

# Whiting Oil & Gas

Well Name: **Razor #21A-2815A**

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

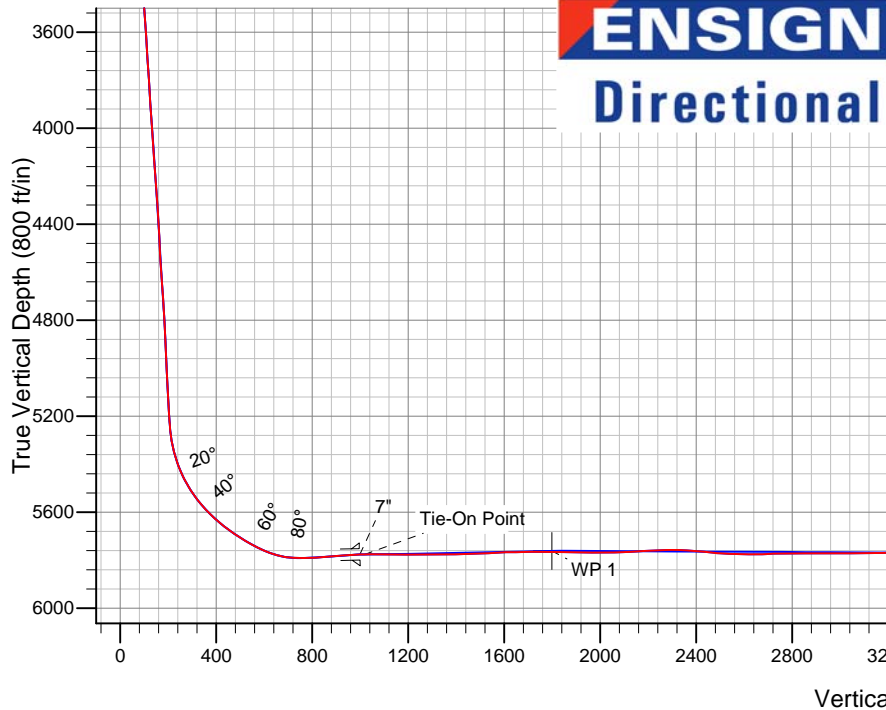
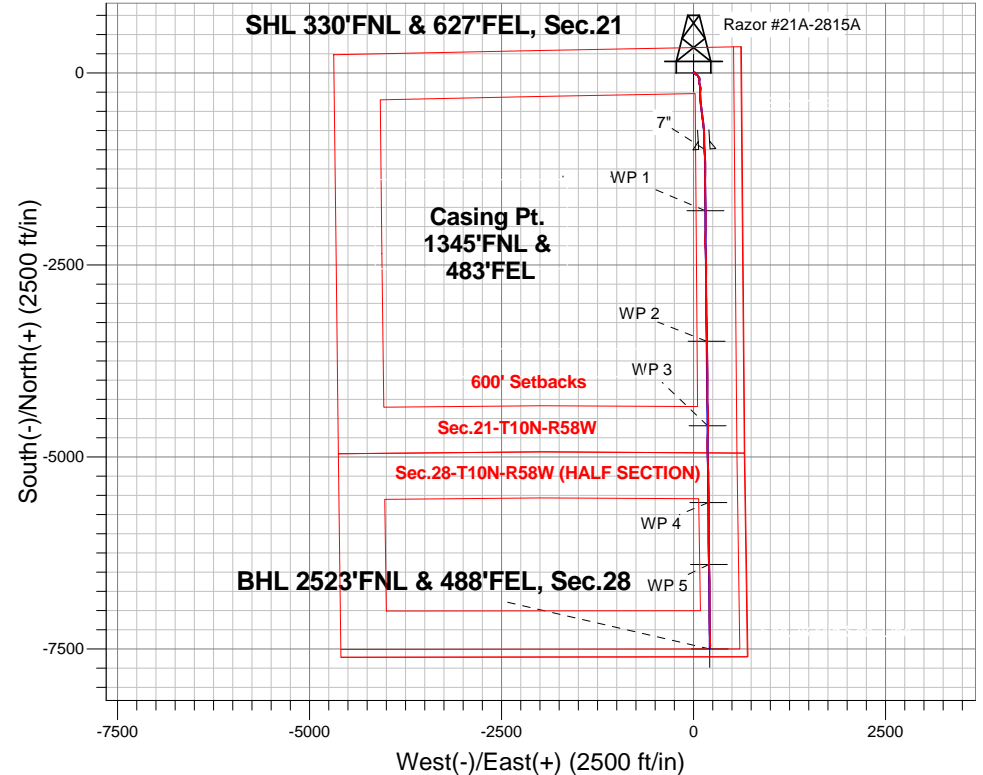
Ground Elevation: 4833.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1549495.83	3452912.81	40.830272	-103.863322	

Original Well Elev WELL @ 4850.3ft (Original Well Elev)

## FINAL SURVEY

Projected Bottom Hole Location  
12818'MD 5738'TVD 7467'S & 218'E of SHL  
91.7 degree Incl @ 178.4 degree AZM



Razor #21A-2814B Pad Sec.21-T10N-R58W  
Razor #21A-2815A

7:21, November 05 2013

Wellbore #1

### ANNOTATIONS

No annotation data is available.

### LEGEND

- △ Razor #21A-2815A, Wellbore #1, Plan #3 (10-23-13) V0
- Wellbore #1
- Survey #1



## **Whiting Oil & Gas**

**SEC.21-T10N-R58W**

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

**Razor #21A-2815A**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**05 November, 2013**

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2815A
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Well:</b>	Razor #21A-2815A	<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

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

<b>Well</b>	Razor #21A-2815A		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.830272
		<b>Longitude:</b>	-103.863322
		<b>Ground Level:</b>	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	10/17/2013	8.09	67.46	53,200

<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	178.38	

<b>Survey Program</b>	<b>Date</b>	11/5/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
197.0	12,818.0	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	55.60	1.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>SHL 330°FNL &amp; 627°FEL, Sec.21</b>										
197.0	0.30	55.60	197.0	0.3	0.4	-0.3	0.15	0.15	0.00	
290.0	0.40	51.30	290.0	0.6	0.9	-0.6	0.11	0.11	-4.62	
382.0	0.40	70.20	382.0	0.9	1.4	-0.9	0.14	0.00	20.54	
475.0	0.50	75.80	475.0	1.2	2.1	-1.1	0.12	0.11	6.02	
569.0	0.90	86.50	569.0	1.3	3.3	-1.2	0.45	0.43	11.38	
662.0	1.50	78.60	662.0	1.6	5.2	-1.4	0.67	0.65	-8.49	
757.0	1.30	111.50	756.9	1.4	7.4	-1.2	0.86	-0.21	34.63	
852.0	0.80	80.20	851.9	1.2	9.1	-0.9	0.78	-0.53	-32.95	
946.0	1.20	46.40	945.9	1.9	10.4	-1.6	0.74	0.43	-35.96	
1,041.0	1.50	59.40	1,040.9	3.3	12.2	-2.9	0.45	0.32	13.68	

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2815A
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Well:</b>	Razor #21A-2815A	<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)
1,135.0	1.20	92.30	1,134.9	3.8	14.3	-3.4	0.87	-0.32	35.00
1,230.0	0.60	151.90	1,229.8	3.4	15.5	-2.9	1.09	-0.63	62.74
1,325.0	1.10	154.90	1,324.8	2.1	16.1	-1.6	0.53	0.53	3.16
1,420.0	0.80	181.60	1,419.8	0.6	16.5	-0.2	0.55	-0.32	28.11
1,515.0	2.20	179.00	1,514.8	-1.9	16.5	2.3	1.48	1.47	-2.74
1,610.0	3.20	157.30	1,609.7	-6.1	17.5	6.6	1.49	1.05	-22.84
1,719.0	3.40	145.70	1,718.5	-11.6	20.5	12.2	0.64	0.18	-10.64
1,814.0	4.40	132.00	1,813.3	-16.4	24.8	17.1	1.43	1.05	-14.42
1,908.0	5.10	108.50	1,907.0	-20.1	31.5	21.0	2.18	0.74	-25.00
2,003.0	4.60	101.90	2,001.6	-22.2	39.2	23.3	0.79	-0.53	-6.95
2,098.0	3.60	123.40	2,096.4	-24.7	45.4	25.9	1.91	-1.05	22.63
2,194.0	3.50	137.80	2,192.2	-28.5	49.9	29.9	0.93	-0.10	15.00
2,289.0	3.50	129.90	2,287.0	-32.5	54.1	34.0	0.51	0.00	-8.32
2,383.0	4.20	144.50	2,380.8	-37.2	58.3	38.8	1.28	0.74	15.53
2,478.0	3.30	166.80	2,475.6	-42.7	60.9	44.4	1.79	-0.95	23.47
2,573.0	3.30	165.10	2,570.5	-48.0	62.3	49.7	0.10	0.00	-1.79
2,668.0	2.80	161.90	2,665.3	-52.8	63.7	54.6	0.56	-0.53	-3.37
2,763.0	3.10	133.40	2,760.2	-56.8	66.3	58.6	1.56	0.32	-30.00
2,858.0	3.70	121.10	2,855.0	-60.1	70.8	62.1	0.99	0.63	-12.95
2,953.0	3.40	147.30	2,949.9	-64.1	74.9	66.2	1.72	-0.32	27.58
3,048.0	3.30	170.30	3,044.7	-69.1	76.9	71.3	1.41	-0.11	24.21
3,143.0	4.20	180.00	3,139.5	-75.3	77.4	77.5	1.16	0.95	10.21
3,238.0	4.70	171.70	3,234.2	-82.6	77.9	84.8	0.86	0.53	-8.74
3,333.0	2.60	177.40	3,329.0	-88.7	78.6	90.8	2.24	-2.21	6.00
3,428.0	3.90	196.00	3,423.9	-93.9	77.8	96.1	1.75	1.37	19.58
3,523.0	3.70	192.80	3,518.7	-100.0	76.2	102.1	0.31	-0.21	-3.37
3,618.0	3.80	186.10	3,613.5	-106.1	75.2	108.2	0.47	0.11	-7.05
3,712.0	3.80	187.00	3,707.3	-112.3	74.5	114.4	0.06	0.00	0.96
3,807.0	3.40	188.30	3,802.1	-118.2	73.7	120.3	0.43	-0.42	1.37
3,902.0	4.00	169.30	3,896.9	-124.3	73.9	126.3	1.43	0.63	-20.00
3,997.0	3.80	167.00	3,991.6	-130.6	75.2	132.7	0.27	-0.21	-2.42
4,092.0	3.90	158.50	4,086.4	-136.7	77.1	138.8	0.61	0.11	-8.95
4,187.0	4.50	169.40	4,181.2	-143.3	79.0	145.5	1.05	0.63	11.47
4,281.0	4.50	162.60	4,274.9	-150.5	80.8	152.7	0.57	0.00	-7.23
4,376.0	2.90	172.60	4,369.7	-156.4	82.2	158.7	1.81	-1.68	10.53
4,471.0	2.60	170.90	4,464.6	-160.9	82.8	163.2	0.33	-0.32	-1.79
4,566.0	4.10	168.70	4,559.4	-166.4	83.9	168.7	1.58	1.58	-2.32
4,661.0	3.70	164.70	4,654.2	-172.7	85.3	175.0	0.51	-0.42	-4.21
4,756.0	4.20	180.70	4,749.0	-179.1	86.1	181.5	1.27	0.53	16.84
4,851.0	2.60	152.60	4,843.8	-184.5	87.0	186.9	2.38	-1.68	-29.58
4,946.0	3.10	151.70	4,938.7	-188.7	89.3	191.1	0.53	0.53	-0.95
5,041.0	2.40	161.90	5,033.6	-192.8	91.1	195.3	0.90	-0.74	10.74
5,135.0	3.60	183.50	5,127.5	-197.6	91.5	200.1	1.73	1.28	22.98
5,198.0	3.30	179.10	5,190.3	-201.4	91.4	203.9	0.63	-0.48	-6.98
5,230.0	3.30	178.60	5,222.3	-203.3	91.5	205.8	0.09	0.00	-1.56
5,262.0	5.70	183.50	5,254.2	-205.8	91.4	208.3	7.59	7.50	15.31
5,293.0	8.20	190.50	5,285.0	-209.5	90.9	212.0	8.50	8.06	22.58
5,325.0	11.10	189.00	5,316.5	-214.8	90.0	217.2	9.10	9.06	-4.69
5,357.0	14.80	186.30	5,347.7	-221.9	89.1	224.3	11.71	11.56	-8.44
5,388.0	17.90	185.10	5,377.4	-230.6	88.2	233.0	10.06	10.00	-3.87
5,420.0	20.50	185.60	5,407.6	-241.0	87.2	243.4	8.14	8.13	1.56
5,451.0	24.00	183.70	5,436.3	-252.7	86.3	255.1	11.53	11.29	-6.13
5,483.0	27.30	181.20	5,465.2	-266.6	85.7	268.9	10.85	10.31	-7.81
5,514.0	30.70	179.10	5,492.3	-281.6	85.7	283.9	11.45	10.97	-6.77

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<b>Well:</b>	Razor #21A-2815A	<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)
5,546.0	33.90	176.50	5,519.3	-298.7	86.4	301.0	10.90	10.00	-8.13
5,578.0	37.00	174.70	5,545.4	-317.2	87.8	319.5	10.22	9.69	-5.63
5,609.0	40.80	174.40	5,569.5	-336.6	89.6	339.0	12.27	12.26	-0.97
5,641.0	43.70	174.90	5,593.2	-358.0	91.6	360.4	9.12	9.06	1.56
5,673.0	46.50	174.70	5,615.8	-380.6	93.7	383.0	8.76	8.75	-0.63
5,704.0	48.80	174.00	5,636.7	-403.3	96.0	405.9	7.60	7.42	-2.26
5,735.0	51.40	173.50	5,656.6	-427.0	98.6	429.6	8.48	8.39	-1.61
5,767.0	54.10	173.70	5,675.9	-452.3	101.4	455.0	8.45	8.44	0.63
5,799.0	56.50	173.50	5,694.1	-478.4	104.3	481.2	7.52	7.50	-0.63
5,830.0	58.60	173.70	5,710.8	-504.4	107.2	507.3	6.80	6.77	0.65
5,862.0	60.10	173.70	5,727.1	-531.8	110.3	534.7	4.69	4.69	0.00
5,893.0	62.30	173.10	5,742.0	-558.8	113.4	561.8	7.30	7.10	-1.94
5,925.0	65.30	172.40	5,756.1	-587.3	117.0	590.3	9.58	9.38	-2.19
5,957.0	69.50	171.60	5,768.4	-616.5	121.1	619.7	13.33	13.13	-2.50
5,988.0	74.00	172.40	5,778.1	-645.7	125.2	648.9	14.72	14.52	2.58
6,020.0	79.30	173.30	5,785.5	-676.5	129.1	679.9	16.79	16.56	2.81
6,051.0	84.80	174.50	5,789.8	-707.1	132.3	710.5	18.15	17.74	3.87
6,083.0	89.90	175.80	5,791.3	-738.9	135.0	742.4	16.45	15.94	4.06
6,114.0	92.20	176.80	5,790.7	-769.8	137.0	773.4	8.09	7.42	3.23
6,146.0	92.80	178.80	5,789.3	-801.8	138.3	805.3	6.52	1.88	6.25
6,178.0	93.30	179.50	5,787.6	-833.7	138.7	837.3	2.69	1.56	2.19
6,209.0	93.60	179.30	5,785.8	-864.7	139.1	868.2	1.16	0.97	-0.65
6,241.0	94.00	178.90	5,783.6	-896.6	139.6	900.2	1.77	1.25	-1.25
6,273.0	94.40	179.10	5,781.3	-928.5	140.1	932.1	1.40	1.25	0.63
6,304.0	95.00	178.20	5,778.8	-959.4	140.9	963.0	3.48	1.94	-2.90
6,315.0	94.50	177.20	5,777.8	-970.3	141.3	973.9	10.14	-4.55	-9.09
6,340.0	92.00	176.53	5,776.4	-995.3	142.7	998.9	10.35	-10.00	-2.67
7"									
6,360.0	90.00	176.00	5,776.1	-1,015.2	144.0	1,018.9	10.35	-10.00	-2.66
6,392.0	91.20	175.40	5,775.7	-1,047.1	146.4	1,050.8	4.19	3.75	-1.88
6,423.0	90.30	176.00	5,775.3	-1,078.0	148.7	1,081.8	3.49	-2.90	1.94
6,455.0	89.50	177.00	5,775.4	-1,110.0	150.6	1,113.8	4.00	-2.50	3.13
6,486.0	89.20	178.20	5,775.7	-1,140.9	151.9	1,144.8	3.99	-0.97	3.87
6,518.0	88.70	178.90	5,776.3	-1,172.9	152.7	1,176.8	2.69	-1.56	2.19
6,550.0	88.60	178.80	5,777.1	-1,204.9	153.4	1,208.7	0.44	-0.31	-0.31
6,581.0	89.60	178.60	5,777.6	-1,235.9	154.1	1,239.7	3.29	3.23	-0.65
6,613.0	90.30	179.60	5,777.6	-1,267.9	154.6	1,271.7	3.81	2.19	3.13
6,645.0	90.60	180.70	5,777.4	-1,299.9	154.5	1,303.7	3.56	0.94	3.44
6,676.0	90.60	180.90	5,777.0	-1,330.9	154.1	1,334.7	0.65	0.00	0.65
6,708.0	90.50	180.30	5,776.7	-1,362.9	153.7	1,366.7	1.90	-0.31	-1.88
6,739.0	91.10	180.50	5,776.3	-1,393.9	153.5	1,397.6	2.04	1.94	0.65
6,771.0	91.90	180.90	5,775.4	-1,425.9	153.1	1,429.6	2.79	2.50	1.25
6,802.0	92.30	180.90	5,774.3	-1,456.8	152.7	1,460.6	1.29	1.29	0.00
6,834.0	93.20	181.40	5,772.8	-1,488.8	152.0	1,492.5	3.22	2.81	1.56
6,866.0	93.00	180.50	5,771.0	-1,520.7	151.5	1,524.4	2.88	-0.63	-2.81
6,897.0	92.70	179.60	5,769.5	-1,551.7	151.5	1,555.4	3.06	-0.97	-2.90
6,929.0	92.80	178.60	5,768.0	-1,583.7	152.0	1,587.3	3.14	0.31	-3.13
6,960.0	90.90	177.50	5,767.0	-1,614.6	153.0	1,618.3	7.08	-6.13	-3.55
6,992.0	91.10	177.40	5,766.4	-1,646.6	154.4	1,650.3	0.70	0.63	-0.31
7,024.0	90.10	177.70	5,766.1	-1,678.6	155.8	1,682.3	3.26	-3.13	0.94
7,055.0	90.80	178.90	5,765.8	-1,709.5	156.7	1,713.3	4.48	2.26	3.87
7,087.0	89.90	178.60	5,765.6	-1,741.5	157.4	1,745.3	2.96	-2.81	-0.94
7,119.0	90.00	178.60	5,765.7	-1,773.5	158.2	1,777.3	0.31	0.31	0.00
7,140.5	89.26	178.94	5,765.8	-1,795.0	158.7	1,798.8	3.78	-3.44	1.56

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2815A
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Well:</b>	Razor #21A-2815A	<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)
WP 1									
7,151.0	88.90	179.10	5,766.0	-1,805.5	158.8	1,809.3	3.78	-3.44	1.56
7,182.0	89.00	179.80	5,766.5	-1,836.5	159.1	1,840.3	2.28	0.32	2.26
7,213.0	89.40	180.70	5,767.0	-1,867.5	159.0	1,871.2	3.18	1.29	2.90
7,245.0	89.00	180.00	5,767.4	-1,899.5	158.8	1,903.2	2.52	-1.25	-2.19
7,277.0	88.70	179.80	5,768.1	-1,931.5	158.9	1,935.2	1.13	-0.94	-0.63
7,308.0	89.10	180.20	5,768.7	-1,962.5	158.9	1,966.2	1.82	1.29	1.29
7,340.0	90.00	181.40	5,768.9	-1,994.5	158.4	1,998.2	4.69	2.81	3.75
7,372.0	90.70	182.60	5,768.7	-2,026.5	157.3	2,030.1	4.34	2.19	3.75
7,403.0	91.40	183.90	5,768.1	-2,057.4	155.5	2,061.0	4.76	2.26	4.19
7,435.0	92.50	183.00	5,767.1	-2,089.3	153.6	2,092.8	4.44	3.44	-2.81
7,467.0	93.60	182.10	5,765.4	-2,121.2	152.2	2,124.7	4.44	3.44	-2.81
7,498.0	92.90	180.70	5,763.6	-2,152.2	151.4	2,155.6	5.04	-2.26	-4.52
7,530.0	92.70	178.80	5,762.0	-2,184.1	151.6	2,187.6	5.96	-0.63	-5.94
7,561.0	93.30	179.10	5,760.4	-2,215.1	152.1	2,218.5	2.16	1.94	0.97
7,593.0	92.10	177.70	5,758.9	-2,247.1	153.0	2,250.5	5.76	-3.75	-4.38
7,624.0	91.20	176.30	5,758.0	-2,278.0	154.7	2,281.4	5.37	-2.90	-4.52
7,656.0	89.30	175.10	5,757.9	-2,309.9	157.1	2,313.4	7.02	-5.94	-3.75
7,687.0	87.30	174.50	5,758.8	-2,340.8	159.9	2,344.3	6.74	-6.45	-1.94
7,719.0	86.10	175.40	5,760.6	-2,372.6	162.7	2,376.2	4.68	-3.75	2.81
7,750.0	84.60	176.70	5,763.1	-2,403.4	164.8	2,407.1	6.39	-4.84	4.19
7,782.0	83.80	178.20	5,766.4	-2,435.2	166.2	2,438.9	5.29	-2.50	4.69
7,813.0	84.70	179.10	5,769.5	-2,466.0	167.0	2,469.8	4.10	2.90	2.90
7,845.0	86.50	179.80	5,771.9	-2,497.9	167.3	2,501.7	6.03	5.63	2.19
7,877.0	87.90	180.20	5,773.5	-2,529.9	167.3	2,533.6	4.55	4.38	1.25
7,908.0	88.50	181.20	5,774.5	-2,560.9	166.9	2,564.6	3.76	1.94	3.23
7,940.0	88.50	182.10	5,775.3	-2,592.9	166.0	2,596.5	2.81	0.00	2.81
7,972.0	89.50	181.90	5,775.9	-2,624.8	164.8	2,628.4	3.19	3.13	-0.63
8,003.0	91.00	182.10	5,775.7	-2,655.8	163.8	2,659.4	4.88	4.84	0.65
8,035.0	92.60	181.90	5,774.7	-2,687.8	162.6	2,691.3	5.04	5.00	-0.63
8,066.0	92.70	180.30	5,773.3	-2,718.7	162.1	2,722.2	5.17	0.32	-5.16
8,098.0	91.50	179.10	5,772.1	-2,750.7	162.2	2,754.2	5.30	-3.75	-3.75
8,130.0	90.10	178.60	5,771.7	-2,782.7	162.9	2,786.2	4.65	-4.38	-1.56
8,161.0	89.70	178.40	5,771.7	-2,813.7	163.7	2,817.2	1.44	-1.29	-0.65
8,193.0	89.50	178.40	5,772.0	-2,845.7	164.6	2,849.2	0.63	-0.63	0.00
8,225.0	90.00	178.40	5,772.1	-2,877.7	165.5	2,881.2	1.56	1.56	0.00
8,257.0	89.90	178.20	5,772.1	-2,909.7	166.4	2,913.2	0.70	-0.31	-0.63
8,289.0	89.70	180.00	5,772.2	-2,941.7	166.9	2,945.2	5.66	-0.63	5.63
8,320.0	89.90	180.90	5,772.3	-2,972.7	166.7	2,976.2	2.97	0.65	2.90
8,352.0	90.90	181.00	5,772.1	-3,004.6	166.1	3,008.1	3.14	3.13	0.31
8,383.0	90.70	180.00	5,771.7	-3,035.6	165.9	3,039.1	3.29	-0.65	-3.23
8,415.0	91.10	180.20	5,771.2	-3,067.6	165.8	3,071.1	1.40	1.25	0.63
8,433.0	90.90	179.10	5,770.9	-3,085.6	165.9	3,089.1	6.21	-1.11	-6.11
8,464.0	90.70	178.90	5,770.4	-3,116.6	166.5	3,120.1	0.91	-0.65	-0.65
8,495.0	90.70	177.90	5,770.1	-3,147.6	167.3	3,151.1	3.23	0.00	-3.23
8,526.0	90.90	178.40	5,769.6	-3,178.6	168.3	3,182.1	1.74	0.65	1.61
8,557.0	90.70	178.80	5,769.2	-3,209.6	169.1	3,213.1	1.44	-0.65	1.29
8,588.0	91.00	178.90	5,768.7	-3,240.6	169.7	3,244.1	1.02	0.97	0.32
8,619.0	90.70	178.90	5,768.3	-3,271.6	170.3	3,275.1	0.97	-0.97	0.00
8,649.0	90.80	178.40	5,767.9	-3,301.5	171.0	3,305.1	1.70	0.33	-1.67
8,680.0	90.00	178.40	5,767.7	-3,332.5	171.9	3,336.1	2.58	-2.58	0.00
8,711.0	89.20	178.80	5,767.9	-3,363.5	172.6	3,367.1	2.89	-2.58	1.29
8,742.0	89.10	179.10	5,768.3	-3,394.5	173.2	3,398.1	1.02	-0.32	0.97
8,772.0	89.40	178.80	5,768.7	-3,424.5	173.7	3,428.0	1.41	1.00	-1.00

<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2815A
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Well:</b>	Razor #21A-2815A	<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)
8,803.0	89.90	179.10	5,768.9	-3,455.5	174.3	3,459.0	1.88	1.61	0.97
8,833.0	89.60	179.30	5,769.1	-3,485.5	174.7	3,489.0	1.20	-1.00	0.67
8,842.4	89.33	179.30	5,769.1	-3,494.9	174.9	3,498.4	2.90	-2.90	0.00
<b>WP 2</b>									
8,864.0	88.70	179.30	5,769.5	-3,516.5	175.1	3,520.0	2.90	-2.90	0.00
8,895.0	88.50	179.50	5,770.3	-3,547.5	175.4	3,551.0	0.91	-0.65	0.65
8,925.0	88.30	179.60	5,771.1	-3,577.5	175.7	3,581.0	0.75	-0.67	0.33
8,956.0	88.00	179.60	5,772.1	-3,608.5	175.9	3,612.0	0.97	-0.97	0.00
8,986.0	87.90	178.90	5,773.2	-3,638.4	176.3	3,642.0	2.36	-0.33	-2.33
9,017.0	87.80	178.60	5,774.3	-3,669.4	177.0	3,672.9	1.02	-0.32	-0.97
9,047.0	87.70	178.10	5,775.5	-3,699.4	177.8	3,702.9	1.70	-0.33	-1.67
9,078.0	87.50	177.40	5,776.8	-3,730.3	179.0	3,733.9	2.35	-0.65	-2.26
9,109.0	87.20	177.70	5,778.3	-3,761.3	180.4	3,764.8	1.37	-0.97	0.97
9,140.0	87.10	178.40	5,779.8	-3,792.2	181.4	3,795.8	2.28	-0.32	2.26
9,170.0	87.60	178.60	5,781.2	-3,822.2	182.2	3,825.8	1.79	1.67	0.67
9,200.0	87.80	178.90	5,782.4	-3,852.1	182.9	3,855.7	1.20	0.67	1.00
9,231.0	88.50	179.60	5,783.4	-3,883.1	183.3	3,886.7	3.19	2.26	2.26
9,262.0	88.50	180.20	5,784.2	-3,914.1	183.3	3,917.7	1.93	0.00	1.94
9,293.0	88.00	181.20	5,785.1	-3,945.1	182.9	3,948.7	3.61	-1.61	3.23
9,323.0	87.70	180.70	5,786.3	-3,975.1	182.4	3,978.6	1.94	-1.00	-1.67
9,354.0	87.80	180.50	5,787.5	-4,006.0	182.1	4,009.6	0.72	0.32	-0.65
9,385.0	87.80	181.20	5,788.7	-4,037.0	181.7	4,040.5	2.26	0.00	2.26
9,416.0	87.50	180.90	5,790.0	-4,068.0	181.1	4,071.5	1.37	-0.97	-0.97
9,447.0	87.80	180.70	5,791.2	-4,098.9	180.7	4,102.4	1.16	0.97	-0.65
9,477.0	88.00	180.70	5,792.3	-4,128.9	180.3	4,132.4	0.67	0.67	0.00
9,508.0	87.90	180.30	5,793.4	-4,159.9	180.0	4,163.3	1.33	-0.32	-1.29
9,539.0	88.60	179.60	5,794.4	-4,190.9	180.0	4,194.3	3.19	2.26	-2.26
9,570.0	89.60	180.30	5,794.9	-4,221.9	180.1	4,225.3	3.94	3.23	2.26
9,601.0	89.30	178.40	5,795.2	-4,252.9	180.4	4,256.3	6.20	-0.97	-6.13
9,631.0	89.00	177.40	5,795.6	-4,282.8	181.5	4,286.3	3.48	-1.00	-3.33
9,662.0	89.30	177.70	5,796.1	-4,313.8	182.8	4,317.3	1.37	0.97	0.97
9,693.0	89.70	177.70	5,796.3	-4,344.8	184.1	4,348.3	1.29	1.29	0.00
9,723.0	90.10	177.20	5,796.4	-4,374.8	185.4	4,378.2	2.13	1.33	-1.67
9,754.0	90.50	176.70	5,796.2	-4,405.7	187.1	4,409.2	2.07	1.29	-1.61
9,785.0	90.20	176.80	5,796.0	-4,436.7	188.8	4,440.2	1.02	-0.97	0.32
9,816.0	89.30	177.70	5,796.2	-4,467.6	190.3	4,471.2	4.11	-2.90	2.90
9,847.0	88.50	178.10	5,796.8	-4,498.6	191.5	4,502.2	2.89	-2.58	1.29
9,877.0	87.90	179.30	5,797.7	-4,528.6	192.1	4,532.2	4.47	-2.00	4.00
9,908.0	87.60	180.30	5,798.9	-4,559.6	192.2	4,563.2	3.37	-0.97	3.23
9,939.0	87.10	181.90	5,800.4	-4,590.5	191.7	4,594.1	5.40	-1.61	5.16
9,943.7	87.10	181.96	5,800.6	-4,595.2	191.5	4,598.8	1.33	0.00	1.33
<b>WP 3</b>									
9,969.0	87.10	182.30	5,801.9	-4,620.5	190.6	4,624.0	1.33	0.00	1.33
10,000.0	86.80	182.50	5,803.5	-4,651.4	189.3	4,654.9	1.16	-0.97	0.65
10,030.0	87.10	182.60	5,805.1	-4,681.3	187.9	4,684.7	1.05	1.00	0.33
10,061.0	87.40	182.60	5,806.6	-4,712.2	186.5	4,715.6	0.97	0.97	0.00
10,092.0	87.80	182.60	5,807.9	-4,743.2	185.1	4,746.5	1.29	1.29	0.00
10,123.0	88.60	183.00	5,808.9	-4,774.1	183.6	4,777.4	2.88	2.58	1.29
10,154.0	89.30	182.10	5,809.5	-4,805.1	182.2	4,808.3	3.68	2.26	-2.90
10,184.0	89.60	180.70	5,809.7	-4,835.1	181.5	4,838.3	4.77	1.00	-4.67
10,215.0	90.30	180.20	5,809.8	-4,866.1	181.2	4,869.3	2.77	2.26	-1.61
10,246.0	90.80	179.30	5,809.5	-4,897.1	181.4	4,900.2	3.32	1.61	-2.90
10,277.0	90.60	178.80	5,809.1	-4,928.1	181.9	4,931.2	1.74	-0.65	-1.61
10,307.0	90.80	177.90	5,808.7	-4,958.1	182.8	4,961.2	3.07	0.67	-3.00



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2815A
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Well:</b>	Razor #21A-2815A	<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)
10,338.0	90.20	177.40	5,808.5	-4,989.0	184.0	4,992.2	2.52	-1.94	-1.61
10,369.0	91.00	177.40	5,808.1	-5,020.0	185.4	5,023.2	2.58	2.58	0.00
10,400.0	91.50	177.00	5,807.5	-5,051.0	186.9	5,054.2	2.07	1.61	-1.29
10,430.0	91.80	177.40	5,806.6	-5,080.9	188.4	5,084.2	1.67	1.00	1.33
10,461.0	91.30	177.70	5,805.7	-5,111.9	189.7	5,115.2	1.88	-1.61	0.97
10,492.0	90.00	178.10	5,805.4	-5,142.8	190.9	5,146.2	4.39	-4.19	1.29
10,522.0	90.00	178.60	5,805.4	-5,172.8	191.7	5,176.2	1.67	0.00	1.67
10,553.0	90.00	178.60	5,805.4	-5,203.8	192.5	5,207.2	0.00	0.00	0.00
10,583.0	90.30	178.90	5,805.3	-5,233.8	193.2	5,237.2	1.41	1.00	1.00
10,614.0	90.70	178.80	5,805.0	-5,264.8	193.8	5,268.2	1.33	1.29	-0.32
10,645.0	90.70	178.90	5,804.7	-5,295.8	194.4	5,299.2	0.32	0.00	0.32
10,676.0	90.30	179.50	5,804.4	-5,326.8	194.8	5,330.2	2.33	-1.29	1.94
10,707.0	90.50	179.50	5,804.2	-5,357.8	195.1	5,361.2	0.65	0.65	0.00
10,737.0	90.30	179.10	5,804.0	-5,387.8	195.5	5,391.2	1.49	-0.67	-1.33
10,768.0	90.70	179.50	5,803.7	-5,418.8	195.8	5,422.2	1.82	1.29	1.29
10,799.0	90.80	180.30	5,803.3	-5,449.8	195.9	5,453.1	2.60	0.32	2.58
10,830.0	90.70	179.80	5,802.9	-5,480.8	195.9	5,484.1	1.64	-0.32	-1.61
10,861.0	91.30	179.80	5,802.4	-5,511.8	196.0	5,515.1	1.94	1.94	0.00
10,892.0	91.50	179.60	5,801.6	-5,542.8	196.1	5,546.1	0.91	0.65	-0.65
10,922.0	91.50	179.10	5,800.8	-5,572.8	196.5	5,576.1	1.67	0.00	-1.67
10,944.0	92.07	179.10	5,800.1	-5,594.7	196.8	5,598.1	2.58	2.58	0.00
<b>WP 4</b>									
10,953.0	92.30	179.10	5,799.8	-5,603.7	197.0	5,607.1	2.58	2.58	0.00
10,984.0	92.60	178.80	5,798.5	-5,634.7	197.5	5,638.0	1.37	0.97	-0.97
11,015.0	93.20	178.90	5,796.9	-5,665.6	198.2	5,669.0	1.96	1.94	0.32
11,046.0	93.30	179.50	5,795.1	-5,696.6	198.6	5,699.9	1.96	0.32	1.94
11,076.0	93.00	179.60	5,793.5	-5,726.6	198.8	5,729.9	1.05	-1.00	0.33
11,106.0	93.10	180.70	5,791.9	-5,756.5	198.7	5,759.8	3.68	0.33	3.67
11,137.0	93.40	180.20	5,790.1	-5,787.5	198.5	5,790.8	1.88	0.97	-1.61
11,168.0	93.50	180.30	5,788.3	-5,818.4	198.4	5,821.7	0.46	0.32	0.32
11,199.0	93.90	179.50	5,786.3	-5,849.3	198.4	5,852.6	2.88	1.29	-2.58
11,230.0	94.40	179.50	5,784.0	-5,880.3	198.7	5,883.5	1.61	1.61	0.00
11,261.0	93.90	180.30	5,781.8	-5,911.2	198.7	5,914.4	3.04	-1.61	2.58
11,291.0	93.60	180.50	5,779.8	-5,941.1	198.5	5,944.3	1.20	-1.00	0.67
11,322.0	92.90	181.40	5,778.1	-5,972.1	198.0	5,975.3	3.67	-2.26	2.90
11,352.0	92.40	181.20	5,776.7	-6,002.0	197.3	6,005.2	1.79	-1.67	-0.67
11,385.0	91.90	180.30	5,775.4	-6,035.0	196.9	6,038.1	3.12	-1.52	-2.73
11,416.0	92.30	180.30	5,774.3	-6,066.0	196.7	6,069.1	1.29	1.29	0.00
11,447.0	92.40	180.20	5,773.0	-6,096.9	196.6	6,100.1	0.46	0.32	-0.32
11,478.0	93.10	180.30	5,771.5	-6,127.9	196.5	6,131.0	2.28	2.26	0.32
11,508.0	93.30	179.50	5,769.9	-6,157.9	196.5	6,160.9	2.74	0.67	-2.67
11,539.0	92.80	178.40	5,768.2	-6,188.8	197.1	6,191.9	3.89	-1.61	-3.55
11,570.0	93.00	178.10	5,766.6	-6,219.7	198.0	6,222.9	1.16	0.65	-0.97
11,601.0	93.50	177.40	5,764.9	-6,250.7	199.3	6,253.8	2.77	1.61	-2.26
11,632.0	92.90	178.10	5,763.2	-6,281.6	200.5	6,284.8	2.97	-1.94	2.26
11,663.0	90.80	178.40	5,762.2	-6,312.6	201.4	6,315.7	6.84	-6.77	0.97
11,693.0	90.00	179.10	5,761.9	-6,342.6	202.1	6,345.7	3.54	-2.67	2.33
11,724.0	89.30	178.40	5,762.1	-6,373.6	202.8	6,376.7	3.19	-2.26	-2.26
11,750.1	89.56	178.57	5,762.4	-6,399.6	203.4	6,402.8	1.20	1.00	0.67
<b>WP 5</b>									
11,754.0	89.60	178.60	5,762.4	-6,403.5	203.5	6,406.7	1.20	1.00	0.67
11,785.0	91.30	179.10	5,762.2	-6,434.5	204.2	6,437.7	5.72	5.48	1.61
11,816.0	91.70	178.80	5,761.4	-6,465.5	204.7	6,468.7	1.61	1.29	-0.97
11,846.0	92.20	178.90	5,760.3	-6,495.5	205.3	6,498.7	1.70	1.67	0.33



<b>Company:</b>	Whiting Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Razor #21A-2815A
<b>Project:</b>	SEC.21-T10N-R58W	<b>TVD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Site:</b>	Razor #21A-2814B Pad Sec.21-T10N-R58W	<b>MD Reference:</b>	WELL @ 4850.3ft (Original Well Elev)
<b>Well:</b>	Razor #21A-2815A	<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)
11,877.0	92.20	178.20	5,759.2	-6,526.5	206.1	6,529.7	2.26	0.00	-2.26
11,909.0	92.80	177.70	5,757.8	-6,558.4	207.3	6,561.6	2.44	1.88	-1.56
11,939.0	92.60	178.40	5,756.3	-6,588.4	208.3	6,591.6	2.42	-0.67	2.33
11,970.0	91.50	180.00	5,755.2	-6,619.3	208.7	6,622.6	6.26	-3.55	5.16
12,000.0	90.70	178.60	5,754.7	-6,649.3	209.1	6,652.6	5.37	-2.67	-4.67
12,031.0	90.70	178.60	5,754.3	-6,680.3	209.8	6,683.6	0.00	0.00	0.00
12,061.0	90.40	179.80	5,754.0	-6,710.3	210.2	6,713.6	4.12	-1.00	4.00
12,092.0	89.70	180.30	5,754.0	-6,741.3	210.2	6,744.6	2.77	-2.26	1.61
12,123.0	89.60	180.70	5,754.2	-6,772.3	210.0	6,775.5	1.33	-0.32	1.29
12,154.0	90.80	181.80	5,754.0	-6,803.3	209.3	6,806.5	5.25	3.87	3.55
12,185.0	90.50	181.00	5,753.7	-6,834.3	208.5	6,837.4	2.76	-0.97	-2.58
12,215.0	90.70	180.90	5,753.4	-6,864.3	208.0	6,867.4	0.75	0.67	-0.33
12,246.0	90.70	179.60	5,753.0	-6,895.3	207.9	6,898.4	4.19	0.00	-4.19
12,277.0	91.30	179.60	5,752.5	-6,926.3	208.1	6,929.4	1.94	1.94	0.00
12,307.0	91.30	180.00	5,751.8	-6,956.3	208.2	6,959.4	1.33	0.00	1.33
12,338.0	91.30	179.80	5,751.1	-6,987.3	208.3	6,990.4	0.64	0.00	-0.65
12,369.0	91.20	179.30	5,750.4	-7,018.2	208.5	7,021.3	1.64	-0.32	-1.61
12,400.0	91.30	179.30	5,749.7	-7,049.2	208.9	7,052.3	0.32	0.32	0.00
12,431.0	91.50	179.10	5,749.0	-7,080.2	209.3	7,083.3	0.91	0.65	-0.65
12,462.0	91.90	178.60	5,748.1	-7,111.2	209.9	7,114.3	2.06	1.29	-1.61
12,493.0	92.00	178.40	5,747.0	-7,142.2	210.7	7,145.3	0.72	0.32	-0.65
12,523.0	92.20	178.10	5,745.9	-7,172.1	211.7	7,175.3	1.20	0.67	-1.00
12,552.0	91.20	179.30	5,745.0	-7,201.1	212.3	7,204.2	5.38	-3.45	4.14
12,583.0	90.80	179.10	5,744.5	-7,232.1	212.8	7,235.2	1.44	-1.29	-0.65
12,614.0	91.20	178.80	5,744.0	-7,263.1	213.3	7,266.2	1.61	1.29	-0.97
12,645.0	91.50	178.40	5,743.2	-7,294.1	214.1	7,297.2	1.61	0.97	-1.29
12,675.0	91.10	179.30	5,742.5	-7,324.1	214.7	7,327.2	3.28	-1.33	3.00
12,706.0	91.10	179.10	5,741.9	-7,355.1	215.1	7,358.2	0.65	0.00	-0.65
12,737.0	91.30	178.60	5,741.3	-7,386.1	215.7	7,389.2	1.74	0.65	-1.61
12,768.0	91.70	178.40	5,740.5	-7,417.0	216.5	7,420.2	1.44	1.29	-0.65
12,818.0	91.70	178.40	5,739.0	-7,467.0	217.9	7,470.2	0.00	0.00	0.00
BHL 2556'FNL & 495'FEL, Sec.28									

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,340.0	5,776.4	7"	7	7-1/2

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