

Whiting Oil & Gas

Well Name: **Razor #21C-2808B**

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

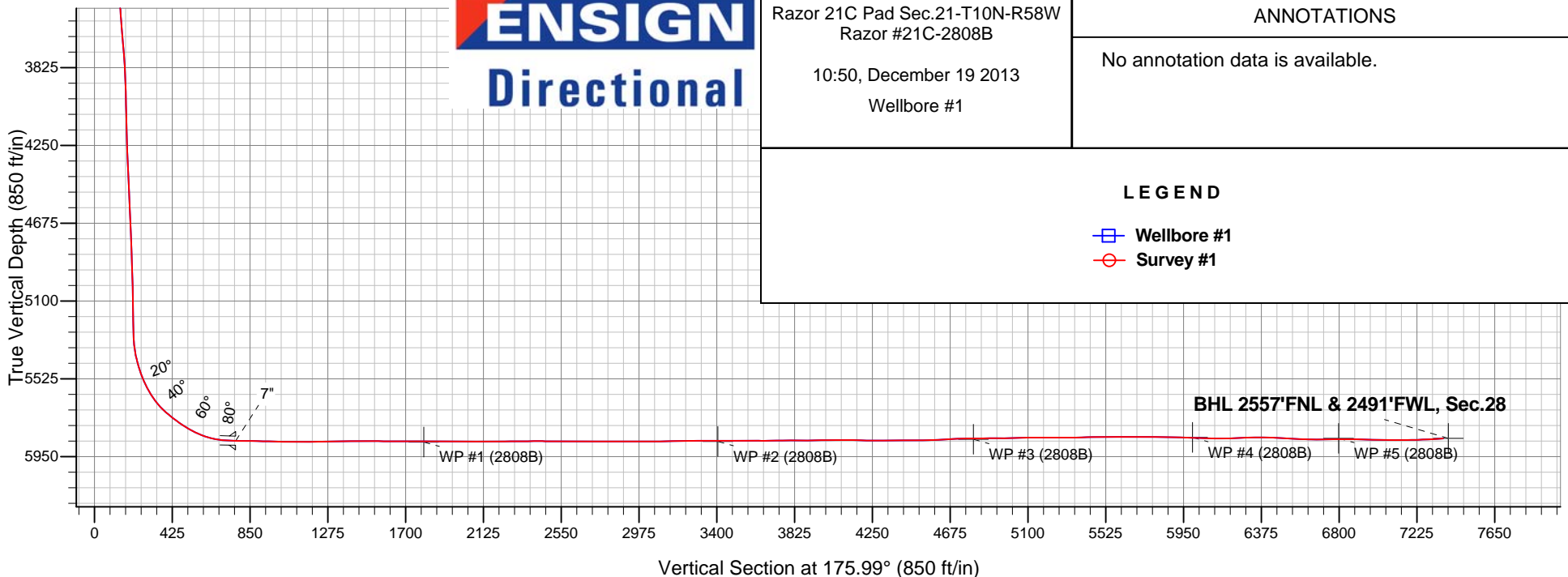
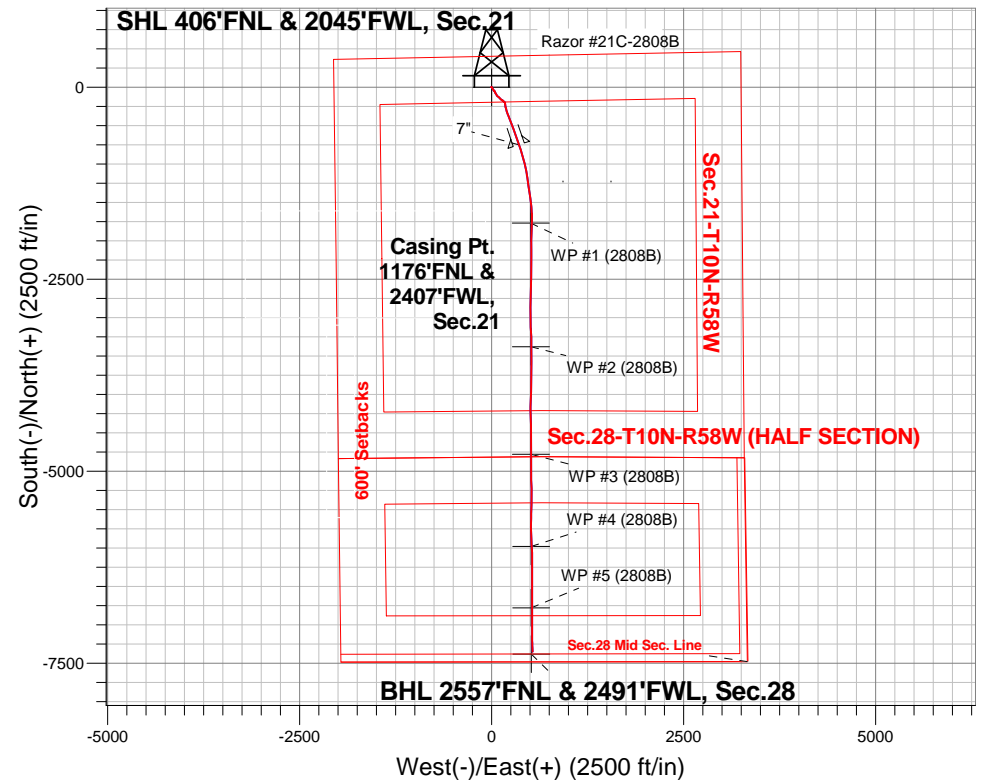
Ground Elevation: 4844.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1549321.02	3450286.52	40.829925	-103.872822	

RKB - 17.3' WELL @ 4861.3ft (RKB - 17.3')

FINAL SURVEY

Projected Bottom Hole Location
12826'MD 5851'TVD 7344'S & 533'E of SHL
93.6 degree Incl @ 176.0 degree AZM



ENSIGN
Directional

Razor 21C Pad Sec.21-T10N-R58W
Razor #21C-2808B

10:50, December 19 2013
Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

- Wellbore #1
- Survey #1



Whiting Oil & Gas

SEC.21-T10N-R58W

Razor 21C Pad Sec.21-T10N-R58W

Razor #21C-2808B

Wellbore #1

Design: Wellbore #1

Standard Survey Report

16 December, 2013

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor #21C-2808B
Project:	SEC.21-T10N-R58W	TVD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Site:	Razor 21C Pad Sec.21-T10N-R58W	MD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Well:	Razor #21C-2808B	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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

Site	Razor 21C Pad Sec.21-T10N-R58W				
Site Position:		Northing:	1,549,394.29ft	Latitude:	40.830131
From:	Lat/Long	Easting:	3,450,186.64ft	Longitude:	-103.873178
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	1.05 °

Well	Razor #21C-2808B					
Well Position	+N/-S	0.0 ft	Northing:	1,549,321.02 ft	Latitude:	40.829925
	+E/-W	0.0 ft	Easting:	3,450,286.52 ft	Longitude:	-103.872822
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,844.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/25/2013	8.08	67.45	53,187

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	175.99	

Survey Program	Date	12/16/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
121.0	12,826.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.00	41.10	1.0	0.0	0.0	0.0	0.17	0.17	0.00	
SHL 406'FNL & 2045'FWL, Sec.21										
121.0	0.20	41.10	121.0	0.2	0.1	-0.1	0.17	0.17	0.00	
214.0	0.20	344.30	214.0	0.4	0.2	-0.4	0.20	0.00	-61.08	
307.0	0.20	358.10	307.0	0.8	0.2	-0.7	0.05	0.00	14.84	
400.0	0.20	282.10	400.0	1.0	0.0	-1.0	0.26	0.00	-81.72	
493.0	0.70	271.60	493.0	1.0	-0.7	-1.1	0.54	0.54	-11.29	
586.0	0.70	232.90	586.0	0.7	-1.8	-0.8	0.50	0.00	-41.61	
679.0	0.30	88.20	679.0	0.3	-2.0	-0.5	1.03	-0.43	-155.59	
774.0	0.70	77.20	774.0	0.5	-1.2	-0.6	0.43	0.42	-11.58	
869.0	1.10	78.00	869.0	0.8	0.3	-0.8	0.42	0.42	0.84	
963.0	1.50	92.50	962.9	0.9	2.4	-0.8	0.55	0.43	15.43	

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor #21C-2808B
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Site:	Razor 21C Pad Sec.21-T10N-R58W	MD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Well:	Razor #21C-2808B	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
1,059.0	1.70	117.10	1,058.9	0.2	4.9	0.1	0.74	0.21	25.63
1,153.0	1.80	143.80	1,152.9	-1.6	7.1	2.1	0.87	0.11	28.40
1,248.0	2.40	152.70	1,247.8	-4.6	8.8	5.2	0.72	0.63	9.37
1,343.0	3.00	154.20	1,342.7	-8.6	10.8	9.3	0.64	0.63	1.58
1,438.0	3.30	154.30	1,437.6	-13.3	13.1	14.2	0.32	0.32	0.11
1,533.0	4.00	158.70	1,532.4	-18.8	15.5	19.9	0.79	0.74	4.63
1,613.0	4.10	154.00	1,612.2	-24.0	17.8	25.2	0.43	0.13	-5.88
1,719.0	3.90	137.96	1,717.9	-30.1	21.8	31.5	1.07	-0.19	-15.13
1,812.0	3.10	134.91	1,810.7	-34.2	25.7	35.9	0.88	-0.86	-3.28
1,905.0	4.10	146.21	1,903.5	-38.7	29.4	40.7	1.31	1.08	12.15
1,998.0	4.00	141.78	1,996.3	-44.1	33.2	46.3	0.35	-0.11	-4.76
2,091.0	3.70	135.55	2,089.1	-48.7	37.3	51.2	0.55	-0.32	-6.70
2,184.0	5.00	157.38	2,181.8	-54.6	41.0	57.4	2.24	1.40	23.47
2,277.0	5.10	147.08	2,274.5	-61.8	44.8	64.8	0.98	0.11	-11.08
2,372.0	3.20	139.76	2,369.2	-67.4	48.8	70.7	2.07	-2.00	-7.71
2,467.0	4.20	161.31	2,464.0	-72.7	51.6	76.2	1.79	1.05	22.68
2,563.0	3.90	161.04	2,559.8	-79.2	53.8	82.7	0.31	-0.31	-0.28
2,658.0	6.00	149.77	2,654.4	-86.5	57.4	90.3	2.43	2.21	-11.86
2,753.0	5.90	149.04	2,748.9	-95.0	62.4	99.1	0.13	-0.11	-0.77
2,848.0	5.80	145.32	2,843.4	-103.1	67.6	107.6	0.41	-0.11	-3.92
2,943.0	5.30	143.02	2,938.0	-110.6	73.0	115.4	0.58	-0.53	-2.42
3,038.0	4.40	122.99	3,032.7	-116.1	78.7	121.3	2.00	-0.95	-21.08
3,132.0	3.60	119.86	3,126.4	-119.5	84.3	125.1	0.88	-0.85	-3.33
3,227.0	3.60	128.73	3,221.2	-122.8	89.2	128.8	0.59	0.00	9.34
3,322.0	3.40	124.39	3,316.1	-126.3	93.8	132.5	0.35	-0.21	-4.57
3,417.0	2.90	128.26	3,410.9	-129.4	98.1	135.9	0.57	-0.53	4.07
3,512.0	4.20	148.11	3,505.7	-133.8	101.8	140.6	1.86	1.37	20.89
3,607.0	6.50	136.28	3,600.3	-140.7	107.3	147.8	2.67	2.42	-12.45
3,702.0	6.20	135.14	3,694.7	-148.2	114.7	155.8	0.34	-0.32	-1.20
3,797.0	5.20	135.64	3,789.3	-154.9	121.3	163.0	1.05	-1.05	0.53
3,892.0	3.10	128.49	3,884.0	-159.6	126.3	168.0	2.27	-2.21	-7.53
3,986.0	1.70	141.09	3,977.9	-162.2	129.2	170.9	1.58	-1.49	13.40
4,081.0	3.00	107.02	4,072.8	-164.1	132.4	172.9	1.95	1.37	-35.86
4,176.0	2.60	114.82	4,167.7	-165.7	136.8	174.9	0.58	-0.42	8.21
4,271.0	4.40	122.77	4,262.6	-168.6	141.8	178.1	1.96	1.89	8.37
4,365.0	3.39	117.26	4,356.3	-171.8	147.3	181.7	1.14	-1.07	-5.86
4,460.0	3.98	139.44	4,451.1	-175.6	151.9	185.8	1.61	0.62	23.35
4,555.0	2.93	132.30	4,546.0	-179.7	155.9	190.2	1.19	-1.11	-7.52
4,649.0	4.09	131.67	4,639.8	-183.6	160.2	194.3	1.23	1.23	-0.67
4,744.0	3.23	135.80	4,734.6	-187.7	164.6	198.8	0.95	-0.91	4.35
4,839.0	3.09	121.53	4,829.5	-191.0	168.6	202.3	0.84	-0.15	-15.02
4,935.0	2.15	131.51	4,925.4	-193.5	172.2	205.1	1.08	-0.98	10.40
5,029.0	1.85	149.33	5,019.3	-196.0	174.3	207.7	0.73	-0.32	18.96
5,124.0	1.17	162.37	5,114.3	-198.3	175.3	210.0	0.80	-0.72	13.73
5,219.0	0.78	158.10	5,209.3	-199.8	175.9	211.6	0.42	-0.41	-4.49
5,250.0	0.83	165.50	5,240.2	-200.2	176.0	212.0	0.37	0.16	23.87
5,282.0	0.95	190.32	5,272.2	-200.7	176.0	212.5	1.25	0.38	77.56
5,314.0	3.00	180.21	5,304.2	-201.8	176.0	213.6	6.47	6.41	-31.59
5,345.0	6.18	170.26	5,335.1	-204.2	176.2	216.1	10.54	10.26	-32.10
5,377.0	8.58	177.19	5,366.9	-208.3	176.6	220.2	7.99	7.50	21.66
5,408.0	11.36	176.78	5,397.4	-213.7	176.9	225.5	8.97	8.97	-1.32
5,440.0	13.98	174.32	5,428.6	-220.7	177.5	232.6	8.36	8.19	-7.69
5,471.0	16.42	172.02	5,458.5	-228.7	178.5	240.7	8.11	7.87	-7.42
5,503.0	19.42	169.77	5,489.0	-238.5	180.0	250.5	9.62	9.38	-7.03

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)	
5,534.0	22.40	168.00	5,517.9	-249.3	182.2	261.4	9.83	9.61	-5.71	
5,566.0	25.83	166.99	5,547.1	-262.1	185.0	274.4	10.80	10.72	-3.16	
5,598.0	28.13	165.48	5,575.6	-276.2	188.5	288.7	7.50	7.19	-4.72	
5,629.0	30.91	164.58	5,602.6	-290.9	192.4	303.7	9.08	8.97	-2.90	
5,661.0	34.58	163.23	5,629.5	-307.5	197.2	320.6	11.69	11.47	-4.22	
5,693.0	39.42	161.68	5,655.1	-325.9	203.1	339.3	15.40	15.13	-4.84	
5,724.0	43.85	160.38	5,678.2	-345.4	209.8	359.2	14.56	14.29	-4.19	
5,756.0	48.47	159.18	5,700.4	-367.0	217.8	381.3	14.69	14.44	-3.75	
5,788.0	52.12	159.18	5,720.8	-390.0	226.5	404.9	11.41	11.41	0.00	
5,819.0	54.13	159.08	5,739.4	-413.2	235.3	428.6	6.49	6.48	-0.32	
5,851.0	54.98	158.22	5,758.0	-437.5	244.8	453.5	3.44	2.66	-2.69	
5,882.0	57.59	157.34	5,775.2	-461.3	254.6	478.0	8.74	8.42	-2.84	
5,914.0	59.93	157.31	5,791.8	-486.6	265.1	503.9	7.31	7.31	-0.09	
5,946.0	62.42	159.11	5,807.2	-512.6	275.5	530.6	9.21	7.78	5.63	
5,977.0	66.10	160.45	5,820.7	-538.8	285.2	557.4	12.49	11.87	4.32	
6,009.0	69.85	160.73	5,832.7	-566.8	295.0	586.0	11.75	11.72	0.88	
6,041.0	73.56	160.03	5,842.7	-595.4	305.2	615.3	11.78	11.59	-2.19	
6,072.0	77.08	160.61	5,850.6	-623.6	315.3	644.2	11.50	11.35	1.87	
6,104.0	81.01	161.60	5,856.7	-653.3	325.5	674.5	12.65	12.28	3.09	
6,135.0	84.78	162.58	5,860.5	-682.6	335.0	704.4	12.56	12.16	3.16	
6,173.0	87.92	161.41	5,862.9	-718.7	346.7	741.2	8.82	8.26	-3.08	
6,204.0	89.19	161.58	5,863.7	-748.1	356.5	771.2	4.14	4.10	0.55	
7"										
6,231.0	90.30	161.73	5,863.8	-773.7	365.0	797.3	4.14	4.10	0.55	
6,263.0	89.50	160.96	5,863.9	-804.0	375.2	828.3	3.47	-2.50	-2.41	
6,295.0	88.80	161.17	5,864.3	-834.3	385.6	859.2	2.28	-2.19	0.66	
6,326.0	88.80	161.75	5,865.0	-863.7	395.5	889.2	1.87	0.00	1.87	
6,358.0	89.10	162.88	5,865.6	-894.1	405.2	920.3	3.65	0.94	3.53	
6,390.0	89.00	164.24	5,866.1	-924.8	414.3	951.5	4.26	-0.31	4.25	
6,421.0	88.90	164.52	5,866.7	-954.7	422.6	981.9	0.96	-0.32	0.90	
6,453.0	88.40	165.81	5,867.4	-985.6	430.8	1,013.3	4.32	-1.56	4.03	
6,485.0	88.79	167.17	5,868.2	-1,016.7	438.3	1,044.9	4.42	1.22	4.25	
6,516.0	89.34	168.13	5,868.7	-1,047.0	444.9	1,075.5	3.57	1.77	3.10	
6,548.0	89.85	169.26	5,868.9	-1,078.4	451.2	1,107.3	3.87	1.59	3.53	
6,580.0	90.10	170.52	5,869.0	-1,109.9	456.8	1,139.1	4.01	0.78	3.94	
6,611.0	89.74	172.63	5,869.0	-1,140.5	461.3	1,170.0	6.90	-1.16	6.81	
6,643.0	90.18	172.36	5,869.0	-1,172.3	465.5	1,201.9	1.61	1.38	-0.84	
6,675.0	90.82	172.15	5,868.7	-1,204.0	469.8	1,233.9	2.10	2.00	-0.66	
6,706.0	91.21	172.04	5,868.2	-1,234.7	474.1	1,264.8	1.31	1.26	-0.35	
6,738.0	91.19	170.63	5,867.5	-1,266.3	478.9	1,296.7	4.41	-0.06	-4.41	
6,770.0	91.46	170.51	5,866.8	-1,297.8	484.1	1,328.5	0.92	0.84	-0.38	
6,801.0	90.88	171.23	5,866.2	-1,328.4	489.1	1,359.4	2.98	-1.87	2.32	
6,833.0	91.19	170.26	5,865.6	-1,360.0	494.2	1,391.3	3.18	0.97	-3.03	
6,865.0	91.13	171.24	5,864.9	-1,391.6	499.3	1,423.1	3.07	-0.19	3.06	
6,896.0	90.63	172.31	5,864.4	-1,422.3	503.8	1,454.0	3.81	-1.61	3.45	
6,928.0	89.49	172.87	5,864.4	-1,454.0	507.9	1,486.0	3.97	-3.56	1.75	
6,959.0	88.87	173.80	5,864.9	-1,484.8	511.5	1,516.9	3.61	-2.00	3.00	
6,991.0	89.26	174.77	5,865.4	-1,516.6	514.7	1,548.9	3.27	1.22	3.03	
7,022.0	89.15	174.37	5,865.8	-1,547.5	517.6	1,579.9	1.34	-0.35	-1.29	
7,054.0	89.40	175.43	5,866.2	-1,579.4	520.5	1,611.9	3.40	0.78	3.31	
7,086.0	89.34	175.58	5,866.6	-1,611.3	523.0	1,643.9	0.50	-0.19	0.47	
7,117.0	89.82	177.42	5,866.8	-1,642.2	524.9	1,674.9	6.13	1.55	5.94	
7,149.0	90.54	179.50	5,866.7	-1,674.2	525.7	1,706.9	6.88	2.25	6.50	
7,181.0	91.10	180.00	5,866.2	-1,706.2	525.9	1,738.8	2.35	1.75	1.56	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
7,212.0	90.46	179.91	5,865.8	-1,737.2	525.9	1,769.7	2.08	-2.06	-0.29
7,242.1	89.55	181.49	5,865.8	-1,767.3	525.5	1,799.7	6.06	-3.03	5.25
WP #1 (2808B)									
7,244.0	89.49	181.59	5,865.8	-1,769.2	525.5	1,801.6	6.06	-3.03	5.25
7,276.0	89.62	181.97	5,866.1	-1,801.2	524.5	1,833.4	1.26	0.41	1.19
7,307.0	90.04	182.28	5,866.2	-1,832.1	523.3	1,864.3	1.68	1.35	1.00
7,339.0	90.32	182.04	5,866.1	-1,864.1	522.1	1,896.1	1.15	0.88	-0.75
7,371.0	89.49	181.49	5,866.1	-1,896.1	521.1	1,927.9	3.11	-2.59	-1.72
7,402.0	89.65	181.35	5,866.4	-1,927.1	520.4	1,958.8	0.69	0.52	-0.45
7,434.0	89.71	181.44	5,866.5	-1,959.1	519.6	1,990.6	0.34	0.19	0.28
7,465.0	89.01	181.44	5,866.9	-1,990.1	518.8	2,021.5	2.26	-2.26	0.00
7,497.0	89.09	180.71	5,867.4	-2,022.1	518.2	2,053.4	2.29	0.25	-2.28
7,528.0	89.29	180.33	5,867.8	-2,053.1	517.9	2,084.3	1.39	0.65	-1.23
7,560.0	89.87	180.38	5,868.1	-2,085.0	517.7	2,116.2	1.82	1.81	0.16
7,592.0	90.41	179.91	5,868.0	-2,117.0	517.6	2,148.1	2.24	1.69	-1.47
7,623.0	90.94	179.80	5,867.6	-2,148.0	517.7	2,179.0	1.75	1.71	-0.35
7,654.0	91.10	180.64	5,867.1	-2,179.0	517.6	2,209.9	2.76	0.52	2.71
7,686.0	90.77	180.43	5,866.6	-2,211.0	517.3	2,241.8	1.22	-1.03	-0.66
7,717.0	91.10	180.07	5,866.1	-2,242.0	517.2	2,272.7	1.58	1.06	-1.16
7,749.0	90.41	180.68	5,865.6	-2,274.0	517.0	2,304.6	2.88	-2.16	1.91
7,781.0	89.82	181.47	5,865.6	-2,306.0	516.4	2,336.5	3.08	-1.84	2.47
7,812.0	90.01	181.29	5,865.6	-2,337.0	515.6	2,367.4	0.84	0.61	-0.58
7,844.0	90.63	181.22	5,865.4	-2,369.0	514.9	2,399.2	1.95	1.94	-0.22
7,876.0	89.85	180.76	5,865.3	-2,401.0	514.4	2,431.1	2.83	-2.44	-1.44
7,907.0	88.42	180.04	5,865.8	-2,432.0	514.1	2,462.0	5.16	-4.61	-2.32
7,938.0	88.73	180.15	5,866.5	-2,463.0	514.1	2,492.9	1.06	1.00	0.35
7,970.0	89.23	179.79	5,867.1	-2,495.0	514.1	2,524.8	1.93	1.56	-1.13
8,002.0	89.57	179.83	5,867.5	-2,527.0	514.2	2,556.8	1.07	1.06	0.13
8,033.0	90.35	179.52	5,867.5	-2,558.0	514.4	2,587.7	2.71	2.52	-1.00
8,065.0	91.33	180.30	5,867.0	-2,590.0	514.4	2,619.6	3.91	3.06	2.44
8,096.0	90.96	180.49	5,866.4	-2,621.0	514.2	2,650.5	1.34	-1.19	0.61
8,128.0	90.32	181.56	5,866.0	-2,653.0	513.7	2,682.4	3.90	-2.00	3.34
8,159.0	89.62	182.65	5,866.0	-2,683.9	512.5	2,713.2	4.18	-2.26	3.52
8,191.0	89.79	181.18	5,866.2	-2,715.9	511.5	2,745.0	4.62	0.53	-4.59
8,223.0	89.20	181.75	5,866.5	-2,747.9	510.6	2,776.9	2.56	-1.84	1.78
8,254.0	89.06	180.87	5,867.0	-2,778.9	509.9	2,807.8	2.87	-0.45	-2.84
8,286.0	90.32	181.64	5,867.1	-2,810.9	509.2	2,839.6	4.61	3.94	2.41
8,318.0	90.77	182.00	5,866.8	-2,842.9	508.2	2,871.5	1.80	1.41	1.13
8,349.0	90.15	180.94	5,866.6	-2,873.9	507.4	2,902.3	3.96	-2.00	-3.42
8,381.0	89.57	180.72	5,866.7	-2,905.8	506.9	2,934.2	1.94	-1.81	-0.69
8,413.0	90.32	181.00	5,866.7	-2,937.8	506.5	2,966.1	2.50	2.34	0.88
8,444.0	90.15	180.01	5,866.6	-2,968.8	506.2	2,997.0	3.24	-0.55	-3.19
8,475.0	90.00	179.00	5,866.5	-2,999.8	506.5	3,027.9	3.29	-0.48	-3.26
8,507.0	90.13	177.86	5,866.5	-3,031.8	507.3	3,059.9	3.59	0.41	-3.56
8,538.0	90.18	177.59	5,866.4	-3,062.8	508.6	3,090.9	0.89	0.16	-0.87
8,570.0	90.63	176.91	5,866.2	-3,094.8	510.1	3,122.9	2.55	1.41	-2.13
8,601.0	91.16	176.58	5,865.7	-3,125.7	511.9	3,153.9	2.01	1.71	-1.06
8,633.0	91.33	177.21	5,865.0	-3,157.7	513.6	3,185.9	2.04	0.53	1.97
8,665.0	91.69	177.24	5,864.2	-3,189.6	515.1	3,217.8	1.13	1.13	0.09
8,696.0	91.49	177.72	5,863.3	-3,220.6	516.5	3,248.8	1.68	-0.65	1.55
8,728.0	90.46	177.93	5,862.7	-3,252.5	517.7	3,280.8	3.28	-3.22	0.66
8,760.0	88.92	177.93	5,862.9	-3,284.5	518.9	3,312.8	4.81	-4.81	0.00
8,791.0	89.23	179.41	5,863.4	-3,315.5	519.6	3,343.7	4.88	1.00	4.77
8,823.0	89.87	180.53	5,863.7	-3,347.5	519.6	3,375.7	4.03	2.00	3.50

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor #21C-2808B
Project:	SEC.21-T10N-R58W	TVD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Site:	Razor 21C Pad Sec.21-T10N-R58W	MD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Well:	Razor #21C-2808B	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
8,852.6	90.12	179.99	5,863.7	-3,377.1	519.5	3,405.2	1.99	0.84	-1.81
WP #2 (2808B)									
8,854.0	90.13	179.97	5,863.7	-3,378.5	519.5	3,406.6	1.99	0.84	-1.81
8,886.0	90.32	178.59	5,863.5	-3,410.5	519.9	3,438.5	4.35	0.59	-4.31
8,918.0	90.43	179.73	5,863.3	-3,442.5	520.4	3,470.5	3.58	0.34	3.56
8,949.0	90.49	179.58	5,863.1	-3,473.5	520.5	3,501.4	0.52	0.19	-0.48
8,981.0	90.85	181.38	5,862.7	-3,505.5	520.3	3,533.3	5.74	1.13	5.63
9,012.0	90.41	180.71	5,862.4	-3,536.5	519.7	3,564.2	2.59	-1.42	-2.16
9,044.0	89.23	179.36	5,862.5	-3,568.5	519.7	3,596.1	5.60	-3.69	-4.22
9,076.0	89.23	179.60	5,862.9	-3,600.5	520.0	3,628.0	0.75	0.00	0.75
9,107.0	90.35	180.36	5,863.0	-3,631.5	520.0	3,659.0	4.37	3.61	2.45
9,138.0	90.88	181.42	5,862.7	-3,662.5	519.5	3,689.8	3.82	1.71	3.42
9,176.0	91.19	182.11	5,862.0	-3,700.4	518.3	3,727.6	1.99	0.82	1.82
9,207.0	90.99	181.50	5,861.4	-3,731.4	517.4	3,758.5	2.07	-0.65	-1.97
9,237.0	89.68	181.36	5,861.2	-3,761.4	516.6	3,788.3	4.39	-4.37	-0.47
9,268.0	89.20	181.04	5,861.5	-3,792.4	516.0	3,819.2	1.86	-1.55	-1.03
9,299.0	89.82	180.89	5,861.8	-3,823.4	515.4	3,850.1	2.06	2.00	-0.48
9,330.0	90.60	180.61	5,861.7	-3,854.4	515.0	3,881.0	2.67	2.52	-0.90
9,360.0	91.05	179.59	5,861.3	-3,884.4	515.0	3,910.9	3.72	1.50	-3.40
9,391.0	90.91	180.76	5,860.7	-3,915.4	514.9	3,941.8	3.80	-0.45	3.77
9,422.0	90.43	178.91	5,860.4	-3,946.4	515.0	3,972.7	6.16	-1.55	-5.97
9,453.0	90.13	180.39	5,860.2	-3,977.4	515.2	4,003.7	4.87	-0.97	4.77
9,484.0	91.05	183.70	5,859.9	-4,008.4	514.1	4,034.5	11.08	2.97	10.68
9,515.0	90.94	182.88	5,859.4	-4,039.3	512.3	4,065.2	2.67	-0.35	-2.65
9,545.0	90.18	182.48	5,859.1	-4,069.3	510.9	4,095.0	2.86	-2.53	-1.33
9,575.0	88.56	181.27	5,859.4	-4,099.2	509.9	4,124.9	6.74	-5.40	-4.03
9,606.0	88.14	180.46	5,860.3	-4,130.2	509.4	4,155.7	2.94	-1.35	-2.61
9,637.0	89.12	180.72	5,861.0	-4,161.2	509.1	4,186.6	3.27	3.16	0.84
9,668.0	89.65	180.52	5,861.4	-4,192.2	508.8	4,217.5	1.83	1.71	-0.65
9,698.0	90.21	179.24	5,861.4	-4,222.2	508.8	4,247.5	4.66	1.87	-4.27
9,729.0	89.76	179.73	5,861.4	-4,253.2	509.1	4,278.4	2.15	-1.45	1.58
9,760.0	90.13	178.61	5,861.4	-4,284.2	509.6	4,309.4	3.80	1.19	-3.61
9,791.0	90.15	178.17	5,861.4	-4,315.2	510.4	4,340.3	1.42	0.06	-1.42
9,822.0	89.99	176.92	5,861.3	-4,346.2	511.8	4,371.3	4.07	-0.52	-4.03
9,852.0	90.71	178.69	5,861.1	-4,376.1	512.9	4,401.3	6.37	2.40	5.90
9,883.0	90.54	177.94	5,860.8	-4,407.1	513.8	4,432.3	2.48	-0.55	-2.42
9,914.0	89.93	177.69	5,860.7	-4,438.1	515.0	4,463.3	2.13	-1.97	-0.81
9,945.0	89.85	177.97	5,860.7	-4,469.1	516.2	4,494.2	0.94	-0.26	0.90
9,976.0	90.99	180.30	5,860.5	-4,500.1	516.6	4,525.2	8.37	3.68	7.52
10,006.0	91.33	180.49	5,859.9	-4,530.1	516.4	4,555.1	1.30	1.13	0.63
10,037.0	92.11	181.20	5,859.0	-4,561.0	516.0	4,586.0	3.40	2.52	2.29
10,068.0	92.81	181.00	5,857.6	-4,592.0	515.4	4,616.8	2.35	2.26	-0.65
10,098.0	93.42	180.75	5,856.0	-4,622.0	514.9	4,646.7	2.20	2.03	-0.83
10,129.0	93.12	179.96	5,854.2	-4,652.9	514.7	4,677.5	2.72	-0.97	-2.55
10,160.0	92.69	179.77	5,852.7	-4,683.9	514.8	4,708.4	1.52	-1.39	-0.61
10,190.0	91.41	181.11	5,851.6	-4,713.9	514.6	4,738.3	6.17	-4.27	4.47
10,221.0	90.85	179.01	5,851.0	-4,744.8	514.6	4,769.2	7.01	-1.81	-6.77
10,252.0	90.15	178.83	5,850.7	-4,775.8	515.1	4,800.2	2.33	-2.26	-0.58
10,253.2	90.20	178.93	5,850.7	-4,777.0	515.2	4,801.4	9.24	4.20	8.23
WP #3 (2808B)									
10,282.0	91.41	181.30	5,850.3	-4,805.8	515.1	4,830.1	9.24	4.20	8.23
10,313.0	91.55	179.85	5,849.5	-4,836.8	514.8	4,861.0	4.70	0.45	-4.68
10,343.0	90.96	179.18	5,848.8	-4,866.8	515.0	4,890.9	2.98	-1.97	-2.23
10,374.0	89.59	178.74	5,848.7	-4,897.8	515.6	4,921.9	4.64	-4.42	-1.42

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor #21C-2808B
Project:	SEC.21-T10N-R58W	TVD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Site:	Razor 21C Pad Sec.21-T10N-R58W	MD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Well:	Razor #21C-2808B	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
10,405.0	89.65	178.91	5,848.9	-4,928.8	516.2	4,952.8	0.58	0.19	0.55
10,435.0	90.32	179.61	5,848.9	-4,958.8	516.6	4,982.8	3.23	2.23	2.33
10,474.0	91.35	179.28	5,848.3	-4,997.8	517.0	5,021.7	2.77	2.64	-0.85
10,504.0	92.17	179.91	5,847.4	-5,027.8	517.2	5,051.6	3.45	2.73	2.10
10,535.0	91.55	181.69	5,846.4	-5,058.8	516.8	5,082.5	6.08	-2.00	5.74
10,566.0	91.30	180.08	5,845.6	-5,089.7	516.3	5,113.4	5.25	-0.81	-5.19
10,597.0	89.99	177.64	5,845.3	-5,120.7	516.9	5,144.3	8.93	-4.23	-7.87
10,628.0	89.12	177.47	5,845.5	-5,151.7	518.2	5,175.3	2.86	-2.81	-0.55
10,658.0	89.49	177.63	5,845.9	-5,181.7	519.5	5,205.3	1.34	1.23	0.53
10,689.0	90.13	177.02	5,846.0	-5,212.6	521.0	5,236.3	2.85	2.06	-1.97
10,720.0	90.49	177.86	5,845.8	-5,243.6	522.4	5,267.3	2.95	1.16	2.71
10,751.0	90.21	178.65	5,845.6	-5,274.6	523.3	5,298.3	2.70	-0.90	2.55
10,782.0	90.49	180.53	5,845.5	-5,305.6	523.5	5,329.2	6.13	0.90	6.06
10,813.0	90.41	181.06	5,845.2	-5,336.6	523.1	5,360.1	1.73	-0.26	1.71
10,844.0	90.82	181.70	5,844.9	-5,367.6	522.4	5,391.0	2.45	1.32	2.06
10,875.0	91.69	181.66	5,844.2	-5,398.5	521.4	5,421.8	2.81	2.81	-0.13
10,905.0	91.33	182.17	5,843.4	-5,428.5	520.4	5,451.6	2.08	-1.20	1.70
10,936.0	90.32	181.87	5,843.0	-5,459.5	519.3	5,482.5	3.40	-3.26	-0.97
10,966.0	89.76	181.91	5,842.9	-5,489.5	518.4	5,512.3	1.87	-1.87	0.13
10,997.0	90.77	182.31	5,842.8	-5,520.5	517.2	5,543.1	3.50	3.26	1.29
11,028.0	90.96	180.75	5,842.3	-5,551.4	516.4	5,574.0	5.07	0.61	-5.03
11,059.0	90.77	180.84	5,841.9	-5,582.4	516.0	5,604.9	0.68	-0.61	0.29
11,090.0	90.26	181.53	5,841.6	-5,613.4	515.3	5,635.7	2.77	-1.65	2.23
11,120.0	89.57	180.72	5,841.6	-5,643.4	514.7	5,665.6	3.55	-2.30	-2.70
11,151.0	89.57	180.21	5,841.9	-5,674.4	514.5	5,696.5	1.65	0.00	-1.65
11,182.0	90.24	180.36	5,841.9	-5,705.4	514.3	5,727.4	2.21	2.16	0.48
11,213.0	90.01	179.71	5,841.8	-5,736.4	514.3	5,758.3	2.22	-0.74	-2.10
11,244.0	89.65	179.06	5,841.9	-5,767.4	514.6	5,789.3	2.40	-1.16	-2.10
11,274.0	88.87	179.31	5,842.3	-5,797.4	515.1	5,819.2	2.73	-2.60	0.83
11,305.0	88.36	178.12	5,843.1	-5,828.4	515.8	5,850.2	4.18	-1.65	-3.84
11,335.0	88.51	176.67	5,843.9	-5,858.4	517.1	5,880.2	4.86	0.50	-4.83
11,365.0	88.79	176.80	5,844.6	-5,888.3	518.8	5,910.2	1.03	0.93	0.43
11,396.0	88.14	176.46	5,845.4	-5,919.2	520.7	5,941.2	2.37	-2.10	-1.10
11,426.0	88.08	176.71	5,846.4	-5,949.2	522.4	5,971.1	0.86	-0.20	0.83
11,453.4	88.19	176.66	5,847.3	-5,976.5	524.0	5,998.6	0.43	0.40	-0.17
WP #4 (2808B)									
11,456.0	88.20	176.66	5,847.4	-5,979.1	524.2	6,001.1	0.43	0.40	-0.17
11,487.0	88.62	177.76	5,848.3	-6,010.0	525.7	6,032.1	3.80	1.35	3.55
11,518.0	88.54	178.03	5,849.0	-6,041.0	526.8	6,063.1	0.91	-0.26	0.87
11,548.0	88.62	179.53	5,849.8	-6,071.0	527.5	6,093.0	5.01	0.27	5.00
11,578.0	89.09	179.76	5,850.4	-6,101.0	527.6	6,123.0	1.74	1.57	0.77
11,609.0	89.79	180.31	5,850.7	-6,132.0	527.6	6,153.9	2.87	2.26	1.77
11,640.0	91.21	180.64	5,850.4	-6,163.0	527.4	6,184.8	4.70	4.58	1.06
11,671.0	92.11	181.62	5,849.5	-6,194.0	526.8	6,215.6	4.29	2.90	3.16
11,702.0	92.89	182.37	5,848.1	-6,224.9	525.7	6,246.4	3.49	2.52	2.42
11,733.0	92.44	180.11	5,846.7	-6,255.9	525.0	6,277.3	7.43	-1.45	-7.29
11,764.0	91.33	179.00	5,845.7	-6,286.9	525.2	6,308.2	5.06	-3.58	-3.58
11,795.0	90.85	177.84	5,845.1	-6,317.8	526.1	6,339.2	4.05	-1.55	-3.74
11,826.0	90.18	177.76	5,844.8	-6,348.8	527.3	6,370.1	2.18	-2.16	-0.26
11,857.0	89.06	178.43	5,845.0	-6,379.8	528.3	6,401.1	4.21	-3.61	2.16
11,887.0	87.56	177.86	5,845.9	-6,409.8	529.3	6,431.1	5.35	-5.00	-1.90
11,917.0	87.03	178.43	5,847.3	-6,439.7	530.3	6,461.0	2.59	-1.77	1.90
11,948.0	86.97	179.06	5,848.9	-6,470.7	530.9	6,492.0	2.04	-0.19	2.03
11,979.0	86.75	179.58	5,850.6	-6,501.6	531.3	6,522.9	1.82	-0.71	1.68

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor #21C-2808B
Project:	SEC.21-T10N-R58W	TVD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Site:	Razor 21C Pad Sec.21-T10N-R58W	MD Reference:	WELL @ 4861.3ft (RKB - 17.3')
Well:	Razor #21C-2808B	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)	
12,010.0	87.03	180.06	5,852.3	-6,532.6	531.4	6,553.7	1.79	0.90	1.55	
12,041.0	87.22	181.00	5,853.9	-6,563.5	531.1	6,584.6	3.09	0.61	3.03	
12,072.0	87.59	180.38	5,855.3	-6,594.5	530.7	6,615.5	2.33	1.19	-2.00	
12,103.0	89.20	180.91	5,856.1	-6,625.5	530.4	6,646.4	5.47	5.19	1.71	
12,133.0	89.93	180.85	5,856.4	-6,655.5	529.9	6,676.2	2.44	2.43	-0.20	
12,164.0	91.02	180.64	5,856.1	-6,686.5	529.5	6,707.1	3.58	3.52	-0.68	
12,195.0	91.69	180.51	5,855.4	-6,717.5	529.2	6,738.0	2.20	2.16	-0.42	
12,225.0	90.77	180.48	5,854.7	-6,747.5	529.0	6,767.9	3.07	-3.07	-0.10	
12,254.7	89.62	180.11	5,854.6	-6,777.2	528.8	6,797.6	4.07	-3.87	-1.26	
WP #5 (2808B)										
12,256.0	89.57	180.09	5,854.7	-6,778.5	528.8	6,798.8	4.07	-3.87	-1.26	
12,287.0	89.43	180.17	5,854.9	-6,809.5	528.7	6,829.8	0.52	-0.45	0.26	
12,317.0	89.93	179.63	5,855.1	-6,839.5	528.8	6,859.7	2.45	1.67	-1.80	
12,348.0	89.15	180.94	5,855.3	-6,870.4	528.6	6,890.6	4.92	-2.52	4.23	
12,378.0	88.34	181.24	5,856.0	-6,900.4	528.1	6,920.5	2.88	-2.70	1.00	
12,409.0	88.36	181.32	5,856.9	-6,931.4	527.4	6,951.3	0.27	0.06	0.26	
12,440.0	88.67	181.10	5,857.7	-6,962.4	526.7	6,982.2	1.23	1.00	-0.71	
12,471.0	88.84	180.94	5,858.4	-6,993.4	526.2	7,013.1	0.75	0.55	-0.52	
12,501.0	89.26	180.20	5,858.9	-7,023.4	525.9	7,043.0	2.84	1.40	-2.47	
12,532.0	89.49	179.32	5,859.2	-7,054.4	526.0	7,073.9	2.93	0.74	-2.84	
12,562.0	89.85	179.18	5,859.4	-7,084.4	526.4	7,103.8	1.29	1.20	-0.47	
12,593.0	90.18	179.58	5,859.4	-7,115.4	526.7	7,134.8	1.67	1.06	1.29	
12,623.0	90.63	178.75	5,859.2	-7,145.4	527.2	7,164.7	3.15	1.50	-2.77	
12,653.0	91.13	178.58	5,858.7	-7,175.4	527.9	7,194.7	1.76	1.67	-0.57	
12,684.0	91.80	178.29	5,857.9	-7,206.3	528.7	7,225.7	2.35	2.16	-0.94	
12,715.0	92.33	177.49	5,856.8	-7,237.3	529.9	7,256.6	3.09	1.71	-2.58	
12,745.0	92.89	176.66	5,855.4	-7,267.2	531.4	7,286.6	3.34	1.87	-2.77	
12,776.0	93.17	176.37	5,853.8	-7,298.1	533.3	7,317.5	1.30	0.90	-0.94	
12,826.0	93.60	176.00	5,850.8	-7,347.9	536.6	7,367.5	1.13	0.86	-0.74	
BHL 2571'FNL & 2475'FWL, Sec.28										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,204.0	5,863.7	7"	7	7-1/2	

Checked By: _____	Approved By: _____	Date: _____
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