

# Whiting Oil and Gas Corporation

Weld County, CO  
Sec. 26-T10N-R58W  
Razor #26K-2305A

Sidetrack 1

Plan: Rev C0

## Sperry Drilling Services Proposal Report

05 March, 2014

Well Coordinates: 1,541,928.84 N, 3,461,025.71 E (40° 48' 32.73" N, 103° 50' 04.29" 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-2305A

KB 22 ft @ 4759.50usft (Frontier 26)

N

True

API - US Survey Feet - Custom

**HALLIBURTON**

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	5000.00	2.76	341.02	4987.26	256.89	-147.56	0.00	0.00	267.86	
2	5112.79	2.76	341.02	5099.92	262.03	-149.32	0.00	0.00	273.12	
3	5906.18	90.00	332.11	5596.00	723.59	-389.46	11.00	-8.93	752.40	
4	5981.18	90.00	332.11	5596.00	789.88	-424.55	0.00	0.00	821.28	
5	6911.01	90.00	360.00	5596.00	1683.40	-646.46	3.00	90.00	1729.68	Razor 26K-2305A C0 BHL
6	13290.45	90.00	360.00	5596.00	8062.84	-646.46	0.00	0.00	8088.71	Razor 26K-2305A C0 BHL

Plan: Rev C0 (Razor #26K-2305A/Sidetrack 1)

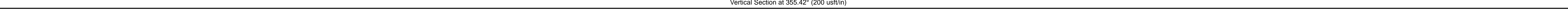
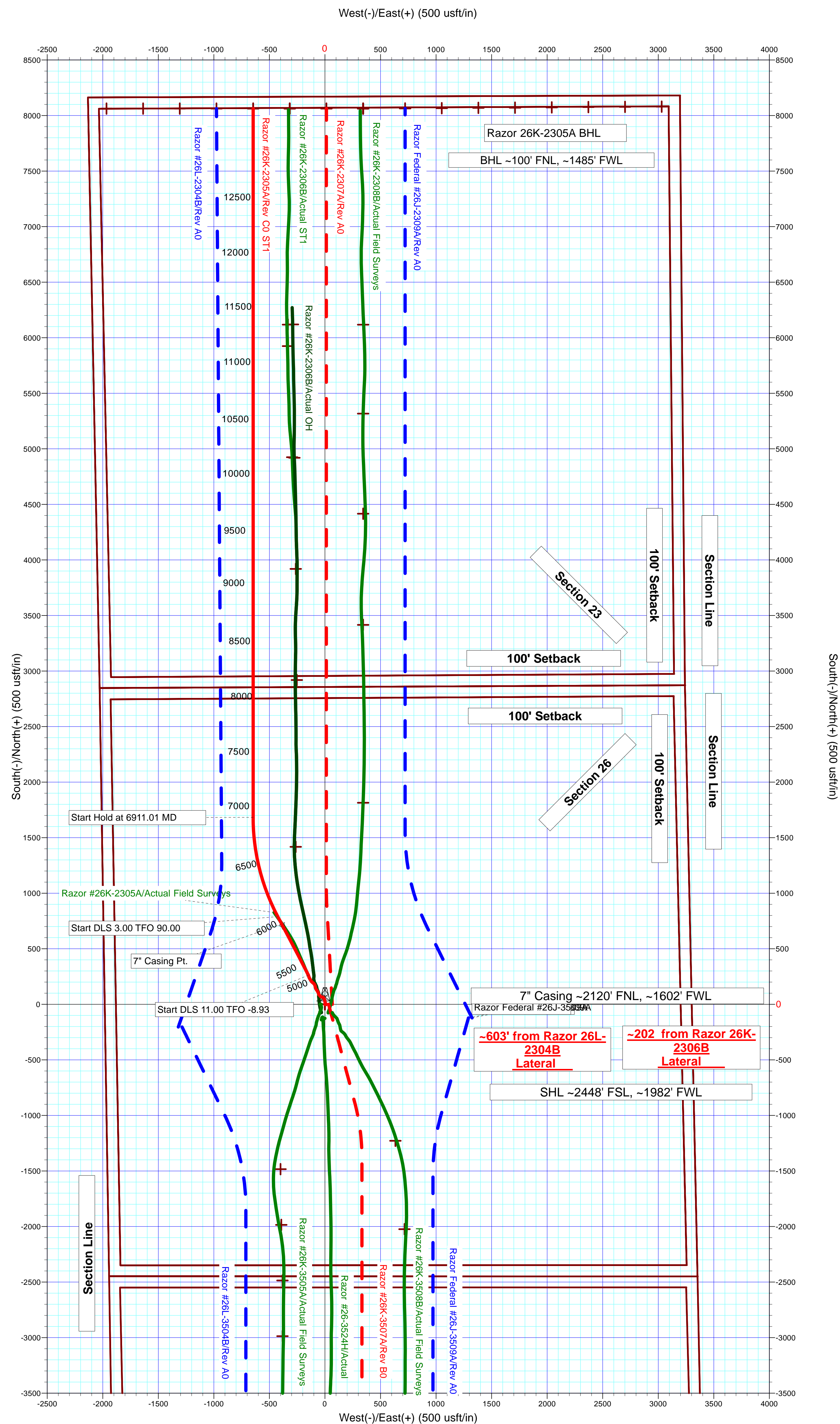
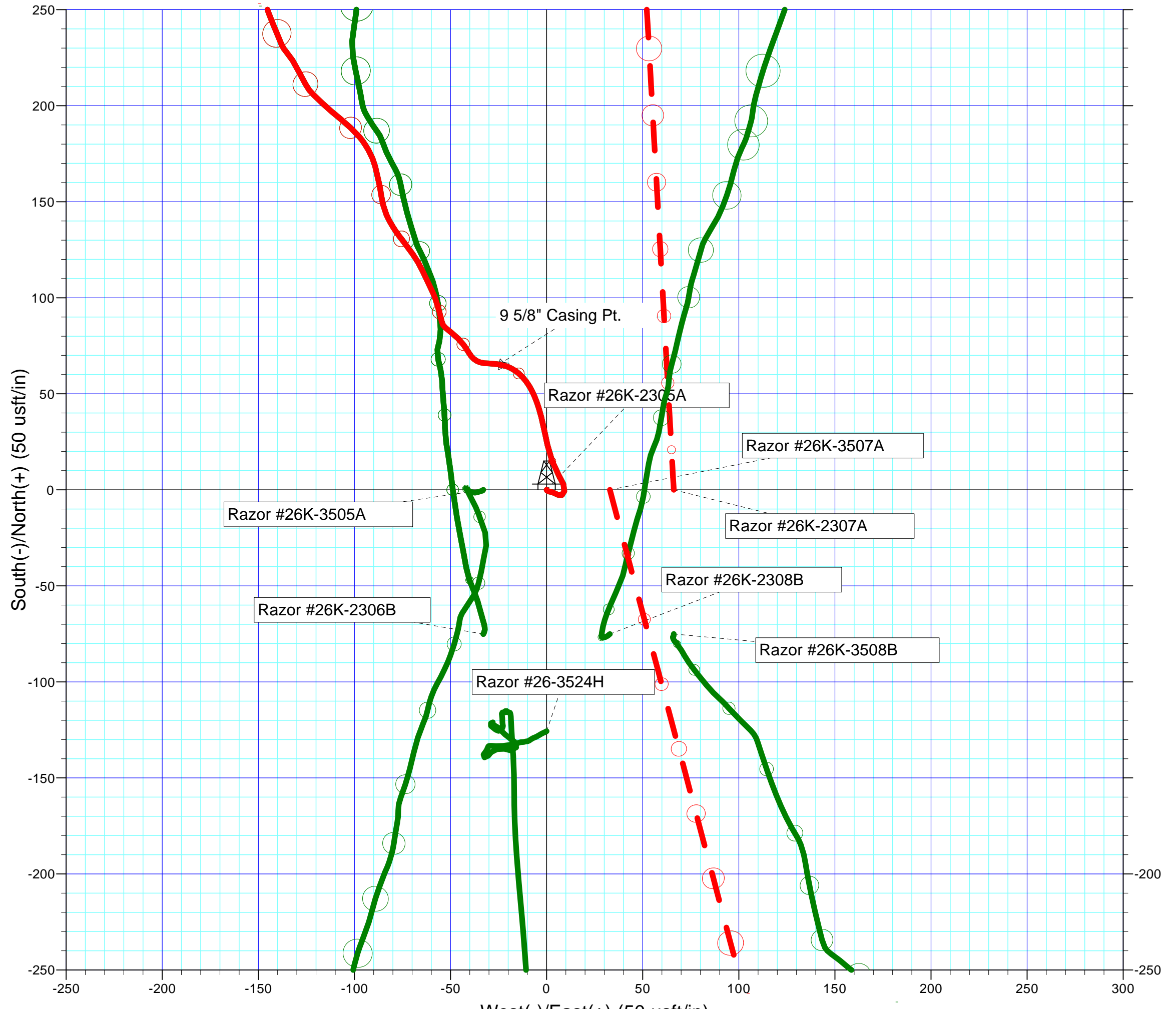
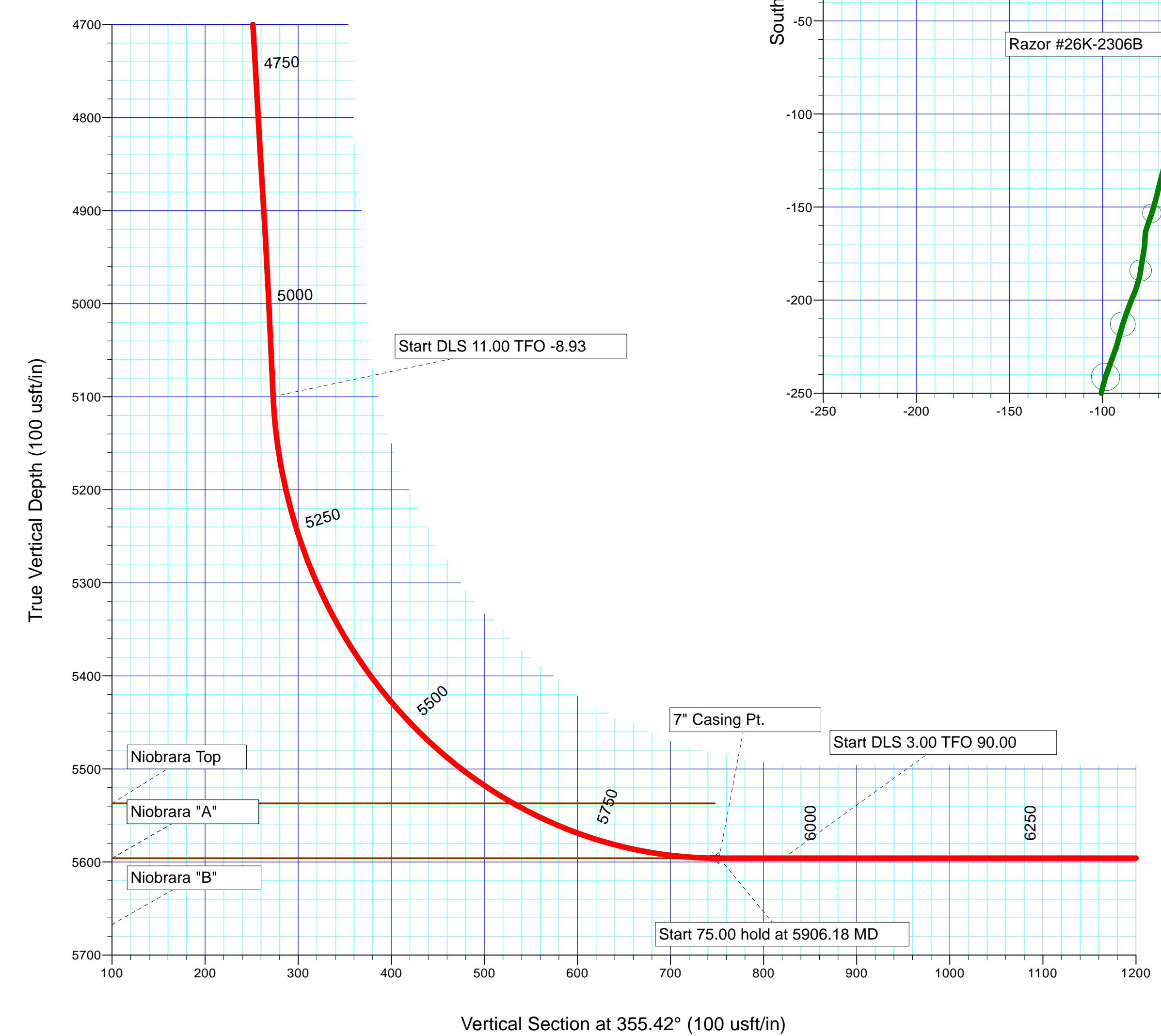
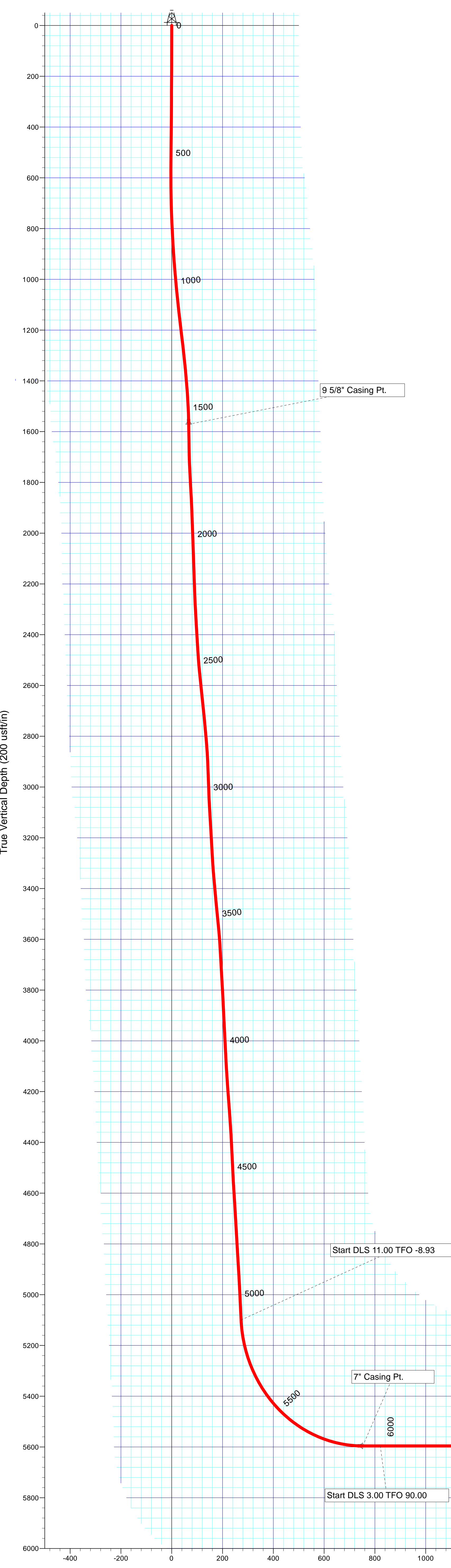
Created By: Troy L. Stoute      Date: 14:39, March 05 2014

Checked: \_\_\_\_\_      Date: \_\_\_\_\_

Reviewed: \_\_\_\_\_      Date: \_\_\_\_\_

Approved: \_\_\_\_\_      Date: \_\_\_\_\_

Azimuths to True North  
 Magnetic Field  
 Magnetic North: 8.05°  
 Strength: 53070.1snT  
 Dip Angle: 67.42°  
 Date: 3/5/2014  
 Model: BGGM2013



**Plan Report for Razor #26K-2305A - Rev C0**

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 (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170.00	0.30	149.35	170.00	-0.38	0.23	-0.40	0.18	0.18	0.00	149.35
262.00	1.07	104.39	261.99	-0.80	1.18	-0.90	0.96	0.84	-48.87	-58.84
352.00	0.87	100.25	351.98	-1.13	2.67	-1.34	0.24	-0.22	-4.60	-162.75
444.00	1.00	120.78	443.97	-1.67	4.05	-1.99	0.39	0.14	22.32	79.26
535.00	1.68	111.25	534.94	-2.56	5.97	-3.03	0.78	0.75	-10.47	-22.95
626.00	1.14	63.29	625.92	-2.64	8.02	-3.27	1.37	-0.59	-52.70	-137.27
718.00	2.02	14.28	717.88	-0.65	9.24	-1.39	1.67	0.96	-53.27	-83.07
809.00	2.80	337.14	808.81	2.95	8.77	2.24	1.87	0.86	-40.81	-82.83
900.00	4.28	329.52	899.63	7.92	6.19	7.40	1.70	1.63	-8.37	-21.46
992.00	5.36	339.31	991.31	14.90	2.93	14.62	1.47	1.17	10.64	42.24
1,084.00	5.78	347.48	1,082.88	23.45	0.40	23.34	0.97	0.46	8.88	66.20
1,175.00	7.15	348.65	1,173.29	33.47	-1.70	33.50	1.51	1.51	1.29	6.07
1,267.00	6.64	341.13	1,264.63	44.12	-4.55	44.34	1.13	-0.55	-8.17	-123.16
1,358.00	6.05	331.03	1,355.08	53.29	-8.58	53.81	1.38	-0.65	-11.10	-122.82
1,450.00	5.90	310.76	1,446.59	60.62	-14.51	61.59	2.29	-0.16	-22.03	-104.11
1,530.00	4.94	287.74	1,526.24	64.36	-20.90	65.82	2.94	-1.20	-28.77	-125.00
1,575.00	4.94	280.50	1,571.07	65.30	-24.65	67.06	1.38	-0.01	-16.10	-93.88
<b>9 5/8" Casing Pt.</b>										
1,637.00	5.06	270.73	1,632.84	65.82	-30.01	68.01	1.38	0.20	-15.75	-86.66
1,729.00	3.32	299.06	1,724.60	67.17	-36.40	69.86	2.89	-1.89	30.79	143.60
1,820.00	4.26	329.02	1,815.40	71.35	-40.44	74.35	2.37	1.03	32.92	80.07
1,912.00	2.45	322.20	1,907.24	75.83	-43.40	79.06	2.01	-1.97	-7.41	-170.95
2,003.00	2.72	314.52	1,998.15	78.88	-46.13	82.31	0.48	0.30	-8.44	-55.94
2,094.00	2.76	308.34	2,089.05	81.75	-49.39	85.44	0.33	0.04	-6.79	-85.38
2,186.00	2.58	310.74	2,180.95	84.48	-52.70	88.42	0.23	-0.20	2.61	149.35
2,276.00	2.73	349.19	2,270.86	87.91	-54.64	91.99	1.95	0.17	42.72	104.57
2,368.00	3.46	343.27	2,362.72	92.72	-55.85	96.88	0.87	0.79	-6.43	-26.62
2,460.00	3.38	344.22	2,454.56	97.99	-57.38	102.26	0.11	-0.09	1.03	145.16
2,551.00	5.98	334.35	2,545.25	104.84	-60.16	109.31	2.98	2.86	-10.85	-22.17
2,643.00	6.65	334.53	2,636.69	113.97	-64.53	118.76	0.73	0.73	0.20	1.78
2,734.00	6.33	325.00	2,727.11	122.84	-69.67	128.01	1.23	-0.35	-10.47	-111.24
2,826.00	5.90	321.61	2,818.59	130.70	-75.52	136.32	0.61	-0.47	-3.68	-141.65
2,917.00	2.64	329.57	2,909.32	136.17	-79.49	142.09	3.63	-3.58	8.75	173.65
3,009.00	1.98	328.37	3,001.25	139.35	-81.39	145.41	0.72	-0.72	-1.30	-176.41
3,100.00	3.57	336.61	3,092.14	143.29	-83.34	149.49	1.80	1.75	9.05	18.22
3,191.00	3.53	345.99	3,182.96	148.61	-85.15	154.94	0.64	-0.04	10.31	98.61
3,283.00	3.07	353.39	3,274.81	153.81	-86.11	160.20	0.68	-0.50	8.04	140.85
3,374.00	5.07	347.20	3,365.58	160.15	-87.29	166.61	2.25	2.20	-6.80	-15.49
3,466.00	5.45	346.77	3,457.19	168.37	-89.19	174.95	0.42	0.41	-0.47	-6.14
3,558.00	6.31	330.00	3,548.71	177.00	-92.71	183.84	2.08	0.93	-18.23	-71.91
3,650.00	3.99	318.72	3,640.34	183.78	-97.35	190.98	2.74	-2.52	-12.26	-161.97
3,741.00	4.37	312.84	3,731.09	188.52	-101.99	196.07	0.63	0.42	-6.46	-51.40
3,833.00	4.19	309.94	3,822.84	193.06	-107.13	201.00	0.31	-0.20	-3.15	-131.19
3,924.00	3.94	309.56	3,913.61	197.19	-112.09	205.51	0.28	-0.27	-0.42	-174.04
4,016.00	3.75	314.95	4,005.40	201.32	-116.66	210.00	0.44	-0.21	5.86	120.40
4,108.00	4.05	312.50	4,097.19	205.64	-121.18	214.67	0.37	0.33	-2.66	-30.28
4,200.00	4.89	330.96	4,188.91	211.27	-125.48	220.62	1.80	0.91	20.07	69.14
4,291.00	4.49	333.51	4,279.61	217.85	-128.95	227.46	0.50	-0.44	2.80	153.74
4,382.00	3.77	327.96	4,370.37	223.57	-132.13	233.42	0.90	-0.79	-6.10	-153.71
4,474.00	3.00	318.23	4,462.21	227.93	-135.34	238.02	1.04	-0.84	-10.58	-148.06
4,565.00	3.53	335.43	4,553.07	232.25	-138.09	242.55	1.22	0.58	18.90	70.35
4,656.00	3.90	339.54	4,643.87	237.70	-140.34	248.16	0.50	0.41	4.52	37.81
4,751.00	3.03	335.05	4,738.70	243.01	-142.52	253.62	0.96	-0.92	-4.73	-164.91
4,847.00	3.79	340.74	4,834.53	248.30	-144.64	259.07	0.87	0.79	5.93	26.86
4,942.00	3.40	341.68	4,929.34	253.94	-146.56	264.84	0.42	-0.41	0.99	171.87
5,000.00	2.76	341.02	4,987.26	256.89	-147.56	267.86	1.11	-1.10	-1.14	-177.16
<b>Start 112.79 hold at 5000.00 MD</b>										

**Plan Report for Razor #26K-2305A - Rev C0**

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 (°)
5,100.00	2.76	341.02	5,087.14	261.45	-149.12	272.53	0.00	0.00	0.00	0.00
5,112.79	2.76	341.02	5,099.92	262.03	-149.32	273.12	0.00	0.00	0.00	0.00
<b>Start DLS 11.00 TFO -8.93</b>										
5,150.00	6.83	335.68	5,136.99	264.89	-150.53	276.08	11.00	10.95	-14.35	-8.92
5,200.00	12.33	334.06	5,186.27	272.41	-154.09	283.85	11.00	10.99	-3.23	-3.60
5,250.00	17.82	333.44	5,234.53	284.06	-159.85	295.93	11.00	11.00	-1.26	-2.01
5,300.00	23.32	333.10	5,281.33	299.75	-167.76	312.20	11.00	11.00	-0.68	-1.40
5,350.00	28.82	332.88	5,326.22	319.32	-177.74	332.50	11.00	11.00	-0.43	-1.08
5,400.00	34.32	332.73	5,368.80	342.59	-189.70	356.66	11.00	11.00	-0.30	-0.89
5,450.00	39.82	332.62	5,408.68	369.36	-203.53	384.44	11.00	11.00	-0.23	-0.76
5,500.00	45.32	332.53	5,445.49	399.37	-219.10	415.60	11.00	11.00	-0.18	-0.67
5,550.00	50.82	332.45	5,478.89	432.35	-236.28	449.85	11.00	11.00	-0.15	-0.60
5,600.00	56.32	332.39	5,508.57	467.99	-254.90	486.87	11.00	11.00	-0.13	-0.55
5,650.00	61.82	332.33	5,534.26	505.98	-274.79	526.32	11.00	11.00	-0.11	-0.51
5,655.87	62.47	332.33	5,537.00	510.57	-277.20	531.09	11.00	11.00	-0.11	-0.49
<b>Niobrara Top</b>										
5,700.00	67.32	332.28	5,555.72	545.94	-295.76	567.84	11.00	11.00	-0.10	-0.48
5,750.00	72.82	332.24	5,572.76	587.53	-317.63	611.04	11.00	11.00	-0.09	-0.46
5,800.00	78.32	332.19	5,585.21	630.36	-340.20	655.53	11.00	11.00	-0.09	-0.45
5,850.00	83.82	332.15	5,592.97	674.02	-363.25	700.90	11.00	11.00	-0.08	-0.44
5,900.00	89.32	332.11	5,595.96	718.13	-386.57	746.72	11.00	11.00	-0.08	-0.43
5,906.00	89.98	332.11	5,596.00	723.43	-389.37	752.23	11.00	11.00	-0.08	-0.43
<b>7" Casing Pt.</b>										
5,906.18	90.00	332.11	5,596.00	723.59	-389.46	752.40	11.00	11.00	-0.08	-0.43
<b>Start 75.00 hold at 5906.18 MD - Niobrara "A"</b>										
5,981.18	90.00	332.11	5,596.00	789.88	-424.55	821.28	0.00	0.00	0.00	0.00
<b>Start DLS 3.00 TFO 90.00</b>										
6,000.00	90.00	332.67	5,596.00	806.55	-433.27	838.60	3.00	0.00	3.00	90.00
6,100.00	90.00	335.67	5,596.00	896.55	-476.84	931.79	3.00	0.00	3.00	90.00
6,200.00	90.00	338.67	5,596.00	988.70	-515.63	1,026.75	3.00	0.00	3.00	90.00
6,300.00	90.00	341.67	5,596.00	1,082.76	-549.55	1,123.22	3.00	0.00	3.00	90.00
6,400.00	90.00	344.67	5,596.00	1,178.47	-578.50	1,220.93	3.00	0.00	3.00	90.00
6,500.00	90.00	347.67	5,596.00	1,275.56	-602.40	1,319.62	3.00	0.00	3.00	90.00
6,600.00	90.00	350.67	5,596.00	1,373.77	-621.19	1,419.02	3.00	0.00	3.00	90.00
6,700.00	90.00	353.67	5,596.00	1,472.82	-634.81	1,518.85	3.00	0.00	3.00	90.00
6,800.00	90.00	356.67	5,596.00	1,572.45	-643.23	1,618.83	3.00	0.00	3.00	90.00
6,900.00	90.00	359.67	5,596.00	1,672.39	-646.43	1,718.71	3.00	0.00	3.00	90.00
6,911.01	90.00	360.00	5,596.00	1,683.40	-646.46	1,729.68	3.00	0.00	3.00	90.00
<b>Start 6379.44 hold at 6911.01 MD</b>										
7,000.00	90.00	360.00	5,596.00	1,772.39	-646.46	1,818.39	0.00	0.00	0.00	0.00
7,100.00	90.00	360.00	5,596.00	1,872.39	-646.46	1,918.07	0.00	0.00	0.00	0.00
7,200.00	90.00	360.00	5,596.00	1,972.39	-646.46	2,017.75	0.00	0.00	0.00	0.00
7,300.00	90.00	360.00	5,596.00	2,072.39	-646.46	2,117.43	0.00	0.00	0.00	0.00
7,400.00	90.00	360.00	5,596.00	2,172.39	-646.46	2,217.11	0.00	0.00	0.00	0.00
7,500.00	90.00	360.00	5,596.00	2,272.39	-646.46	2,316.79	0.00	0.00	0.00	0.00
7,600.00	90.00	360.00	5,596.00	2,372.39	-646.46	2,416.47	0.00	0.00	0.00	0.00
7,700.00	90.00	360.00	5,596.00	2,472.39	-646.46	2,516.15	0.00	0.00	0.00	0.00
7,800.00	90.00	360.00	5,596.00	2,572.39	-646.46	2,615.83	0.00	0.00	0.00	0.00
7,900.00	90.00	360.00	5,596.00	2,672.39	-646.46	2,715.51	0.00	0.00	0.00	0.00
8,000.00	90.00	360.00	5,596.00	2,772.39	-646.46	2,815.19	0.00	0.00	0.00	0.00
8,100.00	90.00	360.00	5,596.00	2,872.39	-646.46	2,914.87	0.00	0.00	0.00	0.00
8,200.00	90.00	360.00	5,596.00	2,972.39	-646.46	3,014.55	0.00	0.00	0.00	0.00
8,300.00	90.00	360.00	5,596.00	3,072.39	-646.46	3,114.23	0.00	0.00	0.00	0.00
8,400.00	90.00	360.00	5,596.00	3,172.39	-646.46	3,213.91	0.00	0.00	0.00	0.00
8,500.00	90.00	360.00	5,596.00	3,272.39	-646.46	3,313.59	0.00	0.00	0.00	0.00
8,600.00	90.00	360.00	5,596.00	3,372.39	-646.46	3,413.27	0.00	0.00	0.00	0.00
8,700.00	90.00	360.00	5,596.00	3,472.39	-646.46	3,512.95	0.00	0.00	0.00	0.00
8,800.00	90.00	360.00	5,596.00	3,572.39	-646.46	3,612.63	0.00	0.00	0.00	0.00
8,900.00	90.00	360.00	5,596.00	3,672.39	-646.46	3,712.31	0.00	0.00	0.00	0.00

**Plan Report for Razor #26K-2305A - Rev C0**

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 (°)
9,000.00	90.00	360.00	5,596.00	3,772.39	-646.46	3,811.99	0.00	0.00	0.00	0.00
9,100.00	90.00	360.00	5,596.00	3,872.39	-646.46	3,911.67	0.00	0.00	0.00	0.00
9,200.00	90.00	360.00	5,596.00	3,972.39	-646.46	4,011.35	0.00	0.00	0.00	0.00
9,300.00	90.00	360.00	5,596.00	4,072.39	-646.46	4,111.03	0.00	0.00	0.00	0.00
9,400.00	90.00	360.00	5,596.00	4,172.39	-646.46	4,210.71	0.00	0.00	0.00	0.00
9,500.00	90.00	360.00	5,596.00	4,272.39	-646.46	4,310.39	0.00	0.00	0.00	0.00
9,600.00	90.00	360.00	5,596.00	4,372.39	-646.46	4,410.07	0.00	0.00	0.00	0.00
9,700.00	90.00	360.00	5,596.00	4,472.39	-646.46	4,509.75	0.00	0.00	0.00	0.00
9,800.00	90.00	360.00	5,596.00	4,572.39	-646.46	4,609.43	0.00	0.00	0.00	0.00
9,900.00	90.00	360.00	5,596.00	4,672.39	-646.46	4,709.11	0.00	0.00	0.00	0.00
10,000.00	90.00	360.00	5,596.00	4,772.39	-646.46	4,808.79	0.00	0.00	0.00	0.00
10,100.00	90.00	360.00	5,596.00	4,872.39	-646.46	4,908.47	0.00	0.00	0.00	0.00
10,200.00	90.00	360.00	5,596.00	4,972.39	-646.46	5,008.15	0.00	0.00	0.00	0.00
10,300.00	90.00	360.00	5,596.00	5,072.39	-646.46	5,107.83	0.00	0.00	0.00	0.00
10,400.00	90.00	360.00	5,596.00	5,172.39	-646.46	5,207.51	0.00	0.00	0.00	0.00
10,500.00	90.00	360.00	5,596.00	5,272.39	-646.46	5,307.19	0.00	0.00	0.00	0.00
10,600.00	90.00	360.00	5,596.00	5,372.39	-646.46	5,406.87	0.00	0.00	0.00	0.00
10,700.00	90.00	360.00	5,596.00	5,472.39	-646.46	5,506.55	0.00	0.00	0.00	0.00
10,800.00	90.00	360.00	5,596.00	5,572.39	-646.46	5,606.23	0.00	0.00	0.00	0.00
10,900.00	90.00	360.00	5,596.00	5,672.39	-646.46	5,705.91	0.00	0.00	0.00	0.00
11,000.00	90.00	360.00	5,596.00	5,772.39	-646.46	5,805.59	0.00	0.00	0.00	0.00
11,100.00	90.00	360.00	5,596.00	5,872.39	-646.46	5,905.27	0.00	0.00	0.00	0.00
11,200.00	90.00	360.00	5,596.00	5,972.39	-646.46	6,004.95	0.00	0.00	0.00	0.00
11,300.00	90.00	360.00	5,596.00	6,072.39	-646.46	6,104.63	0.00	0.00	0.00	0.00
11,400.00	90.00	360.00	5,596.00	6,172.39	-646.46	6,204.31	0.00	0.00	0.00	0.00
11,500.00	90.00	360.00	5,596.00	6,272.39	-646.46	6,303.99	0.00	0.00	0.00	0.00
11,600.00	90.00	360.00	5,596.00	6,372.39	-646.46	6,403.67	0.00	0.00	0.00	0.00
11,700.00	90.00	360.00	5,596.00	6,472.39	-646.46	6,503.35	0.00	0.00	0.00	0.00
11,800.00	90.00	360.00	5,596.00	6,572.39	-646.46	6,603.03	0.00	0.00	0.00	0.00
11,900.00	90.00	360.00	5,596.00	6,672.39	-646.46	6,702.71	0.00	0.00	0.00	0.00
12,000.00	90.00	360.00	5,596.00	6,772.39	-646.46	6,802.39	0.00	0.00	0.00	0.00
12,100.00	90.00	360.00	5,596.00	6,872.39	-646.46	6,902.07	0.00	0.00	0.00	0.00
12,200.00	90.00	360.00	5,596.00	6,972.39	-646.46	7,001.75	0.00	0.00	0.00	0.00
12,300.00	90.00	360.00	5,596.00	7,072.39	-646.46	7,101.43	0.00	0.00	0.00	0.00
12,400.00	90.00	360.00	5,596.00	7,172.39	-646.46	7,201.11	0.00	0.00	0.00	0.00
12,500.00	90.00	360.00	5,596.00	7,272.39	-646.46	7,300.80	0.00	0.00	0.00	0.00
12,600.00	90.00	360.00	5,596.00	7,372.39	-646.46	7,400.48	0.00	0.00	0.00	0.00
12,700.00	90.00	360.00	5,596.00	7,472.39	-646.46	7,500.16	0.00	0.00	0.00	0.00
12,800.00	90.00	360.00	5,596.00	7,572.39	-646.46	7,599.84	0.00	0.00	0.00	0.00
12,900.00	90.00	360.00	5,596.00	7,672.39	-646.46	7,699.52	0.00	0.00	0.00	0.00
13,000.00	90.00	360.00	5,596.00	7,772.39	-646.46	7,799.20	0.00	0.00	0.00	0.00
13,100.00	90.00	360.00	5,596.00	7,872.39	-646.46	7,898.88	0.00	0.00	0.00	0.00
13,200.00	90.00	360.00	5,596.00	7,972.39	-646.46	7,998.56	0.00	0.00	0.00	0.00
13,290.45	90.00	360.00	5,596.00	8,062.84	-646.46	8,088.71	0.00	0.00	0.00	0.00

TD at 13290.45

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,000.00	4,987.26	256.89	-147.56	Start 112.79 hold at 5000.00 MD
5,112.79	5,099.92	262.03	-149.32	Start DLS 11.00 TFO -8.93
5,906.18	5,596.00	723.59	-389.46	Start 75.00 hold at 5906.18 MD
5,981.18	5,596.00	789.88	-424.55	Start DLS 3.00 TFO 90.00
6,911.01	5,596.00	1,683.40	-646.46	Start 6379.44 hold at 6911.01 MD
13,290.45	5,596.00	8,062.84	-646.46	TD at 13290.45

**Plan Report for Razor #26K-2305A - Rev C0****Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
Target	Razor 26K-2305A C0 BHL	355.42	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
170.00	1,530.00	Surface_Sperry MWD Surveys	MWD+IFR1+MS+sag
1,637.00	5,000.00	Vertical and Build_Sperry MWD Surveys	MWD+IFR1+MS+sag
5,000.00	13,290.14	Rev C0	MWD+IFR1+MS+sag

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,575.00	1,571.07	9 5/8" Casing Pt.	9-5/8	13-1/2
5,906.00	5,596.00	7" Casing Pt.	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,655.87	5,537.00	Niobrara Top		0.00	
5,906.18	5,596.00	Niobrara "A"		0.00	

**Targets associated with this wellbore**

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Razor 26K-2305A C0 BHL	5,596.00	8,062.84	-646.46	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	1.39 °/100usft	Maximum Dogleg over Survey:	11.00 °/100usft at 5,906.18 usft
Net Tortosity applicable to Plans:	1.39 °/100usft	Directional Difficulty Index:	6.608

**Audit Info**

**North Reference Sheet for Sec. 26-T10N-R58W - Razor #26K-2305A - 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-2305A

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: 1.00000428

Grid Coordinates of Well: 1,541,928.84 usft N, 3,461,025.71 usft E

Geographical Coordinates of Well: 40° 48' 32.73" N, 103° 50' 04.29" W

Grid Convergence at Surface is: 1.08°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,290.45usft

the Bottom Hole Displacement is 8,088.71usft in the Direction of 355.42° (True).

Magnetic Convergence at surface is: -6.97° ( 5 March 2014, , BGGM2013)

