

Whiting Oil and Gas Corporation

Weld County, CO

Sec. 29-T10N-R58W

Razor #29H-2015

Plan A

Plan: Rev A0

Sperry Drilling Services

Proposal Report

11 June, 2014

Well Coordinates: 1,542,190.46 N, 3,447,598.56 E (40° 48' 37.77" N, 103° 52' 58.81" W)

Ground Level: 4,862.00 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 #29H-2015
KB 17' @ 4879.00usft (Original Well Elev)

N

True

API - US Survey Feet - Custom

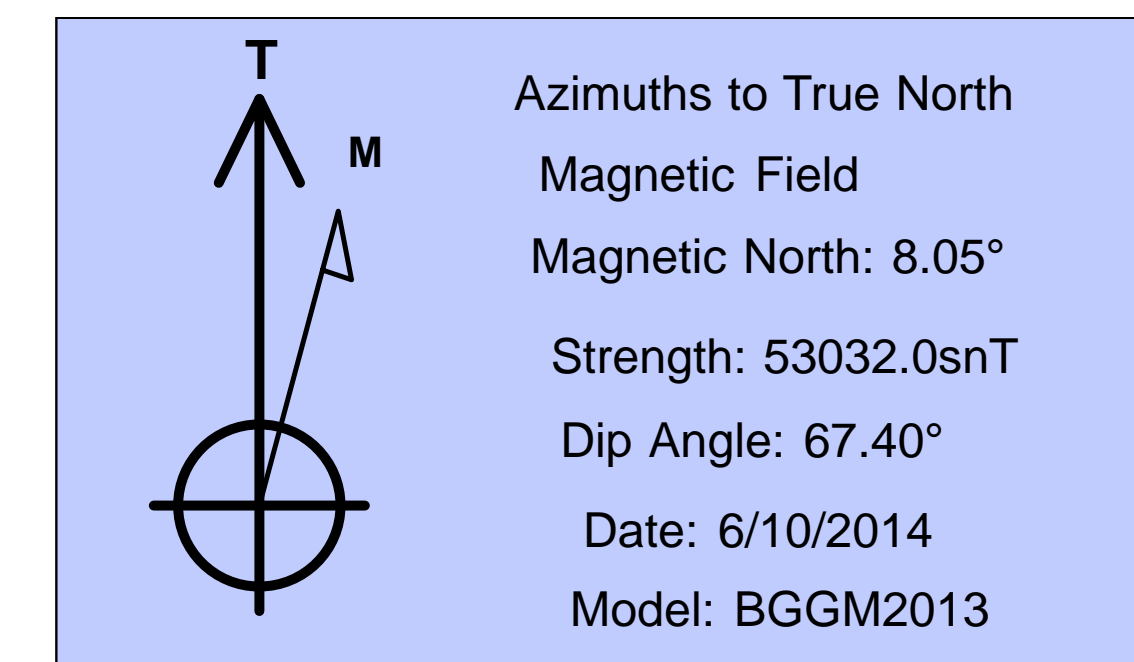
HALLIBURTON

Project: Weld County, CO
Site: Sec. 29-T10N-R58W
Well: Razor #29H-2015
Wellbore: Plan A
Plan: Rev A0

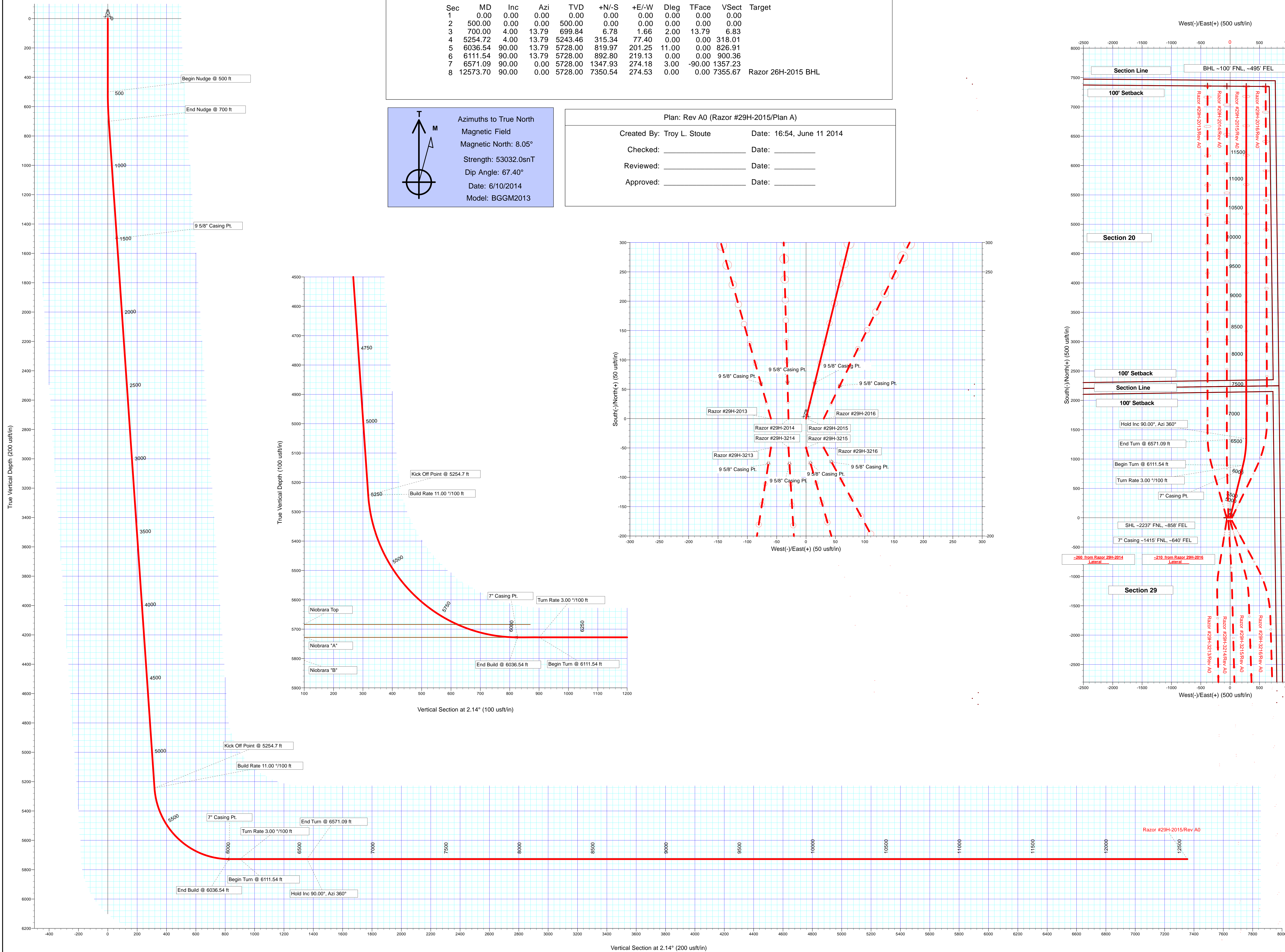
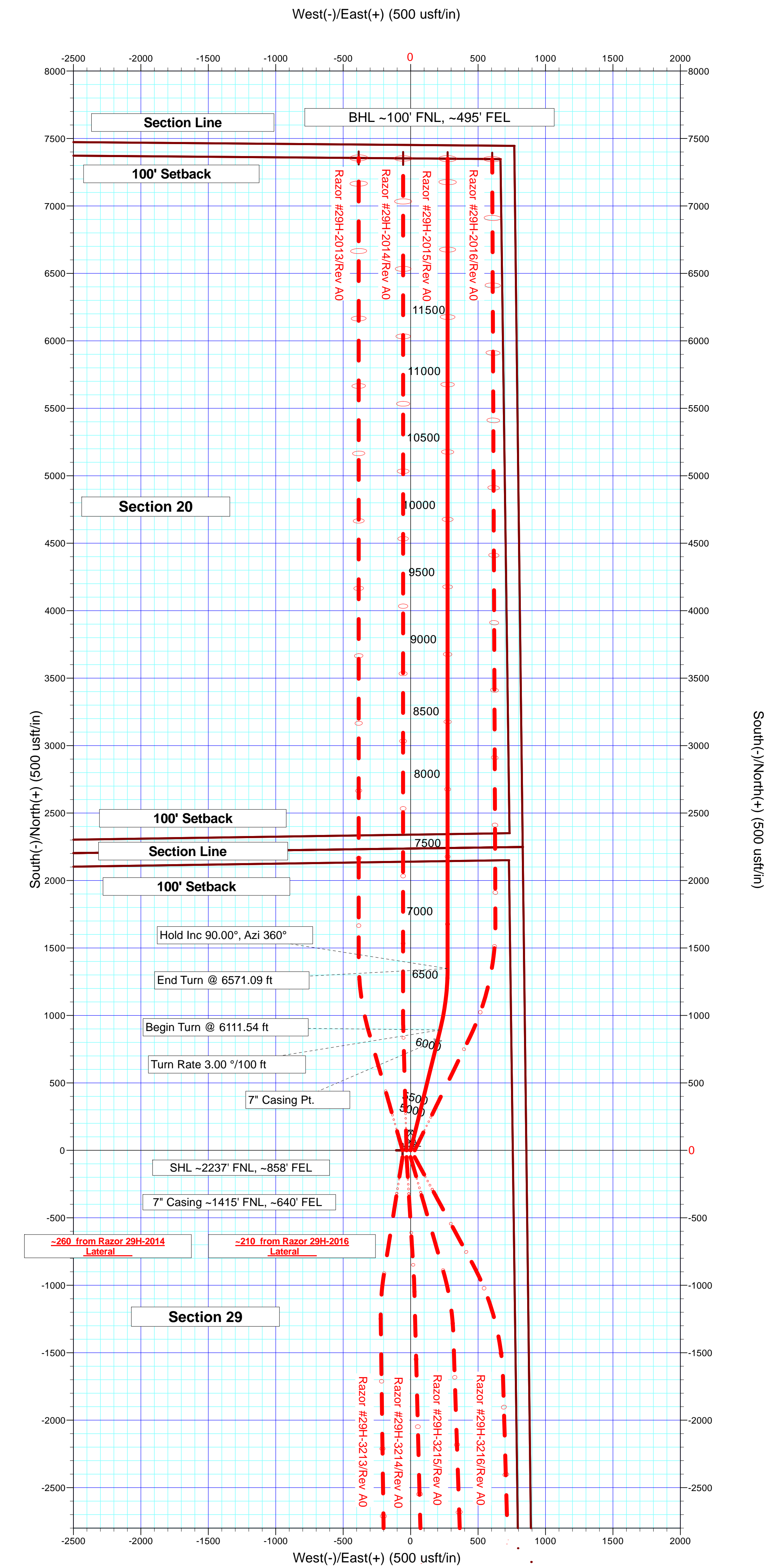
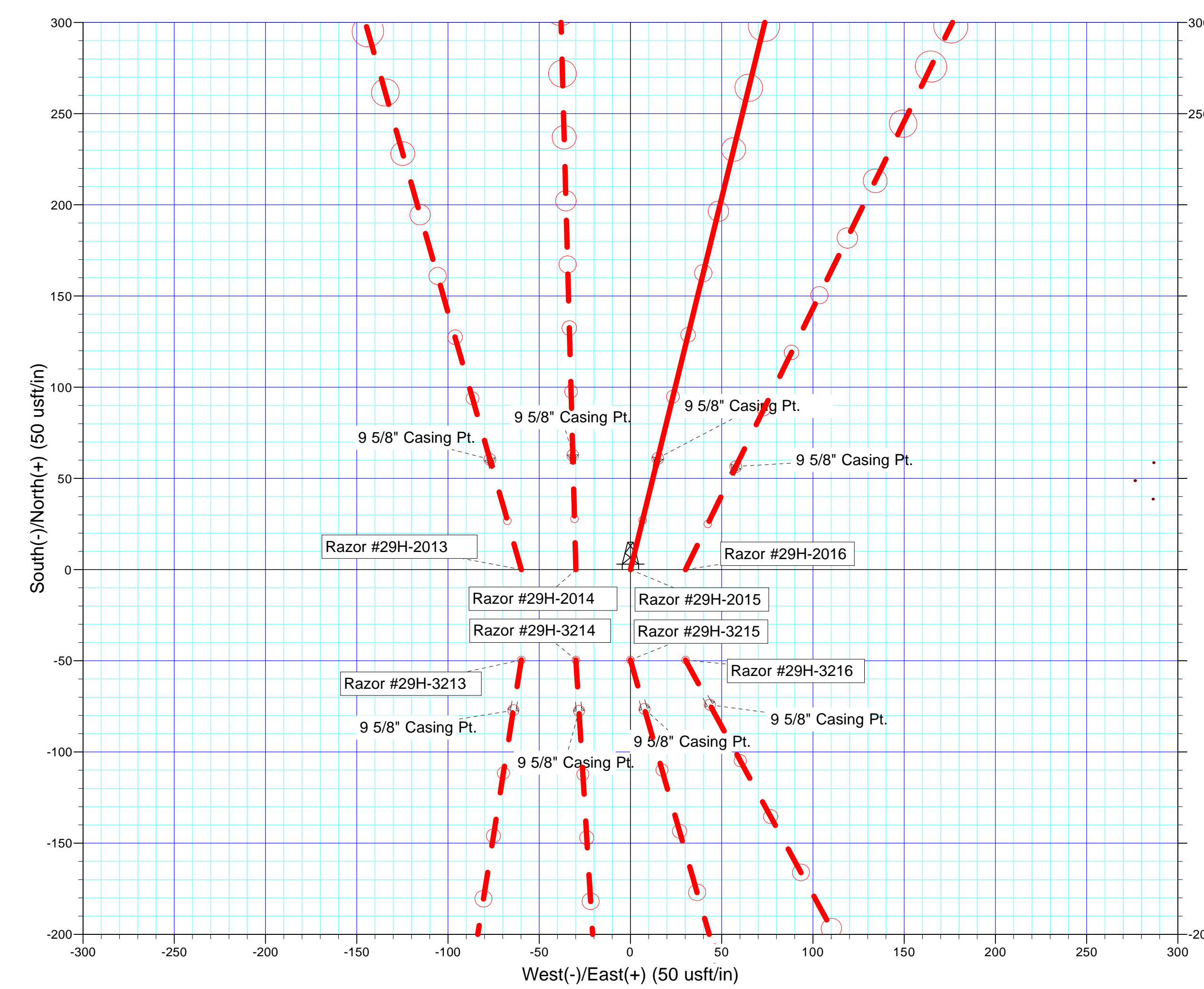
Whiting Oil and Gas Corporation



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	700.00	4.00	13.79	699.84	6.78	1.66	2.00	13.79	6.83	
4	5254.72	4.00	13.79	5243.46	315.34	77.40	0.00	0.00	318.01	
5	6036.54	90.00	13.79	5728.00	819.97	201.25	11.00	0.00	826.91	
6	6111.54	90.00	0.00	5728.00	892.80	219.13	0.00	0.00	900.36	
7	6571.09	90.00	0.00	5728.00	1347.93	274.18	3.00	-90.00	1357.23	
8	12573.70	90.00	0.00	5728.00	7350.54	274.53	0.00	0.00	7355.67	Razor 26H-2015 BHL



Plan: Rev A0 (Razor #29H-2015/Plan A)	
Created By: Troy L. Stoute	Date: 16:54, June 11 2014
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____



Plan Report for Razor #29H-2015 - Rev A0

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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 500 ft										
600.00	2.00	13.79	599.98	1.69	0.42	1.71	2.00	2.00	0.00	13.79
700.00	4.00	13.79	699.84	6.78	1.66	6.83	2.00	2.00	0.00	0.00
End Nudge @ 700 ft										
800.00	4.00	13.79	799.59	13.55	3.33	13.67	0.00	0.00	0.00	0.00
900.00	4.00	13.79	899.35	20.33	4.99	20.50	0.00	0.00	0.00	0.00
1,000.00	4.00	13.79	999.11	27.10	6.65	27.33	0.00	0.00	0.00	0.00
1,100.00	4.00	13.79	1,098.86	33.88	8.31	34.16	0.00	0.00	0.00	0.00
1,200.00	4.00	13.79	1,198.62	40.65	9.98	40.99	0.00	0.00	0.00	0.00
1,300.00	4.00	13.79	1,298.38	47.42	11.64	47.83	0.00	0.00	0.00	0.00
1,400.00	4.00	13.79	1,398.13	54.20	13.30	54.66	0.00	0.00	0.00	0.00
1,436.96	4.00	13.79	1,435.00	56.70	13.92	57.18	0.00	0.00	0.00	0.00
Pierre										
1,500.00	4.00	13.79	1,497.89	60.97	14.97	61.49	0.00	0.00	0.00	0.00
1,502.12	4.00	13.79	1,500.00	61.12	15.00	61.63	0.00	0.00	0.00	0.00
9 5/8" Casing Pt.										
1,600.00	4.00	13.79	1,597.65	67.75	16.63	68.32	0.00	0.00	0.00	0.00
1,700.00	4.00	13.79	1,697.40	74.52	18.29	75.15	0.00	0.00	0.00	0.00
1,800.00	4.00	13.79	1,797.16	81.30	19.95	81.99	0.00	0.00	0.00	0.00
1,900.00	4.00	13.79	1,896.91	88.07	21.62	88.82	0.00	0.00	0.00	0.00
2,000.00	4.00	13.79	1,996.67	94.85	23.28	95.65	0.00	0.00	0.00	0.00
2,100.00	4.00	13.79	2,096.43	101.62	24.94	102.48	0.00	0.00	0.00	0.00
2,200.00	4.00	13.79	2,196.18	108.40	26.60	109.31	0.00	0.00	0.00	0.00
2,300.00	4.00	13.79	2,295.94	115.17	28.27	116.15	0.00	0.00	0.00	0.00
2,400.00	4.00	13.79	2,395.70	121.95	29.93	122.98	0.00	0.00	0.00	0.00
2,500.00	4.00	13.79	2,495.45	128.72	31.59	129.81	0.00	0.00	0.00	0.00
2,600.00	4.00	13.79	2,595.21	135.49	33.26	136.64	0.00	0.00	0.00	0.00
2,700.00	4.00	13.79	2,694.97	142.27	34.92	143.47	0.00	0.00	0.00	0.00
2,800.00	4.00	13.79	2,794.72	149.04	36.58	150.30	0.00	0.00	0.00	0.00
2,900.00	4.00	13.79	2,894.48	155.82	38.24	157.14	0.00	0.00	0.00	0.00
3,000.00	4.00	13.79	2,994.23	162.59	39.91	163.97	0.00	0.00	0.00	0.00
3,100.00	4.00	13.79	3,093.99	169.37	41.57	170.80	0.00	0.00	0.00	0.00
3,200.00	4.00	13.79	3,193.75	176.14	43.23	177.63	0.00	0.00	0.00	0.00
3,300.00	4.00	13.79	3,293.50	182.92	44.89	184.46	0.00	0.00	0.00	0.00
3,400.00	4.00	13.79	3,393.26	189.69	46.56	191.30	0.00	0.00	0.00	0.00
3,500.00	4.00	13.79	3,493.02	196.47	48.22	198.13	0.00	0.00	0.00	0.00
3,600.00	4.00	13.79	3,592.77	203.24	49.88	204.96	0.00	0.00	0.00	0.00
3,700.00	4.00	13.79	3,692.53	210.01	51.55	211.79	0.00	0.00	0.00	0.00
3,800.00	4.00	13.79	3,792.29	216.79	53.21	218.62	0.00	0.00	0.00	0.00
3,900.00	4.00	13.79	3,892.04	223.56	54.87	225.46	0.00	0.00	0.00	0.00
4,000.00	4.00	13.79	3,991.80	230.34	56.53	232.29	0.00	0.00	0.00	0.00
4,100.00	4.00	13.79	4,091.56	237.11	58.20	239.12	0.00	0.00	0.00	0.00
4,200.00	4.00	13.79	4,191.31	243.89	59.86	245.95	0.00	0.00	0.00	0.00
4,300.00	4.00	13.79	4,291.07	250.66	61.52	252.78	0.00	0.00	0.00	0.00
4,400.00	4.00	13.79	4,390.82	257.44	63.18	259.62	0.00	0.00	0.00	0.00
4,500.00	4.00	13.79	4,490.58	264.21	64.85	266.45	0.00	0.00	0.00	0.00
4,600.00	4.00	13.79	4,590.34	270.99	66.51	273.28	0.00	0.00	0.00	0.00
4,700.00	4.00	13.79	4,690.09	277.76	68.17	280.11	0.00	0.00	0.00	0.00
4,800.00	4.00	13.79	4,789.85	284.54	69.84	286.94	0.00	0.00	0.00	0.00
4,900.00	4.00	13.79	4,889.61	291.31	71.50	293.78	0.00	0.00	0.00	0.00
5,000.00	4.00	13.79	4,989.36	298.08	73.16	300.61	0.00	0.00	0.00	0.00
5,100.00	4.00	13.79	5,089.12	304.86	74.82	307.44	0.00	0.00	0.00	0.00
5,200.00	4.00	13.79	5,188.88	311.63	76.49	314.27	0.00	0.00	0.00	0.00
5,254.70	4.00	13.79	5,243.44	315.34	77.40	318.01	0.00	0.00	0.00	0.00
Kick Off Point @ 5254.7 ft - Build Rate 11.00 °/100 ft										
5,254.72	4.00	13.79	5,243.46	315.34	77.40	318.01	0.00	0.00	0.00	0.00

Plan Report for Razor #29H-2015 - Rev A0

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 (°)
5,300.00	8.98	13.79	5,288.44	320.31	78.62	323.02	11.00	11.00	0.00	0.00
5,400.00	19.98	13.79	5,385.11	344.56	84.57	347.47	11.00	11.00	0.00	0.00
5,500.00	30.98	13.79	5,475.25	386.27	94.81	389.54	11.00	11.00	0.00	0.00
5,600.00	41.98	13.79	5,555.53	443.93	108.96	447.68	11.00	11.00	0.00	0.00
5,700.00	52.98	13.79	5,623.01	515.40	126.50	519.76	11.00	11.00	0.00	0.00
5,800.00	63.98	13.79	5,675.21	598.06	146.79	603.12	11.00	11.00	0.00	0.00
5,820.91	66.28	13.79	5,684.00	616.48	151.31	621.70	11.00	11.00	0.00	0.00
Niobrara Top										
5,900.00	74.98	13.79	5,710.21	688.88	169.08	694.71	11.00	11.00	0.00	0.00
6,000.00	85.98	13.79	5,726.72	784.51	192.55	791.15	11.00	11.00	0.00	0.00
6,036.54	90.00	13.79	5,728.00	819.97	201.25	826.91	11.00	11.00	0.00	0.00
End Build @ 6036.54 ft - Niobrara "A" - 7" Casing Pt.										
6,100.00	90.00	13.79	5,728.00	881.60	216.38	889.06	0.00	0.00	0.00	0.00
6,111.54	90.00	13.79	5,728.00	892.81	219.13	900.36	0.00	0.00	0.00	0.00
Turn Rate 3.00 °/100 ft - Begin Turn @ 6111.54 ft										
6,200.00	90.00	11.14	5,728.00	979.17	238.22	987.38	3.00	0.00	-3.00	-90.00
6,300.00	90.00	8.14	5,728.00	1,077.75	254.95	1,086.52	3.00	0.00	-3.00	-90.00
6,400.00	90.00	5.14	5,728.00	1,177.07	266.51	1,186.20	3.00	0.00	-3.00	-90.00
6,500.00	90.00	2.14	5,728.00	1,276.86	272.85	1,286.15	3.00	0.00	-3.00	-90.00
6,571.09	90.00	0.00	5,728.00	1,347.93	274.18	1,357.22	3.00	0.00	-3.00	-90.00
Hold Inc 90.00°, Azi 360° - End Turn @ 6571.09 ft										
6,600.00	90.00	0.00	5,728.00	1,376.84	274.18	1,386.11	0.00	0.00	0.00	-90.00
6,700.00	90.00	0.00	5,728.00	1,476.84	274.19	1,486.04	0.00	0.00	0.00	0.00
6,800.00	90.00	0.00	5,728.00	1,576.84	274.19	1,585.98	0.00	0.00	0.00	0.00
6,900.00	90.00	0.00	5,728.00	1,676.84	274.20	1,685.91	0.00	0.00	0.00	0.00
7,000.00	90.00	0.00	5,728.00	1,776.84	274.20	1,785.84	0.00	0.00	0.00	0.00
7,100.00	90.00	0.00	5,728.00	1,876.84	274.21	1,885.77	0.00	0.00	0.00	0.00
7,200.00	90.00	0.00	5,728.00	1,976.84	274.21	1,985.70	0.00	0.00	0.00	0.00
7,300.00	90.00	0.00	5,728.00	2,076.84	274.22	2,085.63	0.00	0.00	0.00	0.00
7,400.00	90.00	0.00	5,728.00	2,176.84	274.23	2,185.56	0.00	0.00	0.00	0.00
7,500.00	90.00	0.00	5,728.00	2,276.84	274.23	2,285.49	0.00	0.00	0.00	0.00
7,600.00	90.00	0.00	5,728.00	2,376.84	274.24	2,385.42	0.00	0.00	0.00	0.00
7,700.00	90.00	0.00	5,728.00	2,476.84	274.24	2,485.35	0.00	0.00	0.00	0.00
7,800.00	90.00	0.00	5,728.00	2,576.84	274.25	2,585.28	0.00	0.00	0.00	0.00
7,900.00	90.00	0.00	5,728.00	2,676.84	274.26	2,685.21	0.00	0.00	0.00	0.00
8,000.00	90.00	0.00	5,728.00	2,776.84	274.26	2,785.14	0.00	0.00	0.00	0.00
8,100.00	90.00	0.00	5,728.00	2,876.84	274.27	2,885.07	0.00	0.00	0.00	0.00
8,200.00	90.00	0.00	5,728.00	2,976.84	274.27	2,985.00	0.00	0.00	0.00	0.00
8,300.00	90.00	0.00	5,728.00	3,076.84	274.28	3,084.93	0.00	0.00	0.00	0.00
8,400.00	90.00	0.00	5,728.00	3,176.84	274.28	3,184.86	0.00	0.00	0.00	0.00
8,500.00	90.00	0.00	5,728.00	3,276.84	274.29	3,284.79	0.00	0.00	0.00	0.00
8,600.00	90.00	0.00	5,728.00	3,376.84	274.30	3,384.72	0.00	0.00	0.00	0.00
8,700.00	90.00	0.00	5,728.00	3,476.84	274.30	3,484.66	0.00	0.00	0.00	0.00
8,800.00	90.00	0.00	5,728.00	3,576.84	274.31	3,584.59	0.00	0.00	0.00	0.00
8,900.00	90.00	0.00	5,728.00	3,676.84	274.31	3,684.52	0.00	0.00	0.00	0.00
9,000.00	90.00	0.00	5,728.00	3,776.84	274.32	3,784.45	0.00	0.00	0.00	0.00
9,100.00	90.00	0.00	5,728.00	3,876.84	274.32	3,884.38	0.00	0.00	0.00	0.00
9,200.00	90.00	0.00	5,728.00	3,976.84	274.33	3,984.31	0.00	0.00	0.00	0.00
9,300.00	90.00	0.00	5,728.00	4,076.84	274.34	4,084.24	0.00	0.00	0.00	0.00
9,400.00	90.00	0.00	5,728.00	4,176.84	274.34	4,184.17	0.00	0.00	0.00	0.00
9,500.00	90.00	0.00	5,728.00	4,276.84	274.35	4,284.10	0.00	0.00	0.00	0.00
9,600.00	90.00	0.00	5,728.00	4,376.84	274.35	4,384.03	0.00	0.00	0.00	0.00
9,700.00	90.00	0.00	5,728.00	4,476.84	274.36	4,483.96	0.00	0.00	0.00	0.00
9,800.00	90.00	0.00	5,728.00	4,576.84	274.37	4,583.89	0.00	0.00	0.00	0.00
9,900.00	90.00	0.00	5,728.00	4,676.84	274.37	4,683.82	0.00	0.00	0.00	0.00
10,000.00	90.00	0.00	5,728.00	4,776.84	274.38	4,783.75	0.00	0.00	0.00	0.00
10,100.00	90.00	0.00	5,728.00	4,876.84	274.38	4,883.68	0.00	0.00	0.00	0.00
10,200.00	90.00	0.00	5,728.00	4,976.84	274.39	4,983.61	0.00	0.00	0.00	0.00
10,300.00	90.00	0.00	5,728.00	5,076.84	274.39	5,083.54	0.00	0.00	0.00	0.00

Plan Report for Razor #29H-2015 - Rev A0

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 (°)
10,400.00	90.00	0.00	5,728.00	5,176.84	274.40	5,183.47	0.00	0.00	0.00	0.00
10,500.00	90.00	0.00	5,728.00	5,276.84	274.41	5,283.41	0.00	0.00	0.00	0.00
10,600.00	90.00	0.00	5,728.00	5,376.84	274.41	5,383.34	0.00	0.00	0.00	0.00
10,700.00	90.00	0.00	5,728.00	5,476.84	274.42	5,483.27	0.00	0.00	0.00	0.00
10,800.00	90.00	0.00	5,728.00	5,576.84	274.42	5,583.20	0.00	0.00	0.00	0.00
10,900.00	90.00	0.00	5,728.00	5,676.84	274.43	5,683.13	0.00	0.00	0.00	0.00
11,000.00	90.00	0.00	5,728.00	5,776.84	274.43	5,783.06	0.00	0.00	0.00	0.00
11,100.00	90.00	0.00	5,728.00	5,876.84	274.44	5,882.99	0.00	0.00	0.00	0.00
11,200.00	90.00	0.00	5,728.00	5,976.84	274.45	5,982.92	0.00	0.00	0.00	0.00
11,300.00	90.00	0.00	5,728.00	6,076.84	274.45	6,082.85	0.00	0.00	0.00	0.00
11,400.00	90.00	0.00	5,728.00	6,176.84	274.46	6,182.78	0.00	0.00	0.00	0.00
11,500.00	90.00	0.00	5,728.00	6,276.84	274.46	6,282.71	0.00	0.00	0.00	0.00
11,600.00	90.00	0.00	5,728.00	6,376.84	274.47	6,382.64	0.00	0.00	0.00	0.00
11,700.00	90.00	0.00	5,728.00	6,476.84	274.48	6,482.57	0.00	0.00	0.00	0.00
11,800.00	90.00	0.00	5,728.00	6,576.84	274.48	6,582.50	0.00	0.00	0.00	0.00
11,900.00	90.00	0.00	5,728.00	6,676.84	274.49	6,682.43	0.00	0.00	0.00	0.00
12,000.00	90.00	0.00	5,728.00	6,776.84	274.49	6,782.36	0.00	0.00	0.00	0.00
12,100.00	90.00	0.00	5,728.00	6,876.84	274.50	6,882.29	0.00	0.00	0.00	0.00
12,200.00	90.00	0.00	5,728.00	6,976.84	274.50	6,982.22	0.00	0.00	0.00	0.00
12,300.00	90.00	0.00	5,728.00	7,076.84	274.51	7,082.16	0.00	0.00	0.00	0.00
12,400.00	90.00	0.00	5,728.00	7,176.84	274.52	7,182.09	0.00	0.00	0.00	0.00
12,500.00	90.00	0.00	5,728.00	7,276.84	274.52	7,282.02	0.00	0.00	0.00	0.00
12,573.69	90.00	0.00	5,728.00	7,350.53	274.53	7,355.65	0.00	0.00	0.00	0.00
Total Depth 12573.69 ft										
12,573.70	90.00	0.00	5,728.00	7,350.54	274.53	7,355.67	0.01	0.00	0.00	0.00

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Begin Nudge @ 500 ft
700.00	699.84	6.78	1.66	End Nudge @ 700 ft
5,254.70	5,243.44	315.34	77.40	Kick Off Point @ 5254.7 ft
5,254.70	5,243.44	315.34	77.40	Build Rate 11.00 °/100 ft
6,036.54	5,728.00	819.97	201.25	End Build @ 6036.54 ft
6,111.54	5,728.00	892.81	219.13	Turn Rate 3.00 °/100 ft
6,111.54	5,728.00	892.81	219.13	Begin Turn @ 6111.54 ft
6,571.09	5,728.00	1,347.93	274.18	Hold Inc 90.00°, Azi 360°
6,571.09	5,728.00	1,347.93	274.18	End Turn @ 6571.09 ft
12,573.69	5,728.00	7,350.53	274.53	Total Depth 12573.69 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
Target	Razor 26H-2015 BHL	2.14	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	1,500.00	Rev A0	MWD+IFR1+MS+sag
1,500.00	6,036.54	Rev A0	MWD+IFR1+MS+sag
6,036.54	12,573.27	Rev A0	MWD+IFR1+MS+sag

Plan Report for Razor #29H-2015 - Rev A0**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,502.12	1,500.00	9 5/8" Casing Pt.	9-5/8	13-1/2
6,036.54	5,728.00	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,436.96	1,435.00	Pierre		0.00	
5,820.91	5,684.00	Niobrara Top		0.00	
6,036.54	5,728.00	Niobrara "A"		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Razor Section 32 Lines	0.00	0.01	-59.79	Polygon
Razor Section 20 Lines	0.00	0.01	-59.79	Polygon
Razor Section 29 Lines	0.00	0.01	-59.79	Polygon
Razor Section 32 100' Setback	0.00	0.01	-59.79	Polygon
Razor Section 29 100' Setback	0.00	0.01	-59.79	Polygon
Razor Section 20 100' Setback	0.00	0.01	-59.79	Polygon
Razor 26H-2015 BHL	5,728.00	7,350.54	274.53	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.83 °/100usft	Maximum Dogleg over Survey:	11.00 °/100usft at 6,036.54 usft
Net Tortousity applicable to Plans:	0.83 °/100usft	Directional Difficulty Index:	6.322

Audit Info

North Reference Sheet for Sec. 29-T10N-R58W - Razor #29H-2015 - Plan A

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

Vertical Depths are relative to KB 17' @ 4879.00usft (Original Well Elev). Northing and Easting are relative to Razor #29H-2015

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: 1.00000452

Grid Coordinates of Well: 1,542,190.46 usft N, 3,447,598.56 usft E

Geographical Coordinates of Well: 40° 48' 37.77" N, 103° 52' 58.81" W

Grid Convergence at Surface is: 1.04°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,573.70usft
the Bottom Hole Displacement is 7,355.67usft in the Direction of 2.14° (True).

Magnetic Convergence at surface is: -7.00° (10 June 2014, , BGGM2013)

