

Whiting Oil & Gas

Well Name: **Razor 27L-3404B**

Surface Location: Razor 27L Pad Sec.27-T10N-R58W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

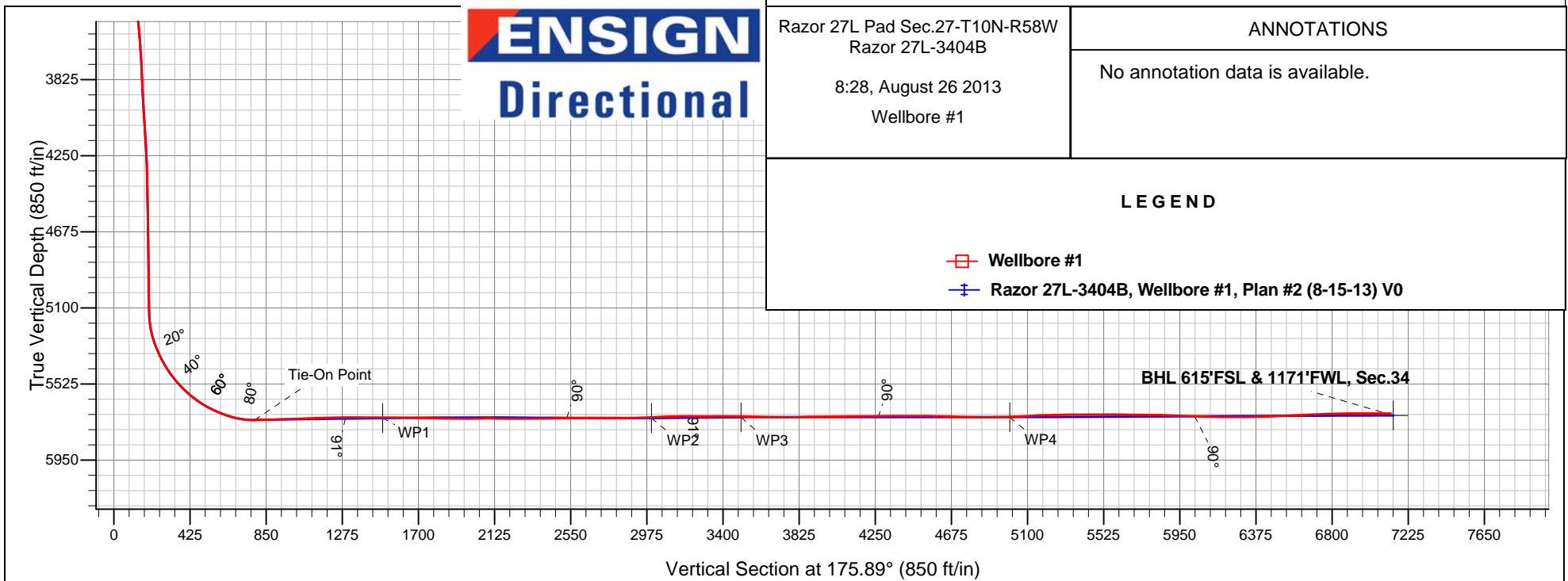
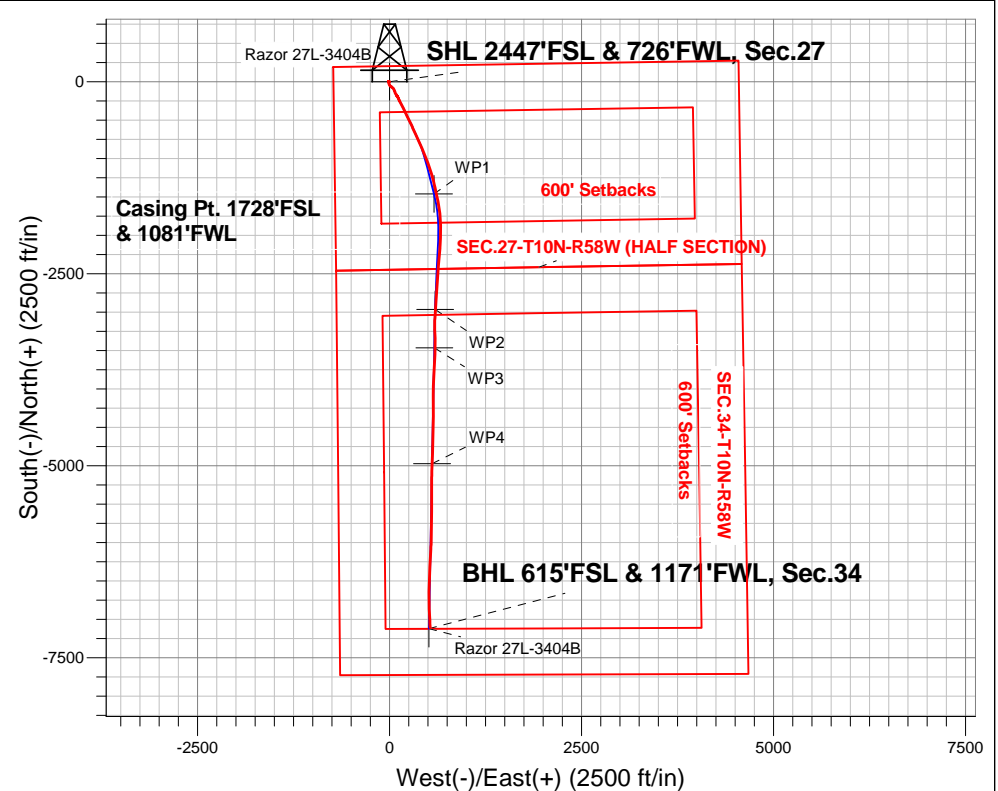
Ground Elevation: 4755.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1541730.09	3454493.43	40.808881	-103.858131	

RKB-17.3' WELL @ 4772.3ft (RKB-17.3')

FINAL SURVEY

Projected Bottom Hole Location
12490'MD 5690'TVD 7107'S & 528'E of SHL
89.9 degree Incl @ 178.0 degree AZM



ENSIGN
Directional

Razor 27L Pad Sec.27-T10N-R58W
Razor 27L-3404B

8:28, August 26 2013
Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

- Wellbore #1
- Razor 27L-3404B, Wellbore #1, Plan #2 (8-15-13) V0

Whiting Oil & Gas

SEC.27-T10N-R58W

Razor 27L Pad Sec.27-T10N-R58W

Razor 27L-3404B

Wellbore #1

Design: Wellbore #1

Standard Survey Report

26 August, 2013

Survey Report

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor 27L-3404B
Project:	SEC.27-T10N-R58W	TVD Reference:	WELL @ 4772.3ft (RKB-17.3')
Site:	Razor 27L Pad Sec.27-T10N-R58W	MD Reference:	WELL @ 4772.3ft (RKB-17.3')
Well:	Razor 27L-3404B	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.27-T10N-R58W		
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 27L Pad Sec.27-T10N-R58W				
Site Position:		Northing:	1,541,728.30 ft	Latitude:	40.808881
From:	Lat/Long	Easting:	3,454,394.34 ft	Longitude:	-103.858489
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	1.06 °

Well	Razor 27L-3404B					
Well Position	+N-S	0.0 ft	Northing:	1,541,730.09 ft	Latitude:	40.808881
	+E-W	0.0 ft	Easting:	3,454,493.43 ft	Longitude:	-103.858131
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,755.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/1/2013	8.11	67.45	53,212

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	175.89	

Survey Program	Date	8/23/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
184.0	12,490.0	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	
184.0	0.70	301.80	184.0	0.6	-1.0	-0.7	0.38	0.38	0.00	
277.0	0.80	273.40	277.0	0.9	-2.1	-1.1	0.41	0.11	-30.54	
371.0	1.10	285.70	371.0	1.2	-3.6	-1.5	0.38	0.32	13.09	
465.0	0.90	288.00	465.0	1.7	-5.2	-2.1	0.22	-0.21	2.45	
559.0	1.20	278.80	558.9	2.1	-6.9	-2.6	0.37	0.32	-9.79	
653.0	1.10	269.80	652.9	2.2	-8.7	-2.8	0.22	-0.11	-9.57	
748.0	1.30	292.90	747.9	2.6	-10.6	-3.4	0.55	0.21	24.32	
840.0	1.60	289.90	839.9	3.5	-12.8	-4.4	0.34	0.33	-3.26	
934.0	0.40	301.30	933.9	4.1	-14.3	-5.1	1.29	-1.28	12.13	
1,029.0	0.30	167.70	1,028.9	4.0	-14.5	-5.0	0.68	-0.11	-140.63	
1,123.0	0.50	98.80	1,122.9	3.7	-14.1	-4.7	0.51	0.21	-73.30	
1,219.0	0.50	131.00	1,218.9	3.4	-13.4	-4.3	0.29	0.00	33.54	

Survey Report

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor 27L-3404B
Project:	SEC.27-T10N-R58W	TVD Reference:	WELL @ 4772.3ft (RKB-17.3')
Site:	Razor 27L Pad Sec.27-T10N-R58W	MD Reference:	WELL @ 4772.3ft (RKB-17.3')
Well:	Razor 27L-3404B	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)
1,309.0	1.10	143.50	1,308.8	2.4	-12.6	-3.3	0.69	0.67	13.89
1,403.0	1.50	180.00	1,402.8	0.5	-12.0	-1.3	0.96	0.43	38.83
1,519.0	1.80	190.70	1,518.8	-2.8	-12.4	1.9	0.37	0.26	9.22
1,635.0	1.90	190.60	1,634.7	-6.5	-13.0	5.6	0.09	0.09	-0.09
1,730.0	3.60	166.10	1,729.6	-11.0	-12.6	10.0	2.14	1.79	-25.79
1,825.0	4.40	170.00	1,824.4	-17.4	-11.3	16.6	0.89	0.84	4.11
1,920.0	5.30	161.00	1,919.0	-25.2	-9.2	24.5	1.24	0.95	-9.47
2,015.0	5.40	154.70	2,013.6	-33.4	-5.9	32.9	0.63	0.11	-6.63
2,110.0	5.50	152.40	2,108.2	-41.5	-1.8	41.2	0.25	0.11	-2.42
2,205.0	4.90	142.60	2,202.8	-48.7	2.7	48.8	1.13	-0.63	-10.32
2,300.0	5.30	139.80	2,297.4	-55.3	8.0	55.7	0.50	0.42	-2.95
2,395.0	4.00	126.80	2,392.1	-60.6	13.5	61.4	1.75	-1.37	-13.68
2,490.0	4.00	122.70	2,486.9	-64.4	18.9	65.6	0.30	0.00	-4.32
2,585.0	4.00	121.10	2,581.6	-67.9	24.6	69.5	0.12	0.00	-1.68
2,679.0	5.50	131.00	2,675.3	-72.5	30.8	74.6	1.81	1.60	10.53
2,774.0	5.50	127.10	2,769.9	-78.3	37.8	80.8	0.39	0.00	-4.11
2,869.0	4.70	138.00	2,864.5	-83.9	44.1	86.9	1.32	-0.84	11.47
2,964.0	4.80	149.80	2,959.2	-90.2	48.7	93.5	1.03	0.11	12.42
3,058.0	4.60	144.30	3,052.9	-96.7	52.9	100.2	0.52	-0.21	-5.85
3,153.0	4.60	159.80	3,147.6	-103.4	56.4	107.2	1.30	0.00	16.32
3,248.0	4.60	155.40	3,242.3	-110.4	59.3	114.4	0.37	0.00	-4.63
3,343.0	5.00	154.90	3,336.9	-117.6	62.6	121.8	0.42	0.42	-0.53
3,438.0	4.80	154.40	3,431.6	-125.0	66.1	129.4	0.22	-0.21	-0.53
3,532.0	5.20	165.40	3,525.2	-132.6	68.9	137.2	1.10	0.43	11.70
3,626.0	4.90	168.20	3,618.9	-140.7	70.8	145.4	0.41	-0.32	2.98
3,720.0	3.30	157.00	3,712.6	-147.1	72.7	151.9	1.90	-1.70	-11.91
3,815.0	2.60	155.40	3,807.5	-151.6	74.6	156.5	0.74	-0.74	-1.68
3,910.0	2.60	154.40	3,902.4	-155.5	76.5	160.6	0.05	0.00	-1.05
4,005.0	4.40	145.00	3,997.2	-160.4	79.5	165.7	1.98	1.89	-9.89
4,099.0	4.20	146.30	4,091.0	-166.2	83.5	171.8	0.24	-0.21	1.38
4,194.0	3.90	157.90	4,185.7	-172.1	86.6	177.9	0.92	-0.32	12.21
4,289.0	2.10	149.10	4,280.6	-176.6	88.7	182.5	1.95	-1.89	-9.26
4,384.0	1.60	145.00	4,375.5	-179.2	90.4	185.2	0.54	-0.53	-4.32
4,479.0	1.30	134.30	4,470.5	-181.0	91.9	187.1	0.42	-0.32	-11.26
4,574.0	1.10	128.70	4,565.5	-182.3	93.4	188.6	0.24	-0.21	-5.89
4,669.0	1.10	137.50	4,660.5	-183.6	94.7	189.9	0.18	0.00	9.26
4,764.0	1.00	148.20	4,755.4	-185.0	95.8	191.4	0.23	-0.11	11.26
4,859.0	0.50	154.00	4,850.4	-186.0	96.4	192.5	0.53	-0.53	6.11
4,954.0	0.90	168.60	4,945.4	-187.1	96.7	193.6	0.46	0.42	15.37
5,049.0	0.60	180.60	5,040.4	-188.4	96.9	194.8	0.35	-0.32	12.63
5,080.0	0.80	158.80	5,071.4	-188.7	96.9	195.2	1.06	0.65	-70.32
5,112.0	0.70	143.60	5,103.4	-189.1	97.1	195.6	0.69	-0.31	-47.50
5,143.0	3.10	135.00	5,134.4	-189.8	97.8	196.4	7.77	7.74	-27.74
5,176.0	6.80	137.30	5,167.3	-191.9	99.8	198.6	11.23	11.21	6.97
5,207.0	9.10	148.70	5,198.0	-195.4	102.3	202.2	8.96	7.42	36.77
5,239.0	12.80	148.60	5,229.4	-200.5	105.5	207.6	11.56	11.56	-0.31
5,270.0	16.80	151.90	5,259.4	-207.4	109.4	214.7	13.18	12.90	10.65
5,302.0	20.00	157.30	5,289.7	-216.6	113.7	224.2	11.32	10.00	16.88
5,334.0	22.60	158.80	5,319.5	-227.3	118.0	235.2	8.30	8.13	4.69
5,365.0	25.30	156.30	5,347.9	-239.0	122.8	247.2	9.30	8.71	-8.06
5,397.0	28.20	153.30	5,376.4	-252.0	129.0	260.6	9.99	9.06	-9.38
5,428.0	31.20	151.50	5,403.4	-265.6	136.1	274.7	10.10	9.68	-5.81
5,460.0	33.70	152.30	5,430.4	-280.7	144.2	290.3	7.93	7.81	2.50
5,492.0	36.60	153.00	5,456.5	-297.1	152.6	307.3	9.15	9.06	2.19

Survey Report

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Well:	Razor 27L-3404B	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)
5,523.0	39.30	152.80	5,481.0	-314.1	161.3	324.8	8.72	8.71	-0.65
5,555.0	42.40	152.30	5,505.2	-332.6	171.0	344.0	9.74	9.69	-1.56
5,587.0	45.50	152.80	5,528.2	-352.3	181.2	364.4	9.75	9.69	1.56
5,619.0	47.70	155.80	5,550.2	-373.3	191.3	386.0	9.68	6.88	9.38
5,650.0	49.20	155.60	5,570.7	-394.4	200.8	407.8	4.86	4.84	-0.65
5,682.0	52.10	155.10	5,591.0	-416.9	211.1	431.0	9.14	9.06	-1.56
5,714.0	55.10	152.80	5,610.0	-440.1	222.5	454.9	11.02	9.38	-7.19
5,745.0	58.00	152.80	5,627.1	-463.1	234.3	478.7	9.35	9.35	0.00
5,777.0	61.00	154.40	5,643.3	-487.8	246.5	504.2	10.32	9.38	5.00
5,809.0	64.00	155.10	5,658.1	-513.4	258.6	530.6	9.57	9.38	2.19
5,840.0	67.40	153.00	5,670.9	-538.8	271.0	556.9	12.59	10.97	-6.77
5,871.0	69.30	154.20	5,682.3	-564.6	283.8	583.5	7.11	6.13	3.87
5,903.0	70.00	156.10	5,693.4	-591.9	296.4	611.6	5.98	2.19	5.94
5,935.0	72.40	154.90	5,703.8	-619.4	309.0	640.0	8.30	7.50	-3.75
5,966.0	76.30	154.50	5,712.1	-646.4	321.7	667.8	12.64	12.58	-1.29
5,998.0	80.70	154.90	5,718.5	-674.7	335.1	697.0	13.80	13.75	1.25
6,030.0	84.30	155.60	5,722.7	-703.5	348.4	726.7	11.46	11.25	2.19
6,047.0	85.70	156.50	5,724.2	-719.0	355.3	742.6	9.78	8.24	5.29
6,092.0	90.80	156.50	5,725.5	-760.3	373.2	785.1	11.33	11.33	0.00
6,113.0	90.70	156.10	5,725.3	-779.5	381.7	804.8	1.96	-0.48	-1.90
6,144.0	91.30	156.50	5,724.7	-807.9	394.1	834.0	2.33	1.94	1.29
6,176.0	91.60	156.50	5,723.9	-837.2	406.9	864.2	0.94	0.94	0.00
6,208.0	92.00	156.50	5,722.9	-866.5	419.6	894.4	1.25	1.25	0.00
6,239.0	91.60	157.00	5,721.9	-895.0	431.9	923.7	2.06	-1.29	1.61
6,271.0	91.60	157.70	5,721.0	-924.5	444.2	954.0	2.19	0.00	2.19
6,302.0	92.10	157.90	5,720.0	-953.2	455.9	983.4	1.74	1.61	0.65
6,334.0	91.30	157.90	5,719.1	-982.8	467.9	1,013.9	2.50	-2.50	0.00
6,366.0	91.60	158.90	5,718.3	-1,012.6	479.7	1,044.4	3.26	0.94	3.13
6,397.0	92.20	159.30	5,717.2	-1,041.5	490.7	1,074.0	2.33	1.94	1.29
6,429.0	92.20	160.00	5,716.0	-1,071.5	501.9	1,104.7	2.19	0.00	2.19
6,461.0	92.00	160.70	5,714.8	-1,101.6	512.6	1,135.5	2.27	-0.63	2.19
6,493.0	91.80	161.90	5,713.8	-1,131.9	522.9	1,166.5	3.80	-0.63	3.75
6,524.0	90.90	161.90	5,713.1	-1,161.4	532.5	1,196.6	2.90	-2.90	0.00
6,556.0	91.00	162.80	5,712.5	-1,191.9	542.2	1,227.7	2.83	0.31	2.81
6,588.0	91.30	163.10	5,711.9	-1,222.5	551.6	1,258.8	1.33	0.94	0.94
6,619.0	90.70	163.50	5,711.3	-1,252.1	560.5	1,289.1	2.33	-1.94	1.29
6,651.0	90.00	165.10	5,711.1	-1,283.0	569.1	1,320.4	5.46	-2.19	5.00
6,682.0	89.50	167.20	5,711.3	-1,313.0	576.6	1,351.0	6.96	-1.61	6.77
6,714.0	89.30	168.20	5,711.6	-1,344.3	583.4	1,382.7	3.19	-0.63	3.13
6,746.0	89.70	168.20	5,711.9	-1,375.6	589.9	1,414.4	1.25	1.25	0.00
6,777.0	90.10	167.90	5,711.9	-1,406.0	596.3	1,445.1	1.61	1.29	-0.97
6,809.0	90.60	167.90	5,711.8	-1,437.2	603.1	1,476.8	1.56	1.56	0.00
6,840.0	89.30	168.10	5,711.8	-1,467.6	609.5	1,507.5	4.24	-4.19	0.65
6,872.0	89.10	167.90	5,712.2	-1,498.9	616.1	1,539.2	0.88	-0.63	-0.63
6,903.0	89.40	168.90	5,712.6	-1,529.2	622.4	1,569.9	3.37	0.97	3.23
6,934.0	89.40	170.40	5,713.0	-1,559.7	628.0	1,600.7	4.84	0.00	4.84
6,966.0	89.70	169.80	5,713.2	-1,591.2	633.5	1,632.6	2.10	0.94	-1.88
6,997.0	90.10	169.70	5,713.3	-1,621.8	639.0	1,663.4	1.33	1.29	-0.32
7,029.0	89.20	169.50	5,713.5	-1,653.2	644.7	1,695.2	2.88	-2.81	-0.63
7,061.0	89.40	171.20	5,713.8	-1,684.8	650.1	1,727.0	5.35	0.63	5.31
7,092.0	88.60	173.70	5,714.4	-1,715.5	654.2	1,758.0	8.47	-2.58	8.06
7,124.0	88.30	176.00	5,715.3	-1,747.4	657.1	1,789.9	7.25	-0.94	7.19
7,156.0	88.30	176.00	5,716.2	-1,779.3	659.3	1,821.9	0.00	0.00	0.00
7,188.0	88.10	176.90	5,717.2	-1,811.2	661.3	1,853.9	2.88	-0.63	2.81

Survey Report

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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)
7,219.0	89.20	178.10	5,717.9	-1,842.1	662.6	1,884.9	5.25	3.55	3.87
7,251.0	90.10	179.50	5,718.1	-1,874.1	663.3	1,916.9	5.20	2.81	4.38
7,282.0	90.50	179.80	5,718.0	-1,905.1	663.5	1,947.8	1.61	1.29	0.97
7,314.0	90.60	180.00	5,717.7	-1,937.1	663.5	1,979.7	0.70	0.31	0.63
7,345.0	90.70	180.90	5,717.3	-1,968.1	663.3	2,010.6	2.92	0.32	2.90
7,377.0	91.00	181.30	5,716.8	-2,000.1	662.7	2,042.5	1.56	0.94	1.25
7,409.0	90.20	182.10	5,716.5	-2,032.1	661.7	2,074.3	3.54	-2.50	2.50
7,440.0	89.00	183.20	5,716.7	-2,063.1	660.3	2,105.1	5.25	-3.87	3.55
7,472.0	89.10	182.80	5,717.2	-2,095.0	658.6	2,136.8	1.29	0.31	-1.25
7,503.0	89.50	182.50	5,717.6	-2,126.0	657.2	2,167.6	1.61	1.29	-0.97
7,534.0	89.80	183.50	5,717.8	-2,156.9	655.6	2,198.4	3.37	0.97	3.23
7,565.0	90.00	184.80	5,717.9	-2,187.9	653.3	2,229.1	4.24	0.65	4.19
7,596.0	89.60	185.50	5,718.0	-2,218.7	650.5	2,259.6	2.60	-1.29	2.26
7,626.0	90.00	184.80	5,718.1	-2,248.6	647.8	2,289.3	2.69	1.33	-2.33
7,657.0	90.20	185.30	5,718.0	-2,279.5	645.1	2,319.9	1.74	0.65	1.61
7,688.0	90.70	185.50	5,717.8	-2,310.4	642.2	2,350.4	1.74	1.61	0.65
7,718.0	90.70	184.80	5,717.4	-2,340.2	639.5	2,380.0	2.33	0.00	-2.33
7,749.0	90.70	184.20	5,717.0	-2,371.1	637.1	2,410.7	1.94	0.00	-1.94
7,780.0	90.90	184.20	5,716.6	-2,402.0	634.8	2,441.4	0.65	0.65	0.00
7,810.0	91.20	184.20	5,716.1	-2,432.0	632.6	2,471.0	1.00	1.00	0.00
7,841.0	91.50	184.40	5,715.3	-2,462.9	630.3	2,501.7	1.16	0.97	0.65
7,871.0	90.70	183.70	5,714.8	-2,492.8	628.2	2,531.4	3.54	-2.67	-2.33
7,902.0	90.20	183.70	5,714.5	-2,523.7	626.2	2,562.1	1.61	-1.61	0.00
7,933.0	89.70	184.10	5,714.5	-2,554.6	624.1	2,592.8	2.07	-1.61	1.29
7,964.0	89.30	184.80	5,714.8	-2,585.5	621.6	2,623.5	2.60	-1.29	2.26
7,995.0	89.50	184.60	5,715.1	-2,616.4	619.1	2,654.1	0.91	0.65	-0.65
8,026.0	89.80	184.20	5,715.3	-2,647.4	616.7	2,684.7	1.61	0.97	-1.29
8,057.0	90.00	184.20	5,715.4	-2,678.3	614.5	2,715.4	0.65	0.65	0.00
8,088.0	90.00	183.90	5,715.4	-2,709.2	612.3	2,746.1	0.97	0.00	-0.97
8,118.0	90.60	183.70	5,715.2	-2,739.1	610.3	2,775.8	2.11	2.00	-0.67
8,149.0	90.50	183.00	5,714.9	-2,770.1	608.5	2,806.6	2.28	-0.32	-2.26
8,180.0	90.20	182.50	5,714.7	-2,801.0	607.0	2,837.3	1.88	-0.97	-1.61
8,211.0	90.20	182.70	5,714.6	-2,832.0	605.6	2,868.1	0.65	0.00	0.65
8,242.0	90.90	183.00	5,714.3	-2,863.0	604.0	2,898.9	2.46	2.26	0.97
8,273.0	91.50	184.20	5,713.7	-2,893.9	602.1	2,929.6	4.33	1.94	3.87
8,303.0	92.70	184.60	5,712.6	-2,923.8	599.8	2,959.2	4.22	4.00	1.33
8,334.0	93.00	184.40	5,711.0	-2,954.6	597.4	2,989.9	1.16	0.97	-0.65
8,364.0	93.10	184.60	5,709.4	-2,984.5	595.0	3,019.5	0.74	0.33	0.67
8,395.0	92.60	184.12	5,707.9	-3,015.4	592.7	3,050.1	2.23	-1.61	-1.55
8,426.0	92.20	183.40	5,706.6	-3,046.3	590.6	3,080.8	2.66	-1.29	-2.32
8,457.0	91.20	181.80	5,705.7	-3,077.2	589.2	3,111.6	6.08	-3.23	-5.16
8,488.0	91.00	181.40	5,705.1	-3,108.2	588.4	3,142.4	1.44	-0.65	-1.29
8,518.0	90.10	180.20	5,704.8	-3,138.2	587.9	3,172.3	5.00	-3.00	-4.00
8,549.0	89.50	180.40	5,704.9	-3,169.2	587.8	3,203.2	2.04	-1.94	0.65
8,580.0	90.00	180.00	5,705.0	-3,200.2	587.7	3,234.1	2.07	1.61	-1.29
8,610.0	89.70	179.30	5,705.1	-3,230.2	587.8	3,264.0	2.54	-1.00	-2.33
8,641.0	89.80	179.50	5,705.3	-3,261.2	588.2	3,295.0	0.72	0.32	0.65
8,672.0	90.60	179.50	5,705.1	-3,292.2	588.4	3,325.9	2.58	2.58	0.00
8,702.0	90.70	179.30	5,704.8	-3,322.2	588.8	3,355.9	0.75	0.33	-0.67
8,733.0	90.60	178.60	5,704.5	-3,353.2	589.3	3,386.8	2.28	-0.32	-2.26
8,763.0	89.50	179.00	5,704.4	-3,383.2	590.0	3,416.8	3.90	-3.67	1.33
8,794.0	88.90	179.50	5,704.9	-3,414.2	590.4	3,447.7	2.52	-1.94	1.61
8,825.0	89.10	180.00	5,705.4	-3,445.2	590.5	3,478.6	1.74	0.65	1.61
8,855.0	88.50	180.40	5,706.0	-3,475.2	590.4	3,508.6	2.40	-2.00	1.33

Survey Report

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor 27L-3404B
Project:	SEC.27-T10N-R58W	TVD Reference:	WELL @ 4772.3ft (RKB-17.3')
Site:	Razor 27L Pad Sec.27-T10N-R58W	MD Reference:	WELL @ 4772.3ft (RKB-17.3')
Well:	Razor 27L-3404B	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)
8,886.0	88.80	180.70	5,706.8	-3,506.2	590.1	3,539.4	1.37	0.97	0.97
8,917.0	89.00	180.00	5,707.4	-3,537.2	589.9	3,570.3	2.35	0.65	-2.26
8,948.0	88.90	181.40	5,707.9	-3,568.2	589.5	3,601.2	4.53	-0.32	4.52
8,978.0	88.80	182.50	5,708.5	-3,598.1	588.5	3,631.1	3.68	-0.33	3.67
9,009.0	88.60	183.00	5,709.2	-3,629.1	587.0	3,661.8	1.74	-0.65	1.61
9,040.0	88.80	183.50	5,709.9	-3,660.0	585.3	3,692.6	1.74	0.65	1.61
9,071.0	90.00	183.70	5,710.3	-3,691.0	583.3	3,723.3	3.92	3.87	0.65
9,101.0	90.70	183.50	5,710.1	-3,720.9	581.4	3,753.0	2.43	2.33	-0.67
9,132.0	90.90	183.50	5,709.6	-3,751.8	579.5	3,783.7	0.65	0.65	0.00
9,163.0	91.30	183.70	5,709.0	-3,782.8	577.6	3,814.4	1.44	1.29	0.65
9,193.0	91.30	183.90	5,708.4	-3,812.7	575.6	3,844.2	0.67	0.00	0.67
9,224.0	90.70	182.70	5,707.8	-3,843.6	573.8	3,874.9	4.33	-1.94	-3.87
9,254.0	90.10	182.10	5,707.6	-3,873.6	572.6	3,904.7	2.83	-2.00	-2.00
9,285.0	90.30	182.30	5,707.5	-3,904.6	571.4	3,935.5	0.91	0.65	0.65
9,315.0	90.70	182.10	5,707.2	-3,934.6	570.2	3,965.3	1.49	1.33	-0.67
9,346.0	91.10	181.80	5,706.8	-3,965.6	569.2	3,996.1	1.61	1.29	-0.97
9,377.0	91.50	181.60	5,706.1	-3,996.5	568.2	4,027.0	1.44	1.29	-0.65
9,408.0	90.80	181.40	5,705.4	-4,027.5	567.4	4,057.8	2.35	-2.26	-0.65
9,438.0	90.50	181.10	5,705.1	-4,057.5	566.8	4,087.7	1.41	-1.00	-1.00
9,469.0	89.80	179.80	5,705.0	-4,088.5	566.5	4,118.6	4.76	-2.26	-4.19
9,500.0	89.70	179.70	5,705.1	-4,119.5	566.7	4,149.5	0.46	-0.32	-0.32
9,530.0	90.20	179.80	5,705.2	-4,149.5	566.8	4,179.5	1.70	1.67	0.33
9,561.0	90.70	179.70	5,704.9	-4,180.5	566.9	4,210.4	1.64	1.61	-0.32
9,592.0	91.10	179.30	5,704.4	-4,211.5	567.2	4,241.3	1.82	1.29	-1.29
9,623.0	90.40	179.70	5,704.0	-4,242.5	567.5	4,272.3	2.60	-2.26	1.29
9,654.0	90.00	179.70	5,703.9	-4,273.5	567.6	4,303.2	1.29	-1.29	0.00
9,685.0	90.30	179.10	5,703.8	-4,304.5	568.0	4,334.1	2.16	0.97	-1.94
9,716.0	90.10	180.00	5,703.7	-4,335.5	568.2	4,365.1	2.97	-0.65	2.90
9,746.0	90.00	180.90	5,703.7	-4,365.5	568.0	4,395.0	3.02	-0.33	3.00
9,777.0	90.10	180.40	5,703.7	-4,396.5	567.6	4,425.9	1.64	0.32	-1.61
9,808.0	90.40	180.20	5,703.5	-4,427.5	567.5	4,456.8	1.16	0.97	-0.65
9,838.0	90.00	180.40	5,703.4	-4,457.5	567.3	4,486.7	1.49	-1.33	0.67
9,869.0	89.30	180.60	5,703.6	-4,488.5	567.0	4,517.6	2.35	-2.26	0.65
9,899.0	89.50	180.20	5,703.9	-4,518.5	566.8	4,547.5	1.49	0.67	-1.33
9,930.0	89.30	180.20	5,704.3	-4,549.5	566.7	4,578.4	0.65	-0.65	0.00
9,961.0	88.90	181.10	5,704.8	-4,580.5	566.4	4,609.3	3.18	-1.29	2.90
9,992.0	88.10	182.80	5,705.6	-4,611.4	565.3	4,640.1	6.06	-2.58	5.48
10,023.0	88.30	182.50	5,706.5	-4,642.4	563.9	4,670.9	1.16	0.65	-0.97
10,054.0	88.50	182.50	5,707.4	-4,673.3	562.5	4,701.6	0.65	0.65	0.00
10,085.0	88.80	182.00	5,708.1	-4,704.3	561.3	4,732.4	1.88	0.97	-1.61
10,116.0	89.00	181.80	5,708.7	-4,735.3	560.3	4,763.3	0.91	0.65	-0.65
10,146.0	89.10	181.60	5,709.2	-4,765.3	559.4	4,793.1	0.75	0.33	-0.67
10,177.0	89.30	182.30	5,709.7	-4,796.3	558.3	4,823.9	2.35	0.65	2.26
10,208.0	89.40	181.80	5,710.0	-4,827.2	557.2	4,854.8	1.64	0.32	-1.61
10,239.0	89.70	181.40	5,710.3	-4,858.2	556.4	4,885.6	1.61	0.97	-1.29
10,269.0	90.70	181.80	5,710.2	-4,888.2	555.5	4,915.5	3.59	3.33	1.33
10,300.0	91.30	182.00	5,709.6	-4,919.2	554.5	4,946.3	2.04	1.94	0.65
10,330.0	91.60	181.80	5,708.9	-4,949.2	553.5	4,976.1	1.20	1.00	-0.67
10,361.0	92.00	181.80	5,707.9	-4,980.1	552.5	5,006.9	1.29	1.29	0.00
10,391.0	92.40	181.30	5,706.7	-5,010.1	551.7	5,036.8	2.13	1.33	-1.67
10,422.0	92.60	181.30	5,705.4	-5,041.1	551.0	5,067.6	0.65	0.65	0.00
10,453.0	92.90	181.30	5,703.9	-5,072.0	550.3	5,098.4	0.97	0.97	0.00
10,484.0	93.50	181.60	5,702.2	-5,103.0	549.5	5,129.2	2.16	1.94	0.97
10,515.0	93.30	181.60	5,700.3	-5,133.9	548.7	5,160.0	0.65	-0.65	0.00

Survey Report

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor 27L-3404B
Project:	SEC.27-T10N-R58W	TVD Reference:	WELL @ 4772.3ft (RKB-17.3')
Site:	Razor 27L Pad Sec.27-T10N-R58W	MD Reference:	WELL @ 4772.3ft (RKB-17.3')
Well:	Razor 27L-3404B	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)
10,546.0	91.70	180.40	5,699.0	-5,164.9	548.1	5,190.9	6.45	-5.16	-3.87
10,576.0	91.60	180.40	5,698.1	-5,194.8	547.9	5,220.8	0.33	-0.33	0.00
10,607.0	92.00	180.40	5,697.1	-5,225.8	547.7	5,251.6	1.29	1.29	0.00
10,638.0	91.20	180.00	5,696.3	-5,256.8	547.6	5,282.5	2.89	-2.58	-1.29
10,668.0	89.90	180.00	5,696.0	-5,286.8	547.6	5,312.5	4.33	-4.33	0.00
10,699.0	90.00	180.00	5,696.0	-5,317.8	547.6	5,343.4	0.32	0.32	0.00
10,730.0	90.30	179.80	5,695.9	-5,348.8	547.6	5,374.3	1.16	0.97	-0.65
10,761.0	90.70	179.50	5,695.7	-5,379.8	547.8	5,405.2	1.61	1.29	-0.97
10,792.0	90.10	180.00	5,695.4	-5,410.8	548.0	5,436.2	2.52	-1.94	1.61
10,823.0	89.90	180.60	5,695.4	-5,441.8	547.8	5,467.1	2.04	-0.65	1.94
10,853.0	90.30	180.90	5,695.4	-5,471.8	547.4	5,497.0	1.67	1.33	1.00
10,884.0	90.70	181.30	5,695.1	-5,502.8	546.8	5,527.8	1.82	1.29	1.29
10,915.0	89.70	180.70	5,695.0	-5,533.8	546.3	5,558.7	3.76	-3.23	-1.94
10,946.0	89.30	180.90	5,695.3	-5,564.8	545.8	5,589.6	1.44	-1.29	0.65
10,976.0	89.60	180.60	5,695.6	-5,594.8	545.5	5,619.5	1.41	1.00	-1.00
11,007.0	89.50	180.20	5,695.8	-5,625.8	545.2	5,650.4	1.33	-0.32	-1.29
11,037.0	88.80	180.70	5,696.3	-5,655.8	545.0	5,680.3	2.87	-2.33	1.67
11,068.0	89.30	180.20	5,696.8	-5,686.8	544.8	5,711.2	2.28	1.61	-1.61
11,099.0	89.40	179.70	5,697.1	-5,717.8	544.8	5,742.1	1.64	0.32	-1.61
11,130.0	89.80	179.70	5,697.3	-5,748.8	544.9	5,773.0	1.29	1.29	0.00
11,160.0	89.30	180.70	5,697.6	-5,778.8	544.8	5,803.0	3.73	-1.67	3.33
11,191.0	88.80	179.80	5,698.1	-5,809.8	544.7	5,833.9	3.32	-1.61	-2.90
11,222.0	88.20	180.90	5,698.9	-5,840.7	544.5	5,864.8	4.04	-1.94	3.55
11,253.0	87.30	182.30	5,700.1	-5,871.7	543.7	5,895.6	5.37	-2.90	4.52
11,284.0	87.40	182.00	5,701.5	-5,902.7	542.5	5,926.4	1.02	0.32	-0.97
11,315.0	87.80	181.80	5,702.8	-5,933.6	541.5	5,957.2	1.44	1.29	-0.65
11,346.0	88.00	181.80	5,704.0	-5,964.6	540.5	5,988.0	0.65	0.65	0.00
11,376.0	88.00	182.10	5,705.0	-5,994.5	539.5	6,017.8	1.00	0.00	1.00
11,407.0	88.20	181.60	5,706.1	-6,025.5	538.5	6,048.6	1.74	0.65	-1.61
11,438.0	88.90	182.30	5,706.8	-6,056.5	537.4	6,079.4	3.19	2.26	2.26
11,468.0	89.00	182.70	5,707.4	-6,086.4	536.1	6,109.2	1.37	0.33	1.33
11,499.0	89.00	182.30	5,707.9	-6,117.4	534.8	6,140.0	1.29	0.00	-1.29
11,530.0	89.30	182.30	5,708.4	-6,148.4	533.5	6,170.8	0.97	0.97	0.00
11,561.0	89.60	183.20	5,708.7	-6,179.3	532.0	6,201.6	3.06	0.97	2.90
11,591.0	89.20	182.70	5,709.0	-6,209.3	530.5	6,231.4	2.13	-1.33	-1.67
11,622.0	89.30	182.30	5,709.4	-6,240.3	529.1	6,262.1	1.33	0.32	-1.29
11,653.0	89.90	183.40	5,709.6	-6,271.2	527.6	6,292.9	4.04	1.94	3.55
11,684.0	90.60	183.20	5,709.5	-6,302.2	525.8	6,323.7	2.35	2.26	-0.65
11,715.0	91.10	182.80	5,709.0	-6,333.1	524.2	6,354.4	2.07	1.61	-1.29
11,746.0	91.80	182.70	5,708.2	-6,364.1	522.7	6,385.2	2.28	2.26	-0.32
11,776.0	92.10	182.70	5,707.2	-6,394.0	521.3	6,415.0	1.00	1.00	0.00
11,807.0	92.30	182.80	5,706.0	-6,425.0	519.8	6,445.7	0.72	0.65	0.32
11,838.0	92.80	182.80	5,704.7	-6,455.9	518.3	6,476.5	1.61	1.61	0.00
11,868.0	93.40	182.70	5,703.0	-6,485.8	516.8	6,506.2	2.03	2.00	-0.33
11,899.0	92.70	182.70	5,701.4	-6,516.8	515.4	6,536.9	2.26	-2.26	0.00
11,930.0	91.70	181.60	5,700.2	-6,547.7	514.2	6,567.7	4.79	-3.23	-3.55
11,961.0	91.90	181.60	5,699.2	-6,578.7	513.4	6,598.6	0.65	0.65	0.00
11,992.0	92.70	181.30	5,698.0	-6,609.6	512.6	6,629.4	2.76	2.58	-0.97
12,023.0	92.70	180.60	5,696.5	-6,640.6	512.1	6,660.2	2.26	0.00	-2.26
12,053.0	92.30	179.30	5,695.2	-6,670.6	512.1	6,690.1	4.53	-1.33	-4.33
12,087.0	92.90	178.90	5,693.7	-6,704.5	512.6	6,724.0	2.12	1.76	-1.18
12,117.0	92.90	178.10	5,692.1	-6,734.5	513.4	6,754.0	2.66	0.00	-2.67
12,148.0	91.50	178.30	5,691.0	-6,765.5	514.4	6,784.9	4.56	-4.52	0.65
12,179.0	91.10	177.90	5,690.3	-6,796.4	515.4	6,815.9	1.82	-1.29	-1.29

Survey Report

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Razor 27L-3404B
Project:	SEC.27-T10N-R58W	TVD Reference:	WELL @ 4772.3ft (RKB-17.3')
Site:	Razor 27L Pad Sec.27-T10N-R58W	MD Reference:	WELL @ 4772.3ft (RKB-17.3')
Well:	Razor 27L-3404B	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)	
12,209.0	90.20	178.30	5,689.9	-6,826.4	516.4	6,845.9	3.28	-3.00	1.33	
12,240.0	90.30	177.60	5,689.8	-6,857.4	517.5	6,876.8	2.28	0.32	-2.26	
12,270.0	90.70	177.70	5,689.5	-6,887.4	518.7	6,906.8	1.37	1.33	0.33	
12,301.0	90.60	177.70	5,689.2	-6,918.3	520.0	6,937.8	0.32	-0.32	0.00	
12,332.0	89.90	177.90	5,689.0	-6,949.3	521.2	6,968.8	2.35	-2.26	0.65	
12,363.0	89.70	177.90	5,689.1	-6,980.3	522.3	6,999.8	0.65	-0.65	0.00	
12,394.0	89.80	177.90	5,689.3	-7,011.3	523.4	7,030.8	0.32	0.32	0.00	
12,424.0	89.90	177.40	5,689.4	-7,041.2	524.7	7,060.7	1.70	0.33	-1.67	
12,440.0	90.10	177.20	5,689.4	-7,057.2	525.4	7,076.7	1.77	1.25	-1.25	
12,490.0	89.90	178.00	5,689.4	-7,107.2	527.5	7,126.7	1.65	-0.40	1.60	

Checked By: _____	Approved By: _____	Date: _____
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