

SPERRY-SUN DRILLING SERVICES

CERTIFIED SURVEY WORK SHEET


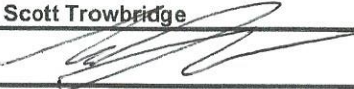
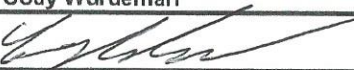
OPERATOR:	Whiting Oil and Gas
WELL:	Razor 27J-2211A
FIELD:	Red Tail
RIG:	Frontier 26
LEGALS:	Sec. 27-T10N-R58W
COUNTY:	Weld
STATE:	Colorado
CAL. METHOD:	Minimum Curvature
MAG. DECL. APPLIED:	7.51
VERTICAL SEC. DIR. :	359.62

SSDS Job Number :	901620473
Start Date of Job :	10/29/2014
End Date of Job :	11/5/2014
Lead Directional Driller:	Randy Bernatow
Directional Driller	Wes Garrett
Other SSDS DD's :	0
SSDS MWD Engineers :	Scott Trowbridge
MWD :	Cody Wurdeman
MWD	0

Geo Pilot Engineer :

	Main Hole =====>	1st Side Track =====>	2nd Side Track =====>	3rd Side Track =====>	4th Side Track =====>
First MWD Survey Depth	176.00	MWD	Tie On	Tie On	Tie On
Last Wireline Survey		ESS	MWD		
		Gyro			
	5044.00	KOP	KOP-ST1	KOP-ST2	KOP-ST3
		MWD	MWD	MWD	MWD
Last MWD Survey Depth	13587.00	MWD	MWD	MWD	MWD
Bit Extrapolation @ TD	13630.00	T.D.	T.D.	T.D.	T.D.

The following Sperry Drilling Services personnel, certify the above survey information to be accurate to the best of our knowledge:

Print Name : Randy Bernatow	Print Name : Scott Trowbridge	Print Name :
Sign Name : 	Sign Name : 	Sign Name :
Print Name : Wes Garrett	Print Name : Cody Wurdeman	Print Name : 0
Sign Name :	Sign Name : 	Sign Name :

Examples of
Survey Types:

Tie On
MWD
ESS
Gyro
SS

Tie On to Surface Casing (Assumed Vertical), Tie On to existing MWD Survey (prior drilled hole)
 Sperry-Sun Drilling Services (SSDS) Measurement While Drilling (MWD) Survey's
 Sperry-Sun Drilling Services (SSDS) Electronic Survey System (ESS) Survey's
 Gyro Survey's ; Provided by third party vendor, or by Sperry-Sun Drilling Services (SSDS)
 Single Shot (SS) Survey's ; Provided by Sperry-Sun Drilling Services (SSDS) or third party vendor.

Whiting Oil and Gas Corporation

Weld County, CO

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

Razor #27J-2211A

Plan C

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

02 December, 2014

Well Coordinates: 1,541,695.00 N, 3,457,136.06 E (40° 48' 31.14" N, 103° 50' 54.92" W)

Ground Level: 4,767.00 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-2211A

KB 22 ft @ 4789.00usft (Frontier 26)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Design Report for Razor #27J-2211A - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176.00	0.19	325.25	176.00	0.24	-0.17	0.24	0.11
First Sperry MWD Survey @ 176.00 ft							
267.00	0.16	321.36	267.00	0.46	-0.33	0.47	0.04
358.00	0.23	357.19	358.00	0.74	-0.42	0.75	0.15
450.00	0.34	0.84	450.00	1.20	-0.43	1.20	0.12
543.00	0.21	19.93	543.00	1.64	-0.36	1.64	0.17
634.00	0.37	8.56	634.00	2.09	-0.26	2.09	0.19
726.00	0.35	55.63	725.99	2.54	0.01	2.54	0.31
818.00	0.48	47.90	817.99	2.95	0.53	2.95	0.15
910.00	0.33	51.91	909.99	3.38	1.03	3.37	0.17
1,002.00	0.57	59.07	1,001.99	3.78	1.63	3.76	0.27
1,093.00	0.40	52.23	1,092.98	4.20	2.27	4.19	0.20
1,185.00	0.68	82.17	1,184.98	4.47	3.06	4.45	0.42
1,277.00	0.76	108.59	1,276.97	4.35	4.18	4.33	0.37
1,369.00	1.32	113.20	1,368.96	3.74	5.73	3.70	0.61
1,460.00	1.04	167.70	1,459.94	2.52	6.87	2.48	1.22
1,551.00	0.82	178.43	1,550.93	1.06	7.07	1.02	0.31
1,563.00	0.63	185.89	1,562.93	0.91	7.06	0.87	1.76
1,582.00	0.84	179.57	1,581.93	0.67	7.05	0.62	1.18
9 5/8"							
1,641.00	1.52	171.42	1,640.91	-0.54	7.17	-0.58	1.18
1,732.00	3.26	194.99	1,731.83	-4.23	6.68	-4.27	2.16
1,823.00	3.20	190.25	1,822.69	-9.23	5.56	-9.27	0.30
1,914.00	2.86	208.93	1,913.56	-13.72	4.01	-13.74	1.14
2,006.00	3.87	247.56	2,005.41	-16.91	0.03	-16.91	2.63
2,097.00	3.83	245.92	2,096.21	-19.32	-5.58	-19.29	0.13
2,189.00	3.48	254.98	2,188.02	-21.30	-11.08	-21.23	0.73
2,280.00	3.30	253.85	2,278.86	-22.74	-16.27	-22.64	0.21
2,372.00	2.74	252.30	2,370.73	-24.15	-20.91	-24.01	0.62
2,463.00	3.77	230.78	2,461.59	-26.70	-25.30	-26.54	1.74
2,555.00	3.55	231.00	2,553.40	-30.41	-29.85	-30.21	0.24
2,646.00	3.72	228.35	2,644.22	-34.14	-34.25	-33.92	0.26
2,737.00	3.61	201.86	2,735.04	-38.76	-37.52	-38.52	1.85
2,829.00	3.37	205.05	2,826.87	-43.90	-39.74	-43.64	0.34
2,920.00	3.41	202.59	2,917.71	-48.82	-41.92	-48.55	0.17
3,012.00	3.02	206.42	3,009.56	-53.52	-44.05	-53.23	0.48
3,103.00	2.47	200.78	3,100.46	-57.50	-45.81	-57.20	0.67
3,195.00	2.07	197.17	3,192.39	-60.94	-47.00	-60.63	0.46
3,286.00	2.32	199.20	3,283.32	-64.25	-48.09	-63.93	0.29
3,378.00	1.45	241.56	3,375.27	-66.56	-49.73	-66.24	1.72
3,470.00	1.59	226.89	3,467.24	-67.99	-51.68	-67.65	0.45
3,561.00	1.57	241.75	3,558.21	-69.44	-53.70	-69.09	0.45
3,653.00	1.23	130.68	3,650.19	-70.68	-54.07	-70.33	2.52
3,745.00	0.75	248.72	3,742.18	-71.54	-53.88	-71.19	1.86
3,836.00	1.38	219.66	3,833.17	-72.60	-55.13	-72.24	0.89
3,928.00	0.09	19.34	3,925.16	-73.39	-55.82	-73.02	1.59
4,019.00	0.50	92.32	4,016.16	-73.34	-55.40	-72.97	0.53
4,110.00	0.72	69.67	4,107.15	-73.16	-54.46	-72.80	0.35
4,202.00	1.23	60.01	4,199.14	-72.46	-53.06	-72.11	0.58

Design Report for Razor #27J-2211A - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,293.00	1.73	70.76	4,290.11	-71.52	-50.92	-71.18	0.63
4,385.00	2.14	69.66	4,382.06	-70.47	-48.00	-70.15	0.45
4,477.00	1.32	53.51	4,474.02	-69.24	-45.54	-68.94	1.03
4,568.00	1.31	58.44	4,564.99	-68.07	-43.81	-67.78	0.12
4,659.00	1.03	71.75	4,655.97	-67.27	-42.15	-66.99	0.43
4,751.00	2.02	335.29	4,747.95	-65.54	-42.04	-65.26	2.57
4,843.00	1.45	340.14	4,839.91	-62.97	-43.11	-62.69	0.64
4,935.00	0.80	358.82	4,931.89	-61.23	-43.52	-60.95	0.80
5,027.00	0.34	96.61	5,023.89	-60.62	-43.26	-60.34	0.99
5,058.00	2.21	308.57	5,054.88	-60.26	-43.64	-59.97	8.08
5,089.00	5.13	334.87	5,085.81	-58.63	-44.69	-58.34	10.64
5,119.00	8.10	351.95	5,115.61	-55.32	-45.56	-55.02	11.77
5,150.00	12.82	356.48	5,146.09	-49.73	-46.08	-49.42	15.44
5,181.00	16.20	354.49	5,176.10	-41.99	-46.70	-41.68	11.02
5,211.00	19.17	0.18	5,204.68	-32.89	-47.09	-32.58	11.44
5,242.00	24.08	5.66	5,233.49	-21.50	-46.45	-21.20	17.11
5,272.00	25.64	1.68	5,260.71	-8.92	-45.66	-8.62	7.62
5,303.00	27.06	359.72	5,288.49	4.83	-45.49	5.13	5.37
5,333.00	26.81	357.25	5,315.24	18.42	-45.85	18.72	3.82
5,363.00	27.74	355.33	5,341.90	32.13	-46.75	32.44	4.27
5,394.00	29.69	354.00	5,369.09	46.96	-48.14	47.28	6.62
5,425.00	34.16	0.08	5,395.40	63.31	-48.93	63.63	17.75
5,455.00	38.08	0.92	5,419.63	80.99	-48.77	81.31	13.17
5,486.00	43.07	2.63	5,443.17	101.14	-48.13	101.45	16.49
5,517.00	46.19	2.52	5,465.23	122.89	-47.15	123.20	10.07
5,548.00	49.19	0.21	5,486.09	145.80	-46.61	146.11	11.14
5,578.00	51.74	359.15	5,505.19	168.94	-46.75	169.24	8.93
5,610.00	54.34	357.74	5,524.43	194.50	-47.45	194.80	8.85
5,642.00	57.24	355.76	5,542.42	220.91	-48.95	221.23	10.41
5,673.00	59.41	355.85	5,558.70	247.22	-50.88	247.55	7.00
5,705.00	61.57	356.84	5,574.46	275.01	-52.66	275.35	7.27
5,737.00	63.39	358.13	5,589.24	303.36	-53.90	303.71	6.72
5,768.00	65.20	357.90	5,602.69	331.28	-54.87	331.63	5.88
5,800.00	68.07	358.16	5,615.38	360.63	-55.88	360.99	9.00
5,831.00	71.18	358.21	5,626.17	389.67	-56.80	390.04	10.03
5,863.00	73.64	358.39	5,635.84	420.16	-57.70	420.53	7.71
5,895.00	76.85	359.38	5,643.99	451.10	-58.30	451.47	10.47
5,926.00	81.35	0.09	5,649.85	481.53	-58.44	481.90	14.69
5,957.00	83.33	0.52	5,653.98	512.25	-58.28	512.62	6.53
5,977.00	84.22	0.99	5,656.15	532.13	-58.01	532.50	5.03
6,069.00	86.73	2.15	5,663.41	623.80	-55.50	624.15	3.00
7"							
6,093.00	87.38	2.45	5,664.65	647.75	-54.54	648.09	3.00
6,188.00	88.24	1.81	5,668.28	742.61	-51.01	742.93	1.13
6,282.00	89.51	0.47	5,670.12	836.57	-49.14	836.88	1.96
6,377.00	91.54	0.07	5,669.25	931.56	-48.69	931.86	2.18
6,471.00	91.82	359.24	5,666.49	1,025.52	-49.26	1,025.82	0.93
6,566.00	92.22	358.48	5,663.15	1,120.44	-51.15	1,120.75	0.90
6,661.00	93.02	357.70	5,658.80	1,215.29	-54.31	1,215.62	1.18
6,755.00	91.81	359.46	5,654.84	1,309.17	-56.64	1,309.51	2.27
6,850.00	91.29	0.33	5,652.27	1,404.13	-56.81	1,404.47	1.07

Design Report for Razor #27J-2211A - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
6,945.00	87.75	359.22	5,653.07	1,499.11	-57.18	1,499.45	3.91
7,039.00	87.53	358.74	5,656.94	1,593.02	-58.86	1,593.37	0.56
7,134.00	88.71	1.30	5,660.06	1,687.95	-58.82	1,688.30	2.97
7,228.00	90.92	1.67	5,660.36	1,781.92	-56.39	1,782.25	2.38
7,323.00	90.89	1.09	5,658.86	1,876.88	-54.10	1,877.19	0.61
7,417.00	90.55	0.92	5,657.68	1,970.86	-52.45	1,971.16	0.40
7,512.00	90.55	0.62	5,656.77	2,065.84	-51.17	2,066.13	0.32
7,606.00	90.25	0.06	5,656.11	2,159.84	-50.62	2,160.12	0.68
7,701.00	90.80	1.17	5,655.24	2,254.83	-49.60	2,255.10	1.30
7,796.00	90.83	0.78	5,653.89	2,349.80	-47.98	2,350.07	0.41
7,890.00	90.40	0.17	5,652.88	2,443.79	-47.20	2,444.05	0.79
7,985.00	91.38	0.55	5,651.40	2,538.78	-46.60	2,539.03	1.11
8,080.00	92.25	0.81	5,648.39	2,633.72	-45.48	2,633.97	0.96
8,175.00	91.51	359.46	5,645.28	2,728.67	-45.25	2,728.91	1.62
8,270.00	91.63	358.84	5,642.67	2,823.62	-46.66	2,823.87	0.66
8,365.00	89.38	358.02	5,641.84	2,918.58	-49.26	2,918.84	2.52
8,460.00	88.92	357.41	5,643.25	3,013.49	-53.05	3,013.77	0.80
8,555.00	89.48	358.68	5,644.57	3,108.42	-56.29	3,108.73	1.46
8,649.00	88.67	357.77	5,646.09	3,202.36	-59.20	3,202.68	1.30
8,740.00	87.44	358.44	5,649.18	3,293.26	-62.21	3,293.60	1.54
8,831.00	88.58	359.60	5,652.34	3,384.19	-63.77	3,384.53	1.79
8,923.00	89.66	0.03	5,653.75	3,476.18	-64.06	3,476.52	1.26
9,015.00	89.08	359.00	5,654.76	3,568.16	-64.84	3,568.51	1.28
9,106.00	88.92	359.93	5,656.35	3,659.15	-65.69	3,659.50	1.04
9,198.00	90.06	0.26	5,657.17	3,751.14	-65.54	3,751.49	1.29
9,289.00	88.43	359.54	5,658.37	3,842.13	-65.70	3,842.48	1.96
9,379.00	89.29	0.28	5,660.16	3,932.11	-65.84	3,932.46	1.26
9,470.00	90.34	1.22	5,660.45	4,023.10	-64.65	4,023.44	1.55
9,562.00	90.62	0.53	5,659.68	4,115.08	-63.24	4,115.41	0.81
9,652.00	90.96	1.41	5,658.44	4,205.06	-61.72	4,205.38	1.05
9,744.00	90.96	2.89	5,656.90	4,296.98	-58.27	4,297.27	1.61
9,835.00	90.03	1.39	5,656.12	4,387.91	-54.87	4,388.18	1.94
9,927.00	89.32	0.82	5,656.64	4,479.89	-53.10	4,480.14	0.99
10,019.00	88.74	1.00	5,658.19	4,571.87	-51.64	4,572.11	0.66
10,110.00	90.43	358.65	5,658.85	4,662.85	-51.91	4,663.09	3.18
10,201.00	91.20	358.56	5,657.56	4,753.82	-54.13	4,754.07	0.85
10,292.00	91.08	358.02	5,655.75	4,844.76	-56.84	4,845.03	0.61
10,383.00	90.77	357.60	5,654.28	4,935.68	-60.32	4,935.97	0.57
10,474.00	90.18	359.68	5,653.53	5,026.65	-62.48	5,026.95	2.38
10,566.00	90.34	358.95	5,653.11	5,118.64	-63.58	5,118.94	0.81
10,657.00	90.89	1.42	5,652.13	5,209.62	-63.29	5,209.93	2.78
10,749.00	89.20	1.42	5,652.06	5,301.59	-61.01	5,301.88	1.84
10,840.00	89.45	0.16	5,653.13	5,392.58	-59.75	5,392.85	1.41
10,932.00	88.12	0.22	5,655.08	5,484.55	-59.45	5,484.82	1.45
11,023.00	88.58	359.80	5,657.70	5,575.51	-59.43	5,575.78	0.68
11,115.00	87.07	0.52	5,661.19	5,667.44	-59.17	5,667.71	1.82
11,206.00	84.85	358.87	5,667.60	5,758.21	-59.66	5,758.48	3.04
11,297.00	86.39	359.20	5,674.55	5,848.93	-61.18	5,849.20	1.73
11,390.00	88.55	0.35	5,678.66	5,941.83	-61.55	5,942.10	2.63
11,480.00	88.86	359.39	5,680.69	6,031.80	-61.75	6,032.08	1.12
11,572.00	88.67	0.24	5,682.68	6,123.78	-62.05	6,124.06	0.95

Design Report for Razor #27J-2211A - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
11,664.00	89.48	0.45	5,684.16	6,215.77	-61.50	6,216.04	0.91
11,756.00	89.48	1.46	5,685.00	6,307.75	-59.96	6,308.01	1.10
11,848.00	90.71	0.60	5,684.84	6,399.73	-58.31	6,399.98	1.63
11,939.00	91.39	359.83	5,683.18	6,490.71	-57.97	6,490.95	1.13
12,032.00	90.06	1.90	5,682.00	6,583.69	-56.56	6,583.92	2.65
12,123.00	88.06	1.51	5,683.49	6,674.63	-53.86	6,674.84	2.24
12,215.00	89.72	2.65	5,685.27	6,766.55	-50.52	6,766.73	2.19
12,306.00	87.44	2.08	5,687.53	6,857.44	-46.76	6,857.60	2.58
12,399.00	87.10	1.72	5,691.96	6,950.28	-43.68	6,950.42	0.53
12,491.00	88.74	1.66	5,695.30	7,042.18	-40.97	7,042.29	1.78
12,582.00	89.41	1.24	5,696.77	7,133.13	-38.67	7,133.23	0.87
12,674.00	89.63	0.49	5,697.54	7,225.12	-37.28	7,225.21	0.85
12,765.00	90.49	0.03	5,697.44	7,316.12	-36.87	7,316.20	1.07
12,856.00	90.89	359.69	5,696.35	7,407.11	-37.09	7,407.19	0.58
12,948.00	90.22	359.78	5,695.46	7,499.10	-37.52	7,499.19	0.73
13,039.00	89.97	359.74	5,695.30	7,590.10	-37.90	7,590.19	0.28
13,131.00	90.31	0.17	5,695.08	7,682.10	-37.97	7,682.19	0.60
13,223.00	90.74	358.13	5,694.24	7,774.08	-39.33	7,774.17	2.27
13,314.00	90.68	356.33	5,693.11	7,864.97	-43.73	7,865.08	1.98
13,406.00	92.19	358.76	5,690.80	7,956.84	-47.67	7,956.99	3.11
13,498.00	92.50	358.19	5,687.04	8,048.73	-50.12	8,048.89	0.70
13,587.00	92.93	357.76	5,682.82	8,137.58	-53.26	8,137.75	0.68
Final Sperry MWD Survey @ 13587.00 ft							
13,630.00	92.93	357.76	5,680.63	8,180.49	-54.94	8,180.67	0.00
Straight Line Projection to TD @ 13630.00 ft							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
176.00	176.00	0.24	-0.17	First Sperry MWD Survey @ 176.00 ft
13,587.00	5,682.82	8,137.58	-53.26	Final Sperry MWD Survey @ 13587.00 ft
13,630.00	5,680.63	8,180.49	-54.94	Straight Line Projection to TD @ 13630.00 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	+E/-W (usft)	Start TVD (usft)
Target	Razor #27J-2211A_Rev C0_BHL Tgt	359.62	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
176.00	1,563.00	Surface_Sperry MWD+IFR1+MS+sag	MWD+IFR1+MS+sag
1,641.00	5,957.00	Vertical & Build_Sperry MWD+IFR1+MS+sag	MWD+IFR1+MS+sag
5,977.00	13,587.00	Lateral_Sperry MWD+IFR1+MS+sag	MWD+IFR1+MS+sag
13,630.00	13,630.00	Projection to Bit_BLIND	BLIND

Design Report for Razor #27J-2211A - Actual Field Surveys**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,582.00	1,581.93	9 5/8"	9-5/8	13-1/2
6,069.00	5,663.41	7"	7	8-3/4

Wellbore Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Razor #27J_Northern_	0.00	0.00	0.00	0.03	-66.16	1,541,693.80	3,457,069.90	40° 48' 31.140 N	103° 50' 55.781 W
- actual wellpath misses target center by 66.16usft at 0.06usft MD (0.06 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	2,930.24	-3,343.16	1,544,561.29	3,453,672.74	
Point 2				0.00	2,969.37	-695.04	1,544,649.73	3,456,319.69	
Point 3				0.00	3,008.05	1,931.48	1,544,737.31	3,458,945.04	
Point 4				0.00	-2,286.13	2,017.17	1,539,445.62	3,459,129.31	
Point 5				0.00	-2,373.07	-3,265.25	1,539,260.33	3,453,849.40	
Point 6				0.00	2,930.24	-3,343.16	1,544,561.29	3,453,672.74	
Point 7				0.00	8,221.18	-3,387.54	1,549,850.51	3,453,529.84	
Point 8				0.00	8,324.12	1,825.08	1,550,050.50	3,458,739.66	
Point 9				0.00	3,008.05	1,931.48	1,544,737.31	3,458,945.04	
Point 10				0.00	2,969.37	-695.04	1,544,649.73	3,456,319.69	
Razor #27J_Sec 27_1'	0.00	0.00	0.00	0.03	-66.16	1,541,693.80	3,457,069.90	40° 48' 31.140 N	103° 50' 55.781 W
- actual wellpath misses target center by 66.16usft at 0.06usft MD (0.06 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	378.58	-3,304.21	1,542,010.78	3,453,759.20	
Point 2				0.00	461.51	1,974.88	1,542,192.01	3,459,035.86	
Razor #27J_Northern_	0.00	0.00	0.00	0.03	-66.16	1,541,693.80	3,457,069.90	40° 48' 31.140 N	103° 50' 55.781 W
- actual wellpath misses target center by 66.16usft at 0.06usft MD (0.06 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	3,008.05	1,831.48	1,544,735.45	3,458,845.06	
Point 2				0.00	-2,186.13	1,917.17	1,539,543.74	3,459,027.46	
Point 3				0.00	-2,273.07	-3,165.25	1,539,362.17	3,453,947.52	
Point 4				0.00	2,930.24	-3,243.16	1,544,563.15	3,453,772.73	
Point 5				0.00	8,121.18	-3,287.54	1,549,752.39	3,453,631.69	
Point 6				0.00	8,224.12	1,725.08	1,549,948.65	3,458,641.54	
Point 7				0.00	3,008.05	1,831.48	1,544,735.45	3,458,845.06	
Razor #27J_Sec 27_N	0.00	0.00	3.00	0.03	-66.16	1,541,693.80	3,457,069.90	40° 48' 31.140 N	103° 50' 55.781 W
- actual wellpath misses target center by 66.16usft at 3.06usft MD (3.06 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				3.00	278.58	-3,304.21	1,541,910.80	3,453,761.07	
Point 2				3.00	361.51	1,974.88	1,542,092.03	3,459,037.72	
Razor #27J-2211A_Re	0.00	0.00	5,655.00	8,188.54	-53.70	1,549,881.16	3,456,929.87	40° 49' 52.050 N	103° 50' 55.619 W
- actual wellpath misses target center by 26.89usft at 13630.00usft MD (5680.63 TVD, 8180.49 N, -54.94 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.75 °/100usft	Maximum Dogleg over Survey:	17.75 °/100usft at 5,425.00 usft
Net Tortousity applicable to Plans:	1.04 °/100usft	Directional Difficulty Index:	6.679

Audit Info

North Reference Sheet for Sec. 27-T10N-R58W (Razor #27J Pad) - Razor #27J-2211A - Plan C

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 @ 4789.00usft (Frontier 26). Northing and Easting are relative to Razor #27J-2211A

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° 30' 0.000 W°, 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: 1.00000421

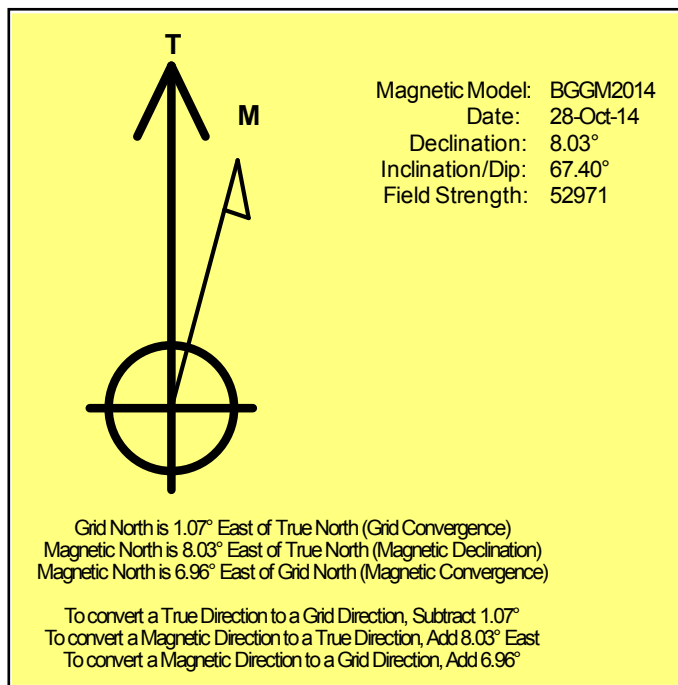
Grid Coordinates of Well: 1,541,695.00 usft N, 3,457,136.06 usft E

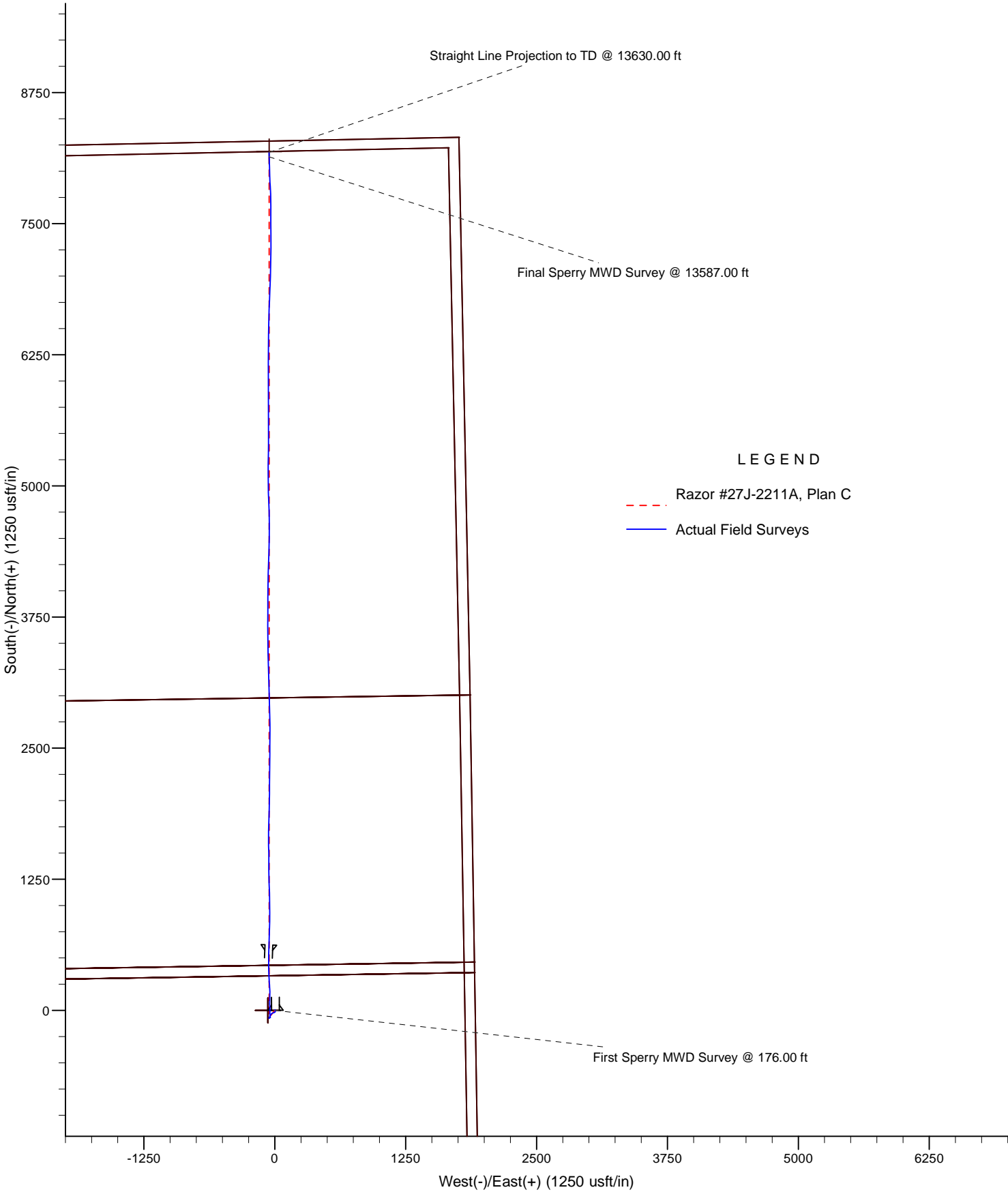
Geographical Coordinates of Well: 40° 48' 31.14" N, 103° 50' 54.92" W

Grid Convergence at Surface is: 1.07°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,630.00usft the Bottom Hole Displacement is 8,180.67usft in the Direction of 359.62° (True).

Magnetic Convergence at surface is: -6.96° (28 October 2014, , BGGM2014)





Whiting Oil and Gas Corporation

LEGEND

- Razor #27J-2211A, Plan C
- Actual Field Surveys

