

Whiting Oil and Gas Corporation

Weld County, CO

Sec. 26-T10N-R58W

Razor #26K-2306B

Sidetrack 1

Plan: Rev D0

Sperry Drilling Services

Proposal Report

21 January, 2014

Well Coordinates: 1,541,853.17 N, 3,460,994.18 E (40° 48' 31.99" N, 103° 50' 04.72" W)

Ground Level: 4,737.50 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 #26K-2306B

KB 22 ft @ 4759.50usft (Frontier 26)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO
Site: Sec. 26-T10N-R58W
Well: Razor #26K-2306B
Wellbore: Sidetrack 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	9466.00	89.88	359.14	5701.32	4377.22	-226.62	0.00	0.00	4377.22		
2	9530.00	89.88	359.14	5701.45	4441.21	-227.59	0.00	0.00	4441.21		
3	9630.00	89.36	356.19	5702.12	4541.12	-231.66	3.00	260.00	4541.12		
4	9754.29	91.84	356.22	5700.81	4665.12	-239.89	2.00	0.86	4665.12		
5	10090.08	91.84	356.22	5690.00	5000.00	-262.00	0.00	0.00	5000.00	Razor 26K-2306B STWP1 New	
6	10198.16	90.50	357.92	5687.79	5107.91	-267.52	2.00	128.46	5107.91	Razor 26K-2306B STWP2 New	
7	11090.87	90.50	357.92	5680.00	6000.00	-300.00	0.00	0.00	6000.00	Razor 26K-2306B STWP3 New	
8	11223.58	89.98	0.52	5679.44	6132.68	-301.81	2.00	101.20	6132.68		
	93228.87	89.98	0.52	5680.00	8137.89	-283.66	0.00	0.00	8137.89		

Plan: Rev D0 (Razor #26K-2306B/Sidetrack 1)

Created By: Troy L. Stoute Date: 11:40, January 21 2014

Checked: _____ Date: _____

Reviewed: _____ Date: _____

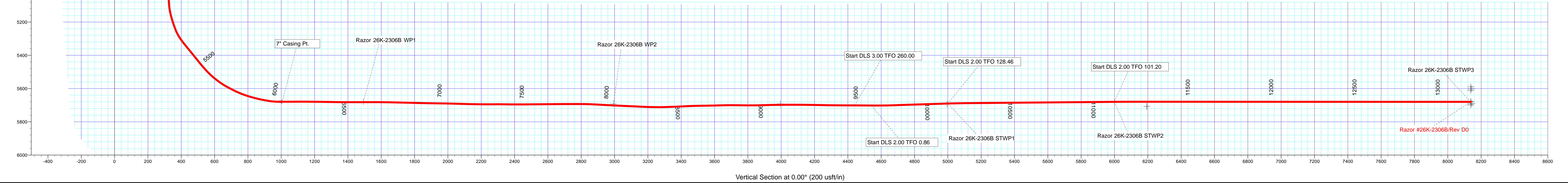
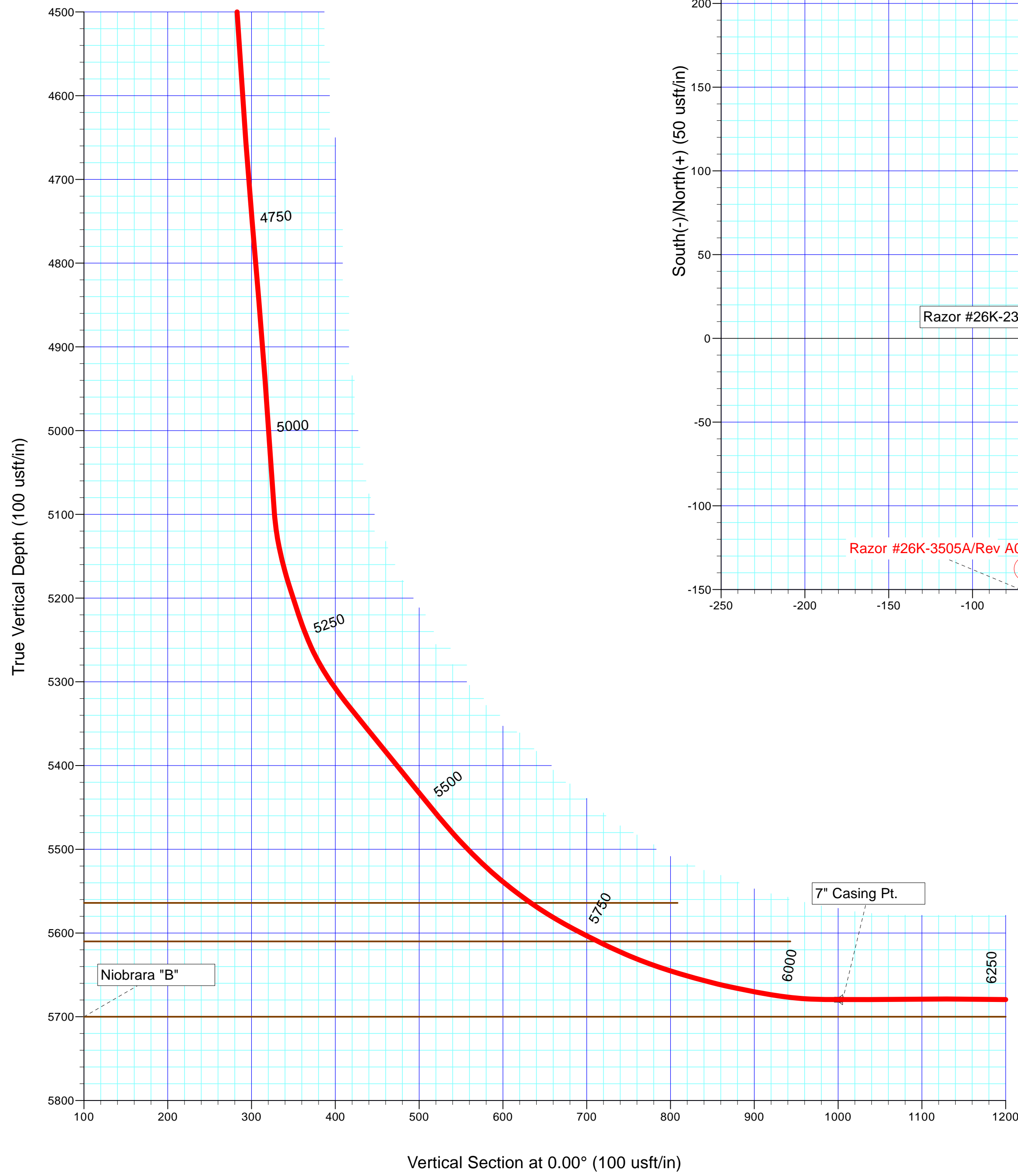
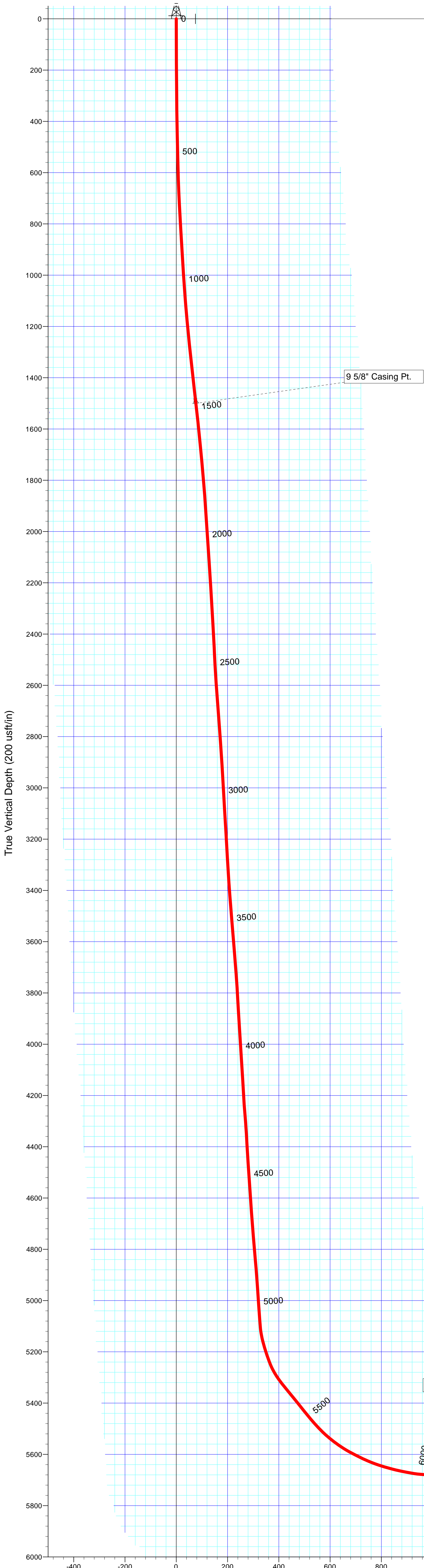
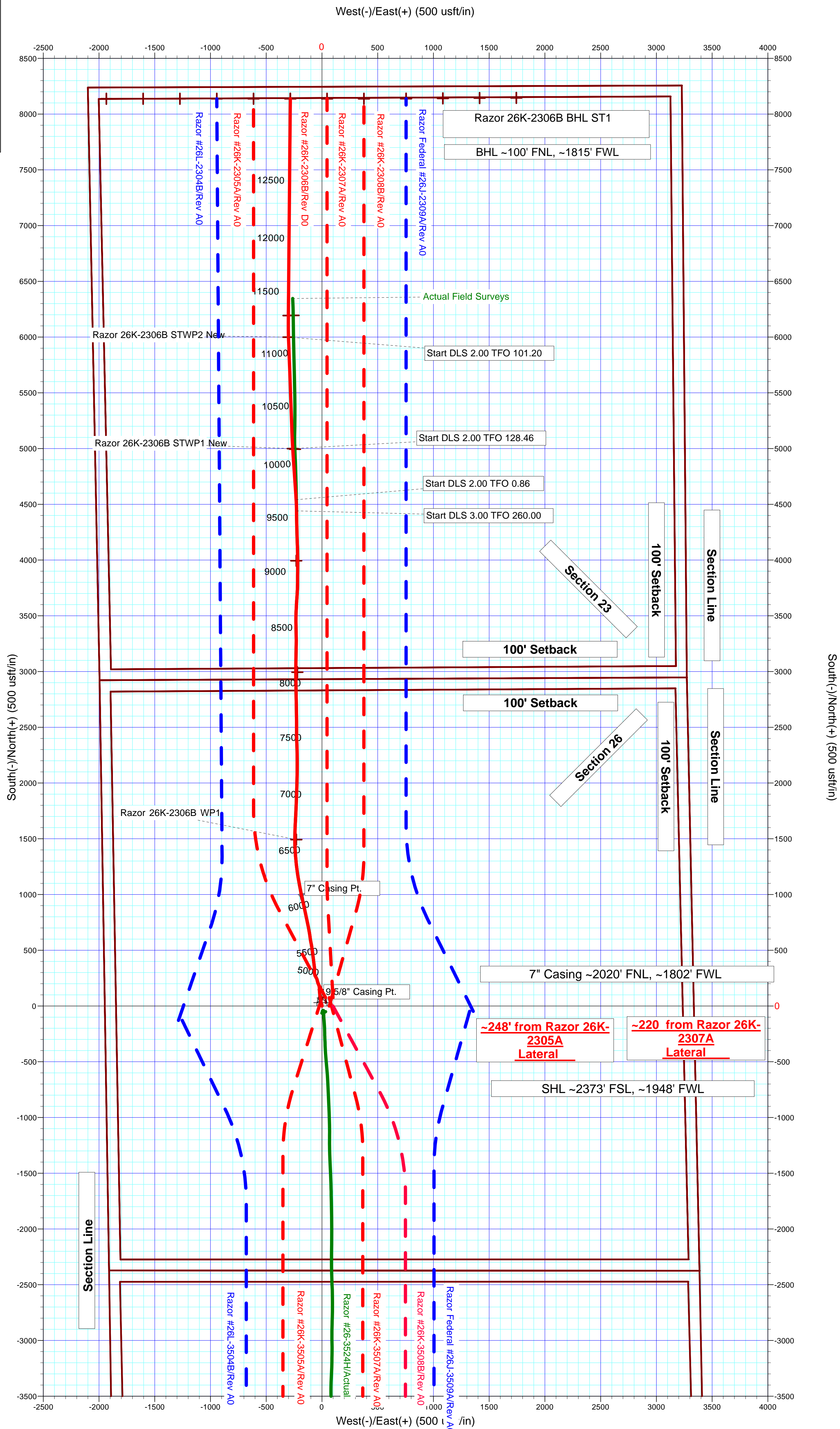
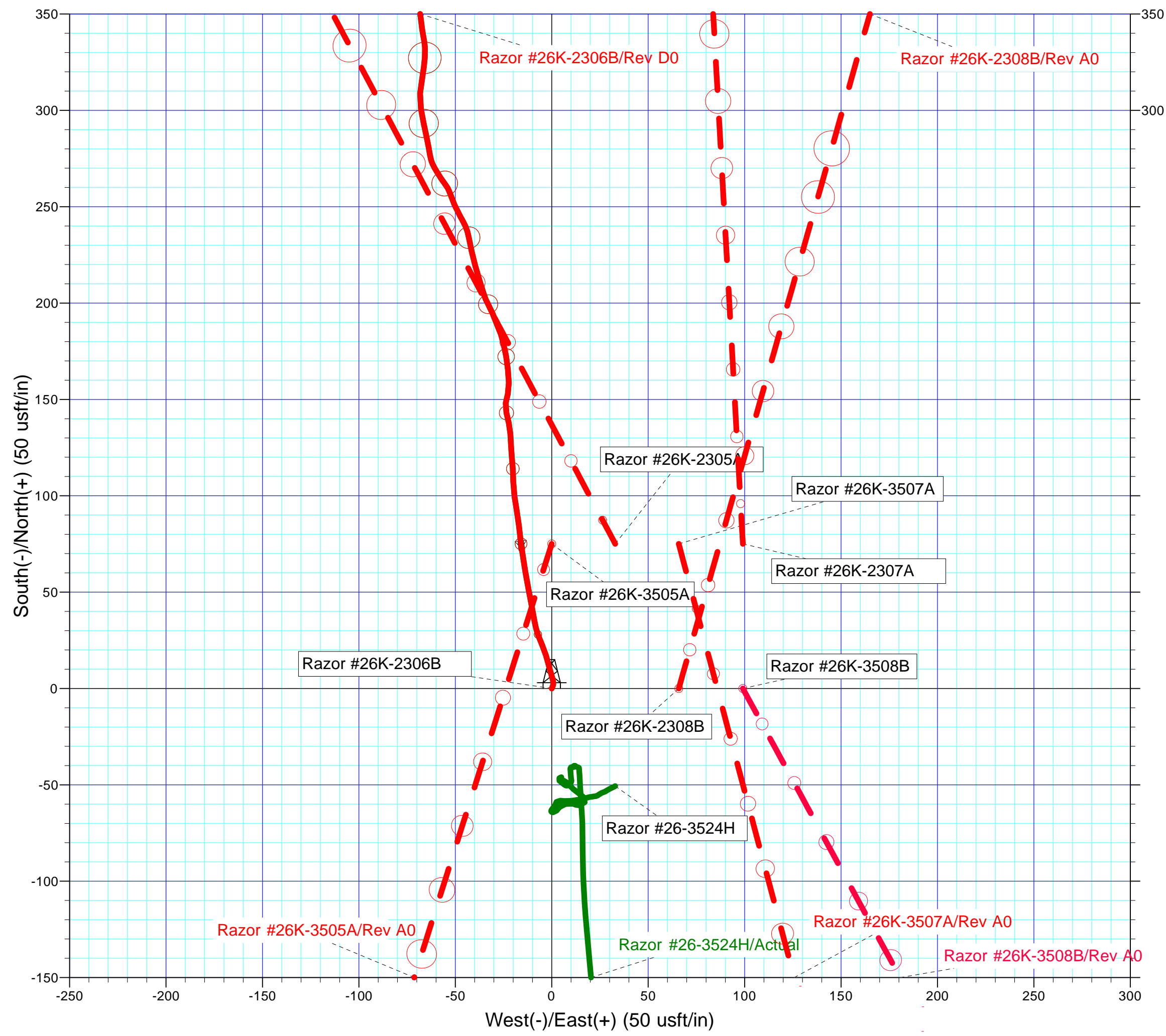
Approved: _____ Date: _____

T

M

Azimuths to True North
Magnetic Field
Magnetic North: 8.07°

Strength: 53096.5snT
Dip Angle: 67.43°
Date: 12/18/2013
Model: BGGM2013



Plan Report for Razor #26K-2306B - 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 (°)
9,466.00	89.88	359.14	5,701.32	4,377.22	-226.62	4,382.46	0.00	0.00	0.00	0.00
Start 64.00 hold at 9466.00 MD										
9,500.00	89.88	359.14	5,701.39	4,411.22	-227.13	4,416.45	0.00	0.00	0.00	0.00
9,530.00	89.88	359.14	5,701.45	4,441.21	-227.59	4,446.44	0.00	0.00	0.00	0.00
Start DLS 3.00 TFO 260.00										
9,600.00	89.52	357.07	5,701.82	4,511.17	-229.90	4,516.44	3.00	-0.52	-2.95	-100.00
9,630.00	89.36	356.19	5,702.12	4,541.12	-231.66	4,546.43	3.00	-0.52	-2.95	-99.99
Start DLS 2.00 TFO 0.86										
9,700.00	90.76	356.21	5,702.04	4,610.96	-236.31	4,616.39	2.00	2.00	0.03	0.86
9,754.29	91.84	356.22	5,700.81	4,665.12	-239.89	4,670.64	2.00	2.00	0.03	0.86
Start 335.79 hold at 9754.29 MD										
9,779.47	91.84	356.22	5,700.00	4,690.23	-241.55	4,695.80	0.00	0.00	0.00	0.91
Niobrara "B"										
9,800.00	91.84	356.22	5,699.34	4,710.70	-242.90	4,716.31	0.00	0.00	0.00	0.00
9,900.00	91.84	356.22	5,696.12	4,810.43	-249.48	4,816.21	0.00	0.00	0.00	0.00
10,000.00	91.84	356.22	5,692.90	4,910.17	-256.07	4,916.11	0.00	0.00	0.00	0.00
10,090.08	91.84	356.22	5,690.00	5,000.00	-262.00	5,006.09	0.00	0.00	0.00	0.00
Start DLS 2.00 TFO 128.46										
10,100.00	91.72	356.38	5,689.69	5,009.90	-262.64	5,016.01	2.00	-1.24	1.57	128.46
10,198.16	90.50	357.92	5,687.79	5,107.91	-267.52	5,114.13	2.00	-1.24	1.57	128.47
Start 892.72 hold at 10198.16 MD										
10,200.00	90.50	357.92	5,687.77	5,109.75	-267.59	5,115.97	0.00	0.00	0.00	129.09
10,300.00	90.50	357.92	5,686.90	5,209.68	-271.23	5,215.97	0.00	0.00	0.00	0.00
10,400.00	90.50	357.92	5,686.03	5,309.61	-274.87	5,315.96	0.00	0.00	0.00	0.00
10,500.00	90.50	357.92	5,685.16	5,409.54	-278.51	5,415.96	0.00	0.00	0.00	0.00
10,600.00	90.50	357.92	5,684.28	5,509.47	-282.14	5,515.96	0.00	0.00	0.00	0.00
10,700.00	90.50	357.92	5,683.41	5,609.40	-285.78	5,615.95	0.00	0.00	0.00	0.00
10,800.00	90.50	357.92	5,682.54	5,709.33	-289.42	5,715.95	0.00	0.00	0.00	0.00
10,900.00	90.50	357.92	5,681.67	5,809.26	-293.06	5,815.94	0.00	0.00	0.00	0.00
11,000.00	90.50	357.92	5,680.79	5,909.19	-296.69	5,915.94	0.00	0.00	0.00	0.00
11,090.87	90.50	357.92	5,680.00	6,000.00	-300.00	6,006.81	0.00	0.00	0.00	0.00
Start DLS 2.00 TFO 101.20										
11,100.00	90.46	358.09	5,679.92	6,009.12	-300.32	6,015.94	2.00	-0.39	1.96	101.20
11,200.00	90.08	0.06	5,679.45	6,109.10	-301.93	6,115.91	2.00	-0.39	1.96	101.20
11,223.58	89.98	0.52	5,679.44	6,132.68	-301.81	6,139.47	2.00	-0.39	1.96	101.21
Start 2005.29 hold at 11223.58 MD										
11,300.00	89.98	0.52	5,679.46	6,209.10	-301.12	6,215.82	0.00	0.00	0.00	0.00
11,400.00	89.98	0.52	5,679.49	6,309.10	-300.22	6,315.72	0.00	0.00	0.00	0.00
11,500.00	89.98	0.52	5,679.52	6,409.09	-299.31	6,415.63	0.00	0.00	0.00	0.00
11,600.00	89.98	0.52	5,679.54	6,509.09	-298.41	6,515.53	0.00	0.00	0.00	0.00
11,700.00	89.98	0.52	5,679.57	6,609.08	-297.50	6,615.44	0.00	0.00	0.00	0.00
11,800.00	89.98	0.52	5,679.60	6,709.08	-296.60	6,715.34	0.00	0.00	0.00	0.00
11,900.00	89.98	0.52	5,679.63	6,809.07	-295.69	6,815.24	0.00	0.00	0.00	0.00
12,000.00	89.98	0.52	5,679.66	6,909.07	-294.78	6,915.15	0.00	0.00	0.00	0.00
12,100.00	89.98	0.52	5,679.68	7,009.07	-293.88	7,015.05	0.00	0.00	0.00	0.00
12,200.00	89.98	0.52	5,679.71	7,109.06	-292.97	7,114.95	0.00	0.00	0.00	0.00
12,300.00	89.98	0.52	5,679.74	7,209.06	-292.07	7,214.86	0.00	0.00	0.00	0.00
12,400.00	89.98	0.52	5,679.77	7,309.05	-291.16	7,314.76	0.00	0.00	0.00	0.00
12,500.00	89.98	0.52	5,679.80	7,409.05	-290.26	7,414.66	0.00	0.00	0.00	0.00
12,600.00	89.98	0.52	5,679.82	7,509.05	-289.35	7,514.57	0.00	0.00	0.00	0.00
12,700.00	89.98	0.52	5,679.85	7,609.04	-288.45	7,614.47	0.00	0.00	0.00	0.00
12,800.00	89.98	0.52	5,679.88	7,709.04	-287.54	7,714.38	0.00	0.00	0.00	0.00
12,900.00	89.98	0.52	5,679.91	7,809.03	-286.64	7,814.28	0.00	0.00	0.00	0.00
13,000.00	89.98	0.52	5,679.94	7,909.03	-285.73	7,914.18	0.00	0.00	0.00	0.00
13,100.00	89.98	0.52	5,679.96	8,009.03	-284.83	8,014.09	0.00	0.00	0.00	0.00
13,200.00	89.98	0.52	5,679.99	8,109.02	-283.92	8,113.99	0.00	0.00	0.00	0.00
13,228.87	89.98	0.52	5,680.00	8,137.89	-283.66	8,142.83	0.00	0.00	0.00	0.00

Plan Report for Razor #26K-2306B - 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 (°)
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TD at 13228.87

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
9,466.00	5,701.32	4,377.22	-226.62	Start 64.00 hold at 9466.00 MD
9,530.00	5,701.45	4,441.21	-227.59	Start DLS 3.00 TFO 260.00
9,630.00	5,702.12	4,541.12	-231.66	Start DLS 2.00 TFO 0.86
9,754.29	5,700.81	4,665.12	-239.89	Start 335.79 hold at 9754.29 MD
10,090.08	5,690.00	5,000.00	-262.00	Start DLS 2.00 TFO 128.46
10,198.16	5,687.79	5,107.91	-267.52	Start 892.72 hold at 10198.16 MD
11,090.87	5,680.00	6,000.00	-300.00	Start DLS 2.00 TFO 101.20
11,223.58	5,679.44	6,132.68	-301.81	Start 2005.29 hold at 11223.58 MD
13,228.87	5,680.00	8,137.89	-283.66	TD at 13228.87

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	+E/-W (usft)	Start TVD (usft)
Target	Razor 26K-2306B BHL	358.00	Slot	0.00	0.00	5,678.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
173.00	1,490.00	Surface_Sperry MWD Surveys	MWD+IFR1+MS+sag
1,576.00	6,049.00	Vertical and Build_Sperry MWD Surveys	MWD+IFR1+MS+sag
6,119.00	9,466.00	Lateral_Sperry MWD Surveys	MWD+IFR1+MS+sag
9,466.00	13,228.87	Rev D0	MWD+IFR1+MS+sag

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,503.17	1,500.00	9 5/8" Casing Pt.	9-5/8	13-1/2
6,088.00	5,679.73	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,684.93	5,564.00	Niobrara Top		0.00	
5,778.45	5,610.00	Niobrara "A"		0.00	
8,047.53	5,700.00	Niobrara "B"		0.00	

Plan Report for Razor #26K-2306B - Rev D0

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Razor 26K-2306B BHL	5,678.00	8,137.89	-283.66	Point
Razor 26K-2306B WP1	5,679.00	1,492.89	-230.00	Point
Razor 26K-2306B STWP3 New	5,680.00	8,137.89	-283.66	Point
Razor 26K-2306B STWP2 New	5,680.00	6,000.00	-300.00	Point
Razor 26K-2306B STWP1 New	5,690.00	5,000.00	-262.00	Point
Razor 26K-2306B WP3	5,692.00	3,994.41	-230.00	Point
Razor 26K-2306B WP2	5,692.00	2,994.15	-220.00	Point
Razor 26K-2306B WP6	5,695.00	8,137.89	-283.66	Point
Razor 26K-2306B WP4	5,695.00	4,994.60	-242.00	Point
Razor 26K-2306B WP5	5,707.00	6,194.88	-255.00	Point
Razor 26K-2306B WP5 R C0	5,707.00	6,193.31	-300.00	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.27 °/100usft	Maximum Dogleg over Survey:	3.00 °/100usft at 9,630.00 usft
Net Tortousity applicable to Plans:	0.27 °/100usft	Directional Difficulty Index:	6.646

Audit Info

North Reference Sheet for Sec. 26-T10N-R58W - Razor #26K-2306B - Sidetrack 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 @ 4759.50usft (Frontier 26). Northing and Easting are relative to Razor #26K-2306B

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: 1.00000425

Grid Coordinates of Well: 1,541,853.17 usft N, 3,460,994.18 usft E

Geographical Coordinates of Well: 40° 48' 31.99" N, 103° 50' 04.72" W

Grid Convergence at Surface is: 1.08°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,228.87usft the Bottom Hole Displacement is 8,142.83usft in the Direction of 358.00° (True).

Magnetic Convergence at surface is: -7.00° (18 December 2013, , BGGM2013)

