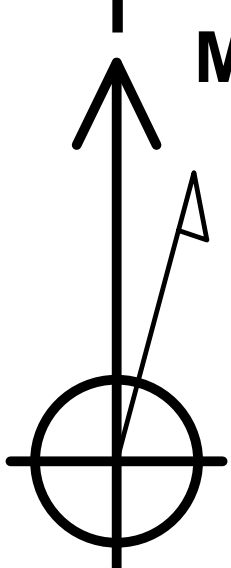




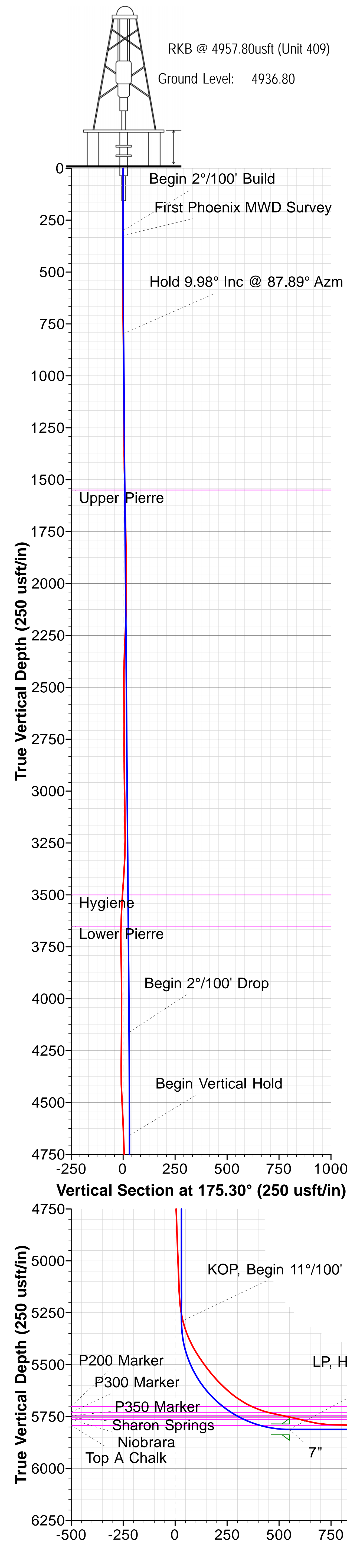
Project: Weld County, Colorado (NAD 83)
Site: Sec.12-T10N-R58W
Well: Razor FED #12F-1307A
Wellbore: Wellbore #1 / Job #1523836
Design: Plan 1 06-24-15
Rig: Unit 409



PHOENIX
TECHNOLOGY SERVICES



Azimuths to True North
Magnetic North: 7.62°
Magnetic Field
Strength: 52948.5snT
Dip Angle: 67.35°
Date: 6/24/2015
Model: HDGM

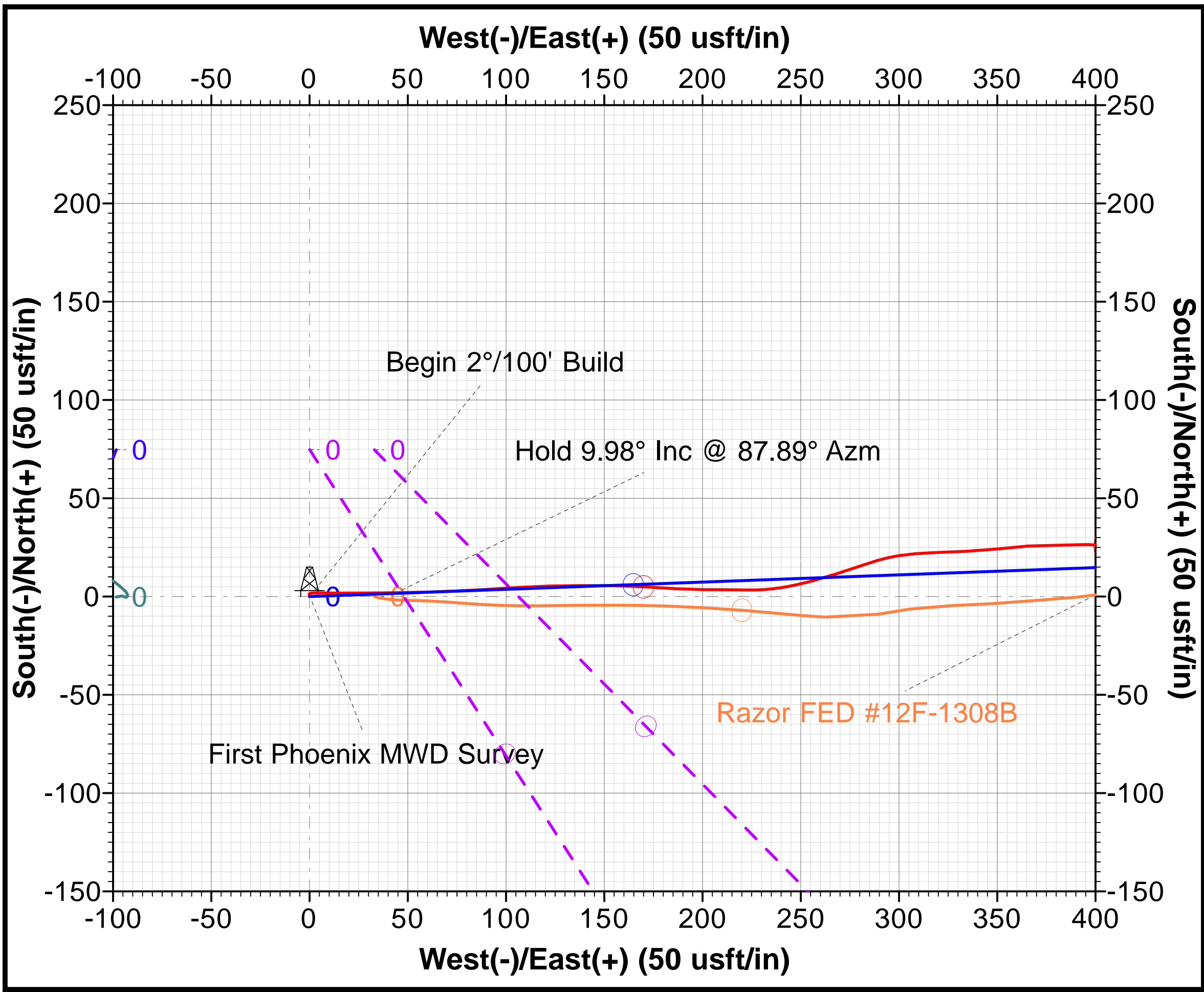
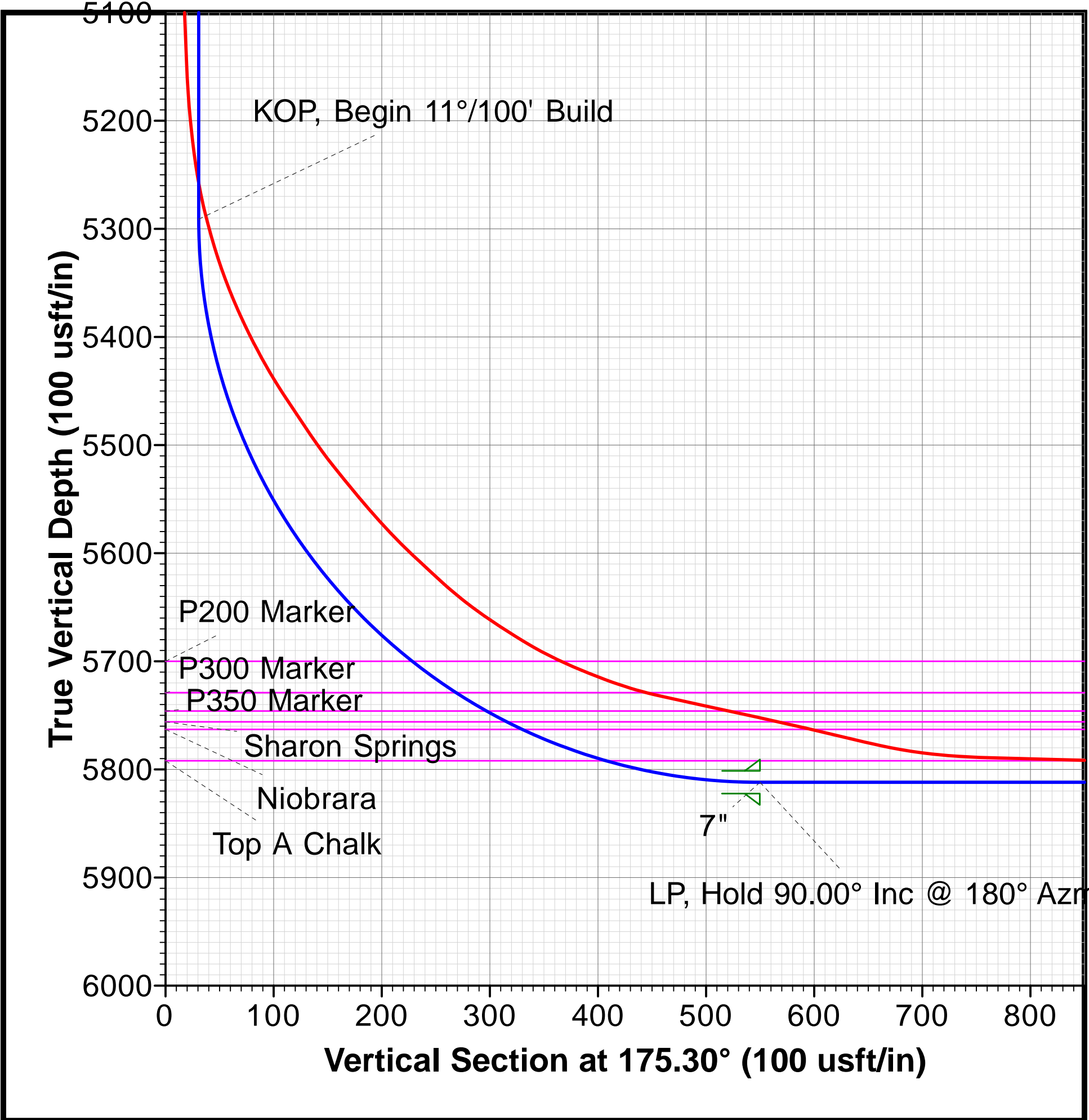


WELL DETAILS						
			Ground Level:	4936.80		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	1558541.864	3465373.608	40.854456	-103.817683	

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	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	799.01	9.98	87.89	796.49	1.60	43.32	2.00	87.89	1.96		Hold 9.98° Inc @ 87.89° Azm
4	4215.78	9.98	87.89	4161.56	23.40	635.08	0.00	0.00	28.76		Begin 2°/100' Drop
5	4714.79	0.00	0.00	4658.05	25.00	678.40	2.00	180.00	30.73		Begin Vertical Hold
6	5347.87	0.00	0.00	5291.13	25.00	678.40	0.00	0.00	30.73		KOP, Begin 11°/100' Build
7	6166.05	90.00	180.00	5812.00	-495.87	678.37	11.00	180.00	549.84		LP, Hold 90.00° Inc @ 180° Azm
8	13908.52	90.00	180.00	5812.00	-8238.34	678.00	0.00	0.00	8266.19	BHL_#12F-1307A	TD at 13908.53' MD

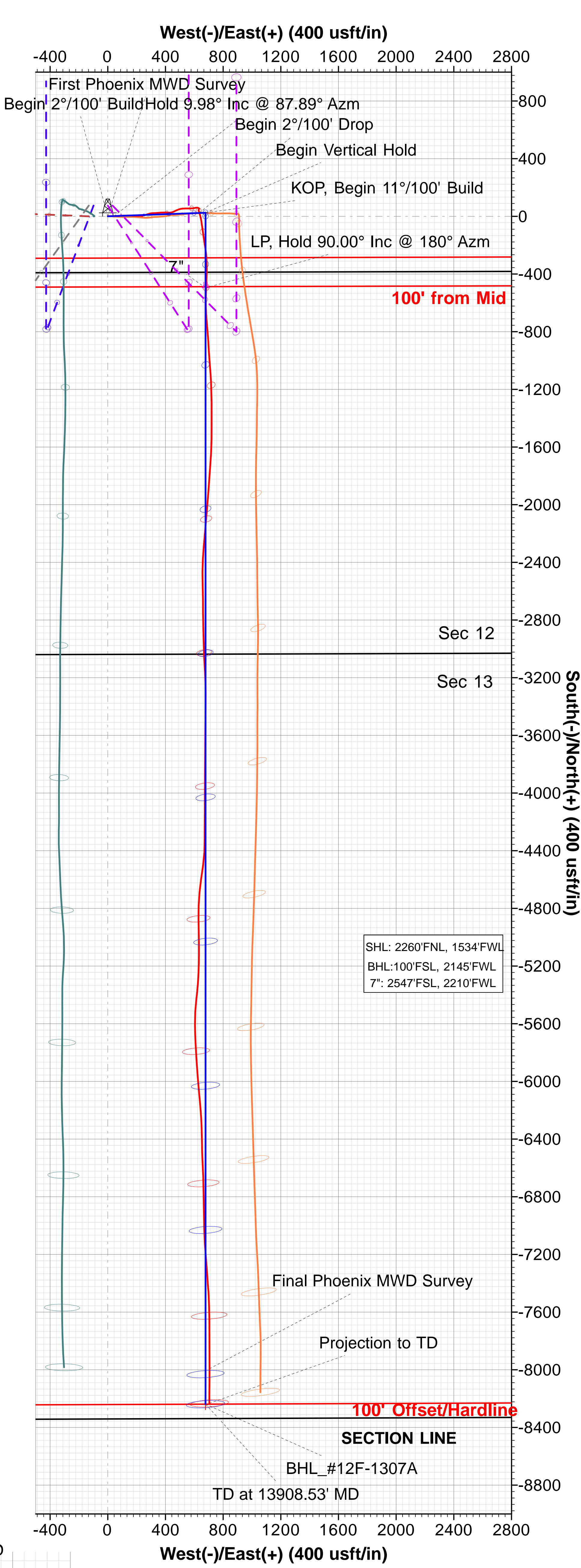
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL_#12F-1307A	5812.00	-8238.34	678.00	1550317.870	3466207.770	40.831844	-103.815233
				Point			

LEGEND	
—	Razor FED #12F-1308B, Wellbore #1 / Job #1523835, Surveys (Unit 409) V0
—	Razor FED #12F-0104B, Wellbore #1 / Job #1523838, Plan 1 06-24-15 V0
—	Razor FED #12F-1304B, Wellbore #1, Surveys V0
—	Razor FED #12F-0103A, Wellbore #1 / Job #1523839, Plan 1 06-24-15 V0
—	Razor FED #12F-0108B, Wellbore #1 / Job #1523841, Plan 1 06-24-15 V0
—	Razor FED #12F-1307A, Wellbore #1 / Job #1523836, Surveys (Unit 409) V0
—	Razor FED #12F-1303A, Wellbore #1 / Job #1523837, Plan 1 06-24-15 V0
—	Razor FED #12F-0107A, Wellbore #1 / Job #1523840, Plan 1 06-24-15 V0
—	Plan 1 06-24-15



FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
1550.00	1564.10	Upper Pierre	0.00	175.34
3500.00	3544.06	Hygiene	0.00	175.34
3650.00	3696.36	Lower Pierre	0.00	175.34
5700.00	5818.04	P200 Marker	0.00	175.34
5729.00	5867.96	P300 Marker	0.00	175.34
5746.00	5900.99	P350 Marker	0.00	175.34
5756.00	5922.31	Sharon Springs	0.00	175.34
5763.00	5938.31	Niobrara	0.00	175.34
5792.00	6021.25	Top A Chalk	0.00	175.34

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-1307A, True North
Latitude: 40.854456
Longitude: -103.817683
Grid East: 3465373.608
Grid North: 1558541.864
Scale Factor: 1.000
Geomagnetic Model: HDGM
Sample Date: 24-Jun-15
Magnetic Declination: 7.62°
Dip Angle from Horizontal: 67.35°
Magnetic Field Strength: 52949
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-1307A

Wellbore #1 / Job #1523836

Survey: Phoenix MWD Surveys

Standard Survey Report

29 July, 2015



Survey Report

Company:	Whiting Oil & Gas Corporation	Local Co-ordinate Reference:	Well Razor FED #12F-1307A
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	MD Reference:	RKB @ 4957.80usft (Unit 409)
Well:	Razor FED #12F-1307A	North Reference:	True
Wellbore:	Wellbore #1 / Job #1523836	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Unit 409)	Database:	Compass 5000 RMR

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-1307A					
Well Position	+N/-S	0.00 usft	Northing:	1,558,541.864 usft	Latitude:	40.854456
	+E/-W	0.00 usft	Easting:	3,465,373.608 usft	Longitude:	-103.817684
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,936.80 usft

Wellbore	Wellbore #1 / Job #1523836				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/24/2015	7.62	67.35	52,949

Design	Surveys (Unit 409)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	175.34	

Survey Program	Date	7/29/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,831.00	Phoenix MWD Surveys (Wellbore #1 / Job	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

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
324.00	0.44	350.05	324.00	1.23	-0.21	-1.24	0.14	0.14	0.00
First Phoenix MWD Survey									
417.00	0.89	81.62	416.99	1.68	0.44	-1.64	1.08	0.48	98.46
509.00	2.46	87.65	508.95	1.87	3.12	-1.61	1.71	1.71	6.55
601.00	4.39	92.07	600.78	1.82	8.61	-1.12	2.12	2.10	4.80
694.00	6.19	89.34	693.38	1.75	17.18	-0.35	1.95	1.94	-2.94
786.00	7.73	89.80	784.70	1.83	28.33	0.48	1.67	1.67	0.50
879.00	10.09	89.41	876.57	1.93	42.73	1.54	2.54	2.54	-0.42
971.00	10.30	88.43	967.12	2.24	59.01	2.56	0.30	0.23	-1.07
1,064.00	9.96	87.27	1,058.67	2.85	75.36	3.28	0.43	-0.37	-1.25



Survey Report

Company:	Whiting Oil & Gas Corporation	Local Co-ordinate Reference:	Well Razor FED #12F-1307A
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	MD Reference:	RKB @ 4957.80usft (Unit 409)
Well:	Razor FED #12F-1307A	North Reference:	True
Wellbore:	Wellbore #1 / Job #1523836	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Unit 409)	Database:	Compass 5000 RMR

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)
1,156.00	9.91	86.79	1,149.29	3.68	91.21	3.75	0.11	-0.05	-0.52
1,248.00	9.53	85.82	1,239.97	4.67	106.71	4.01	0.45	-0.41	-1.05
1,340.00	9.77	88.86	1,330.67	5.39	122.11	4.55	0.61	0.26	3.30
1,432.00	10.00	89.56	1,421.30	5.60	137.90	5.62	0.28	0.25	0.76
1,524.00	10.12	90.71	1,511.89	5.56	153.97	6.96	0.25	0.13	1.25
1,616.00	9.93	93.63	1,602.48	4.96	169.97	8.86	0.59	-0.21	3.17
1,709.00	9.91	93.24	1,694.09	4.00	185.96	11.12	0.08	-0.02	-0.42
1,801.00	8.83	90.07	1,784.87	3.54	200.93	12.79	1.30	-1.17	-3.45
1,844.00	8.29	90.35	1,827.39	3.52	207.33	13.33	1.26	-1.26	0.65
1,982.00	7.10	90.58	1,964.14	3.37	225.80	14.98	0.86	-0.86	0.17
2,074.00	9.09	81.71	2,055.22	4.36	238.68	15.04	2.55	2.16	-9.64
2,166.00	8.48	75.53	2,146.15	7.11	252.44	13.42	1.22	-0.66	-6.72
2,258.00	10.73	73.38	2,236.85	11.25	267.22	10.49	2.48	2.45	-2.34
2,350.00	10.78	70.15	2,327.24	16.62	283.52	6.46	0.66	0.05	-3.51
2,442.00	10.56	81.28	2,417.65	20.82	299.95	3.61	2.25	-0.24	12.10
2,534.00	10.87	88.66	2,508.05	22.31	316.95	3.52	1.53	0.34	8.02
2,626.00	10.47	86.41	2,598.46	23.03	333.97	4.18	0.63	-0.43	-2.45
2,718.00	10.00	85.24	2,689.00	24.22	350.27	4.32	0.56	-0.51	-1.27
2,810.00	9.71	83.76	2,779.64	25.72	365.94	4.09	0.42	-0.32	-1.61
2,994.00	9.20	93.57	2,961.15	26.49	396.05	5.77	0.92	-0.28	5.33
3,086.00	7.99	92.77	3,052.12	25.73	409.78	7.65	1.32	-1.32	-0.87
3,269.00	8.22	85.35	3,233.30	26.17	435.52	9.30	0.58	0.13	-4.05
3,361.00	9.84	71.54	3,324.16	29.20	449.54	7.42	2.93	1.76	-15.01
3,454.00	10.25	61.45	3,415.74	35.67	464.34	2.17	1.94	0.44	-10.85
3,546.00	11.09	66.83	3,506.16	43.06	479.67	-3.95	1.42	0.91	5.85
3,638.00	12.35	73.14	3,596.24	49.40	497.22	-8.84	1.95	1.37	6.86
3,730.00	12.50	82.35	3,686.09	53.58	516.50	-11.44	2.16	0.16	10.01
3,822.00	12.47	91.79	3,775.93	54.59	536.30	-10.84	2.22	-0.03	10.26
3,914.00	10.45	90.71	3,866.09	54.18	554.58	-8.94	2.21	-2.20	-1.17
4,005.00	8.51	87.56	3,955.84	54.36	569.56	-7.91	2.21	-2.13	-3.46
4,097.00	6.83	83.25	4,047.02	55.30	581.79	-7.85	1.93	-1.83	-4.68
4,189.00	6.19	82.60	4,138.42	56.58	592.14	-8.28	0.70	-0.70	-0.71
4,281.00	5.99	81.49	4,229.90	57.93	601.81	-8.84	0.25	-0.22	-1.21
4,373.00	6.38	76.99	4,321.37	59.79	611.54	-9.91	0.68	0.42	-4.89
4,465.00	7.28	98.02	4,412.73	60.12	622.29	-9.37	2.87	0.98	22.86
4,557.00	5.07	129.87	4,504.22	56.70	631.19	-5.24	4.34	-2.40	34.62
4,649.00	2.03	191.64	4,596.05	52.50	633.98	-0.82	4.87	-3.30	67.14
4,741.00	2.42	212.50	4,687.99	49.27	632.61	2.29	0.97	0.42	22.67
4,833.00	2.24	197.32	4,779.91	45.91	631.03	5.51	0.70	-0.20	-16.50
4,925.00	2.05	183.86	4,871.85	42.55	630.38	8.80	0.58	-0.21	-14.63
5,017.00	2.02	173.79	4,963.79	39.30	630.45	12.05	0.39	-0.03	-10.95
5,109.00	2.43	160.04	5,055.72	35.85	631.29	15.55	0.73	0.45	-14.95
5,201.00	2.15	159.33	5,147.65	32.41	632.56	19.09	0.31	-0.30	-0.77



Survey Report

Company:	Whiting Oil & Gas Corporation	Local Co-ordinate Reference:	Well Razor FED #12F-1307A
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	MD Reference:	RKB @ 4957.80usft (Unit 409)
Well:	Razor FED #12F-1307A	North Reference:	True
Wellbore:	Wellbore #1 / Job #1523836	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Unit 409)	Database:	Compass 5000 RMR

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)
5,293.00	8.36	160.10	5,239.21	24.50	635.45	27.21	6.75	6.75	0.84
5,339.00	13.92	164.98	5,284.33	16.00	638.02	35.89	12.25	12.09	10.61
5,385.00	18.39	165.59	5,328.50	3.62	641.27	48.49	9.72	9.72	1.33
5,431.00	23.81	167.54	5,371.40	-12.48	645.08	64.85	11.88	11.78	4.24
5,477.00	28.03	170.05	5,412.77	-32.21	648.95	84.82	9.48	9.17	5.46
5,523.00	33.10	173.05	5,452.37	-55.34	652.34	108.15	11.51	11.02	6.52
5,569.00	34.31	171.91	5,490.63	-80.64	655.68	133.64	2.97	2.63	-2.48
5,615.00	39.26	171.74	5,527.46	-107.90	659.60	161.13	10.76	10.76	-0.37
5,661.00	40.79	171.71	5,562.69	-137.17	663.86	190.65	3.33	3.33	-0.07
5,707.00	46.11	171.98	5,596.07	-168.48	668.34	222.22	11.57	11.57	0.59
5,753.00	47.98	170.27	5,627.42	-201.74	673.54	255.79	4.89	4.07	-3.72
5,799.00	54.90	171.99	5,656.07	-237.26	679.06	291.64	15.32	15.04	3.74
5,845.00	58.80	175.86	5,681.23	-275.54	683.11	330.12	11.02	8.48	8.41
5,891.00	65.96	176.55	5,702.54	-316.18	685.79	370.85	15.62	15.57	1.50
5,937.00	70.46	180.24	5,719.62	-358.86	686.97	413.48	12.29	9.78	8.02
5,983.00	77.57	182.26	5,732.28	-403.04	685.99	457.43	16.02	15.46	4.39
6,029.00	77.97	182.13	5,742.02	-447.96	684.27	502.07	0.91	0.87	-0.28
6,075.00	77.65	182.14	5,751.74	-492.89	682.59	546.72	0.70	-0.70	0.02
6,122.00	77.19	181.36	5,761.97	-538.74	681.19	592.30	1.89	-0.98	-1.66
6,168.00	76.24	180.69	5,772.54	-583.50	680.39	636.85	2.50	-2.07	-1.46
6,215.00	79.94	178.68	5,782.24	-629.48	680.65	682.69	8.91	7.87	-4.28
6,239.00	83.97	177.88	5,785.60	-653.23	681.36	706.42	17.11	16.79	-3.33
6,294.00	88.52	175.45	5,789.20	-708.00	684.56	761.27	9.37	8.27	-4.42
6,387.00	88.35	175.22	5,791.74	-800.65	692.12	854.24	0.31	-0.18	-0.25
6,481.00	91.71	176.85	5,791.69	-894.41	698.62	948.21	3.97	3.57	1.73
6,573.00	91.93	175.79	5,788.77	-986.17	704.52	1,040.15	1.18	0.24	-1.15
6,666.00	92.32	175.36	5,785.32	-1,078.83	711.69	1,133.09	0.62	0.42	-0.46
6,759.00	90.08	178.25	5,783.37	-1,171.65	716.87	1,226.02	3.93	-2.41	3.11
6,852.00	90.70	178.61	5,782.74	-1,264.61	719.42	1,318.88	0.77	0.67	0.39
6,944.00	89.13	180.42	5,782.88	-1,356.60	720.20	1,410.63	2.60	-1.71	1.97
7,037.00	89.30	179.62	5,784.15	-1,449.59	720.16	1,503.31	0.88	0.18	-0.86
7,131.00	91.04	180.88	5,783.87	-1,543.59	719.75	1,596.96	2.29	1.85	1.34
7,224.00	90.11	182.30	5,782.94	-1,636.54	717.17	1,689.40	1.83	-1.00	1.53
7,317.00	90.28	185.17	5,782.62	-1,729.34	711.12	1,781.39	3.09	0.18	3.09
7,409.00	90.36	183.67	5,782.11	-1,821.06	704.03	1,872.24	1.63	0.09	-1.63
7,502.00	90.36	184.28	5,781.52	-1,913.83	697.58	1,964.18	0.66	0.00	0.66
7,595.00	90.76	184.97	5,780.62	-2,006.52	690.08	2,055.96	0.86	0.43	0.74
7,687.00	90.73	184.63	5,779.42	-2,098.19	682.38	2,146.70	0.37	-0.03	-0.37
7,781.00	90.84	184.94	5,778.13	-2,191.86	674.54	2,239.41	0.35	0.12	0.33
7,874.00	91.01	185.15	5,776.63	-2,284.49	666.37	2,331.07	0.29	0.18	0.23
7,967.00	89.19	183.40	5,776.47	-2,377.22	659.43	2,422.93	2.71	-1.96	-1.88
8,060.00	88.94	179.76	5,777.99	-2,470.16	656.87	2,515.36	3.92	-0.27	-3.91
8,152.00	88.15	178.47	5,780.32	-2,562.11	658.29	2,607.12	1.64	-0.86	-1.40



Survey Report

Company:	Whiting Oil & Gas Corporation	Local Co-ordinate Reference:	Well Razor FED #12F-1307A
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	MD Reference:	RKB @ 4957.80usft (Unit 409)
Well:	Razor FED #12F-1307A	North Reference:	True
Wellbore:	Wellbore #1 / Job #1523836	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Unit 409)	Database:	Compass 5000 RMR

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)
8,245.00	90.64	179.34	5,781.30	-2,655.08	660.07	2,699.93	2.84	2.68	0.94
8,338.00	91.01	179.76	5,779.96	-2,748.07	660.80	2,792.67	0.60	0.40	0.45
8,431.00	90.45	178.53	5,778.78	-2,841.05	662.19	2,885.46	1.45	-0.60	-1.32
8,524.00	91.01	178.56	5,777.60	-2,934.01	664.55	2,978.30	0.60	0.60	0.03
8,617.00	90.48	177.81	5,776.39	-3,026.96	667.49	3,071.18	0.99	-0.57	-0.81
8,709.00	88.83	176.34	5,776.94	-3,118.83	672.19	3,163.13	2.40	-1.79	-1.60
8,801.00	91.62	177.92	5,776.58	-3,210.70	676.79	3,255.07	3.49	3.03	1.72
8,894.00	92.18	179.47	5,773.50	-3,303.62	678.91	3,347.86	1.77	0.60	1.67
8,986.00	91.85	180.80	5,770.26	-3,395.56	678.69	3,439.48	1.49	-0.36	1.45
9,078.00	89.58	180.78	5,769.11	-3,487.54	677.42	3,531.05	2.47	-2.47	-0.02
9,171.00	89.47	180.42	5,769.88	-3,580.53	676.45	3,623.65	0.40	-0.12	-0.39
9,263.00	89.69	180.08	5,770.56	-3,672.53	676.05	3,715.31	0.44	0.24	-0.37
9,358.00	90.20	180.53	5,770.65	-3,767.53	675.54	3,809.96	0.72	0.54	0.47
9,450.00	90.08	180.56	5,770.42	-3,859.52	674.67	3,901.58	0.13	-0.13	0.03
9,542.00	90.11	180.21	5,770.27	-3,951.52	674.05	3,993.22	0.38	0.03	-0.38
9,635.00	90.08	180.18	5,770.12	-4,044.52	673.73	4,085.89	0.05	-0.03	-0.03
9,727.00	90.14	180.41	5,769.94	-4,136.52	673.26	4,177.54	0.26	0.07	0.25
9,819.00	90.06	180.55	5,769.78	-4,228.51	672.49	4,269.17	0.18	-0.09	0.15
9,912.00	89.69	180.01	5,769.98	-4,321.51	672.03	4,361.82	0.70	-0.40	-0.58
10,004.00	90.08	182.76	5,770.17	-4,413.48	669.81	4,453.30	3.02	0.42	2.99
10,096.00	88.32	188.52	5,771.45	-4,504.98	660.78	4,543.77	6.55	-1.91	6.26
10,188.00	87.09	188.29	5,775.14	-4,595.92	647.34	4,633.32	1.36	-1.34	-0.25
10,280.00	86.92	185.28	5,779.95	-4,687.14	636.49	4,723.35	3.27	-0.18	-3.27
10,373.00	86.92	182.04	5,784.94	-4,779.80	630.56	4,815.23	3.48	0.00	-3.48
10,465.00	88.07	179.20	5,788.97	-4,871.70	629.56	4,906.74	3.33	1.25	-3.09
10,558.00	89.80	178.82	5,790.69	-4,964.66	631.17	4,999.53	1.90	1.86	-0.41
10,650.00	91.62	179.64	5,789.55	-5,056.64	632.41	5,091.31	2.17	1.98	0.89
10,742.00	89.97	181.15	5,788.28	-5,148.63	631.77	5,182.93	2.43	-1.79	1.64
10,834.00	88.55	181.39	5,789.47	-5,240.59	629.73	5,274.43	1.57	-1.54	0.26
10,926.00	88.24	185.34	5,792.04	-5,332.38	624.34	5,365.48	4.30	-0.34	4.29
11,018.00	86.50	186.51	5,796.26	-5,423.79	614.85	5,455.81	2.28	-1.89	1.27
11,110.00	87.96	183.32	5,800.71	-5,515.33	606.98	5,546.41	3.81	1.59	-3.47
11,202.00	88.38	179.38	5,803.65	-5,607.24	604.82	5,637.84	4.30	0.46	-4.28
11,294.00	89.50	176.96	5,805.35	-5,699.17	607.75	5,729.70	2.90	1.22	-2.63
11,385.00	89.05	177.35	5,806.50	-5,790.05	612.27	5,820.65	0.65	-0.49	0.43
11,477.00	88.88	176.24	5,808.17	-5,881.89	617.41	5,912.60	1.22	-0.18	-1.21
11,569.00	91.51	174.94	5,807.85	-5,973.60	624.49	6,004.59	3.19	2.86	-1.41
11,661.00	92.04	174.77	5,805.00	-6,065.19	632.73	6,096.54	0.60	0.58	-0.18
11,753.00	92.60	175.27	5,801.28	-6,156.77	640.71	6,188.47	0.82	0.61	0.54
11,844.00	92.21	176.39	5,797.46	-6,247.44	647.32	6,279.38	1.30	-0.43	1.23
11,936.00	91.90	178.34	5,794.16	-6,339.28	651.55	6,371.26	2.14	-0.34	2.12
12,028.00	89.39	179.51	5,793.13	-6,431.25	653.27	6,463.07	3.01	-2.73	1.27
12,120.00	88.04	177.40	5,795.19	-6,523.19	655.75	6,554.90	2.72	-1.47	-2.29
12,212.00	90.56	177.46	5,796.31	-6,615.08	659.88	6,646.82	2.74	2.74	0.07



Survey Report

Company:	Whiting Oil & Gas Corporation	Local Co-ordinate Reference:	Well Razor FED #12F-1307A
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	RKB @ 4957.80usft (Unit 409)
Site:	Sec.12-T10N-R58W	MD Reference:	RKB @ 4957.80usft (Unit 409)
Well:	Razor FED #12F-1307A	North Reference:	True
Wellbore:	Wellbore #1 / Job #1523836	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Unit 409)	Database:	Compass 5000 RMR

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)
12,304.00	91.32	178.65	5,794.80	-6,707.01	663.00	6,738.71	1.53	0.83	1.29
12,396.00	91.04	178.99	5,792.91	-6,798.97	664.89	6,830.52	0.48	-0.30	0.37
12,488.00	90.95	178.88	5,791.31	-6,890.94	666.60	6,922.32	0.15	-0.10	-0.12
12,579.00	90.84	178.84	5,789.89	-6,981.91	668.41	7,013.14	0.13	-0.12	-0.04
12,671.00	90.36	177.71	5,788.93	-7,073.87	671.18	7,105.01	1.33	-0.52	-1.23
12,763.00	88.91	175.65	5,789.51	-7,165.70	676.51	7,196.98	2.74	-1.58	-2.24
12,855.00	88.55	175.39	5,791.55	-7,257.40	683.70	7,288.95	0.48	-0.39	-0.28
12,947.00	90.08	176.67	5,792.65	-7,349.17	690.06	7,380.94	2.17	1.66	1.39
13,039.00	88.99	174.76	5,793.40	-7,440.90	696.94	7,472.92	2.39	-1.18	-2.08
13,131.00	90.73	179.10	5,793.62	-7,532.74	701.86	7,564.86	5.08	1.89	4.72
13,223.00	91.37	179.14	5,791.94	-7,624.72	703.28	7,656.65	0.70	0.70	0.04
13,315.00	91.93	178.93	5,789.29	-7,716.66	704.82	7,748.42	0.65	0.61	-0.23
13,407.00	90.95	180.18	5,786.98	-7,808.63	705.54	7,840.14	1.73	-1.07	1.36
13,499.00	91.26	179.81	5,785.20	-7,900.61	705.55	7,931.82	0.52	0.34	-0.40
13,591.00	91.59	179.94	5,782.91	-7,992.58	705.75	8,023.50	0.39	0.36	0.14
Final Phoenix MWD Survey									
13,683.00	90.78	180.58	5,781.01	-8,084.56	705.33	8,115.14	1.12	-0.88	0.70
13,775.00	91.18	180.12	5,779.44	-8,176.55	704.77	8,206.77	0.66	0.43	-0.50
13,831.00	91.18	180.12	5,778.28	-8,232.53	704.65	8,262.57	0.00	0.00	0.00
Projection to TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
324.00	324.00	1.23	-0.21	First Phoenix MWD Survey
13,591.00	5,782.91	-7,992.58	705.75	Final Phoenix MWD Survey
13,831.00	5,778.28	-8,232.53	704.65	Projection to TD

Checked By: _____ Approved By: _____ Date: _____