



Company: Whiting Oil & Gas  
 Field: Weld Co., CO  
 Location: Sec.26-T10N-R58W  
 Well: Razor Federal 26J-3512B  
 Borehole: Original Hole  
 Rig: Xtreme 18  
 Plan: Original Hole



WELL DETAILS: Razor Federal 26J-3512B

	GL 4726.00	KB @ 4743.00usft (Xtreme 18 KB 17')	
+N/-S	Northing	Easting	Latitude
0.00	1541757.54	3462419.42	40° 48' 30.780 N
+E/-W	Longitude		
0.00	103° 49' 46.211 W		

WELLBORE TARGET DETAILS

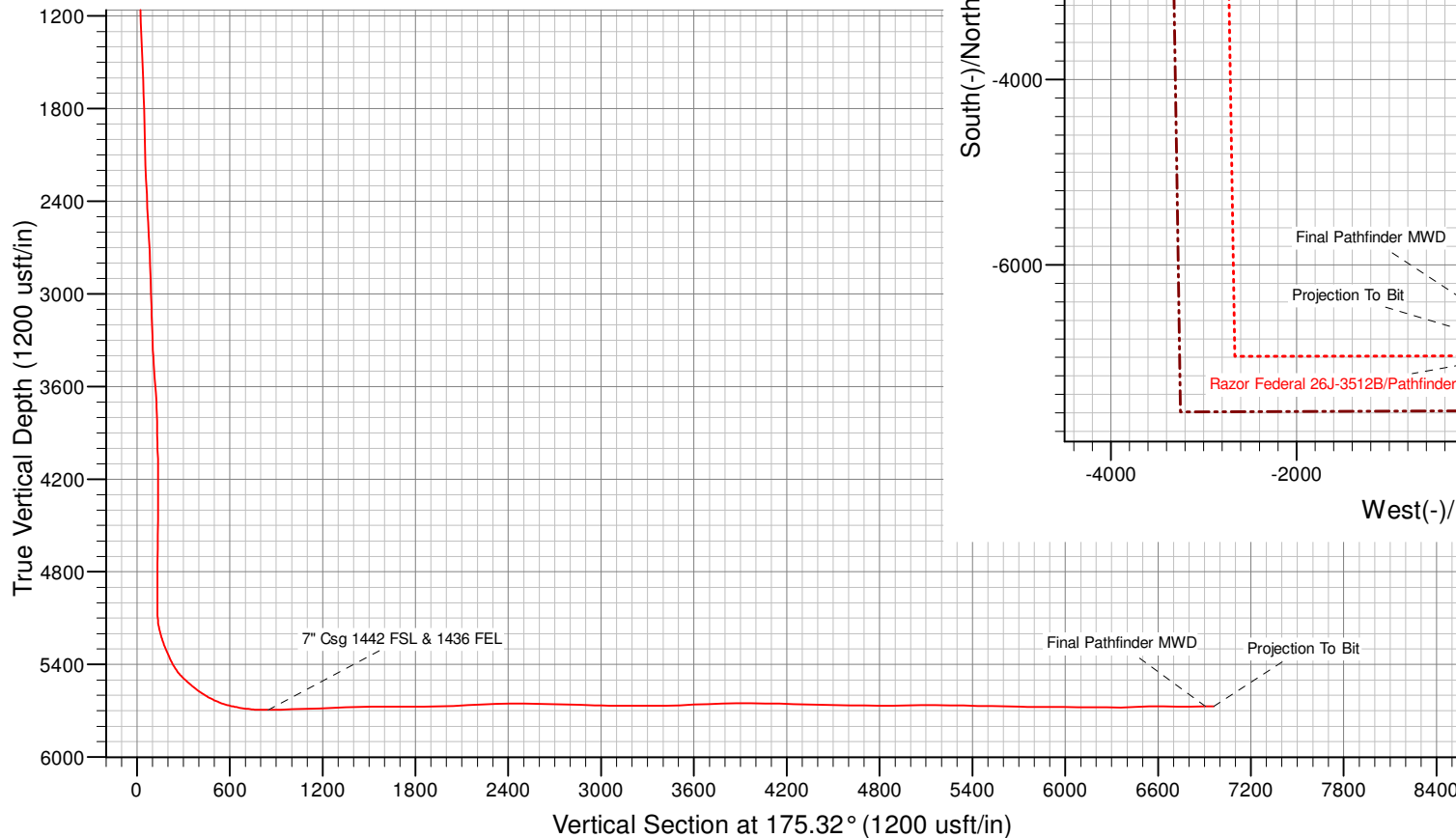
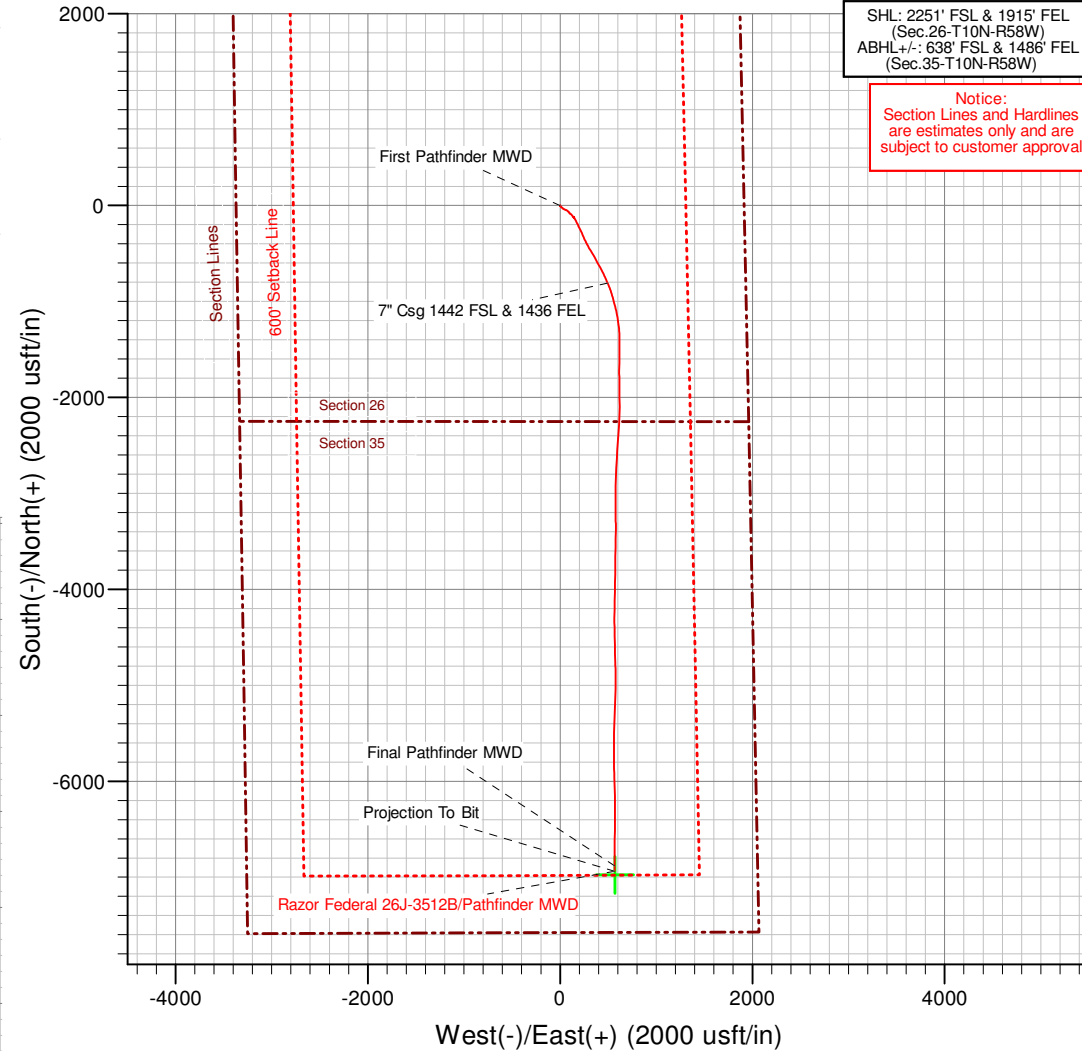
Name	TVD	+N/-S	+E/-W	Shape Point
PBHL Razor Federal 26J-3512B	5700.00	-6974.84	571.54	

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
137.00	137.00	0.18	107.55	-0.06	0.21	0.08	0.22	First Pathfinder MWD
5694.26	6185.80	89.93	157.64	-808.90	495.77	846.69	976.12	7" Csg 1442 FSL & 1436 FEL
5671.13	12279.00	90.66	180.15	-6881.85	569.61	6905.38	7067.44	Final Pathfinder MWD
5670.50	12334.00	90.66	180.15	-6936.85	569.47	6960.18	7122.44	Projection To Bit

SHL: 2251' FSL & 1915' FEL (Sec.26-T10N-R58W)  
 ABHL+/-: 638' FSL & 1486' FEL (Sec.35-T10N-R58W)

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



Azimuths to True North  
 Magnetic North: 8.03°

Magnetic Field  
 Strength: 53163.7snT  
 Dip Angle: 67.44°  
 Date: 1/24/2014  
 Model: IGRF2010



# Whiting Oil & Gas

Weld Co., CO

Sec.26-T10N-R58W

Razor Federal 26J-3512B

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-3512B
<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-3512B	<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-3512B					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,541,757.54 usft	<b>Latitude:</b>	40° 48' 30.780 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	3,462,419.42 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	1/24/2014	8.03	67.44	53,164

<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	175.32	

<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>	
137.00	12,334.00	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>										
137.00	0.18	107.55	137.00	-0.06	0.21	0.08	0.13	0.13	0.00	
<b>First Pathfinder MWD</b>										
231.00	0.09	258.43	231.00	-0.12	0.27	0.15	0.28	-0.10	160.51	
323.00	0.18	257.49	323.00	-0.17	0.06	0.17	0.10	0.10	-1.02	
415.00	0.26	242.79	415.00	-0.30	-0.26	0.27	0.11	0.09	-15.98	
507.00	1.32	127.38	506.99	-1.04	0.39	1.06	1.58	1.15	-125.45	
598.00	2.90	136.40	597.93	-3.34	2.81	3.56	1.77	1.74	9.91	
690.00	2.73	137.44	689.82	-6.64	5.90	7.10	0.19	-0.18	1.13	



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor Federal 26J-3512B
<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-3512B	<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)	
782.00	2.46	138.84	781.72	-9.74	8.68	10.41	0.30	-0.29	1.52	
874.00	2.64	135.73	873.63	-12.74	11.46	13.64	0.25	0.20	-3.38	
966.00	2.20	134.57	965.55	-15.50	14.20	16.61	0.48	-0.48	-1.26	
1,058.00	2.02	132.38	1,057.49	-17.83	16.65	19.13	0.21	-0.20	-2.38	
1,151.00	2.73	135.46	1,150.40	-20.51	19.42	22.03	0.78	0.76	3.31	
1,243.00	3.17	129.46	1,242.28	-23.69	22.92	25.48	0.58	0.48	-6.52	
1,336.00	2.73	134.10	1,335.16	-26.87	26.49	28.94	0.54	-0.47	4.99	
1,428.00	2.64	137.35	1,427.06	-29.95	29.50	32.26	0.19	-0.10	3.53	
1,520.00	3.25	119.33	1,518.94	-32.79	33.21	35.39	1.20	0.66	-19.59	
1,618.00	3.87	122.11	1,616.75	-35.91	38.43	38.92	0.66	0.63	2.84	
1,710.00	3.69	124.95	1,708.55	-39.25	43.49	42.67	0.28	-0.20	3.09	
1,802.00	3.61	110.01	1,800.36	-41.94	48.64	45.77	1.03	-0.09	-16.24	
1,894.00	3.25	109.06	1,892.20	-43.78	53.82	48.03	0.40	-0.39	-1.03	
1,987.00	2.90	105.55	1,985.07	-45.27	58.58	49.91	0.43	-0.38	-3.77	
2,080.00	3.61	97.43	2,077.92	-46.28	63.75	51.33	0.91	0.76	-8.73	
2,172.00	4.22	126.99	2,169.71	-48.69	69.33	54.19	2.26	0.66	32.13	
2,264.00	4.04	129.03	2,261.47	-52.77	74.55	58.68	0.25	-0.20	2.22	
2,356.00	3.87	129.37	2,353.25	-56.78	79.47	63.08	0.19	-0.18	0.37	
2,448.00	3.87	123.76	2,445.04	-60.48	84.45	67.17	0.41	0.00	-6.10	
2,539.00	3.61	149.77	2,535.85	-64.66	88.44	71.67	1.87	-0.29	28.58	
2,631.00	3.43	143.62	2,627.68	-69.38	91.54	76.62	0.45	-0.20	-6.68	
2,723.00	3.34	146.99	2,719.52	-73.84	94.63	81.32	0.24	-0.10	3.66	
2,816.00	2.99	134.34	2,812.38	-77.81	97.84	85.54	0.84	-0.38	-13.60	
2,908.00	2.37	131.12	2,904.28	-80.74	100.99	88.71	0.69	-0.67	-3.50	
3,001.00	2.20	128.41	2,997.21	-83.11	103.83	91.31	0.22	-0.18	-2.91	
3,093.00	2.11	119.47	3,089.14	-85.04	106.69	93.47	0.38	-0.10	-9.72	
3,186.00	3.34	130.68	3,182.03	-87.65	110.24	96.36	1.44	1.32	12.05	
3,276.00	3.08	131.23	3,271.89	-90.95	114.04	99.96	0.29	-0.29	0.61	
3,368.00	3.43	125.84	3,363.74	-94.19	118.13	103.52	0.50	0.38	-5.86	
3,460.00	4.92	140.59	3,455.50	-98.85	122.87	108.55	1.98	1.62	16.03	
3,553.00	5.10	141.22	3,548.15	-105.15	127.99	115.26	0.20	0.19	0.68	
3,645.00	4.92	141.06	3,639.79	-111.41	133.03	121.90	0.20	-0.20	-0.17	
3,737.00	2.90	127.59	3,731.58	-115.90	137.36	126.73	2.40	-2.20	-14.64	
3,829.00	1.58	115.92	3,823.50	-117.87	140.34	128.94	1.51	-1.43	-12.68	
3,921.00	1.32	155.44	3,915.48	-119.39	141.92	130.58	1.10	-0.28	42.96	
4,013.00	2.46	163.00	4,007.43	-122.24	142.94	133.51	1.27	1.24	8.22	
4,105.00	0.26	164.31	4,099.39	-124.33	143.57	135.64	2.39	-2.39	1.42	
4,198.00	0.26	130.63	4,192.39	-124.67	143.79	136.00	0.16	0.00	-36.22	
4,290.00	0.09	31.98	4,284.39	-124.75	143.99	136.09	0.31	-0.18	-107.23	
4,382.00	0.26	3.69	4,376.39	-124.48	144.04	135.83	0.20	0.18	-30.75	
4,473.00	0.35	354.62	4,467.39	-124.00	144.03	135.34	0.11	0.10	-9.97	
4,566.00	0.53	1.72	4,560.39	-123.28	144.01	134.63	0.20	0.19	7.63	
4,658.00	0.26	347.53	4,652.39	-122.65	143.98	134.00	0.31	-0.29	-15.42	



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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-3512B	<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)	
4,750.00	0.35	27.82	4,744.39	-122.20	144.07	133.56	0.25	0.10	43.79	
4,842.00	0.53	25.60	4,836.38	-121.57	144.38	132.95	0.20	0.20	-2.41	
4,935.00	0.62	38.51	4,929.38	-120.79	144.88	132.22	0.17	0.10	13.88	
5,027.00	0.62	33.59	5,021.37	-119.98	145.47	131.46	0.06	0.00	-5.35	
5,120.00	5.01	155.73	5,114.26	-123.27	147.42	134.90	5.77	4.72	131.33	
5,151.00	10.20	156.47	5,144.98	-127.02	149.07	138.77	16.74	16.74	2.39	
5,181.00	14.33	155.92	5,174.29	-132.85	151.65	144.79	13.77	13.77	-1.83	
5,212.00	16.80	154.15	5,204.15	-140.38	155.16	152.59	8.11	7.97	-5.71	
5,243.00	19.35	153.37	5,233.61	-149.01	159.42	161.53	8.26	8.23	-2.52	
5,274.00	21.81	153.18	5,262.63	-158.74	164.32	171.63	7.94	7.94	-0.61	
5,305.00	24.01	152.93	5,291.19	-169.50	169.79	182.80	7.10	7.10	-0.81	
5,335.00	24.53	153.65	5,318.54	-180.51	175.33	194.23	1.99	1.73	2.40	
5,365.00	25.15	152.51	5,345.76	-191.75	181.04	205.89	2.61	2.07	-3.80	
5,396.00	27.61	154.14	5,373.53	-204.06	187.21	218.67	8.27	7.94	5.26	
5,427.00	30.78	154.66	5,400.59	-217.69	193.74	232.79	10.26	10.23	1.68	
5,458.00	34.73	154.89	5,426.65	-232.87	200.89	248.49	12.75	12.74	0.74	
5,488.00	39.31	155.01	5,450.60	-249.22	208.53	265.42	15.27	15.27	0.40	
5,519.00	44.67	155.84	5,473.63	-268.08	217.15	284.92	17.38	17.29	2.68	
5,549.00	48.01	155.85	5,494.34	-287.88	226.03	305.38	11.13	11.13	0.03	
5,579.00	50.47	155.37	5,513.93	-308.57	235.41	326.77	8.29	8.20	-1.60	
5,609.00	52.32	154.83	5,532.64	-329.84	245.28	348.77	6.33	6.17	-1.80	
5,640.00	54.52	154.83	5,551.12	-352.37	255.87	372.09	7.10	7.10	0.00	
5,670.00	55.40	154.86	5,568.34	-374.60	266.31	395.10	2.93	2.93	0.10	
5,701.00	57.60	152.27	5,585.45	-397.74	277.82	419.10	9.94	7.10	-8.35	
5,731.00	61.20	149.95	5,600.72	-420.34	290.31	442.64	13.72	12.00	-7.73	
5,761.00	64.10	149.57	5,614.50	-443.35	303.72	466.68	9.73	9.67	-1.27	
5,792.00	65.77	150.07	5,627.64	-467.63	317.84	492.02	5.58	5.39	1.61	
5,822.00	68.15	150.26	5,639.38	-491.57	331.57	517.01	7.95	7.93	0.63	
5,853.00	71.67	149.83	5,650.02	-516.79	346.11	543.34	11.43	11.35	-1.39	
5,883.00	74.92	149.66	5,658.65	-541.61	360.58	569.25	10.85	10.83	-0.57	
5,913.00	76.77	150.06	5,665.98	-566.77	375.19	595.52	6.30	6.17	1.33	
5,943.00	78.79	150.82	5,672.33	-592.27	389.65	622.11	7.17	6.73	2.53	
5,973.00	80.81	151.52	5,677.64	-618.13	403.89	649.06	7.11	6.73	2.33	
6,004.00	82.04	152.13	5,682.27	-645.16	418.36	677.17	4.42	3.97	1.97	
6,034.00	83.01	152.61	5,686.17	-671.51	432.16	704.56	3.60	3.23	1.60	
6,064.00	84.33	153.17	5,689.48	-698.05	445.74	732.12	4.78	4.40	1.87	
6,095.00	86.53	154.27	5,691.95	-725.75	459.42	760.85	7.93	7.10	3.55	
6,126.00	88.11	155.92	5,693.40	-753.84	472.46	789.91	7.37	5.10	5.32	
6,142.00	88.90	156.94	5,693.81	-768.50	478.86	805.04	8.06	4.94	6.38	
6,185.80	89.93	157.64	5,694.26	-808.90	495.77	846.69	2.84	2.35	1.60	
<b>7" Csg 1442 FSL &amp; 1436 FEL</b>										
6,228.00	90.92	158.32	5,693.95	-848.02	511.59	886.97	2.84	2.35	1.60	
6,271.00	92.33	160.36	5,692.73	-888.24	526.75	928.29	5.77	3.28	4.74	
6,356.00	91.98	164.40	5,689.53	-969.17	552.46	1,011.06	4.77	-0.41	4.75	



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<b>Well:</b>	Razor Federal 26J-3512B	<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)	
6,442.00	91.36	165.85	5,687.03	-1,052.25	574.52	1,095.66	1.83	-0.72	1.69	
6,527.00	92.15	169.65	5,684.42	-1,135.26	592.55	1,179.86	4.56	0.93	4.47	
6,612.00	92.86	172.34	5,680.71	-1,219.13	605.84	1,264.53	3.27	0.84	3.16	
6,697.00	91.54	175.81	5,677.44	-1,303.60	614.60	1,349.44	4.36	-1.55	4.08	
6,782.00	91.80	178.31	5,674.96	-1,388.44	618.96	1,434.35	2.96	0.31	2.94	
6,865.00	90.48	180.60	5,673.31	-1,471.41	619.75	1,517.11	3.18	-1.59	2.76	
6,950.00	90.22	181.48	5,672.79	-1,556.40	618.21	1,601.69	1.08	-0.31	1.04	
7,034.00	89.87	181.11	5,672.73	-1,640.38	616.31	1,685.23	0.61	-0.42	-0.44	
7,119.00	90.13	179.80	5,672.73	-1,725.37	615.63	1,769.89	1.57	0.31	-1.54	
7,206.00	89.34	177.76	5,673.13	-1,812.35	617.49	1,856.72	2.51	-0.91	-2.34	
7,303.00	91.63	180.10	5,672.31	-1,909.31	619.30	1,953.51	3.38	2.36	2.41	
7,395.00	92.95	179.34	5,668.63	-2,001.23	619.75	2,045.16	1.66	1.43	-0.83	
7,489.00	93.21	180.28	5,663.58	-2,095.10	620.06	2,138.74	1.04	0.28	1.00	
7,581.00	92.95	182.06	5,658.64	-2,186.94	618.18	2,230.12	1.95	-0.28	1.93	
7,673.00	91.98	183.69	5,654.68	-2,278.74	613.57	2,321.23	2.06	-1.05	1.77	
7,765.00	90.31	183.91	5,652.84	-2,370.51	607.48	2,412.21	1.83	-1.82	0.24	
7,855.00	88.81	183.38	5,653.53	-2,460.32	601.75	2,501.25	1.77	-1.67	-0.59	
7,947.00	89.16	183.80	5,655.16	-2,552.13	595.99	2,592.28	0.59	0.38	0.46	
8,039.00	88.99	183.23	5,656.65	-2,643.94	590.35	2,683.33	0.65	-0.18	-0.62	
8,132.00	88.55	182.56	5,658.65	-2,736.80	585.66	2,775.49	0.86	-0.47	-0.72	
8,224.00	88.02	181.48	5,661.40	-2,828.70	582.42	2,866.82	1.31	-0.58	-1.17	
8,316.00	87.85	181.67	5,664.71	-2,920.61	579.89	2,958.21	0.28	-0.18	0.21	
8,409.00	89.08	180.84	5,667.21	-3,013.55	577.85	3,050.68	1.60	1.32	-0.89	
8,501.00	90.84	180.30	5,667.27	-3,105.54	576.94	3,142.29	2.00	1.91	-0.59	
8,594.00	90.13	179.15	5,666.48	-3,198.54	577.39	3,235.01	1.45	-0.76	-1.24	
8,686.00	89.08	178.00	5,667.12	-3,290.50	579.67	3,326.85	1.69	-1.14	-1.25	
8,778.00	90.92	180.42	5,667.12	-3,382.48	580.94	3,418.63	3.30	2.00	2.63	
8,869.00	92.59	181.61	5,664.33	-3,473.42	579.33	3,509.13	2.25	1.84	1.31	
8,960.00	92.68	181.27	5,660.15	-3,564.30	577.05	3,599.52	0.39	0.10	-0.37	
9,052.00	91.98	180.47	5,656.41	-3,656.21	575.65	3,691.01	1.15	-0.76	-0.87	
9,145.00	92.42	179.90	5,652.84	-3,749.14	575.35	3,783.60	0.77	0.47	-0.61	
9,237.00	89.87	181.10	5,651.00	-3,841.11	574.55	3,875.20	3.06	-2.77	1.30	
9,330.00	89.78	180.84	5,651.28	-3,934.09	572.97	3,967.75	0.30	-0.10	-0.28	
9,423.00	89.16	182.18	5,652.14	-4,027.05	570.52	4,060.20	1.59	-0.67	1.44	
9,515.00	88.55	180.65	5,653.98	-4,119.00	568.25	4,151.65	1.79	-0.66	-1.66	
9,607.00	88.64	181.01	5,656.24	-4,210.97	566.92	4,243.20	0.40	0.10	0.39	
9,698.00	88.46	180.35	5,658.54	-4,301.93	565.84	4,333.77	0.75	-0.20	-0.73	
9,790.00	88.55	179.32	5,660.94	-4,393.90	566.10	4,425.45	1.12	0.10	-1.12	
9,882.00	88.72	178.60	5,663.13	-4,485.86	567.77	4,517.24	0.80	0.18	-0.78	
9,975.00	88.72	177.86	5,665.21	-4,578.79	570.65	4,610.10	0.80	0.00	-0.80	
10,067.00	89.96	179.31	5,666.27	-4,670.75	572.92	4,701.94	2.07	1.35	1.58	
10,159.00	89.08	178.69	5,667.04	-4,762.73	574.52	4,793.74	1.17	-0.96	-0.67	
10,250.00	90.92	177.52	5,667.04	-4,853.68	577.53	4,884.63	2.40	2.02	-1.29	



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor Federal 26J-3512B
<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-3512B	<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)	
10,343.00	91.01	180.33	5,665.47	-4,946.64	579.28	4,977.42	3.02	0.10	3.02	
10,435.00	91.71	180.80	5,663.29	-5,038.61	578.37	5,069.01	0.92	0.76	0.51	
10,527.00	88.99	182.98	5,662.73	-5,130.54	575.33	5,160.39	3.79	-2.96	2.37	
10,619.00	88.99	182.37	5,664.35	-5,222.42	571.04	5,251.62	0.66	0.00	-0.66	
10,712.00	88.72	181.59	5,666.21	-5,315.35	567.83	5,343.97	0.89	-0.29	-0.84	
10,803.00	88.99	181.48	5,668.03	-5,406.30	565.39	5,434.41	0.32	0.30	-0.12	
10,895.00	89.08	180.46	5,669.57	-5,498.27	563.83	5,525.95	1.11	0.10	-1.11	
10,988.00	88.99	180.47	5,671.14	-5,591.25	563.08	5,618.56	0.10	-0.10	0.01	
11,080.00	88.02	179.76	5,673.54	-5,683.22	562.90	5,710.21	1.31	-1.05	-0.77	
11,172.00	89.96	179.80	5,675.16	-5,775.20	563.25	5,801.91	2.11	2.11	0.04	
11,264.00	90.31	179.69	5,674.95	-5,867.20	563.66	5,893.64	0.40	0.38	-0.12	
11,361.00	89.34	178.23	5,675.24	-5,964.18	565.42	5,990.43	1.81	-1.00	-1.51	
11,454.00	89.34	178.26	5,676.31	-6,057.13	568.27	6,083.31	0.03	0.00	0.03	
11,547.00	89.34	178.34	5,677.38	-6,150.08	571.03	6,176.17	0.09	0.00	0.09	
11,638.00	89.78	179.59	5,678.08	-6,241.06	572.67	6,266.99	1.46	0.48	1.37	
11,731.00	89.78	179.86	5,678.44	-6,334.06	573.12	6,359.71	0.29	0.00	0.29	
11,822.00	93.74	180.67	5,675.65	-6,425.00	572.70	6,450.31	4.44	4.35	0.89	
11,914.00	90.75	181.76	5,672.04	-6,516.90	570.75	6,541.74	3.46	-3.25	1.18	
12,005.00	89.69	180.64	5,671.69	-6,607.87	568.84	6,632.26	1.69	-1.16	-1.23	
12,096.00	89.25	179.43	5,672.54	-6,698.87	568.78	6,722.94	1.41	-0.48	-1.33	
12,187.00	90.92	179.69	5,672.40	-6,789.86	569.48	6,813.69	1.86	1.84	0.29	
12,279.00	90.66	180.15	5,671.13	-6,881.85	569.61	6,905.38	0.57	-0.28	0.50	
<b>Final Pathfinder MWD</b>										
12,334.00	90.66	180.15	5,670.50	-6,936.85	569.47	6,960.18	0.00	0.00	0.00	
<b>Projection To Bit - PBHL Razor Federal 26J-3512B</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	
137.00	137.00	-0.06	0.21	First Pathfinder MWD	
6,185.80	5,694.26	-808.90	495.77	7" Csg 1442 FSL & 1436 FEL	
12,279.00	5,671.13	-6,881.85	569.61	Final Pathfinder MWD	
12,334.00	5,670.50	-6,936.85	569.47	Projection To Bit	

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