

# Whiting Oil & Gas

Well Name: **Razor #21A-2814B**

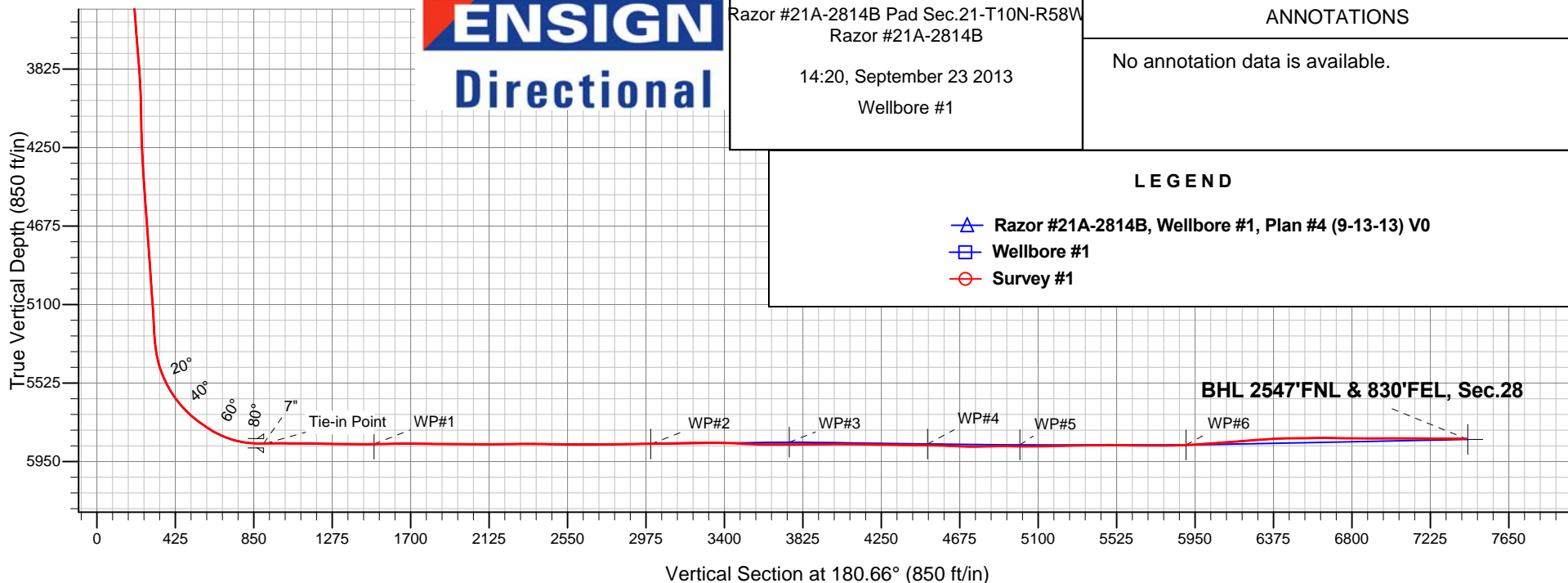
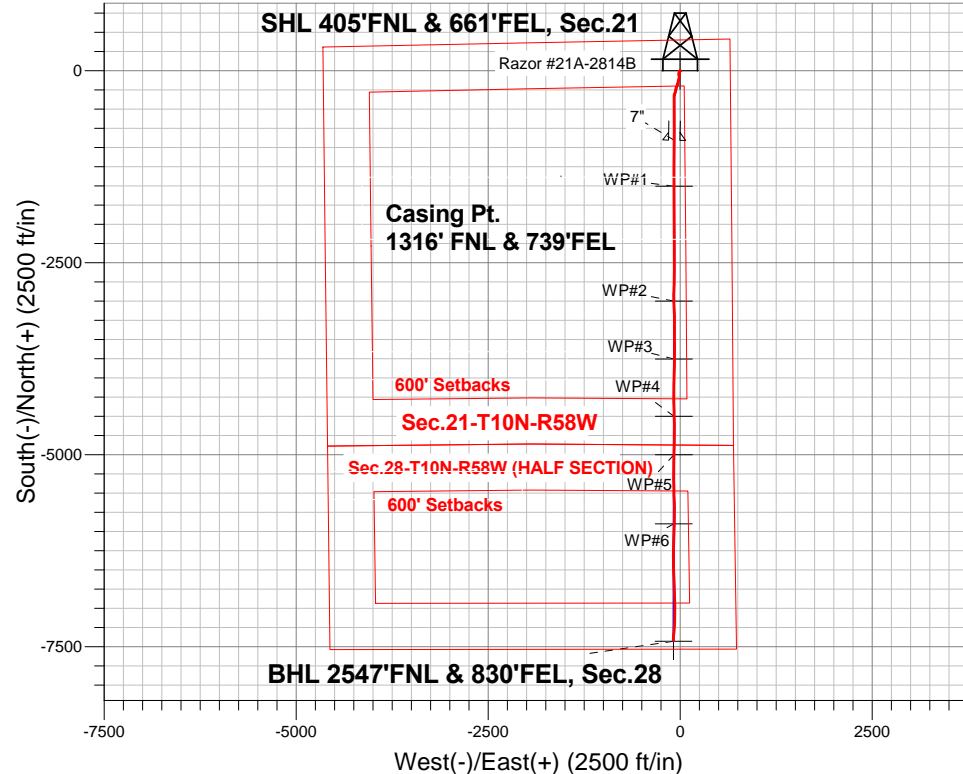
Surface Location: Razor #21A-2814B Pad Sec.21-T10N-R58W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4833.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1549420.54	3452880.98	40.830067	-103.863442	
RKB - 17.3' WELL @ 4850.3ft (RKB - 17.3')						

## FINAL SURVEY

Projected Bottom Hole Location  
12721'MD 5825'TVD 7416'S & 90'W of SHL  
90.9 degree Incl @ 184.0 degree AZM





## **Whiting Oil & Gas**

**SEC.21-T10N-R58W**

**Razor #21A-2814B Pad Sec.21-T10N-R58W**

**Razor #21A-2814B**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**23 September, 2013**

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2814B
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Well:</b>	Razor #21A-2814B	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.21-T10N-R58W, Weld County, Colorado,		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Razor #21A-2814B Pad Sec.21-T10N-R58W			
Site Position:		Northing:	1,549,420.55ft	Latitude:	40.830067
From:	Lat/Long	Easting:	3,452,880.98ft	Longitude:	-103.863442
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	1.06 °

Well	Razor #21A-2814B					
Well Position	+N/-S	0.0 ft	Northing:	1,549,420.54 ft	Latitude:	40.830067
	+E/-W	0.0 ft	Easting:	3,452,880.98 ft	Longitude:	-103.863442
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,833.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	8/30/2013	8.10	67.46	53,214

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.66	

<b>Survey Program</b>	<b>Date</b>	9/23/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
133.0	12,721.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	348.80	1.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>SHL 405'FNL &amp; 661'FEL, Sec.21</b>										
133.0	0.20	348.80	133.0	0.2	0.0	-0.2	0.15	0.15	0.00	
192.0	0.40	149.30	192.0	0.2	0.0	-0.2	1.00	0.34	272.03	
279.0	0.40	76.30	279.0	0.0	0.5	0.0	0.55	0.00	-83.91	
375.0	0.40	60.50	375.0	0.2	1.1	-0.2	0.11	0.00	-16.46	
470.0	0.40	49.40	470.0	0.6	1.6	-0.6	0.08	0.00	-11.68	
565.0	0.60	279.90	565.0	0.9	1.4	-0.9	0.96	0.21	-136.32	
659.0	2.00	251.40	659.0	0.4	-0.6	-0.4	1.60	1.49	-30.32	
754.0	2.80	225.50	753.9	-1.7	-3.9	1.8	1.40	0.84	-27.26	
848.0	3.60	213.10	847.7	-5.8	-7.1	5.9	1.12	0.85	-13.19	
943.0	4.00	204.10	942.5	-11.3	-10.1	11.4	0.75	0.42	-9.47	

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2814B
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Well:</b>	Razor #21A-2814B	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,037.0	4.20	201.60	1,036.3	-17.5	-12.7	17.6	0.29	0.21	-2.66	
1,133.0	5.10	195.80	1,132.0	-24.9	-15.1	25.1	1.06	0.94	-6.04	
1,228.0	5.80	189.90	1,226.5	-33.7	-17.1	33.9	0.94	0.74	-6.21	
1,322.0	5.90	178.00	1,320.1	-43.2	-17.8	43.4	1.29	0.11	-12.66	
1,417.0	5.30	168.80	1,414.6	-52.4	-16.7	52.6	1.13	-0.63	-9.68	
1,512.0	5.80	171.00	1,509.2	-61.4	-15.1	61.6	0.57	0.53	2.32	
1,607.0	5.80	171.80	1,603.7	-70.9	-13.7	71.1	0.09	0.00	0.84	
1,625.0	6.10	170.20	1,621.6	-72.7	-13.4	72.9	1.90	1.67	-8.89	
1,675.0	6.30	170.00	1,671.3	-78.1	-12.5	78.2	0.40	0.40	-0.40	
1,732.0	5.30	176.00	1,728.0	-83.8	-11.8	83.9	2.05	-1.75	10.53	
1,827.0	4.30	190.70	1,822.7	-91.6	-12.1	91.8	1.66	-1.05	15.47	
1,922.0	4.20	202.20	1,917.4	-98.4	-14.1	98.5	0.90	-0.11	12.11	
2,017.0	3.70	192.10	2,012.2	-104.6	-16.1	104.8	0.90	-0.53	-10.63	
2,111.0	3.90	197.90	2,106.0	-110.6	-17.7	110.8	0.46	0.21	6.17	
2,206.0	4.10	202.30	2,200.7	-116.8	-20.0	117.0	0.39	0.21	4.63	
2,301.0	3.60	195.30	2,295.5	-122.8	-22.0	123.1	0.72	-0.53	-7.37	
2,396.0	4.40	182.50	2,390.3	-129.3	-23.0	129.6	1.26	0.84	-13.47	
2,491.0	3.90	194.10	2,485.0	-136.1	-23.9	136.4	1.03	-0.53	12.21	
2,586.0	4.50	190.70	2,579.8	-142.9	-25.4	143.2	0.68	0.63	-3.58	
2,680.0	3.20	196.50	2,673.6	-149.1	-26.8	149.4	1.44	-1.38	6.17	
2,775.0	3.80	197.20	2,768.4	-154.6	-28.5	154.9	0.63	0.63	0.74	
2,871.0	3.30	192.30	2,864.2	-160.3	-30.0	160.7	0.61	-0.52	-5.10	
2,966.0	3.80	194.40	2,959.0	-166.1	-31.4	166.4	0.54	0.53	2.21	
3,060.0	3.40	208.50	3,052.8	-171.5	-33.5	171.9	1.03	-0.43	15.00	
3,155.0	3.90	189.30	3,147.7	-177.2	-35.4	177.6	1.38	0.53	-20.21	
3,249.0	4.50	189.70	3,241.4	-184.0	-36.5	184.4	0.64	0.64	0.43	
3,344.0	4.40	205.70	3,336.1	-190.9	-38.7	191.4	1.31	-0.11	16.84	
3,439.0	4.50	201.30	3,430.8	-197.7	-41.7	198.2	0.37	0.11	-4.63	
3,534.0	4.70	202.00	3,525.5	-204.8	-44.5	205.3	0.22	0.21	0.74	
3,629.0	4.70	206.00	3,620.2	-211.9	-47.6	212.4	0.34	0.00	4.21	
3,724.0	5.30	199.40	3,714.9	-219.5	-50.8	220.1	0.87	0.63	-6.95	
3,819.0	4.40	191.30	3,809.5	-227.2	-53.0	227.8	1.19	-0.95	-8.53	
3,914.0	3.00	192.50	3,904.3	-233.2	-54.2	233.8	1.48	-1.47	1.26	
4,009.0	1.90	192.70	3,999.2	-237.2	-55.1	237.8	1.16	-1.16	0.21	
4,103.0	0.70	125.90	4,093.2	-239.1	-55.0	239.7	1.86	-1.28	-71.06	
4,198.0	1.70	179.10	4,188.2	-240.8	-54.5	241.4	1.47	1.05	56.00	
4,293.0	3.10	189.30	4,283.1	-244.7	-54.9	245.4	1.54	1.47	10.74	
4,388.0	3.70	197.90	4,377.9	-250.2	-56.2	250.8	0.83	0.63	9.05	
4,483.0	3.90	191.10	4,472.7	-256.3	-57.8	256.9	0.52	0.21	-7.16	
4,578.0	4.40	190.60	4,567.5	-263.0	-59.1	263.7	0.53	0.53	-0.53	
4,673.0	4.30	200.90	4,662.2	-269.9	-61.0	270.6	0.83	-0.11	10.84	
4,768.0	4.50	201.10	4,756.9	-276.8	-63.7	277.5	0.21	0.21	0.21	
4,863.0	3.60	193.20	4,851.7	-283.1	-65.7	283.9	1.11	-0.95	-8.32	
4,958.0	4.50	193.70	4,946.4	-289.7	-67.2	290.4	0.95	0.95	0.53	
5,054.0	4.70	200.40	5,042.1	-297.0	-69.5	297.8	0.60	0.21	6.98	
5,148.0	3.50	202.00	5,135.9	-303.3	-71.9	304.1	1.28	-1.28	1.70	
5,243.0	3.30	203.60	5,230.7	-308.5	-74.1	309.3	0.23	-0.21	1.68	
5,275.0	3.30	202.30	5,262.7	-310.2	-74.8	311.0	0.23	0.00	-4.06	
5,307.0	4.70	201.10	5,294.6	-312.2	-75.6	313.1	4.38	4.38	-3.75	
5,338.0	7.30	197.40	5,325.4	-315.3	-76.7	316.2	8.48	8.39	-11.94	
5,370.0	9.80	192.00	5,357.1	-319.9	-77.9	320.8	8.20	7.81	-16.88	
5,402.0	12.40	187.40	5,388.5	-326.0	-78.9	326.9	8.58	8.13	-14.38	
5,433.0	15.20	183.70	5,418.6	-333.3	-79.6	334.2	9.47	9.03	-11.94	
5,465.0	18.60	183.50	5,449.2	-342.6	-80.1	343.5	10.63	10.63	-0.63	

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Survey										
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5,497.0	21.70	183.70	5,479.2	-353.6	-80.8	354.5	9.69	9.69	0.63	
5,528.0	24.90	182.50	5,507.7	-365.9	-81.5	366.8	10.44	10.32	-3.87	
5,560.0	28.30	180.70	5,536.3	-380.2	-81.9	381.1	10.92	10.63	-5.63	
5,592.0	31.40	178.80	5,564.0	-396.1	-81.8	397.0	10.13	9.69	-5.94	
5,623.0	34.00	177.70	5,590.1	-412.8	-81.3	413.8	8.60	8.39	-3.55	
5,655.0	36.00	177.00	5,616.3	-431.2	-80.4	432.1	6.37	6.25	-2.19	
5,686.0	39.70	177.00	5,640.8	-450.2	-79.4	451.1	11.94	11.94	0.00	
5,718.0	43.40	178.30	5,664.8	-471.4	-78.6	472.2	11.87	11.56	4.06	
5,749.0	46.60	180.40	5,686.7	-493.3	-78.3	494.2	11.38	10.32	6.77	
5,780.0	50.00	180.50	5,707.3	-516.4	-78.5	517.3	10.97	10.97	0.32	
5,812.0	52.80	179.10	5,727.3	-541.4	-78.4	542.3	9.39	8.75	-4.38	
5,844.0	54.90	179.00	5,746.1	-567.3	-78.0	568.1	6.57	6.56	-0.31	
5,875.0	56.40	179.10	5,763.6	-592.9	-77.6	593.7	4.85	4.84	0.32	
5,907.0	58.40	178.80	5,780.9	-619.8	-77.1	620.7	6.30	6.25	-0.94	
5,938.0	62.40	178.80	5,796.2	-646.8	-76.5	647.6	12.90	12.90	0.00	
5,970.0	66.30	178.80	5,810.0	-675.6	-75.9	676.4	12.19	12.19	0.00	
6,002.0	69.70	180.20	5,822.0	-705.3	-75.7	706.1	11.37	10.63	4.38	
6,033.0	73.30	180.50	5,831.8	-734.6	-75.8	735.5	11.65	11.61	0.97	
6,065.0	77.00	180.20	5,840.0	-765.6	-76.0	766.4	11.60	11.56	-0.94	
6,096.0	81.00	180.20	5,846.0	-796.0	-76.1	796.8	12.90	12.90	0.00	
6,128.0	85.10	180.00	5,849.8	-827.8	-76.2	828.6	12.83	12.81	-0.63	
6,170.0	89.70	181.40	5,851.7	-869.7	-76.7	870.5	11.45	10.95	3.33	
6,203.0	89.92	181.40	5,851.8	-902.7	-77.5	903.5	0.67	0.67	0.00	
7"										
6,215.0	90.00	181.40	5,851.9	-914.7	-77.8	915.5	0.67	0.67	0.00	
6,243.0	90.90	182.50	5,851.6	-942.7	-78.7	943.5	5.08	3.21	3.93	
6,274.0	90.70	181.80	5,851.2	-973.6	-79.9	974.5	2.35	-0.65	-2.26	
6,306.0	90.10	180.70	5,851.0	-1,005.6	-80.6	1,006.5	3.92	-1.88	-3.44	
6,338.0	89.30	180.00	5,851.1	-1,037.6	-80.8	1,038.5	3.32	-2.50	-2.19	
6,369.0	89.30	179.70	5,851.5	-1,068.6	-80.7	1,069.5	0.97	0.00	-0.97	
6,401.0	89.90	179.50	5,851.7	-1,100.6	-80.5	1,101.5	1.98	1.88	-0.63	
6,432.0	90.50	179.70	5,851.6	-1,131.6	-80.3	1,132.5	2.04	1.94	0.65	
6,464.0	90.00	179.70	5,851.5	-1,163.6	-80.1	1,164.5	1.56	-1.56	0.00	
6,495.0	88.90	180.40	5,851.8	-1,194.6	-80.1	1,195.5	4.21	-3.55	2.26	
6,527.0	87.90	180.70	5,852.7	-1,226.6	-80.4	1,227.4	3.26	-3.13	0.94	
6,559.0	87.80	180.70	5,853.9	-1,258.6	-80.8	1,259.4	0.31	-0.31	0.00	
6,591.0	88.30	180.40	5,855.0	-1,290.6	-81.1	1,291.4	1.82	1.56	-0.94	
6,622.0	88.70	180.50	5,855.8	-1,321.5	-81.4	1,322.4	1.33	1.29	0.32	
6,653.0	89.20	180.20	5,856.4	-1,352.5	-81.6	1,353.4	1.88	1.61	-0.97	
6,685.0	89.50	180.20	5,856.7	-1,384.5	-81.7	1,385.4	0.94	0.94	0.00	
6,716.0	90.00	180.20	5,856.9	-1,415.5	-81.8	1,416.4	1.61	1.61	0.00	
6,748.0	90.30	180.00	5,856.8	-1,447.5	-81.9	1,448.4	1.13	0.94	-0.63	
6,779.0	90.80	179.70	5,856.5	-1,478.5	-81.8	1,479.4	1.88	1.61	-0.97	
6,800.5	91.27	179.57	5,856.1	-1,500.0	-81.6	1,500.9	2.28	2.19	-0.62	
WP#1										
6,811.0	91.50	179.50	5,855.8	-1,510.5	-81.5	1,511.4	2.28	2.19	-0.63	
6,843.0	92.50	179.30	5,854.7	-1,542.5	-81.2	1,543.3	3.19	3.13	-0.63	
6,874.0	92.10	178.40	5,853.5	-1,573.5	-80.6	1,574.3	3.17	-1.29	-2.90	
6,906.0	90.70	179.30	5,852.7	-1,605.5	-80.0	1,606.3	5.20	-4.38	2.81	
6,937.0	89.80	180.00	5,852.6	-1,636.5	-79.8	1,637.3	3.68	-2.90	2.26	
6,969.0	90.00	180.20	5,852.6	-1,668.5	-79.8	1,669.3	0.88	0.63	0.63	
7,001.0	90.30	180.20	5,852.5	-1,700.5	-79.9	1,701.3	0.94	0.94	0.00	
7,032.0	89.30	179.30	5,852.6	-1,731.5	-79.8	1,732.3	4.34	-3.23	-2.90	
7,064.0	88.50	180.50	5,853.3	-1,763.4	-79.7	1,764.2	4.51	-2.50	3.75	

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2814B
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Well:</b>	Razor #21A-2814B	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,095.0	88.80	180.20	5,854.0	-1,794.4	-79.9	1,795.2	1.37	0.97	-0.97
7,127.0	89.20	180.20	5,854.5	-1,826.4	-80.0	1,827.2	1.25	1.25	0.00
7,158.0	89.70	179.70	5,854.8	-1,857.4	-80.0	1,858.2	2.28	1.61	-1.61
7,190.0	88.80	179.70	5,855.3	-1,889.4	-79.8	1,890.2	2.81	-2.81	0.00
7,221.0	89.20	179.70	5,855.8	-1,920.4	-79.7	1,921.2	1.29	1.29	0.00
7,253.0	89.60	179.10	5,856.1	-1,952.4	-79.3	1,953.2	2.25	1.25	-1.88
7,284.0	90.00	179.30	5,856.2	-1,983.4	-78.9	1,984.2	1.44	1.29	0.65
7,316.0	90.40	179.30	5,856.1	-2,015.4	-78.5	2,016.2	1.25	1.25	0.00
7,347.0	89.80	179.00	5,856.1	-2,046.4	-78.1	2,047.2	2.16	-1.94	-0.97
7,379.0	89.40	179.30	5,856.3	-2,078.4	-77.6	2,079.2	1.56	-1.25	0.94
7,411.0	89.40	179.30	5,856.6	-2,110.4	-77.2	2,111.1	0.00	0.00	0.00
7,443.0	89.90	179.30	5,856.8	-2,142.4	-76.8	2,143.1	1.56	1.56	0.00
7,474.0	90.40	179.80	5,856.7	-2,173.4	-76.6	2,174.1	2.28	1.61	1.61
7,506.0	90.90	180.00	5,856.4	-2,205.4	-76.5	2,206.1	1.68	1.56	0.63
7,538.0	91.50	180.20	5,855.7	-2,237.4	-76.6	2,238.1	1.98	1.88	0.63
7,570.0	91.30	180.00	5,854.9	-2,269.4	-76.6	2,270.1	0.88	-0.63	-0.63
7,601.0	90.40	179.80	5,854.5	-2,300.4	-76.6	2,301.1	2.97	-2.90	-0.65
7,632.0	90.40	180.20	5,854.3	-2,331.4	-76.6	2,332.1	1.29	0.00	1.29
7,663.0	90.00	180.40	5,854.1	-2,362.4	-76.7	2,363.1	1.44	-1.29	0.65
7,694.0	88.60	180.40	5,854.5	-2,393.4	-76.9	2,394.1	4.52	-4.52	0.00
7,725.0	88.50	180.20	5,855.3	-2,424.4	-77.1	2,425.1	0.72	-0.32	-0.65
7,755.0	88.60	180.00	5,856.1	-2,454.3	-77.2	2,455.1	0.75	0.33	-0.67
7,787.0	88.90	180.40	5,856.8	-2,486.3	-77.3	2,487.1	1.56	0.94	1.25
7,817.0	89.20	179.50	5,857.3	-2,516.3	-77.2	2,517.1	3.16	1.00	-3.00
7,848.0	89.50	179.10	5,857.6	-2,547.3	-76.9	2,548.0	1.61	0.97	-1.29
7,879.0	89.90	178.80	5,857.8	-2,578.3	-76.3	2,579.0	1.61	1.29	-0.97
7,910.0	90.00	179.00	5,857.8	-2,609.3	-75.7	2,610.0	0.72	0.32	0.65
7,941.0	90.20	179.30	5,857.8	-2,640.3	-75.2	2,641.0	1.16	0.65	0.97
7,972.0	89.90	180.90	5,857.7	-2,671.3	-75.3	2,672.0	5.25	-0.97	5.16
8,003.0	89.90	181.80	5,857.8	-2,702.3	-76.0	2,703.0	2.90	0.00	2.90
8,034.0	90.10	182.80	5,857.8	-2,733.3	-77.3	2,734.0	3.29	0.65	3.23
8,065.0	90.50	182.30	5,857.6	-2,764.2	-78.6	2,765.0	2.07	1.29	-1.61
8,096.0	90.90	182.50	5,857.2	-2,795.2	-79.9	2,796.0	1.44	1.29	0.65
8,127.0	91.50	181.90	5,856.6	-2,826.2	-81.1	2,826.9	2.74	1.94	-1.94
8,158.0	91.50	181.40	5,855.8	-2,857.2	-82.0	2,857.9	1.61	0.00	-1.61
8,189.0	91.50	180.70	5,855.0	-2,888.2	-82.6	2,888.9	2.26	0.00	-2.26
8,220.0	91.00	180.00	5,854.3	-2,919.1	-82.8	2,919.9	2.77	-1.61	-2.26
8,251.0	91.10	179.50	5,853.7	-2,950.1	-82.7	2,950.9	1.64	0.32	-1.61
8,282.0	91.40	179.30	5,853.0	-2,981.1	-82.3	2,981.9	1.16	0.97	-0.65
8,300.9	90.85	178.87	5,852.7	-3,000.0	-82.0	3,000.7	3.68	-2.90	-2.26
WP#2									
8,313.0	90.50	178.60	5,852.5	-3,012.1	-81.8	3,012.9	3.68	-2.90	-2.26
8,344.0	90.30	177.70	5,852.3	-3,043.1	-80.8	3,043.8	2.97	-0.65	-2.90
8,374.0	91.00	178.30	5,852.0	-3,073.1	-79.7	3,073.8	3.07	2.33	2.00
8,406.0	91.60	177.40	5,851.3	-3,105.0	-78.5	3,105.7	3.38	1.88	-2.81
8,436.0	91.70	178.30	5,850.4	-3,135.0	-77.4	3,135.7	3.02	0.33	3.00
8,467.0	90.70	177.90	5,849.7	-3,166.0	-76.4	3,166.7	3.47	-3.23	-1.29
8,498.0	89.50	178.10	5,849.7	-3,197.0	-75.3	3,197.6	3.92	-3.87	0.65
8,528.0	90.90	178.80	5,849.6	-3,227.0	-74.5	3,227.6	5.22	4.67	2.33
8,559.0	91.90	179.30	5,848.8	-3,257.9	-74.0	3,258.6	3.61	3.23	1.61
8,590.0	91.50	179.30	5,847.9	-3,288.9	-73.6	3,289.6	1.29	-1.29	0.00
8,621.0	90.00	179.70	5,847.5	-3,319.9	-73.3	3,320.5	5.01	-4.84	1.29
8,651.0	88.80	180.40	5,847.8	-3,349.9	-73.3	3,350.5	4.63	-4.00	2.33
8,682.0	88.20	180.40	5,848.6	-3,380.9	-73.5	3,381.5	1.94	-1.94	0.00

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2814B
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Well:</b>	Razor #21A-2814B	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,713.0	88.20	180.40	5,849.6	-3,411.9	-73.8	3,412.5	0.00	0.00	0.00	
8,744.0	87.10	179.80	5,850.9	-3,442.9	-73.8	3,443.5	4.04	-3.55	-1.94	
8,775.0	87.00	180.20	5,852.5	-3,473.8	-73.8	3,474.4	1.33	-0.32	1.29	
8,806.0	87.40	179.70	5,854.0	-3,504.8	-73.8	3,505.4	2.06	1.29	-1.61	
8,837.0	87.80	179.50	5,855.3	-3,535.8	-73.6	3,536.4	1.44	1.29	-0.65	
8,867.0	88.30	179.50	5,856.3	-3,565.7	-73.3	3,566.3	1.67	1.67	0.00	
8,898.0	88.90	179.50	5,857.1	-3,596.7	-73.0	3,597.3	1.94	1.94	0.00	
8,928.0	89.20	179.70	5,857.6	-3,626.7	-72.8	3,627.3	1.20	1.00	0.67	
8,959.0	89.80	180.00	5,857.8	-3,657.7	-72.7	3,658.3	2.16	1.94	0.97	
8,990.0	90.50	180.00	5,857.7	-3,688.7	-72.7	3,689.3	2.26	2.26	0.00	
9,020.0	90.60	180.00	5,857.5	-3,718.7	-72.7	3,719.3	0.33	0.33	0.00	
9,051.0	89.70	179.50	5,857.4	-3,749.7	-72.6	3,750.3	3.32	-2.90	-1.61	
9,051.2	89.70	179.50	5,857.4	-3,749.9	-72.6	3,750.5	0.00	0.00	0.00	
<b>WP#3</b>										
9,081.0	89.90	180.40	5,857.5	-3,779.7	-72.6	3,780.3	3.10	0.67	3.02	
9,112.0	90.80	180.20	5,857.3	-3,810.7	-72.8	3,811.3	2.97	2.90	-0.65	
9,143.0	90.30	180.90	5,857.0	-3,841.7	-73.0	3,842.3	2.77	-1.61	2.26	
9,173.0	90.70	181.40	5,856.7	-3,871.7	-73.6	3,872.3	2.13	1.33	1.67	
9,204.0	91.00	182.30	5,856.3	-3,902.7	-74.7	3,903.3	3.06	0.97	2.90	
9,235.0	90.90	181.90	5,855.8	-3,933.7	-75.8	3,934.3	1.33	-0.32	-1.29	
9,266.0	90.00	182.30	5,855.5	-3,964.6	-76.9	3,965.3	3.18	-2.90	1.29	
9,297.0	90.00	182.80	5,855.5	-3,995.6	-78.3	3,996.2	1.61	0.00	1.61	
9,328.0	89.90	183.20	5,855.5	-4,026.6	-79.9	4,027.2	1.33	-0.32	1.29	
9,358.0	89.80	183.00	5,855.6	-4,056.5	-81.5	4,057.2	0.75	-0.33	-0.67	
9,389.0	89.20	181.10	5,855.9	-4,087.5	-82.7	4,088.2	6.43	-1.94	-6.13	
9,420.0	89.30	180.40	5,856.3	-4,118.5	-83.1	4,119.2	2.28	0.32	-2.26	
9,451.0	89.20	180.40	5,856.7	-4,149.5	-83.3	4,150.2	0.32	-0.32	0.00	
9,482.0	89.30	180.00	5,857.1	-4,180.5	-83.4	4,181.2	1.33	0.32	-1.29	
9,513.0	89.00	179.50	5,857.6	-4,211.5	-83.3	4,212.2	1.88	-0.97	-1.61	
9,544.0	88.90	179.00	5,858.1	-4,242.5	-82.8	4,243.2	1.64	-0.32	-1.61	
9,574.0	88.90	179.00	5,858.7	-4,272.5	-82.3	4,273.1	0.00	0.00	0.00	
9,605.0	88.70	179.00	5,859.4	-4,303.5	-81.8	4,304.1	0.65	-0.65	0.00	
9,635.0	88.90	178.40	5,860.0	-4,333.4	-81.1	4,334.1	2.11	0.67	-2.00	
9,666.0	89.30	178.80	5,860.5	-4,364.4	-80.3	4,365.1	1.82	1.29	1.29	
9,697.0	90.00	179.00	5,860.7	-4,395.4	-79.7	4,396.0	2.35	2.26	0.65	
9,728.0	89.90	179.30	5,860.7	-4,426.4	-79.3	4,427.0	1.02	-0.32	0.97	
9,758.0	89.30	178.80	5,860.9	-4,456.4	-78.8	4,457.0	2.60	-2.00	-1.67	
9,789.0	89.20	179.00	5,861.3	-4,487.4	-78.2	4,488.0	0.72	-0.32	0.65	
9,801.5	89.16	179.32	5,861.5	-4,499.9	-78.0	4,500.5	2.60	-0.32	2.58	
<b>WP#4</b>										
9,820.0	89.10	179.80	5,861.8	-4,518.4	-77.9	4,519.0	2.60	-0.32	2.58	
9,850.0	89.00	179.50	5,862.3	-4,548.4	-77.7	4,549.0	1.05	-0.33	-1.00	
9,881.0	88.20	179.50	5,863.0	-4,579.4	-77.4	4,580.0	2.58	-2.58	0.00	
9,912.0	87.30	180.20	5,864.2	-4,610.4	-77.3	4,610.9	3.68	-2.90	2.26	
9,942.0	86.70	179.80	5,865.8	-4,640.3	-77.3	4,640.9	2.40	-2.00	-1.33	
9,973.0	87.30	179.50	5,867.4	-4,671.3	-77.1	4,671.9	2.16	1.94	-0.97	
10,004.0	88.40	180.00	5,868.6	-4,702.3	-77.0	4,702.8	3.90	3.55	1.61	
10,034.0	89.80	180.00	5,869.1	-4,732.3	-77.0	4,732.8	4.67	4.67	0.00	
10,065.0	90.50	179.50	5,869.0	-4,763.2	-76.9	4,763.8	2.77	2.26	-1.61	
10,096.0	91.10	179.70	5,868.5	-4,794.2	-76.7	4,794.8	2.04	1.94	0.65	
10,127.0	91.90	180.00	5,867.7	-4,825.2	-76.6	4,825.8	2.76	2.58	0.97	
10,158.0	91.50	180.50	5,866.8	-4,856.2	-76.7	4,856.8	2.06	-1.29	1.61	
10,189.0	91.40	181.20	5,866.0	-4,887.2	-77.2	4,887.8	2.28	-0.32	2.26	
10,219.0	90.00	180.70	5,865.7	-4,917.2	-77.7	4,917.8	4.96	-4.67	-1.67	



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2814B
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Well:</b>	Razor #21A-2814B	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,250.0	88.50	181.20	5,866.1	-4,948.2	-78.2	4,948.8	5.10	-4.84	1.61
10,281.0	88.60	181.40	5,866.9	-4,979.2	-78.9	4,979.8	0.72	0.32	0.65
10,301.7	88.93	180.80	5,867.3	-4,999.9	-79.3	5,000.5	3.32	1.61	-2.90
<b>WP#5</b>									
10,312.0	89.10	180.50	5,867.5	-5,010.2	-79.4	5,010.7	3.32	1.61	-2.90
10,343.0	89.40	181.10	5,867.9	-5,041.2	-79.8	5,041.7	2.16	0.97	1.94
10,374.0	90.30	182.30	5,868.0	-5,072.1	-80.8	5,072.7	4.84	2.90	3.87
10,404.0	90.70	181.80	5,867.7	-5,102.1	-81.8	5,102.7	2.13	1.33	-1.67
10,434.0	91.10	181.40	5,867.2	-5,132.1	-82.7	5,132.7	1.89	1.33	-1.33
10,465.0	90.80	181.40	5,866.7	-5,163.1	-83.4	5,163.7	0.97	-0.97	0.00
10,495.0	91.20	180.70	5,866.2	-5,193.1	-84.0	5,193.7	2.69	1.33	-2.33
10,526.0	91.90	180.20	5,865.4	-5,224.1	-84.2	5,224.7	2.77	2.26	-1.61
10,557.0	92.60	180.00	5,864.1	-5,255.0	-84.3	5,255.7	2.35	2.26	-0.65
10,589.0	91.80	179.80	5,862.9	-5,287.0	-84.2	5,287.6	2.58	-2.50	-0.63
10,619.0	90.50	180.00	5,862.3	-5,317.0	-84.2	5,317.6	4.38	-4.33	0.67
10,650.0	90.60	179.50	5,862.0	-5,348.0	-84.0	5,348.6	1.64	0.32	-1.61
10,681.0	90.00	178.80	5,861.8	-5,379.0	-83.6	5,379.6	2.97	-1.94	-2.26
10,712.0	89.80	178.80	5,861.9	-5,410.0	-82.9	5,410.6	0.65	-0.65	0.00
10,742.0	90.90	179.10	5,861.7	-5,440.0	-82.4	5,440.6	3.80	3.67	1.00
10,773.0	91.60	179.10	5,861.0	-5,471.0	-81.9	5,471.6	2.26	2.26	0.00
10,803.0	90.60	178.40	5,860.5	-5,501.0	-81.2	5,501.5	4.07	-3.33	-2.33
10,834.0	88.80	178.30	5,860.6	-5,532.0	-80.3	5,532.5	5.82	-5.81	-0.32
10,864.0	88.50	177.90	5,861.3	-5,561.9	-79.3	5,562.5	1.67	-1.00	-1.33
10,894.0	88.70	177.90	5,862.1	-5,591.9	-78.2	5,592.4	0.67	0.67	0.00
10,925.0	89.10	178.40	5,862.7	-5,622.9	-77.2	5,623.4	2.07	1.29	1.61
10,956.0	89.20	177.70	5,863.1	-5,653.9	-76.2	5,654.4	2.28	0.32	-2.26
10,987.0	89.60	178.10	5,863.4	-5,684.8	-75.0	5,685.3	1.82	1.29	1.29
11,018.0	89.50	178.80	5,863.7	-5,715.8	-74.2	5,716.3	2.28	-0.32	2.26
11,049.0	89.70	179.30	5,863.9	-5,746.8	-73.7	5,747.3	1.74	0.65	1.61
11,080.0	90.30	179.80	5,863.9	-5,777.8	-73.5	5,778.3	2.52	1.94	1.61
11,111.0	91.20	180.90	5,863.5	-5,808.8	-73.6	5,809.3	4.58	2.90	3.55
11,142.0	92.20	180.90	5,862.6	-5,839.8	-74.1	5,840.3	3.23	3.23	0.00
11,172.0	92.20	181.60	5,861.4	-5,869.8	-74.8	5,870.2	2.33	0.00	2.33
11,202.6	92.99	182.68	5,860.0	-5,900.3	-75.9	5,900.8	4.38	2.58	3.55
<b>WP#6</b>									
11,203.0	93.00	182.70	5,860.0	-5,900.7	-75.9	5,901.2	4.38	2.58	3.55
11,233.0	92.90	182.50	5,858.5	-5,930.6	-77.3	5,931.1	0.74	-0.33	-0.67
11,264.0	93.20	182.10	5,856.8	-5,961.6	-78.5	5,962.1	1.61	0.97	-1.29
11,295.0	94.00	181.90	5,854.9	-5,992.5	-79.6	5,993.0	2.66	2.58	-0.65
11,326.0	94.40	182.70	5,852.6	-6,023.4	-80.9	6,023.9	2.88	1.29	2.58
11,356.0	94.50	182.30	5,850.3	-6,053.3	-82.2	6,053.8	1.37	0.33	-1.33
11,387.0	94.00	181.20	5,848.0	-6,084.2	-83.1	6,084.7	3.89	-1.61	-3.55
11,418.0	94.10	180.90	5,845.8	-6,115.1	-83.7	6,115.6	1.02	0.32	-0.97
11,448.0	94.20	181.40	5,843.6	-6,145.0	-84.3	6,145.6	1.70	0.33	1.67
11,479.0	94.40	181.40	5,841.3	-6,175.9	-85.0	6,176.5	0.65	0.65	0.00
11,510.0	94.60	181.20	5,838.9	-6,206.8	-85.7	6,207.4	0.91	0.65	-0.65
11,541.0	94.60	181.10	5,836.4	-6,237.7	-86.4	6,238.3	0.32	0.00	-0.32
11,571.0	94.00	180.40	5,834.1	-6,267.6	-86.8	6,268.2	3.07	-2.00	-2.33
11,607.0	94.20	180.20	5,831.6	-6,303.5	-86.9	6,304.1	0.78	0.56	-0.56
11,633.0	94.70	180.40	5,829.5	-6,329.4	-87.1	6,330.0	2.07	1.92	0.77
11,663.0	93.70	179.80	5,827.3	-6,359.4	-87.1	6,359.9	3.88	-3.33	-2.00
11,694.0	92.50	180.40	5,825.7	-6,390.3	-87.2	6,390.9	4.33	-3.87	1.94
11,729.0	91.10	180.20	5,824.6	-6,425.3	-87.4	6,425.9	4.04	-4.00	-0.57
11,756.0	90.80	179.10	5,824.1	-6,452.3	-87.2	6,452.9	4.22	-1.11	-4.07



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2814B
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (RKB - 17.3')
<b>Well:</b>	Razor #21A-2814B	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,787.0	90.40	178.40	5,823.8	-6,483.3	-86.5	6,483.8	2.60	-1.29	-2.26
11,818.0	90.60	177.90	5,823.5	-6,514.3	-85.5	6,514.8	1.74	0.65	-1.61
11,849.0	90.70	178.40	5,823.2	-6,545.2	-84.5	6,545.8	1.64	0.32	1.61
11,879.0	90.70	177.20	5,822.8	-6,575.2	-83.4	6,575.7	4.00	0.00	-4.00
11,910.0	90.70	176.80	5,822.4	-6,606.2	-81.7	6,606.7	1.29	0.00	-1.29
11,941.0	90.50	177.90	5,822.1	-6,637.1	-80.3	6,637.6	3.61	-0.65	3.55
11,971.0	89.30	177.70	5,822.2	-6,667.1	-79.2	6,667.6	4.06	-4.00	-0.67
12,002.0	89.30	177.60	5,822.5	-6,698.1	-77.9	6,698.5	0.32	0.00	-0.32
12,033.0	89.10	177.20	5,823.0	-6,729.0	-76.5	6,729.5	1.44	-0.65	-1.29
12,063.0	89.10	177.20	5,823.4	-6,759.0	-75.0	6,759.4	0.00	0.00	0.00
12,094.0	89.70	177.40	5,823.8	-6,790.0	-73.6	6,790.4	2.04	1.94	0.65
12,125.0	89.70	177.40	5,823.9	-6,820.9	-72.2	6,821.3	0.00	0.00	0.00
12,156.0	89.30	177.60	5,824.2	-6,851.9	-70.8	6,852.3	1.44	-1.29	0.65
12,187.0	89.40	176.70	5,824.6	-6,882.9	-69.3	6,883.2	2.92	0.32	-2.90
12,218.0	89.50	178.40	5,824.8	-6,913.8	-67.9	6,914.2	5.49	0.32	5.48
12,248.0	90.00	180.40	5,825.0	-6,943.8	-67.6	6,944.2	6.87	1.67	6.67
12,279.0	90.60	181.20	5,824.8	-6,974.8	-68.1	6,975.1	3.23	1.94	2.58
12,310.0	90.70	181.90	5,824.5	-7,005.8	-68.9	7,006.1	2.28	0.32	2.26
12,341.0	90.70	181.80	5,824.1	-7,036.8	-69.9	7,037.1	0.32	0.00	-0.32
12,372.0	90.30	181.80	5,823.8	-7,067.8	-70.9	7,068.1	1.29	-1.29	0.00
12,402.0	89.80	182.10	5,823.8	-7,097.8	-71.9	7,098.1	1.94	-1.67	1.00
12,433.0	89.20	181.60	5,824.1	-7,128.7	-72.9	7,129.1	2.52	-1.94	-1.61
12,464.0	89.20	181.40	5,824.5	-7,159.7	-73.7	7,160.1	0.65	0.00	-0.65
12,495.0	89.30	182.30	5,824.9	-7,190.7	-74.7	7,191.1	2.92	0.32	2.90
12,525.0	89.30	182.80	5,825.3	-7,220.7	-76.0	7,221.1	1.67	0.00	1.67
12,556.0	89.30	183.00	5,825.6	-7,251.6	-77.6	7,252.1	0.65	0.00	0.65
12,587.0	89.20	183.70	5,826.1	-7,282.6	-79.4	7,283.0	2.28	-0.32	2.26
12,619.0	89.90	183.70	5,826.3	-7,314.5	-81.5	7,315.0	2.19	2.19	0.00
12,650.0	90.70	184.40	5,826.1	-7,345.4	-83.7	7,345.9	3.43	2.58	2.26
12,671.0	90.80	184.40	5,825.9	-7,366.4	-85.3	7,366.9	0.48	0.48	0.00
12,721.0	90.90	184.40	5,825.1	-7,416.2	-89.1	7,416.8	0.20	0.20	0.00
BHL 2558'FNL & 825'FEL, Sec.28									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,203.0	5,851.8	7"	7	7-1/2

Checked By: _____	Approved By: _____	Date: _____
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