

# Whiting Oil & Gas

Well Name: **Horsetail 18-0713H**

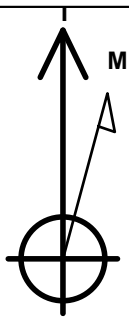
Surface Location: Horsetail 18-0713H Pad Sec.18-T10N-R57W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4823.4

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1550633.23	3470063.55	40.832508	-103.801281	
RKB - 16.5' WELL @ 4839.9ft (RKB - 16.5')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 1989'FSL, 660'FWL, SEC.7	5739.0	6962.9	-92.1	Point



Azimuths to True North  
Magnetic North: 8.17°

Magnetic Field  
Strength: 53297.9nT  
Dip Angle: 67.50°  
Date: 12/10/2012  
Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
5218.1	5218.1	KOP
5739.0	6036.3	End of Build

Horsetail 18-0713H Pad Sec.18-T10N-R57W  
Horsetail 18-0713H  
Plan #1 (12-10-12)

South(-)/North(+) (2200 ft/in)

Horsetail 18-0713H

KOP

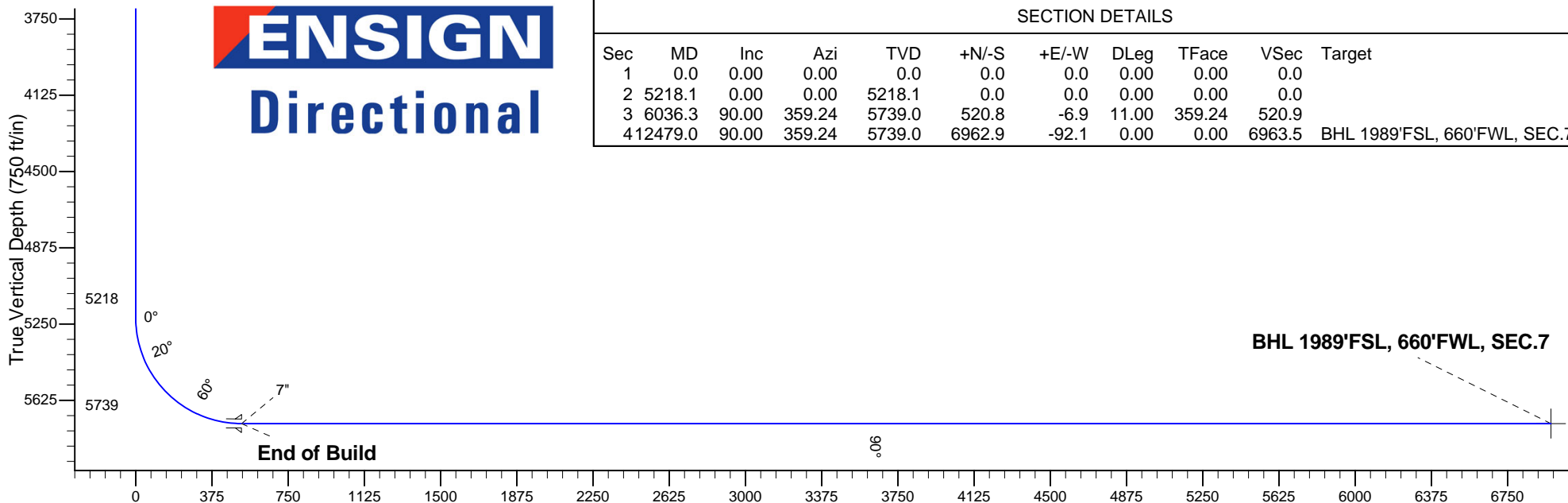
End of Build

**SHL 330'FSL, 660'FWL, SEC.18**

West(-)/East(+) (2200 ft/in)

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5218.1	0.00	0.00	5218.1	0.0	0.0	0.00	0.00	0.0	
3	6036.3	90.00	359.24	5739.0	520.8	-6.9	11.00	359.24	520.9	
4	12479.0	90.00	359.24	5739.0	6962.9	-92.1	0.00	0.00	6963.5	BHL 1989'FSL, 660'FWL, SEC.7



Vertical Section at 359.24° (750 ft/in)



## **Directional**

### **Whiting Oil & Gas**

**SEC.18-T10N-R57W**

**Horsetail 18-0713H Pad Sec.18-T10N-R57W**

**Horsetail 18-0713H**

**Wellbore #1**

**Plan: Plan #1 (12-10-12)**

### **Standard Planning Report**

**17 December, 2012**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Horsetail 18-0713H
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Project:</b>	SEC.18-T10N-R57W	<b>MD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

<b>Project</b>	SEC.18-T10N-R57W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Horsetail 18-0713H Pad Sec.18-T10N-R57W											
Site Position:						Northing:			1,550,633.24 ft			Latitude:			40.832508		
From:			Lat/Long			Easting:			3,470,063.55 ft			Longitude:			-103.801281		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			1.10 °		

Well	Horsetail 18-0713H					
Well Position	+N-S	0.0 ft	Northing:	1,550,633.23 ft	Latitude:	40.832508
	+E-W	0.0 ft	Easting:	3,470,063.55 ft	Longitude:	-103.801281
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,823.4 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/10/2012	8.17	67.50	53,298

<b>Design</b>	Plan #1 (12-10-12)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	359.24

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,218.1	0.00	0.00	5,218.1	0.0	0.0	0.00	0.00	0.00	0.00	
6,036.3	90.00	359.24	5,739.0	520.8	-6.9	11.00	11.00	0.00	359.24	
12,479.0	90.00	359.24	5,739.0	6,962.9	-92.1	0.00	0.00	0.00	0.00	BHL 1989'FSL, 660

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<b>Project:</b>	SEC.18-T10N-R57W	<b>MD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Planned 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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00

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<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Planned 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)
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,040.0	0.00	0.00	3,040.0	0.0	0.0	0.0	0.00	0.00	0.00
3,080.0	0.00	0.00	3,080.0	0.0	0.0	0.0	0.00	0.00	0.00
3,120.0	0.00	0.00	3,120.0	0.0	0.0	0.0	0.00	0.00	0.00
3,160.0	0.00	0.00	3,160.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,240.0	0.00	0.00	3,240.0	0.0	0.0	0.0	0.00	0.00	0.00
3,280.0	0.00	0.00	3,280.0	0.0	0.0	0.0	0.00	0.00	0.00
3,320.0	0.00	0.00	3,320.0	0.0	0.0	0.0	0.00	0.00	0.00
3,360.0	0.00	0.00	3,360.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,440.0	0.00	0.00	3,440.0	0.0	0.0	0.0	0.00	0.00	0.00
3,480.0	0.00	0.00	3,480.0	0.0	0.0	0.0	0.00	0.00	0.00
3,520.0	0.00	0.00	3,520.0	0.0	0.0	0.0	0.00	0.00	0.00
3,560.0	0.00	0.00	3,560.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,640.0	0.00	0.00	3,640.0	0.0	0.0	0.0	0.00	0.00	0.00
3,680.0	0.00	0.00	3,680.0	0.0	0.0	0.0	0.00	0.00	0.00
3,720.0	0.00	0.00	3,720.0	0.0	0.0	0.0	0.00	0.00	0.00
3,760.0	0.00	0.00	3,760.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,840.0	0.00	0.00	3,840.0	0.0	0.0	0.0	0.00	0.00	0.00
3,880.0	0.00	0.00	3,880.0	0.0	0.0	0.0	0.00	0.00	0.00
3,920.0	0.00	0.00	3,920.0	0.0	0.0	0.0	0.00	0.00	0.00
3,960.0	0.00	0.00	3,960.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,040.0	0.00	0.00	4,040.0	0.0	0.0	0.0	0.00	0.00	0.00
4,080.0	0.00	0.00	4,080.0	0.0	0.0	0.0	0.00	0.00	0.00
4,120.0	0.00	0.00	4,120.0	0.0	0.0	0.0	0.00	0.00	0.00
4,160.0	0.00	0.00	4,160.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,240.0	0.00	0.00	4,240.0	0.0	0.0	0.0	0.00	0.00	0.00
4,280.0	0.00	0.00	4,280.0	0.0	0.0	0.0	0.00	0.00	0.00

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<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Planned 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)
4,320.0	0.00	0.00	4,320.0	0.0	0.0	0.0	0.00	0.00	0.00
4,360.0	0.00	0.00	4,360.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,440.0	0.00	0.00	4,440.0	0.0	0.0	0.0	0.00	0.00	0.00
4,480.0	0.00	0.00	4,480.0	0.0	0.0	0.0	0.00	0.00	0.00
4,520.0	0.00	0.00	4,520.0	0.0	0.0	0.0	0.00	0.00	0.00
4,560.0	0.00	0.00	4,560.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,640.0	0.00	0.00	4,640.0	0.0	0.0	0.0	0.00	0.00	0.00
4,680.0	0.00	0.00	4,680.0	0.0	0.0	0.0	0.00	0.00	0.00
4,720.0	0.00	0.00	4,720.0	0.0	0.0	0.0	0.00	0.00	0.00
4,760.0	0.00	0.00	4,760.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,840.0	0.00	0.00	4,840.0	0.0	0.0	0.0	0.00	0.00	0.00
4,880.0	0.00	0.00	4,880.0	0.0	0.0	0.0	0.00	0.00	0.00
4,920.0	0.00	0.00	4,920.0	0.0	0.0	0.0	0.00	0.00	0.00
4,960.0	0.00	0.00	4,960.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,040.0	0.00	0.00	5,040.0	0.0	0.0	0.0	0.00	0.00	0.00
5,080.0	0.00	0.00	5,080.0	0.0	0.0	0.0	0.00	0.00	0.00
5,120.0	0.00	0.00	5,120.0	0.0	0.0	0.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,160.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,218.1	0.00	0.00	5,218.1	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP</b>									
5,240.0	2.41	359.24	5,240.0	0.5	0.0	0.5	10.99	10.99	0.00
5,280.0	6.81	359.24	5,279.9	3.7	0.0	3.7	11.00	11.00	0.00
5,320.0	11.21	359.24	5,319.4	9.9	-0.1	9.9	11.00	11.00	0.00
5,360.0	15.61	359.24	5,358.3	19.2	-0.3	19.2	11.00	11.00	0.00
5,400.0	20.01	359.24	5,396.3	31.4	-0.4	31.4	11.00	11.00	0.00
5,440.0	24.41	359.24	5,433.4	46.5	-0.6	46.5	11.00	11.00	0.00
5,480.0	28.81	359.24	5,469.1	64.4	-0.9	64.5	11.00	11.00	0.00
5,520.0	33.21	359.24	5,503.4	85.0	-1.1	85.1	11.00	11.00	0.00
5,560.0	37.61	359.24	5,536.0	108.2	-1.4	108.2	11.00	11.00	0.00
5,596.0	41.57	359.24	5,563.7	131.1	-1.7	131.2	11.00	11.00	0.00
<b>NIOBRARA</b>									
5,600.0	42.01	359.24	5,566.7	133.8	-1.8	133.8	11.00	11.00	0.00
5,640.0	46.41	359.24	5,595.4	161.7	-2.1	161.7	11.00	11.00	0.00
5,680.0	50.81	359.24	5,621.8	191.7	-2.5	191.7	11.00	11.00	0.00
5,720.0	55.21	359.24	5,645.9	223.6	-3.0	223.6	11.00	11.00	0.00
5,760.0	59.61	359.24	5,667.4	257.3	-3.4	257.3	11.00	11.00	0.00
5,800.0	64.01	359.24	5,686.3	292.6	-3.9	292.6	11.00	11.00	0.00
5,840.0	68.41	359.24	5,702.4	329.1	-4.4	329.2	11.00	11.00	0.00
5,880.0	72.81	359.24	5,715.7	366.9	-4.9	366.9	11.00	11.00	0.00
5,920.0	77.21	359.24	5,726.1	405.5	-5.4	405.5	11.00	11.00	0.00
5,960.0	81.61	359.24	5,733.4	444.8	-5.9	444.8	11.00	11.00	0.00
6,000.0	86.01	359.24	5,737.7	484.5	-6.4	484.6	11.00	11.00	0.00
6,036.3	90.00	359.24	5,739.0	520.8	-6.9	520.9	11.00	11.00	0.00
<b>End of Build - 7"</b>									
6,040.0	90.00	359.24	5,739.0	524.5	-6.9	524.6	0.03	0.03	0.00
6,080.0	90.00	359.24	5,739.0	564.5	-7.5	564.6	0.00	0.00	0.00
6,120.0	90.00	359.24	5,739.0	604.5	-8.0	604.6	0.00	0.00	0.00
6,160.0	90.00	359.24	5,739.0	644.5	-8.5	644.6	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Horsetail 18-0713H
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Project:</b>	SEC.18-T10N-R57W	<b>MD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Planned 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)
6,200.0	90.00	359.24	5,739.0	684.5	-9.1	684.6	0.00	0.00	0.00
6,240.0	90.00	359.24	5,739.0	724.5	-9.6	724.6	0.00	0.00	0.00
6,280.0	90.00	359.24	5,739.0	764.5	-10.1	764.6	0.00	0.00	0.00
6,320.0	90.00	359.24	5,739.0	804.5	-10.6	804.6	0.00	0.00	0.00
6,360.0	90.00	359.24	5,739.0	844.5	-11.2	844.6	0.00	0.00	0.00
6,400.0	90.00	359.24	5,739.0	884.5	-11.7	884.6	0.00	0.00	0.00
6,440.0	90.00	359.24	5,739.0	924.5	-12.2	924.6	0.00	0.00	0.00
6,480.0	90.00	359.24	5,739.0	964.5	-12.8	964.6	0.00	0.00	0.00
6,520.0	90.00	359.24	5,739.0	1,004.5	-13.3	1,004.6	0.00	0.00	0.00
6,560.0	90.00	359.24	5,739.0	1,044.5	-13.8	1,044.6	0.00	0.00	0.00
6,600.0	90.00	359.24	5,739.0	1,084.5	-14.3	1,084.6	0.00	0.00	0.00
6,640.0	90.00	359.24	5,739.0	1,124.5	-14.9	1,124.6	0.00	0.00	0.00
6,680.0	90.00	359.24	5,739.0	1,164.5	-15.4	1,164.6	0.00	0.00	0.00
6,720.0	90.00	359.24	5,739.0	1,204.5	-15.9	1,204.6	0.00	0.00	0.00
6,760.0	90.00	359.24	5,739.0	1,244.5	-16.5	1,244.6	0.00	0.00	0.00
6,800.0	90.00	359.24	5,739.0	1,284.4	-17.0	1,284.6	0.00	0.00	0.00
6,840.0	90.00	359.24	5,739.0	1,324.4	-17.5	1,324.6	0.00	0.00	0.00
6,880.0	90.00	359.24	5,739.0	1,364.4	-18.1	1,364.6	0.00	0.00	0.00
6,920.0	90.00	359.24	5,739.0	1,404.4	-18.6	1,404.6	0.00	0.00	0.00
6,960.0	90.00	359.24	5,739.0	1,444.4	-19.1	1,444.6	0.00	0.00	0.00
7,000.0	90.00	359.24	5,739.0	1,484.4	-19.6	1,484.6	0.00	0.00	0.00
7,040.0	90.00	359.24	5,739.0	1,524.4	-20.2	1,524.6	0.00	0.00	0.00
7,080.0	90.00	359.24	5,739.0	1,564.4	-20.7	1,564.6	0.00	0.00	0.00
7,120.0	90.00	359.24	5,739.0	1,604.4	-21.2	1,604.6	0.00	0.00	0.00
7,160.0	90.00	359.24	5,739.0	1,644.4	-21.8	1,644.6	0.00	0.00	0.00
7,200.0	90.00	359.24	5,739.0	1,684.4	-22.3	1,684.6	0.00	0.00	0.00
7,240.0	90.00	359.24	5,739.0	1,724.4	-22.8	1,724.6	0.00	0.00	0.00
7,280.0	90.00	359.24	5,739.0	1,764.4	-23.3	1,764.6	0.00	0.00	0.00
7,320.0	90.00	359.24	5,739.0	1,804.4	-23.9	1,804.6	0.00	0.00	0.00
7,360.0	90.00	359.24	5,739.0	1,844.4	-24.4	1,844.6	0.00	0.00	0.00
7,400.0	90.00	359.24	5,739.0	1,884.4	-24.9	1,884.6	0.00	0.00	0.00
7,440.0	90.00	359.24	5,739.0	1,924.4	-25.5	1,924.6	0.00	0.00	0.00
7,480.0	90.00	359.24	5,739.0	1,964.4	-26.0	1,964.6	0.00	0.00	0.00
7,520.0	90.00	359.24	5,739.0	2,004.4	-26.5	2,004.6	0.00	0.00	0.00
7,560.0	90.00	359.24	5,739.0	2,044.4	-27.0	2,044.6	0.00	0.00	0.00
7,600.0	90.00	359.24	5,739.0	2,084.4	-27.6	2,084.6	0.00	0.00	0.00
7,640.0	90.00	359.24	5,739.0	2,124.4	-28.1	2,124.6	0.00	0.00	0.00
7,680.0	90.00	359.24	5,739.0	2,164.4	-28.6	2,164.6	0.00	0.00	0.00
7,720.0	90.00	359.24	5,739.0	2,204.4	-29.2	2,204.6	0.00	0.00	0.00
7,760.0	90.00	359.24	5,739.0	2,244.4	-29.7	2,244.6	0.00	0.00	0.00
7,800.0	90.00	359.24	5,739.0	2,284.4	-30.2	2,284.6	0.00	0.00	0.00
7,840.0	90.00	359.24	5,739.0	2,324.4	-30.8	2,324.6	0.00	0.00	0.00
7,880.0	90.00	359.24	5,739.0	2,364.4	-31.3	2,364.6	0.00	0.00	0.00
7,920.0	90.00	359.24	5,739.0	2,404.3	-31.8	2,404.6	0.00	0.00	0.00
7,960.0	90.00	359.24	5,739.0	2,444.3	-32.3	2,444.6	0.00	0.00	0.00
8,000.0	90.00	359.24	5,739.0	2,484.3	-32.9	2,484.6	0.00	0.00	0.00
8,040.0	90.00	359.24	5,739.0	2,524.3	-33.4	2,524.6	0.00	0.00	0.00
8,080.0	90.00	359.24	5,739.0	2,564.3	-33.9	2,564.6	0.00	0.00	0.00
8,120.0	90.00	359.24	5,739.0	2,604.3	-34.5	2,604.6	0.00	0.00	0.00
8,160.0	90.00	359.24	5,739.0	2,644.3	-35.0	2,644.6	0.00	0.00	0.00
8,200.0	90.00	359.24	5,739.0	2,684.3	-35.5	2,684.6	0.00	0.00	0.00
8,240.0	90.00	359.24	5,739.0	2,724.3	-36.0	2,724.6	0.00	0.00	0.00
8,280.0	90.00	359.24	5,739.0	2,764.3	-36.6	2,764.6	0.00	0.00	0.00
8,320.0	90.00	359.24	5,739.0	2,804.3	-37.1	2,804.6	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Horsetail 18-0713H
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Project:</b>	SEC.18-T10N-R57W	<b>MD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Planned 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)
8,360.0	90.00	359.24	5,739.0	2,844.3	-37.6	2,844.6	0.00	0.00	0.00
8,400.0	90.00	359.24	5,739.0	2,884.3	-38.2	2,884.6	0.00	0.00	0.00
8,440.0	90.00	359.24	5,739.0	2,924.3	-38.7	2,924.6	0.00	0.00	0.00
8,480.0	90.00	359.24	5,739.0	2,964.3	-39.2	2,964.6	0.00	0.00	0.00
8,520.0	90.00	359.24	5,739.0	3,004.3	-39.7	3,004.6	0.00	0.00	0.00
8,560.0	90.00	359.24	5,739.0	3,044.3	-40.3	3,044.6	0.00	0.00	0.00
8,600.0	90.00	359.24	5,739.0	3,084.3	-40.8	3,084.6	0.00	0.00	0.00
8,640.0	90.00	359.24	5,739.0	3,124.3	-41.3	3,124.6	0.00	0.00	0.00
8,680.0	90.00	359.24	5,739.0	3,164.3	-41.9	3,164.6	0.00	0.00	0.00
8,720.0	90.00	359.24	5,739.0	3,204.3	-42.4	3,204.6	0.00	0.00	0.00
8,760.0	90.00	359.24	5,739.0	3,244.3	-42.9	3,244.6	0.00	0.00	0.00
8,800.0	90.00	359.24	5,739.0	3,284.3	-43.5	3,284.6	0.00	0.00	0.00
8,840.0	90.00	359.24	5,739.0	3,324.3	-44.0	3,324.6	0.00	0.00	0.00
8,880.0	90.00	359.24	5,739.0	3,364.3	-44.5	3,364.6	0.00	0.00	0.00
8,920.0	90.00	359.24	5,739.0	3,404.3	-45.0	3,404.6	0.00	0.00	0.00
8,960.0	90.00	359.24	5,739.0	3,444.3	-45.6	3,444.6	0.00	0.00	0.00
9,000.0	90.00	359.24	5,739.0	3,484.3	-46.1	3,484.6	0.00	0.00	0.00
9,040.0	90.00	359.24	5,739.0	3,524.3	-46.6	3,524.6	0.00	0.00	0.00
9,080.0	90.00	359.24	5,739.0	3,564.2	-47.2	3,564.6	0.00	0.00	0.00
9,120.0	90.00	359.24	5,739.0	3,604.2	-47.7	3,604.6	0.00	0.00	0.00
9,160.0	90.00	359.24	5,739.0	3,644.2	-48.2	3,644.6	0.00	0.00	0.00
9,200.0	90.00	359.24	5,739.0	3,684.2	-48.7	3,684.6	0.00	0.00	0.00
9,240.0	90.00	359.24	5,739.0	3,724.2	-49.3	3,724.6	0.00	0.00	0.00
9,280.0	90.00	359.24	5,739.0	3,764.2	-49.8	3,764.6	0.00	0.00	0.00
9,320.0	90.00	359.24	5,739.0	3,804.2	-50.3	3,804.6	0.00	0.00	0.00
9,360.0	90.00	359.24	5,739.0	3,844.2	-50.9	3,844.6	0.00	0.00	0.00
9,400.0	90.00	359.24	5,739.0	3,884.2	-51.4	3,884.6	0.00	0.00	0.00
9,440.0	90.00	359.24	5,739.0	3,924.2	-51.9	3,924.6	0.00	0.00	0.00
9,480.0	90.00	359.24	5,739.0	3,964.2	-52.4	3,964.6	0.00	0.00	0.00
9,520.0	90.00	359.24	5,739.0	4,004.2	-53.0	4,004.6	0.00	0.00	0.00
9,560.0	90.00	359.24	5,739.0	4,044.2	-53.5	4,044.6	0.00	0.00	0.00
9,600.0	90.00	359.24	5,739.0	4,084.2	-54.0	4,084.6	0.00	0.00	0.00
9,640.0	90.00	359.24	5,739.0	4,124.2	-54.6	4,124.6	0.00	0.00	0.00
9,680.0	90.00	359.24	5,739.0	4,164.2	-55.1	4,164.6	0.00	0.00	0.00
9,720.0	90.00	359.24	5,739.0	4,204.2	-55.6	4,204.6	0.00	0.00	0.00
9,760.0	90.00	359.24	5,739.0	4,244.2	-56.2	4,244.6	0.00	0.00	0.00
9,800.0	90.00	359.24	5,739.0	4,284.2	-56.7	4,284.6	0.00	0.00	0.00
9,840.0	90.00	359.24	5,739.0	4,324.2	-57.2	4,324.6	0.00	0.00	0.00
9,880.0	90.00	359.24	5,739.0	4,364.2	-57.7	4,364.6	0.00	0.00	0.00
9,920.0	90.00	359.24	5,739.0	4,404.2	-58.3	4,404.6	0.00	0.00	0.00
9,960.0	90.00	359.24	5,739.0	4,444.2	-58.8	4,444.6	0.00	0.00	0.00
10,000.0	90.00	359.24	5,739.0	4,484.2	-59.3	4,484.6	0.00	0.00	0.00
10,040.0	90.00	359.24	5,739.0	4,524.2	-59.9	4,524.6	0.00	0.00	0.00
10,080.0	90.00	359.24	5,739.0	4,564.2	-60.4	4,564.6	0.00	0.00	0.00
10,120.0	90.00	359.24	5,739.0	4,604.2	-60.9	4,604.6	0.00	0.00	0.00
10,160.0	90.00	359.24	5,739.0	4,644.2	-61.4	4,644.6	0.00	0.00	0.00
10,200.0	90.00	359.24	5,739.0	4,684.2	-62.0	4,684.6	0.00	0.00	0.00
10,240.0	90.00	359.24	5,739.0	4,724.1	-62.5	4,724.6	0.00	0.00	0.00
10,280.0	90.00	359.24	5,739.0	4,764.1	-63.0	4,764.6	0.00	0.00	0.00
10,320.0	90.00	359.24	5,739.0	4,804.1	-63.6	4,804.6	0.00	0.00	0.00
10,360.0	90.00	359.24	5,739.0	4,844.1	-64.1	4,844.6	0.00	0.00	0.00
10,400.0	90.00	359.24	5,739.0	4,884.1	-64.6	4,884.6	0.00	0.00	0.00
10,440.0	90.00	359.24	5,739.0	4,924.1	-65.2	4,924.6	0.00	0.00	0.00
10,480.0	90.00	359.24	5,739.0	4,964.1	-65.7	4,964.6	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Horsetail 18-0713H
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Project:</b>	SEC.18-T10N-R57W	<b>MD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Planned 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)
10,520.0	90.00	359.24	5,739.0	5,004.1	-66.2	5,004.6	0.00	0.00	0.00
10,560.0	90.00	359.24	5,739.0	5,044.1	-66.7	5,044.6	0.00	0.00	0.00
10,600.0	90.00	359.24	5,739.0	5,084.1	-67.3	5,084.6	0.00	0.00	0.00
10,640.0	90.00	359.24	5,739.0	5,124.1	-67.8	5,124.6	0.00	0.00	0.00
10,680.0	90.00	359.24	5,739.0	5,164.1	-68.3	5,164.6	0.00	0.00	0.00
10,720.0	90.00	359.24	5,739.0	5,204.1	-68.9	5,204.6	0.00	0.00	0.00
10,760.0	90.00	359.24	5,739.0	5,244.1	-69.4	5,244.6	0.00	0.00	0.00
10,800.0	90.00	359.24	5,739.0	5,284.1	-69.9	5,284.6	0.00	0.00	0.00
10,840.0	90.00	359.24	5,739.0	5,324.1	-70.4	5,324.6	0.00	0.00	0.00
10,880.0	90.00	359.24	5,739.0	5,364.1	-71.0	5,364.6	0.00	0.00	0.00
10,920.0	90.00	359.24	5,739.0	5,404.1	-71.5	5,404.6	0.00	0.00	0.00
10,960.0	90.00	359.24	5,739.0	5,444.1	-72.0	5,444.6	0.00	0.00	0.00
11,000.0	90.00	359.24	5,739.0	5,484.1	-72.6	5,484.6	0.00	0.00	0.00
11,040.0	90.00	359.24	5,739.0	5,524.1	-73.1	5,524.6	0.00	0.00	0.00
11,080.0	90.00	359.24	5,739.0	5,564.1	-73.6	5,564.6	0.00	0.00	0.00
11,120.0	90.00	359.24	5,739.0	5,604.1	-74.1	5,604.6	0.00	0.00	0.00
11,160.0	90.00	359.24	5,739.0	5,644.1	-74.7	5,644.6	0.00	0.00	0.00
11,200.0	90.00	359.24	5,739.0	5,684.1	-75.2	5,684.6	0.00	0.00	0.00
11,240.0	90.00	359.24	5,739.0	5,724.1	-75.7	5,724.6	0.00	0.00	0.00
11,280.0	90.00	359.24	5,739.0	5,764.1	-76.3	5,764.6	0.00	0.00	0.00
11,320.0	90.00	359.24	5,739.0	5,804.1	-76.8	5,804.6	0.00	0.00	0.00
11,360.0	90.00	359.24	5,739.0	5,844.0	-77.3	5,844.6	0.00	0.00	0.00
11,400.0	90.00	359.24	5,739.0	5,884.0	-77.9	5,884.6	0.00	0.00	0.00
11,440.0	90.00	359.24	5,739.0	5,924.0	-78.4	5,924.6	0.00	0.00	0.00
11,480.0	90.00	359.24	5,739.0	5,964.0	-78.9	5,964.6	0.00	0.00	0.00
11,520.0	90.00	359.24	5,739.0	6,004.0	-79.4	6,004.6	0.00	0.00	0.00
11,560.0	90.00	359.24	5,739.0	6,044.0	-80.0	6,044.6	0.00	0.00	0.00
11,600.0	90.00	359.24	5,739.0	6,084.0	-80.5	6,084.6	0.00	0.00	0.00
11,640.0	90.00	359.24	5,739.0	6,124.0	-81.0	6,124.6	0.00	0.00	0.00
11,680.0	90.00	359.24	5,739.0	6,164.0	-81.6	6,164.6	0.00	0.00	0.00
11,720.0	90.00	359.24	5,739.0	6,204.0	-82.1	6,204.6	0.00	0.00	0.00
11,760.0	90.00	359.24	5,739.0	6,244.0	-82.6	6,244.6	0.00	0.00	0.00
11,800.0	90.00	359.24	5,739.0	6,284.0	-83.1	6,284.6	0.00	0.00	0.00
11,840.0	90.00	359.24	5,739.0	6,324.0	-83.7	6,324.6	0.00	0.00	0.00
11,880.0	90.00	359.24	5,739.0	6,364.0	-84.2	6,364.6	0.00	0.00	0.00
11,920.0	90.00	359.24	5,739.0	6,404.0	-84.7	6,404.6	0.00	0.00	0.00
11,960.0	90.00	359.24	5,739.0	6,444.0	-85.3	6,444.6	0.00	0.00	0.00
12,000.0	90.00	359.24	5,739.0	6,484.0	-85.8	6,484.6	0.00	0.00	0.00
12,040.0	90.00	359.24	5,739.0	6,524.0	-86.3	6,524.6	0.00	0.00	0.00
12,080.0	90.00	359.24	5,739.0	6,564.0	-86.8	6,564.6	0.00	0.00	0.00
12,120.0	90.00	359.24	5,739.0	6,604.0	-87.4	6,604.6	0.00	0.00	0.00
12,160.0	90.00	359.24	5,739.0	6,644.0	-87.9	6,644.6	0.00	0.00	0.00
12,200.0	90.00	359.24	5,739.0	6,684.0	-88.4	6,684.6	0.00	0.00	0.00
12,240.0	90.00	359.24	5,739.0	6,724.0	-89.0	6,724.6	0.00	0.00	0.00
12,280.0	90.00	359.24	5,739.0	6,764.0	-89.5	6,764.6	0.00	0.00	0.00
12,320.0	90.00	359.24	5,739.0	6,804.0	-90.0	6,804.6	0.00	0.00	0.00
12,360.0	90.00	359.24	5,739.0	6,844.0	-90.6	6,844.6	0.00	0.00	0.00
12,400.0	90.00	359.24	5,739.0	6,884.0	-91.1	6,884.6	0.00	0.00	0.00
12,440.0	90.00	359.24	5,739.0	6,924.0	-91.6	6,924.6	0.00	0.00	0.00
12,479.0	90.00	359.24	5,739.0	6,962.9	-92.1	6,963.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Horsetail 18-0713H
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Project:</b>	SEC.18-T10N-R57W	<b>MD Reference:</b>	WELL @ 4839.9ft (RKB - 16.5')
<b>Site:</b>	Horsetail 18-0713H Pad Sec.18-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 18-0713H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-10-12)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,036.3	5,739.0	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,596.0	5,563.7	NIOBRARA		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
5,218.1	5,218.1	0.0	0.0	KOP	
6,036.3	5,739.0	520.8	-6.9	End of Build	