

Whiting Oil and Gas Corporation

Weld County, CO

Sec. 26-T10N-R58W

Razor Federal #26I-3514B

Plan D

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

25 July, 2014

Well Coordinates: 1,541,695.70 N, 3,463,641.36 E (40° 48' 29.94" N, 103° 49' 30.34" W)

Ground Level: 4,712.00 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 Federal #26I-3514B

KB 21' @ 4733.00usft (Frontier 26)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Design Report for Razor Federal #26I-3514B - 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
178.00	0.55	34.37	178.00	0.71	0.48	0.71	0.31
First Sperry MWD Survey @ 178.00 ft							
269.00	0.78	61.93	268.99	1.36	1.28	1.36	0.43
362.00	0.61	52.45	361.98	1.96	2.23	1.96	0.22
454.00	0.65	60.20	453.98	2.51	3.07	2.51	0.10
546.00	0.69	83.06	545.97	2.84	4.07	2.84	0.29
638.00	0.58	47.99	637.97	3.22	4.97	3.22	0.43
730.00	0.46	86.21	729.96	3.56	5.68	3.56	0.39
821.00	0.64	77.50	820.96	3.69	6.54	3.69	0.22
913.00	0.70	80.15	912.95	3.90	7.60	3.90	0.07
1,003.00	0.85	106.75	1,002.95	3.80	8.78	3.80	0.43
1,094.00	1.32	22.74	1,093.93	4.57	9.83	4.57	1.64
1,186.00	2.81	352.49	1,185.87	7.78	9.94	7.78	1.95
1,277.00	2.74	348.34	1,276.77	12.13	9.21	12.13	0.23
1,368.00	3.42	357.61	1,367.64	16.97	8.66	16.97	0.92
1,459.00	3.71	2.31	1,458.46	22.62	8.67	22.62	0.45
1,508.00	3.33	2.44	1,507.37	25.63	8.79	25.63	0.78
1,534.00	3.26	2.33	1,533.32	27.12	8.85	27.12	0.26
9 5/8"							
1,634.00	3.00	1.84	1,633.17	32.58	9.05	32.58	0.26
1,726.00	2.29	5.60	1,725.08	36.81	9.31	36.81	0.79
1,816.00	3.91	4.05	1,814.94	41.67	9.70	41.67	1.80
1,908.00	3.65	357.15	1,906.74	47.72	9.78	47.72	0.57
1,999.00	5.17	342.24	1,997.47	54.52	8.38	54.52	2.08
2,090.00	4.66	340.58	2,088.14	61.91	5.90	61.91	0.58
2,182.00	3.78	336.66	2,179.89	68.22	3.46	68.22	1.01
2,273.00	3.19	335.51	2,270.72	73.28	1.22	73.28	0.65
2,364.00	4.25	355.22	2,361.53	78.94	-0.11	78.94	1.81
2,456.00	4.28	352.68	2,453.27	85.74	-0.83	85.74	0.21
2,547.00	4.32	347.48	2,544.02	92.46	-2.01	92.46	0.43
2,639.00	4.08	343.59	2,635.77	98.98	-3.68	98.98	0.40
2,730.00	4.07	341.38	2,726.54	105.14	-5.63	105.14	0.17
2,822.00	3.82	339.10	2,818.32	111.10	-7.76	111.10	0.32
2,913.00	5.05	354.08	2,909.05	117.92	-9.26	117.92	1.85
3,004.00	3.69	357.07	2,999.79	124.83	-9.82	124.83	1.51
3,096.00	4.68	351.34	3,091.54	131.49	-10.54	131.49	1.17
3,187.00	4.61	336.56	3,182.24	138.52	-12.55	138.52	1.31
3,279.00	4.44	2.47	3,273.97	145.47	-13.87	145.47	2.21
3,370.00	4.23	22.33	3,364.71	152.09	-12.44	152.09	1.66
3,462.00	4.64	26.16	3,456.44	158.57	-9.51	158.57	0.55
3,554.00	4.84	24.94	3,548.12	165.43	-6.24	165.43	0.24
3,645.00	4.15	27.36	3,638.84	171.84	-3.10	171.84	0.79
3,737.00	3.53	29.88	3,730.63	177.25	-0.16	177.25	0.70
3,829.00	3.96	6.08	3,822.44	182.86	1.58	182.86	1.74
3,921.00	3.52	13.81	3,914.25	188.77	2.60	188.77	0.73
4,012.00	4.34	13.78	4,005.03	194.82	4.08	194.82	0.90
4,104.00	3.56	6.95	4,096.81	201.04	5.26	201.04	0.99
4,194.00	4.63	345.30	4,186.59	207.33	4.67	207.33	2.07
4,285.00	3.68	333.47	4,277.35	213.49	2.44	213.49	1.40

Design Report for Razor Federal #26I-3514B - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,377.00	4.38	351.29	4,369.13	219.61	0.59	219.61	1.55
4,468.00	4.23	0.53	4,459.87	226.40	0.09	226.40	0.78
4,560.00	5.51	18.58	4,551.54	233.98	1.53	233.98	2.15
4,651.00	4.35	16.36	4,642.20	241.43	3.89	241.43	1.29
4,743.00	4.46	18.70	4,733.93	248.17	6.02	248.17	0.23
4,834.00	3.51	16.75	4,824.71	254.19	7.96	254.19	1.05
4,927.00	2.84	9.31	4,917.57	259.19	9.15	259.19	0.84
4,958.00	2.96	11.21	4,948.53	260.73	9.43	260.73	0.50
4,989.00	1.59	8.63	4,979.50	261.94	9.65	261.94	4.43
5,019.00	1.32	232.71	5,009.50	262.14	9.44	262.14	9.00
5,050.00	5.76	207.38	5,040.43	260.54	8.44	260.54	14.84
5,080.00	9.37	197.04	5,070.17	256.87	7.03	256.87	12.81
5,111.00	13.24	190.50	5,100.56	250.96	5.65	250.96	13.13
5,142.00	18.57	192.68	5,130.36	242.65	3.91	242.65	17.30
5,172.00	22.06	195.02	5,158.49	232.55	1.40	232.55	11.94
5,203.00	25.90	196.58	5,186.81	220.43	-2.04	220.43	12.55
5,234.00	31.01	192.15	5,214.06	206.12	-5.65	206.12	17.82
5,265.00	35.23	189.78	5,240.02	189.50	-8.85	189.50	14.24
5,295.00	36.46	184.94	5,264.34	172.09	-11.09	172.09	10.30
5,326.00	37.09	180.34	5,289.18	153.56	-11.94	153.56	9.11
5,357.00	38.37	176.51	5,313.70	134.60	-11.41	134.60	8.61
5,388.00	41.11	174.95	5,337.54	114.84	-9.93	114.84	9.41
5,419.00	43.79	174.31	5,360.41	94.01	-7.97	94.01	8.76
5,450.00	45.84	174.21	5,382.40	72.28	-5.78	72.28	6.62
5,480.00	47.54	174.58	5,402.98	50.55	-3.65	50.55	5.74
5,511.00	49.18	175.06	5,423.57	27.48	-1.56	27.48	5.42
5,542.00	51.23	175.46	5,443.41	3.74	0.41	3.74	6.69
5,572.00	52.80	174.57	5,461.88	-19.81	2.46	-19.81	5.73
5,602.00	55.77	174.91	5,479.39	-44.06	4.70	-44.06	9.94
5,633.00	58.44	174.74	5,496.22	-69.98	7.04	-69.98	8.63
5,663.00	60.88	175.62	5,511.38	-95.78	9.22	-95.78	8.52
5,695.00	61.99	176.18	5,526.68	-123.81	11.23	-123.81	3.79
5,726.00	62.93	176.71	5,541.01	-151.25	12.93	-151.25	3.39
5,758.00	64.76	177.93	5,555.11	-179.94	14.27	-179.94	6.66
5,789.00	66.92	179.53	5,567.80	-208.21	14.89	-208.21	8.41
5,821.00	69.15	181.31	5,579.77	-237.89	14.67	-237.89	8.67
5,853.00	72.15	181.19	5,590.37	-268.07	14.01	-268.07	9.38
5,884.00	78.18	180.83	5,598.31	-298.02	13.49	-298.02	19.48
5,916.00	84.48	181.46	5,603.13	-329.63	12.85	-329.63	19.78
5,948.00	90.15	182.88	5,604.63	-361.56	11.64	-361.56	18.26
5,992.00	90.68	183.66	5,604.31	-405.48	9.13	-405.48	2.15
7"							
6,027.00	91.11	184.28	5,603.76	-440.39	6.71	-440.39	2.15
6,122.00	90.91	181.98	5,602.08	-535.23	1.52	-535.23	2.43
6,217.00	89.22	179.51	5,601.98	-630.21	0.29	-630.21	3.15
6,312.00	89.29	178.46	5,603.21	-725.19	1.97	-725.19	1.11
6,406.00	88.18	179.56	5,605.29	-819.15	3.60	-819.15	1.66
6,501.00	88.92	179.87	5,607.69	-914.12	4.07	-914.12	0.84
6,596.00	89.17	179.02	5,609.27	-1,009.10	4.99	-1,009.10	0.93
6,691.00	89.17	177.79	5,610.65	-1,104.05	7.63	-1,104.05	1.29
6,786.00	90.14	176.29	5,611.22	-1,198.92	12.54	-1,198.92	1.88

Design Report for Razor Federal #26I-3514B - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
6,881.00	89.23	172.95	5,611.74	-1,293.48	21.44	-1,293.48	3.64
6,976.00	89.38	172.22	5,612.90	-1,387.68	33.70	-1,387.68	0.78
7,071.00	91.20	177.47	5,612.42	-1,482.26	42.24	-1,482.26	5.85
7,166.00	90.89	180.67	5,610.68	-1,577.22	43.78	-1,577.22	3.38
7,261.00	90.40	181.17	5,609.61	-1,672.20	42.25	-1,672.20	0.74
7,356.00	90.49	182.46	5,608.87	-1,767.15	39.24	-1,767.15	1.36
7,451.00	90.22	182.69	5,608.29	-1,862.05	34.98	-1,862.05	0.37
7,543.00	88.12	181.98	5,609.62	-1,953.96	31.23	-1,953.96	2.41
7,635.00	88.83	179.52	5,612.07	-2,045.91	30.02	-2,045.91	2.78
7,727.00	89.54	180.87	5,613.38	-2,137.90	29.71	-2,137.90	1.66
7,820.00	90.09	183.41	5,613.68	-2,230.82	26.24	-2,230.82	2.79
7,912.00	89.28	184.09	5,614.18	-2,322.62	20.22	-2,322.62	1.15
8,003.00	90.88	182.97	5,614.06	-2,413.45	14.62	-2,413.45	2.15
8,096.00	88.40	182.93	5,614.64	-2,506.31	9.83	-2,506.31	2.67
8,188.00	89.01	184.27	5,616.72	-2,598.11	4.06	-2,598.11	1.60
8,281.00	88.03	180.84	5,619.12	-2,690.97	-0.09	-2,690.97	3.83
8,373.00	87.67	178.72	5,622.57	-2,782.90	0.27	-2,782.90	2.34
8,464.00	90.00	178.52	5,624.42	-2,873.84	2.46	-2,873.84	2.57
8,555.00	90.92	177.63	5,623.69	-2,964.79	5.51	-2,964.79	1.41
8,646.00	89.54	173.64	5,623.33	-3,055.50	12.44	-3,055.50	4.64
8,738.00	90.25	174.63	5,623.50	-3,147.02	21.84	-3,147.02	1.32
8,828.00	91.17	179.25	5,622.38	-3,236.86	26.64	-3,236.86	5.23
8,919.00	90.56	179.10	5,621.01	-3,327.84	27.95	-3,327.84	0.69
9,010.00	88.55	179.32	5,621.71	-3,418.82	29.21	-3,418.82	2.22
9,101.00	88.76	181.55	5,623.85	-3,509.79	28.52	-3,509.79	2.46
9,192.00	89.97	182.09	5,624.86	-3,600.74	25.63	-3,600.74	1.46
9,284.00	89.82	181.24	5,625.03	-3,692.70	22.95	-3,692.70	0.94
9,375.00	90.32	184.94	5,624.92	-3,783.55	18.05	-3,783.55	4.10
9,466.00	90.14	180.40	5,624.55	-3,874.42	13.81	-3,874.42	4.99
9,558.00	90.40	181.36	5,624.12	-3,966.41	12.40	-3,966.41	1.08
9,649.00	90.54	180.78	5,623.37	-4,057.39	10.70	-4,057.39	0.66
9,740.00	90.09	178.78	5,622.87	-4,148.38	11.05	-4,148.38	2.25
9,832.00	89.19	180.71	5,623.45	-4,240.38	11.46	-4,240.38	2.31
9,924.00	89.54	185.02	5,624.47	-4,332.23	6.86	-4,332.23	4.70
10,015.00	89.51	188.63	5,625.22	-4,422.57	-3.95	-4,422.57	3.97
10,106.00	90.62	187.87	5,625.12	-4,512.63	-17.01	-4,512.63	1.48
10,197.00	88.98	186.44	5,625.44	-4,602.91	-28.34	-4,602.91	2.39
10,288.00	88.37	186.11	5,627.54	-4,693.34	-38.29	-4,693.34	0.76
10,379.00	88.24	184.35	5,630.23	-4,783.92	-46.58	-4,783.92	1.94
10,470.00	88.06	179.94	5,633.17	-4,874.79	-49.98	-4,874.79	4.85
10,562.00	90.56	179.09	5,634.28	-4,966.77	-49.20	-4,966.77	2.87
10,653.00	92.71	178.00	5,631.68	-5,057.70	-46.89	-5,057.70	2.65
10,745.00	91.79	177.62	5,628.07	-5,149.56	-43.38	-5,149.56	1.08
10,836.00	89.55	178.94	5,627.01	-5,240.50	-40.65	-5,240.50	2.86
10,928.00	88.80	178.32	5,628.33	-5,332.46	-38.45	-5,332.46	1.06
11,019.00	85.65	171.69	5,632.74	-5,422.95	-30.55	-5,422.95	8.06
11,110.00	88.01	174.22	5,637.78	-5,513.11	-19.41	-5,513.11	3.80
11,202.00	90.34	176.13	5,639.10	-5,604.77	-11.67	-5,604.77	3.27
11,293.00	86.73	175.46	5,641.43	-5,695.48	-5.00	-5,695.48	4.03
11,384.00	86.45	175.38	5,646.84	-5,786.03	2.25	-5,786.03	0.32
11,475.00	86.27	177.26	5,652.62	-5,876.65	8.08	-5,876.65	2.07

Design Report for Razor Federal #26I-3514B - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
11,567.00	87.50	177.68	5,657.62	-5,968.42	12.13	-5,968.42	1.41
11,659.00	87.75	179.11	5,661.43	-6,060.31	14.71	-6,060.31	1.58
11,750.00	88.13	180.73	5,664.70	-6,151.24	14.83	-6,151.24	1.83
11,842.00	89.87	180.68	5,666.31	-6,243.22	13.70	-6,243.22	1.89
11,933.00	89.11	181.41	5,667.12	-6,334.20	12.04	-6,334.20	1.16
12,025.00	87.87	181.83	5,669.54	-6,426.13	9.44	-6,426.13	1.42
12,117.00	88.40	181.36	5,672.53	-6,518.04	6.88	-6,518.04	0.77
12,209.00	89.22	180.47	5,674.44	-6,610.01	5.42	-6,610.01	1.32
12,301.00	90.00	180.17	5,675.07	-6,702.01	4.90	-6,702.01	0.91
12,392.00	90.31	179.00	5,674.82	-6,793.00	5.56	-6,793.00	1.33
12,426.00	89.35	178.03	5,674.93	-6,826.99	6.44	-6,826.99	4.01
Final Sperry MWD Survey @ 12426.00 ft							
12,475.00	89.35	178.03	5,675.48	-6,875.96	8.13	-6,875.96	0.00
Straight Line Projection to TD @ 12475.00 ft							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
178.00	178.00	0.71	0.48	First Sperry MWD Survey @ 178.00 ft
12,426.00	5,674.93	-6,826.99	6.44	Final Sperry MWD Survey @ 12426.00 ft
12,475.00	5,675.48	-6,875.96	8.13	Straight Line Projection to TD @ 12475.00 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	0.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
178.00	1,508.00	Surface_Sperry MWD Surveys	MWD+IFR1+MS+sag
1,634.00	5,948.00	Vertical and Build_Sperry MWD Surveys	MWD+IFR1+MS+sag
6,027.00	12,475.00	Lateral_Sperry MWD Surveys	MWD+IFR1+MS+sag

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,534.00	1,533.32	9 5/8"	9-5/8	13-1/2
5,992.00	5,604.31	7"	7	8-3/4

Design Report for Razor Federal #26I-3514B - Actual Field Surveys**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 26I-2316B Secti	0.00	0.00	0.00	74.69	-32.39	1,541,769.76	3,463,607.57	40° 48' 30.679 N	103° 49' 30.760 W
- actual wellpath misses target center by 81.41usft at 0.21usft MD (0.21 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	508.50	-4,563.00	1,542,191.99	3,459,035.76	
Point 2				0.00	519.00	718.00	1,542,302.23	3,464,315.64	
Razor 26K Section 26	0.00	0.00	0.00	282.52	-2,610.77	1,541,928.85	3,461,025.71	40° 48' 32.731 N	103° 50' 4.290 W
- actual wellpath misses target center by 2626.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	2,745.16	-1,929.43	1,544,637.09	3,459,044.77	
Point 2				0.00	2,774.18	3,138.31	1,544,761.82	3,464,111.07	
Point 3				0.00	-2,347.34	3,255.73	1,539,643.41	3,464,325.21	
Point 4				0.00	-2,349.07	-1,840.84	1,539,545.42	3,459,229.56	
Razor 26I 1/2 Section :	0.00	0.00	0.00	74.69	-32.39	1,541,769.76	3,463,607.56	40° 48' 30.679 N	103° 49' 30.760 W
- actual wellpath misses target center by 81.41usft at 0.21usft MD (0.21 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	408.49	-4,562.92	1,542,092.00	3,459,037.72	
Point 2				0.00	419.01	718.08	1,542,202.26	3,464,317.60	
Razor 26K Section 35	0.00	0.00	0.00	282.51	-2,610.77	1,541,928.85	3,461,025.71	40° 48' 32.731 N	103° 50' 4.290 W
- actual wellpath misses target center by 2626.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	-2,549.02	-1,844.60	1,539,345.43	3,459,229.57	
Point 2				0.00	-2,547.30	3,251.97	1,539,443.41	3,464,325.22	
Point 3				0.00	-7,165.62	3,370.53	1,534,828.13	3,464,530.99	
Point 4				0.00	-7,186.68	-1,746.30	1,534,710.44	3,459,415.45	
Razor 26K Section 26	0.00	0.00	0.00	282.52	-2,610.77	1,541,928.85	3,461,025.71	40° 48' 32.731 N	103° 50' 4.290 W
- actual wellpath misses target center by 2626.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	2,847.02	-2,027.54	1,544,737.08	3,458,944.75	
Point 2				0.00	2,872.29	3,240.17	1,544,861.84	3,464,211.06	
Point 3				0.00	-2,449.20	3,353.83	1,539,543.42	3,464,425.21	
Point 4				0.00	-2,447.17	-1,942.70	1,539,445.42	3,459,129.57	
Razor 26I Sec 26 100'	0.00	0.00	0.00	74.69	-32.39	1,541,769.76	3,463,607.57	40° 48' 30.679 N	103° 49' 30.760 W
- actual wellpath misses target center by 81.41usft at 0.21usft MD (0.21 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	308.50	-4,563.00	1,541,992.03	3,459,039.53	
Point 2				0.00	319.00	718.00	1,542,102.27	3,464,319.42	
Razor 26K Section 35	0.00	0.00	0.00	282.51	-2,610.77	1,541,928.85	3,461,025.71	40° 48' 32.731 N	103° 50' 4.290 W
- actual wellpath misses target center by 2626.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	-2,447.16	-1,942.70	1,539,445.42	3,459,129.57	
Point 2				0.00	-2,449.19	3,353.83	1,539,543.43	3,464,425.21	
Point 3				0.00	-7,767.39	3,459.24	1,534,228.14	3,464,631.05	
Point 4				0.00	-7,784.69	-1,857.55	1,534,110.43	3,459,315.51	
Razor 26K Section 23	0.00	0.00	0.00	282.52	-2,610.77	1,541,928.85	3,461,025.71	40° 48' 32.731 N	103° 50' 4.290 W
- actual wellpath misses target center by 2626.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	8,061.24	-2,034.98	1,549,950.25	3,458,838.83	
Point 2				0.00	8,083.33	3,093.62	1,550,069.20	3,463,966.12	
Point 3				0.00	2,974.15	3,142.07	1,544,961.83	3,464,111.06	
Point 4				0.00	2,945.12	-1,925.68	1,544,837.09	3,459,044.74	
Razor 26K Section 23	0.00	0.00	0.00	282.52	-2,610.77	1,541,928.85	3,461,025.71	40° 48' 32.731 N	103° 50' 4.290 W
- actual wellpath misses target center by 2626.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	8,163.10	-2,133.09	1,550,050.24	3,458,738.81	
Point 2				0.00	8,181.43	3,195.48	1,550,169.21	3,464,066.11	
Point 3				0.00	2,872.29	3,240.17	1,544,861.84	3,464,211.06	
Point 4				0.00	2,847.02	-2,027.54	1,544,737.08	3,458,944.75	
Razor 26I-3514B WP3	0.00	0.00	5,615.00	-3,800.00	10.52	1,537,896.56	3,463,723.65	40° 47' 52.393 N	103° 49' 30.202 W
- actual wellpath misses target center by 11.62usft at 9391.83usft MD (5624.83 TVD, -3800.32 N, 16.72 E)									
- Point									

Design Report for Razor Federal #26I-3514B - Actual Field Surveys

Razor 26I-3514B WP1	0.00	0.00	5,615.00	-1,500.00	10.52	1,540,196.16	3,463,680.21	40° 48' 15.120 N	103° 49' 30.202 W
- actual wellpath misses target center by 32.53usft at 7088.18usft MD (5612.06 TVD, -1499.42 N, 42.91 E)									
- Point									
Razor 26I-3514B WP4	0.00	0.00	5,615.00	-4,800.00	10.52	1,536,896.73	3,463,742.53	40° 47' 42.512 N	103° 49' 30.202 W
- actual wellpath misses target center by 60.17usft at 10392.43usft MD (5630.65 TVD, -4797.32 N, -47.52 E)									
- Point									
Razor 26I-3514B C0 B	0.00	0.00	5,618.00	-6,888.12	10.52	1,534,808.97	3,463,781.98	40° 47' 21.880 N	103° 49' 30.202 W
- actual wellpath misses target center by 58.80usft at 12475.00usft MD (5675.48 TVD, -6875.96 N, 8.13 E)									
- Point									
Razor 26I-3514B WP2	0.00	0.00	5,620.00	-2,700.00	10.52	1,538,996.37	3,463,702.87	40° 48' 3.262 N	103° 49' 30.202 W
- actual wellpath misses target center by 10.74usft at 8290.10usft MD (5619.44 TVD, -2700.06 N, -0.20 E)									
- Point									
Razor 26I-3514B TD	0.00	0.00	5,625.00	-6,888.12	10.52	1,534,808.98	3,463,781.97	40° 47' 21.880 N	103° 49' 30.202 W
- actual wellpath misses target center by 51.98usft at 12475.00usft MD (5675.48 TVD, -6875.96 N, 8.13 E)									
- Point									
Razor 26I-3514B B0 B	0.00	0.00	5,628.00	-6,888.12	10.52	1,534,808.97	3,463,781.98	40° 47' 21.880 N	103° 49' 30.202 W
- actual wellpath misses target center by 49.07usft at 12475.00usft MD (5675.48 TVD, -6875.96 N, 8.13 E)									
- Point									
Razor 26I-3514B WP5	0.00	0.00	5,630.00	-5,900.00	10.52	1,535,796.92	3,463,763.31	40° 47' 31.643 N	103° 49' 30.202 W
- actual wellpath misses target center by 24.07usft at 11497.17usft MD (5654.00 TVD, -5898.75 N, 9.12 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	2.35 °/100usft	Maximum Dogleg over Survey:	19.78 °/100usft at 5,916.00 usft
Net Tortousity applicable to Plans:	1.11 °/100usft	Directional Difficulty Index:	6.681

Audit Info

North Reference Sheet for Sec. 26-T10N-R58W - Razor Federal #26I-3514B - Plan D

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

Vertical Depths are relative to KB 21' @ 4733.00usft (Frontier 26). Northing and Easting are relative to Razor Federal #26I-3514B

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: 1.00000415

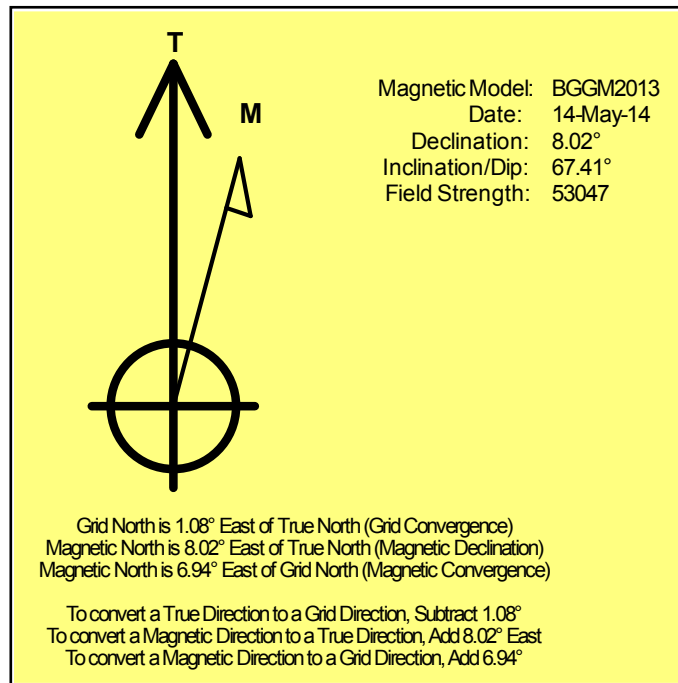
Grid Coordinates of Well: 1,541,695.70 usft N, 3,463,641.36 usft E

Geographical Coordinates of Well: 40° 48' 29.94" N, 103° 49' 30.34" W

Grid Convergence at Surface is: 1.08°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,475.00usft the Bottom Hole Displacement is 6,875.96usft in the Direction of 179.93° (True).

Magnetic Convergence at surface is: -6.94° (14 May 2014, , BGGM2013)

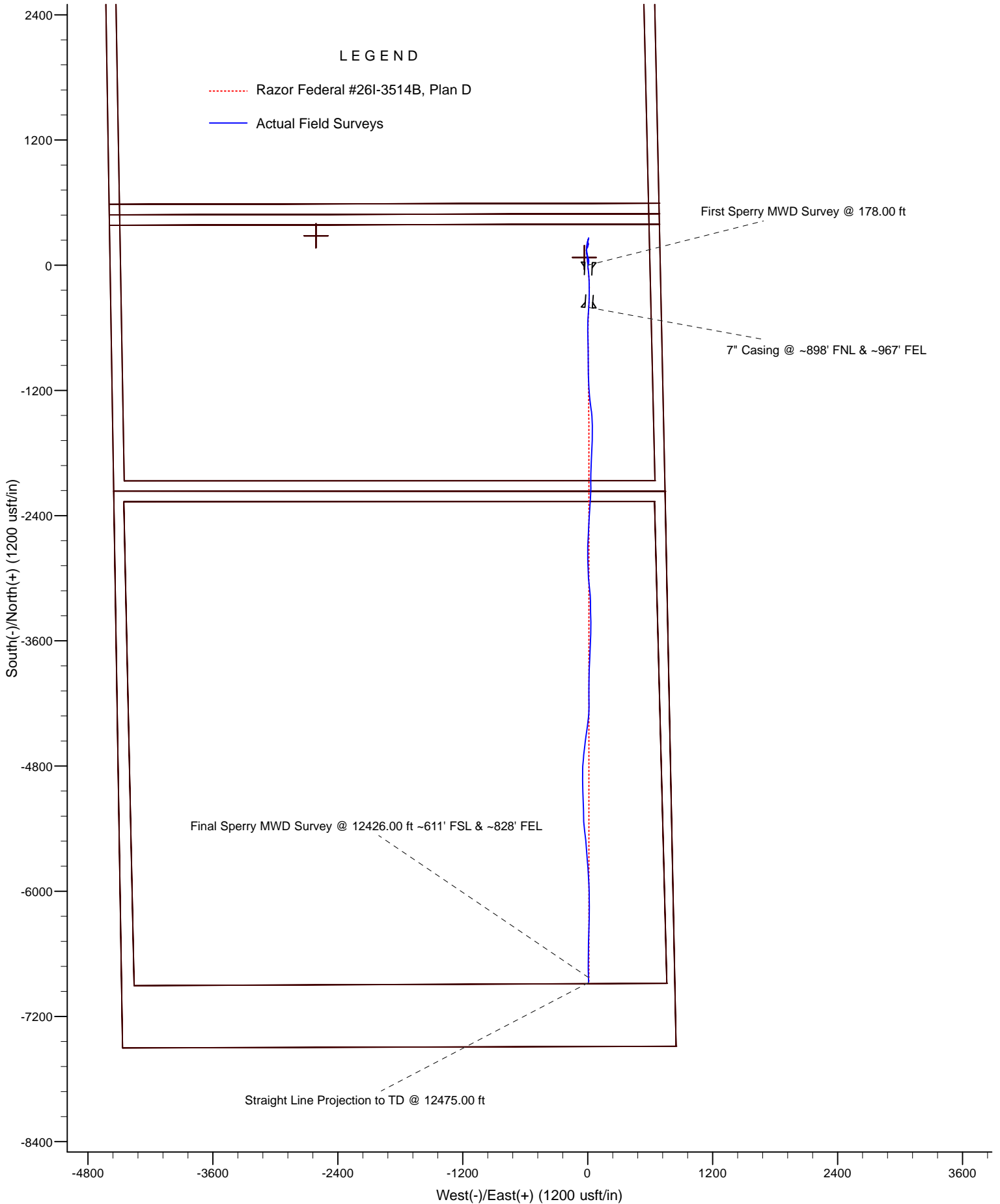


Whiting Oil and Gas Corporation

LEGEND

..... Razor Federal #26I-3514B, Plan D

— Actual Field Surveys



LEGEND

- Razor Federal #26I-3514B, Plan D
- Actual Field Surveys

