

Whiting Oil & Gas

Well Name: **Horsetail #33M-2802**

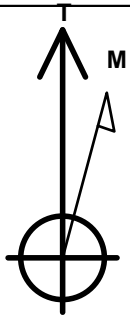
Surface Location: Horsetail 33M Pad Sec.33-T10N-R57W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4634.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1535002.07	3481237.15	40.789019	-103.762019	
RKB - 17.3' WELL @ 4651.3ft (RKB - 17.3')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 380'FSL & 690'FWL, Sec.33	1.0	0.0	0.0	Point
BHL 600'FNL & 495'FWL, Sec. 28	5502.0	9648.1	-436.0	Point



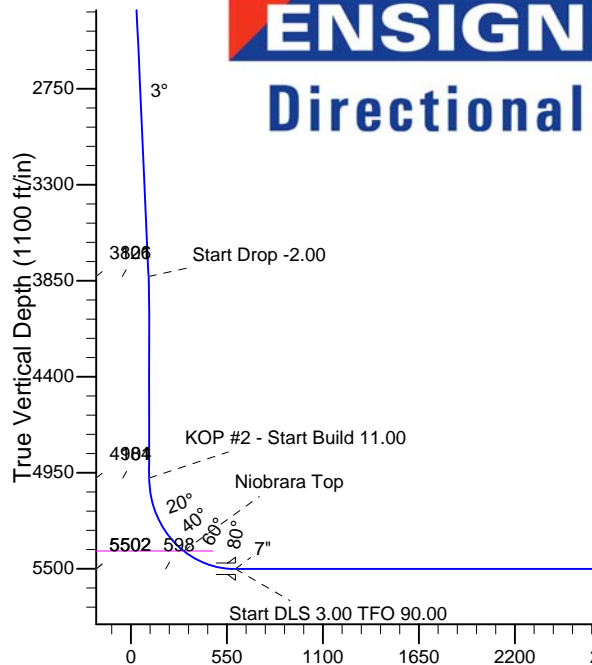
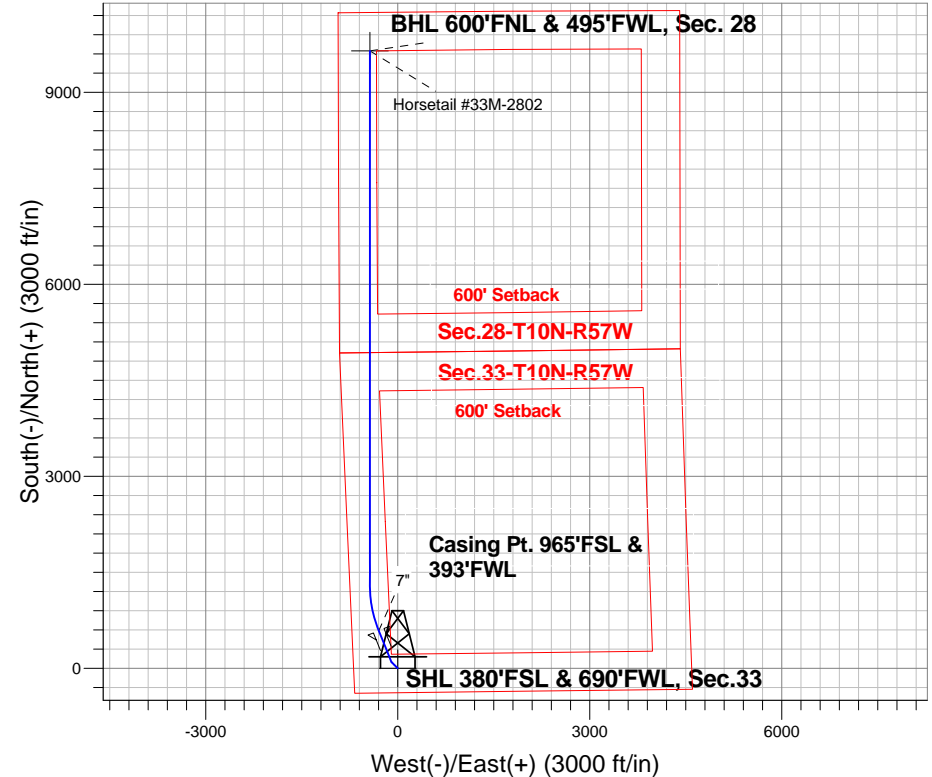
Azimuths to True North
Magnetic North: 8.02°

Magnetic Field
Strength: 53187.9nT
Dip Angle: 67.44°
Date: 10/24/2013
Model: IGRF2010

Horsetail 33M Pad Sec.33-T10N-R57W
Horsetail #33M-2802
Plan #1 (10-24-13)
16:04, October 29 2013

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP - Start Build 2.00
3826.1	3830.2	Start Drop -2.00
4981.1	4985.3	KOP #2 - Start Build 11.00
5502.0	5805.9	Start DLS 3.00 TFO 90.00
5502.0	14887.0	TD at 14887.0



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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1674.0	3.48	315.00	1673.9	3.7	-3.7	2.00	315.00	3.9	
4	3830.2	3.48	315.00	3826.1	96.3	-96.3	0.00	0.00	100.5	
5	4004.2	0.00	0.00	4000.0	100.0	-100.0	2.00	180.00	104.4	
6	4985.3	0.00	0.00	4981.1	100.0	-100.0	0.00	0.00	104.4	
7	5803.5	90.00	337.94	5502.0	582.8	-295.6	11.00	337.94	595.5	
8	5805.9	90.00	337.94	5502.0	585.0	-296.5	0.00	0.00	597.8	
9	6541.2	90.00	0.00	5502.0	1302.2	-436.3	3.00	90.00	1320.6	
10	14887.0	90.00	0.00	5502.0	9648.1	-436.0	0.00	0.00	9657.9	BHL 600'FNL & 495'FWL, Sec. 28

BHL 600'FNL & 495'FWL, Sec. 28

Vertical Section at 357.41° (1100 ft/in)



Whiting Oil & Gas

Sec.33-T10N-R57W

Horsetail 33M Pad Sec.33-T10N-R57W

Horsetail #33M-2802

Wellbore #1

Plan: Plan #1 (10-24-13)

Standard Planning Report

29 October, 2013

Plan Sections										
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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,674.0	3.48	315.00	1,673.9	3.7	-3.7	2.00	2.00	0.00	315.00	
3,830.2	3.48	315.00	3,826.1	96.3	-96.3	0.00	0.00	0.00	0.00	
4,004.2	0.00	0.00	4,000.0	100.0	-100.0	2.00	-2.00	0.00	180.00	
4,985.3	0.00	0.00	4,981.1	100.0	-100.0	0.00	0.00	0.00	0.00	
5,803.5	90.00	337.94	5,502.0	582.8	-295.6	11.00	11.00	0.00	337.94	
5,805.9	90.00	337.94	5,502.0	585.0	-296.5	0.00	0.00	0.00	0.00	
6,541.2	90.00	0.00	5,502.0	1,302.2	-436.3	3.00	0.00	3.00	90.00	
14,887.0	90.00	0.00	5,502.0	9,648.1	-436.0	0.00	0.00	0.00	0.00	BHL 600'FNL & 495'

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Project:	Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site:	Horsetail 33M Pad Sec.33-T10N-R57W	North Reference:	True
Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-24-13)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 380'FSL & 690'FWL, Sec.33									
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	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
1,100.0	0.00	0.00	1,100.0	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
1,300.0	0.00	0.00	1,300.0	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
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,600.0	2.00	315.00	1,600.0	1.2	-1.2	1.3	2.00	2.00	0.00
1,674.0	3.48	315.00	1,673.9	3.7	-3.7	3.9	2.00	2.00	0.00
1,700.0	3.48	315.00	1,699.8	4.9	-4.9	5.1	0.00	0.00	0.00
1,800.0	3.48	315.00	1,799.7	9.1	-9.1	9.5	0.00	0.00	0.00
1,900.0	3.48	315.00	1,899.5	13.4	-13.4	14.0	0.00	0.00	0.00
2,000.0	3.48	315.00	1,999.3	17.7	-17.7	18.5	0.00	0.00	0.00
2,100.0	3.48	315.00	2,099.1	22.0	-22.0	23.0	0.00	0.00	0.00
2,200.0	3.48	315.00	2,198.9	26.3	-26.3	27.5	0.00	0.00	0.00
2,300.0	3.48	315.00	2,298.7	30.6	-30.6	31.9	0.00	0.00	0.00
2,400.0	3.48	315.00	2,398.6	34.9	-34.9	36.4	0.00	0.00	0.00
2,500.0	3.48	315.00	2,498.4	39.2	-39.2	40.9	0.00	0.00	0.00
2,600.0	3.48	315.00	2,598.2	43.5	-43.5	45.4	0.00	0.00	0.00
2,700.0	3.48	315.00	2,698.0	47.8	-47.8	49.9	0.00	0.00	0.00
2,800.0	3.48	315.00	2,797.8	52.1	-52.1	54.4	0.00	0.00	0.00
2,900.0	3.48	315.00	2,897.6	56.3	-56.3	58.8	0.00	0.00	0.00
3,000.0	3.48	315.00	2,997.4	60.6	-60.6	63.3	0.00	0.00	0.00
3,100.0	3.48	315.00	3,097.3	64.9	-64.9	67.8	0.00	0.00	0.00
3,200.0	3.48	315.00	3,197.1	69.2	-69.2	72.3	0.00	0.00	0.00
3,300.0	3.48	315.00	3,296.9	73.5	-73.5	76.8	0.00	0.00	0.00
3,400.0	3.48	315.00	3,396.7	77.8	-77.8	81.2	0.00	0.00	0.00
3,500.0	3.48	315.00	3,496.5	82.1	-82.1	85.7	0.00	0.00	0.00
3,600.0	3.48	315.00	3,596.3	86.4	-86.4	90.2	0.00	0.00	0.00
3,700.0	3.48	315.00	3,696.2	90.7	-90.7	94.7	0.00	0.00	0.00
3,800.0	3.48	315.00	3,796.0	95.0	-95.0	99.2	0.00	0.00	0.00
3,830.2	3.48	315.00	3,826.1	96.3	-96.3	100.5	0.00	0.00	0.00
Start Drop -2.00									
3,900.0	2.08	315.00	3,895.8	98.7	-98.7	103.0	2.00	-2.00	0.00
4,000.0	0.08	315.00	3,995.8	100.0	-100.0	104.4	2.00	-2.00	0.00
4,004.2	0.00	0.00	4,000.0	100.0	-100.0	104.4	2.00	-2.00	0.00
4,100.0	0.00	0.00	4,095.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,200.0	0.00	0.00	4,195.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,300.0	0.00	0.00	4,295.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,400.0	0.00	0.00	4,395.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,500.0	0.00	0.00	4,495.8	100.0	-100.0	104.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Project:	Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site:	Horsetail 33M Pad Sec.33-T10N-R57W	North Reference:	True
Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-24-13)		

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)
4,600.0	0.00	0.00	4,595.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,700.0	0.00	0.00	4,695.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,800.0	0.00	0.00	4,795.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,900.0	0.00	0.00	4,895.8	100.0	-100.0	104.4	0.00	0.00	0.00
4,985.3	0.00	0.00	4,981.1	100.0	-100.0	104.4	0.00	0.00	0.00
KOP #2 - Start Build 11.00									
5,000.0	1.62	337.94	4,995.8	100.2	-100.1	104.6	10.99	10.99	0.00
5,100.0	12.62	337.94	5,094.9	111.7	-104.7	116.3	11.00	11.00	0.00
5,200.0	23.62	337.94	5,189.8	140.4	-116.4	145.5	11.00	11.00	0.00
5,300.0	34.62	337.94	5,277.0	185.5	-134.6	191.3	11.00	11.00	0.00
5,400.0	45.62	337.94	5,353.4	245.1	-158.8	252.0	11.00	11.00	0.00
5,470.3	53.35	337.94	5,399.0	294.6	-178.8	302.3	11.00	11.00	0.00
Niobrara Top									
5,500.0	56.62	337.94	5,416.1	317.1	-188.0	325.3	11.00	11.00	0.00
5,600.0	67.62	337.94	5,462.8	398.9	-221.1	408.5	11.00	11.00	0.00
5,700.0	78.62	337.94	5,491.8	487.5	-257.0	498.6	11.00	11.00	0.00
5,800.0	89.61	337.94	5,502.0	579.5	-294.3	592.2	11.00	11.00	0.00
5,803.5	90.00	337.94	5,502.0	582.8	-295.6	595.5	11.00	11.00	0.00
5,805.9	90.00	337.94	5,502.0	585.0	-296.5	597.8	0.00	0.00	0.00
Start DLS 3.00 TFO 90.00 - 7"									
5,900.0	90.00	340.77	5,502.0	673.0	-329.7	687.2	3.00	0.00	3.00
6,000.0	90.00	343.77	5,502.0	768.3	-360.1	783.7	3.00	0.00	3.00
6,100.0	90.00	346.77	5,502.0	865.0	-385.5	881.5	3.00	0.00	3.00
6,200.0	90.00	349.77	5,502.0	962.9	-405.9	980.2	3.00	0.00	3.00
6,300.0	90.00	352.77	5,502.0	1,061.7	-421.1	1,079.6	3.00	0.00	3.00
6,400.0	90.00	355.77	5,502.0	1,161.2	-431.1	1,179.5	3.00	0.00	3.00
6,500.0	90.00	358.77	5,502.0	1,261.1	-435.8	1,279.4	3.00	0.00	3.00
6,541.2	90.00	0.00	5,502.0	1,302.2	-436.3	1,320.6	3.00	0.00	3.00
6,600.0	90.00	0.00	5,502.0	1,361.1	-436.3	1,379.4	0.00	0.00	0.00
6,700.0	90.00	0.00	5,502.0	1,461.1	-436.3	1,479.3	0.00	0.00	0.00
6,800.0	90.00	0.00	5,502.0	1,561.1	-436.3	1,579.2	0.00	0.00	0.00
6,900.0	90.00	0.00	5,502.0	1,661.1	-436.3	1,679.1	0.00	0.00	0.00
7,000.0	90.00	0.00	5,502.0	1,761.1	-436.2	1,779.0	0.00	0.00	0.00
7,100.0	90.00	0.00	5,502.0	1,861.1	-436.2	1,878.8	0.00	0.00	0.00
7,200.0	90.00	0.00	5,502.0	1,961.1	-436.2	1,978.7	0.00	0.00	0.00
7,300.0	90.00	0.00	5,502.0	2,061.1	-436.2	2,078.6	0.00	0.00	0.00
7,400.0	90.00	0.00	5,502.0	2,161.1	-436.2	2,178.5	0.00	0.00	0.00
7,500.0	90.00	0.00	5,502.0	2,261.1	-436.2	2,278.4	0.00	0.00	0.00
7,600.0	90.00	0.00	5,502.0	2,361.1	-436.2	2,378.3	0.00	0.00	0.00
7,700.0	90.00	0.00	5,502.0	2,461.1	-436.2	2,478.2	0.00	0.00	0.00
7,800.0	90.00	0.00	5,502.0	2,561.1	-436.2	2,578.1	0.00	0.00	0.00
7,900.0	90.00	0.00	5,502.0	2,661.1	-436.2	2,678.0	0.00	0.00	0.00
8,000.0	90.00	0.00	5,502.0	2,761.1	-436.2	2,777.9	0.00	0.00	0.00
8,100.0	90.00	0.00	5,502.0	2,861.1	-436.2	2,877.8	0.00	0.00	0.00
8,200.0	90.00	0.00	5,502.0	2,961.1	-436.2	2,977.7	0.00	0.00	0.00
8,300.0	90.00	0.00	5,502.0	3,061.1	-436.2	3,077.6	0.00	0.00	0.00
8,400.0	90.00	0.00	5,502.0	3,161.1	-436.2	3,177.5	0.00	0.00	0.00
8,500.0	90.00	0.00	5,502.0	3,261.1	-436.2	3,277.4	0.00	0.00	0.00
8,600.0	90.00	0.00	5,502.0	3,361.1	-436.2	3,377.3	0.00	0.00	0.00
8,700.0	90.00	0.00	5,502.0	3,461.1	-436.2	3,477.2	0.00	0.00	0.00
8,800.0	90.00	0.00	5,502.0	3,561.1	-436.2	3,577.1	0.00	0.00	0.00
8,900.0	90.00	0.00	5,502.0	3,661.1	-436.2	3,677.0	0.00	0.00	0.00
9,000.0	90.00	0.00	5,502.0	3,761.1	-436.2	3,776.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Project:	Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site:	Horsetail 33M Pad Sec.33-T10N-R57W	North Reference:	True
Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-24-13)		

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)
9,100.0	90.00	0.00	5,502.0	3,861.1	-436.2	3,876.8	0.00	0.00	0.00
9,200.0	90.00	0.00	5,502.0	3,961.1	-436.2	3,976.7	0.00	0.00	0.00
9,300.0	90.00	0.00	5,502.0	4,061.1	-436.2	4,076.6	0.00	0.00	0.00
9,400.0	90.00	0.00	5,502.0	4,161.1	-436.2	4,176.5	0.00	0.00	0.00
9,500.0	90.00	0.00	5,502.0	4,261.1	-436.2	4,276.4	0.00	0.00	0.00
9,600.0	90.00	0.00	5,502.0	4,361.1	-436.2	4,376.3	0.00	0.00	0.00
9,700.0	90.00	0.00	5,502.0	4,461.1	-436.2	4,476.2	0.00	0.00	0.00
9,800.0	90.00	0.00	5,502.0	4,561.1	-436.1	4,576.1	0.00	0.00	0.00
9,900.0	90.00	0.00	5,502.0	4,661.1	-436.1	4,676.0	0.00	0.00	0.00
10,000.0	90.00	0.00	5,502.0	4,761.1	-436.1	4,775.9	0.00	0.00	0.00
10,100.0	90.00	0.00	5,502.0	4,861.1	-436.1	4,875.8	0.00	0.00	0.00
10,200.0	90.00	0.00	5,502.0	4,961.1	-436.1	4,975.7	0.00	0.00	0.00
10,300.0	90.00	0.00	5,502.0	5,061.1	-436.1	5,075.6	0.00	0.00	0.00
10,400.0	90.00	0.00	5,502.0	5,161.1	-436.1	5,175.5	0.00	0.00	0.00
10,500.0	90.00	0.00	5,502.0	5,261.1	-436.1	5,275.4	0.00	0.00	0.00
10,600.0	90.00	0.00	5,502.0	5,361.1	-436.1	5,375.3	0.00	0.00	0.00
10,700.0	90.00	0.00	5,502.0	5,461.1	-436.1	5,475.2	0.00	0.00	0.00
10,800.0	90.00	0.00	5,502.0	5,561.1	-436.1	5,575.1	0.00	0.00	0.00
10,900.0	90.00	0.00	5,502.0	5,661.1	-436.1	5,675.0	0.00	0.00	0.00
11,000.0	90.00	0.00	5,502.0	5,761.1	-436.1	5,774.9	0.00	0.00	0.00
11,100.0	90.00	0.00	5,502.0	5,861.1	-436.1	5,874.8	0.00	0.00	0.00
11,200.0	90.00	0.00	5,502.0	5,961.1	-436.1	5,974.7	0.00	0.00	0.00
11,300.0	90.00	0.00	5,502.0	6,061.1	-436.1	6,074.6	0.00	0.00	0.00
11,400.0	90.00	0.00	5,502.0	6,161.1	-436.1	6,174.5	0.00	0.00	0.00
11,500.0	90.00	0.00	5,502.0	6,261.1	-436.1	6,274.4	0.00	0.00	0.00
11,600.0	90.00	0.00	5,502.0	6,361.1	-436.1	6,374.3	0.00	0.00	0.00
11,700.0	90.00	0.00	5,502.0	6,461.1	-436.1	6,474.2	0.00	0.00	0.00
11,800.0	90.00	0.00	5,502.0	6,561.1	-436.1	6,574.1	0.00	0.00	0.00
11,900.0	90.00	0.00	5,502.0	6,661.1	-436.1	6,673.9	0.00	0.00	0.00
12,000.0	90.00	0.00	5,502.0	6,761.1	-436.1	6,773.8	0.00	0.00	0.00
12,100.0	90.00	0.00	5,502.0	6,861.1	-436.1	6,873.7	0.00	0.00	0.00
12,200.0	90.00	0.00	5,502.0	6,961.1	-436.1	6,973.6	0.00	0.00	0.00
12,300.0	90.00	0.00	5,502.0	7,061.1	-436.1	7,073.5	0.00	0.00	0.00
12,400.0	90.00	0.00	5,502.0	7,161.1	-436.1	7,173.4	0.00	0.00	0.00
12,500.0	90.00	0.00	5,502.0	7,261.1	-436.1	7,273.3	0.00	0.00	0.00
12,600.0	90.00	0.00	5,502.0	7,361.1	-436.0	7,373.2	0.00	0.00	0.00
12,700.0	90.00	0.00	5,502.0	7,461.1	-436.0	7,473.1	0.00	0.00	0.00
12,800.0	90.00	0.00	5,502.0	7,561.1	-436.0	7,573.0	0.00	0.00	0.00
12,900.0	90.00	0.00	5,502.0	7,661.1	-436.0	7,672.9	0.00	0.00	0.00
13,000.0	90.00	0.00	5,502.0	7,761.1	-436.0	7,772.8	0.00	0.00	0.00
13,100.0	90.00	0.00	5,502.0	7,861.1	-436.0	7,872.7	0.00	0.00	0.00
13,200.0	90.00	0.00	5,502.0	7,961.1	-436.0	7,972.6	0.00	0.00	0.00
13,300.0	90.00	0.00	5,502.0	8,061.1	-436.0	8,072.5	0.00	0.00	0.00
13,400.0	90.00	0.00	5,502.0	8,161.1	-436.0	8,172.4	0.00	0.00	0.00
13,500.0	90.00	0.00	5,502.0	8,261.1	-436.0	8,272.3	0.00	0.00	0.00
13,600.0	90.00	0.00	5,502.0	8,361.1	-436.0	8,372.2	0.00	0.00	0.00
13,700.0	90.00	0.00	5,502.0	8,461.1	-436.0	8,472.1	0.00	0.00	0.00
13,800.0	90.00	0.00	5,502.0	8,561.1	-436.0	8,572.0	0.00	0.00	0.00
13,900.0	90.00	0.00	5,502.0	8,661.1	-436.0	8,671.9	0.00	0.00	0.00
14,000.0	90.00	0.00	5,502.0	8,761.1	-436.0	8,771.8	0.00	0.00	0.00
14,100.0	90.00	0.00	5,502.0	8,861.1	-436.0	8,871.7	0.00	0.00	0.00
14,200.0	90.00	0.00	5,502.0	8,961.1	-436.0	8,971.6	0.00	0.00	0.00
14,300.0	90.00	0.00	5,502.0	9,061.1	-436.0	9,071.5	0.00	0.00	0.00
14,400.0	90.00	0.00	5,502.0	9,161.1	-436.0	9,171.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Company:	Whiting Oil & Gas	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Project:	Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site:	Horsetail 33M Pad Sec.33-T10N-R57W	North Reference:	True
Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-24-13)		

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)	
14,500.0	90.00	0.00	5,502.0	9,261.1	-436.0	9,271.3	0.00	0.00	0.00	
14,600.0	90.00	0.00	5,502.0	9,361.1	-436.0	9,371.2	0.00	0.00	0.00	
14,700.0	90.00	0.00	5,502.0	9,461.1	-436.0	9,471.1	0.00	0.00	0.00	
14,800.0	90.00	0.00	5,502.0	9,561.1	-436.0	9,571.0	0.00	0.00	0.00	
14,887.0	90.00	0.00	5,502.0	9,648.1	-436.0	9,657.9	0.00	0.00	0.00	
TD at 14887.0 - BHL 600'FNL & 495'FWL, Sec. 28										

Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 600'FNL & 495'F	- plan hits target center	0.00	0.00	5,502.0	9,648.1	-436.0	1,544,639.72	3,480,612.18	40.815500	-103.763594
	- Point									
SHL 380'FSL & 690'F	- plan hits target center	0.00	0.00	1.0	0.0	0.0	1,535,002.08	3,481,237.15	40.789019	-103.762019
	- Point									

Casing Points										
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")						
5,805.9	5,502.0	7"	7	7-1/2						

Formations										
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)					
5,470.3	5,399.0	Niobrara Top		0.00						

Plan Annotations										
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment						
1,500.0	1,500.0	0.0	0.0	KOP - Start Build 2.00						
3,830.2	3,826.1	96.3	-96.3	Start Drop -2.00						
4,985.3	4,981.1	100.0	-100.0	KOP #2 - Start Build 11.00						
5,805.9	5,502.0	585.0	-296.5	Start DLS 3.00 TFO 90.00						
14,887.0	5,502.0	9,648.1	-436.0	TD at 14887.0						



Whiting Oil & Gas

Sec.33-T10N-R57W

Horsetail 33M Pad Sec.33-T10N-R57W

Horsetail #33M-2802

Wellbore #1

Plan #1 (10-24-13)

Anticollision Report

29 October, 2013

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWDD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
2,100.0	2,099.1	2,096.1	2,093.8	4.6	4.7	-61.35	-0.7	-98.8	80.2	71.1	9.07	8.845	
2,200.0	2,198.9	2,196.0	2,193.5	4.8	4.9	-63.66	-0.7	-105.6	84.0	74.4	9.53	8.814	
2,300.0	2,298.7	2,295.9	2,293.1	5.1	5.2	-65.77	-0.7	-112.5	87.9	77.9	9.99	8.795	
2,400.0	2,398.6	2,395.7	2,392.7	5.3	5.4	-67.70	-0.7	-119.3	91.8	81.4	10.45	8.786	
2,500.0	2,498.4	2,495.6	2,492.4	5.6	5.7	-69.46	-0.7	-126.2	95.9	85.0	10.92	8.783	
2,600.0	2,598.2	2,595.5	2,592.0	5.8	5.9	-71.08	-0.7	-133.1	100.1	88.7	11.39	8.785	
2,700.0	2,698.0	2,695.3	2,691.7	6.0	6.2	-72.57	-0.7	-139.9	104.3	92.5	11.87	8.792	
2,800.0	2,797.8	2,795.2	2,791.3	6.3	6.4	-73.95	-0.7	-146.8	108.7	96.3	12.35	8.801	
2,900.0	2,897.6	2,895.1	2,890.9	6.5	6.7	-75.21	-0.7	-153.7	113.0	100.2	12.82	8.813	
3,000.0	2,997.4	2,995.0	2,990.6	6.8	6.9	-76.39	-0.7	-160.5	117.4	104.1	13.31	8.827	
3,100.0	3,097.3	3,094.8	3,090.2	7.0	7.2	-77.47	-0.7	-167.4	121.9	108.1	13.79	8.842	
3,200.0	3,197.1	3,194.7	3,189.8	7.2	7.4	-78.48	-0.7	-174.3	126.4	112.1	14.27	8.858	
3,300.0	3,296.9	3,294.6	3,289.5	7.5	7.7	-79.42	-0.7	-181.1	131.0	116.2	14.76	8.874	
3,400.0	3,396.7	3,394.5	3,389.1	7.7	7.9	-80.30	-0.7	-188.0	135.5	120.3	15.24	8.891	
3,500.0	3,496.5	3,494.3	3,488.8	8.0	8.2	-81.12	-0.7	-194.9	140.1	124.4	15.73	8.908	
3,600.0	3,596.3	3,594.2	3,588.4	8.2	8.5	-81.89	-0.7	-201.7	144.8	128.5	16.22	8.926	
3,700.0	3,696.2	3,694.1	3,688.0	8.5	8.7	-82.61	-0.7	-208.6	149.4	132.7	16.71	8.943	
3,800.0	3,796.0	3,794.0	3,787.7	8.7	9.0	-83.28	-0.7	-215.5	154.1	136.9	17.20	8.960	
3,900.0	3,895.8	3,893.8	3,887.3	8.9	9.2	-83.68	-0.7	-222.3	158.9	141.2	17.66	8.996	
4,000.0	3,995.8	3,997.6	3,990.9	9.1	9.5	-83.17	-0.7	-228.1	163.0	145.0	18.05	9.032	
4,100.0	4,095.8	4,102.3	4,095.6	9.3	9.6	-127.73	-0.7	-230.2	164.6	146.5	18.13	9.076	
4,200.0	4,195.8	4,202.5	4,195.8	9.5	9.8	-127.73	-0.7	-230.2	164.6	146.1	18.55	8.874	
4,300.0	4,295.8	4,302.5	4,295.8	9.7	10.0	-127.73	-0.7	-230.2	164.6	145.6	18.97	8.677	
4,400.0	4,395.8	4,402.5	4,395.8	9.9	10.2	-127.73	-0.7	-230.2	164.6	145.2	19.39	8.488	
4,500.0	4,495.8	4,502.5	4,495.8	10.2	10.4	-127.73	-0.7	-230.2	164.6	144.8	19.82	8.307	
4,600.0	4,595.8	4,602.5	4,595.8	10.4	10.6	-127.73	-0.7	-230.2	164.6	144.4	20.24	8.132	
4,700.0	4,695.8	4,702.5	4,695.8	10.6	10.8	-127.73	-0.7	-230.2	164.6	143.9	20.67	7.965	
4,800.0	4,795.8	4,802.5	4,795.8	10.8	11.0	-127.73	-0.7	-230.2	164.6	143.5	21.09	7.804	
4,900.0	4,895.8	4,902.5	4,895.8	11.0	11.2	-127.73	-0.7	-230.2	164.6	143.1	21.52	7.649	
5,000.0	4,995.8	5,006.9	4,999.9	11.2	11.4	-103.88	4.3	-232.6	163.7	141.5	22.21	7.368	
5,086.9	5,082.0	5,097.1	5,087.6	11.5	11.7	-100.13	22.9	-241.7	162.9	140.2	22.62	7.199	
5,100.0	5,094.9	5,110.6	5,100.3	11.5	11.7	-99.53	26.9	-243.7	162.9	140.2	22.69	7.179	
5,200.0	5,189.8	5,211.6	5,191.5	11.8	12.1	-94.85	65.6	-262.7	164.3	141.0	23.33	7.042	
5,300.0	5,277.0	5,310.2	5,270.8	12.3	12.5	-90.16	118.0	-288.3	167.9	143.7	24.21	6.937	
5,400.0	5,353.4	5,406.5	5,336.4	12.9	13.1	-85.74	181.2	-319.2	173.5	148.1	25.38	6.835	
5,500.0	5,416.1	5,500.0	5,386.6	13.7	14.0	-81.83	251.9	-353.8	180.6	153.7	26.90	6.715	
5,600.0	5,462.8	5,593.4	5,421.9	14.8	15.0	-78.46	329.4	-391.7	188.7	159.9	28.81	6.549	
5,700.0	5,491.8	5,684.6	5,441.0	16.1	16.3	-75.76	409.4	-430.9	197.3	166.1	31.11	6.340	
5,800.0	5,502.0	5,780.5	5,445.0	17.6	17.7	-73.88	495.5	-472.8	205.3	171.5	33.85	6.067	
5,900.0	5,502.0	5,892.1	5,445.0	19.1	19.4	-74.24	597.8	-517.3	210.0	173.2	36.89	5.694	
6,000.0	5,502.0	6,003.9	5,445.0	20.6	21.2	-74.55	702.8	-555.9	214.2	174.2	39.93	5.363	
6,100.0	5,502.0	6,116.1	5,445.0	22.2	23.0	-74.81	810.1	-588.3	217.7	174.7	43.00	5.062	
6,200.0	5,502.0	6,228.5	5,445.0	23.8	24.9	-75.02	919.4	-614.5	220.6	174.5	46.04	4.791	
6,300.0	5,502.0	6,341.1	5,445.0	25.4	26.7	-75.18	1,030.3	-634.2	222.8	173.8	48.99	4.548	
6,400.0	5,502.0	6,453.9	5,445.0	27.0	28.5	-75.29	1,142.3	-647.3	224.4	172.6	51.84	4.330	
6,500.0	5,502.0	6,566.7	5,445.0	28.6	30.3	-75.35	1,254.9	-653.8	225.4	170.9	54.54	4.133	
6,600.0	5,502.0	6,670.0	5,445.0	30.1	31.9	-75.42	1,358.1	-655.4	226.5	169.0	57.45	3.942	
6,700.0	5,502.0	6,770.0	5,445.0	31.7	33.4	-75.50	1,458.1	-656.7	227.7	167.1	60.68	3.754	
6,800.0	5,502.0	6,870.0	5,445.0	33.4	35.0	-75.59	1,558.1	-658.1	229.0	165.1	63.96	3.581	
6,900.0	5,502.0	6,970.0	5,445.0	35.0	36.6	-75.67	1,658.1	-659.4	230.3	163.0	67.31	3.422	
7,000.0	5,502.0	7,069.9	5,445.0	36.7	38.3	-75.75	1,758.1	-660.7	231.6	160.9	70.69	3.277	
7,100.0	5,502.0	7,169.9	5,445.0	38.4	39.9	-75.83	1,858.0	-662.1	232.9	158.8	74.12	3.143	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWDD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,200.0	5,502.0	7,269.9	5,445.0	40.2	41.6	-75.91	1,958.0	-663.4	234.2	156.6	77.58	3.019	
7,300.0	5,502.0	7,369.9	5,445.0	41.9	43.3	-75.99	2,058.0	-664.7	235.5	154.5	81.07	2.905	
7,400.0	5,502.0	7,469.9	5,445.0	43.7	45.1	-76.07	2,158.0	-666.1	236.8	152.2	84.58	2.800	
7,500.0	5,502.0	7,569.9	5,445.0	45.5	46.8	-76.15	2,258.0	-667.4	238.1	150.0	88.12	2.702	
7,600.0	5,502.0	7,669.9	5,445.0	47.2	48.6	-76.23	2,358.0	-668.7	239.4	147.7	91.68	2.611	
7,700.0	5,502.0	7,769.9	5,445.0	49.0	50.4	-76.30	2,457.9	-670.1	240.7	145.5	95.26	2.527	
7,800.0	5,502.0	7,869.9	5,445.0	50.8	52.1	-76.38	2,557.9	-671.4	242.0	143.2	98.86	2.448	
7,900.0	5,502.0	7,969.9	5,445.0	52.7	53.9	-76.45	2,657.9	-672.7	243.3	140.8	102.47	2.374	
8,000.0	5,502.0	8,069.9	5,445.0	54.5	55.7	-76.52	2,757.9	-674.1	244.6	138.5	106.10	2.306	
8,100.0	5,502.0	8,169.8	5,445.0	56.3	57.6	-76.60	2,857.9	-675.4	245.9	136.2	109.74	2.241	
8,200.0	5,502.0	8,269.8	5,445.0	58.1	59.4	-76.67	2,957.8	-676.7	247.2	133.8	113.39	2.180	
8,300.0	5,502.0	8,369.8	5,445.0	60.0	61.2	-76.74	3,057.8	-678.1	248.5	131.5	117.05	2.123	
8,400.0	5,502.0	8,469.8	5,445.0	61.8	63.0	-76.81	3,157.8	-679.4	249.8	129.1	120.72	2.069	
8,500.0	5,502.0	8,569.8	5,445.0	63.7	64.9	-76.88	3,257.8	-680.7	251.1	126.7	124.40	2.019	
8,600.0	5,502.0	8,669.8	5,445.0	65.5	66.7	-76.95	3,357.8	-682.1	252.4	124.3	128.09	1.971	
8,700.0	5,502.0	8,769.8	5,445.0	67.4	68.6	-77.02	3,457.8	-683.4	253.7	121.9	131.78	1.925	
8,800.0	5,502.0	8,869.8	5,445.0	69.3	70.4	-77.08	3,557.7	-684.7	255.0	119.5	135.49	1.882	
8,900.0	5,502.0	8,969.8	5,445.0	71.1	72.3	-77.15	3,657.7	-686.1	256.3	117.1	139.20	1.842	
9,000.0	5,502.0	9,069.8	5,445.0	73.0	74.1	-77.22	3,757.7	-687.4	257.6	114.7	142.91	1.803	
9,100.0	5,502.0	9,169.8	5,445.0	74.9	76.0	-77.28	3,857.7	-688.7	258.9	112.3	146.63	1.766	
9,200.0	5,502.0	9,269.7	5,445.0	76.8	77.9	-77.35	3,957.7	-690.1	260.2	109.9	150.36	1.731	
9,300.0	5,502.0	9,369.7	5,445.0	78.6	79.7	-77.41	4,057.7	-691.4	261.6	107.5	154.09	1.697	
9,400.0	5,502.0	9,469.7	5,445.0	80.5	81.6	-77.47	4,157.6	-692.7	262.9	105.0	157.83	1.665	
9,500.0	5,502.0	9,569.7	5,445.0	82.4	83.5	-77.54	4,257.6	-694.1	264.2	102.6	161.57	1.635	
9,600.0	5,502.0	9,669.7	5,445.0	84.3	85.4	-77.60	4,357.6	-695.4	265.5	100.2	165.31	1.606	
9,700.0	5,502.0	9,769.7	5,445.0	86.2	87.3	-77.66	4,457.6	-696.7	266.8	97.7	169.06	1.578	
9,800.0	5,502.0	9,869.7	5,445.0	88.1	89.1	-77.72	4,557.6	-698.1	268.1	95.3	172.82	1.551	
9,900.0	5,502.0	9,969.7	5,445.0	89.9	91.0	-77.78	4,657.5	-699.4	269.4	92.8	176.57	1.526	
10,000.0	5,502.0	10,069.7	5,445.0	91.8	92.9	-77.84	4,757.5	-700.7	270.7	90.4	180.33	1.501	
10,100.0	5,502.0	10,169.7	5,445.0	93.7	94.8	-77.90	4,857.5	-702.1	272.0	87.9	184.10	1.477 Level 3	
10,200.0	5,502.0	10,269.7	5,445.0	95.6	96.7	-77.96	4,957.5	-703.4	273.3	85.4	187.86	1.455 Level 3	
10,300.0	5,502.0	10,369.7	5,445.0	97.5	98.6	-78.02	5,057.5	-704.7	274.6	83.0	191.63	1.433 Level 3	
10,400.0	5,502.0	10,469.6	5,445.0	99.4	100.5	-78.08	5,157.5	-706.1	275.9	80.5	195.41	1.412 Level 3	
10,500.0	5,502.0	10,569.6	5,445.0	101.3	102.4	-78.13	5,257.4	-707.4	277.2	78.1	199.18	1.392 Level 3	
10,600.0	5,502.0	10,669.6	5,445.0	103.2	104.3	-78.19	5,357.4	-708.7	278.5	75.6	202.96	1.372 Level 3	
10,700.0	5,502.0	10,769.6	5,445.0	105.1	106.2	-78.25	5,457.4	-710.1	279.9	73.1	206.74	1.354 Level 3	
10,800.0	5,502.0	10,869.6	5,445.0	107.0	108.1	-78.30	5,557.4	-711.4	281.2	70.6	210.52	1.336 Level 3	
10,900.0	5,502.0	10,969.6	5,445.0	108.9	110.0	-78.36	5,657.4	-712.7	282.5	68.2	214.31	1.318 Level 3	
11,000.0	5,502.0	11,069.6	5,445.0	110.8	111.9	-78.41	5,757.3	-714.1	283.8	65.7	218.09	1.301 Level 3	
11,100.0	5,502.0	11,169.6	5,445.0	112.7	113.8	-78.47	5,857.3	-715.4	285.1	63.2	221.88	1.285 Level 3	
11,200.0	5,502.0	11,269.6	5,445.0	114.6	115.7	-78.52	5,957.3	-716.7	286.4	60.7	225.67	1.269 Level 3	
11,300.0	5,502.0	11,369.6	5,445.0	116.5	117.6	-78.57	6,057.3	-718.1	287.7	58.2	229.47	1.254 Level 3	
11,400.0	5,502.0	11,469.6	5,445.0	118.4	119.5	-78.62	6,157.3	-719.4	289.0	55.8	233.26	1.239 Level 2	
11,500.0	5,502.0	11,569.5	5,445.0	120.4	121.4	-78.68	6,257.3	-720.7	290.3	53.3	237.06	1.225 Level 2	
11,600.0	5,502.0	11,669.5	5,445.0	122.3	123.3	-78.73	6,357.2	-722.1	291.6	50.8	240.85	1.211 Level 2	
11,700.0	5,502.0	11,769.5	5,445.0	124.2	125.2	-78.78	6,457.2	-723.4	293.0	48.3	244.65	1.197 Level 2	
11,800.0	5,502.0	11,869.5	5,445.0	126.1	127.1	-78.83	6,557.2	-724.7	294.3	45.8	248.46	1.184 Level 2	
11,900.0	5,502.0	11,969.5	5,445.0	128.0	129.0	-78.88	6,657.2	-726.1	295.6	43.3	252.26	1.172 Level 2	
12,000.0	5,502.0	12,069.5	5,445.0	129.9	130.9	-78.93	6,757.2	-727.4	296.9	40.8	256.06	1.159 Level 2	
12,100.0	5,502.0	12,169.5	5,445.0	131.8	132.8	-78.98	6,857.2	-728.7	298.2	38.3	259.87	1.148 Level 2	
12,200.0	5,502.0	12,269.5	5,445.0	133.7	134.8	-79.03	6,957.1	-730.1	299.5	35.8	263.68	1.136 Level 2	
12,300.0	5,502.0	12,369.5	5,445.0	135.6	136.7	-79.08	7,057.1	-731.4	300.8	33.3	267.49	1.125 Level 2	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design		Horsetail 33M Pad Sec.33-T10N-R57W - Horsetail #33M-2801 - Wellbore #1 - Plan #1 (10-24-13)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
12,400.0	5,502.0	12,469.5	5,445.0	137.5	138.6	-79.12	7,157.1	-732.7	302.1	30.8	271.30	1.114	Level 2	
12,500.0	5,502.0	12,569.5	5,445.0	139.5	140.5	-79.17	7,257.1	-734.1	303.5	28.3	275.11	1.103	Level 2	
12,600.0	5,502.0	12,669.4	5,445.0	141.4	142.4	-79.22	7,357.1	-735.4	304.8	25.8	278.92	1.093	Level 2	
12,700.0	5,502.0	12,769.4	5,445.0	143.3	144.3	-79.27	7,457.0	-736.7	306.1	23.3	282.73	1.083	Level 2	
12,800.0	5,502.0	12,869.4	5,445.0	145.2	146.2	-79.31	7,557.0	-738.1	307.4	20.8	286.55	1.073	Level 2	
12,900.0	5,502.0	12,969.4	5,445.0	147.1	148.1	-79.36	7,657.0	-739.4	308.7	18.3	290.36	1.063	Level 2	
13,000.0	5,502.0	13,069.4	5,445.0	149.0	150.1	-79.40	7,757.0	-740.7	310.0	15.8	294.18	1.054	Level 2	
13,100.0	5,502.0	13,169.4	5,445.0	150.9	152.0	-79.45	7,857.0	-742.1	311.3	13.3	298.00	1.045	Level 2	
13,200.0	5,502.0	13,269.4	5,445.0	152.8	153.9	-79.49	7,957.0	-743.4	312.7	10.8	301.82	1.036	Level 2	
13,300.0	5,502.0	13,369.4	5,445.0	154.8	155.8	-79.54	8,056.9	-744.7	314.0	8.3	305.64	1.027	Level 2	
13,400.0	5,502.0	13,469.4	5,445.0	156.7	157.7	-79.58	8,156.9	-746.1	315.3	5.8	309.46	1.019	Level 2	
13,500.0	5,502.0	13,569.4	5,445.0	158.6	159.6	-79.63	8,256.9	-747.4	316.6	3.3	313.28	1.011	Level 2	
13,600.0	5,502.0	13,669.4	5,445.0	160.5	161.6	-79.67	8,356.9	-748.7	317.9	0.8	317.10	1.003	Level 2	
13,700.0	5,502.0	13,769.3	5,445.0	162.4	163.5	-79.71	8,456.9	-750.1	319.2	-1.7	320.93	0.995	Level 1	
13,800.0	5,502.0	13,869.3	5,445.0	164.3	165.4	-79.76	8,556.8	-751.4	320.5	-4.2	324.75	0.987	Level 1	
13,900.0	5,502.0	13,969.3	5,445.0	166.3	167.3	-79.80	8,656.8	-752.7	321.9	-6.7	328.57	0.980	Level 1	
14,000.0	5,502.0	14,069.3	5,445.0	168.2	169.2	-79.84	8,756.8	-754.1	323.2	-9.2	332.40	0.972	Level 1	
14,100.0	5,502.0	14,169.3	5,445.0	170.1	171.2	-79.88	8,856.8	-755.4	324.5	-11.7	336.23	0.965	Level 1	
14,200.0	5,502.0	14,269.3	5,445.0	172.0	173.1	-79.92	8,956.8	-756.7	325.8	-14.2	340.06	0.958	Level 1	
14,300.0	5,502.0	14,369.3	5,445.0	173.9	175.0	-79.96	9,056.8	-758.1	327.1	-16.8	343.88	0.951	Level 1	
14,400.0	5,502.0	14,469.3	5,445.0	175.8	176.9	-80.01	9,156.7	-759.4	328.4	-19.3	347.71	0.945	Level 1	
14,500.0	5,502.0	14,569.3	5,445.0	177.8	178.8	-80.05	9,256.7	-760.7	329.8	-21.8	351.54	0.938	Level 1	
14,600.0	5,502.0	14,669.3	5,445.0	179.7	180.8	-80.09	9,356.7	-762.1	331.1	-24.3	355.37	0.932	Level 1	
14,700.0	5,502.0	14,769.3	5,445.0	181.6	182.7	-80.13	9,456.7	-763.4	332.4	-26.8	359.20	0.925	Level 1	
14,800.0	5,502.0	14,869.2	5,445.0	183.5	184.6	-80.16	9,556.7	-764.7	333.7	-29.3	363.04	0.919	Level 1	
14,887.0	5,502.0	14,956.2	5,445.0	185.2	186.3	-80.20	9,643.7	-765.9	334.9	-31.5	366.37	0.914	Level 1, ES, SF	

Horsetail 33M Pad Sec.33-T10N-R57W - Horsetail #33M-2803 - Wellbore #1 - Plan #1 (10-24-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	90.02	0.0	29.9	29.9				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	0.0	29.9	29.9	29.7	0.22	133.056	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	29.9	29.9	29.2	0.67	44.352	
300.0	300.0	300.0	300.0	0.6	0.6	90.02	0.0	29.9	29.9	28.8	1.12	26.611	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	0.0	29.9	29.9	28.3	1.57	19.008	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	0.0	29.9	29.9	27.9	2.02	14.784	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	0.0	29.9	29.9	27.4	2.47	12.096	
700.0	700.0	700.0	700.0	1.5	1.5	90.02	0.0	29.9	29.9	27.0	2.92	10.235	
800.0	800.0	800.0	800.0	1.7	1.7	90.02	0.0	29.9	29.9	26.5	3.37	8.870	
900.0	900.0	900.0	900.0	1.9	1.9	90.02	0.0	29.9	29.9	26.1	3.82	7.827	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.02	0.0	29.9	29.9	25.6	4.27	7.003	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.02	0.0	29.9	29.9	25.2	4.72	6.336	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.02	0.0	29.9	29.9	24.7	5.17	5.785	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.02	0.0	29.9	29.9	24.3	5.62	5.322	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.02	0.0	29.9	29.9	23.8	6.07	4.928	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	90.02	0.0	29.9	29.9	23.4	6.52	4.588 CC	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	137.27	0.0	29.9	31.2	24.2	6.96	4.477	
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	142.91	0.0	29.9	35.1	27.7	7.40	4.744	
1,800.0	1,799.7	1,799.7	1,799.7	3.9	3.9	148.15	0.0	29.9	40.1	32.3	7.84	5.116	
1,900.0	1,899.5	1,899.5	1,899.5	4.2	4.2	152.19	0.0	29.9	45.4	37.1	8.28	5.479	
2,000.0	1,999.3	1,999.3	1,999.3	4.4	4.4	155.38	0.0	29.9	50.8	42.1	8.73	5.825	
2,100.0	2,099.1	2,100.1	2,100.1	4.6	4.6	156.45	1.7	29.6	55.5	46.3	9.17	6.051	
2,200.0	2,198.9	2,200.8	2,200.6	4.8	4.8	154.52	6.8	28.8	58.5	48.8	9.62	6.079	
2,300.0	2,298.7	2,300.7	2,300.4	5.1	5.1	152.06	12.7	27.8	61.1	51.0	10.07	6.070	
2,400.0	2,398.6	2,400.6	2,400.1	5.3	5.3	149.80	18.6	26.8	63.8	53.3	10.52	6.070	
2,500.0	2,498.4	2,500.6	2,499.9	5.6	5.5	147.73	24.5	25.8	66.7	55.7	10.97	6.076	
2,600.0	2,598.2	2,600.5	2,599.6	5.8	5.7	145.84	30.4	24.8	69.6	58.1	11.43	6.087	
2,700.0	2,698.0	2,700.4	2,699.4	6.0	6.0	144.09	36.3	23.9	72.5	60.7	11.89	6.101	
2,800.0	2,797.8	2,800.4	2,799.1	6.3	6.2	142.49	42.2	22.9	75.6	63.2	12.35	6.118	
2,900.0	2,897.6	2,900.3	2,898.9	6.5	6.4	141.01	48.1	21.9	78.7	65.9	12.82	6.137	
3,000.0	2,997.4	3,000.2	2,998.6	6.8	6.7	139.64	54.0	20.9	81.8	68.5	13.29	6.157	
3,100.0	3,097.3	3,100.2	3,098.4	7.0	6.9	138.38	59.9	19.9	85.0	71.2	13.76	6.178	
3,200.0	3,197.1	3,200.1	3,198.2	7.2	7.1	137.20	65.8	18.9	88.2	74.0	14.23	6.200	
3,300.0	3,296.9	3,300.0	3,297.9	7.5	7.4	136.11	71.7	18.0	91.5	76.8	14.70	6.222	
3,400.0	3,396.7	3,400.0	3,397.7	7.7	7.6	135.10	77.6	17.0	94.8	79.6	15.18	6.244	
3,500.0	3,496.5	3,499.9	3,497.4	8.0	7.9	134.15	83.5	16.0	98.1	82.4	15.66	6.266	
3,600.0	3,596.3	3,599.8	3,597.2	8.2	8.1	133.26	89.4	15.0	101.4	85.3	16.13	6.287	
3,700.0	3,696.2	3,699.8	3,696.9	8.5	8.3	132.44	95.3	14.0	104.8	88.2	16.61	6.308	
3,800.0	3,796.0	3,799.7	3,796.7	8.7	8.6	131.66	101.2	13.0	108.2	91.1	17.09	6.329	
3,900.0	3,895.8	3,899.6	3,896.4	8.9	8.8	130.63	107.1	12.1	111.0	93.5	17.56	6.323	
4,000.0	3,995.8	3,999.5	3,996.1	9.1	9.1	128.32	113.0	11.1	111.8	93.8	17.99	6.215	
4,100.0	4,095.8	4,099.3	4,095.8	9.3	9.3	80.66	118.1	10.2	111.7	93.4	18.27	6.113	
4,107.0	4,102.9	4,106.4	4,102.9	9.3	9.3	80.54	118.4	10.2	111.7	93.4	18.30	6.104	
4,200.0	4,195.8	4,199.4	4,195.8	9.5	9.5	79.69	120.0	9.9	111.7	93.0	18.67	5.984	
4,300.0	4,295.8	4,299.4	4,295.8	9.7	9.6	79.69	120.0	9.9	111.7	92.6	19.08	5.855	
4,400.0	4,395.8	4,399.4	4,395.8	9.9	9.9	79.69	120.0	9.9	111.7	92.2	19.52	5.724	
4,500.0	4,495.8	4,499.4	4,495.8	10.2	10.1	79.69	120.0	9.9	111.7	91.8	19.95	5.598	
4,600.0	4,595.8	4,599.4	4,595.8	10.4	10.3	79.69	120.0	9.9	111.7	91.3	20.39	5.478	
4,700.0	4,695.8	4,699.4	4,695.8	10.6	10.5	79.69	120.0	9.9	111.7	90.9	20.83	5.362	
4,800.0	4,795.8	4,799.4	4,795.8	10.8	10.7	79.69	120.0	9.9	111.7	90.4	21.27	5.252	
4,900.0	4,895.8	4,899.4	4,895.8	11.0	11.0	79.69	120.0	9.9	111.7	90.0	21.71	5.145	
4,944.9	4,940.7	4,944.2	4,940.7	11.1	11.1	101.75	120.2	9.9	111.8	89.7	22.04	5.072	

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWID												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,000.0	4,995.8	4,998.8	4,995.0	11.2	11.2	99.36	124.8	9.1	111.9	89.6	22.31	5.017	
5,100.0	5,094.9	5,096.0	5,089.6	11.5	11.5	93.77	146.6	5.4	115.6	92.7	22.88	5.052	
5,200.0	5,189.8	5,191.2	5,176.6	11.8	11.8	88.65	184.3	-1.1	124.1	100.4	23.61	5.255	
5,300.0	5,277.0	5,284.5	5,253.7	12.3	12.3	84.43	235.8	-9.9	136.5	112.0	24.50	5.571	
5,400.0	5,353.4	5,375.9	5,319.1	12.9	12.9	81.18	298.7	-20.7	152.1	126.4	25.61	5.938	
5,500.0	5,416.1	5,465.9	5,371.6	13.7	13.7	78.81	370.5	-33.0	169.9	142.9	26.99	6.294	
5,600.0	5,462.8	5,554.8	5,410.3	14.8	14.6	77.15	449.2	-46.4	189.2	160.5	28.72	6.587	
5,700.0	5,491.8	5,642.9	5,434.9	16.1	15.7	76.03	532.6	-60.7	209.3	178.4	30.83	6.787	
5,800.0	5,502.0	5,730.9	5,444.8	17.6	16.9	75.34	618.6	-75.4	229.5	196.3	33.30	6.894	
5,900.0	5,502.0	5,819.0	5,445.0	19.1	18.1	76.52	705.6	-89.2	249.3	213.2	36.08	6.910	
6,000.0	5,502.0	5,900.0	5,445.0	20.6	19.2	77.46	786.1	-98.3	268.5	229.8	38.71	6.937	
6,100.0	5,502.0	5,991.5	5,445.0	22.2	20.5	78.35	877.4	-104.6	287.0	245.4	41.56	6.905	
6,200.0	5,502.0	6,077.0	5,445.0	23.8	21.7	79.05	962.9	-106.5	304.8	260.5	44.32	6.876	
6,300.0	5,502.0	6,175.8	5,445.0	25.4	23.3	79.65	1,061.7	-106.5	319.7	272.4	47.34	6.754	
6,400.0	5,502.0	6,275.3	5,445.0	27.0	24.9	80.01	1,161.2	-106.5	329.6	279.2	50.32	6.550	
6,500.0	5,502.0	6,375.2	5,445.0	28.6	26.6	80.18	1,261.1	-106.5	334.3	281.0	53.22	6.281	
6,600.0	5,502.0	6,475.2	5,445.0	30.1	28.3	80.19	1,361.0	-106.5	334.7	278.4	56.33	5.942	
6,700.0	5,502.0	6,575.2	5,445.0	31.7	30.0	80.19	1,461.0	-106.5	334.7	275.0	59.67	5.609	
6,800.0	5,502.0	6,675.2	5,445.0	33.4	31.8	80.19	1,561.0	-106.5	334.7	271.6	63.07	5.307	
6,900.0	5,502.0	6,775.2	5,445.0	35.0	33.5	80.19	1,661.0	-106.5	334.7	268.2	66.51	5.032	
7,000.0	5,502.0	6,875.2	5,445.0	36.7	35.3	80.19	1,761.0	-106.4	334.7	264.7	70.00	4.782	
7,100.0	5,502.0	6,975.2	5,445.0	38.4	37.1	80.19	1,861.0	-106.4	334.7	261.2	73.51	4.553	
7,200.0	5,502.0	7,075.2	5,445.0	40.2	38.9	80.19	1,961.0	-106.4	334.7	257.6	77.05	4.344	
7,300.0	5,502.0	7,175.2	5,445.0	41.9	40.7	80.19	2,061.0	-106.4	334.7	254.1	80.61	4.152	
7,400.0	5,502.0	7,275.2	5,445.0	43.7	42.6	80.19	2,161.0	-106.4	334.7	250.5	84.20	3.975	
7,500.0	5,502.0	7,375.2	5,445.0	45.5	44.4	80.19	2,261.0	-106.4	334.7	246.9	87.81	3.812	
7,600.0	5,502.0	7,475.2	5,445.0	47.2	46.3	80.19	2,361.0	-106.4	334.7	243.3	91.43	3.661	
7,700.0	5,502.0	7,575.2	5,445.0	49.0	48.1	80.19	2,461.0	-106.4	334.7	239.6	95.06	3.521	
7,800.0	5,502.0	7,675.2	5,445.0	50.8	50.0	80.19	2,561.0	-106.4	334.7	236.0	98.71	3.390	
7,900.0	5,502.0	7,775.2	5,445.0	52.7	51.9	80.19	2,661.0	-106.4	334.7	232.3	102.37	3.269	
8,000.0	5,502.0	7,875.2	5,445.0	54.5	53.7	80.19	2,761.0	-106.4	334.7	228.6	106.04	3.156	
8,100.0	5,502.0	7,975.2	5,445.0	56.3	55.6	80.19	2,861.0	-106.4	334.7	224.9	109.72	3.050	
8,200.0	5,502.0	8,075.2	5,445.0	58.1	57.5	80.19	2,961.0	-106.4	334.7	221.3	113.41	2.951	
8,300.0	5,502.0	8,175.2	5,445.0	60.0	59.3	80.19	3,061.0	-106.4	334.7	217.6	117.11	2.858	
8,400.0	5,502.0	8,275.2	5,445.0	61.8	61.2	80.19	3,161.0	-106.4	334.7	213.9	120.81	2.770	
8,500.0	5,502.0	8,375.2	5,445.0	63.7	63.1	80.19	3,261.0	-106.4	334.7	210.1	124.52	2.688	
8,600.0	5,502.0	8,475.2	5,445.0	65.5	65.0	80.19	3,361.0	-106.4	334.7	206.4	128.23	2.610	
8,700.0	5,502.0	8,575.2	5,445.0	67.4	66.9	80.19	3,461.0	-106.4	334.7	202.7	131.95	2.536	
8,800.0	5,502.0	8,675.2	5,445.0	69.3	68.8	80.19	3,561.0	-106.4	334.7	199.0	135.68	2.467	
8,900.0	5,502.0	8,775.2	5,445.0	71.1	70.7	80.19	3,661.0	-106.4	334.7	195.3	139.41	2.401	
9,000.0	5,502.0	8,875.2	5,445.0	73.0	72.6	80.19	3,761.0	-106.4	334.7	191.5	143.14	2.338	
9,100.0	5,502.0	8,975.2	5,445.0	74.9	74.5	80.19	3,861.0	-106.4	334.7	187.8	146.88	2.278	
9,200.0	5,502.0	9,075.2	5,445.0	76.8	76.4	80.19	3,961.0	-106.4	334.7	184.0	150.62	2.222	
9,300.0	5,502.0	9,175.2	5,445.0	78.6	78.3	80.19	4,061.0	-106.4	334.7	180.3	154.36	2.168	
9,400.0	5,502.0	9,275.2	5,445.0	80.5	80.2	80.19	4,161.0	-106.4	334.7	176.5	158.11	2.117	
9,500.0	5,502.0	9,375.2	5,445.0	82.4	82.1	80.19	4,261.0	-106.4	334.7	172.8	161.86	2.068	
9,600.0	5,502.0	9,475.2	5,445.0	84.3	84.0	80.19	4,361.0	-106.4	334.7	169.0	165.61	2.021	
9,700.0	5,502.0	9,575.2	5,445.0	86.2	85.9	80.19	4,461.0	-106.4	334.6	165.3	169.36	1.976	
9,800.0	5,502.0	9,675.2	5,445.0	88.1	87.8	80.19	4,561.0	-106.4	334.6	161.5	173.12	1.933	
9,900.0	5,502.0	9,775.2	5,445.0	89.9	89.7	80.19	4,661.0	-106.4	334.6	157.8	176.88	1.892	
10,000.0	5,502.0	9,875.2	5,445.0	91.8	91.6	80.19	4,761.0	-106.4	334.6	154.0	180.64	1.853	
10,100.0	5,502.0	9,975.2	5,445.0	93.7	93.5	80.19	4,861.0	-106.4	334.6	150.2	184.40	1.815	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design		Horsetail 33M Pad Sec.33-T10N-R57W - Horsetail #33M-2803 - Wellbore #1 - Plan #1 (10-24-13)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,200.0	5,502.0	10,075.2	5,445.0	95.6	95.4	80.19	4,961.0	-106.4	334.6	146.5	188.17	1.778		
10,300.0	5,502.0	10,175.2	5,445.0	97.5	97.3	80.19	5,061.0	-106.4	334.6	142.7	191.94	1.744		
10,400.0	5,502.0	10,275.2	5,445.0	99.4	99.2	80.19	5,161.0	-106.4	334.6	138.9	195.70	1.710		
10,500.0	5,502.0	10,375.2	5,445.0	101.3	101.2	80.19	5,261.0	-106.4	334.6	135.2	199.47	1.678		
10,600.0	5,502.0	10,475.2	5,445.0	103.2	103.1	80.19	5,361.0	-106.4	334.6	131.4	203.24	1.646		
10,700.0	5,502.0	10,575.2	5,445.0	105.1	105.0	80.19	5,461.0	-106.4	334.6	127.6	207.02	1.616		
10,800.0	5,502.0	10,675.2	5,445.0	107.0	106.9	80.19	5,561.0	-106.4	334.6	123.8	210.79	1.588		
10,900.0	5,502.0	10,775.2	5,445.0	108.9	108.8	80.19	5,661.0	-106.4	334.6	120.1	214.56	1.560		
11,000.0	5,502.0	10,875.2	5,445.0	110.8	110.7	80.19	5,761.0	-106.4	334.6	116.3	218.34	1.533		
11,100.0	5,502.0	10,975.2	5,445.0	112.7	112.6	80.19	5,861.0	-106.4	334.6	112.5	222.12	1.507		
11,200.0	5,502.0	11,075.2	5,445.0	114.6	114.6	80.19	5,961.0	-106.4	334.6	108.7	225.89	1.481 Level 3		
11,300.0	5,502.0	11,175.2	5,445.0	116.5	116.5	80.19	6,061.0	-106.4	334.6	105.0	229.67	1.457 Level 3		
11,400.0	5,502.0	11,275.2	5,445.0	118.4	118.4	80.19	6,161.0	-106.4	334.6	101.2	233.45	1.433 Level 3		
11,500.0	5,502.0	11,375.2	5,445.0	120.4	120.3	80.19	6,261.0	-106.4	334.6	97.4	237.23	1.411 Level 3		
11,600.0	5,502.0	11,475.2	5,445.0	122.3	122.2	80.19	6,361.0	-106.4	334.6	93.6	241.02	1.388 Level 3		
11,700.0	5,502.0	11,575.2	5,445.0	124.2	124.1	80.19	6,461.0	-106.3	334.6	89.8	244.80	1.367 Level 3		
11,800.0	5,502.0	11,675.2	5,445.0	126.1	126.1	80.19	6,561.0	-106.3	334.6	86.0	248.58	1.346 Level 3		
11,900.0	5,502.0	11,775.2	5,445.0	128.0	128.0	80.19	6,661.0	-106.3	334.6	82.3	252.36	1.326 Level 3		
12,000.0	5,502.0	11,875.2	5,445.0	129.9	129.9	80.19	6,761.0	-106.3	334.6	78.5	256.15	1.306 Level 3		
12,100.0	5,502.0	11,975.2	5,445.0	131.8	131.8	80.19	6,861.0	-106.3	334.6	74.7	259.93	1.287 Level 3		
12,200.0	5,502.0	12,075.2	5,445.0	133.7	133.7	80.19	6,961.0	-106.3	334.6	70.9	263.72	1.269 Level 3		
12,300.0	5,502.0	12,175.2	5,445.0	135.6	135.6	80.19	7,061.0	-106.3	334.6	67.1	267.51	1.251 Level 3		
12,400.0	5,502.0	12,275.2	5,445.0	137.5	137.6	80.19	7,161.0	-106.3	334.6	63.3	271.29	1.233 Level 2		
12,500.0	5,502.0	12,375.2	5,445.0	139.5	139.5	80.19	7,261.0	-106.3	334.6	59.5	275.08	1.216 Level 2		
12,600.0	5,502.0	12,475.2	5,445.0	141.4	141.4	80.19	7,361.0	-106.3	334.6	55.7	278.87	1.200 Level 2		
12,700.0	5,502.0	12,575.2	5,445.0	143.3	143.3	80.19	7,461.0	-106.3	334.6	52.0	282.66	1.184 Level 2		
12,800.0	5,502.0	12,675.2	5,445.0	145.2	145.2	80.19	7,561.0	-106.3	334.6	48.2	286.44	1.168 Level 2		
12,900.0	5,502.0	12,775.2	5,445.0	147.1	147.2	80.19	7,661.0	-106.3	334.6	44.4	290.23	1.153 Level 2		
13,000.0	5,502.0	12,875.2	5,445.0	149.0	149.1	80.19	7,761.0	-106.3	334.6	40.6	294.02	1.138 Level 2		
13,100.0	5,502.0	12,975.2	5,445.0	150.9	151.0	80.19	7,861.0	-106.3	334.6	36.8	297.81	1.124 Level 2		
13,200.0	5,502.0	13,075.2	5,445.0	152.8	152.9	80.19	7,961.0	-106.3	334.6	33.0	301.61	1.109 Level 2		
13,300.0	5,502.0	13,175.2	5,445.0	154.8	154.8	80.19	8,061.0	-106.3	334.6	29.2	305.40	1.096 Level 2		
13,400.0	5,502.0	13,275.2	5,445.0	156.7	156.8	80.19	8,161.0	-106.3	334.6	25.4	309.19	1.082 Level 2		
13,500.0	5,502.0	13,375.2	5,445.0	158.6	158.7	80.19	8,261.0	-106.3	334.6	21.6	312.98	1.069 Level 2		
13,600.0	5,502.0	13,475.2	5,445.0	160.5	160.6	80.19	8,361.0	-106.3	334.6	17.8	316.77	1.056 Level 2		
13,700.0	5,502.0	13,575.2	5,445.0	162.4	162.5	80.19	8,461.0	-106.3	334.6	14.0	320.56	1.044 Level 2		
13,800.0	5,502.0	13,675.2	5,445.0	164.3	164.4	80.19	8,561.0	-106.3	334.6	10.2	324.36	1.032 Level 2		
13,900.0	5,502.0	13,775.2	5,445.0	166.3	166.4	80.19	8,661.0	-106.3	334.6	6.4	328.15	1.020 Level 2		
14,000.0	5,502.0	13,875.2	5,445.0	168.2	168.3	80.19	8,761.0	-106.3	334.6	2.6	331.94	1.008 Level 2		
14,100.0	5,502.0	13,975.2	5,445.0	170.1	170.2	80.19	8,861.0	-106.3	334.6	-1.2	335.74	0.997 Level 1		
14,200.0	5,502.0	14,075.2	5,445.0	172.0	172.1	80.19	8,961.0	-106.3	334.6	-4.9	339.53	0.985 Level 1		
14,300.0	5,502.0	14,175.2	5,445.0	173.9	174.1	80.19	9,061.0	-106.3	334.6	-8.7	343.33	0.975 Level 1		
14,400.0	5,502.0	14,275.2	5,445.0	175.8	176.0	80.19	9,161.0	-106.3	334.6	-12.5	347.12	0.964 Level 1		
14,500.0	5,502.0	14,375.2	5,445.0	177.8	177.9	80.19	9,261.0	-106.3	334.6	-16.3	350.92	0.953 Level 1		
14,600.0	5,502.0	14,475.2	5,445.0	179.7	179.8	80.19	9,361.0	-106.3	334.6	-20.1	354.71	0.943 Level 1		
14,700.0	5,502.0	14,575.2	5,445.0	181.6	181.7	80.19	9,461.0	-106.3	334.6	-23.9	358.51	0.933 Level 1		
14,800.0	5,502.0	14,675.2	5,445.0	183.5	183.7	80.19	9,561.0	-106.3	334.6	-27.7	362.30	0.923 Level 1		
14,887.0	5,502.0	14,762.2	5,445.0	185.2	185.3	80.19	9,648.0	-106.3	334.6	-31.0	365.60	0.915 Level 1, ES, SF		

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	88.96	1.1	59.8	59.8					
100.0	100.0	100.0	100.0	0.1	0.1	88.96	1.1	59.8	59.8	59.6	0.22	266.157		
200.0	200.0	200.0	200.0	0.3	0.3	88.96	1.1	59.8	59.8	59.1	0.67	88.719		
300.0	300.0	300.0	300.0	0.6	0.6	88.96	1.1	59.8	59.8	58.7	1.12	53.231		
400.0	400.0	400.0	400.0	0.8	0.8	88.96	1.1	59.8	59.8	58.2	1.57	38.022		
500.0	500.0	500.0	500.0	1.0	1.0	88.96	1.1	59.8	59.8	57.8	2.02	29.573		
600.0	600.0	600.0	600.0	1.2	1.2	88.96	1.1	59.8	59.8	57.4	2.47	24.196		
700.0	700.0	700.0	700.0	1.5	1.5	88.96	1.1	59.8	59.8	56.9	2.92	20.474		
800.0	800.0	800.0	800.0	1.7	1.7	88.96	1.1	59.8	59.8	56.5	3.37	17.744		
900.0	900.0	900.0	900.0	1.9	1.9	88.96	1.1	59.8	59.8	56.0	3.82	15.656		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	88.96	1.1	59.8	59.8	55.6	4.27	14.008		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	88.96	1.1	59.8	59.8	55.1	4.72	12.674		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	88.96	1.1	59.8	59.8	54.7	5.17	11.572 CC, ES		
1,300.0	1,300.0	1,297.9	1,297.9	2.8	2.8	88.99	1.1	61.5	61.5	55.9	5.60	10.985		
1,400.0	1,400.0	1,396.0	1,395.8	3.0	3.0	89.06	1.1	66.5	66.6	60.6	6.03	11.053		
1,500.0	1,500.0	1,495.8	1,495.5	3.3	3.2	89.14	1.1	72.7	72.8	66.4	6.46	11.282		
1,600.0	1,600.0	1,595.5	1,595.0	3.5	3.4	135.00	1.1	78.9	80.3	73.4	6.88	11.676		
1,700.0	1,699.8	1,695.0	1,694.2	3.7	3.6	137.19	1.1	85.1	90.2	82.9	7.30	12.363		
1,800.0	1,799.7	1,794.3	1,793.4	3.9	3.9	139.39	1.1	91.3	101.0	93.3	7.72	13.073		
1,900.0	1,899.5	1,893.7	1,892.5	4.2	4.1	141.16	1.1	97.5	111.9	103.7	8.15	13.717		
2,000.0	1,999.3	1,993.0	1,991.7	4.4	4.3	142.62	1.1	103.7	122.8	114.2	8.59	14.302		
2,100.0	2,099.1	2,092.4	2,090.9	4.6	4.6	143.84	1.1	109.9	133.8	124.8	9.02	14.833		
2,200.0	2,198.9	2,191.7	2,190.0	4.8	4.8	144.87	1.1	116.1	144.9	135.5	9.46	15.317		
2,300.0	2,298.7	2,291.1	2,289.2	5.1	5.0	145.75	1.1	122.3	156.0	146.1	9.90	15.759		
2,400.0	2,398.6	2,390.4	2,388.3	5.3	5.3	146.52	1.1	128.5	167.2	156.8	10.34	16.164		
2,500.0	2,498.4	2,489.8	2,487.5	5.6	5.5	147.19	1.1	134.7	178.4	167.6	10.79	16.536		
2,600.0	2,598.2	2,589.1	2,586.7	5.8	5.7	147.78	1.1	140.9	189.6	178.3	11.23	16.878		
2,700.0	2,698.0	2,688.5	2,685.8	6.0	6.0	148.31	1.1	147.1	200.8	189.1	11.68	17.194		
2,800.0	2,797.8	2,787.8	2,785.0	6.3	6.2	148.78	1.1	153.3	212.0	199.9	12.12	17.487		
2,900.0	2,897.6	2,887.2	2,884.1	6.5	6.5	149.20	1.1	159.5	223.2	210.7	12.57	17.758		
3,000.0	2,997.4	2,986.5	2,983.3	6.8	6.7	149.59	1.1	165.7	234.5	221.5	13.02	18.010		
3,100.0	3,097.3	3,085.9	3,082.5	7.0	7.0	149.93	1.1	171.9	245.8	232.3	13.47	18.246		
3,200.0	3,197.1	3,185.3	3,181.6	7.2	7.2	150.25	1.1	178.1	257.0	243.1	13.92	18.465		
3,300.0	3,296.9	3,284.6	3,280.8	7.5	7.5	150.54	1.1	184.3	268.3	253.9	14.37	18.671		
3,400.0	3,396.7	3,384.0	3,379.9	7.7	7.7	150.81	1.1	190.5	279.6	264.8	14.82	18.864		
3,500.0	3,496.5	3,483.3	3,479.1	8.0	7.9	151.05	1.1	196.7	290.9	275.6	15.27	19.045		
3,600.0	3,596.3	3,582.7	3,578.3	8.2	8.2	151.28	1.1	202.9	302.2	286.5	15.73	19.216		
3,700.0	3,696.2	3,682.0	3,677.4	8.5	8.4	151.49	1.1	209.1	313.5	297.3	16.18	19.377		
3,800.0	3,796.0	3,781.4	3,776.6	8.7	8.7	151.69	1.1	215.3	324.8	308.1	16.63	19.528		
3,900.0	3,895.8	3,887.7	3,882.7	8.9	8.9	151.90	1.1	221.3	334.8	317.7	17.08	19.597		
4,000.0	3,995.8	4,000.3	3,995.3	9.1	9.1	151.99	1.1	223.7	338.5	321.0	17.48	19.363		
4,100.0	4,095.8	4,100.8	4,095.8	9.3	9.3	106.99	1.1	223.7	338.5	320.5	17.97	18.837		
4,200.0	4,195.8	4,200.8	4,195.8	9.5	9.5	106.99	1.1	223.7	338.5	320.1	18.40	18.400		
4,300.0	4,295.8	4,300.8	4,295.8	9.7	9.7	106.99	1.1	223.7	338.5	319.7	18.82	17.981		
4,400.0	4,395.8	4,400.8	4,395.8	9.9	9.9	106.99	1.1	223.7	338.5	319.2	19.25	17.581		
4,500.0	4,495.8	4,500.8	4,495.8	10.2	10.1	106.99	1.1	223.7	338.5	318.8	19.68	17.197		
4,600.0	4,595.8	4,600.8	4,595.8	10.4	10.3	106.99	1.1	223.7	338.5	318.4	20.11	16.829		
4,700.0	4,695.8	4,700.8	4,695.8	10.6	10.6	106.99	1.1	223.7	338.5	317.9	20.54	16.475		
4,800.0	4,795.8	4,800.8	4,795.8	10.8	10.8	106.99	1.1	223.7	338.5	317.5	20.98	16.136		
4,900.0	4,895.8	4,900.8	4,895.8	11.0	11.0	106.99	1.1	223.7	338.5	317.1	21.41	15.810		
4,960.9	4,956.7	4,961.7	4,956.7	11.1	11.1	129.11	1.1	223.7	338.8	317.2	21.58	15.697		
5,000.0	4,995.8	5,004.3	4,999.2	11.2	11.2	129.02	1.4	223.7	338.5	316.8	21.76	15.558		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,094.9	5,127.0	5,120.3	11.5	11.4	127.71	20.0	223.7	341.9	319.8	22.11	15.466		
5,200.0	5,189.8	5,246.8	5,231.1	11.8	11.7	124.56	65.0	223.7	350.8	328.4	22.37	15.680		
5,300.0	5,277.0	5,361.8	5,325.1	12.3	12.0	119.98	130.8	223.7	365.7	342.8	22.85	16.003		
5,400.0	5,353.4	5,471.2	5,399.1	12.9	12.5	114.42	211.1	223.7	386.7	362.9	23.83	16.226		
5,500.0	5,416.1	5,575.0	5,452.3	13.7	13.2	108.30	300.0	223.7	413.6	388.2	25.45	16.254		
5,600.0	5,462.8	5,674.0	5,485.8	14.8	14.1	101.98	393.0	223.7	445.5	417.9	27.60	16.140		
5,700.0	5,491.8	5,769.2	5,500.8	16.1	15.1	95.72	486.8	223.7	480.8	450.7	30.07	15.991		
5,800.0	5,502.0	5,861.9	5,502.0	17.6	16.3	90.16	579.5	223.7	518.0	485.3	32.66	15.862		
5,900.0	5,502.0	5,955.4	5,502.0	19.1	17.5	90.00	673.0	223.7	553.4	518.0	35.41	15.626		
6,000.0	5,502.0	6,050.6	5,502.0	20.6	18.9	90.00	768.3	223.7	583.8	545.5	38.33	15.231		
6,100.0	5,502.0	6,147.3	5,502.0	22.2	20.4	90.00	865.0	223.7	609.3	567.8	41.42	14.710		
6,200.0	5,502.0	6,245.2	5,502.0	23.8	21.9	90.00	962.9	223.7	629.6	585.0	44.61	14.113		
6,300.0	5,502.0	6,344.1	5,502.0	25.4	23.5	90.00	1,061.7	223.7	644.8	596.9	47.85	13.476		
6,400.0	5,502.0	6,443.5	5,502.0	27.0	25.2	90.00	1,161.2	223.7	654.8	603.7	51.08	12.818		
6,500.0	5,502.0	6,543.4	5,502.0	28.6	26.9	90.00	1,261.1	223.7	659.5	605.3	54.27	12.154		
6,600.0	5,502.0	6,643.4	5,502.0	30.1	28.6	90.00	1,361.1	223.7	660.0	602.4	57.55	11.469		
6,700.0	5,502.0	6,743.4	5,502.0	31.7	30.4	90.00	1,461.1	223.7	660.0	599.0	60.96	10.826		
6,800.0	5,502.0	6,843.4	5,502.0	33.4	32.2	90.00	1,561.1	223.7	660.0	595.5	64.43	10.243		
6,900.0	5,502.0	6,943.4	5,502.0	35.0	34.0	90.00	1,661.1	223.7	660.0	592.0	67.94	9.714		
7,000.0	5,502.0	7,043.4	5,502.0	36.7	35.8	90.00	1,761.1	223.7	660.0	588.5	71.48	9.232		
7,100.0	5,502.0	7,143.4	5,502.0	38.4	37.6	90.00	1,861.1	223.7	660.0	584.9	75.06	8.793		
7,200.0	5,502.0	7,243.4	5,502.0	40.2	39.4	90.00	1,961.1	223.7	659.9	581.3	78.66	8.390		
7,300.0	5,502.0	7,343.4	5,502.0	41.9	41.2	90.00	2,061.1	223.7	659.9	577.7	82.28	8.020		
7,400.0	5,502.0	7,443.4	5,502.0	43.7	43.1	90.00	2,161.1	223.7	659.9	574.0	85.93	7.680		
7,500.0	5,502.0	7,543.4	5,502.0	45.5	44.9	90.00	2,261.1	223.7	659.9	570.3	89.59	7.366		
7,600.0	5,502.0	7,643.4	5,502.0	47.2	46.8	90.00	2,361.1	223.7	659.9	566.7	93.27	7.076		
7,700.0	5,502.0	7,743.4	5,502.0	49.0	48.7	90.00	2,461.1	223.7	659.9	563.0	96.96	6.806		
7,800.0	5,502.0	7,843.4	5,502.0	50.8	50.5	90.00	2,561.1	223.7	659.9	559.3	100.66	6.556		
7,900.0	5,502.0	7,943.4	5,502.0	52.7	52.4	90.00	2,661.1	223.7	659.9	555.5	104.37	6.323		
8,000.0	5,502.0	8,043.4	5,502.0	54.5	54.3	90.00	2,761.1	223.7	659.9	551.8	108.10	6.105		
8,100.0	5,502.0	8,143.4	5,502.0	56.3	56.2	90.00	2,861.1	223.7	659.9	548.1	111.83	5.901		
8,200.0	5,502.0	8,243.4	5,502.0	58.1	58.1	90.00	2,961.1	223.7	659.9	544.3	115.57	5.710		
8,300.0	5,502.0	8,343.4	5,502.0	60.0	59.9	90.00	3,061.1	223.7	659.9	540.6	119.32	5.531		
8,400.0	5,502.0	8,443.4	5,502.0	61.8	61.8	90.00	3,161.1	223.7	659.9	536.8	123.08	5.362		
8,500.0	5,502.0	8,543.4	5,502.0	63.7	63.7	90.00	3,261.1	223.7	659.9	533.1	126.84	5.203		
8,600.0	5,502.0	8,643.4	5,502.0	65.5	65.6	90.00	3,361.1	223.7	659.9	529.3	130.60	5.053		
8,700.0	5,502.0	8,743.4	5,502.0	67.4	67.5	90.00	3,461.1	223.7	659.9	525.5	134.37	4.911		
8,800.0	5,502.0	8,843.4	5,502.0	69.3	69.4	90.00	3,561.1	223.7	659.9	521.7	138.15	4.777		
8,900.0	5,502.0	8,943.4	5,502.0	71.1	71.3	90.00	3,661.1	223.7	659.9	518.0	141.93	4.649		
9,000.0	5,502.0	9,043.4	5,502.0	73.0	73.2	90.00	3,761.1	223.7	659.9	514.2	145.71	4.529		
9,100.0	5,502.0	9,143.4	5,502.0	74.9	75.1	90.00	3,861.1	223.7	659.9	510.4	149.50	4.414		
9,200.0	5,502.0	9,243.4	5,502.0	76.8	77.0	90.00	3,961.1	223.7	659.9	506.6	153.29	4.305		
9,300.0	5,502.0	9,343.4	5,502.0	78.6	78.9	90.00	4,061.1	223.7	659.9	502.8	157.09	4.201		
9,400.0	5,502.0	9,443.4	5,502.0	80.5	80.8	90.00	4,161.1	223.7	659.9	499.0	160.88	4.101		
9,500.0	5,502.0	9,543.4	5,502.0	82.4	82.7	90.00	4,261.1	223.7	659.9	495.2	164.68	4.007		
9,600.0	5,502.0	9,643.4	5,502.0	84.3	84.6	90.00	4,361.1	223.7	659.9	491.4	168.49	3.916		
9,700.0	5,502.0	9,743.4	5,502.0	86.2	86.5	90.00	4,461.1	223.7	659.8	487.6	172.29	3.830		
9,800.0	5,502.0	9,843.4	5,502.0	88.1	88.5	90.00	4,561.1	223.7	659.8	483.7	176.10	3.747		
9,900.0	5,502.0	9,943.4	5,502.0	89.9	90.4	90.00	4,661.1	223.7	659.8	479.9	179.91	3.668		
10,000.0	5,502.0	10,043.4	5,502.0	91.8	92.3	90.00	4,761.1	223.7	659.8	476.1	183.72	3.592		
10,100.0	5,502.0	10,143.4	5,502.0	93.7	94.2	90.00	4,861.1	223.7	659.8	472.3	187.53	3.519		
10,200.0	5,502.0	10,243.4	5,502.0	95.6	96.1	90.00	4,961.1	223.7	659.8	468.5	191.34	3.448		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

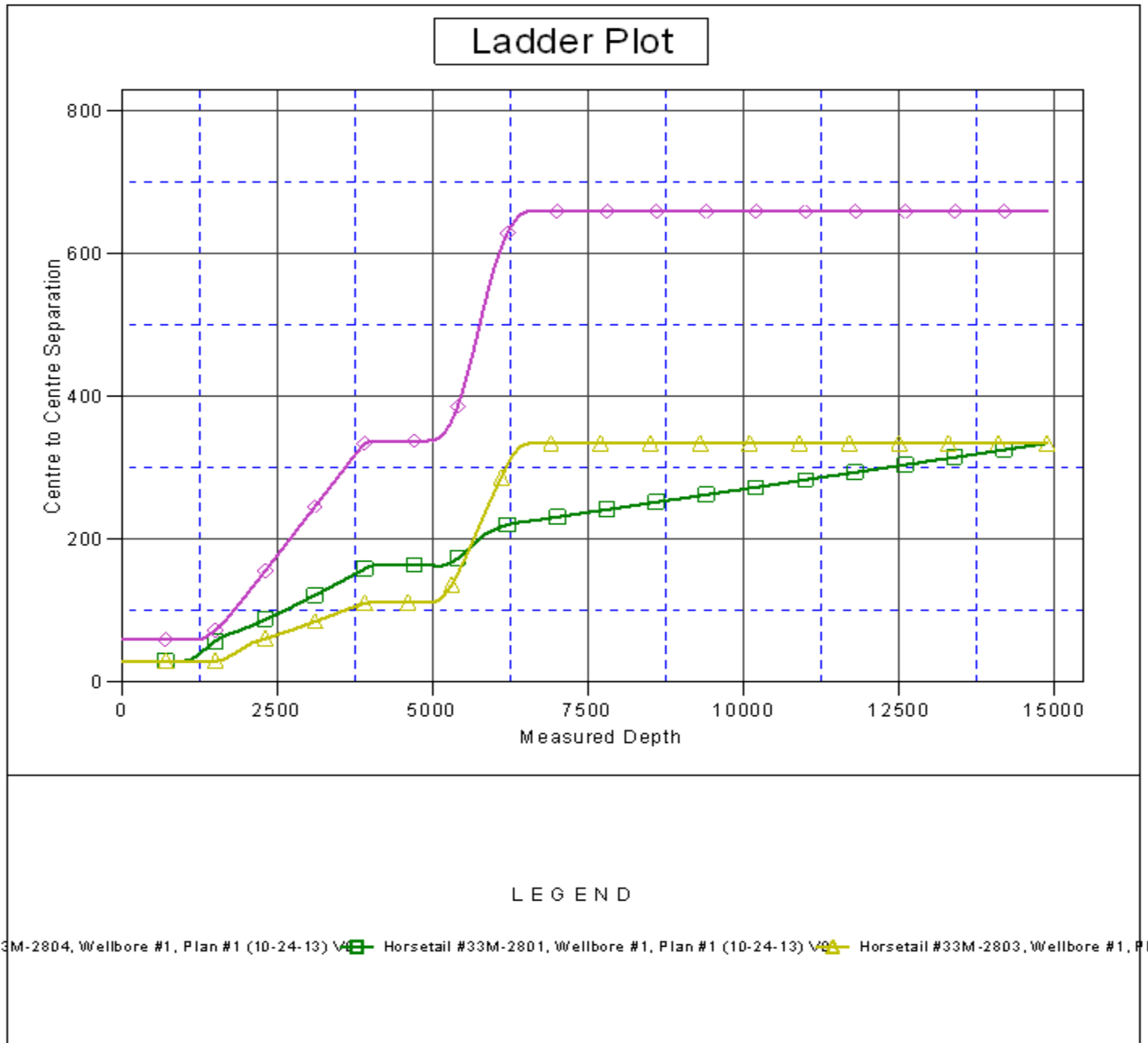
Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	5,502.0	10,343.4	5,502.0	97.5	98.0	90.00	5,061.1	223.7	659.8	464.7	195.16	3.381	
10,400.0	5,502.0	10,443.4	5,502.0	99.4	99.9	90.00	5,161.1	223.7	659.8	460.8	198.98	3.316	
10,500.0	5,502.0	10,543.4	5,502.0	101.3	101.8	90.00	5,261.1	223.7	659.8	457.0	202.79	3.254	
10,600.0	5,502.0	10,643.4	5,502.0	103.2	103.7	90.00	5,361.1	223.7	659.8	453.2	206.61	3.193	
10,700.0	5,502.0	10,743.4	5,502.0	105.1	105.7	90.00	5,461.1	223.7	659.8	449.4	210.44	3.135	
10,800.0	5,502.0	10,843.4	5,502.0	107.0	107.6	90.00	5,561.1	223.7	659.8	445.5	214.26	3.079	
10,900.0	5,502.0	10,943.4	5,502.0	108.9	109.5	90.00	5,661.1	223.7	659.8	441.7	218.08	3.025	
11,000.0	5,502.0	11,043.4	5,502.0	110.8	111.4	90.00	5,761.1	223.7	659.8	437.9	221.91	2.973	
11,100.0	5,502.0	11,143.4	5,502.0	112.7	113.3	90.00	5,861.1	223.7	659.8	434.1	225.73	2.923	
11,200.0	5,502.0	11,243.4	5,502.0	114.6	115.2	90.00	5,961.1	223.7	659.8	430.2	229.56	2.874	
11,300.0	5,502.0	11,343.4	5,502.0	116.5	117.2	90.00	6,061.1	223.7	659.8	426.4	233.39	2.827	
11,400.0	5,502.0	11,443.4	5,502.0	118.4	119.1	90.00	6,161.1	223.7	659.8	422.6	237.21	2.781	
11,500.0	5,502.0	11,543.4	5,502.0	120.4	121.0	90.00	6,261.1	223.7	659.8	418.7	241.04	2.737	
11,600.0	5,502.0	11,643.4	5,502.0	122.3	122.9	90.00	6,361.1	223.7	659.8	414.9	244.87	2.694	
11,700.0	5,502.0	11,743.4	5,502.0	124.2	124.8	90.00	6,461.1	223.7	659.8	411.1	248.70	2.653	
11,800.0	5,502.0	11,843.4	5,502.0	126.1	126.7	90.00	6,561.1	223.7	659.8	407.2	252.54	2.613	
11,900.0	5,502.0	11,943.4	5,502.0	128.0	128.7	90.00	6,661.1	223.7	659.8	403.4	256.37	2.573	
12,000.0	5,502.0	12,043.4	5,502.0	129.9	130.6	90.00	6,761.1	223.7	659.8	399.6	260.20	2.536	
12,100.0	5,502.0	12,143.4	5,502.0	131.8	132.5	90.00	6,861.1	223.7	659.8	395.7	264.04	2.499	
12,200.0	5,502.0	12,243.4	5,502.0	133.7	134.4	90.00	6,961.1	223.7	659.8	391.9	267.87	2.463	
12,300.0	5,502.0	12,343.4	5,502.0	135.6	136.3	90.00	7,061.1	223.7	659.7	388.0	271.70	2.428	
12,400.0	5,502.0	12,443.4	5,502.0	137.5	138.3	90.00	7,161.1	223.7	659.7	384.2	275.54	2.394	
12,500.0	5,502.0	12,543.4	5,502.0	139.5	140.2	90.00	7,261.1	223.7	659.7	380.4	279.38	2.361	
12,600.0	5,502.0	12,643.4	5,502.0	141.4	142.1	90.00	7,361.1	223.7	659.7	376.5	283.21	2.329	
12,700.0	5,502.0	12,743.4	5,502.0	143.3	144.0	90.00	7,461.1	223.7	659.7	372.7	287.05	2.298	
12,800.0	5,502.0	12,843.4	5,502.0	145.2	145.9	90.00	7,561.1	223.7	659.7	368.8	290.89	2.268	
12,900.0	5,502.0	12,943.4	5,502.0	147.1	147.9	90.00	7,661.1	223.7	659.7	365.0	294.72	2.238	
13,000.0	5,502.0	13,043.4	5,502.0	149.0	149.8	90.00	7,761.1	223.7	659.7	361.2	298.56	2.210	
13,100.0	5,502.0	13,143.4	5,502.0	150.9	151.7	90.00	7,861.1	223.7	659.7	357.3	302.40	2.182	
13,200.0	5,502.0	13,243.4	5,502.0	152.8	153.6	90.00	7,961.1	223.7	659.7	353.5	306.24	2.154	
13,300.0	5,502.0	13,343.4	5,502.0	154.8	155.5	90.00	8,061.1	223.7	659.7	349.6	310.08	2.128	
13,400.0	5,502.0	13,443.4	5,502.0	156.7	157.5	90.00	8,161.1	223.7	659.7	345.8	313.92	2.102	
13,500.0	5,502.0	13,543.4	5,502.0	158.6	159.4	90.00	8,261.1	223.7	659.7	341.9	317.76	2.076	
13,600.0	5,502.0	13,643.4	5,502.0	160.5	161.3	90.00	8,361.1	223.7	659.7	338.1	321.60	2.051	
13,700.0	5,502.0	13,743.4	5,502.0	162.4	163.2	90.00	8,461.1	223.7	659.7	334.3	325.44	2.027	
13,800.0	5,502.0	13,843.4	5,502.0	164.3	165.2	90.00	8,561.1	223.7	659.7	330.4	329.28	2.003	
13,900.0	5,502.0	13,943.4	5,502.0	166.3	167.1	90.00	8,661.1	223.7	659.7	326.6	333.12	1.980	
14,000.0	5,502.0	14,043.4	5,502.0	168.2	169.0	90.00	8,761.1	223.7	659.7	322.7	336.97	1.958	
14,100.0	5,502.0	14,143.4	5,502.0	170.1	170.9	90.00	8,861.1	223.7	659.7	318.9	340.81	1.936	
14,200.0	5,502.0	14,243.4	5,502.0	172.0	172.8	90.00	8,961.1	223.7	659.7	315.0	344.65	1.914	
14,300.0	5,502.0	14,343.4	5,502.0	173.9	174.8	90.00	9,061.1	223.7	659.7	311.2	348.49	1.893	
14,400.0	5,502.0	14,443.4	5,502.0	175.8	176.7	90.00	9,161.1	223.7	659.7	307.3	352.34	1.872	
14,500.0	5,502.0	14,543.4	5,502.0	177.8	178.6	90.00	9,261.1	223.7	659.7	303.5	356.18	1.852	
14,600.0	5,502.0	14,643.4	5,502.0	179.7	180.5	90.00	9,361.1	223.7	659.7	299.6	360.02	1.832	
14,700.0	5,502.0	14,743.4	5,502.0	181.6	182.5	90.00	9,461.1	223.7	659.7	295.8	363.87	1.813	
14,800.0	5,502.0	14,843.4	5,502.0	183.5	184.4	90.00	9,561.1	223.7	659.6	291.9	367.71	1.794	
14,887.0	5,502.0	14,930.4	5,502.0	185.2	186.1	90.00	9,648.1	223.7	659.6	288.6	371.05	1.778 SF	

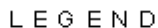
Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2802
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2802	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (10-24-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4651.3ft (RKB - 17.3')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Horsetail #33M-2802
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.12°



Reference Depths are relative to WELL @ 4651.3ft (RKB - 17.3') Coordinates are relative to: Horsetail #33M-2802
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 1.12°



33M-2804, Wellbore #1, Plan #1 (10-24-13) V~~E~~ Horsetail #33M-2801, Wellbore #1, Plan #1 (10-24-13) V~~E~~ Horsetail #33M-2803, Wellbore #1, Pl: