00	4,249.74	-32.36	4,249.84	0.00	0.00	0.00
11,100.00	90.00	0.00	6,011.00	4,349.74	-32.36	4,349.84	0.00	0.00	0.00
11,200.00	90.00	0.00	6,011.00	4,449.74	-32.36	4,449.84	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0105A
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-0105A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524095		
Design:	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)
11,300.00	90.00	0.00	6,011.00	4,549.74	-32.36	4,549.84	0.00	0.00	0.00
11,400.00	90.00	0.00	6,011.00	4,649.74	-32.36	4,649.84	0.00	0.00	0.00
11,500.00	90.00	0.00	6,011.00	4,749.74	-32.36	4,749.84	0.00	0.00	0.00
11,600.00	90.00	0.00	6,011.00	4,849.74	-32.36	4,849.84	0.00	0.00	0.00
11,700.00	90.00	0.00	6,011.00	4,949.74	-32.36	4,949.84	0.00	0.00	0.00
11,800.00	90.00	0.00	6,011.00	5,049.74	-32.36	5,049.84	0.00	0.00	0.00
11,900.00	90.00	0.00	6,011.00	5,149.74	-32.36	5,149.83	0.00	0.00	0.00
12,000.00	90.00	0.00	6,011.00	5,249.74	-32.36	5,249.83	0.00	0.00	0.00
12,100.00	90.00	0.00	6,011.00	5,349.74	-32.36	5,349.83	0.00	0.00	0.00
12,200.00	90.00	0.00	6,011.00	5,449.74	-32.36	5,449.83	0.00	0.00	0.00
12,300.00	90.00	0.00	6,011.00	5,549.74	-32.36	5,549.83	0.00	0.00	0.00
12,400.00	90.00	0.00	6,011.00	5,649.74	-32.36	5,649.83	0.00	0.00	0.00
12,500.00	90.00	0.00	6,011.00	5,749.74	-32.36	5,749.83	0.00	0.00	0.00
12,600.00	90.00	0.00	6,011.00	5,849.74	-32.36	5,849.83	0.00	0.00	0.00
12,700.00	90.00	0.00	6,011.00	5,949.74	-32.36	5,949.83	0.00	0.00	0.00
12,800.00	90.00	0.00	6,011.00	6,049.74	-32.36	6,049.82	0.00	0.00	0.00
12,900.00	90.00	0.00	6,011.00	6,149.74	-32.36	6,149.82	0.00	0.00	0.00
13,000.00	90.00	0.00	6,011.00	6,249.74	-32.36	6,249.82	0.00	0.00	0.00
13,100.00	90.00	0.00	6,011.00	6,349.74	-32.36	6,349.82	0.00	0.00	0.00
13,200.00	90.00	0.00	6,011.00	6,449.74	-32.36	6,449.82	0.00	0.00	0.00
13,300.00	90.00	0.00	6,011.00	6,549.74	-32.36	6,549.82	0.00	0.00	0.00
13,400.00	90.00	0.00	6,011.00	6,649.74	-32.36	6,649.82	0.00	0.00	0.00
13,500.00	90.00	0.00	6,011.00	6,749.74	-32.36	6,749.82	0.00	0.00	0.00
13,600.00	90.00	0.00	6,011.00	6,849.74	-32.36	6,849.82	0.00	0.00	0.00
13,648.41	90.00	0.00	6,011.00	6,898.15	-32.36	6,898.22	0.00	0.00	0.00
TD at 13648.41' 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-0105Av2	0.00	0.00	6,011.00	6,898.15	-32.36	1,565,511.626	3,465,143.807	40.873594	-103.818036
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,396.13	6,011.00	7"	7	7-1/2	



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0105A
Company:	Whiting Oil & Gas Corporation	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Project:	Weld County, Colorado (NAD 83)	MD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	North Reference:	True
Well:	Razor FED #12F-0105A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH / Job# 1524095		
Design:	Plan 2 08-04-15		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,620.19	1,600.00	Upper Pierre		0.00	359.73	
3,562.85	3,500.00	Hygiene		0.00	359.73	
3,716.22	3,650.00	Lower Pierre		0.00	359.73	
5,799.43	5,705.00	P200 Marker		0.00	359.73	
5,831.74	5,734.00	P300 Marker		0.00	359.73	
5,851.18	5,751.00	P350 Marker		0.00	359.73	
5,862.81	5,761.00	Sharon Springs		0.00	359.73	
5,871.04	5,768.00	Niobrara		0.00	359.73	
5,906.10	5,797.00	Top A Chalk		0.00	359.73	
5,950.87	5,832.00	Top B Marl		0.00	359.73	
5,979.40	5,853.00	A Marl		0.00	359.73	
5,992.10	5,862.00	Top Upper B		0.00	359.73	
6,027.64	5,886.00	Base Upper B		0.00	359.73	
6,043.30	5,896.00	Top Lower B		0.00	359.73	
6,092.54	5,925.00	Base Lower B		0.00	359.73	
6,103.62	5,931.00	Top B Marl		0.00	359.73	
6,193.29	5,972.00	Top C Chalk		0.00	359.73	
6,218.49	5,981.00	Mid C Chalk		0.00	359.73	
6,279.51	5,998.00	Mid C Marl		0.00	359.73	
6,395.43	6,011.00	Lower C Chalk		0.00	359.73	

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	
901.49	897.08	-62.87	-2.33	Hold 12.03° Inc @ 182.12° Azm	
4,498.91	4,415.50	-812.13	-30.03	Begin 2°/100' Drop	
5,100.40	5,012.58	-875.00	-32.36	Begin Vertical Hold	
5,577.95	5,490.13	-875.00	-32.36	KOP, Begin 11°/100' Build	
6,396.13	6,011.00	-354.13	-32.36	LP, Hold 90° Inc @ 0° Azm	
13,648.41	6,011.00	6,898.15	-32.36	TD at 13648.41' MD	