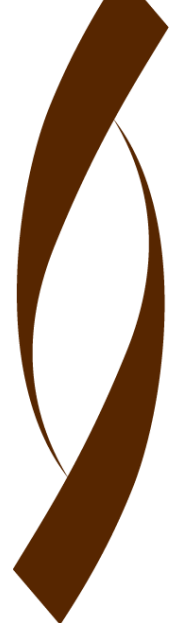
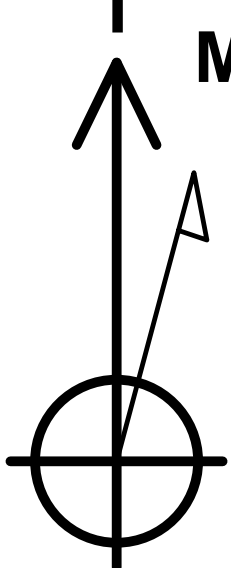




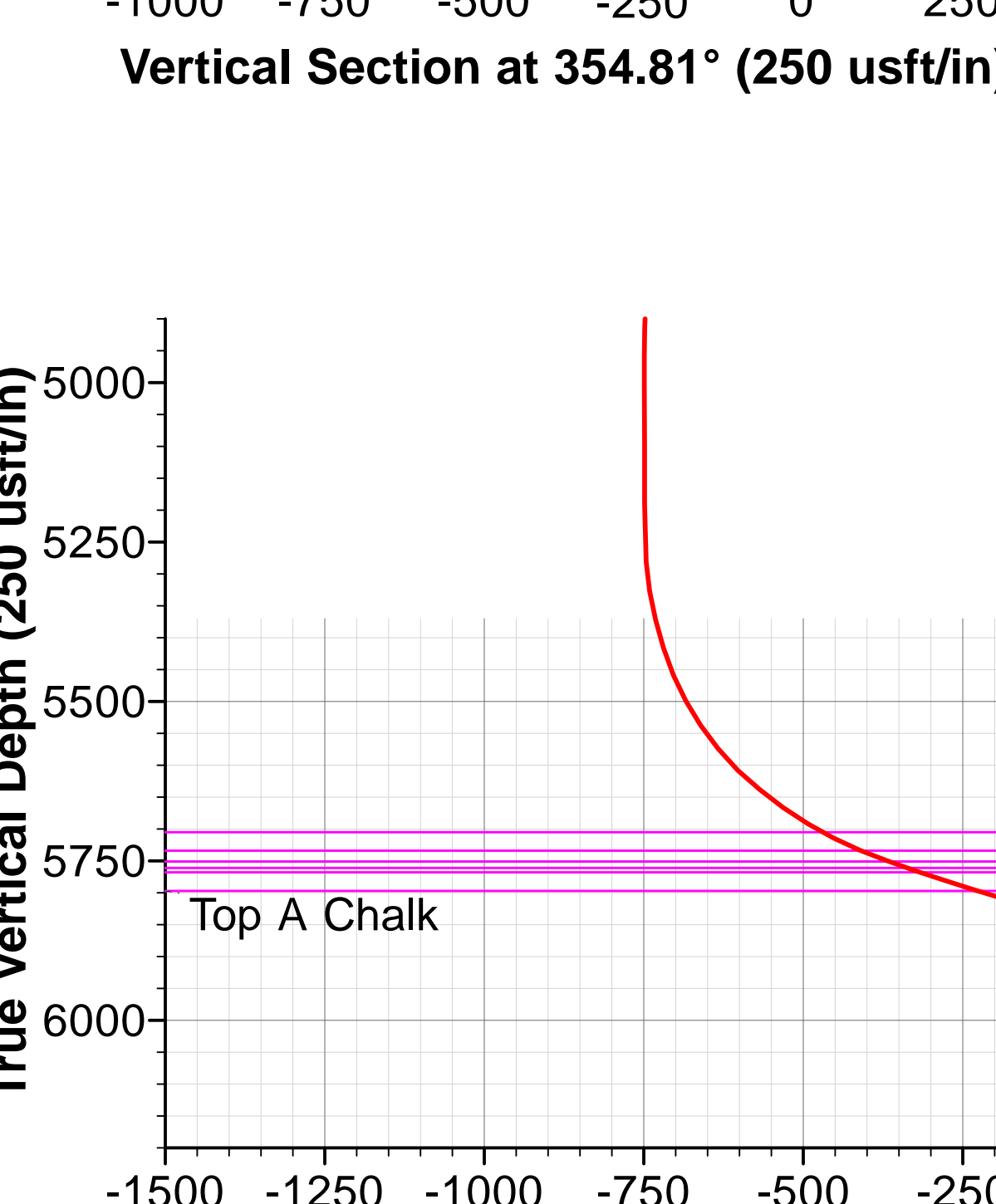
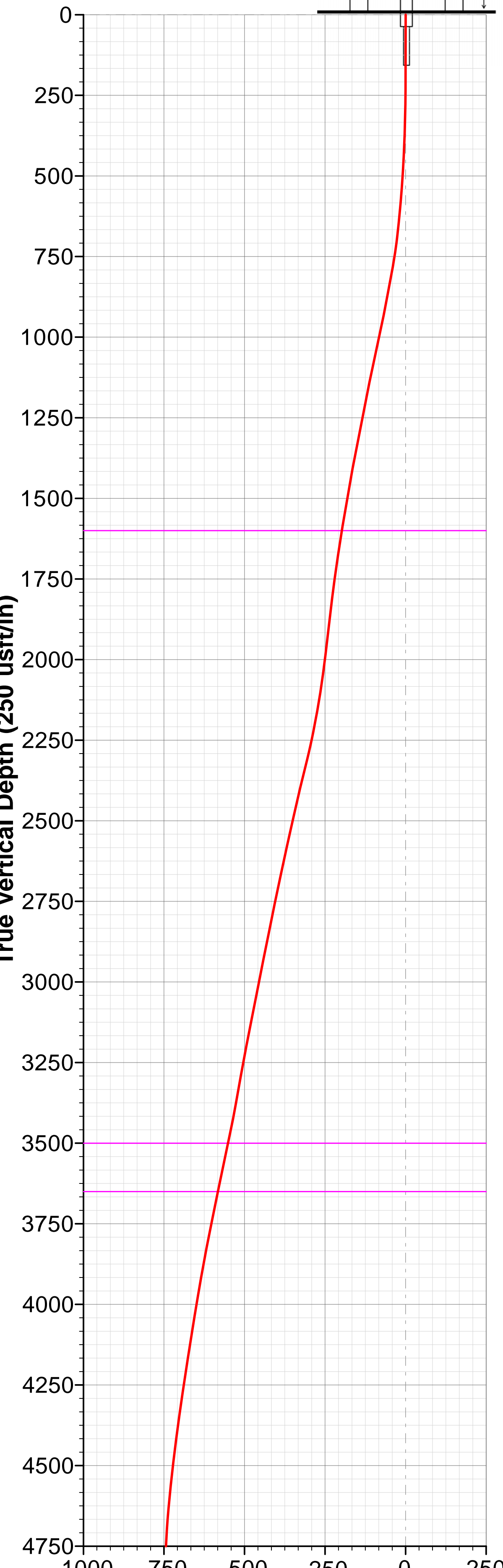
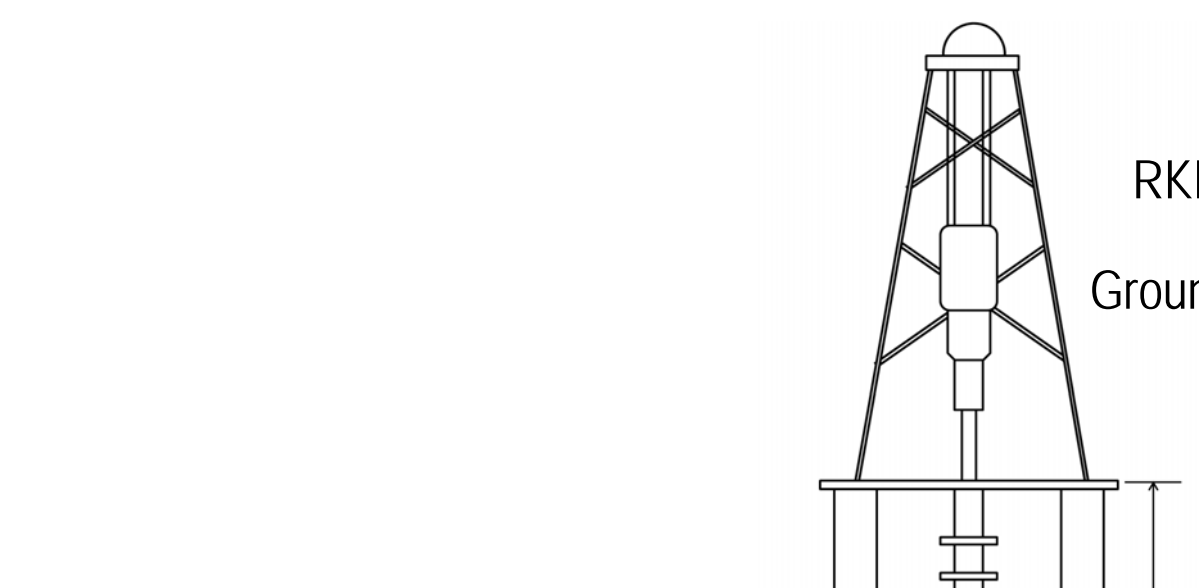
Project: Weld County, Colorado (NAD 83)  
Site: Sec.12-T10N-R58W  
Well: Razor FED #12F-0103A  
Wellbore: ST01 / Job #1523839  
Design: Plan 3 09-02-15  
Rig: Unit 409



PHOENIX  
TECHNOLOGY SERVICES



Azimuths to True North  
Magnetic North: 7.62°  
Magnetic Field  
Strength: 52966.3snT  
Dip Angle: 67.35°  
Date: 9/2/2015  
Model: HDGM

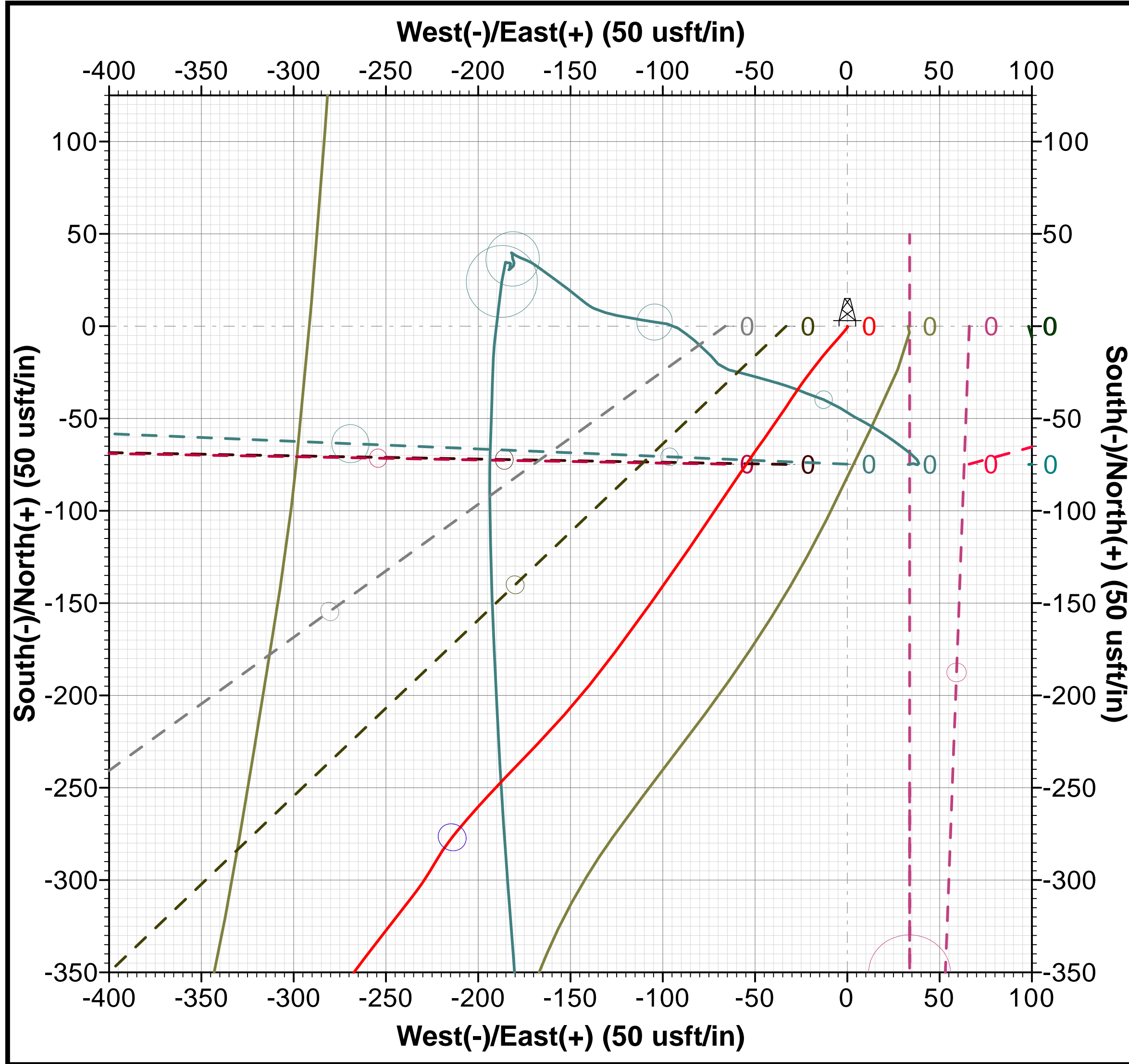
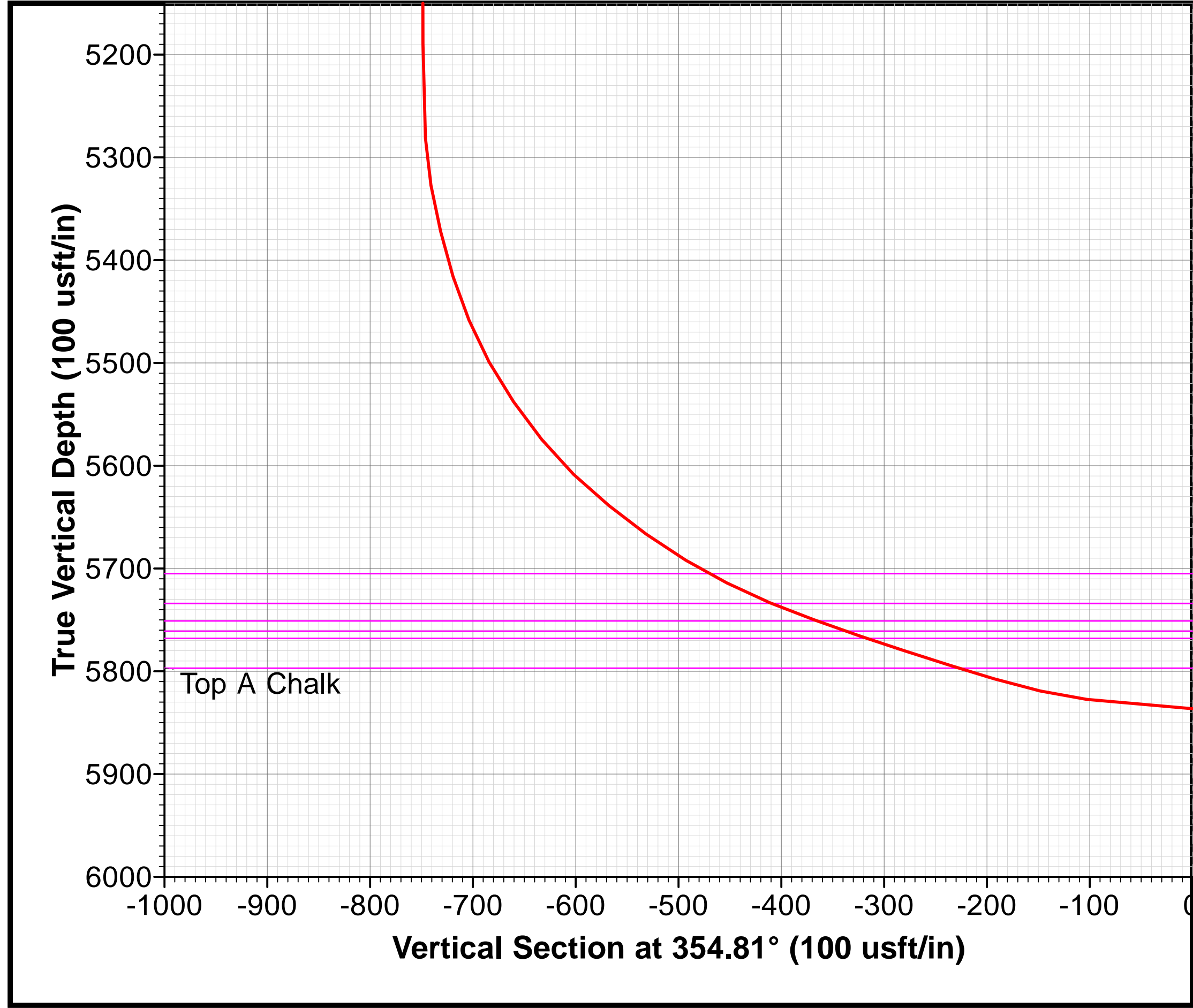


WELL DETAILS							
		Ground Level:	4936.80				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.00	0.00	1558614.075	3465240.897	40.854661	-103.818158		

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	7261.00	90.42	2.83	5838.97	779.86	-681.83	0.00	0.00	838.33		Tie In to OH @ 7261' MD
2	7354.00	90.31	2.82	5838.38	872.75	-677.24	0.12	-174.81	930.42		Begin 5°/100' Drop & Turn
3	7568.21	89.50	13.50	5838.73	1084.48	-646.88	5.00	94.33	1138.54		Hold 89.5° Inc at 13.50° Azm
4	7618.21	89.50	13.50	5839.17	1133.10	-635.21	0.00	0.00	1185.90		Begin 2°/100' Build & Turn
5	8154.55	91.70	3.00	5833.54	1663.08	-558.36	2.00	-78.14	1706.76		Hold 91.7° Inc at 3° Azm
6	9285.03	91.70	3.00	5800.00	2791.51	-499.22	0.00	0.00	2825.22		Begin 2°/100' Drop & Turn
7	9539.92	90.38	358.08	5795.38	3046.27	-496.83	2.00	-104.98	3078.71		Hold 90.38° Inc at 358.08° Azm
8	13391.16	90.38	358.08	5770.00	6895.24	-626.14	0.00	0.00	6923.62	BHL_#12F-0103Av4	TD at 13391.16

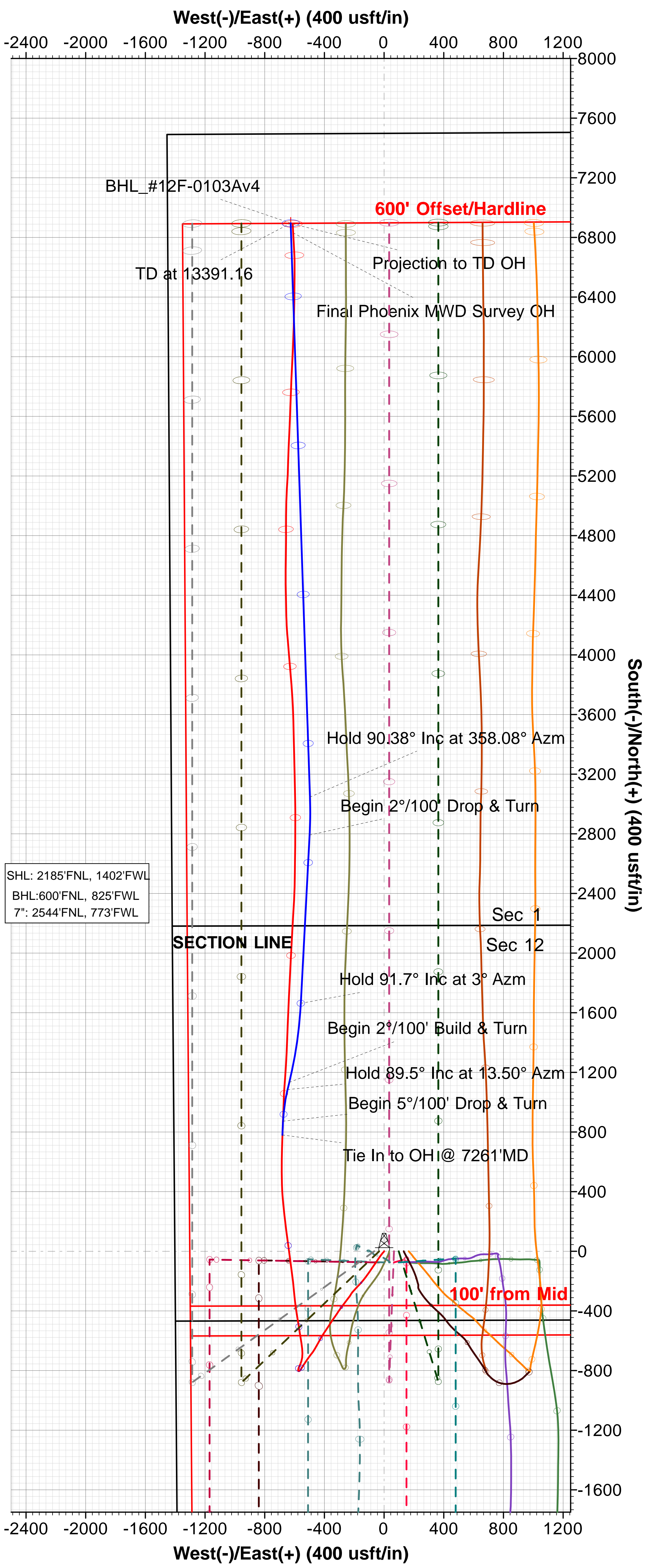
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL_#12F-0103Av4	5770.00	6895.24	-626.14	1565496.205	3464484.097	40.873586	-103.820422
						Shape	Point

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-0104B, Wellbore #1 / Job #1523838, Surveys (Unit 409) V0
—	Razor FED #12F-0108B, Wellbore #1 / Job #1523841, Surveys (Unit 409) V0
—	Razor FED #12F-1307A, Wellbore #1 / Job #1523836, Surveys (Unit 409) V0
—	Razor FED #12F-1303A, Wellbore #1 / Job #1523837, Plan 3 08-30-15 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-1306B, OH / Job# 1524100, Plan 2 08-04-15 V0
—	Razor FED #12F-0103A, OH / Job #1523839, Surveys (Unit 409) V0
—	Razor FED #12F-0102B, OH / Job# 1524094, Plan 2 08-04-15 V0
—	Plan 3 09-02-15



FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
1600.00	1630.10	Upper Pierre	0.00	354.54
3500.00	3588.80	Hygiene	0.00	354.54
3650.00	3743.50	Lower Pierre	0.00	354.54
5705.00	5928.68	P200 Marker	0.00	354.54
5734.00	5995.80	P300 Marker	0.00	354.54
5751.00	6043.28	P350 Marker	0.00	354.54
5761.00	6072.74	Sharon Springs	0.00	354.54
5768.00	6094.69	Niobrara	0.00	354.54
5797.00	6189.03	Top A Chalk	0.00	354.54

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-0103A, True North  
  
Latitude: 40.854661  
Longitude: -103.818158  
  
Grid East: 3465240.897  
Grid North: 1558614.075  
Scale Factor: 1.000  
  
Geomagnetic Model: HDGM  
Sample Date: 02-Sep-15  
Magnetic Declination: 7.62°  
Dip Angle from Horizontal: 67.35°  
Magnetic Field Strength: 52966  
  
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°







# **Whiting Oil & Gas Corporation**

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

**Sec.12-T10N-R58W**

**Razor FED #12F-0103A**

**ST01 / Job #1523839**

**Plan: Plan 3 09-02-15**

## **Standard Planning Report**

**02 September, 2015**





# Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-0103A
<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-0103A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST01 / Job #1523839		
<b>Design:</b>	Plan 3 09-02-15		

<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		

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-0103A					
Well Position	+N/-S	74.88 usft	Northing:	1,558,614.075 usft	Latitude:	40.854661
	+E/-W	-164.35 usft	Easting:	3,465,240.897 usft	Longitude:	-103.818158
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,936.80 usft

<b>Wellbore</b>	ST01 / Job #1523839				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	9/2/2015	7.62	67.35	52,966

<b>Design</b>	Plan 3 09-02-15				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	7,261.00	
<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	354.81	

<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
7,261.00	90.42	2.83	5,838.97	779.86	-681.83	0.00	0.00	0.00	0.00	
7,354.00	90.31	2.82	5,838.38	872.75	-677.24	0.12	-0.12	-0.01	-174.81	
7,568.21	89.50	13.50	5,838.73	1,084.48	-646.88	5.00	-0.38	4.99	94.33	
7,618.21	89.50	13.50	5,839.17	1,133.10	-635.21	0.00	0.00	0.00	0.00	
8,154.55	91.70	3.00	5,833.54	1,663.08	-558.36	2.00	0.41	-1.96	-78.14	
9,285.03	91.70	3.00	5,800.00	2,791.51	-499.22	0.00	0.00	0.00	0.00	
9,539.92	90.38	358.08	5,795.38	3,046.27	-496.83	2.00	-0.52	-1.93	-104.98	
13,391.16	90.38	358.08	5,770.00	6,895.24	-626.14	0.00	0.00	0.00	0.00	BHL_#12F-0103Av4



## Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-0103A
<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-0103A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST01 / Job #1523839		
<b>Design:</b>	Plan 3 09-02-15		

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)
100.00	0.14	151.14	100.00	-0.11	0.06	-0.11	0.00	0.00	0.00
200.00	0.16	172.18	200.00	-0.37	0.15	-0.38	0.06	0.02	21.04
300.00	1.43	218.06	299.99	-1.23	-0.37	-1.19	1.32	1.27	45.88
400.00	3.35	220.73	399.90	-4.43	-3.04	-4.13	1.92	1.92	2.67
500.00	5.27	221.46	499.61	-10.08	-7.99	-9.32	1.92	1.92	0.73
600.00	7.11	218.53	599.03	-18.35	-14.91	-16.92	1.87	1.84	-2.93
700.00	9.15	216.29	698.04	-29.46	-23.41	-27.22	2.06	2.04	-2.24
800.00	13.42	213.41	795.97	-46.07	-34.66	-42.75	4.30	4.27	-2.87
900.00	13.92	215.56	893.23	-65.13	-48.02	-60.52	0.71	0.50	2.15
1,000.00	15.54	213.86	989.81	-86.52	-62.64	-80.50	1.68	1.63	-1.70
1,100.00	15.21	214.35	1,086.23	-108.47	-77.50	-101.02	0.36	-0.34	0.49
1,200.00	14.86	214.93	1,182.80	-129.83	-92.24	-120.95	0.37	-0.34	0.59
1,300.00	14.51	215.65	1,279.54	-150.53	-106.89	-140.24	0.40	-0.35	0.71
1,400.00	14.16	216.40	1,376.42	-170.56	-121.45	-158.88	0.40	-0.35	0.75
1,500.00	13.74	218.34	1,473.47	-189.79	-136.03	-176.71	0.63	-0.43	1.94
1,600.00	13.29	221.00	1,570.70	-207.78	-150.93	-193.27	0.76	-0.44	2.66
1,700.00	12.83	223.74	1,668.11	-224.48	-166.16	-208.53	0.77	-0.46	2.74
1,800.00	11.49	223.44	1,765.85	-239.75	-180.77	-222.42	1.34	-1.34	-0.30
1,900.00	10.11	222.92	1,864.10	-253.24	-193.54	-234.70	1.38	-1.38	-0.52
2,000.00	9.36	221.20	1,962.70	-265.61	-204.75	-246.01	0.81	-0.75	-1.72
2,100.00	10.98	216.86	2,061.10	-279.35	-216.06	-258.66	1.79	1.62	-4.34
2,200.00	12.54	212.01	2,159.10	-296.13	-226.71	-274.41	1.85	1.56	-4.86
2,300.00	16.45	217.82	2,255.90	-316.37	-241.40	-293.24	4.17	3.91	5.82
2,400.00	18.31	217.27	2,351.01	-340.72	-260.38	-315.78	1.86	1.86	-0.55
2,500.00	17.26	216.50	2,446.23	-365.28	-278.52	-338.60	1.08	-1.05	-0.77
2,600.00	16.17	215.09	2,542.00	-388.46	-295.57	-360.14	1.16	-1.08	-1.41
2,700.00	15.57	213.76	2,638.22	-411.00	-310.80	-381.21	0.71	-0.61	-1.33
2,800.00	15.06	214.72	2,734.66	-432.91	-325.62	-401.69	0.57	-0.51	0.96
2,900.00	14.71	214.18	2,831.32	-454.00	-340.21	-421.38	0.38	-0.35	-0.53
3,000.00	14.53	213.52	2,928.08	-474.96	-354.25	-440.98	0.25	-0.18	-0.66
3,100.00	13.78	214.23	3,025.05	-495.26	-367.87	-459.96	0.77	-0.75	0.71
3,200.00	14.46	212.52	3,121.99	-515.79	-381.31	-479.19	0.80	0.68	-1.70
3,300.00	13.54	213.15	3,219.02	-536.12	-394.43	-498.25	0.93	-0.92	0.62
3,400.00	12.83	213.26	3,316.41	-555.05	-406.92	-515.97	0.71	-0.71	0.11
3,500.00	13.41	211.02	3,413.90	-573.87	-418.85	-533.64	0.77	0.58	-2.24
3,600.00	14.38	209.16	3,510.85	-595.14	-430.98	-553.72	1.07	0.97	-1.87
3,700.00	14.05	209.03	3,607.79	-616.60	-442.92	-574.02	0.33	-0.33	-0.13
3,800.00	13.73	208.29	3,704.86	-637.64	-454.48	-593.92	0.37	-0.33	-0.75
3,900.00	13.56	210.60	3,802.05	-658.25	-465.84	-613.43	0.57	-0.16	2.32
4,000.00	13.69	217.99	3,899.25	-677.75	-478.94	-631.66	1.74	0.13	7.39
4,100.00	12.85	217.72	3,996.54	-695.82	-493.37	-648.35	0.84	-0.84	-0.27
4,200.00	11.79	215.36	4,094.23	-712.95	-506.09	-664.26	1.18	-1.06	-2.37
4,300.00	11.28	213.71	4,192.22	-729.41	-517.40	-679.63	0.61	-0.51	-1.64
4,400.00	10.86	213.88	4,290.33	-745.50	-528.19	-694.68	0.42	-0.42	0.16
4,500.00	9.36	213.39	4,388.80	-759.98	-537.78	-708.23	1.50	-1.49	-0.48
4,600.00	8.64	213.30	4,487.56	-773.07	-546.48	-720.48	0.73	-0.73	-0.09
4,700.00	7.11	210.25	4,586.57	-784.90	-553.92	-731.59	1.58	-1.52	-3.05
4,800.00	5.04	213.60	4,686.02	-794.04	-559.04	-740.23	2.10	-2.07	3.34
4,900.00	3.29	227.08	4,785.75	-799.53	-563.82	-745.26	2.00	-1.75	13.48
5,000.00	2.35	232.64	4,885.64	-802.44	-567.43	-747.83	0.98	-0.94	5.56
5,100.00	1.15	263.50	4,985.58	-804.04	-570.16	-749.19	1.48	-1.20	30.86
5,200.00	1.11	275.97	5,085.57	-803.80	-571.98	-748.78	0.25	-0.04	12.48
5,300.00	1.02	269.56	5,185.55	-803.71	-573.86	-748.52	0.15	-0.09	-6.41
5,400.00	3.66	342.05	5,285.49	-801.24	-575.82	-745.89	3.49	2.64	72.49



## Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-0103A
<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-0103A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST01 / Job #1523839		
<b>Design:</b>	Plan 3 09-02-15		

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)	
5,500.00	15.98	21.45	5,383.65	-783.58	-573.28	-728.52	13.35	12.32	39.39	
5,600.00	27.41	19.87	5,476.34	-749.46	-558.63	-695.87	11.44	11.43	-1.58	
5,700.00	37.60	2.59	5,560.31	-696.73	-547.52	-644.36	13.70	10.19	-17.28	
5,800.00	50.43	351.75	5,632.46	-628.03	-552.13	-575.52	14.84	12.82	-10.84	
5,900.00	59.83	351.02	5,690.93	-548.04	-564.93	-494.70	9.43	9.41	-0.73	
6,000.00	68.81	350.78	5,735.52	-459.81	-579.17	-405.55	8.98	8.98	-0.24	
6,100.00	71.66	352.61	5,769.67	-366.89	-593.11	-311.75	3.33	2.85	1.83	
6,200.00	72.98	354.38	5,800.22	-272.29	-603.84	-216.56	2.14	1.32	1.77	
6,300.00	80.52	353.55	5,824.89	-175.97	-613.76	-119.74	7.59	7.54	-0.83	
6,400.00	86.27	351.81	5,835.46	-77.39	-626.49	-20.41	6.00	5.75	-1.74	
6,500.00	87.57	352.42	5,840.18	21.49	-640.66	79.34	1.44	1.30	0.62	
6,600.00	88.77	352.61	5,843.50	120.60	-653.51	179.21	1.22	1.20	0.19	
6,700.00	89.66	353.94	5,844.82	219.89	-665.34	279.16	1.60	0.89	1.32	
6,800.00	89.87	353.97	5,845.22	319.32	-675.94	379.14	0.21	0.21	0.03	
6,900.00	90.22	357.17	5,845.13	419.01	-683.67	479.12	3.22	0.35	3.20	
7,000.00	90.71	359.97	5,844.42	518.97	-685.89	578.87	2.84	0.49	2.80	
7,100.00	91.51	0.66	5,842.31	618.95	-685.09	678.37	1.06	0.80	0.69	
7,200.00	91.12	1.26	5,839.79	718.91	-684.00	777.82	0.71	-0.39	0.60	
7,261.00	90.42	2.83	5,838.97	779.86	-681.83	838.33	2.82	-1.15	2.58	
Tie In to OH @ 7261'MD										
7,300.00	90.37	2.83	5,838.70	818.81	-679.90	876.94	0.12	-0.12	-0.01	
7,354.00	90.31	2.82	5,838.38	872.75	-677.24	930.42	0.12	-0.12	-0.01	
Begin 5°/100' Drop & Turn										
7,400.00	90.14	5.11	5,838.20	918.63	-674.06	975.83	5.00	-0.38	4.99	
7,500.00	89.76	10.10	5,838.29	1,017.72	-660.83	1,073.31	5.00	-0.38	4.99	
7,568.21	89.50	13.50	5,838.73	1,084.48	-646.88	1,138.54	5.00	-0.38	4.99	
Hold 89.5° Inc at 13.50° Azm										
7,600.00	89.50	13.50	5,839.01	1,115.39	-639.46	1,168.65	0.00	0.00	0.00	
7,618.21	89.50	13.50	5,839.17	1,133.10	-635.21	1,185.90	0.00	0.00	0.00	
Begin 2°/100' Build & Turn										
7,700.00	89.84	11.90	5,839.64	1,212.88	-617.23	1,263.73	2.00	0.41	-1.96	
7,800.00	90.25	9.94	5,839.57	1,311.06	-598.29	1,359.80	2.00	0.41	-1.96	
7,900.00	90.66	7.98	5,838.78	1,409.83	-582.71	1,456.75	2.00	0.41	-1.96	
8,000.00	91.07	6.03	5,837.27	1,509.07	-570.52	1,554.48	2.00	0.41	-1.96	
8,100.00	91.48	4.07	5,835.05	1,608.65	-561.72	1,652.86	2.00	0.41	-1.96	
8,154.55	91.70	3.00	5,833.54	1,663.08	-558.36	1,706.76	2.00	0.41	-1.96	
Hold 91.7° Inc at 3° Azm										
8,200.00	91.70	3.00	5,832.19	1,708.45	-555.98	1,751.73	0.00	0.00	0.00	
8,300.00	91.70	3.00	5,829.22	1,808.26	-550.75	1,850.66	0.00	0.00	0.00	
8,400.00	91.70	3.00	5,826.26	1,908.08	-545.52	1,949.60	0.00	0.00	0.00	
8,500.00	91.70	3.00	5,823.29	2,007.90	-540.29	2,048.54	0.00	0.00	0.00	
8,600.00	91.70	3.00	5,820.32	2,107.72	-535.06	2,147.47	0.00	0.00	0.00	
8,700.00	91.70	3.00	5,817.36	2,207.54	-529.82	2,246.41	0.00	0.00	0.00	
8,800.00	91.70	3.00	5,814.39	2,307.36	-524.59	2,345.35	0.00	0.00	0.00	
8,900.00	91.70	3.00	5,811.42	2,407.18	-519.36	2,444.28	0.00	0.00	0.00	
9,000.00	91.70	3.00	5,808.46	2,507.00	-514.13	2,543.22	0.00	0.00	0.00	
9,100.00	91.70	3.00	5,805.49	2,606.82	-508.90	2,642.16	0.00	0.00	0.00	
9,200.00	91.70	3.00	5,802.52	2,706.64	-503.67	2,741.09	0.00	0.00	0.00	
9,285.03	91.70	3.00	5,800.00	2,791.51	-499.22	2,825.22	0.00	0.00	0.00	
Begin 2°/100' Drop & Turn										
9,300.00	91.62	2.71	5,799.57	2,806.46	-498.47	2,840.04	2.00	-0.52	-1.93	
9,400.00	91.10	0.78	5,797.19	2,906.38	-495.43	2,939.27	2.00	-0.52	-1.93	
9,500.00	90.59	358.85	5,795.71	3,006.36	-495.76	3,038.88	2.00	-0.52	-1.93	



## Phoenix Technology Services LP

## Planning Report



<b>Database:</b>	Compass 5000 RMR	<b>Local Co-ordinate Reference:</b>	Well Razor FED #12F-0103A
<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-0103A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ST01 / Job #1523839		
<b>Design:</b>	Plan 3 09-02-15		

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)	
9,539.92	90.38	358.08	5,795.38	3,046.27	-496.83	3,078.71	2.00	-0.52	-1.93	
Hold 90.38° Inc at 358.08° Azm										
9,600.00	90.38	358.08	5,794.98	3,106.31	-498.85	3,138.69	0.00	0.00	0.00	
9,700.00	90.38	358.08	5,794.32	3,206.25	-502.20	3,238.53	0.00	0.00	0.00	
9,800.00	90.38	358.08	5,793.66	3,306.19	-505.56	3,338.37	0.00	0.00	0.00	
9,900.00	90.38	358.08	5,793.00	3,406.13	-508.92	3,438.20	0.00	0.00	0.00	
10,000.00	90.38	358.08	5,792.34	3,506.08	-512.28	3,538.04	0.00	0.00	0.00	
10,100.00	90.38	358.08	5,791.69	3,606.02	-515.64	3,637.87	0.00	0.00	0.00	
10,200.00	90.38	358.08	5,791.03	3,705.96	-518.99	3,737.71	0.00	0.00	0.00	
10,300.00	90.38	358.08	5,790.37	3,805.90	-522.35	3,837.54	0.00	0.00	0.00	
10,400.00	90.38	358.08	5,789.71	3,905.84	-525.71	3,937.38	0.00	0.00	0.00	
10,500.00	90.38	358.08	5,789.05	4,005.78	-529.07	4,037.21	0.00	0.00	0.00	
10,600.00	90.38	358.08	5,788.39	4,105.72	-532.42	4,137.05	0.00	0.00	0.00	
10,700.00	90.38	358.08	5,787.73	4,205.67	-535.78	4,236.89	0.00	0.00	0.00	
10,800.00	90.38	358.08	5,787.07	4,305.61	-539.14	4,336.72	0.00	0.00	0.00	
10,900.00	90.38	358.08	5,786.41	4,405.55	-542.50	4,436.56	0.00	0.00	0.00	
11,000.00	90.38	358.08	5,785.76	4,505.49	-545.85	4,536.39	0.00	0.00	0.00	
11,100.00	90.38	358.08	5,785.10	4,605.43	-549.21	4,636.23	0.00	0.00	0.00	
11,200.00	90.38	358.08	5,784.44	4,705.37	-552.57	4,736.06	0.00	0.00	0.00	
11,300.00	90.38	358.08	5,783.78	4,805.31	-555.93	4,835.90	0.00	0.00	0.00	
11,400.00	90.38	358.08	5,783.12	4,905.26	-559.29	4,935.73	0.00	0.00	0.00	
11,500.00	90.38	358.08	5,782.46	5,005.20	-562.64	5,035.57	0.00	0.00	0.00	
11,600.00	90.38	358.08	5,781.80	5,105.14	-566.00	5,135.41	0.00	0.00	0.00	
11,700.00	90.38	358.08	5,781.14	5,205.08	-569.36	5,235.24	0.00	0.00	0.00	
11,800.00	90.38	358.08	5,780.48	5,305.02	-572.72	5,335.08	0.00	0.00	0.00	
11,900.00	90.38	358.08	5,779.83	5,404.96	-576.07	5,434.91	0.00	0.00	0.00	
12,000.00	90.38	358.08	5,779.17	5,504.90	-579.43	5,534.75	0.00	0.00	0.00	
12,100.00	90.38	358.08	5,778.51	5,604.85	-582.79	5,634.58	0.00	0.00	0.00	
12,200.00	90.38	358.08	5,777.85	5,704.79	-586.15	5,734.42	0.00	0.00	0.00	
12,300.00	90.38	358.08	5,777.19	5,804.73	-589.50	5,834.25	0.00	0.00	0.00	
12,400.00	90.38	358.08	5,776.53	5,904.67	-592.86	5,934.09	0.00	0.00	0.00	
12,500.00	90.38	358.08	5,775.87	6,004.61	-596.22	6,033.93	0.00	0.00	0.00	
12,600.00	90.38	358.08	5,775.21	6,104.55	-599.58	6,133.76	0.00	0.00	0.00	
12,700.00	90.38	358.08	5,774.55	6,204.49	-602.94	6,233.60	0.00	0.00	0.00	
12,800.00	90.38	358.08	5,773.90	6,304.44	-606.29	6,333.43	0.00	0.00	0.00	
12,900.00	90.38	358.08	5,773.24	6,404.38	-609.65	6,433.27	0.00	0.00	0.00	
13,000.00	90.38	358.08	5,772.58	6,504.32	-613.01	6,533.10	0.00	0.00	0.00	
13,100.00	90.38	358.08	5,771.92	6,604.26	-616.37	6,632.94	0.00	0.00	0.00	
13,200.00	90.38	358.08	5,771.26	6,704.20	-619.72	6,732.77	0.00	0.00	0.00	
13,300.00	90.38	358.08	5,770.60	6,804.14	-623.08	6,832.61	0.00	0.00	0.00	
13,391.16	90.38	358.08	5,770.00	6,895.24	-626.14	6,923.62	0.00	0.00	0.00	
TD at 13391.16										

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-0103Av4	0.00	0.00	5,770.00	6,895.24	-626.14	1,565,496.205	3,464,484.097	40.873586		-103.820422
- plan hits target center										
- Point										



Phoenix Technology Services LP  
Planning Report



Database:	Compass 5000 RMR	Local Co-ordinate Reference:	Well Razor FED #12F-0103A
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-0103A	Survey Calculation Method:	Minimum Curvature
Wellbore:	ST01 / Job #1523839		
Design:	Plan 3 09-02-15		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,261.00	5,838.97	779.86	-681.83	Tie In to OH @ 7261'MD
7,354.00	5,838.38	872.75	-677.24	Begin 5°/100' Drop & Turn
7,568.21	5,838.73	1,084.48	-646.88	Hold 89.5° Inc at 13.50° Azm
7,618.21	5,839.17	1,133.10	-635.21	Begin 2°/100' Build & Turn
8,154.55	5,833.54	1,663.08	-558.36	Hold 91.7° Inc at 3° Azm
9,285.03	5,800.00	2,791.51	-499.22	Begin 2°/100' Drop & Turn
9,539.92	5,795.38	3,046.27	-496.83	Hold 90.38° Inc at 358.08° Azm
13,391.16	5,770.00	6,895.24	-626.14	TD at 13391.16