

Whiting Oil & Gas

Well Name: **Horsetail #33M-2803**

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

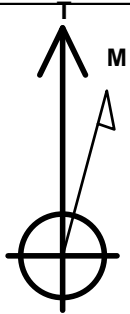
Ground Elevation: 4634.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1535002.64	3481267.05	40.789019	-103.761911	

RKB - 17.3' WELL @ 4651.3ft (RKB - 17.3')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 380'FSL & 720'FWL, Sec.33	1.0	0.0	0.0	Point
BHL 600'FNL & 825'FWL, Sec.28	5445.0	9651.0	-136.2	Point



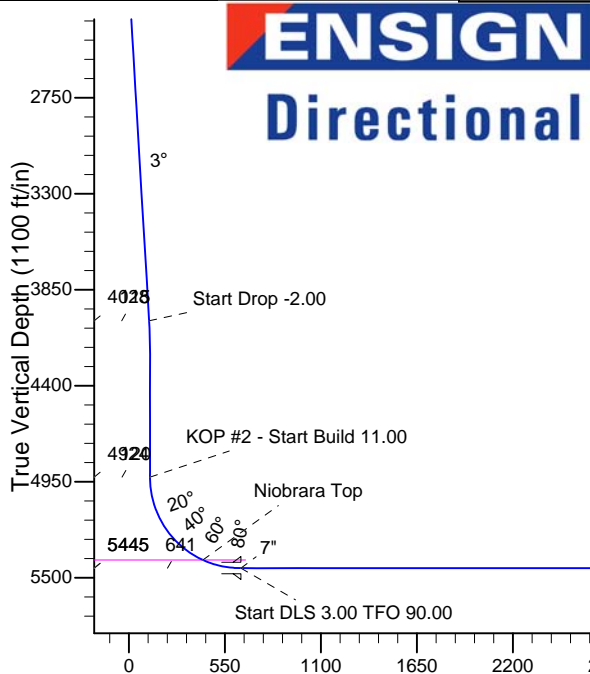
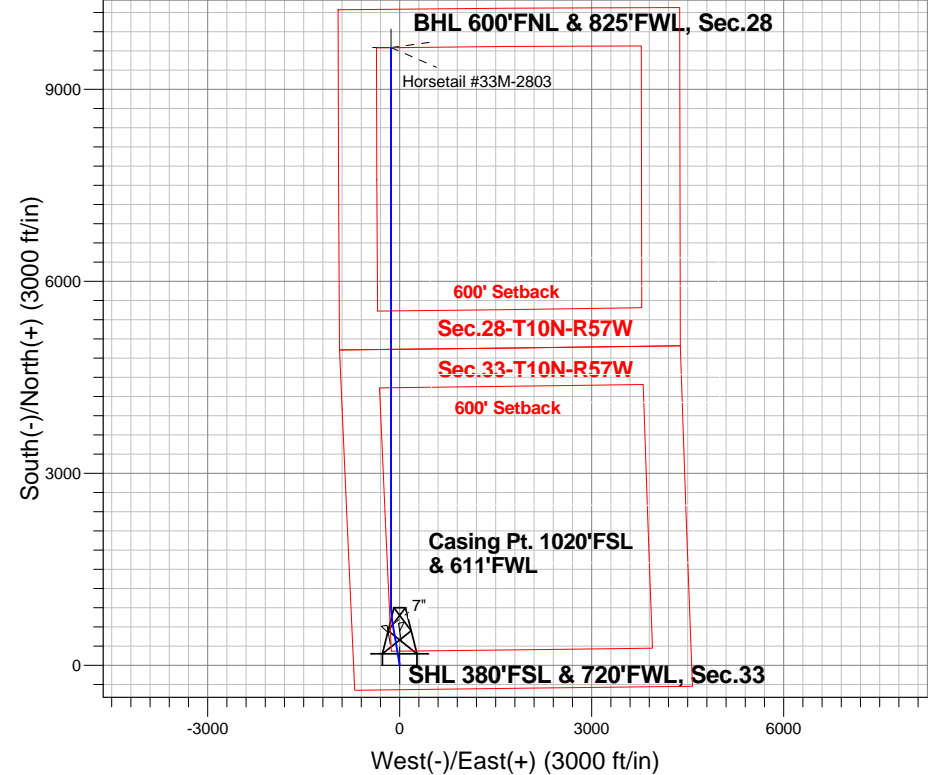
Azimuths to True North
Magnetic North: 8.02°

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

Horsetail 33M Pad Sec.33-T10N-R57W
Horsetail #33M-2803
Plan #1 (10-24-13)
16:11, October 29 2013

ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP - Start Build 2.00
4028.5	4031.9	Start Drop -2.00
4924.2	4927.7	KOP #2 - Start Build 11.00
5445.0	5752.5	Start DLS 3.00 TFO 90.00
5445.0	14765.1	TD at 14765.1



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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2171.6	3.43	350.54	2171.5	5.1	-0.8	2.00	350.54	5.1	
4	4031.9	3.43	350.54	4028.5	114.9	-19.2	0.00	0.00	115.2	
5	4203.5	0.00	0.00	4200.0	120.0	-20.0	2.00	180.00	120.3	
6	4927.7	0.00	0.00	4924.1	120.0	-20.0	0.00	0.00	120.3	
7	5745.9	90.00	350.29	5445.0	633.4	-107.9	11.00	350.29	634.9	
8	5752.5	90.00	350.29	5445.0	640.0	-109.0	0.00	0.00	641.5	
9	6076.3	90.00	0.00	5445.0	962.2	-136.4	3.00	90.00	964.1	
10	14765.1	90.00	0.00	5445.0	9651.0	-136.2	0.00	0.00	9651.9	BHL 600'FNL & 825'FWL, Sec.28

Vertical Section at 359.19° (1100 ft/in)

BHL 600'FNL & 825'FWL, Sec.28

TD at 14765.1



Whiting Oil & Gas

Sec.33-T10N-R57W

Horsetail 33M Pad Sec.33-T10N-R57W

Horsetail #33M-2803

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,171.6	3.43	350.54	2,171.5	5.1	-0.8	2.00	2.00	0.00	350.54	
4,031.9	3.43	350.54	4,028.5	114.9	-19.2	0.00	0.00	0.00	0.00	
4,203.5	0.00	0.00	4,200.0	120.0	-20.0	2.00	-2.00	0.00	180.00	
4,927.7	0.00	0.00	4,924.1	120.0	-20.0	0.00	0.00	0.00	0.00	
5,745.9	90.00	350.29	5,445.0	633.4	-107.9	11.00	11.00	0.00	350.29	
5,752.5	90.00	350.29	5,445.0	640.0	-109.0	0.00	0.00	0.00	0.00	
6,076.3	90.00	0.00	5,445.0	962.2	-136.4	3.00	0.00	3.00	90.00	
14,765.1	90.00	0.00	5,445.0	9,651.0	-136.2	0.00	0.00	0.00	0.00	BHL 600'FNL & 825'

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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 & 720'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
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	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
1,900.0	0.00	0.00	1,900.0	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
KOP - Start Build 2.00									
2,100.0	2.00	350.54	2,100.0	1.7	-0.3	1.7	2.00	2.00	0.00
2,171.6	3.43	350.54	2,171.5	5.1	-0.8	5.1	2.00	2.00	0.00
2,200.0	3.43	350.54	2,199.8	6.7	-1.1	6.8	0.00	0.00	0.00
2,300.0	3.43	350.54	2,299.7	12.7	-2.1	12.7	0.00	0.00	0.00
2,400.0	3.43	350.54	2,399.5	18.6	-3.1	18.6	0.00	0.00	0.00
2,500.0	3.43	350.54	2,499.3	24.5	-4.1	24.5	0.00	0.00	0.00
2,600.0	3.43	350.54	2,599.1	30.4	-5.1	30.4	0.00	0.00	0.00
2,700.0	3.43	350.54	2,698.9	36.3	-6.0	36.4	0.00	0.00	0.00
2,800.0	3.43	350.54	2,798.8	42.2	-7.0	42.3	0.00	0.00	0.00
2,900.0	3.43	350.54	2,898.6	48.1	-8.0	48.2	0.00	0.00	0.00
3,000.0	3.43	350.54	2,998.4	54.0	-9.0	54.1	0.00	0.00	0.00
3,100.0	3.43	350.54	3,098.2	59.9	-10.0	60.0	0.00	0.00	0.00
3,200.0	3.43	350.54	3,198.1	65.8	-11.0	65.9	0.00	0.00	0.00
3,300.0	3.43	350.54	3,297.9	71.7	-12.0	71.9	0.00	0.00	0.00
3,400.0	3.43	350.54	3,397.7	77.6	-12.9	77.8	0.00	0.00	0.00
3,500.0	3.43	350.54	3,497.5	83.5	-13.9	83.7	0.00	0.00	0.00
3,600.0	3.43	350.54	3,597.3	89.4	-14.9	89.6	0.00	0.00	0.00
3,700.0	3.43	350.54	3,697.2	95.3	-15.9	95.5	0.00	0.00	0.00
3,800.0	3.43	350.54	3,797.0	101.2	-16.9	101.5	0.00	0.00	0.00
3,900.0	3.43	350.54	3,896.8	107.1	-17.9	107.4	0.00	0.00	0.00
4,000.0	3.43	350.54	3,996.6	113.0	-18.8	113.3	0.00	0.00	0.00
4,031.9	3.43	350.54	4,028.5	114.9	-19.2	115.2	0.00	0.00	0.00
Start Drop -2.00									
4,100.0	2.07	350.54	4,096.5	118.2	-19.7	118.4	2.00	-2.00	0.00
4,200.0	0.07	350.54	4,196.5	120.0	-20.0	120.3	2.00	-2.00	0.00
4,203.5	0.00	0.00	4,200.0	120.0	-20.0	120.3	2.00	-2.00	0.00
4,300.0	0.00	0.00	4,296.5	120.0	-20.0	120.3	0.00	0.00	0.00
4,400.0	0.00	0.00	4,396.5	120.0	-20.0	120.3	0.00	0.00	0.00
4,500.0	0.00	0.00	4,496.5	120.0	-20.0	120.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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	4,596.5	120.0	-20.0	120.3	0.00	0.00	0.00
4,700.0	0.00	0.00	4,696.5	120.0	-20.0	120.3	0.00	0.00	0.00
4,800.0	0.00	0.00	4,796.5	120.0	-20.0	120.3	0.00	0.00	0.00
4,900.0	0.00	0.00	4,896.5	120.0	-20.0	120.3	0.00	0.00	0.00
4,927.7	0.00	0.00	4,924.2	120.0	-20.0	120.3	0.00	0.00	0.00
KOP #2 - Start Build 11.00									
5,000.0	7.96	350.29	4,996.2	124.9	-20.8	125.2	11.00	11.00	0.00
5,100.0	18.96	350.29	5,093.3	147.8	-24.8	148.2	11.00	11.00	0.00
5,200.0	29.96	350.29	5,184.2	188.6	-31.7	189.0	11.00	11.00	0.00
5,300.0	40.96	350.29	5,265.5	245.7	-41.5	246.2	11.00	11.00	0.00
5,400.0	51.96	350.29	5,334.3	317.0	-53.7	317.7	11.00	11.00	0.00
5,500.0	62.96	350.29	5,388.0	400.0	-67.9	400.9	11.00	11.00	0.00
5,525.3	65.74	350.29	5,399.0	422.5	-71.8	423.4	11.00	11.00	0.00
Niobrara Top									
5,600.0	73.96	350.29	5,424.7	491.5	-83.6	492.6	11.00	11.00	0.00
5,700.0	84.96	350.29	5,443.0	588.3	-100.1	589.6	11.00	11.00	0.00
5,745.9	90.00	350.29	5,445.0	633.4	-107.9	634.9	11.00	11.00	0.00
5,752.5	90.00	350.29	5,445.0	640.0	-109.0	641.4	0.00	0.00	0.00
Start DLS 3.00 TFO 90.00 - 7"									
5,800.0	90.00	351.71	5,445.0	686.9	-116.4	688.4	3.00	0.00	3.00
5,900.0	90.00	354.71	5,445.0	786.2	-128.2	787.9	3.00	0.00	3.00
6,000.0	90.00	357.71	5,445.0	885.9	-134.9	887.7	3.00	0.00	3.00
6,076.3	90.00	0.00	5,445.0	962.2	-136.4	964.1	3.00	0.00	3.00
6,100.0	90.00	0.00	5,445.0	985.9	-136.4	987.7	0.00	0.00	0.00
6,200.0	90.00	0.00	5,445.0	1,085.9	-136.4	1,087.7	0.00	0.00	0.00
6,300.0	90.00	0.00	5,445.0	1,185.9	-136.4	1,187.7	0.00	0.00	0.00
6,400.0	90.00	0.00	5,445.0	1,285.9	-136.4	1,287.7	0.00	0.00	0.00
6,500.0	90.00	0.00	5,445.0	1,385.9	-136.4	1,387.7	0.00	0.00	0.00
6,600.0	90.00	0.00	5,445.0	1,485.9	-136.4	1,487.7	0.00	0.00	0.00
6,700.0	90.00	0.00	5,445.0	1,585.9	-136.4	1,587.7	0.00	0.00	0.00
6,800.0	90.00	0.00	5,445.0	1,685.9	-136.4	1,687.7	0.00	0.00	0.00
6,900.0	90.00	0.00	5,445.0	1,785.9	-136.4	1,787.7	0.00	0.00	0.00
7,000.0	90.00	0.00	5,445.0	1,885.9	-136.4	1,887.6	0.00	0.00	0.00
7,100.0	90.00	0.00	5,445.0	1,985.9	-136.4	1,987.6	0.00	0.00	0.00
7,200.0	90.00	0.00	5,445.0	2,085.9	-136.3	2,087.6	0.00	0.00	0.00
7,300.0	90.00	0.00	5,445.0	2,185.9	-136.3	2,187.6	0.00	0.00	0.00
7,400.0	90.00	0.00	5,445.0	2,285.9	-136.3	2,287.6	0.00	0.00	0.00
7,500.0	90.00	0.00	5,445.0	2,385.9	-136.3	2,387.6	0.00	0.00	0.00
7,600.0	90.00	0.00	5,445.0	2,485.9	-136.3	2,487.6	0.00	0.00	0.00
7,700.0	90.00	0.00	5,445.0	2,585.9	-136.3	2,587.6	0.00	0.00	0.00
7,800.0	90.00	0.00	5,445.0	2,685.9	-136.3	2,687.6	0.00	0.00	0.00
7,900.0	90.00	0.00	5,445.0	2,785.9	-136.3	2,787.6	0.00	0.00	0.00
8,000.0	90.00	0.00	5,445.0	2,885.9	-136.3	2,887.5	0.00	0.00	0.00
8,100.0	90.00	0.00	5,445.0	2,985.9	-136.3	2,987.5	0.00	0.00	0.00
8,200.0	90.00	0.00	5,445.0	3,085.9	-136.3	3,087.5	0.00	0.00	0.00
8,300.0	90.00	0.00	5,445.0	3,185.9	-136.3	3,187.5	0.00	0.00	0.00
8,400.0	90.00	0.00	5,445.0	3,285.9	-136.3	3,287.5	0.00	0.00	0.00
8,500.0	90.00	0.00	5,445.0	3,385.9	-136.3	3,387.5	0.00	0.00	0.00
8,600.0	90.00	0.00	5,445.0	3,485.9	-136.3	3,487.5	0.00	0.00	0.00
8,700.0	90.00	0.00	5,445.0	3,585.9	-136.3	3,587.5	0.00	0.00	0.00
8,800.0	90.00	0.00	5,445.0	3,685.9	-136.3	3,687.5	0.00	0.00	0.00
8,900.0	90.00	0.00	5,445.0	3,785.9	-136.3	3,787.5	0.00	0.00	0.00
9,000.0	90.00	0.00	5,445.0	3,885.9	-136.3	3,887.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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	5,445.0	3,985.9	-136.3	3,987.4	0.00	0.00	0.00
9,200.0	90.00	0.00	5,445.0	4,085.9	-136.3	4,087.4	0.00	0.00	0.00
9,300.0	90.00	0.00	5,445.0	4,185.9	-136.3	4,187.4	0.00	0.00	0.00
9,400.0	90.00	0.00	5,445.0	4,285.9	-136.3	4,287.4	0.00	0.00	0.00
9,500.0	90.00	0.00	5,445.0	4,385.9	-136.3	4,387.4	0.00	0.00	0.00
9,600.0	90.00	0.00	5,445.0	4,485.9	-136.3	4,487.4	0.00	0.00	0.00
9,700.0	90.00	0.00	5,445.0	4,585.9	-136.3	4,587.4	0.00	0.00	0.00
9,800.0	90.00	0.00	5,445.0	4,685.9	-136.3	4,687.4	0.00	0.00	0.00
9,900.0	90.00	0.00	5,445.0	4,785.9	-136.3	4,787.4	0.00	0.00	0.00
10,000.0	90.00	0.00	5,445.0	4,885.9	-136.3	4,887.3	0.00	0.00	0.00
10,100.0	90.00	0.00	5,445.0	4,985.9	-136.3	4,987.3	0.00	0.00	0.00
10,200.0	90.00	0.00	5,445.0	5,085.9	-136.3	5,087.3	0.00	0.00	0.00
10,300.0	90.00	0.00	5,445.0	5,185.9	-136.3	5,187.3	0.00	0.00	0.00
10,400.0	90.00	0.00	5,445.0	5,285.9	-136.3	5,287.3	0.00	0.00	0.00
10,500.0	90.00	0.00	5,445.0	5,385.9	-136.3	5,387.3	0.00	0.00	0.00
10,600.0	90.00	0.00	5,445.0	5,485.9	-136.3	5,487.3	0.00	0.00	0.00
10,700.0	90.00	0.00	5,445.0	5,585.9	-136.3	5,587.3	0.00	0.00	0.00
10,800.0	90.00	0.00	5,445.0	5,685.9	-136.3	5,687.3	0.00	0.00	0.00
10,900.0	90.00	0.00	5,445.0	5,785.9	-136.3	5,787.3	0.00	0.00	0.00
11,000.0	90.00	0.00	5,445.0	5,885.9	-136.3	5,887.2	0.00	0.00	0.00
11,100.0	90.00	0.00	5,445.0	5,985.9	-136.3	5,987.2	0.00	0.00	0.00
11,200.0	90.00	0.00	5,445.0	6,085.9	-136.3	6,087.2	0.00	0.00	0.00
11,300.0	90.00	0.00	5,445.0	6,185.9	-136.3	6,187.2	0.00	0.00	0.00
11,400.0	90.00	0.00	5,445.0	6,285.9	-136.3	6,287.2	0.00	0.00	0.00
11,500.0	90.00	0.00	5,445.0	6,385.9	-136.3	6,387.2	0.00	0.00	0.00
11,600.0	90.00	0.00	5,445.0	6,485.9	-136.3	6,487.2	0.00	0.00	0.00
11,700.0	90.00	0.00	5,445.0	6,585.9	-136.3	6,587.2	0.00	0.00	0.00
11,800.0	90.00	0.00	5,445.0	6,685.9	-136.3	6,687.2	0.00	0.00	0.00
11,900.0	90.00	0.00	5,445.0	6,785.9	-136.2	6,787.2	0.00	0.00	0.00
12,000.0	90.00	0.00	5,445.0	6,885.9	-136.2	6,887.1	0.00	0.00	0.00
12,100.0	90.00	0.00	5,445.0	6,985.9	-136.2	6,987.1	0.00	0.00	0.00
12,200.0	90.00	0.00	5,445.0	7,085.9	-136.2	7,087.1	0.00	0.00	0.00
12,300.0	90.00	0.00	5,445.0	7,185.9	-136.2	7,187.1	0.00	0.00	0.00
12,400.0	90.00	0.00	5,445.0	7,285.9	-136.2	7,287.1	0.00	0.00	0.00
12,500.0	90.00	0.00	5,445.0	7,385.9	-136.2	7,387.1	0.00	0.00	0.00
12,600.0	90.00	0.00	5,445.0	7,485.9	-136.2	7,487.1	0.00	0.00	0.00
12,700.0	90.00	0.00	5,445.0	7,585.9	-136.2	7,587.1	0.00	0.00	0.00
12,800.0	90.00	0.00	5,445.0	7,685.9	-136.2	7,687.1	0.00	0.00	0.00
12,900.0	90.00	0.00	5,445.0	7,785.9	-136.2	7,787.1	0.00	0.00	0.00
13,000.0	90.00	0.00	5,445.0	7,885.9	-136.2	7,887.0	0.00	0.00	0.00
13,100.0	90.00	0.00	5,445.0	7,985.9	-136.2	7,987.0	0.00	0.00	0.00
13,200.0	90.00	0.00	5,445.0	8,085.9	-136.2	8,087.0	0.00	0.00	0.00
13,300.0	90.00	0.00	5,445.0	8,185.9	-136.2	8,187.0	0.00	0.00	0.00
13,400.0	90.00	0.00	5,445.0	8,285.9	-136.2	8,287.0	0.00	0.00	0.00
13,500.0	90.00	0.00	5,445.0	8,385.9	-136.2	8,387.0	0.00	0.00	0.00
13,600.0	90.00	0.00	5,445.0	8,485.9	-136.2	8,487.0	0.00	0.00	0.00
13,700.0	90.00	0.00	5,445.0	8,585.9	-136.2	8,587.0	0.00	0.00	0.00
13,800.0	90.00	0.00	5,445.0	8,685.9	-136.2	8,687.0	0.00	0.00	0.00
13,900.0	90.00	0.00	5,445.0	8,785.9	-136.2	8,787.0	0.00	0.00	0.00
14,000.0	90.00	0.00	5,445.0	8,885.9	-136.2	8,886.9	0.00	0.00	0.00
14,100.0	90.00	0.00	5,445.0	8,985.9	-136.2	8,986.9	0.00	0.00	0.00
14,200.0	90.00	0.00	5,445.0	9,085.9	-136.2	9,086.9	0.00	0.00	0.00
14,300.0	90.00	0.00	5,445.0	9,185.9	-136.2	9,186.9	0.00	0.00	0.00
14,400.0	90.00	0.00	5,445.0	9,285.9	-136.2	9,286.9	0.00	0.00	0.00

Plan Annotations					
	Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
	2,000.0	2,000.0	0.0	0.0	KOP - Start Build 2.00
	4,031.9	4,028.5	114.9	-19.2	Start Drop -2.00
	4,927.7	4,924.2	120.0	-20.0	KOP #2 - Start Build 11.00
	5,752.5	5,445.0	640.0	-109.0	Start DLS 3.00 TFO 90.00
	14,765.1	5,445.0	9,651.0	-136.2	TD at 14765.1



Whiting Oil & Gas

Sec.33-T10N-R57W

Horsetail 33M Pad Sec.33-T10N-R57W

Horsetail #33M-2803

Wellbore #1

Plan #1 (10-24-13)

Anticollision Report

29 October, 2013

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation													
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor													
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)														
2,100.0	2,100.0	2,093.4	2,091.1	4.6	4.7	-81.49	-0.7	-128.5	128.5	119.4	9.07	14.171													
2,200.0	2,199.8	2,193.1	2,190.6	4.8	4.9	-83.50	-0.7	-135.3	134.7	125.2	9.51	14.165													
2,300.0	2,299.7	2,292.8	2,290.0	5.1	5.1	-85.76	-0.7	-142.2	141.0	131.1	9.96	14.165													
2,400.0	2,399.5	2,392.4	2,389.4	5.3	5.4	-87.83	-0.7	-149.0	147.5	137.1	10.41	14.179													
2,500.0	2,499.3	2,492.1	2,488.8	5.5	5.6	-89.72	-0.7	-155.9	154.2	143.4	10.86	14.203													
2,600.0	2,599.1	2,591.7	2,588.3	5.7	5.9	-91.45	-0.7	-162.7	161.1	149.8	11.31	14.236													
													2,700.0	2,698.9	2,691.4	2,687.7	6.0	6.1	-93.05	-0.7	-169.6	168.0	156.3	11.77	14.275
													2,800.0	2,798.8	2,791.0	2,787.1	6.2	6.4	-94.51	-0.7	-176.4	175.1	162.9	12.23	14.317
													2,900.0	2,898.6	2,890.7	2,886.5	6.4	6.7	-95.86	-0.7	-183.3	182.3	169.6	12.69	14.363
													3,000.0	2,998.4	2,990.3	2,985.9	6.7	6.9	-97.11	-0.7	-190.1	189.6	176.5	13.16	14.410
													3,100.0	3,098.2	3,090.0	3,085.3	6.9	7.2	-98.26	-0.7	-197.0	197.0	183.4	13.63	14.458
													3,200.0	3,198.1	3,189.6	3,184.8	7.1	7.4	-99.33	-0.7	-203.8	204.4	190.3	14.09	14.507
													3,300.0	3,297.9	3,289.3	3,284.2	7.4	7.7	-100.32	-0.7	-210.7	211.9	197.4	14.56	14.555
													3,400.0	3,397.7	3,388.9	3,383.6	7.6	7.9	-101.25	-0.7	-217.5	219.5	204.5	15.03	14.604
													3,500.0	3,497.5	3,488.6	3,483.0	7.9	8.2	-102.11	-0.7	-224.4	227.1	211.6	15.50	14.652
													3,600.0	3,597.3	3,588.2	3,582.4	8.1	8.4	-102.92	-0.7	-231.2	234.8	218.8	15.98	14.699
													3,700.0	3,697.2	3,687.9	3,681.8	8.3	8.7	-103.68	-0.7	-238.1	242.5	226.1	16.45	14.745
													3,800.0	3,797.0	3,787.5	3,781.3	8.6	8.9	-104.39	-0.7	-244.9	250.3	233.4	16.92	14.791
													3,900.0	3,896.8	3,887.2	3,880.7	8.8	9.2	-105.06	-0.7	-251.8	258.1	240.7	17.40	14.835
													4,000.0	3,996.6	3,993.9	3,987.2	9.1	9.4	-105.84	-0.7	-257.9	264.9	247.0	17.87	14.824
													4,100.0	4,096.5	4,102.9	4,096.2	9.3	9.6	-106.84	-0.7	-260.1	268.2	249.9	18.30	14.653
													4,200.0	4,196.5	4,203.2	4,196.5	9.5	9.8	-107.23	-0.7	-260.1	268.7	250.0	18.68	14.387
													4,300.0	4,296.5	4,303.2	4,296.5	9.6	10.0	-116.69	-0.7	-260.1	268.7	249.7	19.01	14.135
													4,400.0	4,396.5	4,403.2	4,396.5	9.9	10.2	-116.69	-0.7	-260.1	268.7	249.3	19.44	13.826
													4,500.0	4,496.5	4,503.2	4,496.5	10.1	10.4	-116.69	-0.7	-260.1	268.7	248.9	19.86	13.529
													4,600.0	4,596.5	4,603.2	4,596.5	10.3	10.6	-116.69	-0.7	-260.1	268.7	248.4	20.29	13.245
													4,700.0	4,696.5	4,703.2	4,696.5	10.5	10.8	-116.69	-0.7	-260.1	268.7	248.0	20.72	12.971
													4,800.0	4,796.5	4,803.2	4,796.5	10.7	11.0	-116.69	-0.7	-260.1	268.7	247.6	21.15	12.708
													4,900.0	4,896.5	4,903.2	4,896.5	11.0	11.2	-116.69	-0.7	-260.1	268.7	247.2	21.58	12.454
													5,000.0	4,996.2	5,003.6	4,996.6	11.2	11.4	-106.78	3.8	-262.3	270.1	248.1	22.07	12.239
													5,100.0	5,093.3	5,103.8	5,093.9	11.5	11.7	-105.86	24.8	-272.6	276.7	254.1	22.56	12.267
													5,200.0	5,184.2	5,203.2	5,184.3	11.9	12.1	-104.29	61.8	-290.7	288.3	265.1	23.17	12.443
													5,300.0	5,265.5	5,301.7	5,264.4	12.4	12.5	-102.17	112.9	-315.7	304.6	280.6	24.04	12.672
													5,400.0	5,334.3	5,399.1	5,331.8	13.1	13.1	-99.67	175.9	-346.5	325.0	299.7	25.29	12.852
													5,500.0	5,388.0	5,495.6	5,384.5	14.0	13.9	-96.93	248.4	-382.0	348.8	321.8	26.99	12.920
													5,600.0	5,424.7	5,591.4	5,421.3	15.1	15.0	-94.08	327.7	-420.8	374.9	345.8	29.15	12.862
													5,700.0	5,443.0	5,686.9	5,441.3	16.4	16.3	-91.23	411.5	-461.8	402.6	370.9	31.69	12.703
													5,800.0	5,445.0	5,791.7	5,445.0	17.8	17.9	-90.00	505.7	-507.4	430.9	396.5	34.45	12.509
													5,900.0	5,445.0	5,916.9	5,445.0	19.2	19.8	-90.00	620.9	-556.3	458.9	421.5	37.32	12.295
													6,000.0	5,445.0	6,045.0	5,445.0	20.6	21.9	-90.00	741.8	-598.4	485.4	445.1	40.32	12.041
													6,100.0	5,445.0	6,176.0	5,445.0	22.1	24.0	-90.00	868.2	-633.0	510.4	466.9	43.50	11.733
													6,200.0	5,445.0	6,310.8	5,445.0	23.7	26.2	-90.00	1,000.3	-659.4	530.0	482.7	47.30	11.205
													6,300.0	5,445.0	6,448.8	5,445.0	25.3	28.4	-90.00	1,137.2	-676.8	542.6	491.3	51.24	10.589
													6,400.0	5,445.0	6,588.5	5,445.0	27.0	30.6	-90.00	1,276.7	-684.2	547.9	492.7	55.25	9.916
													6,500.0	5,445.0	6,690.4	5,445.0	28.7	32.2	-90.00	1,378.6	-685.6	549.3	490.6	58.62	9.369
													6,600.0	5,445.0	6,790.4	5,445.0	30.4	33.7	-90.00	1,478.6	-686.9	550.6	488.6	62.02	8.878
													6,700.0	5,445.0	6,890.4	5,445.0	32.2	35.3	-90.00	1,578.5	-688.2	551.9	486.5	65.46	8.432
													6,800.0	5,445.0	6,990.4	5,445.0	34.0	37.0	-90.00	1,678.5	-689.6	553.3	484.3	68.95	8.025
													6,900.0	5,445.0	7,090.4	5,445.0	35.8	38.6	-90.00	1,778.5	-690.9	554.6	482.1	72.47	7.653
													7,000.0	5,445.0	7,190.4	5,445.0	37.6	40.3	-90.00	1,878.5	-692.3	555.9	479.9	76.03	7.312
													7,100.0	5,445.0	7,290.4	5,445.0	39.4	42.0	-90.00	1,978.5	-693.6	557.3	477.7	79.62	7.000
													7,200.0	5,445.0	7,390.4	5,445.0	41.2	43.7	-90.00	2,078.5	-694.9	558.6	475.4	83.23	6.712

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-2803
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-2803	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	
7,300.0	5,445.0	7,490.4	5,445.0	43.0	45.4	-90.00	2,178.4	-696.3	560.0	473.1	86.86	6.447	
7,400.0	5,445.0	7,590.3	5,445.0	44.9	47.2	-90.00	2,278.4	-697.6	561.3	470.8	90.51	6.202	
7,500.0	5,445.0	7,690.3	5,445.0	46.7	49.0	-90.00	2,378.4	-698.9	562.6	468.5	94.17	5.974	
7,600.0	5,445.0	7,790.3	5,445.0	48.6	50.7	-90.00	2,478.4	-700.3	564.0	466.1	97.85	5.763	
7,700.0	5,445.0	7,890.3	5,445.0	50.4	52.5	-90.00	2,578.4	-701.6	565.3	463.7	101.55	5.567	
7,800.0	5,445.0	7,990.3	5,445.0	52.3	54.3	-90.00	2,678.4	-702.9	566.6	461.4	105.26	5.383	
7,900.0	5,445.0	8,090.3	5,445.0	54.2	56.1	-90.00	2,778.3	-704.3	568.0	459.0	108.97	5.212	
8,000.0	5,445.0	8,190.3	5,445.0	56.1	57.9	-90.00	2,878.3	-705.6	569.3	456.6	112.70	5.052	
8,100.0	5,445.0	8,290.3	5,445.0	57.9	59.7	-90.00	2,978.3	-706.9	570.6	454.2	116.43	4.901	
8,200.0	5,445.0	8,390.3	5,445.0	59.8	61.6	-90.00	3,078.3	-708.3	572.0	451.8	120.18	4.759	
8,300.0	5,445.0	8,490.3	5,445.0	61.7	63.4	-90.00	3,178.3	-709.6	573.3	449.4	123.93	4.626	
8,400.0	5,445.0	8,590.3	5,445.0	63.6	65.3	-90.00	3,278.2	-710.9	574.6	447.0	127.68	4.501	
8,500.0	5,445.0	8,690.2	5,445.0	65.5	67.1	-90.00	3,378.2	-712.3	576.0	444.5	131.44	4.382	
8,600.0	5,445.0	8,790.2	5,445.0	67.4	68.9	-90.00	3,478.2	-713.6	577.3	442.1	135.21	4.270	
8,700.0	5,445.0	8,890.2	5,445.0	69.3	70.8	-90.00	3,578.2	-714.9	578.7	439.7	138.99	4.163	
8,800.0	5,445.0	8,990.2	5,445.0	71.2	72.7	-90.00	3,678.2	-716.3	580.0	437.2	142.76	4.063	
8,900.0	5,445.0	9,090.2	5,445.0	73.1	74.5	-90.00	3,778.2	-717.6	581.3	434.8	146.54	3.967	
9,000.0	5,445.0	9,190.2	5,445.0	74.9	76.4	-90.00	3,878.1	-718.9	582.7	432.3	150.33	3.876	
9,100.0	5,445.0	9,290.2	5,445.0	76.8	78.3	-90.00	3,978.1	-720.3	584.0	429.9	154.12	3.789	
9,200.0	5,445.0	9,390.2	5,445.0	78.7	80.1	-90.00	4,078.1	-721.6	585.3	427.4	157.91	3.707	
9,300.0	5,445.0	9,490.2	5,445.0	80.7	82.0	-90.00	4,178.1	-722.9	586.7	425.0	161.71	3.628	
9,400.0	5,445.0	9,590.2	5,445.0	82.6	83.9	-90.00	4,278.1	-724.3	588.0	422.5	165.51	3.553	
9,500.0	5,445.0	9,690.2	5,445.0	84.5	85.8	-90.00	4,378.0	-725.6	589.3	420.0	169.31	3.481	
9,600.0	5,445.0	9,790.1	5,445.0	86.4	87.6	-90.00	4,478.0	-726.9	590.7	417.6	173.11	3.412	
9,700.0	5,445.0	9,890.1	5,445.0	88.3	89.5	-90.00	4,578.0	-728.3	592.0	415.1	176.92	3.346	
9,800.0	5,445.0	9,990.1	5,445.0	90.2	91.4	-90.00	4,678.0	-729.6	593.3	412.6	180.73	3.283	
9,900.0	5,445.0	10,090.1	5,445.0	92.1	93.3	-90.00	4,778.0	-730.9	594.7	410.1	184.54	3.223	
10,000.0	5,445.0	10,190.1	5,445.0	94.0	95.2	-90.00	4,878.0	-732.3	596.0	407.7	188.35	3.164	
10,100.0	5,445.0	10,290.1	5,445.0	95.9	97.1	-90.00	4,977.9	-733.6	597.4	405.2	192.16	3.109	
10,200.0	5,445.0	10,390.1	5,445.0	97.8	99.0	-90.00	5,077.9	-734.9	598.7	402.7	195.98	3.055	
10,300.0	5,445.0	10,490.1	5,445.0	99.7	100.9	-90.00	5,177.9	-736.3	600.0	400.2	199.80	3.003	
10,400.0	5,445.0	10,590.1	5,445.0	101.6	102.8	-90.00	5,277.9	-737.6	601.4	397.7	203.62	2.953	
10,500.0	5,445.0	10,690.1	5,445.0	103.5	104.7	-90.00	5,377.9	-738.9	602.7	395.3	207.44	2.905	
10,600.0	5,445.0	10,790.1	5,445.0	105.5	106.6	-90.00	5,477.9	-740.3	604.0	392.8	211.26	2.859	
10,700.0	5,445.0	10,890.0	5,445.0	107.4	108.5	-90.00	5,577.8	-741.6	605.4	390.3	215.08	2.815	
10,800.0	5,445.0	10,990.0	5,445.0	109.3	110.4	-90.00	5,677.8	-742.9	606.7	387.8	218.91	2.771	
10,900.0	5,445.0	11,090.0	5,445.0	111.2	112.3	-90.00	5,777.8	-744.3	608.0	385.3	222.73	2.730	
11,000.0	5,445.0	11,190.0	5,445.0	113.1	114.2	-90.00	5,877.8	-745.6	609.4	382.8	226.56	2.690	
11,100.0	5,445.0	11,290.0	5,445.0	115.0	116.1	-90.00	5,977.8	-746.9	610.7	380.3	230.39	2.651	
11,200.0	5,445.0	11,390.0	5,445.0	116.9	118.0	-90.00	6,077.7	-748.3	612.0	377.8	234.22	2.613	
11,300.0	5,445.0	11,490.0	5,445.0	118.9	119.9	-90.00	6,177.7	-749.6	613.4	375.3	238.05	2.577	
11,400.0	5,445.0	11,590.0	5,445.0	120.8	121.8	-90.00	6,277.7	-750.9	614.7	372.8	241.88	2.541	
11,500.0	5,445.0	11,690.0	5,445.0	122.7	123.7	-90.00	6,377.7	-752.3	616.1	370.3	245.71	2.507	
11,600.0	5,445.0	11,790.0	5,445.0	124.6	125.6	-90.00	6,477.7	-753.6	617.4	367.8	249.54	2.474	
11,700.0	5,445.0	11,890.0	5,445.0	126.5	127.5	-90.00	6,577.7	-754.9	618.7	365.3	253.38	2.442	
11,800.0	5,445.0	11,990.0	5,445.0	128.4	129.4	-90.00	6,677.6	-756.3	620.1	362.8	257.21	2.411	
11,900.0	5,445.0	12,089.9	5,445.0	130.4	131.3	-90.00	6,777.6	-757.6	621.4	360.3	261.05	2.380	
12,000.0	5,445.0	12,189.9	5,445.0	132.3	133.2	-90.00	6,877.6	-758.9	622.7	357.8	264.88	2.351	
12,100.0	5,445.0	12,289.9	5,445.0	134.2	135.1	-90.00	6,977.6	-760.3	624.1	355.3	268.72	2.322	
12,200.0	5,445.0	12,389.9	5,445.0	136.1	137.1	-90.00	7,077.6	-761.6	625.4	352.8	272.56	2.295	
12,300.0	5,445.0	12,489.9	5,445.0	138.0	139.0	-90.00	7,177.6	-762.9	626.7	350.3	276.39	2.268	
12,400.0	5,445.0	12,589.9	5,445.0	140.0	140.9	-90.00	7,277.5	-764.3	628.1	347.8	280.23	2.241	

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

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							
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	
12,500.0	5,445.0	12,689.9	5,445.0	141.9	142.8	-90.00	7,377.5	-765.6	629.4	345.3	284.07	2.216		
12,600.0	5,445.0	12,789.9	5,445.0	143.8	144.7	-90.00	7,477.5	-766.9	630.7	342.8	287.91	2.191		
12,700.0	5,445.0	12,889.9	5,445.0	145.7	146.6	-90.00	7,577.5	-768.3	632.1	340.3	291.75	2.167		
12,800.0	5,445.0	12,989.9	5,445.0	147.6	148.5	-90.00	7,677.5	-769.6	633.4	337.8	295.59	2.143		
12,900.0	5,445.0	13,089.9	5,445.0	149.6	150.5	-90.00	7,777.4	-770.9	634.8	335.3	299.43	2.120		
13,000.0	5,445.0	13,189.8	5,445.0	151.5	152.4	-90.00	7,877.4	-772.3	636.1	332.8	303.27	2.097		
13,100.0	5,445.0	13,289.8	5,445.0	153.4	154.3	-90.00	7,977.4	-773.6	637.4	330.3	307.11	2.076		
13,200.0	5,445.0	13,389.8	5,445.0	155.3	156.2	-90.00	8,077.4	-774.9	638.8	327.8	310.96	2.054		
13,300.0	5,445.0	13,489.8	5,445.0	157.2	158.1	-90.00	8,177.4	-776.3	640.1	325.3	314.80	2.033		
13,400.0	5,445.0	13,589.8	5,445.0	159.2	160.0	-90.00	8,277.4	-777.6	641.4	322.8	318.64	2.013		
13,500.0	5,445.0	13,689.8	5,445.0	161.1	162.0	-90.00	8,377.3	-778.9	642.8	320.3	322.48	1.993		
13,600.0	5,445.0	13,789.8	5,445.0	163.0	163.9	-90.00	8,477.3	-780.3	644.1	317.8	326.33	1.974		
13,700.0	5,445.0	13,889.8	5,445.0	164.9	165.8	-90.00	8,577.3	-781.6	645.4	315.3	330.17	1.955		
13,800.0	5,445.0	13,989.8	5,445.0	166.8	167.7	-90.00	8,677.3	-782.9	646.8	312.8	334.02	1.936		
13,900.0	5,445.0	14,089.8	5,445.0	168.8	169.6	-90.00	8,777.3	-784.3	648.1	310.2	337.86	1.918		
14,000.0	5,445.0	14,189.8	5,445.0	170.7	171.5	-90.00	8,877.2	-785.6	649.4	307.7	341.71	1.901		
14,100.0	5,445.0	14,289.7	5,445.0	172.6	173.5	-90.00	8,977.2	-786.9	650.8	305.2	345.55	1.883		
14,200.0	5,445.0	14,389.7	5,445.0	174.5	175.4	-90.00	9,077.2	-788.3	652.1	302.7	349.40	1.866		
14,300.0	5,445.0	14,489.7	5,445.0	176.5	177.3	-90.00	9,177.2	-789.6	653.5	300.2	353.24	1.850		
14,400.0	5,445.0	14,589.7	5,445.0	178.4	179.2	-90.00	9,277.2	-790.9	654.8	297.7	357.09	1.834		
14,500.0	5,445.0	14,689.7	5,445.0	180.3	181.1	-90.00	9,377.2	-792.3	656.1	295.2	360.94	1.818		
14,600.0	5,445.0	14,789.7	5,445.0	182.2	183.1	-90.00	9,477.1	-793.6	657.5	292.7	364.78	1.802		
14,700.0	5,445.0	14,889.7	5,445.0	184.1	185.0	-90.00	9,577.1	-794.9	658.8	290.2	368.63	1.787		
14,765.1	5,445.0	14,954.8	5,445.0	185.4	186.2	-90.00	9,642.2	-795.8	659.7	288.5	371.13	1.777 SF		

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-29.9	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	0.0	-29.9	29.9	29.7	0.22	133.056		
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	0.0	-29.9	29.9	29.2	0.67	44.352		
300.0	300.0	300.0	300.0	0.6	0.6	-89.98	0.0	-29.9	29.9	28.8	1.12	26.611		
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	0.0	-29.9	29.9	28.3	1.57	19.008		
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	0.0	-29.9	29.9	27.9	2.02	14.784		
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	0.0	-29.9	29.9	27.4	2.47	12.096		
700.0	700.0	700.0	700.0	1.5	1.5	-89.98	0.0	-29.9	29.9	27.0	2.92	10.235		
800.0	800.0	800.0	800.0	1.7	1.7	-89.98	0.0	-29.9	29.9	26.5	3.37	8.870		
900.0	900.0	900.0	900.0	1.9	1.9	-89.98	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	-89.98	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	-89.98	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	-89.98	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	-89.98	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	-89.98	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	-89.98	0.0	-29.9	29.9	23.4	6.52	4.588 CC		
1,600.0	1,600.0	1,599.2	1,599.2	3.5	3.5	-87.74	1.2	-31.1	31.2	24.2	6.96	4.475		
1,700.0	1,700.0	1,698.5	1,698.3	3.7	3.7	-82.13	4.8	-34.7	35.1	27.7	7.40	4.736		
1,800.0	1,800.0	1,798.3	1,797.9	3.9	3.9	-76.89	9.1	-39.0	40.1	32.2	7.85	5.108		
1,900.0	1,900.0	1,898.1	1,897.6	4.2	4.1	-72.83	13.4	-43.3	45.3	37.1	8.29	5.471		
2,000.0	2,000.0	1,997.9	1,997.2	4.4	4.4	-69.64	17.6	-47.5	50.8	42.1	8.73	5.816		
2,100.0	2,100.0	2,097.8	2,096.9	4.6	4.6	-59.04	21.9	-51.8	55.4	46.3	9.18	6.043		
2,200.0	2,199.8	2,197.7	2,196.6	4.8	4.8	-60.91	26.2	-56.1	58.4	48.8	9.62	6.075		
2,300.0	2,299.7	2,297.6	2,296.4	5.1	5.1	-63.38	30.5	-60.4	61.1	51.0	10.07	6.066		
2,400.0	2,399.5	2,397.6	2,396.1	5.3	5.3	-65.64	34.8	-64.7	63.8	53.3	10.52	6.065		
2,500.0	2,499.3	2,497.5	2,495.9	5.5	5.5	-67.71	39.1	-69.0	66.6	55.6	10.97	6.071		
2,600.0	2,599.1	2,597.4	2,595.6	5.7	5.8	-69.61	43.4	-73.3	69.5	58.1	11.43	6.082		
2,700.0	2,698.9	2,697.4	2,695.4	6.0	6.0	-71.36	47.7	-77.6	72.5	60.6	11.89	6.097		
2,800.0	2,798.8	2,797.3	2,795.1	6.2	6.3	-72.97	52.0	-81.8	75.5	63.2	12.35	6.114		
2,900.0	2,898.6	2,897.2	2,894.9	6.4	6.5	-74.45	56.2	-86.1	78.6	65.8	12.82	6.133		
3,000.0	2,998.4	2,997.2	2,994.6	6.7	6.7	-75.82	60.5	-90.4	81.8	68.5	13.29	6.154		
3,100.0	3,098.2	3,097.1	3,094.4	6.9	7.0	-77.08	64.8	-94.7	85.0	71.2	13.76	6.175		
3,200.0	3,198.1	3,197.0	3,194.1	7.1	7.2	-78.26	69.1	-99.0	88.2	74.0	14.23	6.197		
3,300.0	3,297.9	3,297.0	3,293.9	7.4	7.5	-79.35	73.4	-103.3	91.4	76.7	14.70	6.219		
3,400.0	3,397.7	3,396.9	3,393.6	7.6	7.7	-80.37	77.7	-107.6	94.7	79.6	15.18	6.241		
3,500.0	3,497.5	3,496.8	3,493.4	7.9	8.0	-81.31	82.0	-111.9	98.0	82.4	15.66	6.263		
3,600.0	3,597.3	3,596.8	3,593.1	8.1	8.2	-82.20	86.3	-116.2	101.4	85.3	16.13	6.285		
3,700.0	3,697.2	3,696.7	3,692.9	8.3	8.5	-83.03	90.5	-120.4	104.8	88.1	16.61	6.306		
3,800.0	3,797.0	3,796.6	3,792.6	8.6	8.7	-83.81	94.8	-124.7	108.1	91.0	17.09	6.327		
3,900.0	3,896.8	3,896.3	3,894.1	8.8	8.9	-84.86	98.6	-128.5	111.0	93.5	17.56	6.323		
4,000.0	3,996.6	4,000.7	3,996.5	9.1	9.1	-87.23	100.0	-129.9	111.8	93.8	18.00	6.214		
4,100.0	4,096.5	4,100.7	4,096.5	9.3	9.3	-89.89	100.0	-129.9	111.7	93.3	18.43	6.062		
4,106.4	4,102.9	4,107.0	4,102.9	9.3	9.3	-90.00	100.0	-129.9	111.7	93.2	18.45	6.053		
4,200.0	4,196.5	4,200.6	4,196.5	9.5	9.5	-90.84	100.0	-129.9	111.7	92.9	18.82	5.935		
4,300.0	4,296.5	4,300.6	4,296.5	9.6	9.7	-100.31	100.0	-129.9	111.7	92.5	19.17	5.828		
4,400.0	4,396.5	4,400.6	4,396.5	9.9	9.9	-100.31	100.0	-129.9	111.7	92.1	19.60	5.699		
4,500.0	4,496.5	4,500.6	4,496.5	10.1	10.2	-100.31	100.0	-129.9	111.7	91.7	20.04	5.575		
4,600.0	4,596.5	4,600.6	4,596.5	10.3	10.4	-100.31	100.0	-129.9	111.7	91.2	20.47	5.456		
4,700.0	4,696.5	4,700.6	4,696.5	10.5	10.6	-100.31	100.0	-129.9	111.7	90.8	20.91	5.342		
4,800.0	4,796.5	4,800.6	4,796.5	10.7	10.8	-100.31	100.0	-129.9	111.7	90.4	21.35	5.232		
4,900.0	4,896.5	4,900.6	4,896.5	11.0	11.0	-100.31	100.0	-129.9	111.7	89.9	21.79	5.127		
4,942.5	4,938.9	4,943.1	4,938.9	11.1	11.1	-91.24	100.0	-129.9	111.7	89.7	22.04	5.070		

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-2803
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-2803	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	
5,000.0	4,996.2	5,000.0	4,995.8	11.2	11.2	-93.00	100.2	-130.0	111.9	89.6	22.31	5.017	
5,100.0	5,093.3	5,096.8	5,091.8	11.5	11.5	-98.13	111.0	-134.4	115.6	92.8	22.86	5.058	
5,200.0	5,184.2	5,195.5	5,185.7	11.9	11.8	-102.44	138.8	-145.6	124.3	100.8	23.50	5.289	
5,300.0	5,265.5	5,295.9	5,273.6	12.4	12.3	-105.44	183.3	-163.7	137.4	113.1	24.27	5.662	
5,400.0	5,334.3	5,398.0	5,352.0	13.1	12.9	-107.04	243.8	-188.2	154.1	128.8	25.30	6.092	
5,500.0	5,388.0	5,501.8	5,417.0	14.0	13.8	-107.39	318.5	-218.4	173.6	146.8	26.77	6.485	
5,600.0	5,424.7	5,607.4	5,465.5	15.1	14.9	-106.74	405.2	-253.6	194.9	166.1	28.80	6.769	
5,700.0	5,443.0	5,714.7	5,494.4	16.4	16.3	-105.34	500.9	-292.3	217.3	185.9	31.39	6.923	
5,800.0	5,445.0	5,823.6	5,502.0	17.8	18.0	-104.12	601.5	-333.0	239.7	205.4	34.26	6.995	
5,900.0	5,445.0	5,935.3	5,502.0	19.2	19.6	-102.90	706.5	-370.9	261.7	224.6	37.11	7.051	
6,000.0	5,445.0	6,048.7	5,502.0	20.6	21.4	-101.89	815.2	-403.0	283.2	243.2	40.00	7.079	
6,100.0	5,445.0	6,163.8	5,502.0	22.1	23.2	-101.02	927.3	-429.0	303.8	260.8	43.03	7.062	
6,200.0	5,445.0	6,281.3	5,502.0	23.7	25.1	-100.35	1,043.2	-448.5	320.2	273.6	46.54	6.879	
6,300.0	5,445.0	6,400.8	5,502.0	25.3	27.0	-99.96	1,162.0	-461.0	330.5	280.3	50.14	6.591	
6,400.0	5,445.0	6,521.4	5,502.0	27.0	28.9	-99.81	1,282.5	-466.1	334.6	280.8	53.78	6.222	
6,500.0	5,445.0	6,624.9	5,502.0	28.7	30.5	-99.81	1,385.9	-466.2	334.7	277.5	57.15	5.856	
6,600.0	5,445.0	6,724.9	5,502.0	30.4	32.2	-99.81	1,485.9	-466.2	334.7	274.2	60.51	5.531	
6,700.0	5,445.0	6,824.9	5,502.0	32.2	33.8	-99.81	1,585.9	-466.2	334.7	270.8	63.92	5.236	
6,800.0	5,445.0	6,924.9	5,502.0	34.0	35.5	-99.81	1,685.9	-466.2	334.7	267.3	67.38	4.967	
6,900.0	5,445.0	7,024.9	5,502.0	35.8	37.2	-99.81	1,785.9	-466.2	334.7	263.8	70.87	4.723	
7,000.0	5,445.0	7,124.9	5,502.0	37.6	38.9	-99.81	1,885.9	-466.1	334.7	260.3	74.39	4.499	
7,100.0	5,445.0	7,224.9	5,502.0	39.4	40.6	-99.81	1,985.9	-466.1	334.7	256.7	77.93	4.294	
7,200.0	5,445.0	7,324.9	5,502.0	41.2	42.4	-99.81	2,085.9	-466.1	334.7	253.2	81.50	4.106	
7,300.0	5,445.0	7,424.9	5,502.0	43.0	44.1	-99.81	2,185.9	-466.1	334.7	249.6	85.10	3.933	
7,400.0	5,445.0	7,524.9	5,502.0	44.9	45.9	-99.81	2,285.9	-466.1	334.7	246.0	88.70	3.773	
7,500.0	5,445.0	7,624.9	5,502.0	46.7	47.7	-99.81	2,385.9	-466.1	334.7	242.3	92.33	3.625	
7,600.0	5,445.0	7,724.9	5,502.0	48.6	49.5	-99.81	2,485.9	-466.1	334.7	238.7	95.97	3.487	
7,700.0	5,445.0	7,824.9	5,502.0	50.4	51.3	-99.81	2,585.9	-466.1	334.7	235.1	99.62	3.360	
7,800.0	5,445.0	7,924.9	5,502.0	52.3	53.1	-99.81	2,685.9	-466.1	334.7	231.4	103.28	3.240	
7,900.0	5,445.0	8,024.9	5,502.0	54.2	54.9	-99.81	2,785.9	-466.1	334.7	227.7	106.96	3.129	
8,000.0	5,445.0	8,124.9	5,502.0	56.1	56.8	-99.81	2,885.9	-466.1	334.7	224.0	110.64	3.025	
8,100.0	5,445.0	8,224.9	5,502.0	57.9	58.6	-99.81	2,985.9	-466.1	334.7	220.3	114.33	2.927	
8,200.0	5,445.0	8,324.9	5,502.0	59.8	60.5	-99.81	3,085.9	-466.1	334.7	216.6	118.03	2.836	
8,300.0	5,445.0	8,424.9	5,502.0	61.7	62.3	-99.81	3,185.9	-466.1	334.7	212.9	121.73	2.749	
8,400.0	5,445.0	8,524.9	5,502.0	63.6	64.2	-99.81	3,285.9	-466.1	334.7	209.2	125.44	2.668	
8,500.0	5,445.0	8,624.9	5,502.0	65.5	66.0	-99.81	3,385.9	-466.1	334.7	205.5	129.16	2.591	
8,600.0	5,445.0	8,724.9	5,502.0	67.4	67.9	-99.81	3,485.9	-466.1	334.7	201.8	132.88	2.519	
8,700.0	5,445.0	8,824.9	5,502.0	69.3	69.7	-99.81	3,585.9	-466.1	334.7	198.1	136.60	2.450	
8,800.0	5,445.0	8,924.9	5,502.0	71.2	71.6	-99.81	3,685.9	-466.1	334.7	194.3	140.33	2.385	
8,900.0	5,445.0	9,024.9	5,502.0	73.1	73.5	-99.81	3,785.9	-466.1	334.7	190.6	144.07	2.323	
9,000.0	5,445.0	9,124.9	5,502.0	74.9	75.3	-99.81	3,885.9	-466.1	334.7	186.9	147.81	2.264	
9,100.0	5,445.0	9,224.9	5,502.0	76.8	77.2	-99.81	3,985.9	-466.1	334.7	183.1	151.55	2.208	
9,200.0	5,445.0	9,324.9	5,502.0	78.7	79.1	-99.81	4,085.9	-466.1	334.7	179.4	155.29	2.155	
9,300.0	5,445.0	9,424.9	5,502.0	80.7	81.0	-99.81	4,185.9	-466.1	334.7	175.6	159.04	2.104	
9,400.0	5,445.0	9,524.9	5,502.0	82.6	82.9	-99.81	4,285.9	-466.1	334.7	171.9	162.79	2.056	
9,500.0	5,445.0	9,624.9	5,502.0	84.5	84.8	-99.81	4,385.9	-466.1	334.6	168.1	166.54	2.009	
9,600.0	5,445.0	9,724.9	5,502.0	86.4	86.6	-99.81	4,485.9	-466.1	334.6	164.4	170.30	1.965	
9,700.0	5,445.0	9,824.9	5,502.0	88.3	88.5	-99.81	4,585.9	-466.1	334.6	160.6	174.06	1.923	
9,800.0	5,445.0	9,924.9	5,502.0	90.2	90.4	-99.81	4,685.9	-466.0	334.6	156.8	177.82	1.882	
9,900.0	5,445.0	10,024.9	5,502.0	92.1	92.3	-99.81	4,785.9	-466.0	334.6	153.1	181.58	1.843	
10,000.0	5,445.0	10,124.9	5,502.0	94.0	94.2	-99.81	4,885.9	-466.0	334.6	149.3	185.34	1.806	
10,100.0	5,445.0	10,224.9	5,502.0	95.9	96.1	-99.81	4,985.9	-466.0	334.6	145.5	189.11	1.770	

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-2803
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-2803	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:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
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
10,200.0	5,445.0	10,324.9	5,502.0	97.8	98.0	-99.81	5,085.9	-466.0	334.6	141.8	192.87	1.735	
10,300.0	5,445.0	10,424.9	5,502.0	99.7	99.9	-99.81	5,185.9	-466.0	334.6	138.0	196.64	1.702	
10,400.0	5,445.0	10,524.9	5,502.0	101.6	101.8	-99.81	5,285.9	-466.0	334.6	134.2	200.41	1.670	
10,500.0	5,445.0	10,624.9	5,502.0	103.5	103.7	-99.81	5,385.9	-466.0	334.6	130.5	204.18	1.639	
10,600.0	5,445.0	10,724.9	5,502.0	105.5	105.6	-99.81	5,485.9	-466.0	334.6	126.7	207.95	1.609	
10,700.0	5,445.0	10,824.9	5,502.0	107.4	107.5	-99.81	5,585.9	-466.0	334.6	122.9	211.73	1.580	
10,800.0	5,445.0	10,924.9	5,502.0	109.3	109.4	-99.81	5,685.9	-466.0	334.6	119.1	215.50	1.553	
10,900.0	5,445.0	11,024.9	5,502.0	111.2	111.3	-99.81	5,785.9	-466.0	334.6	115.4	219.28	1.526	
11,000.0	5,445.0	11,124.9	5,502.0	113.1	113.2	-99.81	5,885.9	-466.0	334.6	111.6	223.06	1.500	
11,100.0	5,445.0	11,224.9	5,502.0	115.0	115.1	-99.81	5,985.9	-466.0	334.6	107.8	226.83	1.475 Level 3	
11,200.0	5,445.0	11,324.9	5,502.0	116.9	117.0	-99.81	6,085.9	-466.0	334.6	104.0	230.61	1.451 Level 3	
11,300.0	5,445.0	11,424.9	5,502.0	118.9	118.9	-99.81	6,185.9	-466.0	334.6	100.2	234.39	1.428 Level 3	
11,400.0	5,445.0	11,524.9	5,502.0	120.8	120.8	-99.81	6,285.9	-466.0	334.6	96.4	238.17	1.405 Level 3	
11,500.0	5,445.0	11,624.9	5,502.0	122.7	122.7	-99.81	6,385.9	-466.0	334.6	92.7	241.96	1.383 Level 3	
11,600.0	5,445.0	11,724.9	5,502.0	124.6	124.6	-99.81	6,485.9	-466.0	334.6	88.9	245.74	1.362 Level 3	
11,700.0	5,445.0	11,824.9	5,502.0	126.5	126.6	-99.81	6,585.9	-466.0	334.6	85.1	249.52	1.341 Level 3	
11,800.0	5,445.0	11,924.9	5,502.0	128.4	128.5	-99.81	6,685.9	-466.0	334.6	81.3	253.30	1.321 Level 3	
11,900.0	5,445.0	12,024.9	5,502.0	130.4	130.4	-99.81	6,785.9	-466.0	334.6	77.5	257.09	1.302 Level 3	
12,000.0	5,445.0	12,124.9	5,502.0	132.3	132.3	-99.81	6,885.9	-466.0	334.6	73.7	260.87	1.283 Level 3	
12,100.0	5,445.0	12,224.9	5,502.0	134.2	134.2	-99.81	6,985.9	-466.0	334.6	70.0	264.66	1.264 Level 3	
12,200.0	5,445.0	12,324.9	5,502.0	136.1	136.1	-99.81	7,085.9	-466.0	334.6	66.2	268.45	1.246 Level 2	
12,300.0	5,445.0	12,424.9	5,502.0	138.0	138.0	-99.81	7,185.9	-466.0	334.6	62.4	272.23	1.229 Level 2	
12,400.0	5,445.0	12,524.9	5,502.0	140.0	139.9	-99.81	7,285.9	-466.0	334.6	58.6	276.02	1.212 Level 2	
12,500.0	5,445.0	12,624.9	5,502.0	141.9	141.8	-99.81	7,385.9	-466.0	334.6	54.8	279.81	1.196 Level 2	
12,600.0	5,445.0	12,724.9	5,502.0	143.8	143.8	-99.81	7,485.9	-465.9	334.6	51.0	283.60	1.180 Level 2	
12,700.0	5,445.0	12,824.9	5,502.0	145.7	145.7	-99.81	7,585.9	-465.9	334.6	47.2	287.39	1.164 Level 2	
12,800.0	5,445.0	12,924.9	5,502.0	147.6	147.6	-99.81	7,685.9	-465.9	334.6	43.4	291.18	1.149 Level 2	
12,900.0	5,445.0	13,024.9	5,502.0	149.6	149.5	-99.81	7,785.9	-465.9	334.6	39.6	294.97	1.134 Level 2	
13,000.0	5,445.0	13,124.9	5,502.0	151.5	151.4	-99.81	7,885.9	-465.9	334.6	35.8	298.76	1.120 Level 2	
13,100.0	5,445.0	13,224.9	5,502.0	153.4	153.3	-99.81	7,985.9	-465.9	334.6	32.1	302.55	1.106 Level 2	
13,200.0	5,445.0	13,324.9	5,502.0	155.3	155.2	-99.81	8,085.9	-465.9	334.6	28.3	306.34	1.092 Level 2	
13,300.0	5,445.0	13,424.9	5,502.0	157.2	157.2	-99.81	8,185.9	-465.9	334.6	24.5	310.13	1.079 Level 2	
13,400.0	5,445.0	13,524.9	5,502.0	159.2	159.1	-99.81	8,285.9	-465.9	334.6	20.7	313.92	1.066 Level 2	
13,500.0	5,445.0	13,624.9	5,502.0	161.1	161.0	-99.81	8,385.9	-465.9	334.6	16.9	317.71	1.053 Level 2	
13,600.0	5,445.0	13,724.9	5,502.0	163.0	162.9	-99.81	8,485.9	-465.9	334.6	13.1	321.51	1.041 Level 2	
13,700.0	5,445.0	13,824.9	5,502.0	164.9	164.8	-99.81	8,585.9	-465.9	334.6	9.3	325.30	1.029 Level 2	
13,800.0	5,445.0	13,924.9	5,502.0	166.8	166.7	-99.81	8,685.9	-465.9	334.6	5.5	329.09	1.017 Level 2	
13,900.0	5,445.0	14,024.9	5,502.0	168.8	168.7	-99.81	8,785.9	-465.9	334.6	1.7	332.89	1.005 Level 2	
14,000.0	5,445.0	14,124.9	5,502.0	170.7	170.6	-99.81	8,885.9	-465.9	334.6	-2.1	336.68	0.994 Level 1	
14,100.0	5,445.0	14,224.9	5,502.0	172.6	172.5	-99.81	8,985.9	-465.9	334.6	-5.9	340.48	0.983 Level 1	
14,200.0	5,445.0	14,324.9	5,502.0	174.5	174.4	-99.81	9,085.9	-465.9	334.6	-9.7	344.27	0.972 Level 1	
14,300.0	5,445.0	14,424.9	5,502.0	176.5	176.3	-99.81	9,185.9	-465.9	334.6	-13.5	348.06	0.961 Level 1	
14,400.0	5,445.0	14,524.9	5,502.0	178.4	178.2	-99.81	9,285.9	-465.9	334.6	-17.3	351.86	0.951 Level 1	
14,500.0	5,445.0	14,624.9	5,502.0	180.3	180.2	-99.81	9,385.9	-465.9	334.6	-21.1	355.65	0.941 Level 1	
14,600.0	5,445.0	14,724.9	5,502.0	182.2	182.1	-99.81	9,485.9	-465.9	334.6	-24.9	359.45	0.931 Level 1	
14,700.0	5,445.0	14,824.9	5,502.0	184.1	184.0	-99.81	9,585.9	-465.9	334.6	-28.7	363.25	0.921 Level 1	
14,747.4	5,445.0	14,872.3	5,502.0	185.1	184.9	-99.81	9,633.3	-465.9	334.6	-30.5	365.05	0.917 Level 1	
14,765.1	5,445.0	14,887.0	5,502.0	185.4	185.2	-99.81	9,648.1	-465.9	334.6	-31.1	365.66	0.915 Level 1, ES, SF	

Horsetail 33M Pad Sec.33-T10N-R57W - Horsetail #33M-2804 - 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							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	87.89	1.1	29.9	29.9					
100.0	100.0	100.0	100.0	0.1	0.1	87.89	1.1	29.9	29.9	29.7	0.22	133.146		
200.0	200.0	200.0	200.0	0.3	0.3	87.89	1.1	29.9	29.9	29.3	0.67	44.382		
300.0	300.0	300.0	300.0	0.6	0.6	87.89	1.1	29.9	29.9	28.8	1.12	26.629		
400.0	400.0	400.0	400.0	0.8	0.8	87.89	1.1	29.9	29.9	28.4	1.57	19.021		
500.0	500.0	500.0	500.0	1.0	1.0	87.89	1.1	29.9	29.9	27.9	2.02	14.794		
600.0	600.0	600.0	600.0	1.2	1.2	87.89	1.1	29.9	29.9	27.5	2.47	12.104		
700.0	700.0	700.0	700.0	1.5	1.5	87.89	1.1	29.9	29.9	27.0	2.92	10.242		
800.0	800.0	800.0	800.0	1.7	1.7	87.89	1.1	29.9	29.9	26.6	3.37	8.876		
900.0	900.0	900.0	900.0	1.9	1.9	87.89	1.1	29.9	29.9	26.1	3.82	7.832		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	87.89	1.1	29.9	29.9	25.7	4.27	7.008		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	87.89	1.1	29.9	29.9	25.2	4.72	6.340		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	87.89	1.1	29.9	29.9	24.8	5.17	5.789	CC	
1,300.0	1,300.0	1,298.9	1,298.9	2.8	2.8	88.01	1.1	31.6	31.7	26.0	5.60	5.649		
1,400.0	1,400.0	1,397.9	1,397.7	3.0	3.0	88.28	1.1	36.7	36.8	30.7	6.03	6.098		
1,500.0	1,500.0	1,497.7	1,497.3	3.3	3.2	88.53	1.1	42.9	43.0	36.5	6.46	6.661		
1,600.0	1,600.0	1,597.5	1,596.9	3.5	3.4	88.72	1.1	49.1	49.2	42.4	6.89	7.151		
1,700.0	1,700.0	1,697.3	1,696.5	3.7	3.6	88.86	1.1	55.4	55.5	48.2	7.32	7.580		
1,800.0	1,800.0	1,797.1	1,796.1	3.9	3.9	88.98	1.1	61.6	61.7	54.0	7.75	7.959		
1,900.0	1,900.0	1,896.9	1,895.8	4.2	4.1	89.07	1.1	67.8	68.0	59.8	8.19	8.296		
2,000.0	2,000.0	1,996.7	1,995.4	4.4	4.3	89.15	1.1	74.0	74.2	65.6	8.63	8.598		
2,100.0	2,100.0	2,096.5	2,094.9	4.6	4.6	99.77	1.1	80.3	80.7	71.7	9.07	8.901		
2,200.0	2,199.8	2,196.1	2,194.4	4.8	4.8	102.92	1.1	86.5	88.0	78.5	9.51	9.254		
2,300.0	2,299.7	2,295.6	2,293.7	5.1	5.0	106.18	1.1	92.7	95.7	85.8	9.95	9.622		
2,400.0	2,399.5	2,395.2	2,393.1	5.3	5.3	108.94	1.1	98.9	103.7	93.3	10.39	9.980		
2,500.0	2,499.3	2,494.8	2,492.5	5.5	5.5	111.31	1.1	105.1	111.9	101.1	10.84	10.325		
2,600.0	2,599.1	2,594.3	2,591.8	5.7	5.8	113.35	1.1	111.3	120.3	109.0	11.29	10.655		
2,700.0	2,698.9	2,693.9	2,691.2	6.0	6.0	115.12	1.1	117.6	128.7	117.0	11.74	10.968		
2,800.0	2,798.8	2,793.5	2,790.6	6.2	6.2	116.67	1.1	123.8	137.3	125.2	12.19	11.266		
2,900.0	2,898.6	2,893.0	2,890.0	6.4	6.5	118.04	1.1	130.0	146.0	133.4	12.65	11.547		
3,000.0	2,998.4	2,992.6	2,989.3	6.7	6.7	119.26	1.1	136.2	154.8	141.7	13.10	11.813		
3,100.0	3,098.2	3,092.2	3,088.7	6.9	7.0	120.34	1.1	142.4	163.6	150.1	13.56	12.065		
3,200.0	3,198.1	3,191.7	3,188.1	7.1	7.2	121.31	1.1	148.6	172.5	158.5	14.02	12.303		
3,300.0	3,297.9	3,291.3	3,287.4	7.4	7.5	122.19	1.1	154.8	181.4	166.9	14.48	12.528		
3,400.0	3,397.7	3,390.9	3,386.8	7.6	7.7	122.99	1.1	161.1	190.4	175.4	14.94	12.742		
3,500.0	3,497.5	3,490.4	3,486.2	7.9	8.0	123.71	1.1	167.3	199.4	184.0	15.40	12.943		
3,600.0	3,597.3	3,590.0	3,585.6	8.1	8.2	124.37	1.1	173.5	208.4	192.5	15.87	13.135		
3,700.0	3,697.2	3,689.5	3,684.9	8.3	8.5	124.98	1.1	179.7	217.4	201.1	16.33	13.316		
3,800.0	3,797.0	3,789.1	3,784.3	8.6	8.7	125.54	1.1	185.9	226.5	209.7	16.79	13.489		
3,900.0	3,896.8	3,893.6	3,888.6	8.8	8.9	126.16	1.1	191.6	234.9	217.7	17.25	13.617		
4,000.0	3,996.6	4,001.3	3,996.3	9.1	9.1	127.17	1.1	193.8	240.3	222.6	17.70	13.581		
4,100.0	4,096.5	4,101.5	4,096.5	9.3	9.3	128.18	1.1	193.8	243.5	225.4	18.12	13.437		
4,200.0	4,196.5	4,201.5	4,196.5	9.5	9.5	128.54	1.1	193.8	244.6	226.1	18.51	13.218		
4,300.0	4,296.5	4,301.5	4,296.5	9.6	9.7	119.08	1.1	193.8	244.6	225.7	18.95	12.909		
4,400.0	4,396.5	4,401.5	4,396.5	9.9	9.9	119.08	1.1	193.8	244.6	225.3	19.38	12.623		
4,500.0	4,496.5	4,501.5	4,496.5	10.1	10.1	119.08	1.1	193.8	244.6	224.8	19.81	12.349		
4,600.0	4,596.5	4,601.5	4,596.5	10.3	10.3	119.08	1.1	193.8	244.6	224.4	20.24	12.086		
4,700.0	4,696.5	4,701.5	4,696.5	10.5	10.6	119.08	1.1	193.8	244.6	224.0	20.67	11.833		
4,800.0	4,796.5	4,801.5	4,796.5	10.7	10.8	119.08	1.1	193.8	244.6	223.5	21.11	11.591		
4,900.0	4,896.5	4,901.5	4,896.5	11.0	11.0	119.08	1.1	193.8	244.6	223.1	21.54	11.358		
5,000.0	4,996.2	5,005.9	5,000.9	11.2	11.2	129.46	1.5	193.8	247.7	225.8	21.88	11.321		
5,100.0	5,093.3	5,137.9	5,130.8	11.5	11.5	130.04	23.1	193.8	254.5	232.4	22.10	11.515		

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

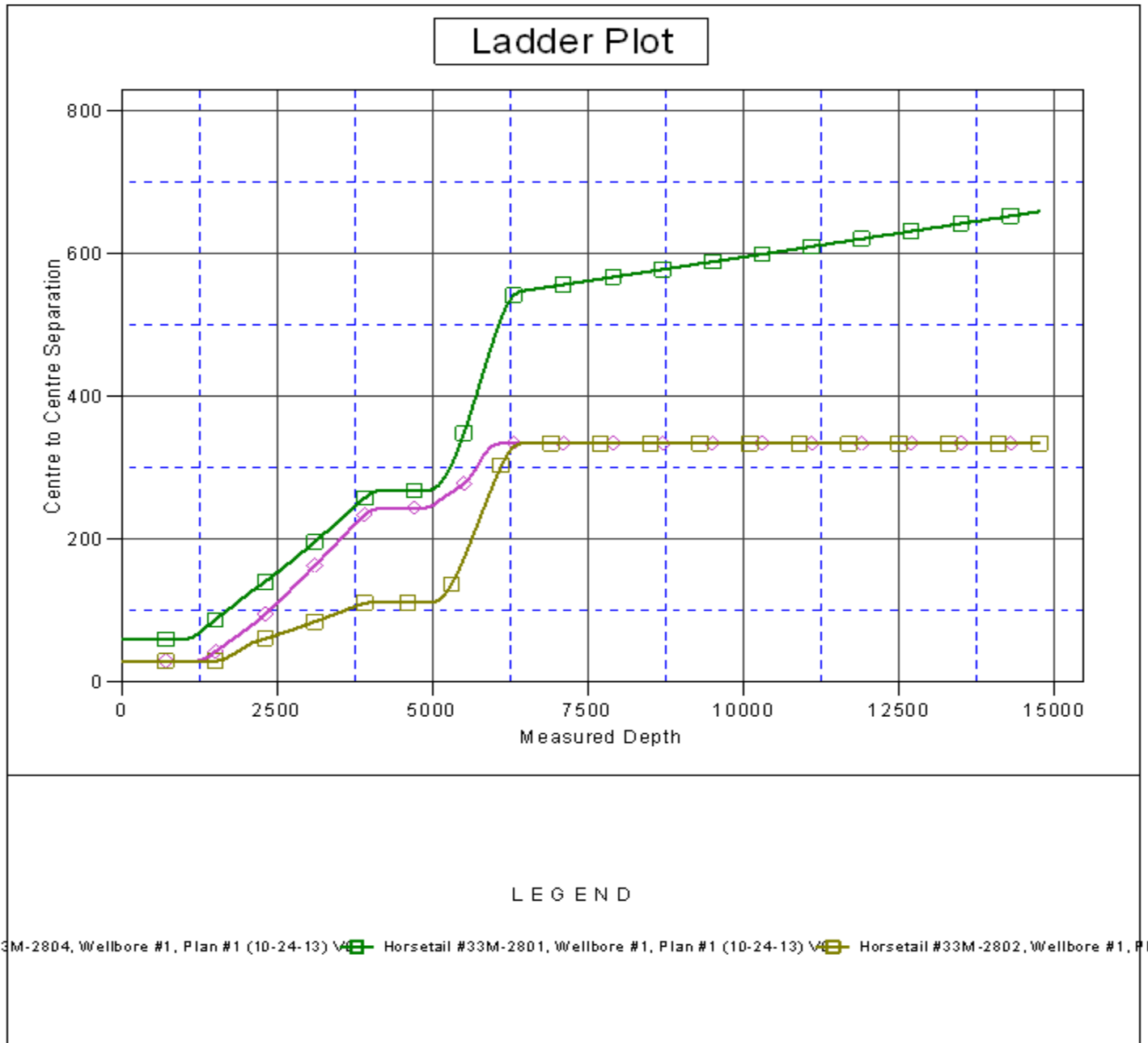
Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2803
Project:	Sec.33-T10N-R57W	TVD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Reference Site:	Horsetail 33M Pad Sec.33-T10N-R57W	MD Reference:	WELL @ 4651.3ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #33M-2803	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		
10,400.0	5,445.0	10,568.3	5,502.0	101.6	102.3	99.80	5,285.9	193.8	335.0	133.7	201.25	1.664		
10,500.0	5,445.0	10,668.3	5,502.0	103.5	104.2	99.80	5,385.9	193.8	335.0	129.9	205.03	1.634		
10,600.0	5,445.0	10,768.3	5,502.0	105.5	106.1	99.80	5,485.9	193.8	335.0	126.1	208.81	1.604		
10,700.0	5,445.0	10,868.3	5,502.0	107.4	108.1	99.80	5,585.9	193.8	334.9	122.4	212.59	1.576		
10,800.0	5,445.0	10,968.3	5,502.0	109.3	110.0	99.80	5,685.9	193.8	334.9	118.6	216.37	1.548		
10,900.0	5,445.0	11,068.3	5,502.0	111.2	111.9	99.80	5,785.9	193.8	334.9	114.8	220.16	1.521		
11,000.0	5,445.0	11,168.3	5,502.0	113.1	113.8	99.80	5,885.9	193.8	334.9	111.0	223.94	1.496 Level 3		
11,100.0	5,445.0	11,268.3	5,502.0	115.0	115.7	99.80	5,985.9	193.8	334.9	107.2	227.72	1.471 Level 3		
11,200.0	5,445.0	11,368.3	5,502.0	116.9	117.6	99.80	6,085.9	193.8	334.9	103.4	231.51	1.447 Level 3		
11,300.0	5,445.0	11,468.3	5,502.0	118.9	119.5	99.80	6,185.9	193.8	334.9	99.6	235.29	1.423 Level 3		
11,400.0	5,445.0	11,568.3	5,502.0	120.8	121.5	99.80	6,285.9	193.8	334.9	95.8	239.08	1.401 Level 3		
11,500.0	5,445.0	11,668.3	5,502.0	122.7	123.4	99.80	6,385.9	193.8	334.9	92.1	242.87	1.379 Level 3		
11,600.0	5,445.0	11,768.3	5,502.0	124.6	125.3	99.80	6,485.9	193.8	334.9	88.3	246.66	1.358 Level 3		
11,700.0	5,445.0	11,868.3	5,502.0	126.5	127.2	99.80	6,585.9	193.8	334.9	84.5	250.44	1.337 Level 3		
11,800.0	5,445.0	11,968.3	5,502.0	128.4	129.1	99.80	6,685.9	193.8	334.9	80.7	254.23	1.317 Level 3		
11,900.0	5,445.0	12,068.3	5,502.0	130.4	131.1	99.80	6,785.9	193.8	334.9	76.9	258.02	1.298 Level 3		
12,000.0	5,445.0	12,168.3	5,502.0	132.3	133.0	99.80	6,885.9	193.8	334.9	73.1	261.81	1.279 Level 3		
12,100.0	5,445.0	12,268.3	5,502.0	134.2	134.9	99.80	6,985.9	193.8	334.9	69.3	265.60	1.261 Level 3		
12,200.0	5,445.0	12,368.3	5,502.0	136.1	136.8	99.80	7,085.9	193.8	334.9	65.5	269.39	1.243 Level 2		
12,300.0	5,445.0	12,468.3	5,502.0	138.0	138.7	99.80	7,185.9	193.8	334.9	61.7	273.18	1.226 Level 2		
12,400.0	5,445.0	12,568.3	5,502.0	140.0	140.7	99.80	7,285.9	193.8	334.9	57.9	276.98	1.209 Level 2		
12,500.0	5,445.0	12,668.3	5,502.0	141.9	142.6	99.80	7,385.9	193.8	334.9	54.1	280.77	1.193 Level 2		
12,600.0	5,445.0	12,768.3	5,502.0	143.8	144.5	99.80	7,485.9	193.8	334.9	50.3	284.56	1.177 Level 2		
12,700.0	5,445.0	12,868.3	5,502.0	145.7	146.4	99.80	7,585.9	193.8	334.9	46.5	288.35	1.161 Level 2		
12,800.0	5,445.0	12,968.3	5,502.0	147.6	148.3	99.80	7,685.9	193.8	334.9	42.8	292.15	1.146 Level 2		
12,900.0	5,445.0	13,068.3	5,502.0	149.6	150.3	99.80	7,785.9	193.8	334.9	39.0	295.94	1.132 Level 2		
13,000.0	5,445.0	13,168.3	5,502.0	151.5	152.2	99.80	7,885.9	193.8	334.9	35.2	299.73	1.117 Level 2		
13,100.0	5,445.0	13,268.3	5,502.0	153.4	154.1	99.80	7,985.9	193.8	334.9	31.4	303.53	1.103 Level 2		
13,200.0	5,445.0	13,368.3	5,502.0	155.3	156.0	99.80	8,085.9	193.8	334.9	27.6	307.32	1.090 Level 2		
13,300.0	5,445.0	13,468.3	5,502.0	157.2	157.9	99.80	8,185.9	193.8	334.9	23.8	311.12	1.076 Level 2		
13,400.0	5,445.0	13,568.3	5,502.0	159.2	159.9	99.80	8,285.9	193.8	334.9	20.0	314.91	1.063 Level 2		
13,500.0	5,445.0	13,668.3	5,502.0	161.1	161.8	99.80	8,385.9	193.8	334.9	16.2	318.71	1.051 Level 2		
13,600.0	5,445.0	13,768.3	5,502.0	163.0	163.7	99.80	8,485.9	193.8	334.9	12.4	322.50	1.038 Level 2		
13,700.0	5,445.0	13,868.3	5,502.0	164.9	165.6	99.80	8,585.9	193.8	334.9	8.6	326.30	1.026 Level 2		
13,800.0	5,445.0	13,968.3	5,502.0	166.8	167.6	99.80	8,685.9	193.8	334.9	4.8	330.09	1.014 Level 2		
13,900.0	5,445.0	14,068.3	5,502.0	168.8	169.5	99.80	8,785.9	193.8	334.9	1.0	333.89	1.003 Level 2		
14,000.0	5,445.0	14,168.3	5,502.0	170.7	171.4	99.80	8,885.9	193.8	334.9	-2.8	337.68	0.992 Level 1		
14,100.0	5,445.0	14,268.3	5,502.0	172.6	173.3	99.80	8,985.9	193.8	334.9	-6.6	341.48	0.981 Level 1		
14,200.0	5,445.0	14,368.3	5,502.0	174.5	175.2	99.80	9,085.9	193.8	334.9	-10.4	345.28	0.970 Level 1		
14,300.0	5,445.0	14,468.3	5,502.0	176.5	177.2	99.80	9,185.9	193.8	334.9	-14.2	349.07	0.959 Level 1		
14,400.0	5,445.0	14,568.3	5,502.0	178.4	179.1	99.80	9,285.9	193.8	334.9	-18.0	352.87	0.949 Level 1		
14,500.0	5,445.0	14,668.3	5,502.0	180.3	181.0	99.80	9,385.9	193.8	334.9	-21.8	356.67	0.939 Level 1		
14,600.0	5,445.0	14,768.3	5,502.0	182.2	182.9	99.80	9,485.9	193.8	334.9	-25.6	360.47	0.929 Level 1		
14,700.0	5,445.0	14,868.3	5,502.0	184.1	184.9	99.80	9,585.9	193.8	334.9	-29.4	364.26	0.919 Level 1		
14,765.1	5,445.0	14,933.3	5,502.0	185.4	186.1	99.80	9,651.0	193.8	334.8	-31.9	366.74	0.913 Level 1, ES, SF		

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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-2803
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.12°



Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2803
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-2803	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-2803
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.12°

