



Company: Whiting Oil & Gas  
 Field: Weld Co., CO  
 Location: Sec.26-T10N-R58W  
 Well: Razor Federal 26J-2311A  
 Borehole: Original Hole  
 Rig: Xtreme 18  
 Plan: Original Hole



WELL DETAILS: Razor Federal 26J-2311A

	GL 4726.00	KB @ 4743.00usft (Xtreme 18 KB 17')		
+N/-S	Northing	Easting	Latitude	Longitude
0.00	1541832.57	3462418.01	40° 48' 31.521 N	103° 49' 46.211 W

WELLBORE TARGET DETAILS

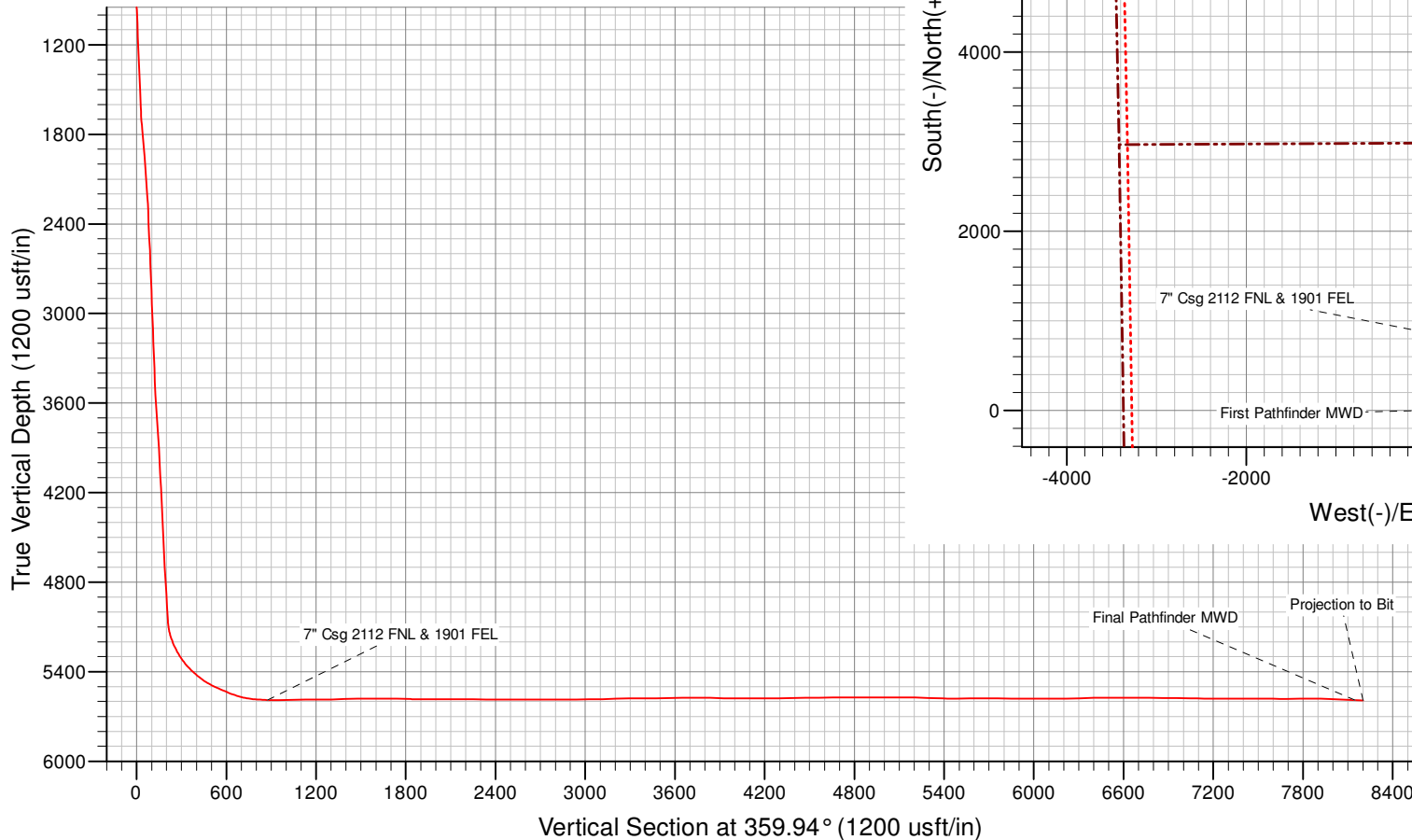
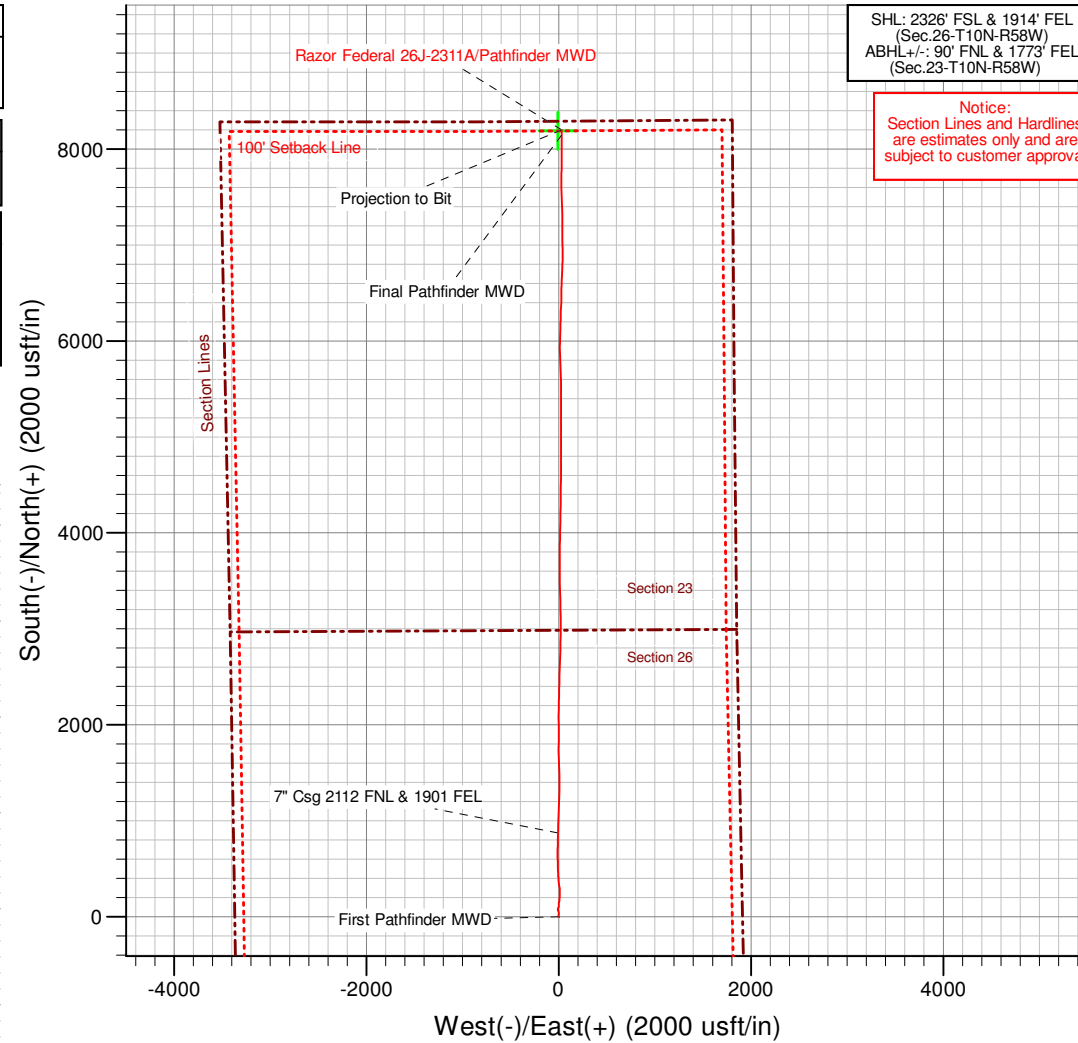
Name	TVD	+N/-S	+E/-W	Shape Point
PBHL Razor Federal 26J-2311A	5599.00	8191.50	-8.30	

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Tie Into Surface
138.00	138.00	0.44	180.26	-0.53	0.00	-0.53	0.53	First Pathfinder MWD
5590.09	6000.50	88.75	1.80	874.27	-6.41	874.27	886.16	7" Csg 2112 FNL & 1901 FEL
5590.24	13277.00	87.14	359.78	8147.78	33.82	8147.74	8161.86	Final Pathfinder MWD
5592.94	13331.00	87.14	359.78	8201.71	33.62	8201.68	8215.79	Projection to Bit

SHL: 2326' FSL & 1914' FEL (Sec.26-T10N-R58W)  
 ABHL +/-: 90' FNL & 1773' FEL (Sec.23-T10N-R58W)

Notice:  
 Section Lines and Hardlines are estimates only and are subject to customer approval



Azimuths to True North  
 Magnetic North: 8.00°

Magnetic Field  
 Strength: 53142.5nT  
 Dip Angle: 67.43°  
 Date: 4/7/2014  
 Model: IGRF2010



# Whiting Oil & Gas

Weld Co., CO

Sec.26-T10N-R58W

Razor Federal 26J-2311A

Original Hole

Survey: Pathfinder MWD

## Standard Survey Report

12 June, 2014

**PATHFINDER**<sup>®</sup>  
A Schlumberger Company



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor Federal 26J-2311A
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Site:</b>	Sec.26-T10N-R58W	<b>MD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Well:</b>	Razor Federal 26J-2311A	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Weld Co., CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	Sec.26-T10N-R58W				
<b>Site Position:</b>		<b>Northing:</b>	1,541,755.70 usft	<b>Latitude:</b>	40° 48' 30.780 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,462,320.33 usft	<b>Longitude:</b>	103° 49' 47.500 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	1.08 °

<b>Well</b>	Razor Federal 26J-2311A					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,541,832.58 usft	<b>Latitude:</b>	40° 48' 31.521 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	3,462,418.00 usft	<b>Longitude:</b>	103° 49' 46.211 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	4,743.00 usft	<b>Ground Level:</b>	4,726.00 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/7/2014	8.00	67.43	53,143

<b>Design</b>	Original Hole				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	359.94	

<b>Survey Program</b>	<b>Date</b>	6/12/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
138.00	13,331.00	Pathfinder MWD (Original Hole)	Pathfinder	Pathfinder MWD	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Tie Into Surface</b>										
138.00	0.44	180.26	138.00	-0.53	0.00	-0.53	0.32	0.32	0.00	
<b>First Pathfinder MWD</b>										
229.00	0.35	156.19	229.00	-1.13	0.11	-1.13	0.21	-0.10	-26.45	
321.00	0.35	200.96	320.99	-1.65	0.12	-1.65	0.29	0.00	48.66	
413.00	0.09	269.33	412.99	-1.92	-0.05	-1.92	0.36	-0.28	74.32	
505.00	0.35	257.58	504.99	-1.98	-0.40	-1.98	0.29	0.28	-12.77	
596.00	0.53	297.48	595.99	-1.84	-1.04	-1.84	0.38	0.20	43.85	
688.00	0.53	299.88	687.99	-1.43	-1.79	-1.43	0.02	0.00	2.61	



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor Federal 26J-2311A
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Site:</b>	Sec.26-T10N-R58W	<b>MD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Well:</b>	Razor Federal 26J-2311A	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
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)	
780.00	0.44	323.52	779.98	-0.94	-2.37	-0.94	0.24	-0.10	25.70	
873.00	0.70	2.08	872.98	-0.08	-2.56	-0.08	0.48	0.28	41.46	
965.00	1.32	8.16	964.96	1.53	-2.39	1.53	0.68	0.67	6.61	
1,057.00	1.85	6.11	1,056.93	4.05	-2.08	4.05	0.58	0.58	-2.23	
1,149.00	2.20	354.01	1,148.87	7.28	-2.11	7.29	0.60	0.38	-13.15	
1,241.00	2.99	13.84	1,240.78	11.37	-1.72	11.37	1.29	0.86	21.55	
1,331.00	2.90	11.89	1,330.66	15.88	-0.69	15.88	0.15	-0.10	-2.17	
1,420.00	2.56	10.23	1,419.56	20.04	0.13	20.04	0.39	-0.38	-1.87	
1,509.00	2.21	8.01	1,508.48	23.69	0.72	23.69	0.41	-0.39	-2.49	
1,617.00	1.76	17.61	1,616.42	27.34	1.51	27.33	0.52	-0.42	8.89	
1,678.00	2.99	358.08	1,677.36	29.82	1.74	29.82	2.39	2.02	-32.02	
1,770.00	5.80	357.84	1,769.08	36.86	1.49	36.86	3.05	3.05	-0.26	
1,862.00	4.66	354.06	1,860.70	45.23	0.93	45.22	1.29	-1.24	-4.11	
1,954.00	4.31	345.36	1,952.42	52.29	-0.33	52.29	0.83	-0.38	-9.46	
2,044.00	4.66	345.24	2,042.14	59.10	-2.12	59.10	0.39	0.39	-0.13	
2,133.00	4.48	342.44	2,130.86	65.91	-4.09	65.91	0.32	-0.20	-3.15	
2,223.00	3.87	350.86	2,220.62	72.26	-5.63	72.26	0.96	-0.68	9.36	
2,313.00	2.37	353.89	2,310.49	77.10	-6.31	77.11	1.68	-1.67	3.37	
2,402.00	2.11	353.79	2,399.42	80.56	-6.69	80.57	0.29	-0.29	-0.11	
2,492.00	2.73	21.04	2,489.34	84.21	-6.10	84.22	1.43	0.69	30.28	
2,581.00	2.81	22.44	2,578.24	88.21	-4.50	88.21	0.12	0.09	1.57	
2,671.00	2.46	24.20	2,668.14	92.01	-2.87	92.01	0.40	-0.39	1.96	
2,761.00	2.37	19.80	2,758.06	95.52	-1.45	95.52	0.23	-0.10	-4.89	
2,850.00	2.37	22.51	2,846.99	98.95	-0.12	98.95	0.13	0.00	3.04	
2,940.00	2.11	15.05	2,936.92	102.27	1.02	102.27	0.43	-0.29	-8.29	
3,025.00	2.29	19.52	3,021.85	105.38	2.00	105.38	0.29	0.21	5.26	
3,110.00	2.20	0.00	3,106.79	108.61	2.57	108.61	0.90	-0.11	-22.96	
3,198.00	2.20	357.87	3,194.73	111.99	2.50	111.99	0.09	0.00	-2.42	
3,284.00	2.11	356.15	3,280.66	115.22	2.33	115.22	0.13	-0.10	-2.00	
3,371.00	2.02	349.48	3,367.61	118.32	1.95	118.32	0.29	-0.10	-7.67	
3,461.00	2.29	345.73	3,457.54	121.63	1.21	121.63	0.34	0.30	-4.17	
3,550.00	3.43	359.89	3,546.43	126.01	0.77	126.01	1.50	1.28	15.91	
3,640.00	3.78	7.16	3,636.26	131.65	1.14	131.65	0.64	0.39	8.08	
3,729.00	4.04	4.31	3,725.05	137.69	1.74	137.68	0.36	0.29	-3.20	
3,819.00	3.52	5.27	3,814.85	143.60	2.23	143.60	0.58	-0.58	1.07	
3,906.00	2.90	14.46	3,901.72	148.39	3.02	148.39	0.92	-0.71	10.56	
3,996.00	3.25	18.31	3,991.59	153.02	4.39	153.01	0.45	0.39	4.28	
4,085.00	3.25	14.47	4,080.44	157.85	5.82	157.85	0.24	0.00	-4.31	
4,175.00	3.08	12.75	4,170.31	162.68	6.99	162.67	0.22	-0.19	-1.91	
4,261.00	2.55	11.13	4,256.20	166.81	7.87	166.80	0.62	-0.62	-1.88	
4,351.00	2.90	19.28	4,346.10	170.93	9.01	170.92	0.58	0.39	9.06	
4,440.00	2.64	359.85	4,435.00	175.10	9.74	175.09	1.09	-0.29	-21.83	
4,527.00	2.90	1.51	4,521.90	179.30	9.80	179.29	0.31	0.30	1.91	



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<b>Site:</b>	Sec.26-T10N-R58W	<b>MD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Well:</b>	Razor Federal 26J-2311A	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
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)	
4,617.00	3.08	1.48	4,611.77	184.00	9.92	183.99	0.20	0.20	-0.03	
4,706.00	2.81	359.04	4,700.66	188.57	9.94	188.56	0.33	-0.30	-2.74	
4,796.00	3.61	1.54	4,790.51	193.61	9.98	193.60	0.90	0.89	2.78	
4,886.00	3.34	4.79	4,880.35	199.05	10.28	199.04	0.37	-0.30	3.61	
4,975.00	3.34	12.82	4,969.20	204.16	11.07	204.15	0.53	0.00	9.02	
5,065.00	3.34	7.92	5,059.05	209.32	12.01	209.30	0.32	0.00	-5.44	
5,110.00	8.27	358.01	5,103.80	213.85	12.08	213.84	11.14	10.96	-22.02	
5,154.00	14.25	0.74	5,146.94	222.44	12.04	222.43	13.64	13.59	6.20	
5,199.00	20.22	3.43	5,189.90	235.75	12.58	235.74	13.38	13.27	5.98	
5,244.00	25.41	3.43	5,231.36	253.16	13.62	253.15	11.53	11.53	0.00	
5,289.00	29.72	354.84	5,271.26	273.93	13.20	273.91	13.01	9.58	-19.09	
5,334.00	33.59	349.89	5,309.56	297.30	10.01	297.29	10.35	8.60	-11.00	
5,378.00	39.31	350.36	5,344.94	323.05	5.53	323.04	13.02	13.00	1.07	
5,423.00	44.76	353.92	5,378.36	352.88	1.46	352.88	13.21	12.11	7.91	
5,468.00	48.10	354.79	5,409.37	385.32	-1.74	385.33	7.55	7.42	1.93	
5,513.00	52.50	356.66	5,438.11	419.84	-4.30	419.84	10.29	9.78	4.16	
5,558.00	56.01	358.16	5,464.39	456.32	-5.94	456.32	8.26	7.80	3.33	
5,602.00	61.29	358.29	5,487.28	493.86	-7.10	493.87	12.00	12.00	0.30	
5,647.00	64.90	358.23	5,507.64	533.97	-8.32	533.98	8.02	8.02	-0.13	
5,692.00	67.53	358.82	5,525.78	575.13	-9.38	575.14	5.97	5.84	1.31	
5,737.00	68.68	359.07	5,542.56	616.87	-10.15	616.88	2.61	2.56	0.56	
5,782.00	70.96	359.07	5,558.09	659.10	-10.83	659.11	5.07	5.07	0.00	
5,826.00	75.89	1.04	5,570.64	701.26	-10.78	701.27	12.00	11.20	4.48	
5,871.00	80.99	1.38	5,579.65	745.32	-9.85	745.33	11.36	11.33	0.76	
5,916.00	84.86	1.32	5,585.19	789.96	-8.80	789.97	8.60	8.60	-0.13	
5,952.00	86.26	1.65	5,587.98	825.84	-7.87	825.85	3.99	3.89	0.92	
6,000.50	88.75	1.80	5,590.09	874.27	-6.41	874.27	5.14	5.13	0.32	
<b>7" Csg 2112 FNL &amp; 1901 FEL</b>										
6,031.00	90.31	1.90	5,590.34	904.75	-5.42	904.75	5.14	5.13	0.32	
6,076.00	90.48	1.69	5,590.03	949.73	-4.01	949.73	0.60	0.38	-0.47	
6,166.00	90.92	2.60	5,588.93	1,039.65	-0.64	1,039.65	1.12	0.49	1.01	
6,255.00	90.31	1.80	5,587.98	1,128.58	2.77	1,128.58	1.13	-0.69	-0.90	
6,343.00	89.69	1.05	5,587.98	1,216.55	4.96	1,216.55	1.11	-0.70	-0.85	
6,430.00	92.24	0.57	5,586.51	1,303.53	6.19	1,303.52	2.98	2.93	-0.55	
6,516.00	92.24	0.74	5,583.15	1,389.45	7.17	1,389.45	0.20	0.00	0.20	
6,603.00	90.40	359.04	5,581.15	1,476.42	7.01	1,476.42	2.88	-2.11	-1.95	
6,689.00	90.31	358.28	5,580.61	1,562.40	4.99	1,562.39	0.89	-0.10	-0.88	
6,779.00	89.87	357.82	5,580.47	1,652.35	1.93	1,652.34	0.71	-0.49	-0.51	
6,866.00	89.08	357.37	5,581.27	1,739.26	-1.72	1,739.27	1.05	-0.91	-0.52	
6,952.00	88.37	6.41	5,583.19	1,825.11	1.11	1,825.10	10.54	-0.83	10.51	
7,037.00	89.87	356.84	5,584.50	1,909.96	3.52	1,909.96	11.39	1.76	-11.26	
7,122.00	89.87	358.60	5,584.69	1,994.89	0.14	1,994.89	2.07	0.00	2.07	
7,207.00	90.22	0.32	5,584.62	2,079.88	-0.66	2,079.88	2.06	0.41	2.02	
7,293.00	89.78	1.91	5,584.62	2,165.86	1.01	2,165.86	1.92	-0.51	1.85	



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<b>Site:</b>	Sec.26-T10N-R58W	<b>MD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Well:</b>	Razor Federal 26J-2311A	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
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)	
7,378.00	89.34	1.62	5,585.28	2,250.82	3.63	2,250.82	0.62	-0.52	-0.34	
7,464.00	88.81	0.52	5,586.66	2,336.79	5.23	2,336.79	1.42	-0.62	-1.28	
7,552.00	90.13	1.78	5,587.48	2,424.77	7.00	2,424.76	2.07	1.50	1.43	
7,641.00	89.43	1.52	5,587.82	2,513.73	9.56	2,513.72	0.84	-0.79	-0.29	
7,728.00	90.92	2.34	5,587.55	2,600.68	12.49	2,600.66	1.95	1.71	0.94	
7,813.00	89.96	1.61	5,586.90	2,685.62	15.42	2,685.61	1.42	-1.13	-0.86	
7,898.00	89.08	1.33	5,587.61	2,770.59	17.60	2,770.57	1.09	-1.04	-0.33	
7,982.00	91.01	1.40	5,587.55	2,854.56	19.60	2,854.54	2.30	2.30	0.08	
8,070.00	90.22	1.36	5,586.60	2,942.53	21.72	2,942.51	0.90	-0.90	-0.05	
8,155.00	90.84	359.60	5,585.82	3,027.52	22.43	3,027.50	2.20	0.73	-2.07	
8,242.00	91.71	359.21	5,583.88	3,114.49	21.53	3,114.47	1.10	1.00	-0.45	
8,332.00	91.71	358.78	5,581.19	3,204.44	19.95	3,204.42	0.48	0.00	-0.48	
8,422.00	90.84	357.83	5,579.19	3,294.38	17.29	3,294.36	1.43	-0.97	-1.06	
8,511.00	90.13	359.35	5,578.44	3,383.34	15.10	3,383.33	1.88	-0.80	1.71	
8,601.00	90.13	358.69	5,578.23	3,473.33	13.56	3,473.31	0.73	0.00	-0.73	
8,690.00	90.75	359.22	5,577.55	3,562.31	11.94	3,562.30	0.92	0.70	0.60	
8,778.00	90.84	359.20	5,576.33	3,650.29	10.73	3,650.28	0.10	0.10	-0.02	
8,869.00	89.78	1.02	5,575.84	3,741.29	10.90	3,741.27	2.31	-1.16	2.00	
8,961.00	89.60	1.37	5,576.34	3,833.27	12.82	3,833.25	0.43	-0.20	0.38	
9,053.00	88.64	0.32	5,577.75	3,925.24	14.18	3,925.23	1.55	-1.04	-1.14	
9,145.00	89.69	1.31	5,579.09	4,017.22	15.48	4,017.20	1.57	1.14	1.08	
9,236.00	90.57	1.79	5,578.88	4,108.19	17.95	4,108.17	1.10	0.97	0.53	
9,328.00	89.52	0.72	5,578.81	4,200.16	19.96	4,200.14	1.63	-1.14	-1.16	
9,420.00	90.84	0.95	5,578.52	4,292.15	21.30	4,292.13	1.46	1.43	0.25	
9,509.00	90.75	0.69	5,577.29	4,381.13	22.58	4,381.11	0.31	-0.10	-0.29	
9,600.00	90.84	0.76	5,576.02	4,472.12	23.73	4,472.09	0.13	0.10	0.08	
9,691.00	91.01	359.89	5,574.55	4,563.10	24.24	4,563.07	0.97	0.19	-0.96	
9,783.00	90.48	0.08	5,573.36	4,655.09	24.22	4,655.07	0.61	-0.58	0.21	
9,875.00	90.84	359.93	5,572.30	4,747.09	24.23	4,747.06	0.42	0.39	-0.16	
9,967.00	89.25	359.89	5,572.23	4,839.08	24.08	4,839.06	1.73	-1.73	-0.04	
10,058.00	89.78	0.14	5,573.00	4,930.08	24.11	4,930.05	0.64	0.58	0.27	
10,150.00	90.57	0.57	5,572.72	5,022.08	24.68	5,022.05	0.98	0.86	0.47	
10,242.00	89.87	0.44	5,572.36	5,114.07	25.49	5,114.04	0.77	-0.76	-0.14	
10,334.00	88.29	0.17	5,573.84	5,206.06	25.98	5,206.03	1.74	-1.72	-0.29	
10,426.00	88.29	359.83	5,576.58	5,298.01	25.98	5,297.99	0.37	0.00	-0.37	
10,519.00	88.29	359.79	5,579.36	5,390.97	25.67	5,390.94	0.04	0.00	-0.04	
10,611.00	90.31	359.21	5,580.48	5,482.96	24.87	5,482.93	2.28	2.20	-0.63	
10,702.00	90.40	359.99	5,579.92	5,573.95	24.23	5,573.93	0.86	0.10	0.86	
10,794.00	90.04	358.72	5,579.57	5,665.94	23.19	5,665.92	1.43	-0.39	-1.38	
10,886.00	89.69	356.63	5,579.78	5,757.86	19.46	5,757.84	2.30	-0.38	-2.27	
10,978.00	90.04	358.29	5,580.00	5,849.77	15.39	5,849.75	1.84	0.38	1.80	
11,069.00	89.87	359.80	5,580.07	5,940.75	13.87	5,940.74	1.67	-0.19	1.66	
11,160.00	89.69	1.27	5,580.42	6,031.75	14.72	6,031.73	1.63	-0.20	1.62	



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor Federal 26J-2311A
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Site:</b>	Sec.26-T10N-R58W	<b>MD Reference:</b>	KB @ 4743.00usft (Xtreme 18 KB 17')
<b>Well:</b>	Razor Federal 26J-2311A	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
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)	
11,252.00	89.60	1.20	5,580.99	6,123.72	16.70	6,123.70	0.12	-0.10	-0.08	
11,345.00	91.36	3.06	5,580.21	6,216.65	20.16	6,216.62	2.75	1.89	2.00	
11,437.00	91.01	1.55	5,578.31	6,308.55	23.86	6,308.52	1.68	-0.38	-1.64	
11,530.00	91.71	2.95	5,576.10	6,401.45	27.51	6,401.42	1.68	0.75	1.51	
11,623.00	89.69	359.65	5,574.97	6,494.40	29.62	6,494.37	4.16	-2.17	-3.55	
11,715.00	90.31	1.63	5,574.97	6,586.39	30.64	6,586.36	2.26	0.67	2.15	
11,807.00	89.25	2.66	5,575.32	6,678.32	34.09	6,678.29	1.61	-1.15	1.12	
11,899.00	89.78	2.80	5,576.10	6,770.22	38.47	6,770.17	0.60	0.58	0.15	
11,991.00	89.60	0.28	5,576.60	6,862.17	40.94	6,862.13	2.75	-0.20	-2.74	
12,083.00	89.34	359.70	5,577.45	6,954.17	40.92	6,954.12	0.69	-0.28	-0.63	
12,175.00	88.72	358.86	5,579.00	7,046.15	39.77	7,046.10	1.13	-0.67	-0.91	
12,267.00	89.96	359.88	5,580.06	7,138.13	38.76	7,138.09	1.75	1.35	1.11	
12,360.00	89.96	359.80	5,580.13	7,231.13	38.50	7,231.09	0.09	0.00	-0.09	
12,452.00	90.13	358.99	5,580.06	7,323.13	37.53	7,323.08	0.90	0.18	-0.88	
12,543.00	89.69	357.89	5,580.20	7,414.09	35.05	7,414.05	1.30	-0.48	-1.21	
12,635.00	89.69	358.29	5,580.70	7,506.04	31.98	7,506.00	0.43	0.00	0.43	
12,727.00	88.90	358.79	5,581.83	7,598.00	29.64	7,597.97	1.02	-0.86	0.54	
12,819.00	90.22	359.99	5,582.54	7,689.99	28.66	7,689.96	1.94	1.43	1.30	
12,910.00	90.66	2.06	5,581.84	7,780.97	30.29	7,780.93	2.33	0.48	2.27	
13,002.00	89.52	0.53	5,581.69	7,872.94	32.37	7,872.90	2.07	-1.24	-1.66	
13,094.00	88.46	0.43	5,583.31	7,964.92	33.14	7,964.88	1.16	-1.15	-0.11	
13,187.00	87.85	0.32	5,586.31	8,057.87	33.74	8,057.83	0.67	-0.66	-0.12	
13,277.00	87.14	359.78	5,590.24	8,147.78	33.82	8,147.74	0.99	-0.79	-0.60	
<b>Final Pathfinder MWD</b>										
13,321.26	87.14	359.78	5,592.45	8,191.98	33.65	8,191.95	0.00	0.00	0.00	
<b>PBHL Razor Federal 26J-2311A</b>										
13,331.00	87.14	359.78	5,592.94	8,201.71	33.62	8,201.68	0.00	0.00	0.00	
<b>Projection to Bit</b>										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
0.00	0.00	0.00	0.00	Tie Into Surface	
138.00	138.00	-0.53	0.00	First Pathfinder MWD	
6,000.50	5,590.09	874.27	-6.41	7" Csg 2112 FNL & 1901 FEL	
13,277.00	5,590.24	8,147.78	33.82	Final Pathfinder MWD	
13,331.00	5,592.94	8,201.71	33.62	Projection to Bit	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_