

Whiting Oil and Gas Corporation

Weld County, CO

Sec. 27-T10N-R58W (#27 J Pad)

Razor #27J-2210B

Plan D_ST-1

Plan: Rev D0

Sperry Drilling Services

Proposal Report

12 September, 2014

Well Coordinates: 1,541,618.14 N, 3,457,039.20 E (40° 48' 30.40" N, 103° 50' 56.20" W)

Ground Level: 4,764.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Razor #27J-2210B

KB 22 ft @ 4786.00usft (Frontier 26)

N

True

API - US Survey Feet - Custom

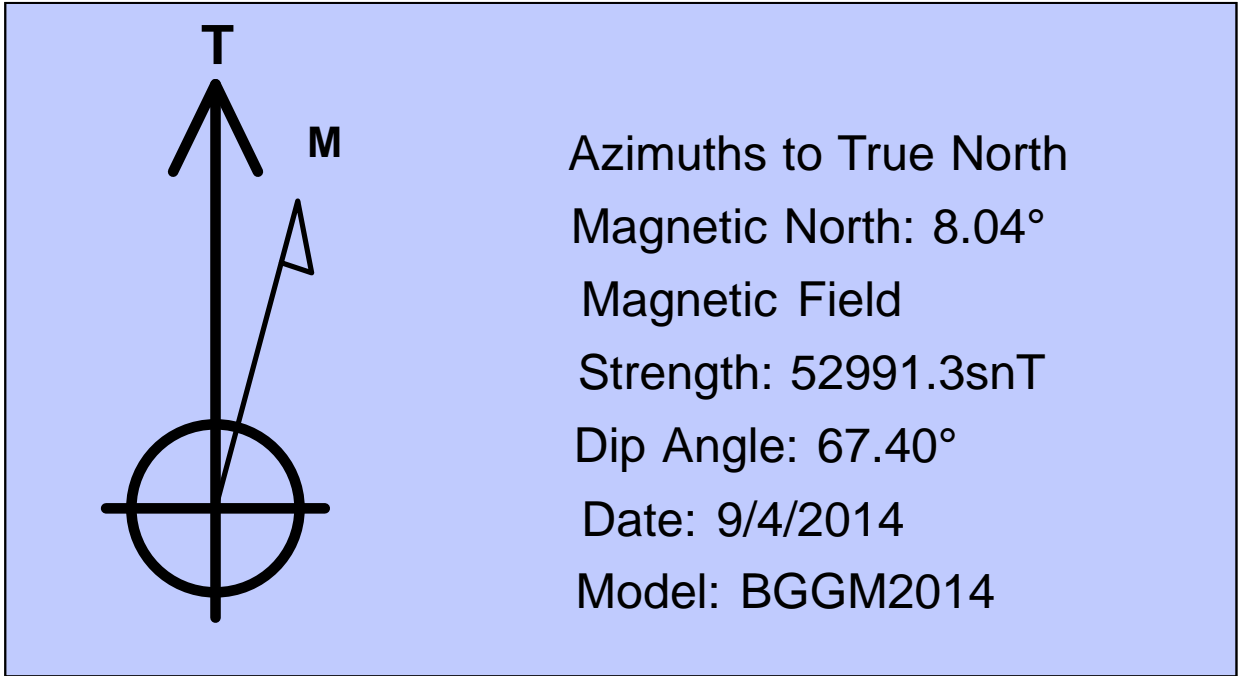
HALLIBURTON

Project: Weld County, CO
Site: Sec. 27-T10N-R58W (#27 J Pad)
Well: Razor #27J-2210B
Wellbore: Plan D_ST-1
Plan: Rev D0

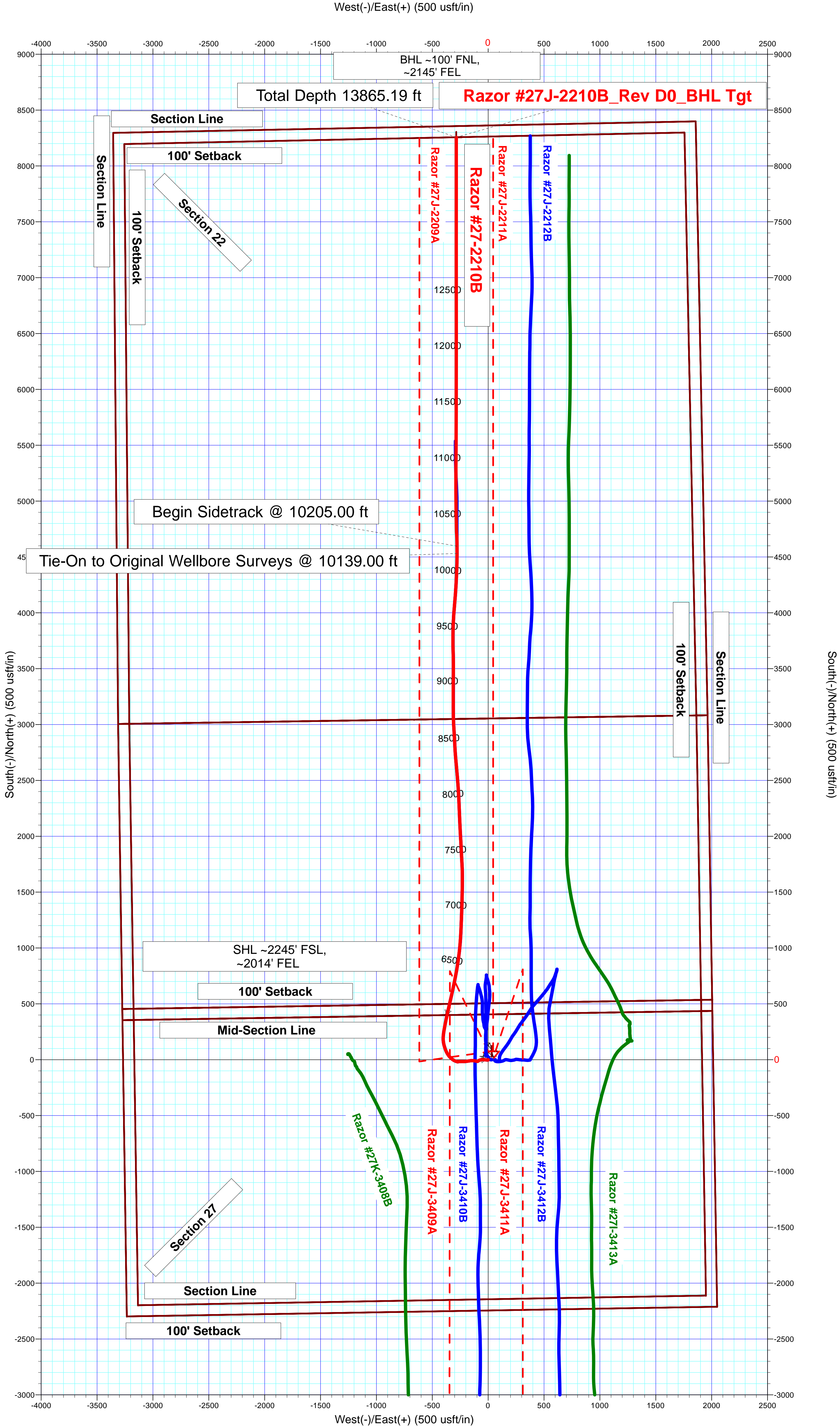
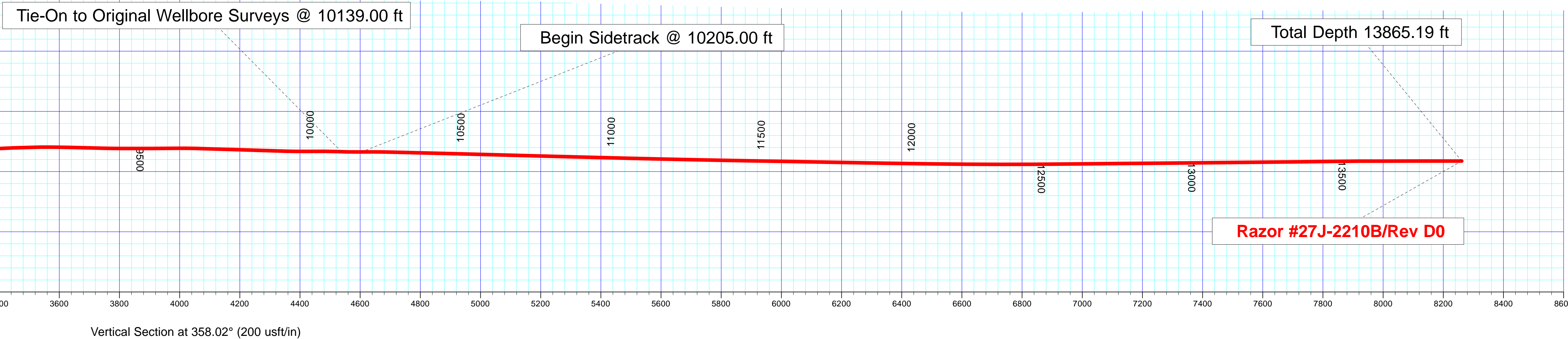
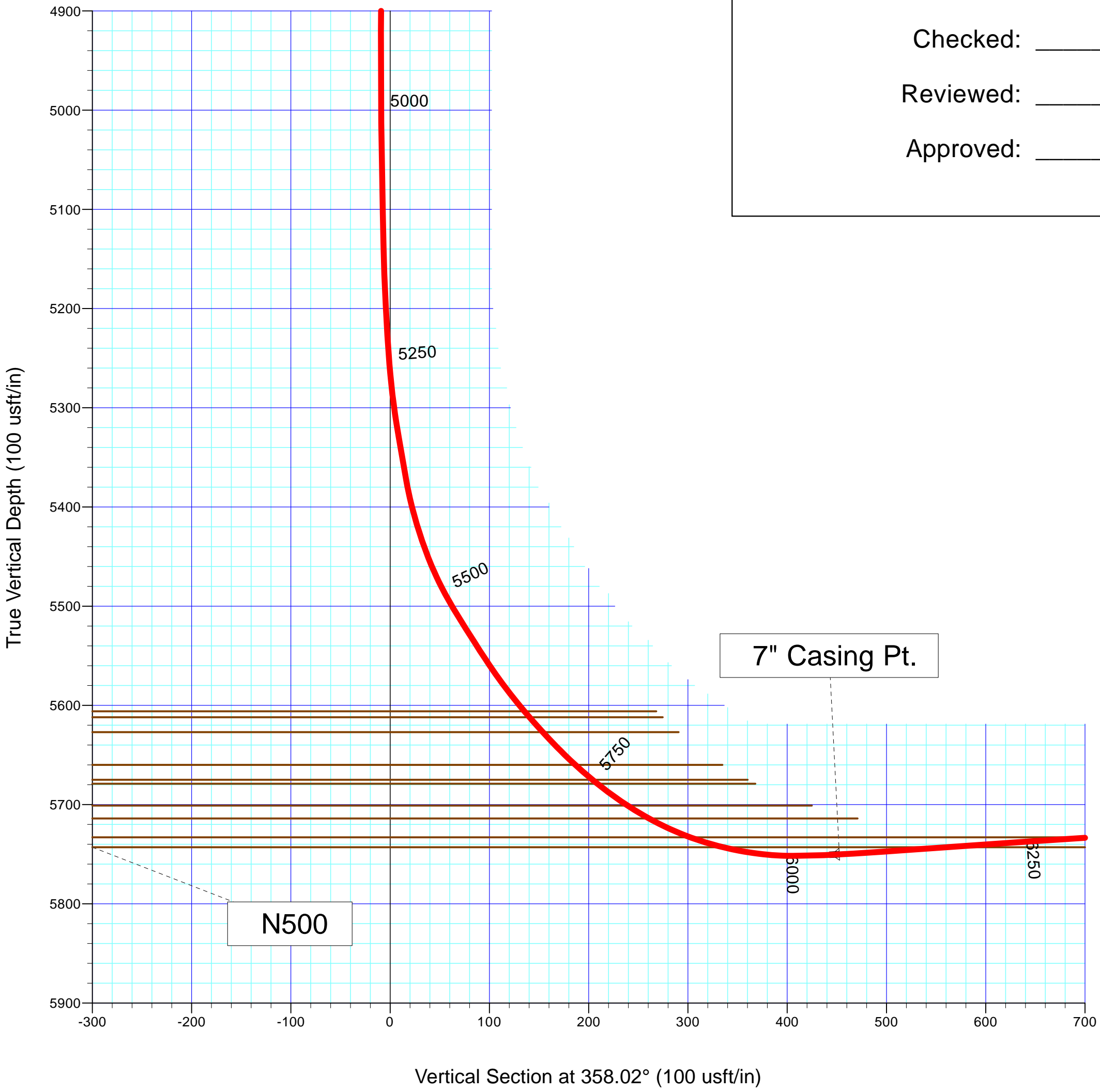
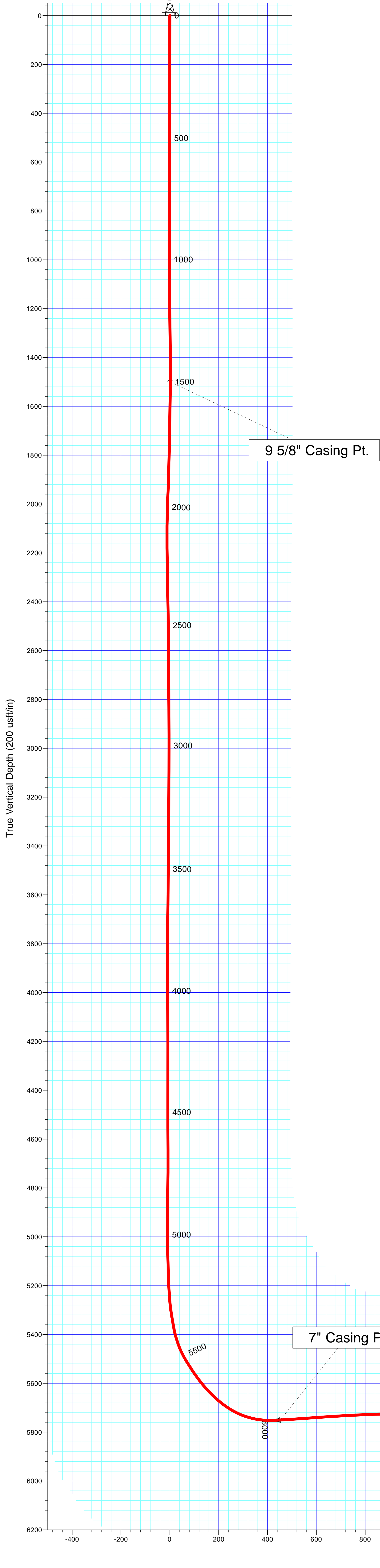
Whiting Oil and Gas Corporation



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	10139.00	87.93	359.62	5734.11	4531.14	-278.08	0.00	0.00	4538.04	
2	10205.00	90.67	359.62	5734.92	4597.12	-278.52	4.15	0.00	4604.00	
3	10305.00	88.70	357.00	5735.47	4697.07	-281.47	3.28	-126.94	4703.98	
4	10405.00	88.50	359.00	5737.91	4796.97	-284.96	2.01	95.74	4803.95	
5	11000.00	88.50	0.51	5753.49	5391.74	-287.52	0.25	90.02	5398.46	
6	11500.00	89.00	360.00	5764.39	5891.62	-285.32	0.14	-45.28	5897.96	
7	12000.00	89.00	360.00	5773.12	6391.54	-285.32	0.00	0.00	6397.58	
8	12500.00	90.50	0.00	5775.30	6891.52	-285.32	0.30	0.00	6897.26	
9	13000.00	90.50	0.00	5770.94	7391.50	-285.32	0.00	0.00	7396.95	
10	13500.00	90.75	0.00	5765.48	7891.47	-285.32	0.05	0.00	7896.62	
11	13523.20	90.05	0.00	5765.32	7914.67	-285.32	3.00	179.98	7919.81	
12	13865.19	90.05	0.00	5765.00	8256.66	-285.32	0.00	0.00	8261.59	Razor #27J-2210B_Rev D0_BHL Tgt



Plan: Rev D0 (Razor #27J-2210B/Plan D_ST-1)	
Created By: Kansa B. Becker	Date: 7:05, September 13 2014
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____



Plan Report for Razor #27J-2210B - Rev D0

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)	Toolface Azimuth (°)
10,139.00	87.93	359.62	5,734.11	4,531.14	-278.08	4,538.04	0.00	0.00	0.00	0.00
Tie-On to Original Wellbore Surveys @ 10139.00 ft										
10,200.00	90.46	359.62	5,734.97	4,592.12	-278.48	4,599.00	4.15	4.15	0.00	0.00
10,205.00	90.67	359.62	5,734.92	4,597.12	-278.52	4,604.00	4.15	4.15	0.00	0.00
Begin Sidetrack @ 10205.00 ft										
10,300.00	88.80	357.13	5,735.36	4,692.07	-281.21	4,698.99	3.28	-1.97	-2.62	-126.94
10,305.00	88.70	357.00	5,735.47	4,697.07	-281.47	4,703.98	3.28	-1.97	-2.62	-126.93
10,400.00	88.51	358.90	5,737.78	4,791.97	-284.86	4,798.95	2.01	-0.20	2.00	95.74
10,405.00	88.50	359.00	5,737.91	4,796.97	-284.96	4,803.95	2.01	-0.20	2.00	95.69
10,500.00	88.50	359.24	5,740.40	4,891.93	-286.41	4,898.90	0.25	0.00	0.25	90.02
10,599.41	88.50	359.49	5,743.00	4,991.30	-287.51	4,998.25	0.25	0.00	0.25	90.01
N500										
10,600.00	88.50	359.49	5,743.02	4,991.89	-287.52	4,998.84	0.25	0.00	0.25	90.01
10,700.00	88.50	359.75	5,745.63	5,091.85	-288.18	5,098.76	0.25	0.00	0.25	90.01
10,800.00	88.50	360.00	5,748.25	5,191.81	-288.40	5,198.68	0.25	0.00	0.25	90.00
10,900.00	88.50	0.25	5,750.87	5,291.78	-288.18	5,298.58	0.25	0.00	0.25	89.99
11,000.00	88.50	0.51	5,753.49	5,391.74	-287.52	5,398.46	0.25	0.00	0.25	89.99
11,100.00	88.60	0.40	5,756.02	5,491.71	-286.73	5,498.33	0.14	0.10	-0.10	-45.28
11,200.00	88.70	0.30	5,758.37	5,591.68	-286.11	5,598.22	0.14	0.10	-0.10	-45.28
11,300.00	88.80	0.20	5,760.55	5,691.65	-285.67	5,698.12	0.14	0.10	-0.10	-45.28
11,400.00	88.90	0.10	5,762.56	5,791.63	-285.41	5,798.04	0.14	0.10	-0.10	-45.28
11,500.00	89.00	360.00	5,764.39	5,891.62	-285.32	5,897.96	0.14	0.10	-0.10	-45.27
11,600.00	89.00	360.00	5,766.14	5,991.60	-285.32	5,997.88	0.00	0.00	0.00	0.00
11,700.00	89.00	360.00	5,767.88	6,091.59	-285.32	6,097.81	0.00	0.00	0.00	0.00
11,800.00	89.00	360.00	5,769.63	6,191.57	-285.32	6,197.73	0.00	0.00	0.00	0.00
11,900.00	89.00	360.00	5,771.38	6,291.56	-285.32	6,297.66	0.00	0.00	0.00	0.00
12,000.00	89.00	360.00	5,773.12	6,391.54	-285.32	6,397.58	0.00	0.00	0.00	0.00
12,100.00	89.30	360.00	5,774.60	6,491.53	-285.32	6,497.51	0.30	0.30	0.00	0.00
12,200.00	89.60	360.00	5,775.56	6,591.52	-285.32	6,597.45	0.30	0.30	0.00	0.00
12,300.00	89.90	360.00	5,776.00	6,691.52	-285.32	6,697.39	0.30	0.30	0.00	0.00
12,400.00	90.20	360.00	5,775.91	6,791.52	-285.32	6,797.33	0.30	0.30	0.00	0.00
12,500.00	90.50	0.00	5,775.30	6,891.52	-285.32	6,897.26	0.30	0.30	0.00	0.00
12,600.00	90.50	0.00	5,774.43	6,991.52	-285.32	6,997.20	0.00	0.00	0.00	0.00
12,700.00	90.50	0.00	5,773.56	7,091.51	-285.32	7,097.14	0.00	0.00	0.00	0.00
12,800.00	90.50	0.00	5,772.68	7,191.51	-285.32	7,197.07	0.00	0.00	0.00	0.00
12,900.00	90.50	0.00	5,771.81	7,291.51	-285.32	7,297.01	0.00	0.00	0.00	0.00
13,000.00	90.50	0.00	5,770.94	7,391.50	-285.32	7,396.95	0.00	0.00	0.00	0.00
13,100.00	90.55	0.00	5,770.02	7,491.50	-285.32	7,496.88	0.05	0.05	0.00	0.00
13,200.00	90.60	0.00	5,769.02	7,591.49	-285.32	7,596.82	0.05	0.05	0.00	0.00
13,300.00	90.65	0.00	5,767.93	7,691.49	-285.32	7,696.75	0.05	0.05	0.00	0.00
13,400.00	90.70	0.00	5,766.75	7,791.48	-285.32	7,796.69	0.05	0.05	0.00	0.00
13,500.00	90.75	0.00	5,765.48	7,891.47	-285.32	7,896.62	0.05	0.05	0.00	0.00
13,523.20	90.05	0.00	5,765.32	7,914.67	-285.32	7,919.81	3.00	-3.00	0.00	179.98
13,600.00	90.05	0.00	5,765.25	7,991.47	-285.32	7,996.56	0.00	0.00	0.00	0.00
13,700.00	90.05	0.00	5,765.16	8,091.47	-285.32	8,096.50	0.00	0.00	0.00	0.00
13,800.00	90.05	0.00	5,765.06	8,191.47	-285.32	8,196.44	0.00	0.00	0.00	0.00
13,865.19	90.05	0.00	5,765.00	8,256.66	-285.32	8,261.59	0.00	0.00	0.00	0.00
Total Depth 13865.19 ft										

Plan Report for Razor #27J-2210B - Rev D0**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,139.00	5,734.11	4,531.14	-278.08	Tie-On to Original Wellbore Surveys @ 10139.00 ft
10,205.00	5,734.92	4,597.12	-278.52	Begin Sidetrack @ 10205.00 ft
13,865.19	5,765.00	4,697.07	-281.47	Total Depth 13865.19 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	Razor #27J-2210B_Rev D0_BHL Tgt	358.02	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
177.00	1,553.00	Surface_Sperry MWD+IFR1+MS+sag	MWD+IFR1+MS+sag
1,636.00	5,953.00	Vertical & Build_Sperry MWD+IFR1+MS+sag	MWD+IFR1+MS+sag
5,984.00	10,139.00	Lateral_Sperry MWD+IFR1+MS+sag	MWD+IFR1+MS+sag
10,139.00	13,865.19	Rev D0	MWD+IFR1+MS+sag

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,503.01	1,500.00	9 5/8" Casing Pt.	9-5/8	13-1/2
6,032.13	5,750.25	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,452.76	1,450.00	Upper Pierre			
3,318.69	3,312.00	Hygiene		0.00	
3,572.44	3,565.00	Lower Pierre		0.00	
5,661.39	5,606.00	Sharon Springs		0.00	
5,669.40	5,612.00	Niobrara		0.00	
5,689.72	5,627.00	N100		0.00	
5,736.46	5,660.00	N200		0.00	
5,759.27	5,675.00	N250		0.00	
5,765.57	5,679.00	N400		0.00	
5,803.27	5,701.00	N430		0.00	
5,828.87	5,714.00	N460 (B Chalk Top)		0.00	
5,875.34	5,733.00	N490 (B Chalk Base)		0.00	
5,910.61	5,743.00	N500		0.00	

Plan Report for Razor #27J-2210B - Rev D0

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Razor #27J_Sec 27_Mid-Line	0.00	75.08	32.11	Polygon
Razor #27J_Northern_SL	-3.00	75.08	32.11	Polygon
Razor #27J_Sec 27_100 ft N of Mid-Line	-3.00	75.08	32.11	Polygon
Razor #27J_Northern_SB	-3.00	75.08	32.11	Polygon
Razor #27J-2210B_Rev D0_BHL Tgt	5,765.00	8,256.66	-285.32	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.34 °/100usft	Maximum Dogleg over Survey:	4.15 °/100usft at 10,205.00 usft
Net Tortousity applicable to Plans:	0.34 °/100usft	Directional Difficulty Index:	6.701

Audit Info

North Reference Sheet for Sec. 27-T10N-R58W (#27 J Pad) - Razor #27J-2210B - Plan D_ST-1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to KB 22 ft @ 4786.00usft (Frontier 26). Northing and Easting are relative to Razor #27J-2210B

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 1.00000417

Grid Coordinates of Well: 1,541,618.14 usft N, 3,457,039.20 usft E

Geographical Coordinates of Well: 40° 48' 30.40" N, 103° 50' 56.20" W

Grid Convergence at Surface is: 1.07°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,865.19usft the Bottom Hole Displacement is 8,261.59usft in the Direction of 358.02° (True).

Magnetic Convergence at surface is: -6.97° (4 September 2014, , BGGM2014)

