

Whiting Oil & Gas

Well Name: **Church #36-2523H**

Surface Location: Church #36-2523H Pad Sec.36-T10N-R60W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

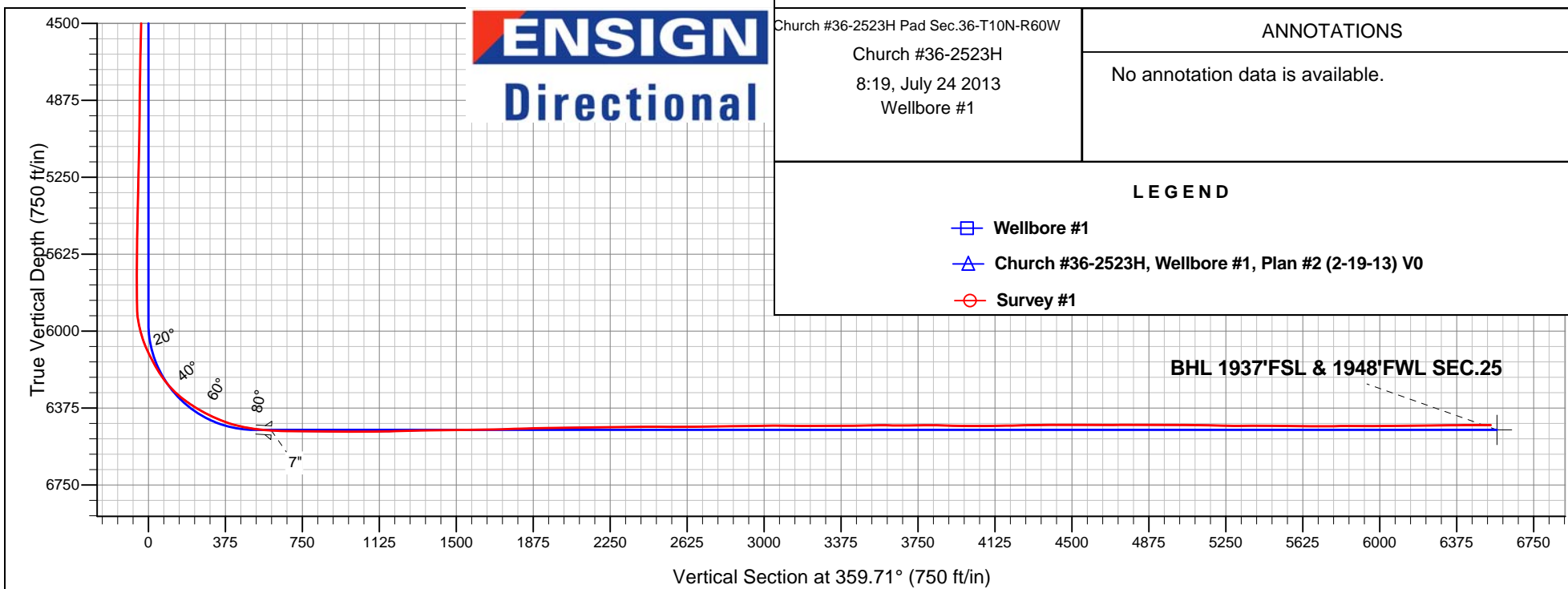
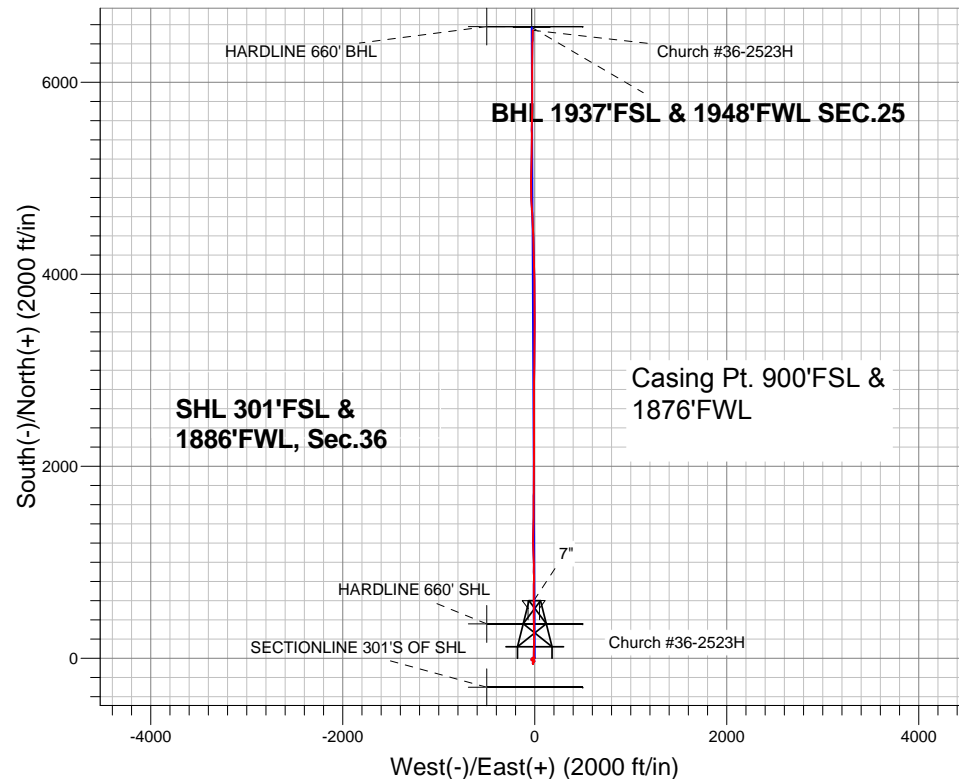
Ground Elevation: 5195.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1532946.92	3403698.89	40.787214	-104.042114	

RKB - 16.5' WELL @ 5212.0ft (RKB - 16.5')

FINAL SURVEY

Projected Bottom Hole Location
12809'MD 6459'TVD 6541'N & 21'W of SHL
90.0 degree Incl @ 1.20 degree AZM



ENSIGN
Directional

Church #36-2523H Pad Sec.36-T10N-R60W
Church #36-2523H
8:19, July 24 2013
Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

- Wellbore #1
- Church #36-2523H, Wellbore #1, Plan #2 (2-19-13) V0
- Survey #1



Whiting Oil & Gas

SEC.36-T10N-R60W

Church #36-2523H Pad Sec.36-T10N-R60W

Church #36-2523H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

25 July, 2013

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Church #36-2523H
Project:	SEC.36-T10N-R60W	TVD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Site:	Church #36-2523H Pad Sec.36-T10N-R60W	MD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Well:	Church #36-2523H	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)
860.0	0.80	246.10	859.8	7.4	-14.2	7.4	0.33	-0.32	-5.58
955.0	0.80	261.90	954.8	7.0	-15.4	7.1	0.23	0.00	16.63
1,050.0	1.00	260.50	1,049.8	6.8	-16.9	6.9	0.21	0.21	-1.47
1,145.0	1.00	256.30	1,144.8	6.5	-18.5	6.5	0.08	0.00	-4.42
1,239.0	0.70	230.50	1,238.7	5.9	-19.8	6.0	0.51	-0.32	-27.45
1,331.0	0.60	253.50	1,330.7	5.4	-20.7	5.5	0.30	-0.11	25.00
1,421.0	1.00	220.00	1,420.7	4.7	-21.6	4.8	0.67	0.44	-37.22
1,513.0	1.30	233.10	1,512.7	3.4	-23.0	3.5	0.43	0.33	14.24
1,607.0	1.20	231.50	1,606.7	2.2	-24.6	2.3	0.11	-0.11	-1.70
1,729.0	1.50	218.00	1,728.7	0.1	-26.6	0.2	0.36	0.25	-11.07
1,821.0	1.30	217.10	1,820.6	-1.7	-28.0	-1.5	0.22	-0.22	-0.98
1,914.0	0.90	230.10	1,913.6	-3.0	-29.2	-2.8	0.50	-0.43	13.98
2,006.0	0.60	180.40	2,005.6	-3.9	-29.7	-3.8	0.75	-0.33	-54.02
2,098.0	0.40	145.90	2,097.6	-4.7	-29.5	-4.5	0.38	-0.22	-37.50
2,193.0	0.20	310.60	2,192.6	-4.8	-29.5	-4.7	0.63	-0.21	173.37
2,288.0	1.80	222.70	2,287.6	-5.8	-30.6	-5.7	1.90	1.68	-92.53
2,383.0	2.90	221.10	2,382.5	-8.7	-33.2	-8.6	1.16	1.16	-1.68
2,478.0	2.70	161.00	2,477.4	-12.7	-34.1	-12.5	2.96	-0.21	-63.26
2,573.0	1.60	227.50	2,572.4	-15.7	-34.3	-15.5	2.66	-1.16	70.00
2,668.0	0.70	90.20	2,667.3	-16.6	-34.7	-16.4	2.28	-0.95	-144.53
2,763.0	0.80	135.20	2,762.3	-17.0	-33.7	-16.9	0.61	0.11	47.37
2,857.0	1.10	109.70	2,856.3	-17.8	-32.3	-17.6	0.54	0.32	-27.13
2,952.0	1.50	140.30	2,951.3	-19.1	-30.7	-18.9	0.83	0.42	32.21
3,047.0	1.10	124.10	3,046.3	-20.5	-29.1	-20.4	0.57	-0.42	-17.05
3,142.0	1.80	131.10	3,141.2	-22.0	-27.3	-21.9	0.76	0.74	7.37
3,237.0	1.30	115.90	3,236.2	-23.5	-25.2	-23.4	0.68	-0.53	-16.00
3,332.0	1.80	125.30	3,331.2	-24.8	-23.0	-24.7	0.59	0.53	9.89
3,426.0	1.90	128.20	3,425.1	-26.6	-20.6	-26.5	0.15	0.11	3.09
3,522.0	2.60	115.10	3,521.1	-28.5	-17.3	-28.5	0.90	0.73	-13.65
3,617.0	1.70	95.60	3,616.0	-29.6	-14.0	-29.5	1.21	-0.95	-20.53
3,712.0	1.10	97.70	3,711.0	-29.9	-11.7	-29.8	0.63	-0.63	2.21
3,806.0	1.20	105.50	3,804.9	-30.2	-9.8	-30.2	0.20	0.11	8.30
3,901.0	1.20	87.00	3,899.9	-30.5	-7.9	-30.4	0.41	0.00	-19.47
3,996.0	1.60	77.50	3,994.9	-30.1	-5.6	-30.1	0.49	0.42	-10.00
4,091.0	1.60	71.00	4,089.9	-29.4	-3.0	-29.4	0.19	0.00	-6.84
4,186.0	1.50	232.70	4,184.8	-29.7	-2.8	-29.7	3.22	-0.11	170.21
4,281.0	1.30	217.30	4,279.8	-31.3	-4.4	-31.3	0.45	-0.21	-16.21
4,376.0	1.30	203.60	4,374.8	-33.2	-5.5	-33.1	0.33	0.00	-14.42
4,471.0	1.30	216.20	4,469.8	-35.0	-6.6	-35.0	0.30	0.00	13.26
4,565.0	1.40	224.70	4,563.7	-36.7	-8.0	-36.7	0.24	0.11	9.04
4,660.0	1.70	220.10	4,658.7	-38.6	-9.7	-38.6	0.34	0.32	-4.84
4,755.0	1.40	227.80	4,753.7	-40.5	-11.5	-40.4	0.38	-0.32	8.11
4,850.0	1.10	236.80	4,848.6	-41.7	-13.1	-41.7	0.38	-0.32	9.47
4,945.0	1.50	242.20	4,943.6	-42.8	-15.0	-42.7	0.44	0.42	5.68
5,041.0	1.40	227.50	5,039.6	-44.2	-17.0	-44.1	0.40	-0.10	-15.31
5,136.0	1.40	219.40	5,134.6	-45.9	-18.6	-45.8	0.21	0.00	-8.53
5,231.0	1.80	220.30	5,229.5	-47.9	-20.3	-47.8	0.42	0.42	0.95
5,326.0	1.60	172.30	5,324.5	-50.4	-21.0	-50.3	1.47	-0.21	-50.53
5,421.0	1.30	149.80	5,419.5	-52.6	-20.3	-52.5	0.67	-0.32	-23.68
5,515.0	1.30	134.30	5,513.4	-54.3	-19.0	-54.2	0.37	0.00	-16.49
5,610.0	1.40	144.90	5,608.4	-56.0	-17.6	-55.9	0.28	0.11	11.16
5,705.0	0.50	350.30	5,703.4	-56.5	-17.0	-56.4	1.96	-0.95	-162.74
5,800.0	0.20	268.40	5,798.4	-56.1	-17.2	-56.0	0.54	-0.32	-86.21
5,831.0	0.30	260.90	5,829.4	-56.1	-17.4	-56.0	0.34	0.32	-24.19

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Church #36-2523H
Project:	SEC.36-T10N-R60W	TVD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Site:	Church #36-2523H Pad Sec.36-T10N-R60W	MD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Well:	Church #36-2523H	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)
5,863.0	0.40	290.90	5,861.4	-56.1	-17.5	-56.0	0.64	0.31	93.75
5,895.0	2.50	13.00	5,893.4	-55.4	-17.5	-55.3	7.74	6.56	256.56
5,927.0	6.60	17.10	5,925.3	-53.0	-16.8	-52.9	12.84	12.81	12.81
5,959.0	10.30	7.90	5,956.9	-48.4	-15.9	-48.3	12.27	11.56	-28.75
5,990.0	13.60	5.60	5,987.3	-42.0	-15.1	-41.9	10.75	10.65	-7.42
6,022.0	16.10	6.30	6,018.2	-33.8	-14.3	-33.8	7.83	7.81	2.19
6,054.0	19.40	6.00	6,048.7	-24.1	-13.2	-24.1	10.32	10.31	-0.94
6,085.0	23.00	4.20	6,077.6	-13.0	-12.2	-12.9	11.80	11.61	-5.81
6,117.0	26.10	1.90	6,106.7	0.3	-11.6	0.4	10.14	9.69	-7.19
6,149.0	27.50	3.20	6,135.2	14.7	-10.9	14.8	4.74	4.38	4.06
6,180.0	28.90	0.90	6,162.5	29.4	-10.4	29.4	5.72	4.52	-7.42
6,212.0	30.90	0.50	6,190.3	45.3	-10.2	45.4	6.28	6.25	-1.25
6,243.0	33.80	1.90	6,216.5	61.9	-9.8	61.9	9.66	9.35	4.52
6,275.0	37.20	2.80	6,242.5	80.5	-9.1	80.5	10.75	10.63	2.81
6,307.0	41.20	2.80	6,267.3	100.6	-8.1	100.7	12.50	12.50	0.00
6,338.0	45.20	1.60	6,289.9	121.8	-7.3	121.9	13.17	12.90	-3.87
6,370.0	49.20	0.00	6,311.6	145.3	-7.0	145.4	13.03	12.50	-5.00
6,402.0	52.40	0.00	6,331.9	170.1	-7.0	170.1	10.00	10.00	0.00
6,433.0	55.00	0.50	6,350.2	195.1	-6.9	195.1	8.49	8.39	1.61
6,465.0	57.60	0.00	6,368.0	221.7	-6.7	221.7	8.23	8.13	-1.56
6,497.0	60.10	359.70	6,384.5	249.1	-6.8	249.1	7.85	7.81	-0.94
6,528.0	62.40	358.80	6,399.4	276.3	-7.2	276.3	7.84	7.42	-2.90
6,560.0	64.40	358.40	6,413.8	304.9	-7.9	304.9	6.35	6.25	-1.25
6,592.0	66.70	358.10	6,427.0	334.0	-8.8	334.0	7.24	7.19	-0.94
6,623.0	69.20	358.30	6,438.6	362.7	-9.7	362.8	8.09	8.06	0.65
6,655.0	72.00	359.00	6,449.3	392.9	-10.4	392.9	8.99	8.75	2.19
6,687.0	74.30	359.80	6,458.5	423.5	-10.7	423.5	7.58	7.19	2.50
6,719.0	77.60	0.50	6,466.3	454.5	-10.6	454.6	10.53	10.31	2.19
6,750.0	81.20	0.50	6,472.0	485.0	-10.3	485.0	11.61	11.61	0.00
6,782.0	82.00	0.20	6,476.7	516.7	-10.1	516.7	2.67	2.50	-0.94
6,830.0	84.40	0.00	6,482.4	564.3	-10.1	564.4	5.02	5.00	-0.42
6,865.0	86.57	359.86	6,485.1	599.2	-10.1	599.3	6.21	6.20	-0.40
7"									
6,880.0	87.50	359.80	6,485.9	614.2	-10.2	614.2	6.21	6.20	-0.40
6,911.0	87.80	1.10	6,487.2	645.2	-9.9	645.2	4.30	0.97	4.19
6,943.0	88.50	0.50	6,488.2	677.1	-9.5	677.2	2.88	2.19	-1.88
6,974.0	89.70	0.00	6,488.7	708.1	-9.3	708.2	4.19	3.87	-1.61
7,006.0	89.80	0.00	6,488.8	740.1	-9.3	740.2	0.31	0.31	0.00
7,038.0	89.80	0.50	6,488.9	772.1	-9.2	772.2	1.56	0.00	1.56
7,069.0	89.50	0.40	6,489.1	803.1	-8.9	803.2	1.02	-0.97	-0.32
7,101.0	89.20	359.80	6,489.5	835.1	-8.9	835.2	2.10	-0.94	-1.88
7,132.0	89.90	359.80	6,489.7	866.1	-9.0	866.2	2.26	2.26	0.00
7,163.0	89.70	359.80	6,489.8	897.1	-9.1	897.2	0.65	-0.65	0.00
7,194.0	89.30	359.50	6,490.1	928.1	-9.3	928.2	1.61	-1.29	-0.97
7,224.0	90.00	359.70	6,490.3	958.1	-9.5	958.2	2.43	2.33	0.67
7,255.0	89.90	359.70	6,490.3	989.1	-9.7	989.2	0.32	-0.32	0.00
7,286.0	90.50	358.60	6,490.2	1,020.1	-10.1	1,020.2	4.04	1.94	-3.55
7,316.0	90.20	358.10	6,490.0	1,050.1	-11.0	1,050.1	1.94	-1.00	-1.67
7,347.0	89.80	357.60	6,490.0	1,081.1	-12.2	1,081.1	2.07	-1.29	-1.61
7,377.0	90.00	357.60	6,490.1	1,111.1	-13.4	1,111.1	0.67	0.67	0.00
7,408.0	90.70	358.30	6,489.9	1,142.0	-14.5	1,142.1	3.19	2.26	2.26
7,439.0	91.80	359.10	6,489.2	1,173.0	-15.2	1,173.1	4.39	3.55	2.58
7,469.0	92.60	0.20	6,488.1	1,203.0	-15.4	1,203.1	4.53	2.67	3.67
7,499.0	92.50	0.20	6,486.7	1,233.0	-15.3	1,233.0	0.33	-0.33	0.00

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Church #36-2523H
Project:	SEC.36-T10N-R60W	TVD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Site:	Church #36-2523H Pad Sec.36-T10N-R60W	MD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Well:	Church #36-2523H	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)
7,530.0	91.70	0.50	6,485.6	1,263.9	-15.1	1,264.0	2.76	-2.58	0.97
7,561.0	90.30	1.10	6,485.1	1,294.9	-14.7	1,295.0	4.91	-4.52	1.94
7,591.0	89.90	0.70	6,485.0	1,324.9	-14.2	1,325.0	1.89	-1.33	-1.33
7,622.0	90.20	0.50	6,485.0	1,355.9	-13.9	1,356.0	1.16	0.97	-0.65
7,652.0	90.90	0.50	6,484.7	1,385.9	-13.6	1,386.0	2.33	2.33	0.00
7,683.0	91.60	0.70	6,484.0	1,416.9	-13.3	1,417.0	2.35	2.26	0.65
7,714.0	91.50	0.40	6,483.2	1,447.9	-13.0	1,448.0	1.02	-0.32	-0.97
7,745.0	91.30	0.40	6,482.4	1,478.9	-12.8	1,478.9	0.65	-0.65	0.00
7,775.0	90.80	0.20	6,481.9	1,508.9	-12.6	1,508.9	1.80	-1.67	-0.67
7,806.0	90.40	0.00	6,481.5	1,539.9	-12.6	1,539.9	1.44	-1.29	-0.65
7,837.0	90.70	0.40	6,481.2	1,570.9	-12.5	1,570.9	1.61	0.97	1.29
7,867.0	90.50	0.90	6,480.9	1,600.9	-12.1	1,600.9	1.79	-0.67	1.67
7,898.0	90.80	0.50	6,480.6	1,631.9	-11.7	1,631.9	1.61	0.97	-1.29
7,928.0	91.00	0.70	6,480.1	1,661.9	-11.4	1,661.9	0.94	0.67	0.67
7,959.0	91.50	0.40	6,479.4	1,692.9	-11.1	1,692.9	1.88	1.61	-0.97
7,988.0	91.70	0.20	6,478.6	1,721.9	-11.0	1,721.9	0.98	0.69	-0.69
8,019.0	91.50	0.00	6,477.8	1,752.8	-10.9	1,752.9	0.91	-0.65	-0.65
8,050.0	91.50	0.20	6,476.9	1,783.8	-10.9	1,783.9	0.64	0.00	0.65
8,081.0	91.40	359.80	6,476.2	1,814.8	-10.9	1,814.9	1.33	-0.32	-1.29
8,111.0	91.60	0.00	6,475.4	1,844.8	-10.9	1,844.8	0.94	0.67	0.67
8,142.0	91.40	0.20	6,474.6	1,875.8	-10.9	1,875.8	0.91	-0.65	0.65
8,172.0	91.50	0.40	6,473.8	1,905.8	-10.7	1,905.8	0.75	0.33	0.67
8,203.0	91.80	0.50	6,472.9	1,936.8	-10.5	1,936.8	1.02	0.97	0.32
8,234.0	91.50	1.20	6,472.0	1,967.8	-10.0	1,967.8	2.46	-0.97	2.26
8,264.0	90.50	1.20	6,471.5	1,997.7	-9.4	1,997.8	3.33	-3.33	0.00
8,295.0	90.50	1.40	6,471.2	2,028.7	-8.7	2,028.8	0.65	0.00	0.65
8,326.0	90.50	1.20	6,471.0	2,059.7	-8.0	2,059.7	0.65	0.00	-0.65
8,356.0	90.30	1.10	6,470.7	2,089.7	-7.4	2,089.7	0.75	-0.67	-0.33
8,387.0	90.40	1.10	6,470.6	2,120.7	-6.8	2,120.7	0.32	0.32	0.00
8,417.0	90.60	0.20	6,470.3	2,150.7	-6.4	2,150.7	3.07	0.67	-3.00
8,448.0	90.40	359.80	6,470.0	2,181.7	-6.4	2,181.7	1.44	-0.65	-1.29
8,479.0	90.50	359.80	6,469.8	2,212.7	-6.5	2,212.7	0.32	0.32	0.00
8,509.0	91.30	359.70	6,469.3	2,242.7	-6.7	2,242.7	2.69	2.67	-0.33
8,540.0	91.50	0.00	6,468.6	2,273.7	-6.8	2,273.7	1.16	0.65	0.97
8,570.0	91.50	359.50	6,467.8	2,303.7	-6.9	2,303.7	1.67	0.00	-1.67
8,601.0	90.70	359.50	6,467.2	2,334.7	-7.2	2,334.7	2.58	-2.58	0.00
8,632.0	90.30	359.30	6,466.9	2,365.7	-7.5	2,365.7	1.44	-1.29	-0.65
8,663.0	90.30	359.70	6,466.7	2,396.7	-7.8	2,396.7	1.29	0.00	1.29
8,693.0	90.00	359.70	6,466.7	2,426.7	-7.9	2,426.7	1.00	-1.00	0.00
8,723.0	89.70	359.70	6,466.7	2,456.7	-8.1	2,456.7	1.00	-1.00	0.00
8,754.0	89.40	359.70	6,467.0	2,487.7	-8.2	2,487.7	0.97	-0.97	0.00
8,785.0	89.80	359.70	6,467.2	2,518.7	-8.4	2,518.7	1.29	1.29	0.00
8,816.0	89.90	359.50	6,467.3	2,549.7	-8.6	2,549.7	0.72	0.32	-0.65
8,846.0	90.20	359.80	6,467.3	2,579.7	-8.8	2,579.7	1.41	1.00	1.00
8,876.0	90.30	0.00	6,467.1	2,609.7	-8.8	2,609.7	0.75	0.33	0.67
8,907.0	90.40	0.20	6,466.9	2,640.7	-8.8	2,640.7	0.72	0.32	0.65
8,938.0	90.60	0.20	6,466.7	2,671.7	-8.7	2,671.7	0.65	0.65	0.00
8,969.0	90.60	0.20	6,466.3	2,702.7	-8.6	2,702.7	0.00	0.00	0.00
8,999.0	91.70	0.90	6,465.7	2,732.7	-8.3	2,732.7	4.35	3.67	2.33
9,030.0	92.00	0.70	6,464.7	2,763.6	-7.9	2,763.6	1.16	0.97	-0.65
9,060.0	90.30	0.20	6,464.1	2,793.6	-7.6	2,793.6	5.91	-5.67	-1.67
9,091.0	89.80	0.00	6,464.1	2,824.6	-7.6	2,824.6	1.74	-1.61	-0.65
9,122.0	90.00	0.00	6,464.2	2,855.6	-7.6	2,855.6	0.65	0.65	0.00
9,153.0	90.70	0.20	6,464.0	2,886.6	-7.5	2,886.6	2.35	2.26	0.65

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Church #36-2523H
Project:	SEC.36-T10N-R60W	TVD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Site:	Church #36-2523H Pad Sec.36-T10N-R60W	MD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Well:	Church #36-2523H	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)
9,184.0	90.60	0.00	6,463.6	2,917.6	-7.5	2,917.6	0.72	-0.32	-0.65
9,214.0	90.90	0.50	6,463.2	2,947.6	-7.3	2,947.6	1.94	1.00	1.67
9,245.0	91.40	0.70	6,462.6	2,978.6	-7.0	2,978.6	1.74	1.61	0.65
9,276.0	91.50	0.70	6,461.8	3,009.6	-6.6	3,009.6	0.32	0.32	0.00
9,307.0	90.70	0.90	6,461.2	3,040.6	-6.2	3,040.6	2.66	-2.58	0.65
9,337.0	89.60	0.70	6,461.1	3,070.6	-5.8	3,070.6	3.73	-3.67	-0.67
9,368.0	89.20	0.70	6,461.5	3,101.6	-5.4	3,101.6	1.29	-1.29	0.00
9,399.0	89.30	0.50	6,461.9	3,132.6	-5.1	3,132.6	0.72	0.32	-0.65
9,429.0	90.10	1.20	6,462.0	3,162.6	-4.6	3,162.6	3.54	2.67	2.33
9,460.0	89.90	0.90	6,462.0	3,193.6	-4.1	3,193.6	1.16	-0.65	-0.97
9,491.0	89.30	1.10	6,462.2	3,224.6	-3.5	3,224.5	2.04	-1.94	0.65
9,522.0	89.30	0.90	6,462.6	3,255.6	-3.0	3,255.5	0.65	0.00	-0.65
9,553.0	89.90	0.00	6,462.8	3,286.6	-2.7	3,286.5	3.49	1.94	-2.90
9,584.0	90.10	359.80	6,462.8	3,317.6	-2.8	3,317.5	0.91	0.65	-0.65
9,615.0	90.90	0.40	6,462.6	3,348.6	-2.7	3,348.5	3.23	2.58	1.94
9,646.0	91.00	359.80	6,462.1	3,379.6	-2.7	3,379.5	1.96	0.32	-1.94
9,677.0	90.90	359.80	6,461.5	3,410.5	-2.8	3,410.5	0.32	-0.32	0.00
9,707.0	90.70	0.20	6,461.1	3,440.5	-2.8	3,440.5	1.49	-0.67	1.33
9,738.0	90.80	0.00	6,460.7	3,471.5	-2.7	3,471.5	0.72	0.32	-0.65
9,769.0	91.10	359.80	6,460.2	3,502.5	-2.8	3,502.5	1.16	0.97	-0.65
9,800.0	90.70	1.10	6,459.7	3,533.5	-2.5	3,533.5	4.39	-1.29	4.19
9,831.0	90.40	0.70	6,459.4	3,564.5	-2.1	3,564.5	1.61	-0.97	-1.29
9,862.0	88.80	0.40	6,459.6	3,595.5	-1.8	3,595.5	5.25	-5.16	-0.97
9,893.0	88.90	0.40	6,460.3	3,626.5	-1.5	3,626.5	0.32	0.32	0.00
9,924.0	90.30	0.90	6,460.5	3,657.5	-1.2	3,657.5	4.80	4.52	1.61
9,954.0	90.80	0.90	6,460.2	3,687.5	-0.7	3,687.5	1.67	1.67	0.00
9,984.0	90.80	0.70	6,459.8	3,717.5	-0.3	3,717.5	0.67	0.00	-0.67
10,015.0	90.30	359.50	6,459.5	3,748.5	-0.2	3,748.5	4.19	-1.61	-3.87
10,046.0	90.00	358.80	6,459.4	3,779.5	-0.7	3,779.5	2.46	-0.97	-2.26
10,077.0	90.00	358.10	6,459.4	3,810.5	-1.5	3,810.4	2.26	0.00	-2.26
10,108.0	89.60	358.60	6,459.5	3,841.5	-2.4	3,841.4	2.07	-1.29	1.61
10,139.0	88.40	359.10	6,460.0	3,872.5	-3.1	3,872.4	4.19	-3.87	1.61
10,169.0	88.40	358.60	6,460.9	3,902.4	-3.7	3,902.4	1.67	0.00	-1.67
10,200.0	88.10	358.30	6,461.8	3,933.4	-4.5	3,933.4	1.37	-0.97	-0.97
10,231.0	88.40	358.40	6,462.8	3,964.4	-5.4	3,964.4	1.02	0.97	0.32
10,262.0	89.80	358.40	6,463.3	3,995.4	-6.3	3,995.4	4.52	4.52	0.00
10,292.0	90.10	358.60	6,463.3	4,025.4	-7.0	4,025.3	1.20	1.00	0.67
10,323.0	90.00	358.80	6,463.3	4,056.4	-7.7	4,056.3	0.72	-0.32	0.65
10,354.0	90.50	358.80	6,463.1	4,087.3	-8.4	4,087.3	1.61	1.61	0.00
10,384.0	91.10	359.30	6,462.7	4,117.3	-8.9	4,117.3	2.60	2.00	1.67
10,415.0	91.70	359.00	6,461.9	4,148.3	-9.3	4,148.3	2.16	1.94	-0.97
10,446.0	91.10	358.60	6,461.2	4,179.3	-10.0	4,179.3	2.33	-1.94	-1.29
10,477.0	91.20	358.60	6,460.6	4,210.3	-10.8	4,210.3	0.32	0.32	0.00
10,508.0	91.60	358.60	6,459.8	4,241.3	-11.5	4,241.3	1.29	1.29	0.00
10,539.0	91.70	358.40	6,458.9	4,272.3	-12.3	4,272.3	0.72	0.32	-0.65
10,570.0	91.30	358.60	6,458.1	4,303.2	-13.1	4,303.2	1.44	-1.29	0.65
10,600.0	90.60	359.00	6,457.6	4,333.2	-13.8	4,333.2	2.69	-2.33	1.33
10,630.0	90.00	359.30	6,457.5	4,363.2	-14.2	4,363.2	2.24	-2.00	1.00
10,661.0	89.40	359.00	6,457.6	4,394.2	-14.7	4,394.2	2.16	-1.94	-0.97
10,692.0	89.80	358.60	6,457.8	4,425.2	-15.3	4,425.2	1.82	1.29	-1.29
10,723.0	90.50	358.40	6,457.7	4,456.2	-16.1	4,456.2	2.35	2.26	-0.65
10,753.0	91.00	358.60	6,457.4	4,486.2	-16.9	4,486.2	1.80	1.67	0.67
10,784.0	90.00	358.30	6,457.1	4,517.2	-17.8	4,517.2	3.37	-3.23	-0.97
10,815.0	90.00	357.00	6,457.1	4,548.1	-19.0	4,548.2	4.19	0.00	-4.19

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Church #36-2523H
Project:	SEC.36-T10N-R60W	TVD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Site:	Church #36-2523H Pad Sec.36-T10N-R60W	MD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Well:	Church #36-2523H	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)
10,846.0	90.00	355.30	6,457.1	4,579.1	-21.1	4,579.1	5.48	0.00	-5.48
10,877.0	90.00	354.40	6,457.1	4,609.9	-23.9	4,610.0	2.90	0.00	-2.90
10,907.0	89.20	354.20	6,457.3	4,639.8	-26.9	4,639.9	2.75	-2.67	-0.67
10,938.0	89.80	355.10	6,457.6	4,670.7	-29.8	4,670.7	3.49	1.94	2.90
10,969.0	90.40	356.80	6,457.5	4,701.6	-31.9	4,701.7	5.82	1.94	5.48
11,000.0	90.70	357.00	6,457.2	4,732.5	-33.6	4,732.6	1.16	0.97	0.65
11,031.0	90.40	357.40	6,456.9	4,763.5	-35.1	4,763.6	1.61	-0.97	1.29
11,061.0	90.00	359.10	6,456.8	4,793.5	-36.1	4,793.6	5.82	-1.33	5.67
11,092.0	90.20	359.70	6,456.8	4,824.5	-36.4	4,824.6	2.04	0.65	1.94
11,123.0	90.20	359.10	6,456.6	4,855.5	-36.7	4,855.6	1.94	0.00	-1.94
11,154.0	88.90	359.30	6,456.9	4,886.5	-37.1	4,886.6	4.24	-4.19	0.65
11,185.0	88.80	359.10	6,457.5	4,917.5	-37.6	4,917.6	0.72	-0.32	-0.65
11,216.0	89.10	0.20	6,458.1	4,948.5	-37.8	4,948.6	3.68	0.97	3.55
11,247.0	89.80	0.70	6,458.4	4,979.5	-37.5	4,979.6	2.77	2.26	1.61
11,278.0	90.00	0.70	6,458.4	5,010.4	-37.1	5,010.6	0.65	0.65	0.00
11,309.0	90.70	0.90	6,458.2	5,041.4	-36.7	5,041.6	2.35	2.26	0.65
11,340.0	90.40	1.40	6,457.9	5,072.4	-36.1	5,072.6	1.88	-0.97	1.61
11,371.0	88.90	1.60	6,458.1	5,103.4	-35.3	5,103.5	4.88	-4.84	0.65
11,402.0	88.50	1.40	6,458.8	5,134.4	-34.5	5,134.5	1.44	-1.29	-0.65
11,432.0	88.40	1.40	6,459.7	5,164.4	-33.7	5,164.5	0.33	-0.33	0.00
11,463.0	88.90	1.10	6,460.4	5,195.4	-33.0	5,195.5	1.88	1.61	-0.97
11,494.0	89.10	0.90	6,460.9	5,226.4	-32.5	5,226.5	0.91	0.65	-0.65
11,525.0	88.80	0.00	6,461.5	5,257.4	-32.3	5,257.5	3.06	-0.97	-2.90
11,555.0	88.60	359.70	6,462.2	5,287.3	-32.3	5,287.4	1.20	-0.67	-1.00
11,585.0	89.80	0.40	6,462.6	5,317.3	-32.3	5,317.4	4.63	4.00	2.33
11,615.0	90.70	1.20	6,462.5	5,347.3	-31.9	5,347.4	4.01	3.00	2.67
11,646.0	91.30	1.20	6,461.9	5,378.3	-31.2	5,378.4	1.94	1.94	0.00
11,677.0	90.00	0.70	6,461.6	5,409.3	-30.7	5,409.4	4.49	-4.19	-1.61
11,708.0	88.80	359.80	6,461.9	5,440.3	-30.6	5,440.4	4.84	-3.87	-2.90
11,738.0	89.50	359.50	6,462.3	5,470.3	-30.8	5,470.4	2.54	2.33	-1.00
11,769.0	90.00	359.30	6,462.5	5,501.3	-31.1	5,501.4	1.74	1.61	-0.65
11,799.0	89.50	1.40	6,462.6	5,531.3	-30.9	5,531.4	7.20	-1.67	7.00
11,830.0	89.30	1.60	6,462.9	5,562.3	-30.1	5,562.4	0.91	-0.65	0.65
11,860.0	89.50	2.10	6,463.2	5,592.3	-29.1	5,592.4	1.79	0.67	1.67
11,891.0	89.30	1.90	6,463.6	5,623.3	-28.1	5,623.3	0.91	-0.65	-0.65
11,922.0	89.70	1.40	6,463.8	5,654.2	-27.2	5,654.3	2.07	1.29	-1.61
11,952.0	90.00	0.90	6,463.9	5,684.2	-26.6	5,684.3	1.94	1.00	-1.67
11,983.0	90.00	0.70	6,463.9	5,715.2	-26.1	5,715.3	0.65	0.00	-0.65
12,014.0	90.30	0.40	6,463.8	5,746.2	-25.8	5,746.3	1.37	0.97	-0.97
12,045.0	90.50	0.40	6,463.6	5,777.2	-25.6	5,777.3	0.65	0.65	0.00
12,077.0	90.30	0.20	6,463.4	5,809.2	-25.5	5,809.3	0.88	-0.63	-0.63
12,109.0	90.30	0.20	6,463.2	5,841.2	-25.3	5,841.3	0.00	0.00	0.00
12,140.0	90.20	0.00	6,463.1	5,872.2	-25.3	5,872.3	0.72	-0.32	-0.65
12,172.0	90.50	0.00	6,462.9	5,904.2	-25.3	5,904.3	0.94	0.94	0.00
12,204.0	89.90	359.80	6,462.8	5,936.2	-25.3	5,936.3	1.98	-1.88	-0.63
12,236.0	89.80	359.80	6,462.9	5,968.2	-25.5	5,968.3	0.31	-0.31	0.00
12,267.0	89.90	0.00	6,462.9	5,999.2	-25.5	5,999.3	0.72	0.32	0.65
12,299.0	90.00	359.80	6,463.0	6,031.2	-25.6	6,031.3	0.70	0.31	-0.63
12,331.0	90.30	0.00	6,462.9	6,063.2	-25.6	6,063.3	1.13	0.94	0.63
12,363.0	90.40	359.70	6,462.7	6,095.2	-25.7	6,095.3	0.99	0.31	-0.94
12,394.0	90.70	0.20	6,462.4	6,126.2	-25.7	6,126.3	1.88	0.97	1.61
12,426.0	90.80	0.40	6,462.0	6,158.2	-25.6	6,158.3	0.70	0.31	0.63
12,458.0	91.00	0.20	6,461.5	6,190.2	-25.4	6,190.3	0.88	0.63	-0.63
12,489.0	91.40	0.40	6,460.8	6,221.2	-25.2	6,221.3	1.44	1.29	0.65

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Church #36-2523H
Project:	SEC.36-T10N-R60W	TVD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Site:	Church #36-2523H Pad Sec.36-T10N-R60W	MD Reference:	WELL @ 5212.0ft (RKB - 16.5')
Well:	Church #36-2523H	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)	
12,521.0	91.50	0.40	6,460.0	6,253.2	-25.0	6,253.2	0.31	0.31	0.00	
12,552.0	90.50	0.50	6,459.5	6,284.2	-24.8	6,284.2	3.24	-3.23	0.32	
12,584.0	90.20	0.00	6,459.3	6,316.2	-24.6	6,316.2	1.82	-0.94	-1.56	
12,615.0	90.10	0.50	6,459.2	6,347.2	-24.5	6,347.2	1.64	-0.32	1.61	
12,647.0	90.20	0.70	6,459.1	6,379.2	-24.2	6,379.2	0.70	0.31	0.63	
12,678.0	90.30	1.20	6,459.0	6,410.2	-23.6	6,410.2	1.64	0.32	1.61	
12,710.0	90.00	1.20	6,458.9	6,442.2	-23.0	6,442.2	0.94	-0.94	0.00	
12,759.0	90.00	1.20	6,458.9	6,491.2	-21.9	6,491.2	0.00	0.00	0.00	
12,809.0	90.00	1.20	6,458.9	6,541.2	-20.9	6,541.2	0.00	0.00	0.00	
BHL 1967'FSL & 1936'FWL SEC.25 - HARDLINE 660' BHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N-S (ft)	+E-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
HARDLINE 660' SHL	0.00	0.00	1.0	359.0	-500.0	1,533,297.67	3,403,193.06	40.788199	-104.043920	
- actual wellpath misses target center by 615.5ft at 1.4ft MD (1.4 TVD, 0.0 N, 0.0 E)										
- Polygon										
Point 1			1.0	0.0	0.0	1,533,297.67	3,403,193.06			
Point 2			1.0	0.0	1,000.0	1,533,314.11	3,404,192.92			
SECTIONLINE 301'S	0.00	0.00	1.0	-301.0	-500.0	1,532,637.74	3,403,203.91	40.786388	-104.043920	
- actual wellpath misses target center by 583.6ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E)										
- Polygon										
Point 1			1.0	0.0	0.0	1,532,637.74	3,403,203.91			
Point 2			1.0	0.0	1,000.0	1,532,654.18	3,404,203.77			
HARDLINE 660' BHL	0.00	0.00	1.0	6,579.2	-500.0	1,539,517.00	3,403,090.80	40.805272	-104.043920	
- actual wellpath misses target center by 6475.8ft at 12809.0ft MD (6458.9 TVD, 6541.2 N, -20.9 E)										
- Polygon										
Point 1			1.0	0.0	0.0	1,539,517.00	3,403,090.80			
Point 2			1.0	0.0	1,000.0	1,539,533.44	3,404,090.66			
BHL 1967'FSL & 1936'FWL SEC.25 - HARDLINE 660' BHL	0.00	0.00	6,482.0	6,571.2	-32.9	1,539,516.70	3,403,557.92	40.805250	-104.042233	
- actual wellpath misses target center by 39.8ft at 12809.0ft MD (6458.9 TVD, 6541.2 N, -20.9 E)										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,865.0	6,485.1	7"	7	7-1/2	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------