

Whiting Oil & Gas

Well Name: **Horsetail 07-0611H**

Surface Location: Horsetail 07-0611H Pad Sec.7-T10N-R57W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

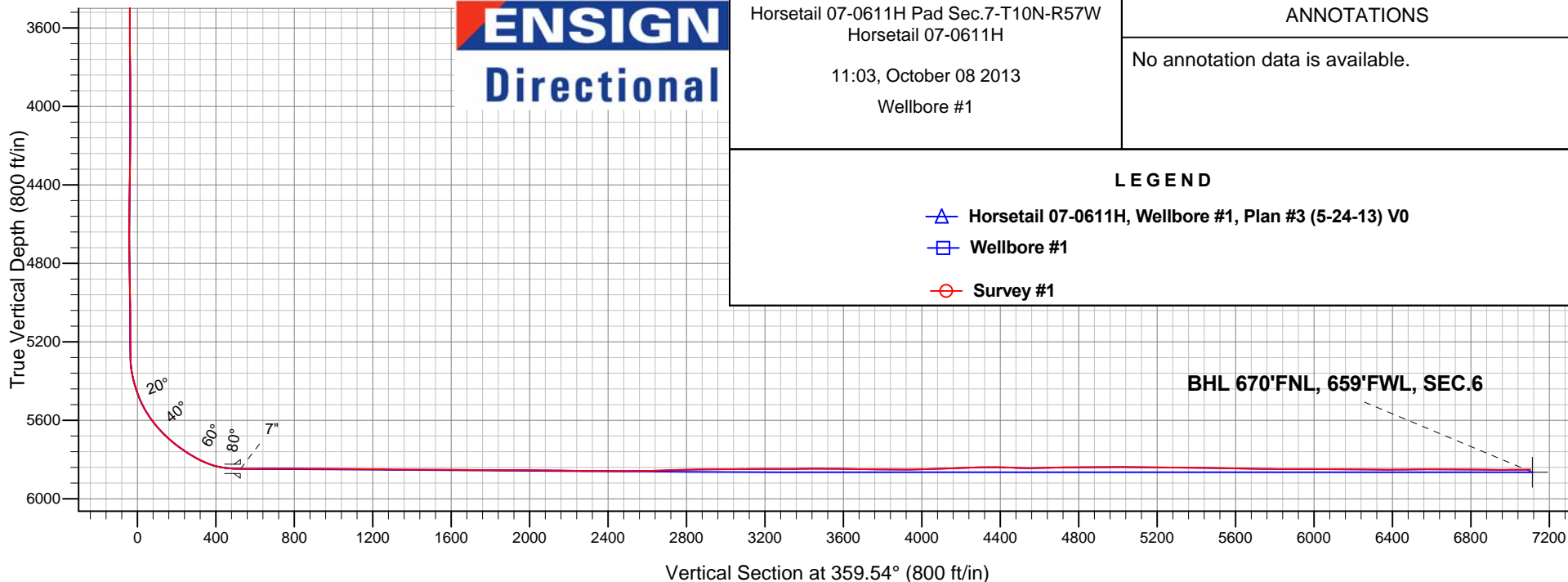
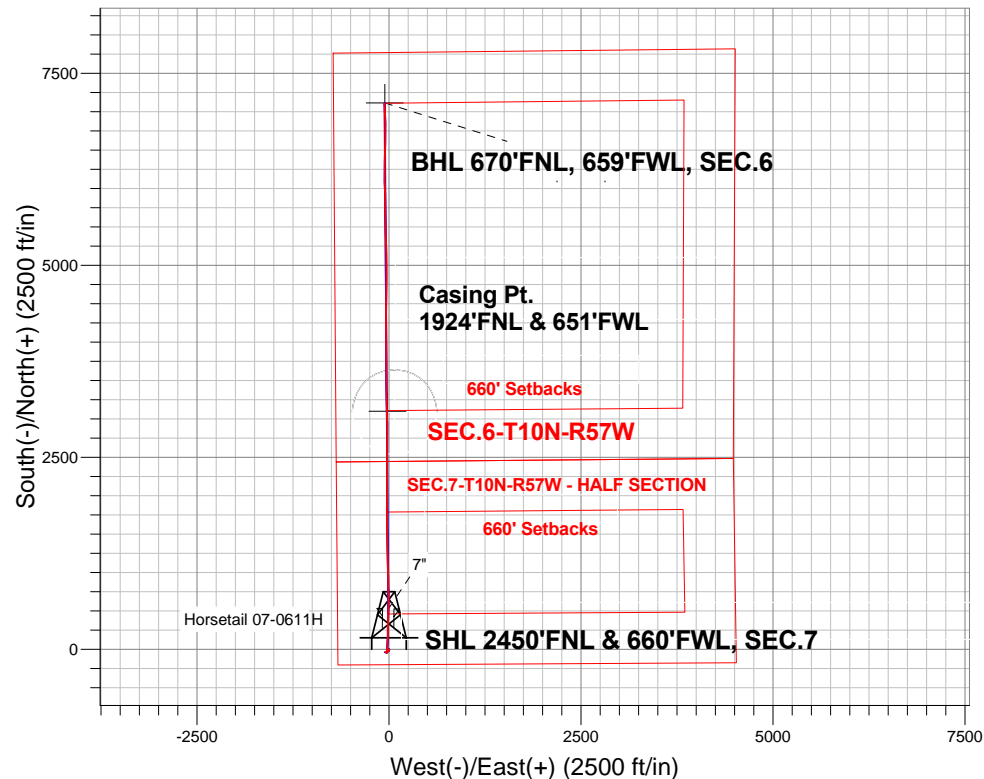
Ground Elevation: 4925.7

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1558450.07	3469810.03	40.853972	-103.801656	

Cade 21 RKB - 17.3' WELL @ 4943.0ft (Cade 21 RKB - 17.3')

FINAL SURVEY

Projected Bottom Hole Location
12740'MD 5851'TVD 7104'N & 58'W of SHL
90.6 degree Incl @ 357.9 degree AZM



ENSIGN
Directional

Horsetail 07-0611H Pad Sec.7-T10N-R57W
Horsetail 07-0611H

11:03, October 08 2013

Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

- △ Horsetail 07-0611H, Wellbore #1, Plan #3 (5-24-13) V0
- Wellbore #1
- Survey #1

BHL 670'FNL, 659'FWL, SEC.6



Whiting Oil & Gas

SEC.7-T10N-R57W

Horsetail 07-0611H Pad Sec.7-T10N-R57W

Horsetail 07-0611H

Wellbore #1

Survey: Survey #1

Standard Survey Report

08 October, 2013

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail 07-0611H
Project:	SEC.7-T10N-R57W	TVD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Site:	Horsetail 07-0611H Pad Sec.7-T10N-R57W	MD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Well:	Horsetail 07-0611H	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.7-T10N-R57W, 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		Horsetail 07-0611H Pad Sec.7-T10N-R57W			
Site Position:		Northing:	1,558,450.08ft	Latitude:	40.853972
From:	Lat/Long	Easting:	3,469,810.03ft	Longitude:	-103.801656
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	1.10 °

Well	Horsetail 07-0611H					
Well Position	+N/-S	0.0 ft	Northing:	1,558,450.07 ft	Latitude:	40.853972
	+E/-W	0.0 ft	Easting:	3,469,810.03 ft	Longitude:	-103.801656
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,925.7 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/21/2013	8.11	67.50	53,261

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	359.54	

Survey Program	Date	10/8/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
186.0	12,740.0	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	
Beffie #1 (Exist.) - Target Circle										
186.0	1.10	169.00	186.0	-1.8	0.3	-1.8	0.59	0.59	0.00	
282.0	1.30	172.70	282.0	-3.7	0.7	-3.7	0.22	0.21	3.85	
376.0	1.30	172.70	375.9	-5.9	0.9	-5.9	0.00	0.00	0.00	
472.0	1.60	182.90	471.9	-8.3	1.0	-8.3	0.41	0.31	10.63	
566.0	2.10	186.90	565.9	-11.3	0.7	-11.3	0.55	0.53	4.26	
661.0	1.50	192.20	660.8	-14.2	0.3	-14.2	0.65	-0.63	5.58	
755.0	1.70	200.30	754.8	-16.7	-0.5	-16.7	0.32	0.21	8.62	
850.0	1.90	218.20	849.7	-19.3	-2.0	-19.3	0.63	0.21	18.84	
944.0	2.10	223.30	943.7	-21.8	-4.1	-21.7	0.28	0.21	5.43	
1,038.0	1.30	232.10	1,037.6	-23.7	-6.1	-23.6	0.89	-0.85	9.36	
1,133.0	1.60	238.40	1,132.6	-25.0	-8.1	-25.0	0.36	0.32	6.63	

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Well:	Horsetail 07-0611H	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)	
1,228.0	1.80	246.50	1,227.6	-26.3	-10.6	-26.3	0.33	0.21	8.53	
1,322.0	2.10	247.40	1,321.5	-27.6	-13.5	-27.5	0.32	0.32	0.96	
1,506.0	1.50	239.00	1,505.4	-30.1	-18.7	-30.0	0.36	-0.33	-4.57	
1,600.0	1.80	238.60	1,599.4	-31.5	-21.0	-31.4	0.32	0.32	-0.43	
1,692.0	1.80	257.60	1,691.3	-32.6	-23.7	-32.4	0.65	0.00	20.65	
1,784.0	1.90	253.90	1,783.3	-33.3	-26.6	-33.1	0.17	0.11	-4.02	
1,885.0	2.00	258.50	1,884.2	-34.1	-29.9	-33.9	0.18	0.10	4.55	
1,987.0	1.80	267.90	1,986.2	-34.6	-33.2	-34.3	0.36	-0.20	9.22	
2,079.0	2.50	263.80	2,078.1	-34.8	-36.7	-34.5	0.78	0.76	-4.46	
2,172.0	2.10	255.40	2,171.0	-35.5	-40.3	-35.1	0.56	-0.43	-9.03	
2,266.0	1.80	246.80	2,265.0	-36.5	-43.4	-36.1	0.44	-0.32	-9.15	
2,361.0	2.50	255.70	2,359.9	-37.6	-46.7	-37.2	0.81	0.74	9.37	
2,456.0	0.10	29.90	2,454.9	-38.0	-48.7	-37.6	2.71	-2.53	141.26	
2,551.0	0.40	299.00	2,549.9	-37.8	-49.0	-37.4	0.44	0.32	-95.68	
2,646.0	0.30	14.20	2,644.9	-37.4	-49.2	-37.0	0.46	-0.11	79.16	
2,741.0	0.50	59.20	2,739.9	-36.9	-48.8	-36.5	0.38	0.21	47.37	
2,836.0	0.30	103.20	2,834.9	-36.8	-48.2	-36.4	0.37	-0.21	46.32	
2,930.0	0.70	98.20	2,928.9	-36.9	-47.4	-36.5	0.43	0.43	-5.32	
3,025.0	0.50	113.70	3,023.9	-37.2	-46.4	-36.8	0.27	-0.21	16.32	
3,120.0	0.90	116.00	3,118.9	-37.7	-45.4	-37.3	0.42	0.42	2.42	
3,215.0	0.40	149.20	3,213.9	-38.3	-44.5	-37.9	0.64	-0.53	34.95	
3,311.0	0.10	157.10	3,309.8	-38.6	-44.3	-38.3	0.31	-0.31	8.23	
3,405.0	0.40	76.30	3,403.8	-38.6	-44.0	-38.3	0.42	0.32	-85.96	
3,500.0	0.20	102.40	3,498.8	-38.6	-43.5	-38.2	0.25	-0.21	27.47	
3,595.0	0.40	93.30	3,593.8	-38.7	-43.0	-38.3	0.22	0.21	-9.58	
3,690.0	0.60	65.00	3,688.8	-38.5	-42.2	-38.1	0.33	0.21	-29.79	
3,785.0	0.90	47.30	3,783.8	-37.7	-41.2	-37.4	0.40	0.32	-18.63	
3,880.0	0.80	68.50	3,878.8	-37.0	-40.0	-36.7	0.35	-0.11	22.32	
3,975.0	0.90	90.70	3,973.8	-36.8	-38.7	-36.5	0.36	0.11	23.37	
4,070.0	1.20	91.70	4,068.8	-36.8	-36.9	-36.5	0.32	0.32	1.05	
4,165.0	1.10	100.20	4,163.8	-37.0	-35.0	-36.7	0.21	-0.11	8.95	
4,260.0	1.10	103.00	4,258.8	-37.4	-33.3	-37.1	0.06	0.00	2.95	
4,355.0	1.30	113.90	4,353.7	-38.0	-31.4	-37.7	0.32	0.21	11.47	
4,450.0	1.00	160.60	4,448.7	-39.2	-30.1	-39.0	1.00	-0.32	49.16	
4,545.0	0.70	184.40	4,543.7	-40.6	-29.9	-40.3	0.48	-0.32	25.05	
4,639.0	1.00	207.90	4,637.7	-41.9	-30.3	-41.6	0.48	0.32	25.00	
4,734.0	1.70	56.40	4,732.7	-41.8	-29.5	-41.6	2.76	0.74	-159.47	
4,829.0	1.40	40.60	4,827.7	-40.2	-27.6	-39.9	0.55	-0.32	-16.63	
4,924.0	1.10	32.50	4,922.6	-38.5	-26.4	-38.3	0.37	-0.32	-8.53	
5,019.0	0.70	10.00	5,017.6	-37.2	-25.8	-37.0	0.55	-0.42	-23.68	
5,114.0	0.40	320.20	5,112.6	-36.3	-25.9	-36.1	0.57	-0.32	-52.42	
5,209.0	0.40	334.80	5,207.6	-35.8	-26.2	-35.6	0.11	0.00	15.37	
5,241.0	0.20	277.90	5,239.6	-35.7	-26.3	-35.5	1.05	-0.63	-177.81	
5,272.0	0.50	317.10	5,270.6	-35.6	-26.5	-35.4	1.19	0.97	126.45	
5,304.0	3.20	2.10	5,302.6	-34.6	-26.5	-34.4	8.96	8.44	140.63	
5,335.0	7.30	3.70	5,333.5	-31.8	-26.4	-31.5	13.23	13.23	5.16	
5,367.0	10.80	3.80	5,365.1	-26.7	-26.1	-26.5	10.94	10.94	0.31	
5,399.0	13.80	2.80	5,396.3	-19.9	-25.7	-19.7	9.40	9.38	-3.13	
5,430.0	16.70	3.00	5,426.2	-11.8	-25.3	-11.6	9.36	9.35	0.65	
5,461.0	20.10	3.90	5,455.6	-2.0	-24.7	-1.8	11.01	10.97	2.90	
5,493.0	22.20	5.10	5,485.5	9.5	-23.8	9.7	6.70	6.56	3.75	
5,525.0	25.50	4.80	5,514.7	22.4	-22.6	22.6	10.32	10.31	-0.94	
5,556.0	29.20	4.20	5,542.3	36.6	-21.5	36.7	11.97	11.94	-1.94	
5,588.0	32.70	3.00	5,569.7	53.0	-20.5	53.2	11.11	10.94	-3.75	

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Well:	Horsetail 07-0611H	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)
5,620.0	36.10	2.80	5,596.1	71.1	-19.6	71.2	10.63	10.63	-0.63
5,651.0	39.10	1.40	5,620.7	89.9	-18.9	90.1	10.06	9.68	-4.52
5,683.0	42.20	2.30	5,644.9	110.8	-18.2	110.9	9.86	9.69	2.81
5,715.0	44.60	3.00	5,668.2	132.7	-17.2	132.9	7.65	7.50	2.19
5,747.0	47.30	2.50	5,690.4	155.7	-16.1	155.8	8.51	8.44	-1.56
5,778.0	50.50	1.80	5,710.8	179.1	-15.2	179.2	10.46	10.32	-2.26
5,810.0	53.00	0.60	5,730.6	204.2	-14.7	204.3	8.35	7.81	-3.75
5,841.0	55.50	359.30	5,748.7	229.3	-14.7	229.4	8.75	8.06	-4.19
5,873.0	57.40	357.90	5,766.4	256.0	-15.4	256.1	6.97	5.94	-4.38
5,905.0	59.40	359.00	5,783.2	283.2	-16.1	283.4	6.90	6.25	3.44
5,936.0	62.30	1.40	5,798.3	310.3	-16.0	310.4	11.54	9.35	7.74
5,968.0	65.90	3.70	5,812.3	339.1	-14.7	339.2	12.97	11.25	7.19
6,000.0	70.30	3.50	5,824.2	368.7	-12.9	368.8	13.76	13.75	-0.63
6,031.0	75.30	3.20	5,833.4	398.2	-11.1	398.3	16.16	16.13	-0.97
6,063.0	80.30	1.40	5,840.1	429.5	-9.9	429.5	16.56	15.63	-5.63
6,094.0	84.10	0.70	5,844.3	460.2	-9.3	460.2	12.46	12.26	-2.26
6,125.0	86.30	0.40	5,846.9	491.1	-9.0	491.1	7.16	7.10	-0.97
6,160.0	89.80	1.06	5,848.1	526.0	-8.6	526.1	10.18	10.00	1.89
7"									
6,162.0	90.00	1.10	5,848.1	528.0	-8.6	528.1	10.18	10.00	1.89
6,193.0	90.50	1.30	5,848.0	559.0	-7.9	559.1	1.74	1.61	0.65
6,225.0	90.60	0.70	5,847.7	591.0	-7.3	591.1	1.90	0.31	-1.88
6,257.0	91.00	0.40	5,847.2	623.0	-7.0	623.0	1.56	1.25	-0.94
6,288.0	89.90	359.30	5,847.0	654.0	-7.1	654.0	5.02	-3.55	-3.55
6,320.0	89.90	358.80	5,847.0	686.0	-7.6	686.0	1.56	0.00	-1.56
6,352.0	90.30	358.40	5,847.0	718.0	-8.4	718.0	1.77	1.25	-1.25
6,383.0	89.60	357.90	5,847.0	749.0	-9.4	749.0	2.77	-2.26	-1.61
6,415.0	90.00	357.90	5,847.1	781.0	-10.6	781.0	1.25	1.25	0.00
6,446.0	90.00	359.00	5,847.1	811.9	-11.4	812.0	3.55	0.00	3.55
6,478.0	88.90	0.60	5,847.4	843.9	-11.6	844.0	6.07	-3.44	5.00
6,510.0	89.20	0.40	5,848.0	875.9	-11.3	876.0	1.13	0.94	-0.63
6,541.0	89.40	0.00	5,848.3	906.9	-11.2	907.0	1.44	0.65	-1.29
6,573.0	90.20	0.20	5,848.5	938.9	-11.1	939.0	2.58	2.50	0.63
6,605.0	90.70	0.40	5,848.2	970.9	-10.9	971.0	1.68	1.56	0.63
6,636.0	89.90	359.30	5,848.0	1,001.9	-11.0	1,002.0	4.39	-2.58	-3.55
6,668.0	89.80	358.30	5,848.1	1,033.9	-11.7	1,034.0	3.14	-0.31	-3.13
6,700.0	88.70	357.60	5,848.5	1,065.9	-12.8	1,066.0	4.07	-3.44	-2.19
6,731.0	89.10	357.40	5,849.1	1,096.9	-14.2	1,096.9	1.44	1.29	-0.65
6,763.0	89.60	357.20	5,849.5	1,128.8	-15.7	1,128.9	1.68	1.56	-0.63
6,795.0	90.10	356.30	5,849.6	1,160.8	-17.5	1,160.9	3.22	1.56	-2.81
6,826.0	89.50	357.00	5,849.7	1,191.7	-19.3	1,191.8	2.97	-1.94	2.26
6,873.0	89.00	357.90	5,850.3	1,238.7	-21.4	1,238.8	2.19	-1.06	1.91
6,905.0	88.30	358.80	5,851.1	1,270.6	-22.3	1,270.8	3.56	-2.19	2.81
6,937.0	88.60	358.60	5,851.9	1,302.6	-23.1	1,302.8	1.13	0.94	-0.63
6,968.0	89.10	359.30	5,852.5	1,333.6	-23.6	1,333.8	2.77	1.61	2.26
7,000.0	89.80	359.80	5,852.9	1,365.6	-23.9	1,365.8	2.69	2.19	1.56
7,032.0	90.00	0.40	5,852.9	1,397.6	-23.8	1,397.8	1.98	0.63	1.88
7,063.0	90.70	0.70	5,852.7	1,428.6	-23.5	1,428.8	2.46	2.26	0.97
7,095.0	90.30	0.00	5,852.4	1,460.6	-23.3	1,460.7	2.52	-1.25	-2.19
7,127.0	90.80	0.90	5,852.1	1,492.6	-23.1	1,492.7	3.22	1.56	2.81
7,158.0	90.10	0.00	5,851.9	1,523.6	-22.8	1,523.7	3.68	-2.26	-2.90
7,190.0	89.80	359.00	5,851.9	1,555.6	-23.1	1,555.7	3.26	-0.94	-3.13
7,222.0	89.60	358.10	5,852.1	1,587.6	-23.9	1,587.7	2.88	-0.63	-2.81
7,253.0	89.00	357.70	5,852.5	1,618.6	-25.1	1,618.7	2.33	-1.94	-1.29

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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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)
7,285.0	89.30	358.30	5,852.9	1,650.5	-26.2	1,650.7	2.10	0.94	1.88
7,317.0	89.10	358.80	5,853.4	1,682.5	-27.0	1,682.7	1.68	-0.63	1.56
7,348.0	89.60	358.60	5,853.7	1,713.5	-27.7	1,713.7	1.74	1.61	-0.65
7,380.0	89.10	0.00	5,854.1	1,745.5	-28.1	1,745.7	4.65	-1.56	4.38
7,412.0	89.50	359.70	5,854.5	1,777.5	-28.2	1,777.7	1.56	1.25	-0.94
7,443.0	89.60	0.60	5,854.7	1,808.5	-28.1	1,808.7	2.92	0.32	2.90
7,475.0	90.30	1.10	5,854.8	1,840.5	-27.6	1,840.7	2.69	2.19	1.56
7,506.0	90.10	2.00	5,854.7	1,871.5	-26.8	1,871.7	2.97	-0.65	2.90
7,538.0	90.50	1.10	5,854.5	1,903.5	-25.9	1,903.6	3.08	1.25	-2.81
7,570.0	89.90	0.60	5,854.4	1,935.5	-25.4	1,935.6	2.44	-1.88	-1.56
7,601.0	90.10	0.60	5,854.4	1,966.5	-25.1	1,966.6	0.65	0.65	0.00
7,633.0	89.30	0.20	5,854.5	1,998.5	-24.9	1,998.6	2.80	-2.50	-1.25
7,665.0	89.50	0.00	5,854.9	2,030.5	-24.8	2,030.6	0.88	0.63	-0.63
7,696.0	89.10	359.50	5,855.3	2,061.5	-25.0	2,061.6	2.07	-1.29	-1.61
7,727.0	89.20	359.30	5,855.7	2,092.5	-25.3	2,092.6	0.72	0.32	-0.65
7,758.0	89.20	0.00	5,856.2	2,123.5	-25.5	2,123.6	2.26	0.00	2.26
7,788.0	89.60	0.00	5,856.5	2,153.5	-25.5	2,153.6	1.33	1.33	0.00
7,819.0	89.40	0.70	5,856.7	2,184.5	-25.3	2,184.6	2.35	-0.65	2.26
7,850.0	89.40	0.20	5,857.1	2,215.5	-25.0	2,215.6	1.61	0.00	-1.61
7,881.0	88.40	359.80	5,857.7	2,246.5	-25.0	2,246.6	3.47	-3.23	-1.29
7,911.0	88.50	359.70	5,858.5	2,276.4	-25.2	2,276.6	0.47	0.33	-0.33
7,942.0	89.00	359.30	5,859.1	2,307.4	-25.4	2,307.6	2.07	1.61	-1.29
7,973.0	89.50	359.30	5,859.5	2,338.4	-25.8	2,338.6	1.61	1.61	0.00
8,004.0	90.00	0.20	5,859.7	2,369.4	-26.0	2,369.6	3.32	1.61	2.90
8,035.0	90.70	0.00	5,859.5	2,400.4	-25.9	2,400.6	2.35	2.26	-0.65
8,065.0	91.20	0.00	5,859.0	2,430.4	-25.9	2,430.5	1.67	1.67	0.00
8,096.0	90.40	0.00	5,858.6	2,461.4	-25.9	2,461.5	2.58	-2.58	0.00
8,127.0	90.10	0.00	5,858.4	2,492.4	-25.9	2,492.5	0.97	-0.97	0.00
8,157.0	89.50	0.00	5,858.5	2,522.4	-25.9	2,522.5	2.00	-2.00	0.00
8,188.0	90.00	0.70	5,858.7	2,553.4	-25.7	2,553.5	2.77	1.61	2.26
8,219.0	90.70	1.30	5,858.5	2,584.4	-25.2	2,584.5	2.97	2.26	1.94
8,249.0	91.20	1.40	5,858.0	2,614.4	-24.5	2,614.5	1.70	1.67	0.33
8,279.0	91.80	0.70	5,857.2	2,644.4	-23.9	2,644.5	3.07	2.00	-2.33
8,310.0	92.20	0.40	5,856.1	2,675.4	-23.6	2,675.5	1.61	1.29	-0.97
8,341.0	91.50	0.90	5,855.1	2,706.3	-23.3	2,706.4	2.77	-2.26	1.61
8,372.0	91.80	0.00	5,854.2	2,737.3	-23.0	2,737.4	3.06	0.97	-2.90
8,403.0	91.50	359.00	5,853.3	2,768.3	-23.3	2,768.4	3.37	-0.97	-3.23
8,434.0	91.80	359.30	5,852.4	2,799.3	-23.8	2,799.4	1.37	0.97	0.97
8,465.0	90.80	359.70	5,851.7	2,830.3	-24.0	2,830.4	3.47	-3.23	1.29
8,495.0	90.60	0.00	5,851.4	2,860.3	-24.1	2,860.4	1.20	-0.67	1.00
8,526.0	90.60	359.30	5,851.0	2,891.3	-24.3	2,891.4	2.26	0.00	-2.26
8,557.0	90.90	0.00	5,850.6	2,922.3	-24.5	2,922.4	2.46	0.97	2.26
8,587.0	91.40	359.50	5,850.0	2,952.3	-24.6	2,952.4	2.36	1.67	-1.67
8,617.0	91.40	359.10	5,849.3	2,982.3	-25.0	2,982.4	1.33	0.00	-1.33
8,648.0	90.00	359.10	5,848.9	3,013.3	-25.5	3,013.4	4.52	-4.52	0.00
8,679.0	89.80	359.70	5,849.0	3,044.3	-25.8	3,044.4	2.04	-0.65	1.94
8,710.0	89.90	359.10	5,849.1	3,075.3	-26.1	3,075.4	1.96	0.32	-1.94
8,734.6	89.66	359.02	5,849.2	3,099.9	-26.5	3,100.0	1.02	-0.97	-0.32
WP1									
8,741.0	89.60	359.00	5,849.2	3,106.2	-26.6	3,106.4	1.02	-0.97	-0.32
8,771.0	90.00	358.60	5,849.3	3,136.2	-27.3	3,136.4	1.89	1.33	-1.33
8,802.0	90.70	359.70	5,849.1	3,167.2	-27.7	3,167.4	4.21	2.26	3.55
8,833.0	90.70	359.30	5,848.7	3,198.2	-28.0	3,198.4	1.29	0.00	-1.29
8,863.0	90.40	358.30	5,848.4	3,228.2	-28.6	3,228.3	3.48	-1.00	-3.33

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail 07-0611H
Project:	SEC.7-T10N-R57W	TVD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Site:	Horsetail 07-0611H Pad Sec.7-T10N-R57W	MD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Well:	Horsetail 07-0611H	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)	
8,894.0	90.00	356.70	5,848.3	3,259.2	-30.0	3,259.3	5.32	-1.29	-5.16	
8,924.0	90.00	356.20	5,848.3	3,289.1	-31.8	3,289.3	1.67	0.00	-1.67	
8,955.0	90.00	357.90	5,848.3	3,320.1	-33.4	3,320.3	5.48	0.00	5.48	
8,986.0	90.40	359.00	5,848.2	3,351.1	-34.3	3,351.2	3.78	1.29	3.55	
9,017.0	91.20	359.70	5,847.8	3,382.1	-34.6	3,382.2	3.43	2.58	2.26	
9,047.0	91.20	359.00	5,847.2	3,412.1	-35.0	3,412.2	2.33	0.00	-2.33	
9,078.0	89.90	358.40	5,846.9	3,443.1	-35.7	3,443.2	4.62	-4.19	-1.94	
9,109.0	89.50	358.60	5,847.0	3,474.0	-36.5	3,474.2	1.44	-1.29	0.65	
9,139.0	89.40	359.50	5,847.3	3,504.0	-37.0	3,504.2	3.02	-0.33	3.00	
9,170.0	89.50	359.70	5,847.6	3,535.0	-37.2	3,535.2	0.72	0.32	0.65	
9,200.0	89.90	359.50	5,847.8	3,565.0	-37.4	3,565.2	1.49	1.33	-0.67	
9,231.0	89.30	359.80	5,848.0	3,596.0	-37.6	3,596.2	2.16	-1.94	0.97	
9,262.0	89.10	0.00	5,848.4	3,627.0	-37.6	3,627.2	0.91	-0.65	0.65	
9,293.0	88.80	0.60	5,849.0	3,658.0	-37.5	3,658.2	2.16	-0.97	1.94	
9,324.0	89.00	0.70	5,849.6	3,689.0	-37.1	3,689.2	0.72	0.65	0.32	
9,355.0	89.50	0.90	5,850.0	3,720.0	-36.7	3,720.2	1.74	1.61	0.65	
9,386.0	89.50	0.60	5,850.3	3,751.0	-36.3	3,751.2	0.97	0.00	-0.97	
9,417.0	89.40	0.20	5,850.6	3,782.0	-36.1	3,782.2	1.33	-0.32	-1.29	
9,446.0	89.30	359.80	5,850.9	3,811.0	-36.1	3,811.2	1.42	-0.34	-1.38	
9,477.0	89.00	359.80	5,851.3	3,842.0	-36.2	3,842.2	0.97	-0.97	0.00	
9,508.0	89.80	0.00	5,851.7	3,873.0	-36.2	3,873.2	2.66	2.58	0.65	
9,539.0	90.40	0.70	5,851.6	3,904.0	-36.0	3,904.2	2.97	1.94	2.26	
9,571.0	90.60	0.40	5,851.3	3,936.0	-35.7	3,936.2	1.13	0.63	-0.94	
9,602.0	91.50	359.50	5,850.8	3,967.0	-35.8	3,967.1	4.11	2.90	-2.90	
9,633.0	92.00	359.30	5,849.8	3,998.0	-36.1	3,998.1	1.74	1.61	-0.65	
9,663.0	92.40	359.50	5,848.7	4,027.9	-36.4	4,028.1	1.49	1.33	0.67	
9,693.0	91.40	359.50	5,847.7	4,057.9	-36.7	4,058.1	3.33	-3.33	0.00	
9,724.0	91.00	358.80	5,847.0	4,088.9	-37.1	4,089.1	2.60	-1.29	-2.26	
9,755.0	91.40	359.00	5,846.4	4,119.9	-37.7	4,120.1	1.44	1.29	0.65	
9,785.0	91.50	357.70	5,845.6	4,149.9	-38.6	4,150.1	4.34	0.33	-4.33	
9,815.0	92.20	357.70	5,844.7	4,179.8	-39.8	4,180.0	2.33	2.33	0.00	
9,846.0	92.40	359.00	5,843.4	4,210.8	-40.7	4,211.0	4.24	0.65	4.19	
9,877.0	92.00	359.10	5,842.2	4,241.8	-41.2	4,242.0	1.33	-1.29	0.32	
9,907.0	92.40	359.70	5,841.1	4,271.8	-41.5	4,271.9	2.40	1.33	2.00	
9,938.0	91.80	359.70	5,839.9	4,302.7	-41.7	4,302.9	1.94	-1.94	0.00	
9,969.0	91.40	0.70	5,839.1	4,333.7	-41.6	4,333.9	3.47	-1.29	3.23	
10,000.0	89.70	1.10	5,838.8	4,364.7	-41.1	4,364.9	5.63	-5.48	1.29	
10,031.0	88.10	1.30	5,839.4	4,395.7	-40.4	4,395.9	5.20	-5.16	0.65	
10,061.0	87.70	1.40	5,840.5	4,425.7	-39.7	4,425.8	1.37	-1.33	0.33	
10,092.0	87.50	1.40	5,841.8	4,456.6	-39.0	4,456.8	0.65	-0.65	0.00	
10,122.0	88.00	1.30	5,842.9	4,486.6	-38.2	4,486.8	1.70	1.67	-0.33	
10,153.0	88.80	1.60	5,843.8	4,517.6	-37.5	4,517.7	2.76	2.58	0.97	
10,184.0	90.00	1.40	5,844.1	4,548.6	-36.7	4,548.7	3.92	3.87	-0.65	
10,215.0	91.00	0.40	5,843.9	4,579.6	-36.2	4,579.7	4.56	3.23	-3.23	
10,246.0	91.70	0.70	5,843.1	4,610.6	-35.9	4,610.7	2.46	2.26	0.97	
10,277.0	92.20	0.90	5,842.1	4,641.5	-35.4	4,641.7	1.74	1.61	0.65	
10,307.0	92.00	0.60	5,841.0	4,671.5	-35.0	4,671.6	1.20	-0.67	-1.00	
10,338.0	91.30	0.40	5,840.1	4,702.5	-34.8	4,702.6	2.35	-2.26	-0.65	
10,368.0	91.00	0.70	5,839.5	4,732.5	-34.5	4,732.6	1.41	-1.00	1.00	
10,399.0	90.80	1.40	5,839.0	4,763.5	-33.9	4,763.6	2.35	-0.65	2.26	
10,430.0	89.70	0.60	5,838.9	4,794.5	-33.4	4,794.6	4.39	-3.55	-2.58	
10,460.0	89.60	0.20	5,839.0	4,824.5	-33.2	4,824.6	1.37	-0.33	-1.33	
10,491.0	90.00	0.40	5,839.1	4,855.5	-33.0	4,855.6	1.44	1.29	0.65	
10,522.0	90.40	0.20	5,839.0	4,886.5	-32.8	4,886.6	1.44	1.29	-0.65	

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail 07-0611H
Project:	SEC.7-T10N-R57W	TVD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Site:	Horsetail 07-0611H Pad Sec.7-T10N-R57W	MD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Well:	Horsetail 07-0611H	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)
10,553.0	90.40	0.40	5,838.8	4,917.5	-32.7	4,917.6	0.65	0.00	0.65
10,584.0	89.40	359.50	5,838.9	4,948.5	-32.7	4,948.6	4.34	-3.23	-2.90
10,614.0	89.40	359.00	5,839.2	4,978.5	-33.1	4,978.6	1.67	0.00	-1.67
10,645.0	89.70	359.30	5,839.4	5,009.5	-33.6	5,009.6	1.37	0.97	0.97
10,675.0	90.00	359.00	5,839.5	5,039.5	-34.0	5,039.6	1.41	1.00	-1.00
10,706.0	90.20	359.50	5,839.5	5,070.5	-34.4	5,070.6	1.74	0.65	1.61
10,737.0	90.50	359.10	5,839.3	5,101.4	-34.8	5,101.6	1.61	0.97	-1.29
10,768.0	89.40	359.30	5,839.3	5,132.4	-35.2	5,132.6	3.61	-3.55	0.65
10,798.0	89.30	359.00	5,839.6	5,162.4	-35.7	5,162.6	1.05	-0.33	-1.00
10,829.0	89.40	358.10	5,840.0	5,193.4	-36.5	5,193.6	2.92	0.32	-2.90
10,860.0	89.40	358.30	5,840.3	5,224.4	-37.4	5,224.5	0.65	0.00	0.65
10,890.0	89.60	358.30	5,840.6	5,254.4	-38.3	5,254.5	0.67	0.67	0.00
10,921.0	89.70	357.60	5,840.8	5,285.4	-39.4	5,285.5	2.28	0.32	-2.26
10,951.0	89.80	357.90	5,840.9	5,315.4	-40.6	5,315.5	1.05	0.33	1.00
10,982.0	89.60	358.10	5,841.1	5,346.3	-41.7	5,346.5	0.91	-0.65	0.65
11,012.0	89.50	358.40	5,841.3	5,376.3	-42.6	5,376.5	1.05	-0.33	1.00
11,042.0	88.60	359.10	5,841.8	5,406.3	-43.3	5,406.5	3.80	-3.00	2.33
11,073.0	88.50	358.80	5,842.6	5,437.3	-43.8	5,437.5	1.02	-0.32	-0.97
11,104.0	88.50	359.00	5,843.4	5,468.3	-44.4	5,468.5	0.64	0.00	0.65
11,134.0	88.60	359.50	5,844.1	5,498.3	-44.8	5,498.4	1.70	0.33	1.67
11,165.0	89.30	0.00	5,844.7	5,529.3	-44.9	5,529.4	2.77	2.26	1.61
11,196.0	89.20	359.70	5,845.1	5,560.3	-45.0	5,560.4	1.02	-0.32	-0.97
11,227.0	89.30	359.30	5,845.5	5,591.3	-45.3	5,591.4	1.33	0.32	-1.29
11,258.0	89.20	359.70	5,845.9	5,622.2	-45.6	5,622.4	1.33	-0.32	1.29
11,288.0	89.00	359.30	5,846.4	5,652.2	-45.8	5,652.4	1.49	-0.67	-1.33
11,319.0	88.90	358.80	5,847.0	5,683.2	-46.3	5,683.4	1.64	-0.32	-1.61
11,350.0	88.90	359.00	5,847.6	5,714.2	-46.9	5,714.4	0.65	0.00	0.65
11,381.0	89.00	358.60	5,848.1	5,745.2	-47.6	5,745.4	1.33	0.32	-1.29
11,412.0	89.00	358.60	5,848.7	5,776.2	-48.3	5,776.4	0.00	0.00	0.00
11,443.0	89.50	358.80	5,849.1	5,807.2	-49.0	5,807.4	1.74	1.61	0.65
11,474.0	89.50	359.10	5,849.4	5,838.2	-49.6	5,838.4	0.97	0.00	0.97
11,505.0	89.40	359.00	5,849.6	5,869.2	-50.1	5,869.4	0.46	-0.32	-0.32
11,535.0	89.50	359.00	5,849.9	5,899.2	-50.7	5,899.4	0.33	0.33	0.00
11,566.0	89.70	358.40	5,850.2	5,930.2	-51.4	5,930.4	2.04	0.65	-1.94
11,597.0	90.00	357.70	5,850.2	5,961.1	-52.4	5,961.4	2.46	0.97	-2.26
11,627.0	90.60	358.40	5,850.1	5,991.1	-53.4	5,991.4	3.07	2.00	2.33
11,658.0	90.80	358.60	5,849.7	6,022.1	-54.2	6,022.3	0.91	0.65	0.65
11,689.0	90.80	358.40	5,849.3	6,053.1	-55.1	6,053.3	0.65	0.00	-0.65
11,720.0	89.80	357.90	5,849.1	6,084.1	-56.1	6,084.3	3.61	-3.23	-1.61
11,751.0	89.30	358.80	5,849.3	6,115.1	-56.9	6,115.3	3.32	-1.61	2.90
11,781.0	89.30	358.60	5,849.7	6,145.1	-57.6	6,145.3	0.67	0.00	-0.67
11,812.0	89.10	359.10	5,850.1	6,176.0	-58.3	6,176.3	1.74	-0.65	1.61
11,842.0	89.80	359.70	5,850.4	6,206.0	-58.6	6,206.3	3.07	2.33	2.00
11,873.0	89.30	0.20	5,850.7	6,237.0	-58.6	6,237.3	2.28	-1.61	1.61
11,904.0	88.50	0.60	5,851.3	6,268.0	-58.4	6,268.3	2.89	-2.58	1.29
11,935.0	88.80	1.30	5,852.0	6,299.0	-57.9	6,299.3	2.46	0.97	2.26
11,966.0	89.70	2.00	5,852.4	6,330.0	-57.0	6,330.3	3.68	2.90	2.26
11,997.0	90.30	2.10	5,852.4	6,361.0	-55.9	6,361.2	1.96	1.94	0.32
12,027.0	90.40	2.10	5,852.2	6,391.0	-54.8	6,391.2	0.33	0.33	0.00
12,058.0	90.50	2.00	5,852.0	6,421.9	-53.7	6,422.2	0.46	0.32	-0.32
12,089.0	90.40	1.80	5,851.7	6,452.9	-52.6	6,453.1	0.72	-0.32	-0.65
12,120.0	90.40	1.80	5,851.5	6,483.9	-51.7	6,484.1	0.00	0.00	0.00
12,151.0	90.40	1.40	5,851.3	6,514.9	-50.8	6,515.1	1.29	0.00	-1.29
12,182.0	90.70	1.40	5,851.0	6,545.9	-50.0	6,546.1	0.97	0.97	0.00

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail 07-0611H
Project:	SEC.7-T10N-R57W	TVD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Site:	Horsetail 07-0611H Pad Sec.7-T10N-R57W	MD Reference:	WELL @ 4943.0ft (Cade 21 RKB - 17.3')
Well:	Horsetail 07-0611H	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)	
12,213.0	90.60	1.40	5,850.7	6,576.9	-49.3	6,577.1	0.32	-0.32	0.00	
12,244.0	90.80	1.30	5,850.3	6,607.9	-48.5	6,608.0	0.72	0.65	-0.32	
12,276.0	89.70	0.40	5,850.1	6,639.9	-48.1	6,640.0	4.44	-3.44	-2.81	
12,306.0	89.30	359.80	5,850.4	6,669.9	-48.0	6,670.0	2.40	-1.33	-2.00	
12,337.0	89.30	359.70	5,850.8	6,700.9	-48.1	6,701.0	0.32	0.00	-0.32	
12,368.0	89.30	359.50	5,851.2	6,731.8	-48.4	6,732.0	0.65	0.00	-0.65	
12,399.0	90.60	359.70	5,851.2	6,762.8	-48.6	6,763.0	4.24	4.19	0.65	
12,430.0	89.30	358.80	5,851.2	6,793.8	-49.0	6,794.0	5.10	-4.19	-2.90	
12,460.0	89.30	358.80	5,851.6	6,823.8	-49.6	6,824.0	0.00	0.00	0.00	
12,490.0	89.30	358.60	5,851.9	6,853.8	-50.3	6,854.0	0.67	0.00	-0.67	
12,521.0	89.20	358.30	5,852.3	6,884.8	-51.1	6,885.0	1.02	-0.32	-0.97	
12,552.0	89.20	358.60	5,852.8	6,915.8	-52.0	6,916.0	0.97	0.00	0.97	
12,583.0	90.00	358.30	5,853.0	6,946.8	-52.8	6,947.0	2.76	2.58	-0.97	
12,614.0	90.50	358.10	5,852.9	6,977.8	-53.8	6,978.0	1.74	1.61	-0.65	
12,644.0	90.70	358.30	5,852.5	7,007.8	-54.7	7,008.0	0.94	0.67	0.67	
12,674.0	90.70	357.90	5,852.2	7,037.7	-55.7	7,038.0	1.33	0.00	-1.33	
12,690.0	90.60	357.90	5,852.0	7,053.7	-56.3	7,053.9	0.63	-0.63	0.00	
12,740.0	90.60	357.90	5,851.5	7,103.7	-58.1	7,103.9	0.00	0.00	0.00	
BHL 660'FNL, 660'FWL, SEC.6										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,160.0	5,848.1	7"	7	7-1/2	

Checked By: _____	Approved By: _____	Date: _____
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