

Whiting Oil & Gas

Well Name: **Horsetail #33M-2801**

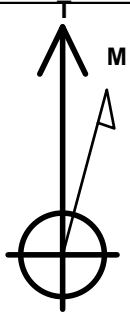
Surface Location: Horsetail 33M Pad Sec.33-T10N-R57W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4634.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1535000.75	3481206.99	40.789017	-103.762128	
RKB - 17.3' WELL @ 4651.3ft (RKB - 17.3')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 380'FSL & 660'FWL, Sec.33	1.0	0.0	0.0	Point
BHL 600'FNL & 165'FWL, Sec.28	5445.0	9645.9	-735.7	Point



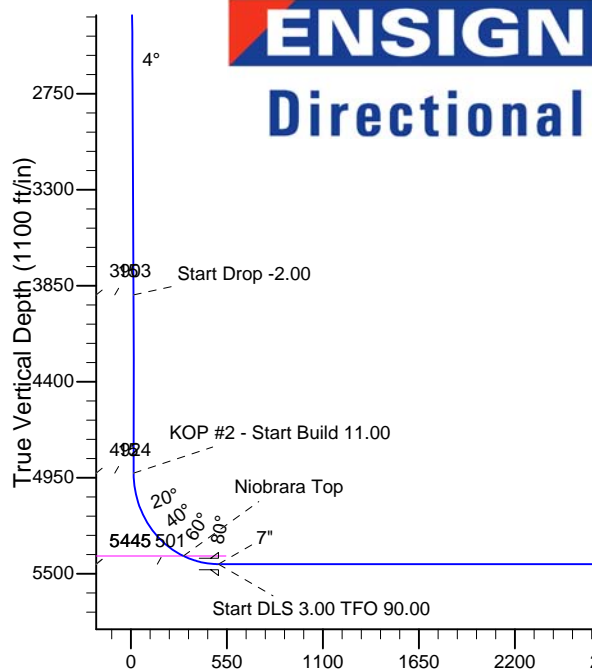
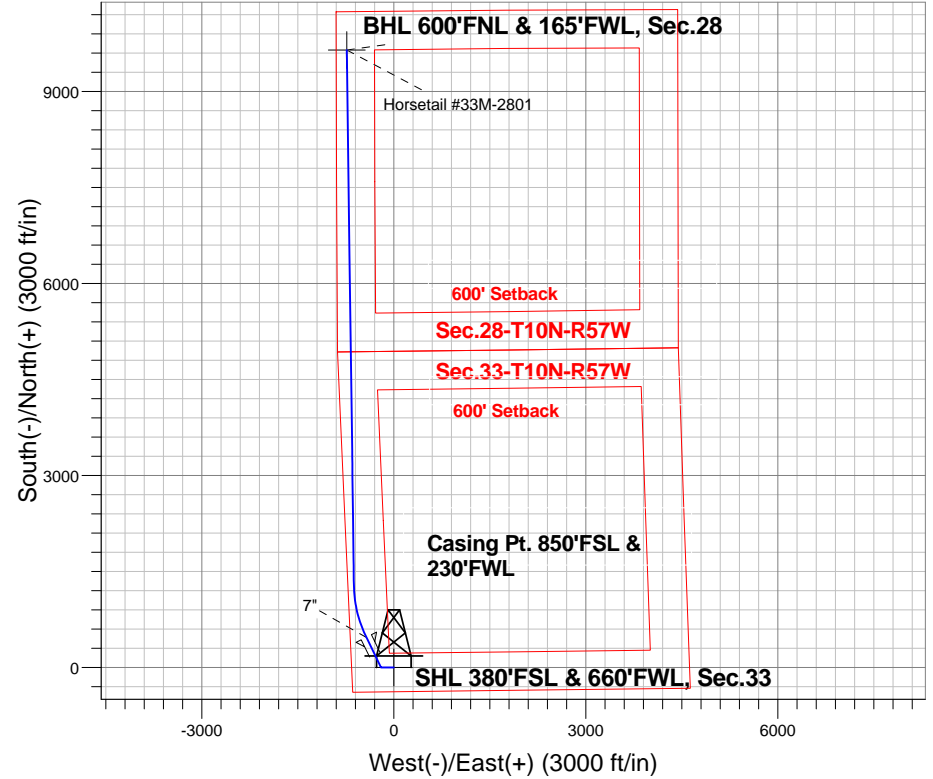
Azimuths to True North
 Magnetic North: 8.02°

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

Horsetail 33M Pad Sec.33-T10N-R57W
 Horsetail #33M-2801
 Plan #1 (10-24-13)
 15:56, October 29 2013

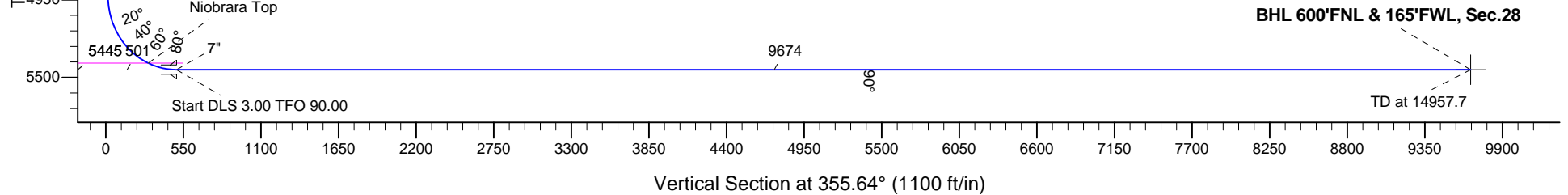
ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 2.00
3903.1	3909.7	Start Drop -2.00
4924.2	4930.9	KOP #2 - Start Build 11.00
5445.0	5751.4	Start DLS 3.00 TFO 90.00
5445.0	14957.7	TD at 14957.7



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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1197.1	3.94	270.00	1196.9	0.0	-6.8	2.00	270.00	0.5	
4	3909.7	3.94	270.00	3903.1	0.0	-193.2	0.00	0.00	14.7	
5	4106.7	0.00	0.00	4100.0	0.0	-200.0	2.00	180.00	15.2	
6	4930.9	0.00	0.00	4924.1	0.0	-200.0	0.00	0.00	15.2	
7	5749.0	90.00	333.92	5445.0	467.9	-429.0	11.00	333.92	499.1	
8	5751.4	90.00	333.92	5445.0	470.0	-430.0	0.00	0.00	501.3	
9	6595.1	90.00	359.24	5445.0	1284.0	-624.2	3.00	90.00	1327.8	
10	14957.7	90.00	359.24	5445.0	9645.9	-735.7	0.00	0.00	9673.9	BHL 600'FNL & 165'FWL, Sec.28





Whiting Oil & Gas

Sec.33-T10N-R57W

Horsetail 33M Pad Sec.33-T10N-R57W

Horsetail #33M-2801

Wellbore #1

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

Standard Planning Report

29 October, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-24-13)		

Project	Sec.33-T10N-R57W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Horsetail 33M Pad Sec.33-T10N-R57W				
Site Position:		Northing:	1,535,033.54 ft	Latitude:	40.789107
From:	Lat/Long	Easting:	3,481,206.34 ft	Longitude:	-103.762128
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	1.12 °

Well	Horsetail #33M-2801					
Well Position	+N-S	-32.8 ft	Northing:	1,535,000.75 ft	Latitude:	40.789017
	+E-W	0.0 ft	Easting:	3,481,206.99 ft	Longitude:	-103.762128
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,634.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/24/2013	8.02	67.44	53,188

Design	Plan #1 (10-24-13)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.0	0.0	0.0	355.64

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,197.1	3.94	270.00	1,196.9	0.0	-6.8	2.00	2.00	0.00	270.00	
3,909.7	3.94	270.00	3,903.1	0.0	-193.2	0.00	0.00	0.00	0.00	
4,106.7	0.00	0.00	4,100.0	0.0	-200.0	2.00	-2.00	0.00	180.00	
4,930.9	0.00	0.00	4,924.1	0.0	-200.0	0.00	0.00	0.00	0.00	
5,749.0	90.00	333.92	5,445.0	467.9	-429.0	11.00	11.00	0.00	333.92	
5,751.4	90.00	333.92	5,445.0	470.0	-430.0	0.00	0.00	0.00	0.00	
6,595.1	90.00	359.24	5,445.0	1,284.0	-624.2	3.00	0.00	3.00	90.00	
14,957.7	90.00	359.24	5,445.0	9,645.9	-735.7	0.00	0.00	0.00	0.00	BHL 600'FNL & 16'

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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 & 660'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	
KOP - Start Build 2.00										
1,100.0	2.00	270.00	1,100.0	0.0	-1.7	0.1	2.00	2.00	0.00	
1,197.1	3.94	270.00	1,196.9	0.0	-6.8	0.5	2.00	2.00	0.00	
1,200.0	3.94	270.00	1,199.8	0.0	-7.0	0.5	0.00	0.00	0.00	
1,300.0	3.94	270.00	1,299.6	0.0	-13.9	1.1	0.00	0.00	0.00	
1,400.0	3.94	270.00	1,399.4	0.0	-20.7	1.6	0.00	0.00	0.00	
1,500.0	3.94	270.00	1,499.1	0.0	-27.6	2.1	0.00	0.00	0.00	
1,600.0	3.94	270.00	1,598.9	0.0	-34.5	2.6	0.00	0.00	0.00	
1,700.0	3.94	270.00	1,698.7	0.0	-41.3	3.1	0.00	0.00	0.00	
1,800.0	3.94	270.00	1,798.4	0.0	-48.2	3.7	0.00	0.00	0.00	
1,900.0	3.94	270.00	1,898.2	0.0	-55.1	4.2	0.00	0.00	0.00	
2,000.0	3.94	270.00	1,997.9	0.0	-62.0	4.7	0.00	0.00	0.00	
2,100.0	3.94	270.00	2,097.7	0.0	-68.8	5.2	0.00	0.00	0.00	
2,200.0	3.94	270.00	2,197.5	0.0	-75.7	5.8	0.00	0.00	0.00	
2,300.0	3.94	270.00	2,297.2	0.0	-82.6	6.3	0.00	0.00	0.00	
2,400.0	3.94	270.00	2,397.0	0.0	-89.5	6.8	0.00	0.00	0.00	
2,500.0	3.94	270.00	2,496.8	0.0	-96.3	7.3	0.00	0.00	0.00	
2,600.0	3.94	270.00	2,596.5	0.0	-103.2	7.8	0.00	0.00	0.00	
2,700.0	3.94	270.00	2,696.3	0.0	-110.1	8.4	0.00	0.00	0.00	
2,800.0	3.94	270.00	2,796.1	0.0	-117.0	8.9	0.00	0.00	0.00	
2,900.0	3.94	270.00	2,895.8	0.0	-123.8	9.4	0.00	0.00	0.00	
3,000.0	3.94	270.00	2,995.6	0.0	-130.7	9.9	0.00	0.00	0.00	
3,100.0	3.94	270.00	3,095.3	0.0	-137.6	10.5	0.00	0.00	0.00	
3,200.0	3.94	270.00	3,195.1	0.0	-144.4	11.0	0.00	0.00	0.00	
3,300.0	3.94	270.00	3,294.9	0.0	-151.3	11.5	0.00	0.00	0.00	
3,400.0	3.94	270.00	3,394.6	0.0	-158.2	12.0	0.00	0.00	0.00	
3,500.0	3.94	270.00	3,494.4	0.0	-165.1	12.6	0.00	0.00	0.00	
3,600.0	3.94	270.00	3,594.2	0.0	-171.9	13.1	0.00	0.00	0.00	
3,700.0	3.94	270.00	3,693.9	0.0	-178.8	13.6	0.00	0.00	0.00	
3,800.0	3.94	270.00	3,793.7	0.0	-185.7	14.1	0.00	0.00	0.00	
3,900.0	3.94	270.00	3,893.5	0.0	-192.6	14.6	0.00	0.00	0.00	
3,909.7	3.94	270.00	3,903.1	0.0	-193.2	14.7	0.00	0.00	0.00	
Start Drop -2.00										
4,000.0	2.13	270.00	3,993.3	0.0	-198.0	15.1	2.00	-2.00	0.00	
4,100.0	0.13	270.00	4,093.3	0.0	-200.0	15.2	2.00	-2.00	0.00	
4,106.7	0.00	0.00	4,100.0	0.0	-200.0	15.2	2.00	-2.00	0.00	
4,200.0	0.00	0.00	4,193.3	0.0	-200.0	15.2	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,293.3	0.0	-200.0	15.2	0.00	0.00	0.00	
4,400.0	0.00	0.00	4,393.3	0.0	-200.0	15.2	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,493.3	0.0	-200.0	15.2	0.00	0.00	0.00	

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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-2801	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	4,593.3	0.0	-200.0	15.2	0.00	0.00	0.00
4,700.0	0.00	0.00	4,693.3	0.0	-200.0	15.2	0.00	0.00	0.00
4,800.0	0.00	0.00	4,793.3	0.0	-200.0	15.2	0.00	0.00	0.00
4,900.0	0.00	0.00	4,893.3	0.0	-200.0	15.2	0.00	0.00	0.00
4,930.9	0.00	0.00	4,924.2	0.0	-200.0	15.2	0.00	0.00	0.00
KOP #2 - Start Build 11.00									
5,000.0	7.61	333.92	4,993.1	4.1	-202.0	19.5	11.01	11.01	0.00
5,100.0	18.61	333.92	5,090.3	24.5	-212.0	40.5	11.00	11.00	0.00
5,200.0	29.61	333.92	5,181.5	61.1	-229.9	78.4	11.00	11.00	0.00
5,300.0	40.61	333.92	5,263.1	112.7	-255.1	131.7	11.00	11.00	0.00
5,400.0	51.61	333.92	5,332.4	177.3	-286.8	198.6	11.00	11.00	0.00
5,500.0	62.61	333.92	5,386.6	252.6	-323.6	276.5	11.00	11.00	0.00
5,528.5	65.74	333.92	5,399.0	275.6	-334.9	300.3	11.00	11.00	0.00
Niobrara Top									
5,600.0	73.61	333.92	5,423.8	335.8	-364.3	362.5	11.00	11.00	0.00
5,700.0	84.61	333.92	5,442.7	423.9	-407.4	453.6	11.00	11.00	0.00
5,749.0	90.00	333.92	5,445.0	467.9	-429.0	499.1	11.00	11.00	0.00
5,751.4	90.00	333.92	5,445.0	470.0	-430.0	501.3	0.00	0.00	0.00
Start DLS 3.00 TFO 90.00 - 7"									
5,800.0	90.00	335.38	5,445.0	513.9	-450.8	546.7	3.00	0.00	3.00
5,900.0	90.00	338.38	5,445.0	605.9	-490.1	641.4	3.00	0.00	3.00
6,000.0	90.00	341.38	5,445.0	699.7	-524.4	737.6	3.00	0.00	3.00
6,100.0	90.00	344.38	5,445.0	795.3	-553.9	835.1	3.00	0.00	3.00
6,200.0	90.00	347.38	5,445.0	892.3	-578.3	933.7	3.00	0.00	3.00
6,300.0	90.00	350.38	5,445.0	990.4	-597.5	1,033.0	3.00	0.00	3.00
6,400.0	90.00	353.38	5,445.0	1,089.4	-611.7	1,132.7	3.00	0.00	3.00
6,500.0	90.00	356.38	5,445.0	1,189.0	-620.6	1,232.7	3.00	0.00	3.00
6,595.1	90.00	359.24	5,445.0	1,284.0	-624.2	1,327.8	3.00	0.00	3.00
6,600.0	90.00	359.24	5,445.0	1,288.9	-624.3	1,332.6	0.00	0.00	0.00
6,700.0	90.00	359.24	5,445.0	1,388.9	-625.6	1,432.4	0.00	0.00	0.00
6,800.0	90.00	359.24	5,445.0	1,488.9	-627.0	1,532.2	0.00	0.00	0.00
6,900.0	90.00	359.24	5,445.0	1,588.9	-628.3	1,632.0	0.00	0.00	0.00
7,000.0	90.00	359.24	5,445.0	1,688.8	-629.6	1,731.8	0.00	0.00	0.00
7,100.0	90.00	359.24	5,445.0	1,788.8	-631.0	1,831.6	0.00	0.00	0.00
7,200.0	90.00	359.24	5,445.0	1,888.8	-632.3	1,931.4	0.00	0.00	0.00
7,300.0	90.00	359.24	5,445.0	1,988.8	-633.6	2,031.2	0.00	0.00	0.00
7,400.0	90.00	359.24	5,445.0	2,088.8	-635.0	2,131.1	0.00	0.00	0.00
7,500.0	90.00	359.24	5,445.0	2,188.8	-636.3	2,230.9	0.00	0.00	0.00
7,600.0	90.00	359.24	5,445.0	2,288.8	-637.6	2,330.7	0.00	0.00	0.00
7,700.0	90.00	359.24	5,445.0	2,388.8	-639.0	2,430.5	0.00	0.00	0.00
7,800.0	90.00	359.24	5,445.0	2,488.8	-640.3	2,530.3	0.00	0.00	0.00
7,900.0	90.00	359.24	5,445.0	2,588.8	-641.6	2,630.1	0.00	0.00	0.00
8,000.0	90.00	359.24	5,445.0	2,688.8	-643.0	2,729.9	0.00	0.00	0.00
8,100.0	90.00	359.24	5,445.0	2,788.7	-644.3	2,829.7	0.00	0.00	0.00
8,200.0	90.00	359.24	5,445.0	2,888.7	-645.6	2,929.5	0.00	0.00	0.00
8,300.0	90.00	359.24	5,445.0	2,988.7	-647.0	3,029.3	0.00	0.00	0.00
8,400.0	90.00	359.24	5,445.0	3,088.7	-648.3	3,129.1	0.00	0.00	0.00
8,500.0	90.00	359.24	5,445.0	3,188.7	-649.6	3,228.9	0.00	0.00	0.00
8,600.0	90.00	359.24	5,445.0	3,288.7	-651.0	3,328.7	0.00	0.00	0.00
8,700.0	90.00	359.24	5,445.0	3,388.7	-652.3	3,428.5	0.00	0.00	0.00
8,800.0	90.00	359.24	5,445.0	3,488.7	-653.6	3,528.3	0.00	0.00	0.00
8,900.0	90.00	359.24	5,445.0	3,588.7	-655.0	3,628.1	0.00	0.00	0.00
9,000.0	90.00	359.24	5,445.0	3,688.7	-656.3	3,727.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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	359.24	5,445.0	3,788.7	-657.6	3,827.7	0.00	0.00	0.00
9,200.0	90.00	359.24	5,445.0	3,888.6	-659.0	3,927.5	0.00	0.00	0.00
9,300.0	90.00	359.24	5,445.0	3,988.6	-660.3	4,027.3	0.00	0.00	0.00
9,400.0	90.00	359.24	5,445.0	4,088.6	-661.6	4,127.1	0.00	0.00	0.00
9,500.0	90.00	359.24	5,445.0	4,188.6	-663.0	4,226.9	0.00	0.00	0.00
9,600.0	90.00	359.24	5,445.0	4,288.6	-664.3	4,326.7	0.00	0.00	0.00
9,700.0	90.00	359.24	5,445.0	4,388.6	-665.6	4,426.5	0.00	0.00	0.00
9,800.0	90.00	359.24	5,445.0	4,488.6	-667.0	4,526.3	0.00	0.00	0.00
9,900.0	90.00	359.24	5,445.0	4,588.6	-668.3	4,626.1	0.00	0.00	0.00
10,000.0	90.00	359.24	5,445.0	4,688.6	-669.6	4,725.9	0.00	0.00	0.00
10,100.0	90.00	359.24	5,445.0	4,788.6	-671.0	4,825.7	0.00	0.00	0.00
10,200.0	90.00	359.24	5,445.0	4,888.6	-672.3	4,925.5	0.00	0.00	0.00
10,300.0	90.00	359.24	5,445.0	4,988.6	-673.6	5,025.3	0.00	0.00	0.00
10,400.0	90.00	359.24	5,445.0	5,088.5	-675.0	5,125.1	0.00	0.00	0.00
10,500.0	90.00	359.24	5,445.0	5,188.5	-676.3	5,224.9	0.00	0.00	0.00
10,600.0	90.00	359.24	5,445.0	5,288.5	-677.6	5,324.7	0.00	0.00	0.00
10,700.0	90.00	359.24	5,445.0	5,388.5	-679.0	5,424.5	0.00	0.00	0.00
10,800.0	90.00	359.24	5,445.0	5,488.5	-680.3	5,524.4	0.00	0.00	0.00
10,900.0	90.00	359.24	5,445.0	5,588.5	-681.6	5,624.2	0.00	0.00	0.00
11,000.0	90.00	359.24	5,445.0	5,688.5	-683.0	5,724.0	0.00	0.00	0.00
11,100.0	90.00	359.24	5,445.0	5,788.5	-684.3	5,823.8	0.00	0.00	0.00
11,200.0	90.00	359.24	5,445.0	5,888.5	-685.6	5,923.6	0.00	0.00	0.00
11,300.0	90.00	359.24	5,445.0	5,988.5	-687.0	6,023.4	0.00	0.00	0.00
11,400.0	90.00	359.24	5,445.0	6,088.5	-688.3	6,123.2	0.00	0.00	0.00
11,500.0	90.00	359.24	5,445.0	6,188.4	-689.6	6,223.0	0.00	0.00	0.00
11,600.0	90.00	359.24	5,445.0	6,288.4	-691.0	6,322.8	0.00	0.00	0.00
11,700.0	90.00	359.24	5,445.0	6,388.4	-692.3	6,422.6	0.00	0.00	0.00
11,800.0	90.00	359.24	5,445.0	6,488.4	-693.6	6,522.4	0.00	0.00	0.00
11,900.0	90.00	359.24	5,445.0	6,588.4	-695.0	6,622.2	0.00	0.00	0.00
12,000.0	90.00	359.24	5,445.0	6,688.4	-696.3	6,722.0	0.00	0.00	0.00
12,100.0	90.00	359.24	5,445.0	6,788.4	-697.6	6,821.8	0.00	0.00	0.00
12,200.0	90.00	359.24	5,445.0	6,888.4	-699.0	6,921.6	0.00	0.00	0.00
12,300.0	90.00	359.24	5,445.0	6,988.4	-700.3	7,021.4	0.00	0.00	0.00
12,400.0	90.00	359.24	5,445.0	7,088.4	-701.6	7,121.2	0.00	0.00	0.00
12,500.0	90.00	359.24	5,445.0	7,188.4	-703.0	7,221.0	0.00	0.00	0.00
12,600.0	90.00	359.24	5,445.0	7,288.3	-704.3	7,320.8	0.00	0.00	0.00
12,700.0	90.00	359.24	5,445.0	7,388.3	-705.6	7,420.6	0.00	0.00	0.00
12,800.0	90.00	359.24	5,445.0	7,488.3	-707.0	7,520.4	0.00	0.00	0.00
12,900.0	90.00	359.24	5,445.0	7,588.3	-708.3	7,620.2	0.00	0.00	0.00
13,000.0	90.00	359.24	5,445.0	7,688.3	-709.6	7,720.0	0.00	0.00	0.00
13,100.0	90.00	359.24	5,445.0	7,788.3	-711.0	7,819.8	0.00	0.00	0.00
13,200.0	90.00	359.24	5,445.0	7,888.3	-712.3	7,919.6	0.00	0.00	0.00
13,300.0	90.00	359.24	5,445.0	7,988.3	-713.6	8,019.4	0.00	0.00	0.00
13,400.0	90.00	359.24	5,445.0	8,088.3	-715.0	8,119.2	0.00	0.00	0.00
13,500.0	90.00	359.24	5,445.0	8,188.3	-716.3	8,219.0	0.00	0.00	0.00
13,600.0	90.00	359.24	5,445.0	8,288.3	-717.6	8,318.8	0.00	0.00	0.00
13,700.0	90.00	359.24	5,445.0	8,388.2	-719.0	8,418.6	0.00	0.00	0.00
13,800.0	90.00	359.24	5,445.0	8,488.2	-720.3	8,518.4	0.00	0.00	0.00
13,900.0	90.00	359.24	5,445.0	8,588.2	-721.6	8,618.2	0.00	0.00	0.00
14,000.0	90.00	359.24	5,445.0	8,688.2	-723.0	8,718.0	0.00	0.00	0.00
14,100.0	90.00	359.24	5,445.0	8,788.2	-724.3	8,817.8	0.00	0.00	0.00
14,200.0	90.00	359.24	5,445.0	8,888.2	-725.6	8,917.6	0.00	0.00	0.00
14,300.0	90.00	359.24	5,445.0	8,988.2	-727.0	9,017.5	0.00	0.00	0.00
14,400.0	90.00	359.24	5,445.0	9,088.2	-728.3	9,117.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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	359.24	5,445.0	9,188.2	-729.6	9,217.1	0.00	0.00	0.00	
14,600.0	90.00	359.24	5,445.0	9,288.2	-731.0	9,316.9	0.00	0.00	0.00	
14,700.0	90.00	359.24	5,445.0	9,388.2	-732.3	9,416.7	0.00	0.00	0.00	
14,800.0	90.00	359.24	5,445.0	9,488.2	-733.6	9,516.5	0.00	0.00	0.00	
14,900.0	90.00	359.24	5,445.0	9,588.1	-735.0	9,616.3	0.00	0.00	0.00	
14,957.7	90.00	359.24	5,445.0	9,645.8	-735.7	9,673.9	0.00	0.00	0.00	
TD at 14957.7 - BHL 600'FNL & 165'FWL, Sec.28										

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
BHL 600'FNL & 165'F - hit/miss target center - Shape - Point	0.00	0.00	5,445.0	9,645.9	-735.7	1,544,630.35	3,480,282.35	40.815492	-103.764786	
SHL 380'FSL & 660'F - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,535,000.76	3,481,206.99	40.789017	-103.762128	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
5,751.4	5,445.0	7"	7	7-1/2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,528.5	5,399.0	Niobrara Top		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 2.00	
3,909.7	3,903.1	0.0	-193.2	Start Drop -2.00	
4,930.9	4,924.2	0.0	-200.0	KOP #2 - Start Build 11.00	
5,751.4	5,445.0	470.0	-430.0	Start DLS 3.00 TFO 90.00	
14,957.7	5,445.0	9,645.8	-735.7	TD at 14957.7	



Directional

Whiting Oil & Gas

Sec.33-T10N-R57W

Horsetail 33M Pad Sec.33-T10N-R57W

Horsetail #33M-2801

Wellbore #1

Plan #1 (10-24-13)

Anticollision Report

29 October, 2013

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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	Plan #1 (10-24-13)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	10/29/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,957.7	Plan #1 (10-24-13) (Wellbore #1)	MWD	MWD - Standard

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Horsetail 33M Pad Sec.33-T10N-R57W						
Horsetail #33M-2802 - Wellbore #1 - Plan #1 (10-24-13)	1,000.0	1,000.0	30.2	25.9	7.070	CC
Horsetail #33M-2802 - Wellbore #1 - Plan #1 (10-24-13)	14,957.7	14,884.1	334.8	-31.7	0.913	Level 1, ES, SF
Horsetail #33M-2803 - Wellbore #1 - Plan #1 (10-24-13)	1,000.0	1,000.0	60.1	55.8	14.072	CC, ES
Horsetail #33M-2803 - Wellbore #1 - Plan #1 (10-24-13)	14,957.7	14,759.2	659.6	288.4	1.777	SF
Horsetail #33M-2804 - Wellbore #1 - Plan #1 (10-24-13)	1,000.0	1,000.0	90.0	85.7	21.078	CC, ES
Horsetail #33M-2804 - Wellbore #1 - Plan #1 (10-24-13)	14,957.7	14,927.5	991.2	619.9	2.669	SF

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft) Offset (ft)		Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	88.62	0.7	30.2	30.2					
100.0	100.0	100.0	100.0	0.1	0.1	88.62	0.7	30.2	30.2	30.0	0.22	134.327		
200.0	200.0	200.0	200.0	0.3	0.3	88.62	0.7	30.2	30.2	29.5	0.67	44.776		
300.0	300.0	300.0	300.0	0.6	0.6	88.62	0.7	30.2	30.2	29.1	1.12	26.865		
400.0	400.0	400.0	400.0	0.8	0.8	88.62	0.7	30.2	30.2	28.6	1.57	19.190		
500.0	500.0	500.0	500.0	1.0	1.0	88.62	0.7	30.2	30.2	28.2	2.02	14.925		
600.0	600.0	600.0	600.0	1.2	1.2	88.62	0.7	30.2	30.2	27.7	2.47	12.212		
700.0	700.0	700.0	700.0	1.5	1.5	88.62	0.7	30.2	30.2	27.3	2.92	10.333		
800.0	800.0	800.0	800.0	1.7	1.7	88.62	0.7	30.2	30.2	26.8	3.37	8.955		
900.0	900.0	900.0	900.0	1.9	1.9	88.62	0.7	30.2	30.2	26.4	3.82	7.902		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	88.62	0.7	30.2	30.2	25.9	4.27	7.070	CC	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	178.70	0.7	30.2	31.9	27.2	4.71	6.787		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	178.88	0.7	30.2	37.2	32.0	5.13	7.250		
1,300.0	1,299.6	1,299.6	1,299.6	2.8	2.8	179.05	0.7	30.2	44.0	38.5	5.55	7.929		
1,400.0	1,399.4	1,399.4	1,399.4	3.0	3.0	179.18	0.7	30.2	50.9	44.9	5.99	8.505		
1,500.0	1,499.1	1,499.1	1,499.1	3.2	3.3	179.28	0.7	30.2	57.8	51.4	6.42	9.000		
1,600.0	1,598.9	1,600.4	1,600.4	3.5	3.5	178.22	2.0	28.9	63.5	56.6	6.86	9.256		
1,700.0	1,698.7	1,701.4	1,701.3	3.7	3.7	175.16	5.6	25.3	66.9	59.6	7.29	9.179		
1,800.0	1,798.4	1,801.3	1,801.0	3.9	3.9	171.84	9.9	21.0	70.0	62.2	7.73	9.054		
1,900.0	1,898.2	1,901.2	1,900.7	4.2	4.2	168.80	14.2	16.7	73.2	65.1	8.17	8.963		
2,000.0	1,997.9	2,001.1	2,000.3	4.4	4.4	166.03	18.5	12.4	76.7	68.1	8.62	8.898		

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-2801
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-2801	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-2802 - Wellbore #1 - Plan #1 (10-24-13)	Offset Site Error:	0.0ft
Survey Program: 0-MWD														Offset Well Error:	0.0ft
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	2,097.7	2,100.9	2,100.0	4.7	4.6	163.51	22.8	8.1	80.3	71.2	9.07	8.852			
2,200.0	2,197.5	2,200.8	2,199.7	4.9	4.8	161.20	27.1	3.8	84.1	74.5	9.53	8.822			
2,300.0	2,297.2	2,300.7	2,299.4	5.2	5.1	159.10	31.4	-0.4	87.9	78.0	9.99	8.803			
2,400.0	2,397.0	2,400.6	2,399.1	5.4	5.3	157.17	35.6	-4.7	91.9	81.5	10.46	8.793			
2,500.0	2,496.8	2,500.4	2,498.8	5.7	5.6	155.41	39.9	-9.0	96.0	85.1	10.93	8.790			
2,600.0	2,596.5	2,600.3	2,598.5	5.9	5.8	153.79	44.2	-13.3	100.2	88.8	11.40	8.792			
2,700.0	2,696.3	2,700.2	2,698.2	6.2	6.0	152.31	48.5	-17.6	104.5	92.6	11.87	8.798			
2,800.0	2,796.1	2,800.1	2,797.9	6.4	6.3	150.94	52.8	-21.9	108.8	96.4	12.35	8.807			
2,900.0	2,895.8	2,899.9	2,897.6	6.7	6.5	149.67	57.1	-26.2	113.1	100.3	12.83	8.819			
3,000.0	2,995.6	2,999.8	2,997.3	6.9	6.8	148.50	61.4	-30.4	117.5	104.2	13.31	8.833			
3,100.0	3,095.3	3,099.7	3,096.9	7.2	7.0	147.42	65.6	-34.7	122.0	108.2	13.79	8.847			
3,200.0	3,195.1	3,199.6	3,196.6	7.4	7.2	146.41	69.9	-39.0	126.5	112.2	14.28	8.863			
3,300.0	3,294.9	3,299.4	3,296.3	7.7	7.5	145.47	74.2	-43.3	131.1	116.3	14.76	8.879			
3,400.0	3,394.6	3,399.3	3,396.0	8.0	7.7	144.59	78.5	-47.6	135.6	120.4	15.25	8.896			
3,500.0	3,494.4	3,499.2	3,495.7	8.2	8.0	143.78	82.8	-51.9	140.2	124.5	15.73	8.913			
3,600.0	3,594.2	3,599.1	3,595.4	8.5	8.2	143.01	87.1	-56.2	144.9	128.6	16.22	8.930			
3,700.0	3,693.9	3,698.9	3,695.1	8.7	8.5	142.29	91.4	-60.4	149.5	132.8	16.71	8.947			
3,800.0	3,793.7	3,798.8	3,794.8	9.0	8.7	141.62	95.6	-64.7	154.2	137.0	17.20	8.964			
3,900.0	3,893.5	3,898.3	3,894.1	9.2	8.9	141.27	99.3	-68.4	159.0	141.3	17.67	9.000			
4,000.0	3,993.3	3,997.5	3,993.3	9.5	9.1	141.83	100.7	-69.8	163.0	145.0	18.05	9.030			
4,100.0	4,093.3	4,097.5	4,093.3	9.6	9.3	142.27	100.7	-69.8	164.6	146.2	18.42	8.936			
4,200.0	4,193.3	4,197.5	4,193.3	9.8	9.5	52.27	100.7	-69.8	164.6	146.1	18.50	8.899			
4,300.0	4,293.3	4,297.5	4,293.3	10.0	9.7	52.27	100.7	-69.8	164.6	145.7	18.92	8.700			
4,400.0	4,393.3	4,397.5	4,393.3	10.2	9.9	52.27	100.7	-69.8	164.6	145.3	19.34	8.510			
4,500.0	4,493.3	4,497.5	4,493.3	10.4	10.1	52.27	100.7	-69.8	164.6	144.8	19.77	8.327			
4,600.0	4,593.3	4,597.5	4,593.3	10.6	10.4	52.27	100.7	-69.8	164.6	144.4	20.19	8.152			
4,700.0	4,693.3	4,697.5	4,693.3	10.8	10.6	52.27	100.7	-69.8	164.6	144.0	20.62	7.983			
4,800.0	4,793.3	4,797.5	4,793.3	11.0	10.8	52.27	100.7	-69.8	164.6	143.6	21.05	7.821			
4,900.0	4,893.3	4,897.5	4,893.3	11.2	11.0	52.27	100.7	-69.8	164.6	143.1	21.47	7.665			
5,000.0	4,993.1	4,996.4	4,992.2	11.4	11.2	79.92	100.8	-69.9	163.8	141.6	22.18	7.384			
5,097.1	5,087.6	5,086.9	5,082.0	11.7	11.5	83.77	109.9	-73.5	162.9	140.2	22.62	7.200			
5,100.0	5,090.3	5,089.6	5,084.7	11.7	11.5	83.89	110.4	-73.7	162.9	140.2	22.64	7.195			
5,200.0	5,181.5	5,184.7	5,175.7	12.0	11.8	88.14	135.7	-84.0	164.0	140.7	23.26	7.049			
5,300.0	5,263.1	5,282.1	5,262.1	12.5	12.2	92.40	177.0	-100.7	167.3	143.2	24.11	6.937			
5,400.0	5,332.4	5,382.0	5,340.5	13.1	12.8	96.40	234.1	-123.8	172.7	147.5	25.27	6.835			
5,500.0	5,386.6	5,484.5	5,407.4	14.0	13.6	99.91	306.0	-153.0	180.0	153.2	26.83	6.709			
5,600.0	5,423.8	5,590.0	5,458.8	15.1	14.7	102.77	391.1	-187.4	188.6	159.7	28.88	6.531			
5,700.0	5,442.7	5,698.2	5,491.4	16.5	16.1	104.91	486.6	-226.1	197.9	166.5	31.45	6.292			
5,800.0	5,445.0	5,805.9	5,502.0	18.0	17.7	106.09	585.7	-266.3	206.0	171.7	34.34	5.998			
5,900.0	5,445.0	5,900.0	5,502.0	19.5	19.1	105.74	673.8	-299.5	210.2	173.0	37.16	5.656			
6,000.0	5,445.0	5,989.1	5,502.0	21.1	20.5	105.47	758.5	-326.9	213.9	174.0	39.91	5.359			
6,100.0	5,445.0	6,079.2	5,502.0	22.8	21.9	105.23	845.5	-350.5	217.1	174.4	42.68	5.086			
6,200.0	5,445.0	6,169.2	5,502.0	24.4	23.3	105.03	933.3	-370.0	219.8	174.4	45.42	4.840			
6,300.0	5,445.0	6,259.1	5,502.0	26.0	24.7	104.88	1,021.9	-385.3	222.0	173.9	48.08	4.618			
6,400.0	5,445.0	6,349.0	5,502.0	27.6	26.2	104.76	1,111.1	-396.4	223.7	173.1	50.64	4.418			
6,500.0	5,445.0	6,438.8	5,502.0	29.2	27.6	104.68	1,200.6	-403.3	224.9	171.8	53.07	4.238			
6,600.0	5,445.0	6,528.5	5,502.0	30.8	29.0	104.64	1,290.3	-406.0	225.6	170.2	55.41	4.071			
6,700.0	5,445.0	6,627.1	5,502.0	32.3	30.6	104.56	1,388.9	-406.1	226.8	168.2	58.58	3.872			
6,800.0	5,445.0	6,727.1	5,502.0	33.9	32.2	104.47	1,488.9	-406.1	228.1	166.3	61.83	3.689			
6,900.0	5,445.0	6,827.1	5,502.0	35.5	33.8	104.39	1,588.8	-406.1	229.4	164.3	65.14	3.522			
7,000.0	5,445.0	6,927.1	5,502.0	37.1	35.5	104.31	1,688.8	-406.1	230.7	162.2	68.50	3.368			
7,100.0	5,445.0	7,027.0	5,502.0	38.8	37.2	104.22	1,788.8	-406.1	232.0	160.1	71.90	3.227			

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-2801
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-2801	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-2802 - Wellbore #1 - Plan #1 (10-24-13)	Offset Site Error:	0.0ft
Survey Program: 0-MWD														Offset Well Error:	0.0ft
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			
7,200.0	5,445.0	7,127.0	5,502.0	40.4	38.9	104.14	1,888.8	-406.1	233.3	158.0	75.33	3.097			
7,300.0	5,445.0	7,227.0	5,502.0	42.1	40.6	104.06	1,988.8	-406.1	234.6	155.8	78.80	2.977			
7,400.0	5,445.0	7,327.0	5,502.0	43.9	42.4	103.98	2,088.8	-406.1	235.9	153.6	82.30	2.866			
7,500.0	5,445.0	7,427.0	5,502.0	45.6	44.2	103.91	2,188.8	-406.0	237.2	151.4	85.83	2.764			
7,600.0	5,445.0	7,527.0	5,502.0	47.4	45.9	103.83	2,288.8	-406.0	238.5	149.1	89.37	2.668			
7,700.0	5,445.0	7,627.0	5,502.0	49.1	47.7	103.75	2,388.8	-406.0	239.8	146.8	92.94	2.580			
7,800.0	5,445.0	7,727.0	5,502.0	50.9	49.5	103.68	2,488.8	-406.0	241.1	144.6	96.53	2.498			
7,900.0	5,445.0	7,827.0	5,502.0	52.7	51.3	103.60	2,588.8	-406.0	242.4	142.3	100.13	2.421			
8,000.0	5,445.0	7,927.0	5,502.0	54.5	53.2	103.53	2,688.7	-406.0	243.7	139.9	103.75	2.349			
8,100.0	5,445.0	8,027.0	5,502.0	56.3	55.0	103.46	2,788.7	-406.0	245.0	137.6	107.38	2.282			
8,200.0	5,445.0	8,127.0	5,502.0	58.1	56.8	103.38	2,888.7	-406.0	246.3	135.3	111.02	2.218			
8,300.0	5,445.0	8,226.9	5,502.0	59.9	58.6	103.31	2,988.7	-406.0	247.6	132.9	114.67	2.159			
8,400.0	5,445.0	8,326.9	5,502.0	61.8	60.5	103.24	3,088.7	-406.0	248.9	130.6	118.34	2.103			
8,500.0	5,445.0	8,426.9	5,502.0	63.6	62.3	103.17	3,188.7	-406.0	250.2	128.2	122.01	2.051			
8,600.0	5,445.0	8,526.9	5,502.0	65.4	64.2	103.10	3,288.7	-406.0	251.5	125.8	125.69	2.001			
8,700.0	5,445.0	8,626.9	5,502.0	67.3	66.0	103.03	3,388.7	-406.0	252.8	123.4	129.38	1.954			
8,800.0	5,445.0	8,726.9	5,502.0	69.1	67.9	102.96	3,488.7	-406.0	254.1	121.0	133.08	1.909			
8,900.0	5,445.0	8,826.9	5,502.0	71.0	69.8	102.90	3,588.7	-406.0	255.4	118.6	136.79	1.867			
9,000.0	5,445.0	8,926.9	5,502.0	72.8	71.6	102.83	3,688.7	-406.0	256.7	116.2	140.50	1.827			
9,100.0	5,445.0	9,026.9	5,502.0	74.7	73.5	102.76	3,788.6	-406.0	258.0	113.8	144.21	1.789			
9,200.0	5,445.0	9,126.9	5,502.0	76.6	75.4	102.70	3,888.6	-406.0	259.3	111.4	147.94	1.753			
9,300.0	5,445.0	9,226.9	5,502.0	78.4	77.3	102.63	3,988.6	-406.0	260.6	109.0	151.67	1.718			
9,400.0	5,445.0	9,326.8	5,502.0	80.3	79.1	102.57	4,088.6	-406.0	261.9	106.5	155.40	1.685			
9,500.0	5,445.0	9,426.8	5,502.0	82.2	81.0	102.51	4,188.6	-406.0	263.2	104.1	159.14	1.654			
9,600.0	5,445.0	9,526.8	5,502.0	84.1	82.9	102.44	4,288.6	-406.0	264.5	101.7	162.88	1.624			
9,700.0	5,445.0	9,626.8	5,502.0	85.9	84.8	102.38	4,388.6	-406.0	265.8	99.2	166.63	1.595			
9,800.0	5,445.0	9,726.8	5,502.0	87.8	86.7	102.32	4,488.6	-406.0	267.1	96.8	170.38	1.568			
9,900.0	5,445.0	9,826.8	5,502.0	89.7	88.6	102.26	4,588.6	-406.0	268.5	94.3	174.13	1.542			
10,000.0	5,445.0	9,926.8	5,502.0	91.6	90.5	102.20	4,688.6	-406.0	269.8	91.9	177.89	1.516			
10,100.0	5,445.0	10,026.8	5,502.0	93.5	92.3	102.14	4,788.6	-406.0	271.1	89.4	181.65	1.492 Level 3			
10,200.0	5,445.0	10,126.8	5,502.0	95.4	94.2	102.08	4,888.6	-406.0	272.4	87.0	185.42	1.469 Level 3			
10,300.0	5,445.0	10,226.8	5,502.0	97.3	96.1	102.02	4,988.5	-405.9	273.7	84.5	189.18	1.447 Level 3			
10,400.0	5,445.0	10,326.8	5,502.0	99.2	98.0	101.96	5,088.5	-405.9	275.0	82.0	192.95	1.425 Level 3			
10,500.0	5,445.0	10,426.7	5,502.0	101.1	99.9	101.91	5,188.5	-405.9	276.3	79.6	196.73	1.404 Level 3			
10,600.0	5,445.0	10,526.7	5,502.0	102.9	101.8	101.85	5,288.5	-405.9	277.6	77.1	200.50	1.385 Level 3			
10,700.0	5,445.0	10,626.7	5,502.0	104.8	103.7	101.79	5,388.5	-405.9	278.9	74.6	204.28	1.365 Level 3			
10,800.0	5,445.0	10,726.7	5,502.0	106.7	105.6	101.74	5,488.5	-405.9	280.2	72.2	208.06	1.347 Level 3			
10,900.0	5,445.0	10,826.7	5,502.0	108.6	107.5	101.68	5,588.5	-405.9	281.5	69.7	211.85	1.329 Level 3			
11,000.0	5,445.0	10,926.7	5,502.0	110.5	109.4	101.63	5,688.5	-405.9	282.8	67.2	215.63	1.312 Level 3			
11,100.0	5,445.0	11,026.7	5,502.0	112.4	111.3	101.57	5,788.5	-405.9	284.2	64.7	219.42	1.295 Level 3			
11,200.0	5,445.0	11,126.7	5,502.0	114.3	113.2	101.52	5,888.5	-405.9	285.5	62.3	223.21	1.279 Level 3			
11,300.0	5,445.0	11,226.7	5,502.0	116.3	115.1	101.47	5,988.5	-405.9	286.8	59.8	227.00	1.263 Level 3			
11,400.0	5,445.0	11,326.7	5,502.0	118.2	117.0	101.41	6,088.4	-405.9	288.1	57.3	230.79	1.248 Level 2			
11,500.0	5,445.0	11,426.7	5,502.0	120.1	119.0	101.36	6,188.4	-405.9	289.4	54.8	234.59	1.234 Level 2			
11,600.0	5,445.0	11,526.6	5,502.0	122.0	120.9	101.31	6,288.4	-405.9	290.7	52.3	238.39	1.219 Level 2			
11,700.0	5,445.0	11,626.6	5,502.0	123.9	122.8	101.26	6,388.4	-405.9	292.0	49.8	242.18	1.206 Level 2			
11,800.0	5,445.0	11,726.6	5,502.0	125.8	124.7	101.21	6,488.4	-405.9	293.3	47.3	245.98	1.192 Level 2			
11,900.0	5,445.0	11,826.6	5,502.0	127.7	126.6	101.16	6,588.4	-405.9	294.6	44.9	249.79	1.180 Level 2			
12,000.0	5,445.0	11,926.6	5,502.0	129.6	128.5	101.11	6,688.4	-405.9	296.0	42.4	253.59	1.167 Level 2			
12,100.0	5,445.0	12,026.6	5,502.0	131.5	130.4	101.06	6,788.4	-405.9	297.3	39.9	257.39	1.155 Level 2			
12,200.0	5,445.0	12,126.6	5,502.0	133.4	132.3	101.01	6,888.4	-405.9	298.6	37.4	261.20	1.143 Level 2			
12,300.0	5,445.0	12,226.6	5,502.0	135.3	134.2	100.96	6,988.4	-405.9	299.9	34.9	265.01	1.132 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-2801
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-2801	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			
12,400.0	5,445.0	12,326.6	5,502.0	137.2	136.1	100.91	7,088.4	-405.9	301.2	32.4	268.82	1.120	Level 2		
12,500.0	5,445.0	12,426.6	5,502.0	139.2	138.0	100.86	7,188.3	-405.9	302.5	29.9	272.63	1.110	Level 2		
12,600.0	5,445.0	12,526.6	5,502.0	141.1	140.0	100.81	7,288.3	-405.9	303.8	27.4	276.44	1.099	Level 2		
12,700.0	5,445.0	12,626.5	5,502.0	143.0	141.9	100.77	7,388.3	-405.9	305.1	24.9	280.25	1.089	Level 2		
12,800.0	5,445.0	12,726.5	5,502.0	144.9	143.8	100.72	7,488.3	-405.9	306.5	22.4	284.07	1.079	Level 2		
12,900.0	5,445.0	12,826.5	5,502.0	146.8	145.7	100.67	7,588.3	-405.9	307.8	19.9	287.88	1.069	Level 2		
13,000.0	5,445.0	12,926.5	5,502.0	148.7	147.6	100.63	7,688.3	-405.9	309.1	17.4	291.70	1.060	Level 2		
13,100.0	5,445.0	13,026.5	5,502.0	150.6	149.5	100.58	7,788.3	-405.8	310.4	14.9	295.52	1.050	Level 2		
13,200.0	5,445.0	13,126.5	5,502.0	152.6	151.4	100.54	7,888.3	-405.8	311.7	12.4	299.33	1.041	Level 2		
13,300.0	5,445.0	13,226.5	5,502.0	154.5	153.4	100.49	7,988.3	-405.8	313.0	9.9	303.15	1.033	Level 2		
13,400.0	5,445.0	13,326.5	5,502.0	156.4	155.3	100.45	8,088.3	-405.8	314.3	7.4	306.97	1.024	Level 2		
13,500.0	5,445.0	13,426.5	5,502.0	158.3	157.2	100.40	8,188.3	-405.8	315.7	4.9	310.79	1.016	Level 2		
13,600.0	5,445.0	13,526.5	5,502.0	160.2	159.1	100.36	8,288.2	-405.8	317.0	2.4	314.62	1.007	Level 2		
13,700.0	5,445.0	13,626.5	5,502.0	162.1	161.0	100.32	8,388.2	-405.8	318.3	-0.1	318.44	1.000	Level 1		
13,800.0	5,445.0	13,726.5	5,502.0	164.1	162.9	100.27	8,488.2	-405.8	319.6	-2.7	322.26	0.992	Level 1		
13,900.0	5,445.0	13,826.4	5,502.0	166.0	164.9	100.23	8,588.2	-405.8	320.9	-5.2	326.09	0.984	Level 1		
14,000.0	5,445.0	13,926.4	5,502.0	167.9	166.8	100.19	8,688.2	-405.8	322.2	-7.7	329.91	0.977	Level 1		
14,100.0	5,445.0	14,026.4	5,502.0	169.8	168.7	100.15	8,788.2	-405.8	323.6	-10.2	333.74	0.969	Level 1		
14,200.0	5,445.0	14,126.4	5,502.0	171.7	170.6	100.11	8,888.2	-405.8	324.9	-12.7	337.57	0.962	Level 1		
14,300.0	5,445.0	14,226.4	5,502.0	173.7	172.5	100.06	8,988.2	-405.8	326.2	-15.2	341.39	0.955	Level 1		
14,400.0	5,445.0	14,326.4	5,502.0	175.6	174.4	100.02	9,088.2	-405.8	327.5	-17.7	345.22	0.949	Level 1		
14,500.0	5,445.0	14,426.4	5,502.0	177.5	176.4	99.98	9,188.2	-405.8	328.8	-20.2	349.05	0.942	Level 1		
14,600.0	5,445.0	14,526.4	5,502.0	179.4	178.3	99.94	9,288.2	-405.8	330.1	-22.7	352.88	0.936	Level 1		
14,700.0	5,445.0	14,626.4	5,502.0	181.3	180.2	99.90	9,388.1	-405.8	331.5	-25.3	356.71	0.929	Level 1		
14,800.0	5,445.0	14,726.4	5,502.0	183.3	182.1	99.86	9,488.1	-405.8	332.8	-27.8	360.54	0.923	Level 1		
14,900.0	5,445.0	14,826.4	5,502.0	185.2	184.0	99.82	9,588.1	-405.8	334.1	-30.3	364.38	0.917	Level 1		
14,957.7	5,445.0	14,884.1	5,502.0	186.3	185.1	99.80	9,645.9	-405.8	334.8	-31.7	366.59	0.913	Level 1, ES, SF		

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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:	0.0ft
Survey Program: 0-MWD														Offset Well Error:	0.0ft
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	89.32	0.7	60.1	60.1						
100.0	100.0	100.0	100.0	0.1	0.1	89.32	0.7	60.1	60.1	59.9	0.22	267.363			
200.0	200.0	200.0	200.0	0.3	0.3	89.32	0.7	60.1	60.1	59.4	0.67	89.121			
300.0	300.0	300.0	300.0	0.6	0.6	89.32	0.7	60.1	60.1	59.0	1.12	53.473			
400.0	400.0	400.0	400.0	0.8	0.8	89.32	0.7	60.1	60.1	58.5	1.57	38.195			
500.0	500.0	500.0	500.0	1.0	1.0	89.32	0.7	60.1	60.1	58.1	2.02	29.707			
600.0	600.0	600.0	600.0	1.2	1.2	89.32	0.7	60.1	60.1	57.6	2.47	24.306			
700.0	700.0	700.0	700.0	1.5	1.5	89.32	0.7	60.1	60.1	57.2	2.92	20.566			
800.0	800.0	800.0	800.0	1.7	1.7	89.32	0.7	60.1	60.1	56.7	3.37	17.824			
900.0	900.0	900.0	900.0	1.9	1.9	89.32	0.7	60.1	60.1	56.3	3.82	15.727			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.32	0.7	60.1	60.1	55.8	4.27	14.072 CC, ES			
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	179.34	0.7	60.1	61.8	57.1	4.71	13.143			
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	179.39	0.7	60.1	67.1	61.9	5.13	13.084			
1,300.0	1,299.6	1,299.6	1,299.6	2.8	2.8	179.45	0.7	60.1	73.9	68.4	5.55	13.313			
1,400.0	1,399.4	1,399.4	1,399.4	3.0	3.0	179.49	0.7	60.1	80.8	74.8	5.99	13.501			
1,500.0	1,499.1	1,499.1	1,499.1	3.2	3.3	179.53	0.7	60.1	87.7	81.3	6.42	13.657			
1,600.0	1,598.9	1,598.9	1,598.9	3.5	3.5	179.57	0.7	60.1	94.6	87.7	6.86	13.789			
1,700.0	1,698.7	1,698.7	1,698.7	3.7	3.7	179.60	0.7	60.1	101.4	94.1	7.30	13.901			
1,800.0	1,798.4	1,798.4	1,798.4	3.9	3.9	179.62	0.7	60.1	108.3	100.6	7.74	13.997			
1,900.0	1,898.2	1,898.2	1,898.2	4.2	4.2	179.64	0.7	60.1	115.2	107.0	8.18	14.080			
2,000.0	1,997.9	1,997.9	1,997.9	4.4	4.4	179.66	0.7	60.1	122.1	113.4	8.62	14.153			
2,100.0	2,097.7	2,098.4	2,098.4	4.7	4.6	178.94	2.4	59.8	128.7	119.6	9.07	14.189			
2,200.0	2,197.5	2,198.5	2,198.4	4.9	4.8	176.86	7.4	59.0	134.9	125.4	9.51	14.181			
2,300.0	2,297.2	2,298.2	2,297.8	5.2	5.1	174.60	13.3	58.0	141.2	131.3	9.96	14.180			
2,400.0	2,397.0	2,397.8	2,397.3	5.4	5.3	172.54	19.1	57.0	147.7	137.3	10.41	14.194			
2,500.0	2,496.8	2,497.5	2,496.8	5.7	5.5	170.65	25.0	56.0	154.4	143.6	10.86	14.218			
2,600.0	2,596.5	2,597.1	2,596.3	5.9	5.7	168.92	30.9	55.1	161.3	149.9	11.32	14.250			
2,700.0	2,696.3	2,696.8	2,695.7	6.2	6.0	167.33	36.8	54.1	168.2	156.5	11.77	14.288			
2,800.0	2,796.1	2,796.4	2,795.2	6.4	6.2	165.87	42.7	53.1	175.3	163.1	12.24	14.329			
2,900.0	2,895.8	2,896.1	2,894.7	6.7	6.4	164.53	48.6	52.1	182.5	169.8	12.70	14.374			
3,000.0	2,995.6	2,995.7	2,994.2	6.9	6.7	163.28	54.5	51.1	189.8	176.7	13.16	14.421			
3,100.0	3,095.3	3,095.4	3,093.6	7.2	6.9	162.13	60.3	50.2	197.2	183.6	13.63	14.468			
3,200.0	3,195.1	3,195.0	3,193.1	7.4	7.1	161.06	66.2	49.2	204.6	190.5	14.10	14.516			
3,300.0	3,294.9	3,294.7	3,292.6	7.7	7.4	160.07	72.1	48.2	212.2	197.6	14.57	14.564			
3,400.0	3,394.6	3,394.3	3,392.0	8.0	7.6	159.15	78.0	47.2	219.7	204.7	15.04	14.612			
3,500.0	3,494.4	3,494.0	3,491.5	8.2	7.8	158.28	83.9	46.2	227.4	211.8	15.51	14.660			
3,600.0	3,594.2	3,593.6	3,591.0	8.5	8.1	157.48	89.8	45.2	235.0	219.0	15.98	14.707			
3,700.0	3,693.9	3,693.3	3,690.5	8.7	8.3	156.72	95.6	44.3	242.7	226.3	16.45	14.753			
3,800.0	3,793.7	3,793.0	3,789.9	9.0	8.6	156.01	101.5	43.3	250.5	233.6	16.93	14.798			
3,900.0	3,893.5	3,892.6	3,889.4	9.2	8.8	155.35	107.4	42.3	258.3	240.9	17.40	14.842			
4,000.0	3,993.3	3,992.3	3,989.0	9.5	9.0	154.64	113.3	41.3	266.8	247.0	17.87	14.820			
4,100.0	4,093.3	4,093.8	4,090.3	9.6	9.3	153.73	118.6	40.4	268.1	249.8	18.29	14.661			
4,200.0	4,193.3	4,196.6	4,193.1	9.8	9.4	63.31	120.7	40.1	268.7	250.2	18.55	14.484			
4,300.0	4,293.3	4,296.8	4,293.3	10.0	9.6	63.31	120.7	40.1	268.7	249.8	18.95	14.179			
4,400.0	4,393.3	4,396.8	4,393.3	10.2	9.9	63.31	120.7	40.1	268.7	249.4	19.38	13.869			
4,500.0	4,493.3	4,496.8	4,493.3	10.4	10.1	63.31	120.7	40.1	268.7	248.9	19.80	13.570			
4,600.0	4,593.3	4,596.8	4,593.3	10.6	10.3	63.31	120.7	40.1	268.7	248.5	20.23	13.283			
4,700.0	4,693.3	4,696.8	4,693.3	10.8	10.5	63.31	120.7	40.1	268.7	248.1	20.66	13.008			
4,800.0	4,793.3	4,796.8	4,793.3	11.0	10.7	63.31	120.7	40.1	268.7	247.6	21.09	12.743			
4,900.0	4,893.3	4,896.8	4,893.3	11.2	11.0	63.31	120.7	40.1	268.7	247.2	21.52	12.488			
5,000.0	4,993.1	4,987.8	4,984.1	11.4	11.2	89.40	124.1	39.5	269.8	247.8	22.06	12.233			
5,100.0	5,093.3	5,074.6	5,069.2	11.7	11.4	89.49	141.0	36.6	275.4	252.8	22.58	12.196			

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-2801
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-2801	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:	0.0ft
Survey Program: 0-MWD														Offset Well Error:	0.0ft
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			
5,200.0	5,181.5	5,161.5	5,150.2	12.0	11.7	89.62	171.6	31.4	285.4	262.2	23.23	12.286			
5,300.0	5,263.1	5,250.0	5,226.3	12.5	12.1	89.74	215.9	23.8	299.7	275.6	24.10	12.437			
5,400.0	5,332.4	5,335.7	5,291.7	13.1	12.6	89.71	270.3	14.5	317.9	292.6	25.27	12.581			
5,500.0	5,386.6	5,423.4	5,348.3	14.0	13.3	89.58	336.2	3.2	339.5	312.7	26.83	12.652			
5,600.0	5,423.8	5,512.1	5,393.4	15.1	14.1	89.30	411.4	-9.7	363.9	335.1	28.82	12.626			
5,700.0	5,442.7	5,602.4	5,425.4	16.5	15.2	88.88	494.5	-23.9	390.4	359.2	31.21	12.509			
5,800.0	5,445.0	5,695.5	5,442.6	18.0	16.4	89.65	584.6	-39.3	417.5	383.6	33.90	12.317			
5,900.0	5,445.0	5,785.1	5,445.0	19.5	17.6	90.00	672.8	-54.1	441.0	404.4	36.61	12.047			
6,000.0	5,445.0	5,864.0	5,445.0	21.1	18.7	90.00	751.1	-64.5	462.8	423.6	39.19	11.808			
6,100.0	5,445.0	5,942.4	5,445.0	22.8	19.8	90.00	829.2	-71.6	483.5	441.7	41.80	11.567			
6,200.0	5,445.0	6,020.4	5,445.0	24.4	20.9	90.00	907.0	-75.5	503.0	458.6	44.39	11.331			
6,300.0	5,445.0	6,103.8	5,445.0	26.0	22.1	90.00	990.4	-76.3	521.3	474.2	47.05	11.078			
6,400.0	5,445.0	6,202.7	5,445.0	27.6	23.7	90.00	1,089.4	-76.3	535.4	485.4	49.97	10.715			
6,500.0	5,445.0	6,302.3	5,445.0	29.2	25.3	90.00	1,188.9	-76.3	544.3	491.5	52.83	10.302			
6,600.0	5,445.0	6,402.2	5,445.0	30.8	27.0	90.00	1,288.9	-76.3	548.0	492.4	55.65	9.848			
6,700.0	5,445.0	6,502.2	5,445.0	32.3	28.7	90.00	1,388.9	-76.3	549.3	490.4	58.98	9.313			
6,800.0	5,445.0	6,602.2	5,445.0	33.9	30.5	90.00	1,488.9	-76.3	550.7	488.3	62.38	8.827			
6,900.0	5,445.0	6,702.2	5,445.0	35.5	32.2	90.00	1,588.8	-76.3	552.0	486.2	65.83	8.385			
7,000.0	5,445.0	6,802.2	5,445.0	37.1	34.0	90.00	1,688.8	-76.3	553.4	484.0	69.32	7.982			
7,100.0	5,445.0	6,902.2	5,445.0	38.8	35.8	90.00	1,788.8	-76.3	554.7	481.8	72.85	7.614			
7,200.0	5,445.0	7,002.2	5,445.0	40.4	37.6	90.00	1,888.8	-76.3	556.0	479.6	76.41	7.277			
7,300.0	5,445.0	7,102.2	5,445.0	42.1	39.4	90.00	1,988.8	-76.3	557.4	477.4	80.00	6.967			
7,400.0	5,445.0	7,202.2	5,445.0	43.9	41.2	90.00	2,088.8	-76.3	558.7	475.1	83.61	6.682			
7,500.0	5,445.0	7,302.2	5,445.0	45.6	43.1	90.00	2,188.8	-76.3	560.0	472.8	87.25	6.419			
7,600.0	5,445.0	7,402.2	5,445.0	47.4	44.9	90.00	2,288.8	-76.3	561.4	470.5	90.90	6.176			
7,700.0	5,445.0	7,502.1	5,445.0	49.1	46.8	90.00	2,388.8	-76.3	562.7	468.1	94.57	5.950			
7,800.0	5,445.0	7,602.1	5,445.0	50.9	48.6	90.00	2,488.8	-76.3	564.0	465.8	98.25	5.741			
7,900.0	5,445.0	7,702.1	5,445.0	52.7	50.5	90.00	2,588.8	-76.2	565.4	463.4	101.94	5.546			
8,000.0	5,445.0	7,802.1	5,445.0	54.5	52.4	90.00	2,688.7	-76.2	566.7	461.1	105.65	5.364			
8,100.0	5,445.0	7,902.1	5,445.0	56.3	54.2	90.00	2,788.7	-76.2	568.0	458.7	109.37	5.194			
8,200.0	5,445.0	8,002.1	5,445.0	58.1	56.1	90.00	2,888.7	-76.2	569.4	456.3	113.10	5.035			
8,300.0	5,445.0	8,102.1	5,445.0	59.9	58.0	90.00	2,988.7	-76.2	570.7	453.9	116.83	4.885			
8,400.0	5,445.0	8,202.1	5,445.0	61.8	59.9	90.00	3,088.7	-76.2	572.1	451.5	120.58	4.744			
8,500.0	5,445.0	8,302.1	5,445.0	63.6	61.7	90.00	3,188.7	-76.2	573.4	449.1	124.33	4.612			
8,600.0	5,445.0	8,402.1	5,445.0	65.4	63.6	90.00	3,288.7	-76.2	574.7	446.6	128.08	4.487			
8,700.0	5,445.0	8,502.1	5,445.0	67.3	65.5	90.00	3,388.7	-76.2	576.1	444.2	131.85	4.369			
8,800.0	5,445.0	8,602.1	5,445.0	69.1	67.4	90.00	3,488.7	-76.2	577.4	441.8	135.61	4.258			
8,900.0	5,445.0	8,702.0	5,445.0	71.0	69.3	90.00	3,588.7	-76.2	578.7	439.3	139.39	4.152			
9,000.0	5,445.0	8,802.0	5,445.0	72.8	71.2	90.00	3,688.7	-76.2	580.1	436.9	143.16	4.052			
9,100.0	5,445.0	8,902.0	5,445.0	74.7	73.1	90.00	3,788.6	-76.2	581.4	434.5	146.95	3.957			
9,200.0	5,445.0	9,002.0	5,445.0	76.6	75.0	90.00	3,888.6	-76.2	582.7	432.0	150.73	3.866			
9,300.0	5,445.0	9,102.0	5,445.0	78.4	76.9	90.00	3,988.6	-76.2	584.1	429.6	154.52	3.780			
9,400.0	5,445.0	9,202.0	5,445.0	80.3	78.8	90.00	4,088.6	-76.2	585.4	427.1	158.31	3.698			
9,500.0	5,445.0	9,302.0	5,445.0	82.2	80.7	90.00	4,188.6	-76.2	586.7	424.6	162.11	3.619			
9,600.0	5,445.0	9,402.0	5,445.0	84.1	82.6	90.00	4,288.6	-76.2	588.1	422.2	165.91	3.545			
9,700.0	5,445.0	9,502.0	5,445.0	85.9	84.5	90.00	4,388.6	-76.2	589.4	419.7	169.71	3.473			
9,800.0	5,445.0	9,602.0	5,445.0	87.8	86.4	90.00	4,488.6	-76.2	590.8	417.2	173.52	3.405			
9,900.0	5,445.0	9,702.0	5,445.0	89.7	88.3	90.00	4,588.6	-76.2	592.1	414.8	177.32	3.339			
10,000.0	5,445.0	9,801.9	5,445.0	91.6	90.2	90.00	4,688.6	-76.2	593.4	412.3	181.13	3.276			
10,100.0	5,445.0	9,901.9	5,445.0	93.5	92.1	90.00	4,788.6	-76.2	594.8	409.8	184.94	3.216			
10,200.0	5,445.0	10,001.9	5,445.0	95.4	94.0	90.00	4,888.5	-76.2	596.1	407.3	188.75	3.158			
10,300.0	5,445.0	10,101.9	5,445.0	97.3	95.9	90.00	4,988.5	-76.2	597.4	404.9	192.57	3.102			

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-2801
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-2801	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	10,201.9	5,445.0	99.2	97.8	90.00	5,088.5	-76.2	598.8	402.4	196.38	3.049			
10,500.0	5,445.0	10,301.9	5,445.0	101.1	99.8	90.00	5,188.5	-76.2	600.1	399.9	200.20	2.997			
10,600.0	5,445.0	10,401.9	5,445.0	102.9	101.7	90.00	5,288.5	-76.2	601.4	397.4	204.02	2.948			
10,700.0	5,445.0	10,501.9	5,445.0	104.8	103.6	90.00	5,388.5	-76.2	602.8	394.9	207.84	2.900			
10,800.0	5,445.0	10,601.9	5,445.0	106.7	105.5	90.00	5,488.5	-76.2	604.1	392.4	211.67	2.854			
10,900.0	5,445.0	10,701.9	5,445.0	108.6	107.4	90.00	5,588.5	-76.2	605.4	390.0	215.49	2.810			
11,000.0	5,445.0	10,801.9	5,445.0	110.5	109.3	90.00	5,688.5	-76.2	606.8	387.5	219.31	2.767			
11,100.0	5,445.0	10,901.8	5,445.0	112.4	111.2	90.00	5,788.5	-76.2	608.1	385.0	223.14	2.725			
11,200.0	5,445.0	11,001.8	5,445.0	114.3	113.2	90.00	5,888.5	-76.2	609.5	382.5	226.97	2.685			
11,300.0	5,445.0	11,101.8	5,445.0	116.3	115.1	90.00	5,988.4	-76.2	610.8	380.0	230.79	2.646			
11,400.0	5,445.0	11,201.8	5,445.0	118.2	117.0	90.00	6,088.4	-76.2	612.1	377.5	234.62	2.609			
11,500.0	5,445.0	11,301.8	5,445.0	120.1	118.9	90.00	6,188.4	-76.2	613.5	375.0	238.45	2.573			
11,600.0	5,445.0	11,401.8	5,445.0	122.0	120.8	90.00	6,288.4	-76.2	614.8	372.5	242.29	2.537			
11,700.0	5,445.0	11,501.8	5,445.0	123.9	122.7	90.00	6,388.4	-76.2	616.1	370.0	246.12	2.503			
11,800.0	5,445.0	11,601.8	5,445.0	125.8	124.6	90.00	6,488.4	-76.2	617.5	367.5	249.95	2.470			
11,900.0	5,445.0	11,701.8	5,445.0	127.7	126.6	90.00	6,588.4	-76.2	618.8	365.0	253.78	2.438			
12,000.0	5,445.0	11,801.8	5,445.0	129.6	128.5	90.00	6,688.4	-76.2	620.1	362.5	257.62	2.407			
12,100.0	5,445.0	11,901.8	5,445.0	131.5	130.4	90.00	6,788.4	-76.2	621.5	360.0	261.45	2.377			
12,200.0	5,445.0	12,001.7	5,445.0	133.4	132.3	90.00	6,888.4	-76.2	622.8	357.5	265.29	2.348			
12,300.0	5,445.0	12,101.7	5,445.0	135.3	134.2	90.00	6,988.4	-76.2	624.1	355.0	269.13	2.319			
12,400.0	5,445.0	12,201.7	5,445.0	137.2	136.2	90.00	7,088.4	-76.2	625.5	352.5	272.96	2.291			
12,500.0	5,445.0	12,301.7	5,445.0	139.2	138.1	90.00	7,188.3	-76.2	626.8	350.0	276.80	2.265			
12,600.0	5,445.0	12,401.7	5,445.0	141.1	140.0	90.00	7,288.3	-76.1	628.2	347.5	280.64	2.238			
12,700.0	5,445.0	12,501.7	5,445.0	143.0	141.9	90.00	7,388.3	-76.1	629.5	345.0	284.48	2.213			
12,800.0	5,445.0	12,601.7	5,445.0	144.9	143.8	90.00	7,488.3	-76.1	630.8	342.5	288.32	2.188			
12,900.0	5,445.0	12,701.7	5,445.0	146.8	145.7	90.00	7,588.3	-76.1	632.2	340.0	292.16	2.164			
13,000.0	5,445.0	12,801.7	5,445.0	148.7	147.7	90.00	7,688.3	-76.1	633.5	337.5	296.00	2.140			
13,100.0	5,445.0	12,901.7	5,445.0	150.6	149.6	90.00	7,788.3	-76.1	634.8	335.0	299.84	2.117			
13,200.0	5,445.0	13,001.7	5,445.0	152.6	151.5	90.00	7,888.3	-76.1	636.2	332.5	303.68	2.095			
13,300.0	5,445.0	13,101.7	5,445.0	154.5	153.4	90.00	7,988.3	-76.1	637.5	330.0	307.52	2.073			
13,400.0	5,445.0	13,201.6	5,445.0	156.4	155.3	90.00	8,088.3	-76.1	638.8	327.5	311.36	2.052			
13,500.0	5,445.0	13,301.6	5,445.0	158.3	157.3	90.00	8,188.3	-76.1	640.2	325.0	315.20	2.031			
13,600.0	5,445.0	13,401.6	5,445.0	160.2	159.2	90.00	8,288.2	-76.1	641.5	322.5	319.05	2.011			
13,700.0	5,445.0	13,501.6	5,445.0	162.1	161.1	90.00	8,388.2	-76.1	642.8	320.0	322.89	1.991			
13,800.0	5,445.0	13,601.6	5,445.0	164.1	163.0	90.00	8,488.2	-76.1	644.2	317.4	326.73	1.972			
13,900.0	5,445.0	13,701.6	5,445.0	166.0	165.0	90.00	8,588.2	-76.1	645.5	314.9	330.58	1.953			
14,000.0	5,445.0	13,801.6	5,445.0	167.9	166.9	90.00	8,688.2	-76.1	646.9	312.4	334.42	1.934			
14,100.0	5,445.0	13,901.6	5,445.0	169.8	168.8	90.00	8,788.2	-76.1	648.2	309.9	338.27	1.916			
14,200.0	5,445.0	14,001.6	5,445.0	171.7	170.7	90.00	8,888.2	-76.1	649.5	307.4	342.11	1.899			
14,300.0	5,445.0	14,101.6	5,445.0	173.7	172.6	90.00	8,988.2	-76.1	650.9	304.9	345.96	1.881			
14,400.0	5,445.0	14,201.6	5,445.0	175.6	174.6	90.00	9,088.2	-76.1	652.2	302.4	349.80	1.864			
14,500.0	5,445.0	14,301.5	5,445.0	177.5	176.5	90.00	9,188.2	-76.1	653.5	299.9	353.65	1.848			
14,600.0	5,445.0	14,401.5	5,445.0	179.4	178.4	90.00	9,288.2	-76.1	654.9	297.4	357.50	1.832			
14,700.0	5,445.0	14,501.5	5,445.0	181.3	180.3	90.00	9,388.1	-76.1	656.2	294.9	361.34	1.816			
14,800.0	5,445.0	14,601.5	5,445.0	183.3	182.3	90.00	9,488.1	-76.1	657.5	292.4	365.19	1.801			
14,900.0	5,445.0	14,701.5	5,445.0	185.2	184.2	90.00	9,588.1	-76.1	658.9	289.8	369.04	1.785			
14,957.7	5,445.0	14,759.2	5,445.0	186.3	185.3	90.00	9,645.9	-76.1	659.6	288.4	371.26	1.777 SF			

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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-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						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	88.85	1.8	90.0	90.0							
100.0	100.0	100.0	100.0	0.1	0.1	88.85	1.8	90.0	90.0	89.8	0.22	400.482				
200.0	200.0	200.0	200.0	0.3	0.3	88.85	1.8	90.0	90.0	89.3	0.67	133.494				
300.0	300.0	300.0	300.0	0.6	0.6	88.85	1.8	90.0	90.0	88.9	1.12	80.096				
400.0	400.0	400.0	400.0	0.8	0.8	88.85	1.8	90.0	90.0	88.4	1.57	57.212				
500.0	500.0	500.0	500.0	1.0	1.0	88.85	1.8	90.0	90.0	88.0	2.02	44.498				
600.0	600.0	600.0	600.0	1.2	1.2	88.85	1.8	90.0	90.0	87.5	2.47	36.407				
700.0	700.0	700.0	700.0	1.5	1.5	88.85	1.8	90.0	90.0	87.1	2.92	30.806				
800.0	800.0	800.0	800.0	1.7	1.7	88.85	1.8	90.0	90.0	86.6	3.37	26.699				
900.0	900.0	900.0	900.0	1.9	1.9	88.85	1.8	90.0	90.0	86.2	3.82	23.558				
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	88.85	1.8	90.0	90.0	85.7	4.27	21.078	CC, ES			
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	178.87	1.8	90.0	91.8	87.1	4.71	19.501				
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	178.93	1.8	90.0	97.0	91.9	5.13	18.920				
1,300.0	1,299.6	1,296.1	1,296.1	2.8	2.8	179.01	1.8	91.6	105.5	100.0	5.54	19.066				
1,400.0	1,399.4	1,392.2	1,392.0	3.0	3.0	179.11	1.8	96.4	117.4	111.4	5.94	19.753				
1,500.0	1,499.1	1,491.3	1,491.0	3.2	3.2	179.20	1.8	102.6	130.5	124.1	6.35	20.534				
1,600.0	1,598.9	1,590.5	1,589.9	3.5	3.4	179.27	1.8	108.8	143.5	136.8	6.77	21.206				
1,700.0	1,698.7	1,689.6	1,688.9	3.7	3.6	179.33	1.8	115.0	156.6	149.4	7.19	21.786				
1,800.0	1,798.4	1,788.7	1,787.8	3.9	3.9	179.38	1.8	121.2	169.7	162.1	7.61	22.290				
1,900.0	1,898.2	1,887.9	1,886.8	4.2	4.1	179.43	1.8	127.3	182.8	174.8	8.04	22.731				
2,000.0	1,997.9	1,987.0	1,985.7	4.4	4.3	179.46	1.8	133.5	195.9	187.4	8.47	23.119				
2,100.0	2,097.7	2,086.2	2,084.7	4.7	4.5	179.50	1.8	139.7	209.0	200.1	8.91	23.464				
2,200.0	2,197.5	2,185.3	2,183.6	4.9	4.8	179.53	1.8	145.9	222.1	212.7	9.34	23.772				
2,300.0	2,297.2	2,284.4	2,282.6	5.2	5.0	179.55	1.8	152.1	235.1	225.4	9.78	24.047				
2,400.0	2,397.0	2,383.6	2,381.5	5.4	5.3	179.58	1.8	158.3	248.2	238.0	10.22	24.295				
2,500.0	2,496.8	2,482.7	2,480.5	5.7	5.5	179.60	1.8	164.5	261.3	250.7	10.66	24.520				
2,600.0	2,596.5	2,581.9	2,579.4	5.9	5.7	179.62	1.8	170.7	274.4	263.3	11.10	24.724				
2,700.0	2,696.3	2,681.0	2,678.3	6.2	6.0	179.64	1.8	176.8	287.5	275.9	11.54	24.910				
2,800.0	2,796.1	2,780.1	2,777.3	6.4	6.2	179.65	1.8	183.0	300.6	288.6	11.98	25.080				
2,900.0	2,895.8	2,879.3	2,876.2	6.7	6.5	179.67	1.8	189.2	313.7	301.2	12.43	25.236				
3,000.0	2,995.6	2,978.4	2,975.2	6.9	6.7	179.68	1.8	195.4	326.7	313.9	12.87	25.380				
3,100.0	3,095.3	3,077.6	3,074.1	7.2	6.9	179.69	1.8	201.6	339.8	326.5	13.32	25.513				
3,200.0	3,195.1	3,176.7	3,173.1	7.4	7.2	179.70	1.8	207.8	352.9	339.2	13.77	25.636				
3,300.0	3,294.9	3,275.8	3,272.0	7.7	7.4	179.71	1.8	214.0	366.0	351.8	14.21	25.750				
3,400.0	3,394.6	3,375.0	3,371.0	8.0	7.7	179.72	1.8	220.2	379.1	364.4	14.66	25.857				
3,500.0	3,494.4	3,474.1	3,469.9	8.2	7.9	179.73	1.8	226.3	392.2	377.1	15.11	25.956				
3,600.0	3,594.2	3,573.3	3,568.9	8.5	8.2	179.74	1.8	232.5	405.3	389.7	15.56	26.049				
3,700.0	3,693.9	3,672.4	3,667.8	8.7	8.4	179.75	1.8	238.7	418.4	402.3	16.01	26.136				
3,800.0	3,793.7	3,771.5	3,766.8	9.0	8.7	179.76	1.8	244.9	431.4	415.0	16.46	26.217				
3,900.0	3,893.5	3,878.9	3,873.9	9.2	8.9	179.76	1.8	251.1	444.1	427.2	16.91	26.259				
4,000.0	3,993.3	3,977.0	3,972.0	9.5	9.1	179.77	1.8	257.3	457.1	439.5	17.36	26.302				
4,100.0	4,093.3	4,078.3	4,073.3	9.6	9.3	179.77	1.8	253.9	453.9	436.1	17.76	25.559				
4,200.0	4,193.3	4,178.3	4,173.3	9.8	9.5	89.77	1.8	253.9	453.9	435.5	18.40	24.667				
4,300.0	4,293.3	4,278.3	4,273.3	10.0	9.7	89.77	1.8	253.9	453.9	435.1	18.81	24.127				
4,400.0	4,393.3	4,378.3	4,373.3	10.2	9.9	89.77	1.8	253.9	453.9	434.7	19.23	23.607				
4,500.0	4,493.3	4,478.3	4,473.3	10.4	10.1	89.77	1.8	253.9	453.9	434.3	19.64	23.108				
4,600.0	4,593.3	4,578.3	4,573.3	10.6	10.3	89.77	1.8	253.9	453.9	433.8	20.06	22.628				
4,700.0	4,693.3	4,678.3	4,673.3	10.8	10.5	89.77	1.8	253.9	453.9	433.4	20.48	22.166				
4,800.0	4,793.3	4,778.3	4,773.3	11.0	10.8	89.77	1.8	253.9	453.9	433.0	20.90	21.721				
4,900.0	4,893.3	4,878.3	4,873.3	11.2	11.0	89.77	1.8	253.9	453.9	432.6	21.32	21.292				
5,000.0	4,993.1	4,978.1	4,973.1	11.4	11.2	116.15	2.0	253.9	455.9	434.4	21.51	21.193				
5,100.0	5,093.3	5,078.3	5,073.3	11.7	11.4	116.22	13.9	253.9	466.0	444.2	21.81	21.369				

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-2801
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-2801	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-2804 - Wellbore #1 - Plan #1 (10-24-13)	Offset Site Error:	0.0ft	
Survey Program: 0-MWD															Offset Well Error:	0.0ft
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				
5,200.0	5,181.5	5,199.4	5,188.5	12.0	11.6	115.19	44.9	253.9	484.1	462.0	22.08	21.927				
5,300.0	5,263.1	5,299.9	5,276.3	12.5	11.9	113.11	93.5	253.9	509.6	487.0	22.54	22.610				
5,400.0	5,332.4	5,399.6	5,352.5	13.1	12.2	110.09	157.5	253.9	541.4	518.0	23.42	23.113				
5,500.0	5,386.6	5,498.2	5,414.6	14.0	12.6	106.31	233.9	253.9	578.5	553.6	24.89	23.245				
5,600.0	5,423.8	5,596.3	5,461.0	15.1	13.4	101.98	320.1	253.9	619.5	592.6	26.90	23.029				
5,700.0	5,442.7	5,694.5	5,490.5	16.5	14.3	97.32	413.7	253.9	663.1	633.8	29.32	22.618				
5,800.0	5,445.0	5,794.5	5,501.9	18.0	15.4	95.08	512.8	253.9	707.0	675.1	31.86	22.191				
5,900.0	5,445.0	5,887.5	5,502.0	19.5	16.6	94.71	605.9	253.9	746.1	711.7	34.46	21.655				
6,000.0	5,445.0	5,981.4	5,502.0	21.1	17.9	94.42	699.7	253.9	780.4	743.1	37.28	20.936				
6,100.0	5,445.0	6,076.9	5,502.0	22.8	19.3	94.19	795.3	253.9	809.8	769.5	40.27	20.110				
6,200.0	5,445.0	6,173.9	5,502.0	24.4	20.8	94.02	892.3	253.9	834.1	790.7	43.37	19.234				
6,300.0	5,445.0	6,272.0	5,502.0	26.0	22.3	93.88	990.4	253.9	853.3	806.8	46.52	18.344				
6,400.0	5,445.0	6,371.0	5,502.0	27.6	24.0	93.79	1,089.4	253.9	867.4	817.8	49.68	17.462				
6,500.0	5,445.0	6,470.6	5,502.0	29.2	25.6	93.74	1,189.0	253.9	876.3	823.5	52.80	16.598				
6,600.0	5,445.0	6,570.5	5,502.0	30.8	27.4	93.71	1,288.9	253.9	880.0	824.2	55.86	15.755				
6,700.0	5,445.0	6,670.5	5,502.0	32.3	29.1	93.71	1,388.9	253.9	881.4	822.1	59.22	14.883				
6,800.0	5,445.0	6,770.5	5,502.0	33.9	30.9	93.70	1,488.9	253.9	882.7	820.0	62.64	14.092				
6,900.0	5,445.0	6,870.5	5,502.0	35.5	32.6	93.70	1,588.9	253.9	884.0	817.9	66.10	13.373				
7,000.0	5,445.0	6,970.5	5,502.0	37.1	34.4	93.69	1,688.8	253.9	885.3	815.7	69.61	12.719				
7,100.0	5,445.0	7,070.5	5,502.0	38.8	36.3	93.69	1,788.8	253.9	886.7	813.5	73.15	12.121				
7,200.0	5,445.0	7,170.5	5,502.0	40.4	38.1	93.68	1,888.8	253.9	888.0	811.3	76.72	11.574				
7,300.0	5,445.0	7,270.5	5,502.0	42.1	39.9	93.68	1,988.8	253.9	889.3	809.0	80.32	11.073				
7,400.0	5,445.0	7,370.4	5,502.0	43.9	41.7	93.67	2,088.8	253.9	890.7	806.7	83.94	10.611				
7,500.0	5,445.0	7,470.4	5,502.0	45.6	43.6	93.66	2,188.8	253.9	892.0	804.4	87.58	10.185				
7,600.0	5,445.0	7,570.4	5,502.0	47.4	45.5	93.66	2,288.8	253.9	893.3	802.1	91.23	9.792				
7,700.0	5,445.0	7,670.4	5,502.0	49.1	47.3	93.65	2,388.8	253.9	894.7	799.8	94.91	9.427				
7,800.0	5,445.0	7,770.4	5,502.0	50.9	49.2	93.65	2,488.8	253.9	896.0	797.4	98.59	9.088				
7,900.0	5,445.0	7,870.4	5,502.0	52.7	51.0	93.64	2,588.8	253.9	897.3	795.0	102.29	8.772				
8,000.0	5,445.0	7,970.4	5,502.0	54.5	52.9	93.64	2,688.8	253.9	898.7	792.7	106.00	8.478				
8,100.0	5,445.0	8,070.4	5,502.0	56.3	54.8	93.63	2,788.8	253.9	900.0	790.3	109.72	8.203				
8,200.0	5,445.0	8,170.4	5,502.0	58.1	56.7	93.63	2,888.7	253.9	901.3	787.9	113.45	7.945				
8,300.0	5,445.0	8,270.4	5,502.0	59.9	58.6	93.62	2,988.7	253.9	902.6	785.5	117.18	7.703				
8,400.0	5,445.0	8,370.4	5,502.0	61.8	60.5	93.62	3,088.7	253.9	904.0	783.1	120.93	7.475				
8,500.0	5,445.0	8,470.3	5,502.0	63.6	62.3	93.61	3,188.7	253.9	905.3	780.6	124.68	7.261				
8,600.0	5,445.0	8,570.3	5,502.0	65.4	64.2	93.60	3,288.7	253.9	906.6	778.2	128.43	7.059				
8,700.0	5,445.0	8,670.3	5,502.0	67.3	66.1	93.60	3,388.7	253.9	908.0	775.8	132.19	6.868				
8,800.0	5,445.0	8,770.3	5,502.0	69.1	68.0	93.59	3,488.7	253.9	909.3	773.3	135.96	6.688				
8,900.0	5,445.0	8,870.3	5,502.0	71.0	69.9	93.59	3,588.7	253.9	910.6	770.9	139.73	6.517				
9,000.0	5,445.0	8,970.3	5,502.0	72.8	71.8	93.58	3,688.7	253.9	912.0	768.5	143.51	6.355				
9,100.0	5,445.0	9,070.3	5,502.0	74.7	73.7	93.58	3,788.7	253.9	913.3	766.0	147.29	6.201				
9,200.0	5,445.0	9,170.3	5,502.0	76.6	75.6	93.57	3,888.7	253.9	914.6	763.5	151.07	6.054				
9,300.0	5,445.0	9,270.3	5,502.0	78.4	77.5	93.57	3,988.6	253.9	916.0	761.1	154.86	5.915				
9,400.0	5,445.0	9,370.3	5,502.0	80.3	79.4	93.56	4,088.6	253.9	917.3	758.6	158.65	5.782				
9,500.0	5,445.0	9,470.3	5,502.0	82.2	81.3	93.56	4,188.6	253.9	918.6	756.2	162.44	5.655				
9,600.0	5,445.0	9,570.2	5,502.0	84.1	83.2	93.55	4,288.6	253.9	919.9	753.7	166.24	5.534				
9,700.0	5,445.0	9,670.2	5,502.0	85.9	85.1	93.55	4,388.6	253.9	921.3	751.2	170.04	5.418				
9,800.0	5,445.0	9,770.2	5,502.0	87.8	87.1	93.54	4,488.6	253.9	922.6	748.8	173.84	5.307				
9,900.0	5,445.0	9,870.2	5,502.0	89.7	89.0	93.54	4,588.6	253.9	923.9	746.3	177.64	5.201				
10,000.0	5,445.0	9,970.2	5,502.0	91.6	90.9	93.53	4,688.6	253.9	925.3	743.8	181.45	5.099				
10,100.0	5,445.0	10,070.2	5,502.0	93.5	92.8	93.53	4,788.6	253.9	926.6	741.3	185.26	5.002				
10,200.0	5,445.0	10,170.2	5,502.0	95.4	94.7	93.52	4,888.6	253.9	927.9	738.9	189.07	4.908				
10,300.0	5,445.0	10,270.2	5,502.0	97.3	96.6	93.52	4,988.6	253.9	929.3	736.4	192.88	4.818				

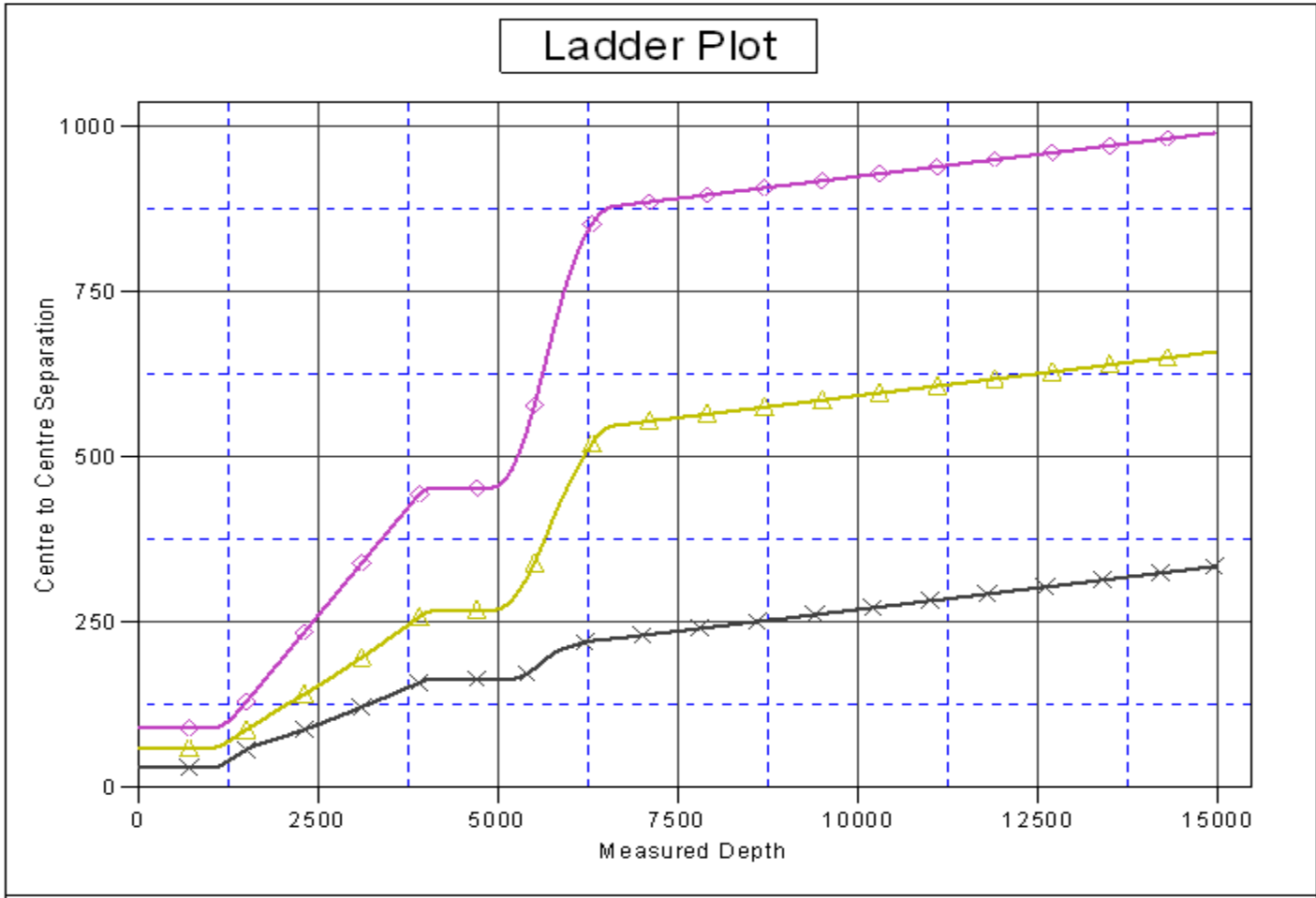
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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-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						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	10,370.2	5,502.0	99.2	98.5	93.51	5,088.5	253.9	930.6	733.9	196.69	4.731				
10,500.0	5,445.0	10,470.2	5,502.0	101.1	100.4	93.51	5,188.5	253.9	931.9	731.4	200.50	4.648				
10,600.0	5,445.0	10,570.2	5,502.0	102.9	102.3	93.50	5,288.5	253.9	933.3	728.9	204.32	4.568				
10,700.0	5,445.0	10,670.1	5,502.0	104.8	104.3	93.50	5,388.5	253.9	934.6	726.4	208.14	4.490				
10,800.0	5,445.0	10,770.1	5,502.0	106.7	106.2	93.49	5,488.5	253.9	935.9	724.0	211.96	4.416				
10,900.0	5,445.0	10,870.1	5,502.0	108.6	108.1	93.49	5,588.5	253.9	937.2	721.5	215.78	4.344				
11,000.0	5,445.0	10,970.1	5,502.0	110.5	110.0	93.48	5,688.5	253.9	938.6	719.0	219.60	4.274				
11,100.0	5,445.0	11,070.1	5,502.0	112.4	111.9	93.48	5,788.5	253.9	939.9	716.5	223.42	4.207				
11,200.0	5,445.0	11,170.1	5,502.0	114.3	113.8	93.47	5,888.5	253.9	941.2	714.0	227.24	4.142				
11,300.0	5,445.0	11,270.1	5,502.0	116.3	115.8	93.47	5,988.5	253.9	942.6	711.5	231.07	4.079				
11,400.0	5,445.0	11,370.1	5,502.0	118.2	117.7	93.46	6,088.5	253.9	943.9	709.0	234.89	4.018				
11,500.0	5,445.0	11,470.1	5,502.0	120.1	119.6	93.46	6,188.4	253.9	945.2	706.5	238.72	3.960				
11,600.0	5,445.0	11,570.1	5,502.0	122.0	121.5	93.45	6,288.4	253.9	946.6	704.0	242.55	3.903				
11,700.0	5,445.0	11,670.1	5,502.0	123.9	123.4	93.45	6,388.4	253.9	947.9	701.5	246.38	3.847				
11,800.0	5,445.0	11,770.1	5,502.0	125.8	125.3	93.44	6,488.4	253.9	949.2	700.0	250.20	3.794				
11,900.0	5,445.0	11,870.0	5,502.0	127.7	127.3	93.44	6,588.4	253.9	950.6	696.5	254.03	3.742				
12,000.0	5,445.0	11,970.0	5,502.0	129.6	129.2	93.43	6,688.4	253.9	951.9	694.0	257.86	3.691				
12,100.0	5,445.0	12,070.0	5,502.0	131.5	131.1	93.43	6,788.4	253.9	953.2	691.5	261.70	3.642				
12,200.0	5,445.0	12,170.0	5,502.0	133.4	133.0	93.42	6,888.4	253.9	954.5	689.0	265.53	3.595				
12,300.0	5,445.0	12,270.0	5,502.0	135.3	134.9	93.42	6,988.4	253.9	955.9	686.5	269.36	3.549				
12,400.0	5,445.0	12,370.0	5,502.0	137.2	136.9	93.41	7,088.4	253.9	957.2	684.0	273.19	3.504				
12,500.0	5,445.0	12,470.0	5,502.0	139.2	138.8	93.41	7,188.4	253.9	958.5	681.5	277.03	3.460				
12,600.0	5,445.0	12,570.0	5,502.0	141.1	140.7	93.40	7,288.4	253.9	959.9	679.0	280.86	3.418				
12,700.0	5,445.0	12,670.0	5,502.0	143.0	142.6	93.40	7,388.3	253.9	961.2	676.5	284.70	3.376				
12,800.0	5,445.0	12,770.0	5,502.0	144.9	144.5	93.40	7,488.3	253.9	962.5	674.0	288.53	3.336				
12,900.0	5,445.0	12,870.0	5,502.0	146.8	146.5	93.39	7,588.3	253.9	963.9	671.5	292.37	3.297				
13,000.0	5,445.0	12,969.9	5,502.0	148.7	148.4	93.39	7,688.3	253.9	965.2	669.0	296.21	3.259				
13,100.0	5,445.0	13,069.9	5,502.0	150.6	150.3	93.38	7,788.3	253.9	966.5	666.5	300.04	3.221				
13,200.0	5,445.0	13,169.9	5,502.0	152.6	152.2	93.38	7,888.3	253.9	967.9	664.0	303.88	3.185				
13,300.0	5,445.0	13,269.9	5,502.0	154.5	154.1	93.37	7,988.3	253.9	969.2	661.5	307.72	3.150				
13,400.0	5,445.0	13,369.9	5,502.0	156.4	156.1	93.37	8,088.3	253.9	970.5	659.0	311.56	3.115				
13,500.0	5,445.0	13,469.9	5,502.0	158.3	158.0	93.36	8,188.3	253.9	971.8	656.5	315.39	3.081				
13,600.0	5,445.0	13,569.9	5,502.0	160.2	159.9	93.36	8,288.3	253.9	973.2	653.9	319.23	3.048				
13,700.0	5,445.0	13,669.9	5,502.0	162.1	161.8	93.35	8,388.3	253.9	974.5	651.4	323.07	3.016				
13,800.0	5,445.0	13,769.9	5,502.0	164.1	163.7	93.35	8,488.2	253.9	975.8	648.9	326.91	2.985				
13,900.0	5,445.0	13,869.9	5,502.0	166.0	165.7	93.34	8,588.2	253.9	977.2	646.4	330.75	2.954				
14,000.0	5,445.0	13,969.9	5,502.0	167.9	167.6	93.34	8,688.2	253.9	978.5	643.9	334.59	2.924				
14,100.0	5,445.0	14,069.8	5,502.0	169.8	169.5	93.34	8,788.2	253.9	979.8	641.4	338.44	2.895				
14,200.0	5,445.0	14,169.8	5,502.0	171.7	171.4	93.33	8,888.2	253.9	981.2	638.9	342.28	2.867				
14,300.0	5,445.0	14,269.8	5,502.0	173.7	173.4	93.33	8,988.2	253.9	982.5	636.4	346.12	2.839				
14,400.0	5,445.0	14,369.8	5,502.0	175.6	175.3	93.32	9,088.2	253.9	983.8	633.9	349.96	2.811				
14,500.0	5,445.0	14,469.8	5,502.0	177.5	177.2	93.32	9,188.2	253.9	985.2	631.4	353.80	2.784				
14,600.0	5,445.0	14,569.8	5,502.0	179.4	179.1	93.31	9,288.2	253.9	986.5	628.8	357.65	2.758				
14,700.0	5,445.0	14,669.8	5,502.0	181.3	181.0	93.31	9,388.2	253.9	987.8	626.3	361.49	2.733				
14,800.0	5,445.0	14,769.8	5,502.0	183.3	183.0	93.30	9,488.2	253.9	989.1	623.8	365.33	2.708				
14,900.0	5,445.0	14,869.8	5,502.0	185.2	184.9	93.30	9,588.1	253.9	990.5	621.3	369.17	2.683				
14,957.7	5,445.0	14,927.5	5,502.0	186.3	186.0	93.30	9,645.9	253.9	991.2	619.9	371.39	2.669 SF				

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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') Coordinates are relative to: Horsetail #33M-2801
 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°



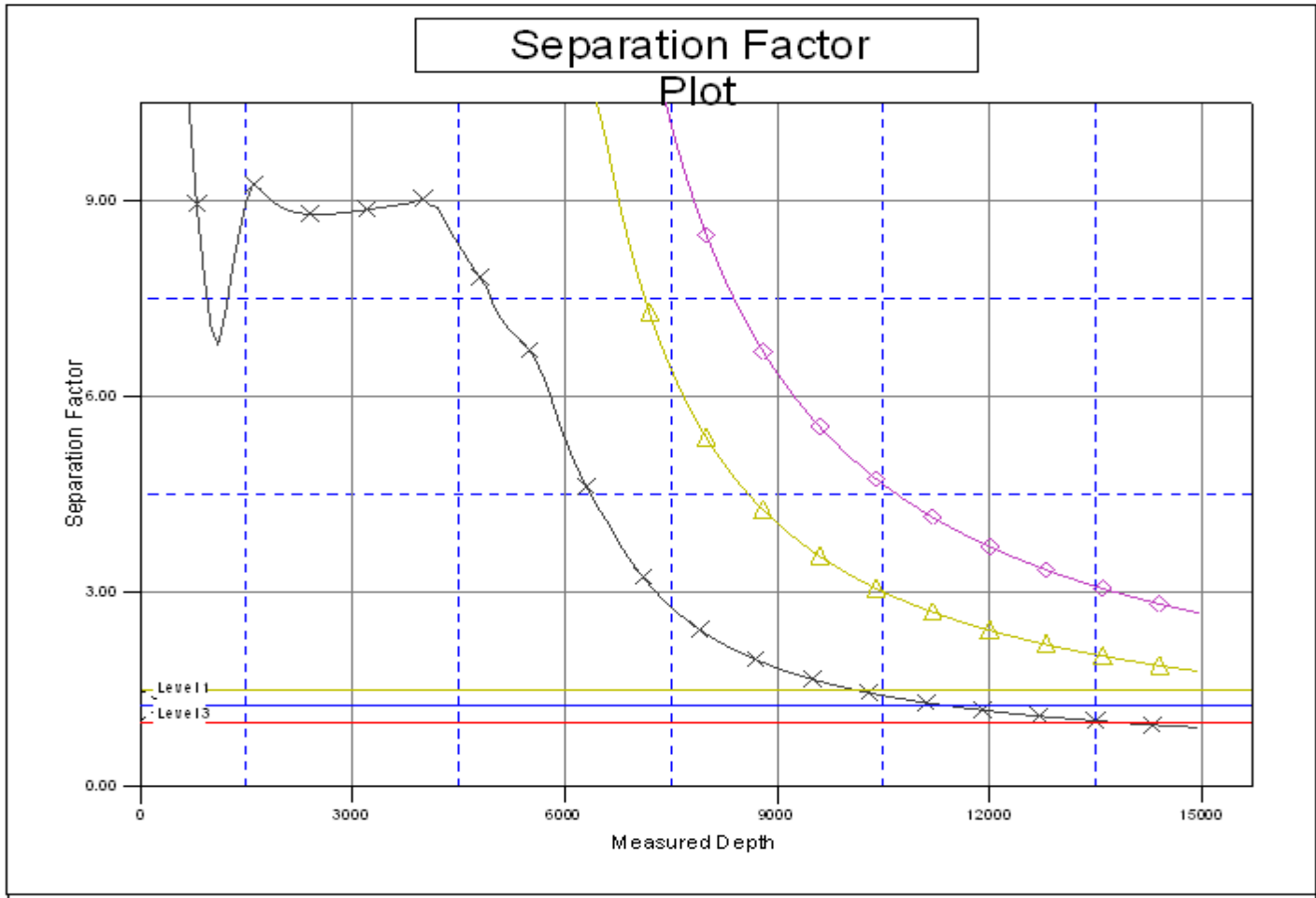
LEGEND

33M-2804, Wellbore #1, Plan #1 (10-24-13) V-Diamond Horsetail #33M-2802, Wellbore #1, Plan #1 (10-24-13) V-Cross Horsetail #33M-2803, Wellbore #1, Plan #1 (10-24-13) V-Triangle

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #33M-2801
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-2801	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-2801
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.12°



LEGEND

33M-2804, Wellbore #1, Plan #1 (10-24-13) Vx — Horsetail #33M-2802, Wellbore #1, Plan #1 (10-24-13) Vx — Horsetail #33M-2803, Wellbore #1, Plan #1 (10-24-13) Vx