

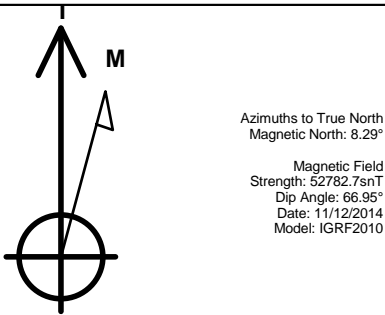
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: Churchill 28J-203

Surface Location: Churchill 28J-HZ Pad Sec.28-T5N-R64W
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 1381538.33 3262023.29 40.376910 -104.559500
Ensign Rig# 136 RKB - 12.5' WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')

WELLBORE TARGET DETAILS

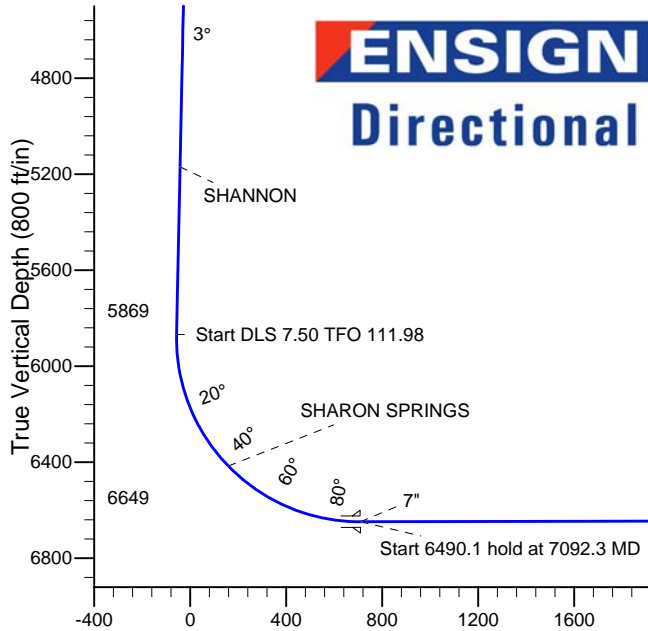
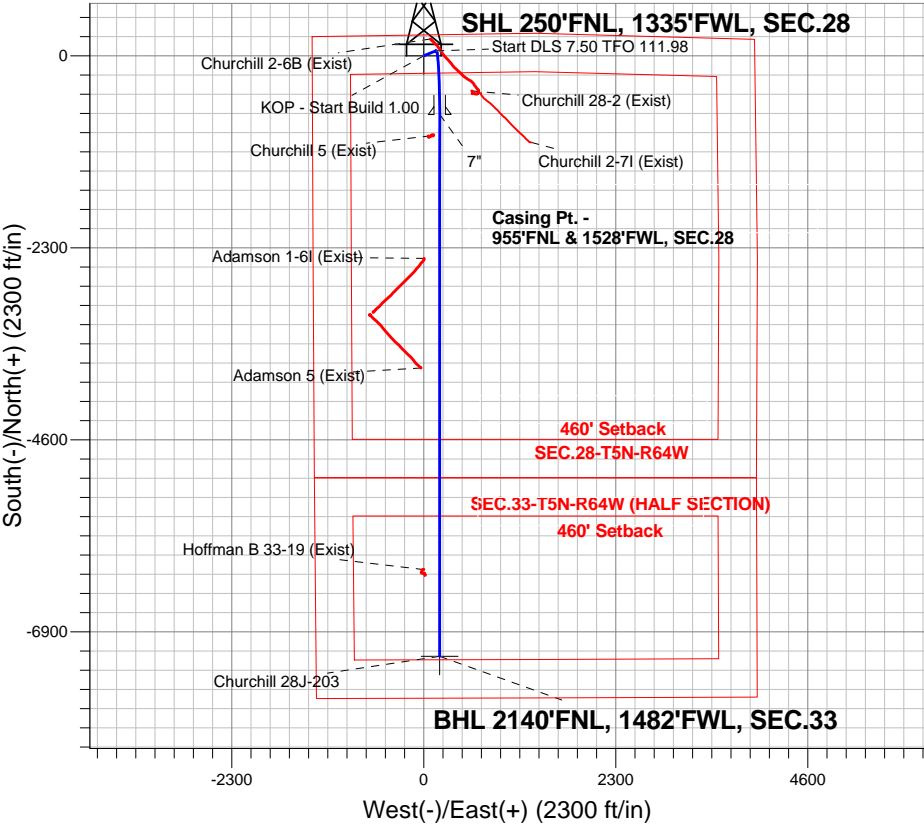
Name	TVD	+N/-S	+E/-W	Shape
SHL 250'FNL, 1335'FWL, SEC.28	1.0	0.0	0.0	Point
BHL 2140'FNL, 1482'FWL, SEC.33	6634.0	-7195.1	192.9	Point



ANNOTATIONS

TVD	MD	Annotation
3000.0	3000.0	KOP - Start Build 1.00
3342.1	3342.3	Start 2531.2 hold at 3342.3 MD
5868.8	5873.5	Start DLS 7.50 TFO 111.98
6633.9	7092.3	Start 6490.1 hold at 7092.3 MD
6648.6	13582.4	TD at 13582.4

Churchill 28J-HZ Pad Sec.28-T5N-R64W
Churchill 28J-203
Plan #3 (11-12-14)



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	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3342.3	3.42	67.98	3342.1	3.8	9.5	1.00	67.98	-3.6	
4	5873.5	3.42	67.98	5868.8	60.5	149.6	0.00	0.00	-56.5	
5	7092.3	90.13	180.00	6648.6	-705.0	192.9	7.50	111.98	709.9	
6	13582.4	90.13	180.00	6633.9	-7195.1	192.9	0.00	0.00	7197.7	BHL 2140'FNL, 1482'FWL, SEC.33

BHL 2140'FNL, 1482'FWL, SEC.33

Vertical Section at 178.46° (800 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W

Churchill 28J-HZ Pad Sec.28-T5N-R64W

Churchill 28J-203

Wellbore #1

Plan: Plan #3 (11-12-14)

Standard Planning Report

17 November, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Churchill 28J-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (11-12-14)		

Project	SEC.28-T5N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Churchill 28J-HZ Pad Sec.28-T5N-R64W											
Site Position:						Northing:			1,381,533.43ft			Latitude:			40.376900		
From:			Lat/Long			Easting:			3,261,903.54ft			Longitude:			-104.559930		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.61 °		

Well	Churchill 28J-203					
Well Position	+N/-S	3.6 ft	Northing:	1,381,538.33 ft	Latitude:	40.376910
	+E/-W	119.8 ft	Easting:	3,262,023.29 ft	Longitude:	-104.559500
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	11/12/2014	8.29	66.95	52,783

Design	Plan #3 (11-12-14)			
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	178.46

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,342.3	3.42	67.98	3,342.1	3.8	9.5	1.00	1.00	0.00	67.98	
5,873.5	3.42	67.98	5,868.8	60.5	149.6	0.00	0.00	0.00	0.00	
7,092.3	90.13	180.00	6,648.6	-705.0	192.9	7.50	7.11	9.19	111.98	
13,582.4	90.13	180.00	6,633.9	-7,195.1	192.9	0.00	0.00	0.00	0.00	BHL 2140°FNL, 148

Database:	landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Churchill 28J-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (11-12-14)		

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
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
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 1.00									
3,100.0	1.00	67.98	3,100.0	0.3	0.8	-0.3	1.00	1.00	0.00
3,200.0	2.00	67.98	3,200.0	1.3	3.2	-1.2	1.00	1.00	0.00
3,300.0	3.00	67.98	3,299.9	2.9	7.3	-2.7	1.00	1.00	0.00
3,342.3	3.42	67.98	3,342.1	3.8	9.5	-3.6	1.00	1.00	0.00
Start 2531.2 hold at 3342.3 MD									
3,400.0	3.42	67.98	3,399.7	5.1	12.7	-4.8	0.00	0.00	0.00
3,500.0	3.42	67.98	3,499.5	7.4	18.2	-6.9	0.00	0.00	0.00
3,550.6	3.42	67.98	3,550.0	8.5	21.0	-7.9	0.00	0.00	0.00
PARKMAN									
3,600.0	3.42	67.98	3,599.3	9.6	23.7	-9.0	0.00	0.00	0.00
3,700.0	3.42	67.98	3,699.2	11.8	29.3	-11.0	0.00	0.00	0.00
3,800.0	3.42	67.98	3,799.0	14.1	34.8	-13.1	0.00	0.00	0.00
3,900.0	3.42	67.98	3,898.8	16.3	40.3	-15.2	0.00	0.00	0.00
4,000.0	3.42	67.98	3,998.6	18.6	45.9	-17.3	0.00	0.00	0.00
4,100.0	3.42	67.98	4,098.4	20.8	51.4	-19.4	0.00	0.00	0.00
4,166.7	3.42	67.98	4,165.0	22.3	55.1	-20.8	0.00	0.00	0.00
SUSSEX									
4,200.0	3.42	67.98	4,198.3	23.0	56.9	-21.5	0.00	0.00	0.00
4,300.0	3.42	67.98	4,298.1	25.3	62.5	-23.6	0.00	0.00	0.00
4,400.0	3.42	67.98	4,397.9	27.5	68.0	-25.7	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Churchill 28J-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (11-12-14)		

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)
4,500.0	3.42	67.98	4,497.7	29.7	73.5	-27.8	0.00	0.00	0.00
4,600.0	3.42	67.98	4,597.6	32.0	79.1	-29.9	0.00	0.00	0.00
4,700.0	3.42	67.98	4,697.4	34.2	84.6	-31.9	0.00	0.00	0.00
4,800.0	3.42	67.98	4,797.2	36.5	90.2	-34.0	0.00	0.00	0.00
4,900.0	3.42	67.98	4,897.0	38.7	95.7	-36.1	0.00	0.00	0.00
5,000.0	3.42	67.98	4,996.8	40.9	101.2	-38.2	0.00	0.00	0.00
5,100.0	3.42	67.98	5,096.7	43.2	106.8	-40.3	0.00	0.00	0.00
5,173.5	3.42	67.98	5,170.0	44.8	110.8	-41.8	0.00	0.00	0.00
SHANNON									
5,200.0	3.42	67.98	5,196.5	45.4	112.3	-42.4	0.00	0.00	0.00
5,300.0	3.42	67.98	5,296.3	47.6	117.8	-44.5	0.00	0.00	0.00
5,400.0	3.42	67.98	5,396.1	49.9	123.4	-46.6	0.00	0.00	0.00
5,500.0	3.42	67.98	5,495.9	52.1	128.9	-48.7	0.00	0.00	0.00
5,600.0	3.42	67.98	5,595.8	54.4	134.4	-50.7	0.00	0.00	0.00
5,700.0	3.42	67.98	5,695.6	56.6	140.0	-52.8	0.00	0.00	0.00
5,800.0	3.42	67.98	5,795.4	58.8	145.5	-54.9	0.00	0.00	0.00
5,873.5	3.42	67.98	5,868.8	60.5	149.6	-56.5	0.00	0.00	0.00
Start DLS 7.50 TFO 111.98									
5,900.0	3.25	102.56	5,895.2	60.6	151.0	-56.5	7.51	-0.65	130.48
6,000.0	8.80	158.99	5,994.7	52.9	156.5	-48.6	7.50	5.54	56.44
6,100.0	16.02	168.86	6,092.3	32.2	162.0	-27.8	7.50	7.22	9.86
6,200.0	23.41	172.64	6,186.4	-1.1	167.2	5.6	7.50	7.39	3.78
6,300.0	30.85	174.67	6,275.3	-46.4	172.1	51.0	7.50	7.44	2.03
6,400.0	38.32	175.97	6,357.6	-103.0	176.7	107.7	7.50	7.46	1.30
6,477.7	44.12	176.72	6,416.0	-154.0	179.9	158.8	7.50	7.47	0.96
SHARON SPRINGS									
6,500.0	45.79	176.90	6,431.8	-169.8	180.8	174.6	7.50	7.48	0.83
6,600.0	53.27	177.62	6,496.7	-245.7	184.4	250.6	7.50	7.48	0.72
6,700.0	60.76	178.21	6,551.1	-329.5	187.4	334.4	7.50	7.48	0.59
6,800.0	68.24	178.72	6,594.1	-419.6	189.8	424.6	7.50	7.49	0.51
6,900.0	75.73	179.18	6,625.0	-514.7	191.6	519.6	7.50	7.49	0.46
7,000.0	83.22	179.61	6,643.2	-612.9	192.6	617.8	7.50	7.49	0.43
7,092.3	90.13	180.00	6,648.6	-705.0	192.9	709.9	7.50	7.49	0.42
Start 6490.1 hold at 7092.3 MD - 7"									
7,100.0	90.13	180.00	6,648.6	-712.7	192.9	717.6	0.01	0.01	0.00
7,200.0	90.13	180.00	6,648.4	-812.7	192.9	817.6	0.00	0.00	0.00
7,300.0	90.13	180.00	6,648.1	-912.7	192.9	917.5	0.00	0.00	0.00
7,400.0	90.13	180.00	6,647.9	-1,012.7	192.9	1,017.5	0.00	0.00	0.00
7,500.0	90.13	180.00	6,647.7	-1,112.7	192.9	1,117.5	0.00	0.00	0.00
7,600.0	90.13	180.00	6,647.4	-1,212.7	192.9	1,217.4	0.00	0.00	0.00
7,700.0	90.13	180.00	6,647.2	-1,312.7	192.9	1,317.4	0.00	0.00	0.00
7,800.0	90.13	180.00	6,647.0	-1,412.7	192.9	1,417.3	0.00	0.00	0.00
7,900.0	90.13	180.00	6,646.8	-1,512.7	192.9	1,517.3	0.00	0.00	0.00
8,000.0	90.13	180.00	6,646.5	-1,612.7	192.9	1,617.3	0.00	0.00	0.00
8,100.0	90.13	180.00	6,646.3	-1,712.7	192.9	1,717.2	0.00	0.00	0.00
8,200.0	90.13	180.00	6,646.1	-1,812.7	192.9	1,817.2	0.00	0.00	0.00
8,300.0	90.13	180.00	6,645.9	-1,912.7	192.9	1,917.2	0.00	0.00	0.00
8,400.0	90.13	180.00	6,645.6	-2,012.7	192.9	2,017.1	0.00	0.00	0.00
8,500.0	90.13	180.00	6,645.4	-2,112.7	192.9	2,117.1	0.00	0.00	0.00
8,600.0	90.13	180.00	6,645.2	-2,212.7	192.9	2,217.1	0.00	0.00	0.00
8,700.0	90.13	180.00	6,645.0	-2,312.7	192.9	2,317.0	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Churchill 28J-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (11-12-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,800.0	90.13	180.00	6,644.7	-2,412.7	192.9	2,417.0	0.00	0.00	0.00
8,900.0	90.13	180.00	6,644.5	-2,512.7	192.9	2,516.9	0.00	0.00	0.00
9,000.0	90.13	180.00	6,644.3	-2,612.7	192.9	2,616.9	0.00	0.00	0.00
9,100.0	90.13	180.00	6,644.0	-2,712.7	192.9	2,716.9	0.00	0.00	0.00
9,200.0	90.13	180.00	6,643.8	-2,812.7	192.9	2,816.8	0.00	0.00	0.00
9,300.0	90.13	180.00	6,643.6	-2,912.7	192.9	2,916.8	0.00	0.00	0.00
9,400.0	90.13	180.00	6,643.4	-3,012.7	192.9	3,016.8	0.00	0.00	0.00
9,500.0	90.13	180.00	6,643.1	-3,112.7	192.9	3,116.7	0.00	0.00	0.00
9,600.0	90.13	180.00	6,642.9	-3,212.7	192.9	3,216.7	0.00	0.00	0.00
9,700.0	90.13	180.00	6,642.7	-3,312.7	192.9	3,316.7	0.00	0.00	0.00
9,800.0	90.13	180.00	6,642.5	-3,412.7	192.9	3,416.6	0.00	0.00	0.00
9,900.0	90.13	180.00	6,642.2	-3,512.7	192.9	3,516.6	0.00	0.00	0.00
10,000.0	90.13	180.00	6,642.0	-3,612.7	192.9	3,616.6	0.00	0.00	0.00
10,100.0	90.13	180.00	6,641.8	-3,712.7	192.9	3,716.5	0.00	0.00	0.00
10,200.0	90.13	180.00	6,641.5	-3,812.7	192.9	3,816.5	0.00	0.00	0.00
10,300.0	90.13	180.00	6,641.3	-3,912.7	192.9	3,916.4	0.00	0.00	0.00
10,400.0	90.13	180.00	6,641.1	-4,012.7	192.9	4,016.4	0.00	0.00	0.00
10,500.0	90.13	180.00	6,640.9	-4,112.7	192.9	4,116.4	0.00	0.00	0.00
10,600.0	90.13	180.00	6,640.6	-4,212.7	192.9	4,216.3	0.00	0.00	0.00
10,700.0	90.13	180.00	6,640.4	-4,312.7	192.9	4,316.3	0.00	0.00	0.00
10,800.0	90.13	180.00	6,640.2	-4,412.7	192.9	4,416.3	0.00	0.00	0.00
10,900.0	90.13	180.00	6,640.0	-4,512.7	192.9	4,516.2	0.00	0.00	0.00
11,000.0	90.13	180.00	6,639.7	-4,612.7	192.9	4,616.2	0.00	0.00	0.00
11,100.0	90.13	180.00	6,639.5	-4,712.7	192.9	4,716.2	0.00	0.00	0.00
11,200.0	90.13	180.00	6,639.3	-4,812.7	192.9	4,816.1	0.00	0.00	0.00
11,300.0	90.13	180.00	6,639.1	-4,912.7	192.9	4,916.1	0.00	0.00	0.00
11,400.0	90.13	180.00	6,638.8	-5,012.7	192.9	5,016.0	0.00	0.00	0.00
11,500.0	90.13	180.00	6,638.6	-5,112.7	192.9	5,116.0	0.00	0.00	0.00
11,600.0	90.13	180.00	6,638.4	-5,212.7	192.9	5,216.0	0.00	0.00	0.00
11,700.0	90.13	180.00	6,638.1	-5,312.7	192.9	5,315.9	0.00	0.00	0.00
11,800.0	90.13	180.00	6,637.9	-5,412.7	192.9	5,415.9	0.00	0.00	0.00
11,900.0	90.13	180.00	6,637.7	-5,512.7	192.9	5,515.9	0.00	0.00	0.00
12,000.0	90.13	180.00	6,637.5	-5,612.7	192.9	5,615.8	0.00	0.00	0.00
12,100.0	90.13	180.00	6,637.2	-5,712.7	192.9	5,715.8	0.00	0.00	0.00
12,200.0	90.13	180.00	6,637.0	-5,812.7	192.9	5,815.8	0.00	0.00	0.00
12,300.0	90.13	180.00	6,636.8	-5,912.7	192.9	5,915.7	0.00	0.00	0.00
12,400.0	90.13	180.00	6,636.6	-6,012.7	192.9	6,015.7	0.00	0.00	0.00
12,500.0	90.13	180.00	6,636.3	-6,112.7	192.9	6,115.6	0.00	0.00	0.00
12,600.0	90.13	180.00	6,636.1	-6,212.7	192.9	6,215.6	0.00	0.00	0.00
12,700.0	90.13	180.00	6,635.9	-6,312.7	192.9	6,315.6	0.00	0.00	0.00
12,800.0	90.13	180.00	6,635.6	-6,412.7	192.9	6,415.5	0.00	0.00	0.00
12,900.0	90.13	180.00	6,635.4	-6,512.7	192.9	6,515.5	0.00	0.00	0.00
13,000.0	90.13	180.00	6,635.2	-6,612.7	192.9	6,615.5	0.00	0.00	0.00
13,100.0	90.13	180.00	6,635.0	-6,712.7	192.9	6,715.4	0.00	0.00	0.00
13,200.0	90.13	180.00	6,634.7	-6,812.7	192.9	6,815.4	0.00	0.00	0.00
13,300.0	90.13	180.00	6,634.5	-6,912.7	192.9	6,915.4	0.00	0.00	0.00
13,400.0	90.13	180.00	6,634.3	-7,012.7	192.9	7,015.3	0.00	0.00	0.00
13,500.0	90.13	180.00	6,634.1	-7,112.7	192.9	7,115.3	0.00	0.00	0.00
13,582.4	90.13	180.00	6,633.9	-7,195.1	192.9	7,197.7	0.00	0.00	0.00
TD at 13582.4									

Database:	landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	North Reference:	True
Well:	Churchill 28J-203	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3 (11-12-14)		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
SHL 250'FNL, 1335'F	0.00	0.00	1.0	0.0	0.0	1,381,538.34	3,262,023.29	40.376910	-104.559500
- plan hits target									
- Point									
BHL 2140'FNL, 1482'I	0.00	0.00	6,634.0	-7,195.1	192.9	1,374,345.98	3,262,292.48	40.357160	-104.558808
- plan misses by 0.1ft at 13582.4ft MD (6633.9 TVD, -7195.1 N, 192.9 E)									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
7,092.3	6,648.6	7"		7	7-1/2

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
3,550.6	3,550.0	PARKMAN				
4,166.7	4,165.0	SUSSEX				
5,173.5	5,170.0	SHANNON				
6,477.7	6,416.0	SHARON SPRINGS				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
3,000.0	3,000.0	0.0	0.0	KOP - Start Build 1.00	
3,342.3	3,342.1	3.8	9.5	Start 2531.2 hold at 3342.3 MD	
5,873.5	5,868.8	60.5	149.6	Start DLS 7.50 TFO 111.98	
7,092.3	6,648.6	-705.0	192.9	Start 6490.1 hold at 7092.3 MD	
13,582.4	6,633.9	-7,195.1	192.9	TD at 13582.4	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W

Churchill 28J-HZ Pad Sec.28-T5N-R64W

Churchill 28J-203

Wellbore #1

Plan #3 (11-12-14)

Anticollision Report

17 November, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #3 (11-12-14)		
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	11/17/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,581.5	Plan #3 (11-12-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
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						
Churchill 28J-HZ Pad Sec.28-T5N-R64W						
Churchill 28E-203 - Wellbore #1 - Plan #2 (11-12-14)	166.3	167.3	119.9	119.3	228.224	CC
Churchill 28E-203 - Wellbore #1 - Plan #2 (11-12-14)	200.0	200.0	119.9	119.2	177.762	ES
Churchill 28E-203 - Wellbore #1 - Plan #2 (11-12-14)	3,000.0	2,938.1	556.8	540.1	33.257	SF
Churchill 28E-423 - Wellbore #1 - Plan #2 (11-12-14)	366.3	367.3	89.2	87.8	62.652	CC
Churchill 28E-423 - Wellbore #1 - Plan #2 (11-12-14)	400.0	401.0	89.2	87.7	56.638	ES
Churchill 28E-423 - Wellbore #1 - Plan #2 (11-12-14)	3,000.0	2,967.8	385.1	370.1	25.650	SF
Churchill 28J-343 - Wellbore #1 - Plan #3 (11-12-14)	566.3	567.3	58.5	56.2	25.184	CC
Churchill 28J-343 - Wellbore #1 - Plan #3 (11-12-14)	600.0	601.0	58.5	56.0	23.644	ES
Churchill 28J-343 - Wellbore #1 - Plan #3 (11-12-14)	13,582.4	13,802.8	605.0	328.9	2.191	SF
Churchill 28J-423 - Wellbore #1 - Plan #3 (11-12-14)	1,500.0	1,499.0	30.6	24.1	4.704	CC, ES
Churchill 28J-423 - Wellbore #1 - Plan #3 (11-12-14)	13,582.4	13,893.3	255.5	39.0	1.180	Level 2, SF
Churchill 28J-443 - Wellbore #1 - Plan #2 (11-12-14)	800.0	800.0	27.9	24.5	8.264	CC, ES
Churchill 28J-443 - Wellbore #1 - Plan #2 (11-12-14)	13,582.4	13,872.5	452.3	191.8	1.736	SF
Churchill 28M-343 - Wellbore #1 - Plan #3 (11-12-14)	1,000.0	999.0	61.3	57.0	14.361	CC, ES
Churchill 28M-343 - Wellbore #1 - Plan #3 (11-12-14)	13,582.4	13,872.0	681.4	404.2	2.458	SF
Churchill 28M-443 - Wellbore #1 - Plan #2 (11-12-14)	400.0	398.0	91.9	90.4	58.605	CC, ES
Churchill 28M-443 - Wellbore #1 - Plan #2 (11-12-14)	13,582.4	13,970.5	918.8	645.6	3.363	SF
Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W						
Adamson 1-6I (Exist) - Wellbore #1 - Wellbore #1	8,816.9	6,757.3	187.3	120.5	2.805	CC, ES, SF
Adamson 5 (Exist) - Wellbore #1 - Wellbore #1	10,125.8	6,757.1	225.1	133.9	2.467	CC, ES, SF
Churchill 2-6B (Exist) - Wellbore #1 - Wellbore #1	5,106.4	5,159.2	100.0	75.8	4.145	CC, ES
Churchill 2-6B (Exist) - Wellbore #1 - Wellbore #1	5,200.0	5,252.1	100.8	76.3	4.120	SF
Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1	100.0	81.4	817.0	816.7	3,701.894	CC
Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1	200.0	180.1	817.2	816.6	1,417.501	ES
Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1	2,500.0	2,344.0	999.1	988.0	90.251	SF
Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #1	6,831.6	6,600.8	398.3	369.6	13.876	CC, ES
Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #1	6,900.0	6,617.8	404.0	374.6	13.746	SF
Churchill 5 (Exist) - Wellbore #1 - Wellbore #1	7,339.1	6,639.8	100.0	65.2	2.874	CC, ES, SF
Hoffman B 33-19 (Exist) - Wellbore #1 - Wellbore #1	12,541.5	6,684.6	195.4	63.6	1.482	Level 3, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #2 (11-12-14)													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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
				Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	1.0	1.0	0.0	0.0	-91.74	-3.6	-119.8	119.9	119.9	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-91.74	-3.6	-119.8	119.9	119.6	0.23	527.989		
166.3	166.3	167.3	167.3	0.3	0.3	-91.74	-3.6	-119.8	119.9	119.3	0.53	228.224 CC		
200.0	200.0	200.0	200.0	0.3	0.3	-91.74	-3.6	-119.8	119.9	119.2	0.67	177.762 ES		
300.0	300.0	298.0	298.0	0.6	0.5	-91.61	-3.4	-121.0	121.1	120.0	1.11	109.028		
400.0	400.0	394.9	394.8	0.8	0.8	-91.24	-2.7	-124.7	124.9	123.3	1.55	80.612		
500.0	500.0	491.5	491.2	1.0	1.0	-90.68	-1.5	-130.7	131.1	129.1	2.00	65.480		
600.0	600.0	587.7	587.1	1.2	1.2	-89.97	0.1	-139.1	139.8	137.3	2.47	56.527		
700.0	700.0	683.5	682.2	1.5	1.5	-89.19	2.1	-149.8	151.0	148.0	2.97	50.894		
800.0	800.0	778.7	776.5	1.7	1.8	-88.37	4.6	-162.8	164.7	161.2	3.49	47.236		
900.0	900.0	873.1	869.6	1.9	2.1	-87.58	7.5	-177.9	180.8	176.8	4.03	44.841		
1,000.0	1,000.0	970.7	965.6	2.1	2.5	-86.82	10.8	-195.1	198.6	193.9	4.61	43.044		
1,100.0	1,100.0	1,069.1	1,062.4	2.4	2.9	-86.19	14.2	-212.4	216.4	211.2	5.21	41.566		
1,200.0	1,200.0	1,167.4	1,159.2	2.6	3.3	-85.64	17.5	-229.8	234.2	228.4	5.80	40.360		
1,300.0	1,300.0	1,265.8	1,255.9	2.8	3.7	-85.18	20.8	-247.2	252.1	245.7	6.40	39.362		
1,400.0	1,400.0	1,364.2	1,352.7	3.0	4.1	-84.78	24.2	-264.5	270.0	263.0	7.01	38.524		
1,500.0	1,500.0	1,462.6	1,449.5	3.3	4.5	-84.43	27.5	-281.9	287.9	280.2	7.61	37.813		
1,600.0	1,600.0	1,560.9	1,546.3	3.5	4.9	-84.11	30.8	-299.2	305.8	297.5	8.22	37.203		
1,700.0	1,700.0	1,659.3	1,643.0	3.7	5.3	-83.84	34.2	-316.6	323.7	314.8	8.83	36.674		
1,800.0	1,800.0	1,757.7	1,739.8	3.9	5.7	-83.59	37.5	-334.0	341.6	332.1	9.43	36.211		
1,900.0	1,900.0	1,856.0	1,836.6	4.2	6.1	-83.37	40.9	-351.3	359.5	349.5	10.04	35.803		
2,000.0	2,000.0	1,954.4	1,933.3	4.4	6.5	-83.16	44.2	-368.7	377.4	366.8	10.65	35.441		
2,100.0	2,100.0	2,052.8	2,030.1	4.6	6.9	-82.98	47.5	-386.0	395.4	384.1	11.26	35.117		
2,200.0	2,200.0	2,151.2	2,126.9	4.8	7.3	-82.81	50.9	-403.4	413.3	401.4	11.87	34.826		
2,300.0	2,300.0	2,249.5	2,223.7	5.1	7.7	-82.66	54.2	-420.7	431.2	418.7	12.48	34.563		
2,400.0	2,400.0	2,347.9	2,320.4	5.3	8.1	-82.52	57.5	-438.1	449.2	436.1	13.09	34.325		
2,500.0	2,500.0	2,446.3	2,417.2	5.5	8.5	-82.39	60.9	-455.5	467.1	453.4	13.69	34.108		
2,600.0	2,600.0	2,544.6	2,514.0	5.7	8.9	-82.27	64.2	-472.8	485.0	470.7	14.30	33.909		
2,700.0	2,700.0	2,643.0	2,610.7	6.0	9.3	-82.15	67.5	-490.2	503.0	488.1	14.91	33.726		
2,800.0	2,800.0	2,741.4	2,707.5	6.2	9.7	-82.05	70.9	-507.5	520.9	505.4	15.52	33.558		
2,900.0	2,900.0	2,839.8	2,804.3	6.4	10.1	-81.95	74.2	-524.9	538.9	522.7	16.13	33.402		
3,000.0	3,000.0	2,938.1	2,901.1	6.6	10.5	-81.86	77.6	-542.3	556.8	540.1	16.74	33.257 SF		
3,100.0	3,100.0	3,036.4	2,997.7	6.8	10.9	-149.70	80.9	-559.6	575.5	561.4	17.35	40.736		
3,200.0	3,200.0	3,134.3	3,094.0	7.1	11.3	-149.65	84.2	-576.9	595.7	581.1	17.96	40.902		
3,300.0	3,299.9	3,231.9	3,190.1	7.3	11.7	-149.67	87.5	-594.1	617.3	602.3	18.57	41.168		
3,400.0	3,399.7	3,329.3	3,285.8	7.5	12.1	-149.80	90.8	-611.3	640.2	624.8	19.18	41.468		
3,500.0	3,499.5	3,426.6	3,381.5	7.7	12.5	-149.98	94.1	-628.4	663.2	647.3	19.79	41.728		
3,600.0	3,599.3	3,523.9	3,477.2	7.9	12.9	-150.15	97.4	-645.6	686.2	669.9	20.40	41.970		
3,700.0	3,699.2	3,621.2	3,573.0	8.1	13.3	-150.31	100.7	-662.8	709.2	692.4	21.01	42.196		
3,800.0	3,799.0	3,718.4	3,668.7	8.4	13.7	-150.46	104.0	-680.0	732.3	715.0	21.62	42.407		
3,900.0	3,898.8	3,815.7	3,764.4	8.6	14.1	-150.60	107.3	-697.1	755.3	737.6	22.23	42.605		
4,000.0	3,998.6	3,913.0	3,860.1	8.8	14.5	-150.73	110.6	-714.3	778.3	760.1	22.84	42.791		
4,100.0	4,098.4	4,010.3	3,955.8	9.0	14.9	-150.85	113.9	-731.5	801.4	782.7	23.45	42.965		
4,200.0	4,198.3	4,107.6	4,051.5	9.3	15.3	-150.97	117.2	-748.6	824.4	805.3	24.06	43.129		
4,300.0	4,298.1	4,204.9	4,147.2	9.5	15.7	-151.08	120.5	-765.8	847.5	827.9	24.67	43.284		
4,400.0	4,397.9	4,302.2	4,242.9	9.7	16.1	-151.18	123.8	-783.0	870.5	850.5	25.28	43.429		
4,500.0	4,497.7	4,399.5	4,338.6	9.9	16.5	-151.28	127.1	-800.1	893.6	873.0	25.89	43.567		
4,600.0	4,597.6	4,496.8	4,434.4	10.2	16.9	-151.37	130.4	-817.3	916.6	895.6	26.50	43.697		
4,700.0	4,697.4	4,594.1	4,530.1	10.4	17.3	-151.46	133.7	-834.5	939.7	918.2	27.11	43.821		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #2 (11-12-14)												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)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,797.2	4,691.4	4,625.8	10.6	17.7	-151.55	137.0	-851.6	962.7	940.8	21.91	43.938	
4,900.0	4,897.0	4,788.7	4,721.5	10.9	18.1	-151.63	140.3	-868.8	985.8	963.4	22.38	44.049	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #2 (11-12-14)													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	1.0	1.0	0.0	0.0	-92.34	-3.6	-89.2	89.2	89.2	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-92.34	-3.6	-89.2	89.2	89.0	0.23	393.068		
200.0	200.0	201.0	201.0	0.3	0.3	-92.34	-3.6	-89.2	89.2	88.6	0.68	131.893		
300.0	300.0	301.0	301.0	0.6	0.6	-92.34	-3.6	-89.2	89.2	88.1	1.13	79.241		
366.3	366.3	367.3	367.3	0.7	0.7	-92.34	-3.6	-89.2	89.2	87.8	1.42	62.652 CC		
400.0	400.0	401.0	401.0	0.8	0.8	-92.34	-3.6	-89.2	89.2	87.7	1.58	56.638 ES		
500.0	500.0	500.0	500.0	1.0	1.0	-92.17	-3.4	-90.0	90.1	88.1	2.01	44.728		
600.0	600.0	598.0	597.9	1.2	1.2	-91.70	-2.7	-92.5	92.5	90.1	2.45	37.818		
700.0	700.0	696.3	696.2	1.5	1.4	-90.97	-1.6	-96.6	96.7	93.8	2.89	33.457		
800.0	800.0	794.5	794.2	1.7	1.7	-90.05	-0.1	-102.3	102.5	99.1	3.34	30.673		
900.0	900.0	892.5	891.8	1.9	1.9	-89.00	1.9	-109.6	110.0	106.2	3.80	28.912		
1,000.0	1,000.0	990.1	989.1	2.1	2.1	-87.91	4.3	-118.5	119.1	114.9	4.28	27.847		
1,100.0	1,100.0	1,087.4	1,085.8	2.4	2.4	-86.82	7.2	-128.9	130.0	125.2	4.77	27.268		
1,200.0	1,200.0	1,184.5	1,182.0	2.6	2.7	-85.77	10.4	-140.9	142.6	137.3	5.27	27.041		
1,300.0	1,300.0	1,283.5	1,280.2	2.8	3.0	-84.82	13.9	-153.9	155.9	150.1	5.80	26.899		
1,400.0	1,400.0	1,382.6	1,378.3	3.0	3.3	-84.02	17.5	-166.8	169.3	162.9	6.32	26.765		
1,500.0	1,500.0	1,481.7	1,476.5	3.3	3.6	-83.34	21.0	-179.8	182.7	175.8	6.86	26.640		
1,600.0	1,600.0	1,580.8	1,574.7	3.5	4.0	-82.75	24.5	-192.8	196.1	188.7	7.39	26.524		
1,700.0	1,700.0	1,679.8	1,672.8	3.7	4.3	-82.24	28.0	-205.7	209.5	201.6	7.93	26.419		
1,800.0	1,800.0	1,778.9	1,771.0	3.9	4.6	-81.79	31.6	-218.7	223.0	214.5	8.47	26.323		
1,900.0	1,900.0	1,878.0	1,869.1	4.2	4.9	-81.39	35.1	-231.7	236.5	227.5	9.01	26.236		
2,000.0	2,000.0	1,977.1	1,967.3	4.4	5.3	-81.03	38.6	-244.6	250.0	240.4	9.56	26.157		
2,100.0	2,100.0	2,076.1	2,065.5	4.6	5.6	-80.71	42.1	-257.6	263.4	253.3	10.10	26.085		
2,200.0	2,200.0	2,175.2	2,163.6	4.8	5.9	-80.42	45.7	-270.6	276.9	266.3	10.64	26.019		
2,300.0	2,300.0	2,274.3	2,261.8	5.1	6.2	-80.16	49.2	-283.6	290.4	279.3	11.19	25.959		
2,400.0	2,400.0	2,373.4	2,359.9	5.3	6.6	-79.92	52.7	-296.5	304.0	292.2	11.73	25.904		
2,500.0	2,500.0	2,472.4	2,458.1	5.5	6.9	-79.70	56.2	-309.5	317.5	305.2	12.28	25.853		
2,600.0	2,600.0	2,571.5	2,556.3	5.7	7.2	-79.50	59.8	-322.5	331.0	318.2	12.83	25.806		
2,700.0	2,700.0	2,670.6	2,654.4	6.0	7.6	-79.32	63.3	-335.4	344.5	331.1	13.37	25.762		
2,800.0	2,800.0	2,769.7	2,752.6	6.2	7.9	-79.15	66.8	-348.4	358.0	344.1	13.92	25.722		
2,900.0	2,900.0	2,868.7	2,850.7	6.4	8.3	-78.99	70.3	-361.4	371.6	357.1	14.47	25.684		
3,000.0	3,000.0	2,967.8	2,948.9	6.6	8.6	-78.84	73.9	-374.3	385.1	370.1	15.01	25.650 SF		
3,100.0	3,100.0	3,066.8	3,047.0	6.8	8.9	-146.67	77.4	-387.3	399.3	385.5	13.84	28.845		
3,200.0	3,200.0	3,165.6	3,144.8	7.1	9.3	-146.66	80.9	-400.2	415.0	400.8	14.28	29.073		
3,300.0	3,299.9	3,264.1	3,242.4	7.3	9.6	-146.76	84.4	-413.1	432.2	417.5	14.70	29.391		
3,400.0	3,399.7	3,362.3	3,339.8	7.5	9.9	-147.00	87.9	-426.0	450.5	435.4	15.14	29.753		
3,500.0	3,499.5	3,460.6	3,437.1	7.7	10.3	-147.27	91.4	-438.8	469.0	453.4	15.59	30.087		
3,600.0	3,599.3	3,558.9	3,534.5	7.9	10.6	-147.52	94.9	-451.7	487.5	471.5	16.04	30.399		
3,700.0	3,699.2	3,657.1	3,631.8	8.1	10.9	-147.75	98.4	-464.6	506.0	489.5	16.49	30.693		
3,800.0	3,799.0	3,755.4	3,729.2	8.4	11.3	-147.96	101.9	-477.4	524.5	507.6	16.94	30.969		
3,900.0	3,898.8	3,853.6	3,826.5	8.6	11.6	-148.16	105.4	-490.3	543.0	525.6	17.39	31.229		
4,000.0	3,998.6	3,951.9	3,923.8	8.8	11.9	-148.35	108.9	-503.1	561.5	543.7	17.84	31.475		
4,100.0	4,098.4	4,050.1	4,021.2	9.0	12.3	-148.53	112.4	-516.0	580.1	561.8	18.29	31.706		
4,200.0	4,198.3	4,148.4	4,118.5	9.3	12.6	-148.69	115.8	-528.9	598.6	579.8	18.75	31.926		
4,300.0	4,298.1	4,246.6	4,215.9	9.5	12.9	-148.85	119.3	-541.7	617.1	597.9	19.21	32.133		
4,400.0	4,397.9	4,344.9	4,313.2	9.7	13.3	-148.99	122.8	-554.6	635.7	616.0	19.66	32.330		
4,500.0	4,497.7	4,443.1	4,410.6	9.9	13.6	-149.13	126.3	-567.5	654.2	634.1	20.12	32.517		
4,600.0	4,597.6	4,541.4	4,507.9	10.2	13.9	-149.26	129.8	-580.3	672.7	652.2	20.58	32.695		
4,700.0	4,697.4	4,639.7	4,605.3	10.4	14.3	-149.38	133.3	-593.2	691.3	670.3	21.03	32.864		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #2 (11-12-14)													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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
4,800.0	4,797.2	4,737.9	4,702.6	10.6	14.6	-149.50	136.8	-606.0	709.8	688.4	21.49	33.025		
4,900.0	4,897.0	4,836.2	4,800.0	10.9	14.9	-149.61	140.3	-618.9	728.4	706.4	21.95	33.179		
5,000.0	4,996.8	4,934.4	4,897.3	11.1	15.3	-149.71	143.8	-631.8	747.0	724.5	22.41	33.326		
5,100.0	5,096.7	5,032.7	4,994.7	11.3	15.6	-149.81	147.3	-644.6	765.5	742.6	22.87	33.466		
5,200.0	5,196.5	5,130.9	5,092.0	11.6	15.9	-149.91	150.8	-657.5	784.1	760.7	23.34	33.600		
5,300.0	5,296.3	5,229.2	5,189.3	11.8	16.3	-150.00	154.3	-670.3	802.6	778.8	23.80	33.728		
5,400.0	5,396.1	5,327.4	5,286.7	12.1	16.6	-150.09	157.8	-683.2	821.2	796.9	24.26	33.851		
5,500.0	5,495.9	5,425.7	5,384.0	12.3	17.0	-150.17	161.3	-696.1	839.8	815.0	24.72	33.969		
5,600.0	5,595.8	5,523.9	5,481.4	12.5	17.3	-150.25	164.8	-708.9	858.3	833.2	25.18	34.082		
5,700.0	5,695.6	5,622.2	5,578.7	12.8	17.6	-150.32	168.3	-721.8	876.9	851.3	25.65	34.190		
5,800.0	5,795.4	5,720.4	5,676.1	13.0	18.0	-150.40	171.8	-734.6	895.5	869.4	26.11	34.295		
5,900.0	5,895.2	5,818.7	5,773.4	13.2	18.3	174.66	175.3	-747.5	914.1	887.5	26.56	34.412		
6,000.0	5,994.7	5,916.2	5,870.1	13.4	18.6	117.48	178.7	-760.3	933.9	907.0	26.95	34.655		
6,100.0	6,092.3	6,011.5	5,964.4	13.6	18.9	107.47	182.1	-772.7	955.4	928.1	27.30	34.992		
6,200.0	6,186.4	6,114.7	6,066.7	13.8	19.3	104.18	184.2	-786.3	978.8	951.1	27.64	35.410		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #3 (11-12-14)													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)	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	1.0	1.0	0.0	0.0	-90.00	0.0	-58.5	58.5	58.5	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-58.5	58.5	58.3	0.23	257.736	
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-58.5	58.5	57.8	0.68	86.483	
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-58.5	58.5	57.4	1.13	51.959	
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-58.5	58.5	56.9	1.58	37.135	
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-58.5	58.5	56.5	2.03	28.892	
566.3	566.3	567.3	567.3	1.2	1.2	-90.00	0.0	-58.5	58.5	56.2	2.32	25.184 CC	
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-58.5	58.5	56.0	2.47	23.644 ES	
700.0	700.0	700.0	700.0	1.5	1.5	-89.55	0.5	-59.2	59.3	56.3	2.92	20.321	
800.0	800.0	799.2	799.2	1.7	1.7	-88.28	1.8	-61.4	61.5	58.1	3.36	18.326	
900.0	900.0	898.2	898.0	1.9	1.9	-86.36	4.1	-65.1	65.3	61.5	3.80	17.175	
1,000.0	1,000.0	996.9	996.6	2.1	2.1	-84.02	7.3	-70.1	70.6	66.4	4.25	16.618	
1,100.0	1,100.0	1,096.7	1,096.1	2.4	2.4	-81.73	11.0	-76.0	76.9	72.2	4.71	16.332	
1,200.0	1,200.0	1,196.4	1,195.6	2.6	2.6	-79.78	14.8	-81.9	83.3	78.2	5.18	16.103	
1,300.0	1,300.0	1,296.2	1,295.1	2.8	2.8	-78.12	18.5	-87.7	89.8	84.2	5.64	15.919	
1,400.0	1,400.0	1,395.9	1,394.7	3.0	3.1	-76.68	22.2	-93.6	96.4	90.3	6.11	15.768	
1,500.0	1,500.0	1,495.7	1,494.2	3.3	3.3	-75.42	25.9	-99.5	103.0	96.4	6.58	15.643	
1,600.0	1,600.0	1,595.5	1,593.7	3.5	3.6	-74.31	29.6	-105.3	109.6	102.6	7.06	15.538	
1,700.0	1,700.0	1,695.2	1,693.2	3.7	3.8	-73.34	33.3	-111.2	116.3	108.8	7.53	15.449	
1,800.0	1,800.0	1,795.0	1,792.7	3.9	4.1	-72.46	37.0	-117.0	123.0	115.0	8.00	15.373	
1,900.0	1,900.0	1,894.7	1,892.2	4.2	4.3	-71.68	40.7	-122.9	129.8	121.3	8.48	15.307	
2,000.0	2,000.0	1,994.5	1,991.8	4.4	4.6	-70.98	44.4	-128.8	136.5	127.6	8.95	15.250	
2,100.0	2,100.0	2,094.2	2,091.3	4.6	4.8	-70.34	48.1	-134.6	143.3	133.9	9.43	15.200	
2,200.0	2,200.0	2,194.0	2,190.8	4.8	5.1	-69.76	51.8	-140.5	150.1	140.2	9.90	15.156	
2,300.0	2,300.0	2,293.8	2,290.3	5.1	5.3	-69.23	55.5	-146.4	156.9	146.5	10.38	15.117	
2,400.0	2,400.0	2,393.5	2,389.8	5.3	5.6	-68.74	59.2	-152.2	163.7	152.9	10.86	15.082	
2,500.0	2,500.0	2,493.3	2,489.3	5.5	5.9	-68.30	62.9	-158.1	170.6	159.2	11.33	15.051	
2,600.0	2,600.0	2,593.0	2,588.9	5.7	6.1	-67.88	66.6	-164.0	177.4	165.6	11.81	15.023	
2,700.0	2,700.0	2,692.8	2,688.4	6.0	6.4	-67.50	70.3	-169.8	184.3	172.0	12.29	14.998	
2,800.0	2,800.0	2,792.6	2,787.9	6.2	6.6	-67.15	74.0	-175.7	191.1	178.4	12.76	14.975	
2,900.0	2,900.0	2,892.3	2,887.4	6.4	6.9	-66.82	77.8	-181.6	198.0	184.7	13.24	14.954	
3,000.0	3,000.0	2,992.1	2,986.9	6.6	7.1	-66.51	81.5	-187.4	204.9	191.1	13.72	14.935	
3,100.0	3,100.0	3,091.8	3,086.4	6.8	7.4	-134.32	85.2	-193.3	212.3	198.6	13.69	15.507	
3,200.0	3,200.0	3,191.4	3,185.8	7.1	7.6	-134.47	88.9	-199.2	221.0	206.9	14.12	15.653	
3,300.0	3,299.9	3,290.9	3,285.0	7.3	7.9	-134.91	92.6	-205.0	231.0	216.4	14.55	15.875	
3,400.0	3,399.7	3,390.2	3,384.1	7.5	8.2	-135.59	96.3	-210.8	241.9	227.0	14.98	16.148	
3,500.0	3,499.5	3,489.6	3,483.2	7.7	8.4	-136.26	99.9	-216.7	253.1	237.6	15.42	16.409	
3,600.0	3,599.3	3,588.9	3,582.3	7.9	8.7	-136.87	103.6	-222.5	264.2	248.4	15.86	16.657	
3,700.0	3,699.2	3,688.3	3,681.4	8.1	8.9	-137.44	107.3	-228.4	275.4	259.1	16.31	16.891	
3,800.0	3,799.0	3,787.6	3,780.5	8.4	9.2	-137.96	111.0	-234.2	286.6	269.9	16.75	17.112	
3,900.0	3,898.8	3,886.9	3,879.6	8.6	9.4	-138.44	114.7	-240.0	297.8	280.6	17.19	17.323	
4,000.0	3,998.6	3,986.3	3,978.7	8.8	9.7	-138.89	118.4	-245.9	309.1	291.4	17.64	17.522	
4,100.0	4,098.4	4,085.6	4,077.8	9.0	10.0	-139.30	122.1	-251.7	320.3	302.3	18.09	17.712	
4,200.0	4,198.3	4,184.9	4,176.9	9.3	10.2	-139.69	125.8	-257.6	331.6	313.1	18.53	17.893	
4,300.0	4,298.1	4,284.3	4,276.0	9.5	10.5	-140.05	129.5	-263.4	342.9	323.9	18.98	18.065	
4,400.0	4,397.9	4,383.6	4,375.1	9.7	10.7	-140.39	133.2	-269.3	354.2	334.8	19.43	18.229	
4,500.0	4,497.7	4,483.0	4,474.2	9.9	11.0	-140.71	136.8	-275.1	365.5	345.7	19.88	18.385	
4,600.0	4,597.6	4,582.3	4,573.3	10.2	11.2	-141.01	140.5	-280.9	376.9	356.5	20.33	18.535	
4,700.0	4,697.4	4,681.6	4,672.4	10.4	11.5	-141.29	144.2	-286.8	388.2	367.4	20.79	18.677	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #3 (11-12-14)													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	
4,800.0	4,797.2	4,781.0	4,771.5	10.6	11.7	-141.55	147.9	-292.6	399.6	378.3	21.24	18.814	
4,900.0	4,897.0	4,880.3	4,870.6	10.9	12.0	-141.80	151.6	-298.5	410.9	389.2	21.69	18.945	
5,000.0	4,996.8	4,979.6	4,969.7	11.1	12.3	-142.04	155.3	-304.3	422.3	400.1	22.14	19.070	
5,100.0	5,096.7	5,079.0	5,068.8	11.3	12.5	-142.27	159.0	-310.1	433.6	411.0	22.60	19.191	
5,200.0	5,196.5	5,178.3	5,167.9	11.6	12.8	-142.48	162.7	-316.0	445.0	422.0	23.05	19.306	
5,300.0	5,296.3	5,277.7	5,267.0	11.8	13.0	-142.68	166.4	-321.8	456.4	432.9	23.51	19.417	
5,400.0	5,396.1	5,377.0	5,366.1	12.1	13.3	-142.88	170.1	-327.7	467.8	443.8	23.96	19.524	
5,500.0	5,495.9	5,476.3	5,465.2	12.3	13.5	-143.06	173.7	-333.5	479.2	454.8	24.42	19.626	
5,600.0	5,595.8	5,575.7	5,564.3	12.5	13.8	-143.23	177.4	-339.3	490.6	465.7	24.87	19.725	
5,700.0	5,695.6	5,675.0	5,663.4	12.8	14.1	-143.40	181.1	-345.2	502.0	476.6	25.33	19.820	
5,800.0	5,795.4	5,774.3	5,762.5	13.0	14.3	-143.56	184.8	-351.0	513.4	487.6	25.78	19.911	
5,900.0	5,895.2	5,873.7	5,861.5	13.2	14.6	-178.42	188.5	-356.9	524.9	498.7	26.22	20.018	
6,000.0	5,994.7	5,977.0	5,964.7	13.4	14.8	125.26	191.9	-362.9	538.7	512.1	26.56	20.284	
6,100.0	6,092.3	6,098.7	6,085.7	13.6	15.0	115.83	182.6	-370.1	553.0	526.1	26.81	20.626	
6,200.0	6,186.4	6,223.3	6,206.4	13.8	15.2	112.19	153.3	-377.2	566.2	539.2	27.00	20.970	
6,300.0	6,275.3	6,350.2	6,322.8	14.0	15.3	110.00	103.7	-384.1	578.0	550.7	27.21	21.241	
6,400.0	6,357.6	6,478.5	6,430.5	14.3	15.4	108.27	34.6	-390.4	588.0	560.4	27.56	21.338	
6,500.0	6,431.8	6,607.3	6,525.6	14.6	15.6	106.64	-52.0	-396.1	596.0	567.9	28.16	21.169	
6,600.0	6,496.7	6,735.7	6,604.6	15.1	16.0	105.00	-152.9	-400.7	602.0	572.9	29.14	20.658	
6,700.0	6,551.1	6,862.7	6,665.0	15.7	16.6	103.30	-264.4	-404.3	606.0	575.4	30.58	19.814	
6,800.0	6,594.1	6,987.5	6,705.7	16.6	17.5	101.53	-382.2	-406.8	607.9	575.4	32.49	18.711	
6,900.0	6,625.0	7,109.3	6,726.4	17.6	18.7	99.71	-502.1	-408.0	608.1	573.2	34.81	17.468	
7,000.0	6,643.2	7,220.6	6,729.4	18.7	20.0	98.06	-613.2	-408.2	606.8	569.5	37.35	16.247	
7,100.0	6,648.6	7,320.3	6,729.0	20.0	21.2	97.53	-713.0	-408.2	606.3	566.4	39.90	15.196	
7,200.0	6,648.4	7,420.3	6,728.6	21.4	22.5	97.51	-813.0	-408.2	606.3	563.7	42.62	14.226	
7,300.0	6,648.1	7,520.3	6,728.2	22.8	23.9	97.50	-913.0	-408.2	606.3	560.8	45.50	13.325	
7,400.0	6,647.9	7,620.3	6,727.8	24.3	25.4	97.48	-1,013.0	-408.2	606.3	557.8	48.51	12.499	
7,500.0	6,647.7	7,720.3	6,727.4	25.9	27.0	97.47	-1,113.0	-408.2	606.2	554.6	51.62	11.744	
7,600.0	6,647.4	7,820.3	6,727.0	27.5	28.5	97.45	-1,213.0	-408.2	606.2	551.4	54.82	11.058	
7,700.0	6,647.2	7,920.3	6,726.6	29.1	30.2	97.43	-1,313.0	-408.2	606.2	548.1	58.10	10.434	
7,800.0	6,647.0	8,020.3	6,726.2	30.8	31.8	97.42	-1,413.0	-408.2	606.2	544.7	61.44	9.866	
7,900.0	6,646.8	8,120.3	6,725.8	32.5	33.5	97.40	-1,513.0	-408.2	606.2	541.3	64.83	9.349	
8,000.0	6,646.5	8,220.3	6,725.4	34.2	35.2	97.38	-1,613.0	-408.2	606.1	537.9	68.27	8.878	
8,100.0	6,646.3	8,320.3	6,725.0	36.0	36.9	97.37	-1,713.0	-408.2	606.1	534.4	71.75	8.448	
8,200.0	6,646.1	8,420.3	6,724.6	37.7	38.7	97.35	-1,813.0	-408.2	606.1	530.8	75.26	8.054	
8,300.0	6,645.9	8,520.3	6,724.2	39.5	40.4	97.33	-1,913.0	-408.2	606.1	527.3	78.79	7.692	
8,400.0	6,645.6	8,620.3	6,723.8	41.3	42.2	97.32	-2,013.0	-408.2	606.0	523.7	82.36	7.359	
8,500.0	6,645.4	8,720.3	6,723.4	43.1	44.0	97.30	-2,113.0	-408.2	606.0	520.1	85.94	7.051	
8,600.0	6,645.2	8,820.3	6,723.0	44.9	45.8	97.29	-2,213.0	-408.2	606.0	516.5	89.55	6.767	
8,700.0	6,645.0	8,920.3	6,722.6	46.7	47.6	97.27	-2,313.0	-408.2	606.0	512.8	93.17	6.504	
8,800.0	6,644.7	9,020.3	6,722.2	48.6	49.4	97.25	-2,413.0	-408.2	606.0	509.2	96.81	6.259	
8,900.0	6,644.5	9,120.3	6,721.8	50.4	51.2	97.24	-2,513.0	-408.2	605.9	505.5	100.46	6.032	
9,000.0	6,644.3	9,220.3	6,721.4	52.2	53.1	97.22	-2,613.0	-408.2	605.9	501.8	104.12	5.819	
9,100.0	6,644.0	9,320.3	6,721.0	54.1	54.9	97.20	-2,713.0	-408.2	605.9	498.1	107.79	5.621	
9,200.0	6,643.8	9,420.3	6,720.6	55.9	56.7	97.19	-2,813.0	-408.2	605.9	494.4	111.48	5.435	
9,300.0	6,643.6	9,520.3	6,720.2	57.8	58.6	97.17	-2,913.0	-408.2	605.8	490.7	115.17	5.260	
9,400.0	6,643.4	9,620.3	6,719.8	59.6	60.4	97.15	-3,013.0	-408.2	605.8	487.0	118.87	5.096	
9,500.0	6,643.1	9,720.3	6,719.4	61.5	62.3	97.14	-3,113.0	-408.2	605.8	483.2	122.58	4.942	
9,600.0	6,642.9	9,820.3	6,719.0	63.4	64.1	97.12	-3,213.0	-408.2	605.8	479.5	126.30	4.797	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #3 (11-12-14)													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	
9,700.0	6,642.7	9,920.3	6,718.6	65.2	66.0	97.11	-3,313.0	-408.2	605.8	475.7	130.02	4.659		
9,800.0	6,642.5	10,020.3	6,718.2	67.1	67.9	97.09	-3,413.0	-408.2	605.7	472.0	133.75	4.529		
9,900.0	6,642.2	10,120.3	6,717.8	69.0	69.7	97.07	-3,513.0	-408.2	605.7	468.2	137.48	4.406		
10,000.0	6,642.0	10,220.3	6,717.4	70.9	71.6	97.06	-3,613.0	-408.2	605.7	464.5	141.22	4.289		
10,100.0	6,641.8	10,320.3	6,717.0	72.8	73.5	97.04	-3,713.0	-408.2	605.7	460.7	144.96	4.178		
10,200.0	6,641.5	10,420.3	6,716.6	74.6	75.4	97.02	-3,813.0	-408.2	605.7	456.9	148.70	4.073		
10,300.0	6,641.3	10,520.3	6,716.2	76.5	77.2	97.01	-3,913.0	-408.2	605.6	453.2	152.45	3.973		
10,400.0	6,641.1	10,620.3	6,715.8	78.4	79.1	96.99	-4,013.0	-408.2	605.6	449.4	156.21	3.877		
10,500.0	6,640.9	10,720.3	6,715.4	80.3	81.0	96.97	-4,113.0	-408.2	605.6	445.6	159.97	3.786		
10,600.0	6,640.6	10,820.3	6,715.0	82.2	82.9	96.96	-4,213.0	-408.2	605.6	441.8	163.73	3.699		
10,700.0	6,640.4	10,920.3	6,714.6	84.1	84.8	96.94	-4,313.0	-408.2	605.5	438.1	167.49	3.615		
10,800.0	6,640.2	11,020.3	6,714.2	86.0	86.7	96.92	-4,413.0	-408.2	605.5	434.3	171.26	3.536		
10,900.0	6,640.0	11,120.3	6,713.8	87.9	88.5	96.91	-4,513.0	-408.2	605.5	430.5	175.03	3.460		
11,000.0	6,639.7	11,220.3	6,713.4	89.8	90.4	96.89	-4,613.0	-408.2	605.5	426.7	178.80	3.386		
11,100.0	6,639.5	11,320.3	6,713.0	91.6	92.3	96.88	-4,713.0	-408.2	605.5	422.9	182.57	3.316		
11,200.0	6,639.3	11,420.3	6,712.6	93.5	94.2	96.86	-4,813.0	-408.2	605.4	419.1	186.35	3.249		
11,300.0	6,639.1	11,520.3	6,712.2	95.4	96.1	96.84	-4,913.0	-408.2	605.4	415.3	190.13	3.184		
11,400.0	6,638.8	11,620.3	6,711.8	97.3	98.0	96.83	-5,013.0	-408.2	605.4	411.5	193.91	3.122		
11,500.0	6,638.6	11,720.3	6,711.4	99.2	99.9	96.81	-5,113.0	-408.2	605.4	407.7	197.69	3.062		
11,600.0	6,638.4	11,820.3	6,711.0	101.1	101.8	96.79	-5,213.0	-408.2	605.4	403.9	201.47	3.005		
11,700.0	6,638.1	11,920.3	6,710.6	103.0	103.7	96.78	-5,313.0	-408.2	605.3	400.1	205.26	2.949		
11,800.0	6,637.9	12,020.3	6,710.2	104.9	105.6	96.76	-5,413.0	-408.2	605.3	396.3	209.04	2.896		
11,900.0	6,637.7	12,120.3	6,709.8	106.8	107.5	96.74	-5,513.0	-408.2	605.3	392.5	212.83	2.844		
12,000.0	6,637.5	12,220.3	6,709.4	108.7	109.4	96.73	-5,613.0	-408.2	605.3	388.7	216.62	2.794		
12,100.0	6,637.2	12,320.3	6,709.0	110.6	111.3	96.71	-5,713.0	-408.2	605.3	384.8	220.41	2.746		
12,200.0	6,637.0	12,420.3	6,708.6	112.6	113.2	96.70	-5,813.0	-408.2	605.2	381.0	224.21	2.699		
12,300.0	6,636.8	12,520.3	6,708.2	114.5	115.1	96.68	-5,913.0	-408.2	605.2	377.2	228.00	2.654		
12,400.0	6,636.6	12,620.3	6,707.8	116.4	117.0	96.66	-6,013.0	-408.2	605.2	373.4	231.80	2.611		
12,500.0	6,636.3	12,720.3	6,707.4	118.3	118.9	96.65	-6,113.0	-408.2	605.2	369.6	235.59	2.569		
12,600.0	6,636.1	12,820.3	6,707.0	120.2	120.8	96.63	-6,213.0	-408.2	605.2	365.8	239.39	2.528		
12,700.0	6,635.9	12,920.3	6,706.6	122.1	122.7	96.61	-6,313.0	-408.2	605.1	361.9	243.19	2.488		
12,800.0	6,635.6	13,020.3	6,706.2	124.0	124.6	96.60	-6,413.0	-408.2	605.1	358.1	246.99	2.450		
12,900.0	6,635.4	13,120.3	6,705.8	125.9	126.5	96.58	-6,513.0	-408.2	605.1	354.3	250.79	2.413		
13,000.0	6,635.2	13,220.3	6,705.4	127.8	128.4	96.56	-6,612.9	-408.2	605.1	350.5	254.59	2.377		
13,100.0	6,635.0	13,320.3	6,705.0	129.7	130.3	96.55	-6,712.9	-408.2	605.1	346.7	258.40	2.342		
13,200.0	6,634.7	13,420.3	6,704.6	131.6	132.2	96.53	-6,812.9	-408.2	605.0	342.8	262.20	2.308		
13,300.0	6,634.5	13,520.3	6,704.2	133.5	134.1	96.51	-6,912.9	-408.2	605.0	339.0	266.00	2.274		
13,400.0	6,634.3	13,620.3	6,703.8	135.4	136.1	96.50	-7,012.9	-408.2	605.0	335.2	269.81	2.242		
13,500.0	6,634.1	13,720.3	6,703.4	137.3	137.9	96.48	-7,112.9	-408.2	605.0	331.4	273.54	2.212		
13,582.4	6,633.9	13,802.8	6,703.0	138.6	139.2	96.47	-7,195.4	-408.2	605.0	328.9	276.09	2.191 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #3 (11-12-14)														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	90.02	0.0	30.6	30.7						
100.0	100.0	99.0	99.0	0.1	0.1	90.02	0.0	30.6	30.6	30.4	0.22	137.039			
200.0	200.0	199.0	199.0	0.3	0.3	90.02	0.0	30.6	30.6	30.0	0.67	45.604			
300.0	300.0	299.0	299.0	0.6	0.6	90.02	0.0	30.6	30.6	29.5	1.12	27.326			
400.0	400.0	399.0	399.0	0.8	0.8	90.02	0.0	30.6	30.6	29.1	1.57	19.507			
500.0	500.0	499.0	499.0	1.0	1.0	90.02	0.0	30.6	30.6	28.6	2.02	15.167			
600.0	600.0	599.0	599.0	1.2	1.2	90.02	0.0	30.6	30.6	28.2	2.47	12.407			
700.0	700.0	699.0	699.0	1.5	1.5	90.02	0.0	30.6	30.6	27.7	2.92	10.497			
800.0	800.0	799.0	799.0	1.7	1.7	90.02	0.0	30.6	30.6	27.3	3.37	9.096			
900.0	900.0	899.0	899.0	1.9	1.9	90.02	0.0	30.6	30.6	26.8	3.82	8.026			
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.02	0.0	30.6	30.6	26.4	4.27	7.180			
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	90.02	0.0	30.6	30.6	25.9	4.72	6.496			
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	90.02	0.0	30.6	30.6	25.5	5.17	5.931			
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	90.02	0.0	30.6	30.6	25.0	5.62	5.456			
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	90.02	0.0	30.6	30.6	24.6	6.07	5.052			
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	90.02	0.0	30.6	30.6	24.1	6.52	4.704 CC, ES			
1,600.0	1,600.0	1,598.3	1,598.3	3.5	3.5	88.71	0.7	31.7	31.7	24.7	6.96	4.556			
1,700.0	1,700.0	1,697.5	1,697.4	3.7	3.7	85.24	2.9	34.8	35.0	27.6	7.40	4.731			
1,800.0	1,800.0	1,796.4	1,796.1	3.9	3.9	80.72	6.5	40.1	40.7	32.9	7.84	5.194			
1,900.0	1,900.0	1,895.9	1,895.3	4.2	4.1	76.53	11.2	46.8	48.3	40.0	8.29	5.825			
2,000.0	2,000.0	1,995.6	1,994.6	4.4	4.4	73.46	15.9	53.6	56.1	47.3	8.74	6.416			
2,100.0	2,100.0	2,095.2	2,093.9	4.6	4.6	71.14	20.6	60.4	64.0	54.8	9.20	6.958			
2,200.0	2,200.0	2,194.9	2,193.2	4.8	4.8	69.33	25.3	67.2	72.0	62.3	9.66	7.455			
2,300.0	2,300.0	2,294.5	2,292.5	5.1	5.1	67.89	30.0	73.9	80.1	69.9	10.12	7.911			
2,400.0	2,400.0	2,394.2	2,391.8	5.3	5.3	66.71	34.7	80.7	88.2	77.6	10.59	8.328			
2,500.0	2,500.0	2,493.8	2,491.2	5.5	5.6	65.73	39.4	87.5	96.3	85.2	11.05	8.711			
2,600.0	2,600.0	2,593.5	2,590.5	5.7	5.8	64.90	44.2	94.3	104.4	92.9	11.52	9.063			
2,700.0	2,700.0	2,693.2	2,689.8	6.0	6.1	64.19	48.9	101.0	112.6	100.6	12.00	9.388			
2,800.0	2,800.0	2,792.8	2,789.1	6.2	6.3	63.58	53.6	107.8	120.8	108.3	12.47	9.688			
2,900.0	2,900.0	2,892.5	2,888.4	6.4	6.6	63.05	58.3	114.6	129.0	116.1	12.94	9.966			
3,000.0	3,000.0	2,992.1	2,987.7	6.6	6.8	62.58	63.0	121.4	137.2	123.8	13.42	10.225			
3,100.0	3,100.0	3,091.9	3,087.1	6.8	7.1	-5.85	67.7	128.2	144.6	130.9	13.62	10.611			
3,200.0	3,200.0	3,191.7	3,186.6	7.1	7.3	-6.32	72.4	135.0	150.2	136.1	14.06	10.685			
3,300.0	3,299.9	3,291.6	3,286.2	7.3	7.6	-6.84	77.1	141.7	154.1	139.6	14.49	10.637			
3,400.0	3,399.7	3,391.6	3,385.8	7.5	7.9	-7.41	81.8	148.5	156.6	141.7	14.92	10.494			
3,500.0	3,499.5	3,491.5	3,485.4	7.7	8.1	-7.96	86.6	155.3	158.9	143.5	15.36	10.346			
3,600.0	3,599.3	3,591.5	3,585.0	7.9	8.4	-8.50	91.3	162.1	161.3	145.5	15.80	10.206			
3,700.0	3,699.2	3,691.4	3,684.6	8.1	8.6	-9.02	96.0	168.9	163.6	147.4	16.24	10.074			
3,800.0	3,799.0	3,791.4	3,784.3	8.4	8.9	-9.53	100.7	175.7	166.0	149.3	16.69	9.949			
3,900.0	3,898.8	3,891.4	3,883.9	8.6	9.2	-10.03	105.4	182.5	168.4	151.3	17.13	9.831			
4,000.0	3,998.6	3,991.3	3,983.5	8.8	9.4	-10.51	110.2	189.3	170.8	153.2	17.58	9.718			
4,100.0	4,098.4	4,091.3	4,083.1	9.0	9.7	-10.97	114.9	196.1	173.2	155.2	18.02	9.611			
4,200.0	4,198.3	4,191.2	4,182.7	9.3	10.0	-11.43	119.6	202.9	175.6	157.2	18.47	9.510			
4,300.0	4,298.1	4,291.2	4,282.3	9.5	10.2	-11.87	124.3	209.7	178.1	159.2	18.92	9.413			
4,400.0	4,397.9	4,391.2	4,382.0	9.7	10.5	-12.30	129.0	216.5	180.5	161.2	19.37	9.321			
4,500.0	4,497.7	4,491.1	4,481.6	9.9	10.8	-12.72	133.8	223.3	183.0	163.2	19.82	9.233			
4,600.0	4,597.6	4,591.1	4,581.2	10.2	11.0	-13.12	138.5	230.1	185.5	165.2	20.27	9.149			
4,700.0	4,697.4	4,691.0	4,680.8	10.4	11.3	-13.52	143.2	236.9	187.9	167.2	20.72	9.069			
4,800.0	4,797.2	4,791.0	4,780.4	10.6	11.6	-13.91	147.9	243.7	190.4	169.2	21.18	8.993			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #3 (11-12-14)													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	
4,900.0	4,897.0	4,891.0	4,880.1	10.9	11.8	-14.28	152.6	250.5	192.9	171.3	21.63	8.919		
5,000.0	4,996.8	4,990.9	4,979.7	11.1	12.1	-14.65	157.4	257.3	195.4	173.3	22.08	8.849		
5,100.0	5,096.7	5,090.9	5,079.3	11.3	12.3	-15.01	162.1	264.1	197.9	175.4	22.54	8.782		
5,200.0	5,196.5	5,190.9	5,178.9	11.6	12.6	-15.35	166.8	270.9	200.4	177.5	22.99	8.717		
5,300.0	5,296.3	5,290.8	5,278.5	11.8	12.9	-15.69	171.5	277.7	203.0	179.5	23.45	8.655		
5,400.0	5,396.1	5,390.8	5,378.1	12.1	13.2	-16.02	176.2	284.5	205.5	181.6	23.91	8.596		
5,500.0	5,495.9	5,490.7	5,477.8	12.3	13.4	-16.35	181.0	291.3	208.0	183.7	24.37	8.538		
5,600.0	5,595.8	5,590.7	5,577.4	12.5	13.7	-16.66	185.7	298.1	210.6	185.8	24.82	8.483		
5,700.0	5,695.6	5,690.7	5,677.0	12.8	14.0	-16.97	190.4	304.9	213.1	187.9	25.28	8.430		
5,800.0	5,795.4	5,790.6	5,776.6	13.0	14.2	-17.27	195.1	311.7	215.7	189.9	25.74	8.379		
5,900.0	5,895.2	5,890.6	5,876.2	13.2	14.5	-52.12	199.8	318.5	218.5	192.3	26.20	8.342		
6,000.0	5,994.7	5,989.7	5,975.0	13.4	14.8	-110.04	204.5	325.3	227.6	201.1	26.54	8.578		
6,100.0	6,092.3	6,106.2	6,091.2	13.6	15.0	-123.08	205.1	333.2	243.4	216.7	26.70	9.115		
6,200.0	6,186.4	6,235.4	6,218.4	13.8	15.2	-129.50	185.7	341.9	257.9	231.3	26.63	9.685		
6,300.0	6,275.3	6,369.3	6,345.0	14.0	15.3	-133.31	143.2	350.5	269.8	243.4	26.36	10.232		
6,400.0	6,357.6	6,507.1	6,465.3	14.3	15.5	-135.59	77.1	358.7	278.2	252.2	25.99	10.703		
6,500.0	6,431.8	6,647.3	6,573.7	14.6	15.6	-136.75	-11.3	366.1	282.6	257.0	25.65	11.020		
6,600.0	6,496.7	6,788.3	6,664.6	15.1	15.9	-136.96	-118.6	372.3	282.9	257.3	25.52	11.082		
6,700.0	6,551.1	6,928.2	6,733.8	15.7	16.5	-136.30	-239.9	377.1	278.9	253.0	25.82	10.798		
6,800.0	6,594.1	7,065.5	6,779.3	16.6	17.6	-134.80	-369.2	380.2	271.0	244.2	26.73	10.136		
6,900.0	6,625.0	7,198.8	6,800.6	17.6	18.9	-132.44	-500.6	381.6	259.8	231.4	28.39	9.153		
7,000.0	6,643.2	7,311.1	6,802.7	18.7	20.1	-130.09	-612.8	381.7	248.1	217.7	30.38	8.165		
7,098.0	6,649.0	7,408.8	6,802.8	20.0	21.4	-129.33	-710.6	381.7	244.1	212.0	32.10	7.605		
7,100.0	6,648.6	7,410.9	6,802.8	20.0	21.4	-129.41	-712.6	381.7	244.4	212.3	32.10	7.614		
7,200.0	6,648.4	7,510.9	6,802.8	21.4	22.7	-129.46	-812.6	381.7	244.6	210.3	34.26	7.139		
7,300.0	6,648.1	7,610.9	6,802.8	22.8	24.1	-129.50	-912.6	381.7	244.8	208.2	36.55	6.696		
7,400.0	6,647.9	7,710.9	6,802.9	24.3	25.6	-129.55	-1,012.6	381.7	244.9	206.0	38.95	6.288		
7,500.0	6,647.7	7,810.9	6,802.9	25.9	27.2	-129.60	-1,112.6	381.7	245.1	203.6	41.44	5.914		
7,600.0	6,647.4	7,910.9	6,802.9	27.5	28.8	-129.65	-1,212.6	381.7	245.3	201.3	44.00	5.574		
7,700.0	6,647.2	8,010.9	6,803.0	29.1	30.4	-129.69	-1,312.6	381.7	245.4	198.8	46.62	5.264		
7,800.0	6,647.0	8,110.9	6,803.0	30.8	32.0	-129.74	-1,412.6	381.7	245.6	196.3	49.29	4.982		
7,900.0	6,646.8	8,210.9	6,803.0	32.5	33.7	-129.79	-1,512.6	381.7	245.8	193.8	52.01	4.726		
8,000.0	6,646.5	8,310.9	6,803.1	34.2	35.4	-129.83	-1,612.6	381.7	245.9	191.2	54.75	4.492		
8,100.0	6,646.3	8,410.9	6,803.1	36.0	37.1	-129.88	-1,712.6	381.7	246.1	188.6	57.53	4.278		
8,200.0	6,646.1	8,510.9	6,803.1	37.7	38.9	-129.93	-1,812.6	381.7	246.3	185.9	60.33	4.082		
8,300.0	6,645.9	8,610.9	6,803.2	39.5	40.7	-129.97	-1,912.6	381.7	246.4	183.3	63.16	3.902		
8,400.0	6,645.6	8,710.9	6,803.2	41.3	42.4	-130.02	-2,012.6	381.7	246.6	180.6	66.00	3.736		
8,500.0	6,645.4	8,810.9	6,803.2	43.1	44.2	-130.07	-2,112.6	381.7	246.8	177.9	68.85	3.584		
8,600.0	6,645.2	8,910.9	6,803.3	44.9	46.0	-130.11	-2,212.6	381.7	246.9	175.2	71.72	3.443		
8,700.0	6,645.0	9,010.9	6,803.3	46.7	47.8	-130.16	-2,312.6	381.7	247.1	172.5	74.60	3.312		
8,800.0	6,644.7	9,110.9	6,803.3	48.6	49.6	-130.21	-2,412.6	381.7	247.3	169.8	77.49	3.191		
8,900.0	6,644.5	9,210.9	6,803.4	50.4	51.5	-130.25	-2,512.6	381.7	247.4	167.0	80.39	3.078		
9,000.0	6,644.3	9,310.9	6,803.4	52.2	53.3	-130.30	-2,612.6	381.7	247.6	164.3	83.30	2.973		
9,100.0	6,644.0	9,410.9	6,803.5	54.1	55.1	-130.34	-2,712.6	381.7	247.8	161.6	86.21	2.874		
9,200.0	6,643.8	9,510.9	6,803.5	55.9	57.0	-130.39	-2,812.6	381.7	247.9	158.8	89.13	2.782		
9,300.0	6,643.6	9,610.9	6,803.5	57.8	58.8	-130.44	-2,912.6	381.7	248.1	156.1	92.05	2.696		
9,400.0	6,643.4	9,710.9	6,803.6	59.6	60.7	-130.48	-3,012.6	381.7	248.3	153.3	94.97	2.614		
9,500.0	6,643.1	9,810.9	6,803.6	61.5	62.5	-130.53	-3,112.6	381.7	248.5	150.6	97.90	2.538		
9,600.0	6,642.9	9,910.9	6,803.6	63.4	64.4	-130.57	-3,212.6	381.7	248.6	147.8	100.83	2.466		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #3 (11-12-14)													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	
9,700.0	6,642.7	10,010.9	6,803.7	65.2	66.2	-130.62	-3,312.6	381.7	248.8	145.0	103.76	2.398	
9,800.0	6,642.5	10,110.9	6,803.7	67.1	68.1	-130.67	-3,412.6	381.7	249.0	142.3	106.69	2.334	
9,900.0	6,642.2	10,210.9	6,803.7	69.0	70.0	-130.71	-3,512.6	381.7	249.1	139.5	109.62	2.273	
10,000.0	6,642.0	10,310.9	6,803.8	70.9	71.9	-130.76	-3,612.6	381.7	249.3	136.8	112.56	2.215	
10,100.0	6,641.8	10,410.9	6,803.8	72.8	73.7	-130.80	-3,712.6	381.7	249.5	134.0	115.49	2.160	
10,200.0	6,641.5	10,510.9	6,803.8	74.6	75.6	-130.85	-3,812.6	381.7	249.7	131.2	118.43	2.108	
10,300.0	6,641.3	10,610.9	6,803.9	76.5	77.5	-130.89	-3,912.6	381.7	249.8	128.5	121.36	2.059	
10,400.0	6,641.1	10,710.9	6,803.9	78.4	79.4	-130.94	-4,012.6	381.7	250.0	125.7	124.30	2.011	
10,500.0	6,640.9	10,810.9	6,803.9	80.3	81.2	-130.98	-4,112.6	381.7	250.2	122.9	127.23	1.966	
10,600.0	6,640.6	10,910.9	6,804.0	82.2	83.1	-131.03	-4,212.6	381.7	250.3	120.2	130.16	1.923	
10,700.0	6,640.4	11,010.9	6,804.0	84.1	85.0	-131.07	-4,312.6	381.7	250.5	117.4	133.09	1.882	
10,800.0	6,640.2	11,110.9	6,804.0	86.0	86.9	-131.12	-4,412.6	381.7	250.7	114.7	136.03	1.843	
10,900.0	6,640.0	11,210.9	6,804.1	87.9	88.8	-131.16	-4,512.6	381.7	250.9	111.9	138.96	1.805	
11,000.0	6,639.7	11,310.9	6,804.1	89.8	90.7	-131.21	-4,612.6	381.7	251.0	109.1	141.89	1.769	
11,100.0	6,639.5	11,410.9	6,804.2	91.6	92.6	-131.25	-4,712.6	381.7	251.2	106.4	144.81	1.735	
11,200.0	6,639.3	11,510.9	6,804.2	93.5	94.5	-131.30	-4,812.6	381.7	251.4	103.6	147.74	1.701	
11,300.0	6,639.1	11,610.9	6,804.2	95.4	96.4	-131.34	-4,912.6	381.7	251.5	100.9	150.66	1.670	
11,400.0	6,638.8	11,710.9	6,804.3	97.3	98.3	-131.39	-5,012.6	381.7	251.7	98.1	153.59	1.639	
11,500.0	6,638.6	11,810.9	6,804.3	99.2	100.1	-131.43	-5,112.6	381.7	251.9	95.4	156.51	1.609	
11,600.0	6,638.4	11,910.9	6,804.3	101.1	102.0	-131.48	-5,212.6	381.7	252.1	92.6	159.43	1.581	
11,700.0	6,638.1	12,010.9	6,804.4	103.0	103.9	-131.52	-5,312.6	381.7	252.2	89.9	162.34	1.554	
11,800.0	6,637.9	12,110.9	6,804.4	104.9	105.8	-131.57	-5,412.6	381.7	252.4	87.2	165.26	1.527	
11,900.0	6,637.7	12,210.9	6,804.4	106.8	107.7	-131.61	-5,512.6	381.7	252.6	84.4	168.17	1.502	
12,000.0	6,637.5	12,310.9	6,804.5	108.7	109.6	-131.66	-5,612.6	381.7	252.8	81.7	171.08	1.477 Level 3	
12,100.0	6,637.2	12,410.9	6,804.5	110.6	111.5	-131.70	-5,712.6	381.7	252.9	78.9	173.99	1.454 Level 3	
12,200.0	6,637.0	12,510.9	6,804.5	112.6	113.4	-131.74	-5,812.6	381.7	253.1	76.2	176.90	1.431 Level 3	
12,300.0	6,636.8	12,610.9	6,804.6	114.5	115.3	-131.79	-5,912.6	381.7	253.3	73.5	179.80	1.409 Level 3	
12,400.0	6,636.6	12,710.9	6,804.6	116.4	117.2	-131.83	-6,012.6	381.7	253.5	70.8	182.71	1.387 Level 3	
12,500.0	6,636.3	12,810.9	6,804.6	118.3	119.1	-131.88	-6,112.6	381.7	253.6	68.0	185.61	1.366 Level 3	
12,600.0	6,636.1	12,910.9	6,804.7	120.2	121.1	-131.92	-6,212.6	381.7	253.8	65.3	188.50	1.346 Level 3	
12,700.0	6,635.9	13,010.9	6,804.7	122.1	123.0	-131.97	-6,312.6	381.7	254.0	62.6	191.40	1.327 Level 3	
12,800.0	6,635.6	13,110.9	6,804.7	124.0	124.9	-132.01	-6,412.6	381.7	254.2	59.9	194.29	1.308 Level 3	
12,900.0	6,635.4	13,210.9	6,804.8	125.9	126.8	-132.05	-6,512.6	381.7	254.3	57.1	197.18	1.290 Level 3	
13,000.0	6,635.2	13,310.9	6,804.8	127.8	128.7	-132.10	-6,612.6	381.7	254.5	54.4	200.07	1.272 Level 3	
13,100.0	6,635.0	13,410.9	6,804.8	129.7	130.6	-132.14	-6,712.6	381.7	254.7	51.7	202.96	1.255 Level 3	
13,200.0	6,634.7	13,510.9	6,804.9	131.6	132.5	-132.18	-6,812.6	381.7	254.9	49.0	205.84	1.238 Level 2	
13,300.0	6,634.5	13,610.9	6,804.9	133.5	134.4	-132.23	-6,912.6	381.7	255.0	46.3	208.72	1.222 Level 2	
13,400.0	6,634.3	13,710.9	6,805.0	135.4	136.3	-132.27	-7,012.6	381.7	255.2	43.6	211.60	1.206 Level 2	
13,500.0	6,634.1	13,810.9	6,805.0	137.3	138.2	-132.31	-7,112.6	381.7	255.4	40.9	214.48	1.191 Level 2	
13,582.4	6,633.9	13,893.3	6,805.0	138.6	139.8	-132.35	-7,195.0	381.7	255.5	39.0	216.57	1.180 Level 2, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #2 (11-12-14)													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	-90.01	0.0	-27.9	27.9				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-27.9	27.9	27.6	0.22	123.959	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-27.9	27.9	27.2	0.67	41.320	
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-27.9	27.9	26.7	1.12	24.792	
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-27.9	27.9	26.3	1.57	17.708	
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-27.9	27.9	25.8	2.02	13.773	
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-27.9	27.9	25.4	2.47	11.269	
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-27.9	27.9	24.9	2.92	9.535	
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-27.9	27.9	24.5	3.37	8.264 CC, ES	
900.0	900.0	899.7	899.7	1.9	1.9	-88.70	0.6	-28.4	28.4	24.6	3.82	7.451	
1,000.0	1,000.0	999.3	999.2	2.1	2.1	-85.07	2.6	-30.1	30.3	26.0	4.26	7.103	
1,100.0	1,100.0	1,098.8	1,098.7	2.4	2.3	-79.95	5.8	-33.0	33.5	28.8	4.71	7.123	
1,200.0	1,200.0	1,198.7	1,198.4	2.6	2.6	-75.08	9.7	-36.4	37.7	32.5	5.16	7.301	
1,300.0	1,300.0	1,298.5	1,298.1	2.8	2.8	-71.19	13.5	-39.7	42.0	36.4	5.61	7.486	
1,400.0	1,400.0	1,398.4	1,397.9	3.0	3.0	-68.05	17.4	-43.1	46.5	40.5	6.07	7.666	
1,500.0	1,500.0	1,498.3	1,497.6	3.3	3.3	-65.47	21.2	-46.5	51.1	44.6	6.53	7.837	
1,600.0	1,600.0	1,598.1	1,597.4	3.5	3.5	-63.31	25.1	-49.8	55.9	48.9	6.98	7.997	
1,700.0	1,700.0	1,698.0	1,697.1	3.7	3.7	-61.50	28.9	-53.2	60.6	53.2	7.44	8.145	
1,800.0	1,800.0	1,797.9	1,796.8	3.9	4.0	-59.95	32.7	-56.6	65.5	57.6	7.90	8.282	
1,900.0	1,900.0	1,897.7	1,896.6	4.2	4.2	-58.61	36.6	-60.0	70.3	62.0	8.36	8.408	
2,000.0	2,000.0	1,997.6	1,996.3	4.4	4.4	-57.45	40.4	-63.3	75.2	66.4	8.82	8.524	
2,100.0	2,100.0	2,097.5	2,096.0	4.6	4.7	-56.43	44.3	-66.7	80.1	70.9	9.29	8.631	
2,200.0	2,200.0	2,197.4	2,195.8	4.8	4.9	-55.53	48.1	-70.1	85.1	75.4	9.75	8.731	
2,300.0	2,300.0	2,297.2	2,295.5	5.1	5.2	-54.73	51.9	-73.4	90.1	79.9	10.21	8.822	
2,400.0	2,400.0	2,397.1	2,395.3	5.3	5.4	-54.01	55.8	-76.8	95.1	84.4	10.67	8.907	
2,500.0	2,500.0	2,497.0	2,495.0	5.5	5.6	-53.36	59.6	-80.2	100.0	88.9	11.13	8.987	
2,600.0	2,600.0	2,596.8	2,594.7	5.7	5.9	-52.78	63.5	-83.6	105.1	93.5	11.60	9.060	
2,700.0	2,700.0	2,696.7	2,694.5	6.0	6.1	-52.25	67.3	-86.9	110.1	98.0	12.06	9.129	
2,800.0	2,800.0	2,796.6	2,794.2	6.2	6.4	-51.76	71.2	-90.3	115.1	102.6	12.52	9.193	
2,900.0	2,900.0	2,896.4	2,893.9	6.4	6.6	-51.32	75.0	-93.7	120.1	107.2	12.98	9.253	
3,000.0	3,000.0	2,996.3	2,993.7	6.6	6.8	-50.91	78.8	-97.0	125.2	111.7	13.45	9.310	
3,100.0	3,100.0	3,096.2	3,093.4	6.8	7.1	-118.80	82.7	-100.4	130.6	117.0	13.68	9.549	
3,200.0	3,200.0	3,195.9	3,193.1	7.1	7.3	-119.35	86.5	-103.8	137.0	122.8	14.11	9.704	
3,300.0	3,299.9	3,295.6	3,292.6	7.3	7.6	-120.44	90.4	-107.1	144.2	129.6	14.54	9.912	
3,400.0	3,399.7	3,395.2	3,392.1	7.5	7.8	-121.92	94.2	-110.5	152.2	137.2	14.98	10.159	
3,500.0	3,499.5	3,494.8	3,491.6	7.7	8.0	-123.32	98.0	-113.9	160.4	145.0	15.42	10.402	
3,600.0	3,599.3	3,594.4	3,591.0	7.9	8.3	-124.59	101.8	-117.2	168.7	152.8	15.86	10.635	
3,700.0	3,699.2	3,694.0	3,690.5	8.1	8.5	-125.74	105.7	-120.6	177.0	160.7	16.30	10.859	
3,800.0	3,799.0	3,793.6	3,789.9	8.4	8.8	-126.79	109.5	-123.9	185.4	168.7	16.75	11.074	
3,900.0	3,898.8	3,893.2	3,889.4	8.6	9.0	-127.74	113.3	-127.3	193.9	176.7	17.19	11.280	
4,000.0	3,998.6	3,992.8	3,988.9	8.8	9.2	-128.61	117.2	-130.7	202.5	184.8	17.64	11.478	
4,100.0	4,098.4	4,092.4	4,088.3	9.0	9.5	-129.42	121.0	-134.0	211.0	192.9	18.09	11.668	
4,200.0	4,198.3	4,192.0	4,187.8	9.3	9.7	-130.16	124.8	-137.4	219.6	201.1	18.53	11.850	
4,300.0	4,298.1	4,291.6	4,287.2	9.5	10.0	-130.84	128.7	-140.7	228.3	209.3	18.98	12.025	
4,400.0	4,397.9	4,391.1	4,386.7	9.7	10.2	-131.48	132.5	-144.1	236.9	217.5	19.43	12.192	
4,500.0	4,497.7	4,490.7	4,486.2	9.9	10.5	-132.07	136.3	-147.5	245.6	225.8	19.88	12.353	
4,600.0	4,597.6	4,590.3	4,585.6	10.2	10.7	-132.62	140.2	-150.8	254.4	234.0	20.34	12.508	
4,700.0	4,697.4	4,689.9	4,685.1	10.4	10.9	-133.13	144.0	-154.2	263.1	242.3	20.79	12.656	
4,800.0	4,797.2	4,789.5	4,784.5	10.6	11.2	-133.61	147.8	-157.5	271.9	250.6	21.24	12.799	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #2 (11-12-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset		Semi Major Axis		Distance		Minimum Separation		Separation Factor		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		
4,900.0	4,897.0	4,889.1	4,884.0	10.9	11.4	-134.06	151.6	-160.9	280.7	259.0	21.70	12.937		
5,000.0	4,996.8	4,988.7	4,983.5	11.1	11.7	-134.48	155.5	-164.3	289.5	267.3	22.15	13.069		
5,100.0	5,096.7	5,088.3	5,082.9	11.3	11.9	-134.88	159.3	-167.6	298.3	275.7	22.60	13.196		
5,200.0	5,196.5	5,187.9	5,182.4	11.6	12.1	-135.25	163.1	-171.0	307.1	284.0	23.06	13.318		
5,300.0	5,296.3	5,287.5	5,281.8	11.8	12.4	-135.61	167.0	-174.4	315.9	292.4	23.51	13.436		
5,400.0	5,396.1	5,387.0	5,381.3	12.1	12.6	-135.94	170.8	-177.7	324.8	300.8	23.97	13.550		
5,500.0	5,495.9	5,486.6	5,480.8	12.3	12.9	-136.26	174.6	-181.1	333.6	309.2	24.42	13.660		
5,600.0	5,595.8	5,586.2	5,580.2	12.5	13.1	-136.56	178.5	-184.4	342.5	317.6	24.88	13.766		
5,700.0	5,695.6	5,685.8	5,679.7	12.8	13.3	-136.84	182.3	-187.8	351.4	326.1	25.34	13.868		
5,800.0	5,795.4	5,785.4	5,779.1	13.0	13.6	-137.11	186.1	-191.2	360.3	334.5	25.79	13.967		
5,900.0	5,895.2	5,885.0	5,878.6	13.2	13.8	-137.00	190.0	-194.5	369.3	343.1	26.23	14.081		
6,000.0	5,994.7	5,983.8	5,977.3	13.4	14.1	132.05	193.8	-197.9	381.8	355.3	26.53	14.389		
6,100.0	6,092.3	6,097.7	6,091.0	13.6	14.3	124.01	193.8	-201.7	398.0	371.3	26.73	14.891		
6,200.0	6,186.4	6,223.9	6,215.6	13.8	14.5	121.83	174.9	-205.9	413.6	386.8	26.78	15.444		
6,300.0	6,275.3	6,354.8	6,339.7	14.0	14.6	120.89	133.9	-210.1	427.5	400.7	26.77	15.971		
6,400.0	6,357.6	6,489.6	6,458.2	14.3	14.7	120.17	70.3	-214.1	439.1	412.3	26.81	16.382		
6,500.0	6,431.8	6,627.1	6,565.7	14.6	14.8	119.31	-15.1	-217.7	448.0	420.9	27.06	16.557		
6,600.0	6,496.7	6,765.9	6,656.9	15.1	15.1	118.17	-119.4	-220.8	453.7	426.0	27.70	16.377		
6,700.0	6,551.1	6,904.4	6,727.7	15.7	15.8	116.69	-238.2	-223.2	456.3	427.4	28.89	15.790		
6,800.0	6,594.1	7,041.0	6,775.4	16.6	16.8	114.88	-366.0	-224.8	455.7	425.0	30.71	14.842		
6,900.0	6,625.0	7,174.3	6,799.4	17.6	18.1	112.75	-497.0	-225.6	452.5	419.4	33.11	13.669		
7,000.0	6,643.2	7,290.3	6,802.7	18.7	19.5	110.77	-612.8	-225.7	447.7	412.0	35.74	12.527		
7,097.4	6,649.0	7,387.5	6,802.7	20.0	20.7	110.16	-710.1	-225.7	446.0	407.8	38.18	11.681		
7,100.0	6,648.6	7,390.1	6,802.8	20.0	20.7	110.22	-712.6	-225.7	446.1	407.9	38.23	11.669		
7,200.0	6,648.4	7,490.1	6,802.8	21.4	22.1	110.25	-812.6	-225.7	446.2	405.4	40.82	10.932		
7,300.0	6,648.1	7,590.1	6,802.8	22.8	23.5	110.28	-912.6	-225.7	446.3	402.7	43.55	10.247		
7,400.0	6,647.9	7,690.1	6,802.9	24.3	25.0	110.31	-1,012.6	-225.7	446.4	400.0	46.41	9.618		
7,500.0	6,647.7	7,790.1	6,802.9	25.9	26.6	110.34	-1,112.6	-225.7	446.5	397.1	49.37	9.044		
7,600.0	6,647.4	7,890.1	6,802.9	27.5	28.2	110.37	-1,212.6	-225.7	446.6	394.2	52.41	8.520		
7,700.0	6,647.2	7,990.1	6,803.0	29.1	29.8	110.41	-1,312.6	-225.7	446.7	391.1	55.53	8.044		
7,800.0	6,647.0	8,090.1	6,803.0	30.8	31.5	110.44	-1,412.6	-225.7	446.8	388.1	58.70	7.611		
7,900.0	6,646.8	8,190.1	6,803.0	32.5	33.2	110.47	-1,512.6	-225.7	446.9	384.9	61.92	7.217		
8,000.0	6,646.5	8,290.1	6,803.1	34.2	34.9	110.50	-1,612.6	-225.7	446.9	381.8	65.18	6.857		
8,100.0	6,646.3	8,390.1	6,803.1	36.0	36.7	110.53	-1,712.6	-225.7	447.0	378.6	68.47	6.529		
8,200.0	6,646.1	8,490.1	6,803.1	37.7	38.4	110.56	-1,812.6	-225.7	447.1	375.3	71.80	6.227		
8,300.0	6,645.9	8,590.1	6,803.2	39.5	40.2	110.59	-1,912.6	-225.7	447.2	372.1	75.15	5.951		
8,400.0	6,645.6	8,690.1	6,803.2	41.3	42.0	110.63	-2,012.6	-225.7	447.3	368.8	78.53	5.696		
8,500.0	6,645.4	8,790.1	6,803.2	43.1	43.8	110.66	-2,112.6	-225.7	447.4	365.5	81.93	5.461		
8,600.0	6,645.2	8,890.1	6,803.3	44.9	45.6	110.69	-2,212.6	-225.7	447.5	362.2	85.34	5.244		
8,700.0	6,645.0	8,990.1	6,803.3	46.7	47.4	110.72	-2,312.6	-225.7	447.6	358.8	88.77	5.042		
8,800.0	6,644.7	9,090.1	6,803.3	48.6	49.2	110.75	-2,412.6	-225.7	447.7	355.5	92.21	4.855		
8,900.0	6,644.5	9,190.1	6,803.4	50.4	51.1	110.78	-2,512.6	-225.7	447.8	352.1	95.66	4.681		
9,000.0	6,644.3	9,290.1	6,803.4	52.2	52.9	110.81	-2,612.6	-225.7	447.9	348.7	99.12	4.518		
9,100.0	6,644.0	9,390.1	6,803.4	54.1	54.7	110.85	-2,712.6	-225.7	448.0	345.4	102.60	4.366		
9,200.0	6,643.8	9,490.1	6,803.5	55.9	56.6	110.88	-2,812.6	-225.7	448.1	342.0	106.08	4.224		
9,300.0	6,643.6	9,590.1	6,803.5	57.8	58.4	110.91	-2,912.6	-225.7	448.1	338.6	109.56	4.090		
9,400.0	6,643.4	9,690.0	6,803.6	59.6	60.3	110.94	-3,012.6	-225.7	448.2	335.2	113.06	3.965		
9,500.0	6,643.1	9,790.0	6,803.6	61.5	62.2	110.97	-3,112.6	-225.7	448.3	331.8	116.56	3.846		
9,600.0	6,642.9	9,890.0	6,803.6	63.4	64.0	111.00	-3,212.6	-225.7	448.4	328.4	120.06	3.735		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #2 (11-12-14)													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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,700.0	6,642.7	9,990.0	6,803.7	65.2	65.9	111.03	-3,312.6	-225.7	448.5	324.9	123.57	3.630		
9,800.0	6,642.5	10,090.0	6,803.7	67.1	67.8	111.06	-3,412.6	-225.7	448.6	321.5	127.08	3.530		
9,900.0	6,642.2	10,190.0	6,803.7	69.0	69.6	111.10	-3,512.6	-225.7	448.7	318.1	130.60	3.436		
10,000.0	6,642.0	10,290.0	6,803.8	70.9	71.5	111.13	-3,612.6	-225.7	448.8	314.7	134.12	3.346		
10,100.0	6,641.8	10,390.0	6,803.8	72.8	73.4	111.16	-3,712.6	-225.7	448.9	311.3	137.64	3.261		
10,200.0	6,641.5	10,490.0	6,803.8	74.6	75.3	111.19	-3,812.6	-225.7	449.0	307.8	141.17	3.181		
10,300.0	6,641.3	10,590.0	6,803.9	76.5	77.1	111.22	-3,912.6	-225.7	449.1	304.4	144.70	3.104		
10,400.0	6,641.1	10,690.0	6,803.9	78.4	79.0	111.25	-4,012.6	-225.7	449.2	301.0	148.23	3.030		
10,500.0	6,640.9	10,790.0	6,803.9	80.3	80.9	111.28	-4,112.6	-225.7	449.3	297.5	151.76	2.960		
10,600.0	6,640.6	10,890.0	6,804.0	82.2	82.8	111.31	-4,212.6	-225.7	449.4	294.1	155.29	2.894		
10,700.0	6,640.4	10,990.0	6,804.0	84.1	84.7	111.34	-4,312.6	-225.7	449.5	290.6	158.83	2.830		
10,800.0	6,640.2	11,090.0	6,804.0	86.0	86.6	111.38	-4,412.6	-225.7	449.6	287.2	162.36	2.769		
10,900.0	6,640.0	11,190.0	6,804.1	87.9	88.5	111.41	-4,512.6	-225.7	449.7	283.8	165.90	2.710		
11,000.0	6,639.7	11,290.0	6,804.1	89.8	90.4	111.44	-4,612.6	-225.7	449.8	280.3	169.44	2.654		
11,100.0	6,639.5	11,390.0	6,804.1	91.6	92.3	111.47	-4,712.6	-225.7	449.8	276.9	172.97	2.601		
11,200.0	6,639.3	11,490.0	6,804.2	93.5	94.1	111.50	-4,812.6	-225.7	449.9	273.4	176.51	2.549		
11,300.0	6,639.1	11,590.0	6,804.2	95.4	96.0	111.53	-4,912.6	-225.7	450.0	270.0	180.05	2.499		
11,400.0	6,638.8	11,690.0	6,804.3	97.3	97.9	111.56	-5,012.6	-225.7	450.1	266.5	183.59	2.452		
11,500.0	6,638.6	11,790.0	6,804.3	99.2	99.8	111.59	-5,112.6	-225.7	450.2	263.1	187.13	2.406		
11,600.0	6,638.4	11,890.0	6,804.3	101.1	101.7	111.62	-5,212.6	-225.7	450.3	259.7	190.67	2.362		
11,700.0	6,638.1	11,990.0	6,804.4	103.0	103.6	111.65	-5,312.6	-225.7	450.4	256.2	194.21	2.319		
11,800.0	6,637.9	12,090.0	6,804.4	104.9	105.5	111.69	-5,412.6	-225.7	450.5	252.8	197.75	2.278		
11,900.0	6,637.7	12,190.0	6,804.4	106.8	107.4	111.72	-5,512.6	-225.7	450.6	249.3	201.30	2.239		
12,000.0	6,637.5	12,290.0	6,804.5	108.7	109.3	111.75	-5,612.6	-225.7	450.7	245.9	204.84	2.200		
12,100.0	6,637.2	12,390.0	6,804.5	110.6	111.2	111.78	-5,712.6	-225.7	450.8	242.4	208.38	2.163		
12,200.0	6,637.0	12,490.0	6,804.5	112.6	113.1	111.81	-5,812.6	-225.7	450.9	239.0	211.92	2.128		
12,300.0	6,636.8	12,590.0	6,804.6	114.5	115.0	111.84	-5,912.6	-225.7	451.0	235.6	215.46	2.093		
12,400.0	6,636.6	12,690.0	6,804.6	116.4	117.0	111.87	-6,012.6	-225.7	451.1	232.1	218.99	2.060		
12,500.0	6,636.3	12,790.0	6,804.6	118.3	118.9	111.90	-6,112.6	-225.7	451.2	228.7	222.53	2.028		
12,600.0	6,636.1	12,890.0	6,804.7	120.2	120.8	111.93	-6,212.6	-225.7	451.3	225.2	226.07	1.996		
12,700.0	6,635.9	12,990.0	6,804.7	122.1	122.7	111.96	-6,312.6	-225.7	451.4	221.8	229.61	1.966		
12,800.0	6,635.6	13,090.0	6,804.7	124.0	124.6	111.99	-6,412.6	-225.7	451.5	218.3	233.15	1.937		
12,900.0	6,635.4	13,190.0	6,804.8	125.9	126.5	112.02	-6,512.6	-225.7	451.6	214.9	236.68	1.908		
13,000.0	6,635.2	13,290.0	6,804.8	127.8	128.4	112.06	-6,612.6	-225.7	451.7	211.5	240.22	1.880		
13,100.0	6,635.0	13,390.0	6,804.8	129.7	130.3	112.09	-6,712.6	-225.7	451.8	208.0	243.76	1.853		
13,200.0	6,634.7	13,490.0	6,804.9	131.6	132.2	112.12	-6,812.6	-225.7	451.9	204.6	247.29	1.827		
13,300.0	6,634.5	13,590.0	6,804.9	133.5	134.1	112.15	-6,912.6	-225.7	452.0	201.2	250.83	1.802		
13,400.0	6,634.3	13,690.0	6,804.9	135.4	136.0	112.18	-7,012.6	-225.7	452.1	197.7	254.36	1.777		
13,500.0	6,634.1	13,790.0	6,805.0	137.3	137.9	112.21	-7,112.6	-225.7	452.2	194.3	257.89	1.753		
13,582.4	6,633.9	13,872.5	6,805.0	138.6	139.5	112.23	-7,195.0	-225.7	452.3	191.8	260.51	1.736 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #3 (11-12-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	90.00	0.0	61.3	61.3					
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	61.3	61.3	61.1	0.22	274.077		
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	61.3	61.3	60.6	0.67	91.207		
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	61.3	61.3	60.2	1.12	54.651		
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	61.3	61.3	59.7	1.57	39.014		
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	61.3	61.3	59.3	2.02	30.335		
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	61.3	61.3	58.8	2.47	24.814		
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	61.3	61.3	58.4	2.92	20.994		
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	61.3	61.3	57.9	3.37	18.193		
900.0	900.0	899.0	899.0	1.9	1.9	90.00	0.0	61.3	61.3	57.5	3.82	16.051		
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	0.0	61.3	61.3	57.0	4.27	14.361 CC, ES		
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.3	89.77	0.2	62.1	62.1	57.4	4.71	13.196		
1,200.0	1,200.0	1,196.9	1,196.9	2.6	2.6	89.13	1.0	64.5	64.6	59.4	5.14	12.568		
1,300.0	1,300.0	1,295.7	1,295.6	2.8	2.8	88.14	2.2	68.6	68.7	63.1	5.57	12.326		
1,400.0	1,400.0	1,394.3	1,394.0	3.0	3.0	86.96	4.0	74.3	74.5	68.5	6.02	12.390		
1,500.0	1,500.0	1,492.7	1,492.1	3.3	3.2	85.68	6.2	81.6	82.1	75.6	6.46	12.695		
1,600.0	1,600.0	1,590.8	1,589.8	3.5	3.4	84.40	8.9	90.4	91.3	84.4	6.92	13.192		
1,700.0	1,700.0	1,688.6	1,686.9	3.7	3.7	83.19	12.0	100.8	102.3	94.9	7.39	13.840		
1,800.0	1,800.0	1,785.9	1,783.5	3.9	4.0	82.09	15.7	112.8	114.9	107.1	7.87	14.606		
1,900.0	1,900.0	1,882.8	1,879.3	4.2	4.2	81.10	19.8	126.2	129.3	120.9	8.36	15.461		
2,000.0	2,000.0	1,980.9	1,976.2	4.4	4.5	80.23	24.3	141.0	144.9	136.0	8.87	16.333		
2,100.0	2,100.0	2,079.7	2,073.7	4.6	4.8	79.53	28.8	156.0	160.7	151.3	9.39	17.100		
2,200.0	2,200.0	2,178.4	2,171.2	4.8	5.2	78.95	33.4	171.0	176.4	166.5	9.92	17.775		
2,300.0	2,300.0	2,277.1	2,268.7	5.1	5.5	78.46	38.0	186.0	192.2	181.7	10.46	18.372		
2,400.0	2,400.0	2,375.9	2,366.2	5.3	5.8	78.05	42.5	200.9	208.0	197.0	11.00	18.903		
2,500.0	2,500.0	2,474.6	2,463.6	5.5	6.1	77.70	47.1	215.9	223.8	212.2	11.55	19.376		
2,600.0	2,600.0	2,573.3	2,561.1	5.7	6.5	77.40	51.6	230.9	239.6	227.5	12.10	19.802		
2,700.0	2,700.0	2,672.1	2,658.6	6.0	6.8	77.13	56.2	245.8	255.4	242.7	12.65	20.185		
2,800.0	2,800.0	2,770.8	2,756.1	6.2	7.2	76.89	60.7	260.8	271.2	258.0	13.21	20.533		
2,900.0	2,900.0	2,869.5	2,853.6	6.4	7.5	76.68	65.3	275.8	287.0	273.3	13.77	20.849		
3,000.0	3,000.0	2,968.3	2,951.1	6.6	7.9	76.49	69.9	290.8	302.8	288.5	14.33	21.137		
3,100.0	3,100.0	3,067.1	3,048.7	6.8	8.2	8.34	74.4	305.7	317.8	304.1	13.69	23.222		
3,200.0	3,200.0	3,166.3	3,146.6	7.1	8.6	8.23	79.0	320.8	331.1	316.9	14.14	23.422		
3,300.0	3,299.9	3,265.6	3,244.6	7.3	8.9	8.17	83.6	335.8	342.6	328.0	14.58	23.493		
3,400.0	3,399.7	3,365.1	3,342.9	7.5	9.3	8.16	88.2	350.9	352.7	337.7	15.03	23.462		
3,500.0	3,499.5	3,464.6	3,441.1	7.7	9.7	8.16	92.8	366.0	362.7	347.2	15.49	23.419		
3,600.0	3,599.3	3,564.1	3,539.4	7.9	10.0	8.16	97.4	381.1	372.7	356.7	15.94	23.377		
3,700.0	3,699.2	3,663.6	3,637.6	8.1	10.4	8.16	102.0	396.2	382.6	366.2	16.40	23.335		
3,800.0	3,799.0	3,763.1	3,735.8	8.4	10.7	8.15	106.6	411.3	392.6	375.8	16.85	23.294		
3,900.0	3,898.8	3,862.6	3,834.1	8.6	11.1	8.15	111.1	426.4	402.6	385.3	17.31	23.253		
4,000.0	3,998.6	3,962.1	3,932.3	8.8	11.5	8.15	115.7	441.5	412.5	394.8	17.77	23.213		
4,100.0	4,098.4	4,061.6	4,030.6	9.0	11.8	8.15	120.3	456.5	422.5	404.3	18.23	23.174		
4,200.0	4,198.3	4,161.1	4,128.8	9.3	12.2	8.15	124.9	471.6	432.5	413.8	18.69	23.135		
4,300.0	4,298.1	4,260.6	4,227.1	9.5	12.6	8.15	129.5	486.7	442.4	423.3	19.15	23.098		
4,400.0	4,397.9	4,360.1	4,325.3	9.7	12.9	8.15	134.1	501.8	452.4	432.8	19.62	23.061		
4,500.0	4,497.7	4,459.6	4,423.5	9.9	13.3	8.15	138.7	516.9	462.4	442.3	20.08	23.026		
4,600.0	4,597.6	4,559.1	4,521.8	10.2	13.7	8.15	143.3	532.0	472.3	451.8	20.54	22.991		
4,700.0	4,697.4	4,658.6	4,620.0	10.4	14.0	8.15	147.9	547.1	482.3	461.3	21.01	22.957		
4,800.0	4,797.2	4,758.1	4,718.3	10.6	14.4	8.14	152.5	562.2	492.3	470.8	21.47	22.924		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #3 (11-12-14)													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		
4,900.0	4,897.0	4,857.6	4,816.5	10.9	14.8	8.14	157.1	577.2	502.2	480.3	21.94	22.891		
5,000.0	4,996.8	4,957.1	4,914.8	11.1	15.1	8.14	161.7	592.3	512.2	489.8	22.41	22.860		
5,100.0	5,096.7	5,056.6	5,013.0	11.3	15.5	8.14	166.3	607.4	522.2	499.3	22.87	22.829		
5,200.0	5,196.5	5,156.1	5,111.3	11.6	15.9	8.14	170.9	622.5	532.1	508.8	23.34	22.799		
5,300.0	5,296.3	5,255.6	5,209.5	11.8	16.2	8.14	175.5	637.6	542.1	518.3	23.81	22.770		
5,400.0	5,396.1	5,355.1	5,307.7	12.1	16.6	8.14	180.0	652.7	552.1	527.8	24.28	22.741		
5,500.0	5,495.9	5,454.6	5,406.0	12.3	17.0	8.14	184.6	667.8	562.0	537.3	24.74	22.714		
5,600.0	5,595.8	5,554.1	5,504.2	12.5	17.3	8.14	189.2	682.9	572.0	546.8	25.21	22.687		
5,700.0	5,695.6	5,653.6	5,602.5	12.8	17.7	8.14	193.8	698.0	582.0	556.3	25.68	22.660		
5,800.0	5,795.4	5,753.1	5,700.7	13.0	18.1	8.14	198.4	713.0	591.9	565.8	26.15	22.635		
5,900.0	5,895.2	5,852.6	5,799.0	13.2	18.4	-26.22	203.0	728.1	602.0	575.4	26.61	22.621		
6,000.0	5,994.7	5,951.3	5,896.4	13.4	18.8	-82.45	207.6	743.1	614.4	587.4	27.00	22.751		
6,100.0	6,092.3	6,063.5	6,007.2	13.6	19.2	-93.05	209.7	760.1	629.6	602.2	27.37	23.006		
6,200.0	6,186.4	6,192.6	6,133.6	13.8	19.5	-97.59	193.2	779.5	644.6	616.9	27.71	23.265		
6,300.0	6,275.3	6,327.2	6,260.5	14.0	19.8	-100.03	153.4	799.1	658.2	630.1	28.06	23.456		
6,400.0	6,357.6	6,466.6	6,382.6	14.3	20.1	-101.35	89.2	817.9	669.9	641.4	28.52	23.492		
6,500.0	6,431.8	6,609.3	6,493.5	14.6	20.3	-101.88	1.3	835.0	679.1	649.9	29.18	23.276		
6,600.0	6,496.7	6,753.6	6,587.2	15.1	20.7	-101.77	-107.2	849.6	685.6	655.4	30.17	22.725		
6,700.0	6,551.1	6,897.5	6,658.9	15.7	21.2	-101.11	-231.1	860.7	689.1	657.5	31.58	21.819		
6,800.0	6,594.1	7,038.8	6,705.8	16.6	22.0	-100.00	-364.0	868.1	689.8	656.3	33.45	20.621		
6,900.0	6,625.0	7,176.1	6,727.5	17.6	23.0	-98.51	-499.3	871.5	688.0	652.3	35.73	19.255		
7,000.0	6,643.2	7,290.2	6,729.1	18.7	23.9	-97.18	-613.4	871.9	684.8	646.8	38.03	18.008		
7,100.0	6,648.6	7,390.0	6,728.5	20.0	25.0	-96.79	-713.2	871.9	683.8	643.4	40.36	16.944		
7,200.0	6,648.4	7,490.0	6,727.9	21.4	26.1	-96.76	-813.2	871.9	683.8	640.7	43.05	15.882		
7,300.0	6,648.1	7,590.0	6,727.3	22.8	27.3	-96.73	-913.2	871.9	683.7	637.8	45.91	14.893		
7,400.0	6,647.9	7,690.0	6,726.7	24.3	28.6	-96.70	-1,013.2	871.9	683.7	634.8	48.90	13.981		
7,500.0	6,647.7	7,790.0	6,726.1	25.9	30.0	-96.67	-1,113.2	871.9	683.6	631.6	52.00	13.147		
7,600.0	6,647.4	7,890.0	6,725.5	27.5	31.4	-96.64	-1,213.2	871.9	683.6	628.4	55.19	12.387		
7,700.0	6,647.2	7,990.0	6,724.9	29.1	32.9	-96.61	-1,313.2	871.9	683.5	625.1	58.45	11.694		
7,800.0	6,647.0	8,090.0	6,724.3	30.8	34.4	-96.58	-1,413.2	871.9	683.5	621.7	61.78	11.063		
7,900.0	6,646.8	8,190.0	6,723.7	32.5	36.0	-96.55	-1,513.1	871.9	683.5	618.3	65.17	10.488		
8,000.0	6,646.5	8,290.0	6,723.1	34.2	37.6	-96.52	-1,613.1	871.9	683.4	614.8	68.60	9.963		
8,100.0	6,646.3	8,390.0	6,722.5	36.0	39.2	-96.49	-1,713.1	871.9	683.4	611.3	72.07	9.482		
8,200.0	6,646.1	8,490.0	6,721.9	37.7	40.9	-96.46	-1,813.1	871.9	683.3	607.8	75.58	9.042		
8,300.0	6,645.9	8,590.0	6,721.4	39.5	42.6	-96.43	-1,913.1	871.9	683.3	604.2	79.11	8.637		
8,400.0	6,645.6	8,690.0	6,720.8	41.3	44.3	-96.40	-2,013.1	871.9	683.3	600.6	82.67	8.265		
8,500.0	6,645.4	8,790.0	6,720.2	43.1	46.0	-96.37	-2,113.1	871.9	683.2	597.0	86.26	7.921		
8,600.0	6,645.2	8,890.0	6,719.6	44.9	47.7	-96.34	-2,213.1	871.9	683.2	593.3	89.86	7.602		
8,700.0	6,645.0	8,990.0	6,719.0	46.7	49.5	-96.31	-2,313.1	871.9	683.1	589.6	93.48	7.307		
8,800.0	6,644.7	9,090.0	6,718.4	48.6	51.2	-96.28	-2,413.1	871.9	683.1	586.0	97.12	7.033		
8,900.0	6,644.5	9,190.0	6,717.8	50.4	53.0	-96.24	-2,513.1	871.9	683.0	582.3	100.78	6.778		
9,000.0	6,644.3	9,290.0	6,717.2	52.2	54.8	-96.21	-2,613.1	871.9	683.0	578.6	104.44	6.540		
9,100.0	6,644.0	9,390.0	6,716.6	54.1	56.6	-96.18	-2,713.1	871.9	683.0	574.9	108.12	6.317		
9,200.0	6,643.8	9,490.0	6,716.0	55.9	58.4	-96.15	-2,813.1	871.9	682.9	571.1	111.81	6.108		
9,300.0	6,643.6	9,590.0	6,715.4	57.8	60.2	-96.12	-2,913.1	871.9	682.9	567.4	115.50	5.912		
9,400.0	6,643.4	9,690.0	6,714.8	59.6	62.0	-96.09	-3,013.1	871.9	682.9	563.6	119.21	5.728		
9,500.0	6,643.1	9,790.0	6,714.2	61.5	63.8	-96.06	-3,113.1	871.9	682.8	559.9	122.92	5.555		
9,600.0	6,642.9	9,890.0	6,713.6	63.4	65.6	-96.03	-3,213.1	871.9	682.8	556.1	126.65	5.391		
9,700.0	6,642.7	9,990.0	6,713.0	65.2	67.4	-96.00	-3,313.1	871.9	682.7	552.4	130.37	5.237		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #3 (11-12-14)													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	
9,800.0	6,642.5	10,090.0	6,712.5	67.1	69.3	-95.97	-3,413.1	871.9	682.7	548.6	134.11	5.091	
9,900.0	6,642.2	10,190.0	6,711.9	69.0	71.1	-95.94	-3,513.1	871.9	682.7	544.8	137.85	4.952	
10,000.0	6,642.0	10,290.0	6,711.3	70.9	73.0	-95.91	-3,613.1	871.9	682.6	541.0	141.59	4.821	
10,100.0	6,641.8	10,390.0	6,710.7	72.8	74.8	-95.88	-3,713.1	871.9	682.6	537.2	145.34	4.696	
10,200.0	6,641.5	10,490.0	6,710.1	74.6	76.7	-95.85	-3,813.1	871.9	682.5	533.5	149.09	4.578	
10,300.0	6,641.3	10,590.0	6,709.5	76.5	78.5	-95.82	-3,913.1	871.9	682.5	529.7	152.85	4.465	
10,400.0	6,641.1	10,689.9	6,708.9	78.4	80.4	-95.79	-4,013.1	871.9	682.5	525.9	156.61	4.358	
10,500.0	6,640.9	10,789.9	6,708.3	80.3	82.2	-95.75	-4,113.1	871.9	682.4	522.1	160.38	4.255	
10,600.0	6,640.6	10,889.9	6,707.7	82.2	84.1	-95.72	-4,213.1	871.9	682.4	518.2	164.15	4.157	
10,700.0	6,640.4	10,989.9	6,707.1	84.1	86.0	-95.69	-4,313.1	871.9	682.4	514.4	167.92	4.064	
10,800.0	6,640.2	11,089.9	6,706.5	86.0	87.8	-95.66	-4,413.1	871.9	682.3	510.6	171.70	3.974	
10,900.0	6,640.0	11,189.9	6,705.9	87.9	89.7	-95.63	-4,513.1	871.9	682.3	506.8	175.47	3.888	
11,000.0	6,639.7	11,289.9	6,705.3	89.8	91.6	-95.60	-4,613.1	871.9	682.3	503.0	179.26	3.806	
11,100.0	6,639.5	11,389.9	6,704.7	91.6	93.4	-95.57	-4,713.1	871.9	682.2	499.2	183.04	3.727	
11,200.0	6,639.3	11,489.9	6,704.1	93.5	95.3	-95.54	-4,813.1	871.9	682.2	495.4	186.82	3.651	
11,300.0	6,639.1	11,589.9	6,703.5	95.4	97.2	-95.51	-4,913.1	871.9	682.1	491.5	190.61	3.579	
11,400.0	6,638.8	11,689.9	6,703.0	97.3	99.1	-95.48	-5,013.1	871.9	682.1	487.7	194.40	3.509	
11,500.0	6,638.6	11,789.9	6,702.4	99.2	100.9	-95.45	-5,113.1	871.9	682.1	483.9	198.20	3.441	
11,600.0	6,638.4	11,889.9	6,701.8	101.1	102.8	-95.42	-5,213.1	871.9	682.0	480.1	201.99	3.377	
11,700.0	6,638.1	11,989.9	6,701.2	103.0	104.7	-95.39	-5,313.1	871.9	682.0	476.2	205.79	3.314	
11,800.0	6,637.9	12,089.9	6,700.6	104.9	106.6	-95.36	-5,413.1	871.9	682.0	472.4	209.58	3.254	
11,900.0	6,637.7	12,189.9	6,700.0	106.8	108.5	-95.33	-5,513.1	871.9	681.9	468.6	213.38	3.196	
12,000.0	6,637.5	12,289.9	6,699.4	108.7	110.4	-95.29	-5,613.0	871.9	681.9	464.7	217.18	3.140	
12,100.0	6,637.2	12,389.9	6,698.8	110.6	112.3	-95.26	-5,713.0	871.9	681.9	460.9	220.99	3.086	
12,200.0	6,637.0	12,489.9	6,698.2	112.6	114.1	-95.23	-5,813.0	871.9	681.8	457.0	224.79	3.033	
12,300.0	6,636.8	12,589.9	6,697.6	114.5	116.0	-95.20	-5,913.0	871.9	681.8	453.2	228.60	2.983	
12,400.0	6,636.6	12,689.9	6,697.0	116.4	117.9	-95.17	-6,013.0	871.9	681.8	449.4	232.40	2.934	
12,500.0	6,636.3	12,789.9	6,696.4	118.3	119.8	-95.14	-6,113.0	871.9	681.7	445.5	236.21	2.886	
12,600.0	6,636.1	12,889.9	6,695.8	120.2	121.7	-95.11	-6,213.0	871.9	681.7	441.7	240.02	2.840	
12,700.0	6,635.9	12,989.9	6,695.2	122.1	123.6	-95.08	-6,313.0	871.9	681.7	437.8	243.83	2.796	
12,800.0	6,635.6	13,089.9	6,694.6	124.0	125.5	-95.05	-6,413.0	871.9	681.6	434.0	247.64	2.753	
12,900.0	6,635.4	13,189.9	6,694.0	125.9	127.4	-95.02	-6,513.0	871.9	681.6	430.2	251.45	2.711	
13,000.0	6,635.2	13,289.9	6,693.5	127.8	129.3	-94.99	-6,613.0	871.9	681.6	426.3	255.27	2.670	
13,100.0	6,635.0	13,389.9	6,692.9	129.7	131.2	-94.96	-6,713.0	871.9	681.5	422.5	259.08	2.631	
13,200.0	6,634.7	13,489.9	6,692.3	131.6	133.1	-94.93	-6,813.0	871.9	681.5	418.6	262.90	2.592	
13,300.0	6,634.5	13,589.9	6,691.7	133.5	135.0	-94.90	-6,913.0	871.9	681.5	414.8	266.71	2.555	
13,400.0	6,634.3	13,689.9	6,691.1	135.4	136.9	-94.87	-7,013.0	871.9	681.5	410.9	270.53	2.519	
13,500.0	6,634.1	13,789.9	6,690.5	137.3	138.8	-94.83	-7,113.0	871.9	681.4	407.1	274.35	2.484	
13,573.4	6,633.9	13,863.4	6,690.1	138.5	140.2	-94.81	-7,186.5	871.9	681.4	404.5	276.89	2.461	
13,582.4	6,633.9	13,872.0	6,690.0	138.6	140.3	-94.81	-7,195.1	871.9	681.4	404.2	277.20	2.458 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #2 (11-12-14)														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)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +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	90.01	0.0	91.9	92.0						
100.0	100.0	98.0	98.0	0.1	0.1	90.01	0.0	91.9	91.9	91.7	0.22	413.188			
200.0	200.0	198.0	198.0	0.3	0.3	90.01	0.0	91.9	91.9	91.3	0.67	137.270			
300.0	300.0	298.0	298.0	0.6	0.6	90.01	0.0	91.9	91.9	90.8	1.12	82.141			
400.0	400.0	398.0	398.0	0.8	0.8	90.01	0.0	91.9	91.9	90.4	1.57	58.605 CC, ES			
500.0	500.0	496.5	496.5	1.0	1.0	89.89	0.2	92.7	92.7	90.7	2.01	46.234			
600.0	600.0	594.9	594.9	1.2	1.2	89.53	0.8	95.2	95.2	92.8	2.44	39.017			
700.0	700.0	693.2	693.0	1.5	1.4	88.96	1.8	99.2	99.4	96.5	2.88	34.477			
800.0	800.0	791.3	791.0	1.7	1.6	88.24	3.2	104.9	105.2	101.9	3.33	31.576			
900.0	900.0	889.2	888.6	1.9	1.9	87.43	5.0	112.2	112.7	108.9	3.79	29.738			
1,000.0	1,000.0	986.8	985.7	2.1	2.1	86.58	7.2	121.1	121.9	117.6	4.26	28.624			
1,100.0	1,100.0	1,084.0	1,082.4	2.4	2.4	85.72	9.8	131.5	132.8	128.1	4.74	28.013			
1,200.0	1,200.0	1,180.9	1,178.5	2.6	2.7	84.89	12.8	143.5	145.4	140.1	5.24	27.759			
1,300.0	1,300.0	1,277.3	1,273.9	2.8	3.0	84.11	16.2	157.0	159.7	153.9	5.75	27.764			
1,400.0	1,400.0	1,373.2	1,368.6	3.0	3.3	83.39	19.9	172.0	175.6	169.3	6.28	27.956			
1,500.0	1,500.0	1,471.1	1,465.0	3.3	3.7	82.73	24.0	188.3	192.7	185.8	6.83	28.193			
1,600.0	1,600.0	1,569.6	1,562.0	3.5	4.0	82.18	28.1	204.8	209.8	202.4	7.40	28.363			
1,700.0	1,700.0	1,668.1	1,659.0	3.7	4.4	81.71	32.2	221.3	227.0	219.0	7.97	28.489			
1,800.0	1,800.0	1,766.6	1,756.1	3.9	4.7	81.31	36.3	237.8	244.2	235.6	8.54	28.583			
1,900.0	1,900.0	1,865.1	1,853.1	4.2	5.1	80.96	40.4	254.3	261.3	252.2	9.12	28.654			
2,000.0	2,000.0	1,963.6	1,950.1	4.4	5.5	80.65	44.6	270.7	278.5	268.8	9.70	28.708			
2,100.0	2,100.0	2,062.1	2,047.1	4.6	5.9	80.38	48.7	287.2	295.7	285.4	10.29	28.749			
2,200.0	2,200.0	2,160.6	2,144.2	4.8	6.2	80.14	52.8	303.7	312.9	302.1	10.87	28.781			
2,300.0	2,300.0	2,259.1	2,241.2	5.1	6.6	79.93	56.9	320.2	330.1	318.7	11.46	28.805			
2,400.0	2,400.0	2,357.6	2,338.2	5.3	7.0	79.73	61.0	336.7	347.4	335.3	12.05	28.824			
2,500.0	2,500.0	2,456.1	2,435.2	5.5	7.4	79.55	65.1	353.2	364.6	351.9	12.64	28.838			
2,600.0	2,600.0	2,554.6	2,532.3	5.7	7.8	79.39	69.2	369.7	381.8	368.6	13.23	28.849			
2,700.0	2,700.0	2,653.1	2,629.3	6.0	8.1	79.25	73.3	386.1	399.0	385.2	13.83	28.858			
2,800.0	2,800.0	2,751.6	2,726.3	6.2	8.5	79.11	77.4	402.6	416.2	401.8	14.42	28.864			
2,900.0	2,900.0	2,850.1	2,823.3	6.4	8.9	78.99	81.6	419.1	433.5	418.4	15.02	28.868			
3,000.0	3,000.0	2,948.6	2,920.4	6.6	9.3	78.87	85.7	435.6	450.7	435.1	15.61	28.871			
3,100.0	3,100.0	3,047.3	3,017.5	6.8	9.7	10.78	89.8	452.1	467.1	453.1	13.95	33.492			
3,200.0	3,200.0	3,146.2	3,114.9	7.1	10.1	10.71	93.9	468.7	481.8	467.4	14.41	33.436			
3,300.0	3,299.9	3,245.3	3,212.6	7.3	10.5	10.68	98.0	485.3	494.8	479.9	14.87	33.271			
3,400.0	3,399.7	3,344.7	3,310.5	7.5	10.9	10.70	102.2	501.9	506.3	491.0	15.33	33.027			
3,500.0	3,499.5	3,444.0	3,408.3	7.7	11.3	10.74	106.3	518.5	517.8	502.0	15.79	32.786			
3,600.0	3,599.3	3,543.4	3,506.2	7.9	11.6	10.77	110.5	535.1	529.2	512.9	16.25	32.557			
3,700.0	3,699.2	3,642.7	3,604.0	8.1	12.0	10.80	114.6	551.8	540.6	523.9	16.72	32.338			
3,800.0	3,799.0	3,742.1	3,701.9	8.4	12.4	10.82	118.8	568.4	552.0	534.8	17.18	32.129			
3,900.0	3,898.8	3,841.4	3,799.7	8.6	12.8	10.85	122.9	585.0	563.4	545.8	17.65	31.930			
4,000.0	3,998.6	3,940.7	3,897.6	8.8	13.2	10.88	127.1	601.7	574.9	556.8	18.11	31.739			
4,100.0	4,098.4	4,040.1	3,995.4	9.0	13.6	10.90	131.2	618.3	586.3	567.7	18.58	31.556			
4,200.0	4,198.3	4,139.4	4,093.3	9.3	14.0	10.93	135.4	634.9	597.7	578.7	19.05	31.382			
4,300.0	4,298.1	4,238.8	4,191.2	9.5	14.4	10.95	139.5	651.5	609.1	589.6	19.52	31.214			
4,400.0	4,397.9	4,338.1	4,289.0	9.7	14.8	10.97	143.6	668.2	620.6	600.6	19.98	31.053			
4,500.0	4,497.7	4,437.5	4,386.9	9.9	15.2	10.99	147.8	684.8	632.0	611.5	20.45	30.899			
4,600.0	4,597.6	4,536.8	4,484.7	10.2	15.6	11.01	151.9	701.4	643.4	622.5	20.92	30.751			
4,700.0	4,697.4	4,636.2	4,582.6	10.4	16.0	11.03	156.1	718.1	654.8	633.4	21.39	30.608			
4,800.0	4,797.2	4,735.5	4,680.4	10.6	16.4	11.05	160.2	734.7	666.3	644.4	21.87	30.471			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #2 (11-12-14)													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	
4,900.0	4,897.0	4,834.8	4,778.3	10.9	16.7	11.07	164.4	751.3	677.7	655.4	22.34	30.339		
5,000.0	4,996.8	4,934.2	4,876.1	11.1	17.1	11.09	168.5	767.9	689.1	666.3	22.81	30.212		
5,100.0	5,096.7	5,033.5	4,974.0	11.3	17.5	11.11	172.7	784.6	700.5	677.3	23.28	30.090		
5,200.0	5,196.5	5,132.9	5,071.9	11.6	17.9	11.12	176.8	801.2	712.0	688.2	23.75	29.972		
5,300.0	5,296.3	5,232.2	5,169.7	11.8	18.3	11.14	181.0	817.8	723.4	699.2	24.23	29.858		
5,400.0	5,396.1	5,331.6	5,267.6	12.1	18.7	11.16	185.1	834.4	734.8	710.1	24.70	29.748		
5,500.0	5,495.9	5,430.9	5,365.4	12.3	19.1	11.17	189.2	851.1	746.2	721.1	25.18	29.641		
5,600.0	5,595.8	5,530.3	5,463.3	12.5	19.5	11.19	193.4	867.7	757.7	732.0	25.65	29.539		
5,700.0	5,695.6	5,629.6	5,561.1	12.8	19.9	11.20	197.5	884.3	769.1	743.0	26.12	29.439		
5,800.0	5,795.4	5,729.0	5,659.0	13.0	20.3	11.21	201.7	901.0	780.5	753.9	26.60	29.343		
5,900.0	5,895.2	5,828.3	5,756.8	13.2	20.7	-23.09	205.8	917.6	792.0	765.0	27.07	29.264		
6,000.0	5,994.7	5,926.9	5,853.9	13.4	21.1	-79.02	209.9	934.1	805.3	777.8	27.47	29.320		
6,100.0	6,092.3	6,023.1	5,948.7	13.6	21.5	-89.00	214.0	950.2	821.2	793.4	27.83	29.505		
6,200.0	6,186.4	6,123.9	6,048.0	13.8	21.8	-93.54	217.6	967.1	840.4	812.2	28.18	29.817		
6,300.0	6,275.3	6,257.7	6,179.3	14.0	22.2	-96.98	206.1	989.4	860.5	832.0	28.55	30.137		
6,400.0	6,357.6	6,404.1	6,318.2	14.3	22.6	-99.46	167.3	1,013.0	879.7	850.7	28.97	30.365		
6,500.0	6,431.8	6,563.4	6,458.1	14.6	23.0	-101.24	95.4	1,036.7	896.5	867.0	29.53	30.364		
6,600.0	6,496.7	6,734.3	6,588.2	15.1	23.3	-102.30	-12.5	1,058.8	909.8	879.5	30.34	29.988		
6,700.0	6,551.1	6,913.0	6,695.6	15.7	23.8	-102.61	-153.7	1,077.1	918.6	886.9	31.67	29.001		
6,800.0	6,594.1	7,093.6	6,768.3	16.6	24.6	-102.13	-318.1	1,089.4	922.3	888.7	33.58	27.467		
6,900.0	6,625.0	7,270.0	6,800.7	17.6	25.6	-100.96	-491.0	1,094.9	921.0	884.9	36.06	25.543		
7,000.0	6,643.2	7,391.9	6,802.7	18.7	26.6	-100.03	-612.8	1,095.3	917.0	878.7	38.32	23.932		
7,098.4	6,649.0	7,490.0	6,802.8	20.0	27.4	-99.79	-711.0	1,095.3	915.7	875.2	40.45	22.639		
7,100.0	6,648.6	7,491.7	6,802.8	20.0	27.5	-99.82	-712.6	1,095.3	915.8	875.3	40.48	22.625		
7,200.0	6,648.4	7,591.7	6,802.8	21.4	28.5	-99.84	-812.6	1,095.3	915.8	872.7	43.12	21.241		
7,300.0	6,648.1	7,691.7	6,802.8	22.8	29.6	-99.85	-912.6	1,095.3	915.9	869.9	45.92	19.946		
7,400.0	6,647.9	7,791.7	6,802.9	24.3	30.8	-99.87	-1,012.6	1,095.3	915.9	867.1	48.85	18.749		
7,500.0	6,647.7	7,891.7	6,802.9	25.9	32.1	-99.88	-1,112.6	1,095.3	916.0	864.1	51.90	17.650		
7,600.0	6,647.4	7,991.7	6,802.9	27.5	33.4	-99.90	-1,212.6	1,095.3	916.0	861.0	55.03	16.645		
7,700.0	6,647.2	8,091.7	6,803.0	29.1	34.8	-99.92	-1,312.6	1,095.3	916.0	857.8	58.25	15.727		
7,800.0	6,647.0	8,191.7	6,803.0	30.8	36.3	-99.93	-1,412.6	1,095.3	916.1	854.6	61.53	14.889		
7,900.0	6,646.8	8,291.7	6,803.0	32.5	37.8	-99.95	-1,512.6	1,095.3	916.1	851.3	64.86	14.125		
8,000.0	6,646.5	8,391.7	6,803.1	34.2	39.3	-99.96	-1,612.6	1,095.3	916.2	847.9	68.24	13.425		
8,100.0	6,646.3	8,491.7	6,803.1	36.0	40.9	-99.98	-1,712.6	1,095.3	916.2	844.6	71.66	12.785		
8,200.0	6,646.1	8,591.7	6,803.1	37.7	42.5	-100.00	-1,812.6	1,095.3	916.3	841.1	75.12	12.197		
8,300.0	6,645.9	8,691.7	6,803.2	39.5	44.1	-100.01	-1,912.6	1,095.3	916.3	837.7	78.61	11.657		
8,400.0	6,645.6	8,791.7	6,803.2	41.3	45.7	-100.03	-2,012.6	1,095.3	916.4	834.2	82.12	11.159		
8,500.0	6,645.4	8,891.7	6,803.2	43.1	47.4	-100.04	-2,112.6	1,095.3	916.4	830.7	85.66	10.699		
8,600.0	6,645.2	8,991.7	6,803.3	44.9	49.1	-100.06	-2,212.6	1,095.3	916.5	827.2	89.21	10.273		
8,700.0	6,645.0	9,091.7	6,803.3	46.7	50.8	-100.08	-2,312.6	1,095.3	916.5	823.7	92.79	9.878		
8,800.0	6,644.7	9,191.7	6,803.4	48.6	52.5	-100.09	-2,412.6	1,095.3	916.5	820.2	96.38	9.510		
8,900.0	6,644.5	9,291.7	6,803.4	50.4	54.2	-100.11	-2,512.6	1,095.3	916.6	816.6	99.98	9.168		
9,000.0	6,644.3	9,391.7	6,803.4	52.2	56.0	-100.13	-2,612.6	1,095.3	916.6	813.0	103.60	8.848		
9,100.0	6,644.0	9,491.7	6,803.5	54.1	57.7	-100.14	-2,712.6	1,095.3	916.7	809.5	107.22	8.549		
9,200.0	6,643.8	9,591.7	6,803.5	55.9	59.5	-100.16	-2,812.6	1,095.3	916.7	805.9	110.86	8.269		
9,300.0	6,643.6	9,691.7	6,803.5	57.8	61.3	-100.17	-2,912.6	1,095.3	916.8	802.3	114.51	8.006		
9,400.0	6,643.4	9,791.7	6,803.6	59.6	63.1	-100.19	-3,012.6	1,095.3	916.8	798.7	118.16	7.759		
9,500.0	6,643.1	9,891.7	6,803.6	61.5	64.8	-100.21	-3,112.6	1,095.3	916.9	795.0	121.83	7.526		
9,600.0	6,642.9	9,991.7	6,803.6	63.4	66.6	-100.22	-3,212.6	1,095.3	916.9	791.4	125.50	7.306		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #2 (11-12-14)													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	
9,700.0	6,642.7	10,091.7	6,803.7	65.2	68.4	-100.24	-3,312.6	1,095.3	917.0	787.8	129.17	7.099	
9,800.0	6,642.5	10,191.7	6,803.7	67.1	70.3	-100.25	-3,412.6	1,095.3	917.0	784.2	132.85	6.902	
9,900.0	6,642.2	10,291.7	6,803.7	69.0	72.1	-100.27	-3,512.6	1,095.3	917.1	780.5	136.54	6.716	
10,000.0	6,642.0	10,391.7	6,803.8	70.9	73.9	-100.29	-3,612.6	1,095.3	917.1	776.9	140.23	6.540	
10,100.0	6,641.8	10,491.7	6,803.8	72.8	75.7	-100.30	-3,712.6	1,095.3	917.1	773.2	143.93	6.372	
10,200.0	6,641.5	10,591.7	6,803.8	74.6	77.6	-100.32	-3,812.6	1,095.3	917.2	769.6	147.63	6.213	
10,300.0	6,641.3	10,691.7	6,803.9	76.5	79.4	-100.33	-3,912.6	1,095.3	917.2	765.9	151.33	6.061	
10,400.0	6,641.1	10,791.7	6,803.9	78.4	81.2	-100.35	-4,012.6	1,095.3	917.3	762.2	155.04	5.917	
10,500.0	6,640.9	10,891.7	6,803.9	80.3	83.1	-100.37	-4,112.6	1,095.3	917.3	758.6	158.75	5.779	
10,600.0	6,640.6	10,991.7	6,804.0	82.2	84.9	-100.38	-4,212.6	1,095.3	917.4	754.9	162.46	5.647	
10,700.0	6,640.4	11,091.7	6,804.0	84.1	86.8	-100.40	-4,312.6	1,095.3	917.4	751.3	166.17	5.521	
10,800.0	6,640.2	11,191.7	6,804.0	86.0	88.6	-100.42	-4,412.6	1,095.3	917.5	747.6	169.89	5.400	
10,900.0	6,640.0	11,291.7	6,804.1	87.9	90.5	-100.43	-4,512.6	1,095.3	917.5	743.9	173.61	5.285	
11,000.0	6,639.7	11,391.7	6,804.1	89.8	92.3	-100.45	-4,612.6	1,095.3	917.6	740.2	177.33	5.174	
11,100.0	6,639.5	11,491.7	6,804.2	91.6	94.2	-100.46	-4,712.6	1,095.3	917.6	736.6	181.06	5.068	
11,200.0	6,639.3	11,591.7	6,804.2	93.5	96.1	-100.48	-4,812.6	1,095.3	917.7	732.9	184.78	4.966	
11,300.0	6,639.1	11,691.7	6,804.2	95.4	97.9	-100.50	-4,912.6	1,095.3	917.7	729.2	188.51	4.868	
11,400.0	6,638.8	11,791.7	6,804.3	97.3	99.8	-100.51	-5,012.6	1,095.3	917.8	725.5	192.24	4.774	
11,500.0	6,638.6	11,891.7	6,804.3	99.2	101.7	-100.53	-5,112.6	1,095.3	917.8	721.8	195.97	4.683	
11,600.0	6,638.4	11,991.7	6,804.3	101.1	103.5	-100.54	-5,212.6	1,095.3	917.9	718.2	199.70	4.596	
11,700.0	6,638.1	12,091.7	6,804.4	103.0	105.4	-100.56	-5,312.6	1,095.3	917.9	714.5	203.44	4.512	
11,800.0	6,637.9	12,191.7	6,804.4	104.9	107.3	-100.58	-5,412.6	1,095.3	918.0	710.8	207.17	4.431	
11,900.0	6,637.7	12,291.7	6,804.4	106.8	109.2	-100.59	-5,512.6	1,095.3	918.0	707.1	210.91	4.353	
12,000.0	6,637.5	12,391.7	6,804.5	108.7	111.0	-100.61	-5,612.6	1,095.3	918.0	703.4	214.64	4.277	
12,100.0	6,637.2	12,491.7	6,804.5	110.6	112.9	-100.62	-5,712.6	1,095.3	918.1	699.7	218.38	4.204	
12,200.0	6,637.0	12,591.7	6,804.5	112.6	114.8	-100.64	-5,812.6	1,095.3	918.1	696.0	222.12	4.134	
12,300.0	6,636.8	12,691.7	6,804.6	114.5	116.7	-100.66	-5,912.6	1,095.3	918.2	692.3	225.86	4.065	
12,400.0	6,636.6	12,791.7	6,804.6	116.4	118.6	-100.67	-6,012.6	1,095.3	918.2	688.6	229.60	3.999	
12,500.0	6,636.3	12,891.7	6,804.6	118.3	120.4	-100.69	-6,112.6	1,095.3	918.3	684.9	233.34	3.935	
12,600.0	6,636.1	12,991.7	6,804.7	120.2	122.3	-100.70	-6,212.6	1,095.3	918.3	681.3	237.08	3.873	
12,700.0	6,635.9	13,091.7	6,804.7	122.1	124.2	-100.72	-6,312.6	1,095.3	918.4	677.6	240.82	3.814	
12,800.0	6,635.6	13,191.7	6,804.7	124.0	126.1	-100.74	-6,412.6	1,095.3	918.4	673.9	244.57	3.755	
12,900.0	6,635.4	13,291.7	6,804.8	125.9	128.0	-100.75	-6,512.6	1,095.3	918.5	670.2	248.31	3.699	
13,000.0	6,635.2	13,391.7	6,804.8	127.8	129.9	-100.77	-6,612.6	1,095.3	918.5	666.5	252.05	3.644	
13,100.0	6,635.0	13,491.7	6,804.9	129.7	131.8	-100.78	-6,712.6	1,095.3	918.6	662.8	255.80	3.591	
13,200.0	6,634.7	13,591.7	6,804.9	131.6	133.7	-100.80	-6,812.6	1,095.3	918.6	659.1	259.54	3.539	
13,300.0	6,634.5	13,691.7	6,804.9	133.5	135.5	-100.82	-6,912.6	1,095.3	918.7	655.4	263.29	3.489	
13,400.0	6,634.3	13,791.7	6,805.0	135.4	137.4	-100.83	-7,012.6	1,095.3	918.7	651.7	267.03	3.441	
13,500.0	6,634.1	13,891.7	6,805.0	137.3	139.3	-100.85	-7,112.6	1,095.3	918.8	648.0	270.78	3.393	
13,541.9	6,634.0	13,933.5	6,805.0	138.0	140.0	-100.86	-7,154.5	1,095.3	918.8	646.7	272.08	3.377	
13,582.4	6,633.9	13,970.5	6,805.0	138.6	140.6	-100.86	-7,191.4	1,095.3	918.8	645.6	273.25	3.363 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 1-6I (Exist) - Wellbore #1 - Wellbore #													Offset Site Error:	0.0 ft
Survey Program: 629-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)			
7,900.0	6,646.8	6,771.5	6,684.0	32.5	20.7	93.91	-2,429.4	5.5	935.7	885.4	50.37	18.576		
8,000.0	6,646.5	6,769.9	6,682.4	34.2	20.7	93.41	-2,429.4	5.5	838.0	785.9	52.11	16.081		
8,100.0	6,646.3	6,768.3	6,680.8	36.0	20.7	92.93	-2,429.5	5.6	740.9	687.0	53.87	13.754		
8,200.0	6,646.1	6,766.7	6,679.2	37.7	20.7	92.44	-2,429.5	5.6	644.6	589.0	55.64	11.586		
8,300.0	6,645.9	6,765.2	6,677.6	39.5	20.7	91.97	-2,429.5	5.6	549.7	492.3	57.42	9.574		
8,400.0	6,645.6	6,763.6	6,676.1	41.3	20.7	91.49	-2,429.5	5.6	457.0	397.8	59.21	7.718		
8,500.0	6,645.4	6,762.1	6,674.5	43.1	20.7	91.02	-2,429.5	5.6	368.1	307.1	61.01	6.033		
8,600.0	6,645.2	6,760.5	6,673.0	44.9	20.6	90.56	-2,429.6	5.6	286.6	223.7	62.82	4.562		
8,700.0	6,645.0	6,759.0	6,671.5	46.7	20.6	90.10	-2,429.6	5.6	220.8	156.1	64.63	3.416		
8,800.0	6,644.7	6,757.5	6,670.0	48.6	20.6	89.64	-2,429.6	5.6	188.0	121.6	66.45	2.830		
8,816.9	6,644.7	6,757.3	6,669.8	48.9	20.6	89.56	-2,429.6	5.6	187.3	120.5	66.75	2.805 CC, ES, SF		
8,900.0	6,644.5	6,756.1	6,668.5	50.4	20.6	89.19	-2,429.6	5.6	204.9	136.6	68.27	3.001		
9,000.0	6,644.3	6,754.6	6,667.1	52.2	20.6	88.74	-2,429.6	5.7	261.9	191.8	70.09	3.737		
9,100.0	6,644.0	6,753.2	6,665.6	54.1	20.6	88.30	-2,429.6	5.7	339.4	267.5	71.91	4.720		
9,200.0	6,643.8	6,751.7	6,664.2	55.9	20.6	87.86	-2,429.7	5.7	426.4	352.6	73.73	5.783		
9,300.0	6,643.6	6,750.3	6,662.8	57.8	20.6	87.43	-2,429.7	5.7	518.1	442.5	75.56	6.857		
9,400.0	6,643.4	6,748.9	6,661.4	59.6	20.6	87.00	-2,429.7	5.7	612.4	535.0	77.38	7.914		
9,500.0	6,643.1	6,747.5	6,660.0	61.5	20.6	86.57	-2,429.7	5.7	708.2	629.0	79.20	8.942		
9,600.0	6,642.9	6,746.1	6,658.6	63.4	20.6	86.15	-2,429.7	5.7	805.1	724.1	81.02	9.937		
9,700.0	6,642.7	6,744.8	6,657.2	65.2	20.6	85.74	-2,429.7	5.7	902.6	819.8	82.84	10.896		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 5 (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:	0.0 ft
Survey Program: 580-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)		
9,200.0	6,643.8	6,754.7	6,667.3	55.9	20.8	89.52	-3,738.5	-32.2	952.8	878.9	73.89	12.895	
9,300.0	6,643.6	6,754.9	6,667.6	57.8	20.8	89.59	-3,738.5	-32.2	856.0	780.2	75.75	11.300	
9,400.0	6,643.4	6,755.2	6,667.8	59.6	20.8	89.65	-3,738.5	-32.2	760.0	682.3	77.62	9.791	
9,500.0	6,643.1	6,755.4	6,668.1	61.5	20.8	89.72	-3,738.5	-32.2	665.1	585.6	79.49	8.368	
9,600.0	6,642.9	6,755.7	6,668.4	63.4	20.8	89.78	-3,738.5	-32.2	572.0	490.6	81.36	7.031	
9,700.0	6,642.7	6,755.9	6,668.6	65.2	20.8	89.85	-3,738.5	-32.2	481.7	398.5	83.23	5.787	
9,800.0	6,642.5	6,756.2	6,668.9	67.1	20.8	89.91	-3,738.5	-32.2	396.0	310.9	85.11	4.653	
9,900.0	6,642.2	6,756.5	6,669.1	69.0	20.8	89.98	-3,738.5	-32.2	318.9	231.9	86.99	3.666	
10,000.0	6,642.0	6,756.7	6,669.4	70.9	20.8	90.05	-3,738.5	-32.2	257.9	169.0	88.87	2.902	
10,100.0	6,641.8	6,757.0	6,669.7	72.8	20.8	90.12	-3,738.5	-32.2	226.6	135.8	90.76	2.497	
10,125.8	6,641.7	6,757.1	6,669.8	73.2	20.8	90.14	-3,738.5	-32.2	225.1	133.9	91.24	2.467 CC, ES, SF	
10,200.0	6,641.5	6,757.3	6,670.0	74.6	20.8	90.19	-3,738.5	-32.2	237.0	144.4	92.64	2.558	
10,300.0	6,641.3	6,757.6	6,670.2	76.5	20.8	90.26	-3,738.5	-32.2	284.6	190.1	94.53	3.011	
10,400.0	6,641.1	6,757.8	6,670.5	78.4	20.8	90.33	-3,738.5	-32.2	354.7	258.3	96.42	3.679	
10,500.0	6,640.9	6,758.1	6,670.8	80.3	20.8	90.40	-3,738.5	-32.2	436.7	338.3	98.31	4.442	
10,600.0	6,640.6	6,758.4	6,671.1	82.2	20.8	90.47	-3,738.5	-32.2	524.9	424.7	100.20	5.238	
10,700.0	6,640.4	6,758.7	6,671.4	84.1	20.8	90.55	-3,738.5	-32.2	616.7	514.6	102.10	6.040	
10,800.0	6,640.2	6,759.0	6,671.7	86.0	20.8	90.62	-3,738.5	-32.2	710.7	606.8	103.99	6.835	
10,900.0	6,640.0	6,759.3	6,672.0	87.9	20.8	90.70	-3,738.5	-32.2	806.2	700.3	105.89	7.614	
11,000.0	6,639.7	6,759.6	6,672.2	89.8	20.8	90.77	-3,738.5	-32.2	902.7	794.9	107.78	8.375	
11,100.0	6,639.5	6,759.9	6,672.5	91.6	20.8	90.85	-3,738.5	-32.2	999.8	890.1	109.68	9.116	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2-6B (Exist) - Wellbore #1 - Wellbore #														Offset Site Error:	0.0 ft
Survey Program: 800-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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	122.39	-415.3	654.8	775.6						
100.0	100.0	81.8	81.8	0.1	0.1	122.38	-415.3	654.8	775.4	775.2	0.22	3,505.861			
200.0	200.0	181.0	181.0	0.3	0.2	122.38	-415.3	655.0	775.5	775.0	0.58	1,342.786			
300.0	300.0	280.2	280.2	0.6	0.4	122.36	-415.3	655.3	775.8	774.9	0.93	830.656			
400.0	400.0	379.3	379.3	0.8	0.5	122.35	-415.3	655.7	776.1	774.9	1.29	601.507			
500.0	500.0	478.5	478.5	1.0	0.6	122.32	-415.2	656.3	776.6	775.0	1.65	471.610			
600.0	600.0	577.7	577.6	1.2	0.8	122.30	-415.2	656.9	777.2	775.2	2.00	387.988			
700.0	700.0	676.8	676.8	1.5	0.9	122.26	-415.2	657.8	777.9	775.5	2.36	329.673			
800.0	800.0	776.0	776.0	1.7	1.0	122.22	-415.2	658.7	778.6	775.9	2.72	286.703			
900.0	900.0	888.7	888.6	1.9	1.2	122.18	-414.8	659.2	778.9	775.8	3.10	251.053			
1,000.0	1,000.0	1,002.5	1,002.5	2.1	1.3	122.14	-413.2	657.8	777.1	773.6	3.48	223.544			
1,100.0	1,100.0	1,112.0	1,111.9	2.4	1.5	122.00	-409.8	655.9	773.9	770.1	3.82	202.684			
1,200.0	1,200.0	1,219.6	1,219.3	2.6	1.6	121.85	-405.6	653.0	769.6	765.4	4.21	182.657			
1,300.0	1,300.0	1,334.7	1,334.3	2.8	1.8	121.76	-401.2	648.0	763.9	759.3	4.63	164.934			
1,400.0	1,400.0	1,442.1	1,441.4	3.0	2.0	121.64	-395.6	642.1	756.5	751.4	5.07	149.316			
1,500.0	1,500.0	1,537.7	1,536.7	3.3	2.2	121.48	-390.1	636.9	748.8	743.3	5.50	136.209			
1,600.0	1,600.0	1,627.7	1,626.4	3.5	2.4	121.35	-385.5	633.0	742.4	736.5	5.93	125.255			
1,700.0	1,700.0	1,737.9	1,736.4	3.7	2.7	121.15	-379.8	628.3	736.1	729.7	6.41	114.786			
1,800.0	1,800.0	1,854.7	1,852.7	3.9	3.0	120.90	-371.8	621.3	727.5	720.6	6.92	105.071			
1,900.0	1,900.0	1,983.8	1,980.7	4.2	3.3	120.33	-358.2	612.2	716.0	708.5	7.49	95.649			
2,000.0	2,000.0	2,111.3	2,106.1	4.4	3.7	119.39	-338.1	600.2	699.8	691.8	8.06	86.814			
2,100.0	2,100.0	2,224.5	2,216.9	4.6	4.0	118.62	-319.8	586.2	681.2	672.6	8.60	79.164			
2,200.0	2,200.0	2,336.4	2,326.2	4.8	4.3	118.11	-303.7	568.6	660.4	651.3	9.14	72.223			
2,300.0	2,300.0	2,433.0	2,420.5	5.1	4.6	117.94	-292.1	550.8	638.5	628.9	9.64	66.255			
2,400.0	2,400.0	2,528.0	2,513.2	5.3	4.8	117.85	-281.7	533.1	617.0	606.9	10.13	60.930			
2,500.0	2,500.0	2,636.8	2,619.3	5.5	5.2	117.77	-269.7	512.2	594.8	584.2	10.66	55.801			
2,600.0	2,600.0	2,733.3	2,713.2	5.7	5.4	117.56	-257.6	493.5	571.8	560.7	11.17	51.207			
2,700.0	2,700.0	2,827.7	2,805.1	6.0	5.7	117.16	-244.4	476.5	549.3	537.7	11.68	47.048			
2,800.0	2,800.0	2,927.5	2,902.2	6.2	6.0	116.49	-228.8	459.1	526.7	514.5	12.21	43.141			
2,900.0	2,900.0	3,021.7	2,993.6	6.4	6.3	115.54	-212.1	443.8	504.2	491.5	12.73	39.605			
3,000.0	3,000.0	3,111.8	3,081.2	6.6	6.6	114.55	-196.4	430.1	483.0	469.8	13.24	36.483			
3,100.0	3,100.0	3,204.2	3,171.6	6.8	6.9	46.02	-183.3	416.0	462.6	449.4	13.24	34.941			
3,200.0	3,200.0	3,299.9	3,265.4	7.1	7.2	45.59	-170.2	401.9	441.8	428.1	13.69	32.271			
3,300.0	3,299.9	3,395.5	3,359.1	7.3	7.5	45.31	-157.5	388.1	420.3	406.2	14.14	29.724			
3,400.0	3,399.7	3,491.3	3,453.1	7.5	7.8	45.12	-145.5	374.5	398.3	383.7	14.60	27.286			
3,500.0	3,499.5	3,590.0	3,550.0	7.7	8.1	44.73	-132.6	360.8	376.3	361.2	15.07	24.963			
3,600.0	3,599.3	3,694.8	3,652.5	7.9	8.4	43.87	-116.2	346.3	353.4	337.8	15.58	22.683			
3,700.0	3,699.2	3,799.1	3,753.5	8.1	8.7	42.13	-95.2	330.7	327.8	311.7	16.10	20.358			
3,800.0	3,799.0	3,898.4	3,849.2	8.4	9.1	40.07	-74.1	314.8	301.2	284.6	16.62	18.127			
3,900.0	3,898.8	3,994.1	3,941.6	8.6	9.4	38.14	-55.6	298.1	274.3	257.1	17.13	16.013			
4,000.0	3,998.6	4,086.3	4,031.0	8.8	9.7	36.28	-39.5	282.3	248.5	230.8	17.63	14.095			
4,100.0	4,098.4	4,177.7	4,120.0	9.0	10.0	34.18	-24.4	268.2	224.9	206.8	18.13	12.403			
4,200.0	4,198.3	4,272.2	4,212.5	9.3	10.3	31.77	-9.9	255.5	203.8	185.1	18.66	10.921			
4,300.0	4,298.1	4,368.6	4,307.1	9.5	10.6	28.96	4.2	243.0	183.6	164.4	19.20	9.564			
4,400.0	4,397.9	4,463.8	4,400.5	9.7	10.9	25.39	18.5	231.4	164.9	145.1	19.76	8.344			
4,500.0	4,497.7	4,559.3	4,494.2	9.9	11.1	20.47	34.1	221.5	148.7	128.4	20.36	7.304			
4,600.0	4,597.6	4,658.1	4,591.1	10.2	11.5	13.88	51.2	211.8	134.6	113.6	21.01	6.404			
4,700.0	4,697.4	4,758.4	4,688.8	10.4	11.8	4.80	70.0	199.8	121.0	99.2	21.73	5.567			
4,800.0	4,797.2	4,856.1	4,784.0	10.6	12.1	-5.72	87.0	186.4	108.9	86.4	22.44	4.852			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2-6B (Exist) - Wellbore #1 - Wellbore #														Offset Site Error:	0.0 ft
Survey Program: 800-NS-GYRO-MS														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	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)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
4,900.0	4,897.0	4,952.0	4,877.5	10.9	12.4	-18.07	104.4	173.7	102.0	78.9	23.10	4.415			
5,000.0	4,996.8	5,051.6	4,975.0	11.1	12.7	-30.82	120.8	161.7	100.3	76.6	23.66	4.240			
5,100.0	5,096.7	5,152.8	5,074.7	11.3	13.0	-42.09	133.1	150.3	100.0	75.9	24.09	4.149			
5,106.4	5,103.0	5,159.2	5,081.2	11.4	13.0	-42.73	133.7	149.6	100.0	75.8	24.12	4.145 CC, ES			
5,200.0	5,196.5	5,252.1	5,173.3	11.6	13.3	-51.12	141.7	141.3	100.8	76.3	24.46	4.120 SF			
5,300.0	5,296.3	5,351.8	5,272.5	11.8	13.6	-58.67	149.4	134.3	103.3	78.5	24.81	4.164			
5,400.0	5,396.1	5,449.9	5,370.1	12.1	13.8	-65.30	156.9	128.0	107.5	82.3	25.15	4.273			
5,500.0	5,495.9	5,549.5	5,469.1	12.3	14.1	-72.19	164.8	120.1	113.4	88.0	25.48	4.452			
5,600.0	5,595.8	5,651.2	5,570.3	12.5	14.4	-78.34	171.4	112.6	119.3	93.5	25.83	4.619			
5,700.0	5,695.6	5,749.6	5,668.3	12.8	14.6	-83.43	177.4	106.0	125.9	99.7	26.20	4.805			
5,800.0	5,795.4	5,852.0	5,770.4	13.0	14.9	-87.73	182.6	100.6	131.9	105.3	26.60	4.960			
5,900.0	5,895.2	5,952.9	5,871.1	13.2	15.2	-125.91	187.0	96.0	138.0	111.1	26.93	5.124			
6,000.0	5,994.7	6,054.8	5,972.9	13.4	15.4	175.79	189.1	92.6	150.6	123.8	26.81	5.619			
6,100.0	6,092.3	6,150.7	6,068.7	13.6	15.6	166.71	192.1	91.4	174.9	148.5	26.35	6.637			
6,200.0	6,186.4	6,244.5	6,162.5	13.8	15.8	164.74	195.3	90.8	210.8	185.3	25.52	8.262			
6,300.0	6,275.3	6,335.5	6,253.4	14.0	16.1	164.56	197.4	90.4	257.3	232.9	24.31	10.580			
6,400.0	6,357.6	6,418.6	6,336.5	14.3	16.3	164.64	198.3	89.8	313.6	290.8	22.77	13.772			
6,500.0	6,431.8	6,488.8	6,406.7	14.6	16.4	164.11	199.0	88.2	380.3	359.4	20.98	18.131			
6,600.0	6,496.7	6,554.2	6,472.1	15.1	16.6	163.16	199.8	86.3	456.2	437.1	19.12	23.866			
6,700.0	6,551.1	6,610.3	6,528.2	15.7	16.7	161.41	200.2	84.9	539.6	522.1	17.49	30.855			
6,800.0	6,594.1	6,656.3	6,574.1	16.6	16.8	158.07	200.4	84.0	629.0	612.3	16.76	37.528			
6,900.0	6,625.0	6,689.2	6,607.1	17.6	16.9	150.97	200.4	83.6	723.2	704.7	18.49	39.120			
7,000.0	6,643.2	6,708.3	6,626.2	18.7	16.9	132.92	200.4	83.3	820.6	794.7	25.89	31.690			
7,100.0	6,648.6	6,714.2	6,632.0	20.0	16.9	89.39	200.3	83.2	919.6	883.6	35.99	25.548			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 514-NS-GYRO-MS														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	122.96	-444.5	685.4	817.1						
100.0	100.0	81.4	81.4	0.1	0.1	122.97	-444.5	685.4	817.0	816.7	0.22	3,701.894 CC			
200.0	200.0	180.1	180.1	0.3	0.2	122.98	-444.8	685.5	817.2	816.6	0.58	1,417.501 ES			
300.0	300.0	278.8	278.8	0.6	0.4	123.01	-445.4	685.6	817.5	816.6	0.93	876.924			
400.0	400.0	377.5	377.5	0.8	0.5	123.05	-446.1	685.7	818.1	816.8	1.29	635.113			
500.0	500.0	476.2	476.2	1.0	0.6	123.10	-447.1	685.9	818.8	817.1	1.64	498.074			
600.0	600.0	572.1	572.1	1.2	0.8	123.17	-448.5	686.1	819.7	817.6	2.07	395.441			
700.0	700.0	666.3	666.2	1.5	1.1	123.33	-451.2	686.1	821.3	818.8	2.55	322.424			
800.0	800.0	758.9	758.8	1.7	1.3	123.54	-454.9	686.4	823.8	820.7	3.02	272.901			
900.0	900.0	850.6	850.4	1.9	1.6	123.76	-459.3	687.1	827.1	823.6	3.49	237.178			
1,000.0	1,000.0	940.0	939.6	2.1	1.8	123.99	-464.3	688.6	831.6	827.7	3.95	210.549			
1,100.0	1,100.0	1,029.4	1,028.8	2.4	2.1	124.23	-470.1	691.0	837.4	833.0	4.41	189.810			
1,200.0	1,200.0	1,118.9	1,118.0	2.6	2.3	124.46	-476.4	694.3	844.5	839.6	4.87	173.266			
1,300.0	1,300.0	1,214.1	1,212.9	2.8	2.5	124.66	-483.2	698.8	852.4	847.1	5.35	159.463			
1,400.0	1,400.0	1,310.8	1,309.2	3.0	2.8	124.79	-489.3	704.4	860.8	855.0	5.82	147.879			
1,500.0	1,500.0	1,404.6	1,402.6	3.3	3.0	124.92	-495.7	710.1	869.6	863.3	6.29	138.234			
1,600.0	1,600.0	1,497.1	1,494.7	3.5	3.3	125.10	-503.0	715.7	879.2	872.4	6.76	130.051			
1,700.0	1,700.0	1,584.9	1,582.0	3.7	3.5	125.23	-510.0	722.1	889.7	882.5	7.22	123.244			
1,800.0	1,800.0	1,668.5	1,664.9	3.9	3.7	125.31	-516.9	729.7	901.9	894.3	7.67	117.662			
1,900.0	1,900.0	1,757.4	1,752.9	4.2	4.0	125.34	-524.3	739.4	915.7	907.5	8.13	112.694			
2,000.0	2,000.0	1,859.8	1,854.3	4.4	4.2	125.40	-533.3	750.4	929.5	920.9	8.62	107.782			
2,100.0	2,100.0	1,956.5	1,950.1	4.6	4.5	125.44	-541.7	761.1	943.5	934.4	9.11	103.566			
2,200.0	2,200.0	2,056.7	2,049.3	4.8	4.8	125.46	-550.1	772.3	957.5	947.8	9.61	99.677			
2,300.0	2,300.0	2,159.1	2,150.7	5.1	5.1	125.47	-558.4	783.7	971.3	961.2	10.11	96.086			
2,400.0	2,400.0	2,255.9	2,246.7	5.3	5.3	125.53	-566.7	793.8	984.7	974.1	10.60	92.902			
2,500.0	2,500.0	2,344.0	2,333.8	5.5	5.6	125.57	-574.7	803.6	999.1	988.0	11.07	90.251 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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	124.17	-444.4	654.8	791.5					
100.0	100.0	81.5	81.5	0.1	0.1	124.16	-444.3	654.9	791.4	791.2	0.22	3,586.412		
200.0	200.0	182.9	182.9	0.3	0.3	124.12	-444.0	655.2	791.5	790.8	0.68	1,163.125		
300.0	300.0	282.6	282.6	0.6	0.6	124.11	-443.8	655.3	791.4	790.3	1.16	680.718		
306.3	306.3	288.8	288.8	0.6	0.6	124.11	-443.8	655.3	791.4	790.2	1.19	663.326		
400.0	400.0	381.7	381.7	0.8	0.8	124.11	-443.8	655.3	791.5	789.9	1.54	513.700		
500.0	500.0	481.1	481.1	1.0	0.8	124.14	-444.3	655.2	791.6	789.8	1.84	429.791		
600.0	600.0	579.4	579.4	1.2	1.0	124.19	-445.0	655.0	791.9	789.7	2.19	362.127		
700.0	700.0	678.5	678.5	1.5	1.1	124.27	-446.1	654.8	792.3	789.8	2.58	306.735		
800.0	800.0	779.6	779.6	1.7	1.3	124.37	-447.6	654.4	792.8	789.8	3.01	263.236		
900.0	900.0	882.1	882.0	1.9	1.5	124.50	-449.1	653.6	793.0	789.6	3.46	229.347		
1,000.0	1,000.0	983.7	983.6	2.1	1.8	124.63	-450.7	652.5	793.0	789.1	3.91	202.765		
1,100.0	1,100.0	1,085.8	1,085.7	2.4	2.0	124.77	-452.1	651.1	792.7	788.3	4.37	181.362		
1,200.0	1,200.0	1,188.2	1,188.1	2.6	2.3	124.92	-453.4	649.6	792.2	787.3	4.83	163.879		
1,300.0	1,300.0	1,289.3	1,289.2	2.8	2.5	125.06	-454.5	647.8	791.4	786.1	5.30	149.428		
1,400.0	1,400.0	1,391.5	1,391.4	3.0	2.7	125.20	-455.6	645.8	790.4	784.6	5.76	137.163		
1,500.0	1,500.0	1,493.6	1,493.4	3.3	3.0	125.35	-456.5	643.6	789.1	782.9	6.23	126.708		
1,600.0	1,600.0	1,596.9	1,596.7	3.5	3.2	125.49	-457.1	641.2	787.6	780.9	6.69	117.652		
1,700.0	1,700.0	1,699.7	1,699.5	3.7	3.5	125.63	-457.5	638.4	785.6	778.4	7.16	109.771		
1,800.0	1,800.0	1,800.9	1,800.6	3.9	3.7	125.78	-457.8	635.3	783.3	775.7	7.62	102.829		
1,900.0	1,900.0	1,900.8	1,900.4	4.2	3.9	125.92	-458.1	632.3	781.0	773.0	8.08	96.674		
2,000.0	2,000.0	2,001.9	2,001.5	4.4	4.2	126.06	-458.2	629.3	778.7	770.1	8.54	91.155		
2,100.0	2,100.0	2,102.9	2,102.5	4.6	4.4	126.17	-458.0	626.3	776.1	767.1	9.00	86.210		
2,200.0	2,200.0	2,202.9	2,202.5	4.8	4.6	126.29	-457.7	623.3	773.6	764.1	9.46	81.751		
2,300.0	2,300.0	2,304.7	2,304.2	5.1	4.9	126.39	-457.1	620.3	770.9	760.9	9.92	77.671		
2,400.0	2,400.0	2,406.3	2,405.7	5.3	5.1	126.48	-456.3	617.2	768.0	757.6	10.38	73.955		
2,500.0	2,500.0	2,507.4	2,506.8	5.5	5.3	126.56	-455.4	614.0	764.9	754.0	10.84	70.536		
2,600.0	2,600.0	2,607.7	2,607.0	5.7	5.6	126.64	-454.3	610.8	761.7	750.4	11.30	67.398		
2,700.0	2,700.0	2,707.1	2,706.4	6.0	5.8	126.71	-453.1	607.7	758.5	746.7	11.76	64.514		
2,800.0	2,800.0	2,804.3	2,803.5	6.2	6.0	126.77	-452.1	604.9	755.5	743.3	12.21	61.875		
2,900.0	2,900.0	2,901.9	2,901.1	6.4	6.3	126.84	-451.2	602.4	752.9	740.2	12.67	59.423		
3,000.0	3,000.0	3,000.0	2,999.2	6.6	6.5	126.90	-450.5	599.9	750.4	737.3	13.13	57.138		
3,100.0	3,100.0	3,096.7	3,095.8	6.8	6.8	59.07	-450.0	597.7	747.9	734.3	13.59	55.020		
3,200.0	3,200.0	3,195.6	3,194.7	7.1	7.0	59.33	-449.7	595.9	744.8	730.8	14.05	53.019		
3,300.0	3,299.9	3,293.4	3,292.5	7.3	7.3	59.73	-449.6	594.1	741.1	726.6	14.50	51.093		
3,400.0	3,399.7	3,395.5	3,394.5	7.5	7.5	60.27	-449.9	591.9	736.7	721.7	14.98	49.174		
3,500.0	3,499.5	3,492.6	3,491.6	7.7	7.8	60.82	-450.6	589.4	732.2	716.8	15.45	47.399		
3,600.0	3,599.3	3,590.8	3,589.8	7.9	8.0	61.38	-451.4	587.3	728.1	712.2	15.92	45.739		
3,700.0	3,699.2	3,689.3	3,688.3	8.1	8.3	61.94	-452.3	585.3	724.3	707.9	16.39	44.185		
3,800.0	3,799.0	3,787.2	3,786.2	8.4	8.5	62.49	-453.1	583.6	720.7	703.9	16.86	42.737		
3,900.0	3,898.8	3,886.6	3,885.6	8.6	8.8	63.03	-453.8	582.2	717.4	700.0	17.34	41.367		
4,000.0	3,998.6	3,986.1	3,985.1	8.8	9.1	63.55	-454.4	581.0	714.1	696.3	17.82	40.067		
4,100.0	4,098.4	4,083.6	4,082.6	9.0	9.3	64.04	-454.8	580.1	711.1	692.8	18.30	38.858		
4,200.0	4,198.3	4,180.7	4,179.7	9.3	9.5	64.49	-455.0	579.8	708.4	689.7	18.72	37.837		
4,300.0	4,298.1	4,280.3	4,279.3	9.5	9.6	64.93	-455.2	579.9	706.1	687.0	19.05	37.074		
4,400.0	4,397.9	4,379.7	4,378.7	9.7	9.6	65.35	-455.1	580.2	703.8	684.5	19.30	36.468		
4,500.0	4,497.7	4,480.2	4,479.1	9.9	9.7	65.74	-454.8	580.8	701.5	682.0	19.55	35.887		
4,600.0	4,597.6	4,580.8	4,579.7	10.2	9.7	66.10	-454.1	581.6	699.2	679.4	19.81	35.292		
4,700.0	4,697.4	4,675.0	4,673.9	10.4	9.7	66.42	-453.4	582.8	697.1	677.1	20.08	34.722		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Reference	Offset	Reference	Offset	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
4,800.0	4,797.2	4,770.7	4,769.6	10.6	9.8	66.71	-453.1	584.8	696.0	675.6	20.35	34.207			
4,900.0	4,897.0	4,870.3	4,869.2	10.9	9.8	67.03	-453.0	587.0	695.2	674.5	20.62	33.709			
5,000.0	4,996.8	4,971.5	4,970.3	11.1	9.9	67.39	-453.1	588.9	694.3	673.3	20.92	33.194			
5,100.0	5,096.7	5,072.8	5,071.6	11.3	9.9	67.81	-453.6	590.1	693.2	671.9	21.23	32.650			
5,200.0	5,196.5	5,176.0	5,174.8	11.6	10.0	68.26	-454.1	590.9	691.8	670.3	21.56	32.091			
5,300.0	5,296.3	5,278.3	5,277.1	11.8	10.1	68.70	-454.2	591.4	690.0	668.2	21.88	31.543			
5,400.0	5,396.1	5,380.2	5,379.0	12.1	10.2	69.12	-453.8	592.0	688.0	665.8	22.19	30.999			
5,500.0	5,495.9	5,480.2	5,479.0	12.3	10.3	69.51	-453.1	592.6	685.8	663.2	22.52	30.453			
5,600.0	5,595.8	5,580.6	5,579.4	12.5	10.4	69.91	-452.5	593.1	683.6	660.7	22.85	29.910			
5,700.0	5,695.6	5,681.9	5,680.8	12.8	10.5	70.33	-451.8	593.5	681.3	658.1	23.21	29.354			
5,800.0	5,795.4	5,782.5	5,781.3	13.0	10.7	70.76	-451.1	593.6	678.8	655.2	23.59	28.775			
5,900.0	5,895.2	5,882.5	5,881.3	13.2	10.8	36.61	-450.5	593.5	676.0	652.1	23.96	28.211			
6,000.0	5,994.7	5,982.1	5,980.9	13.4	11.0	-20.23	-449.8	593.5	666.0	641.9	24.09	27.642			
6,100.0	6,092.3	6,079.6	6,078.4	13.6	11.1	-31.79	-449.1	593.5	646.4	622.4	24.01	26.924			
6,200.0	6,186.4	6,173.6	6,172.4	13.8	11.3	-38.74	-448.3	593.6	617.8	594.1	23.79	25.968			
6,300.0	6,275.3	6,263.2	6,262.0	14.0	11.4	-45.65	-447.2	593.8	581.8	558.1	23.65	24.598			
6,400.0	6,357.6	6,349.8	6,348.6	14.3	11.6	-53.88	-445.9	593.9	540.1	516.2	23.88	22.612			
6,500.0	6,431.8	6,430.6	6,429.4	14.6	11.7	-63.77	-443.8	593.1	495.3	470.6	24.72	20.037			
6,600.0	6,496.7	6,500.9	6,499.6	15.1	11.9	-74.49	-441.3	591.4	452.0	426.0	26.02	17.376			
6,700.0	6,551.1	6,551.7	6,550.3	15.7	12.0	-83.55	-439.3	589.9	417.5	390.2	27.28	15.305			
6,800.0	6,594.1	6,590.9	6,589.5	16.6	12.1	-90.29	-437.7	588.7	399.5	371.1	28.37	14.082			
6,831.6	6,605.2	6,600.8	6,599.3	16.9	12.1	-91.78	-437.3	588.4	398.3	369.6	28.70	13.876 CC, ES			
6,900.0	6,625.0	6,617.8	6,616.4	17.6	12.1	-93.81	-436.6	587.9	404.0	374.6	29.39	13.746 SF			
7,000.0	6,643.2	6,632.0	6,630.6	18.7	12.2	-93.66	-436.0	587.4	432.7	402.1	30.56	14.157			
7,100.0	6,648.6	6,633.3	6,631.8	20.0	12.2	-90.01	-435.9	587.4	481.9	450.0	31.89	15.110			
7,200.0	6,648.4	6,629.0	6,627.5	21.4	12.1	-89.39	-436.1	587.5	545.5	512.2	33.26	16.401			
7,300.0	6,648.1	6,624.7	6,623.2	22.8	12.1	-88.77	-436.3	587.7	618.8	584.1	34.70	17.831			
7,400.0	6,647.9	6,620.4	6,618.9	24.3	12.1	-88.14	-436.5	587.8	698.7	662.5	36.21	19.297			
7,500.0	6,647.7	6,616.0	6,614.6	25.9	12.1	-87.52	-436.6	587.9	783.2	745.4	37.76	20.741			
7,600.0	6,647.4	6,611.7	6,610.3	27.5	12.1	-86.90	-436.8	588.1	870.9	831.6	39.35	22.132			
7,700.0	6,647.2	6,607.4	6,606.0	29.1	12.1	-86.28	-437.0	588.2	961.1	920.1	40.98	23.455			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 5 (Exist) - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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	176.53	-965.4	58.5	967.2						
100.0	100.0	96.9	96.9	0.1	0.1	176.53	-965.2	58.5	967.0	966.7	0.24	4,012.368			
200.0	200.0	195.1	195.1	0.3	0.4	176.54	-964.9	58.3	966.6	965.9	0.69	1,403.883			
300.0	300.0	298.0	298.0	0.6	0.6	176.56	-964.5	58.0	966.2	965.0	1.16	834.466			
400.0	400.0	396.6	396.6	0.8	0.8	176.58	-964.0	57.6	965.7	964.1	1.62	595.304			
500.0	500.0	497.0	497.0	1.0	1.1	176.60	-963.6	57.2	965.3	963.2	2.09	460.818			
600.0	600.0	599.8	599.8	1.2	1.3	176.63	-963.0	56.8	964.7	962.1	2.58	373.736			
700.0	700.0	696.0	696.0	1.5	1.6	176.65	-962.4	56.3	964.1	961.0	3.06	315.463			
800.0	800.0	799.8	799.7	1.7	1.9	176.68	-961.9	55.8	963.6	960.0	3.55	271.239			
900.0	900.0	896.4	896.3	1.9	2.1	176.72	-961.4	55.1	963.0	959.0	4.02	239.724			
980.0	980.0	972.5	972.5	2.1	2.3	176.76	-961.3	54.5	962.8	958.5	4.35	221.232			
1,000.0	1,000.0	991.6	991.5	2.1	2.3	176.76	-961.3	54.4	962.8	958.4	4.44	217.084			
1,100.0	1,100.0	1,089.9	1,089.8	2.4	2.4	176.78	-961.5	54.0	963.0	958.2	4.80	200.601			
1,200.0	1,200.0	1,192.4	1,192.3	2.6	2.6	176.81	-961.7	53.6	963.2	958.0	5.20	185.298			
1,300.0	1,300.0	1,289.0	1,289.0	2.8	2.7	176.83	-961.9	53.3	963.4	957.8	5.56	173.396			
1,400.0	1,400.0	1,386.4	1,386.3	3.0	2.8	176.84	-962.4	53.2	963.9	958.0	5.88	164.035			
1,500.0	1,500.0	1,483.4	1,483.4	3.3	3.0	176.85	-963.2	53.0	964.7	958.4	6.22	155.213			
1,600.0	1,600.0	1,589.1	1,589.1	3.5	3.1	176.85	-963.9	53.1	965.4	958.8	6.56	147.119			
1,700.0	1,700.0	1,687.3	1,687.2	3.7	3.2	176.85	-964.3	53.1	965.8	958.9	6.91	139.794			
1,800.0	1,800.0	1,785.3	1,785.2	3.9	3.4	176.85	-965.0	53.0	966.4	959.2	7.29	132.579			
1,900.0	1,900.0	1,884.7	1,884.6	4.2	3.5	176.87	-965.8	52.8	967.2	959.5	7.69	125.845			
2,000.0	2,000.0	1,981.2	1,981.2	4.4	3.7	176.85	-966.7	53.2	968.2	960.1	8.05	120.211			
2,100.0	2,100.0	2,080.5	2,080.5	4.6	3.8	176.82	-967.9	53.9	969.4	961.0	8.42	115.069			
2,200.0	2,200.0	2,176.0	2,176.0	4.8	4.0	176.78	-969.2	54.5	970.9	962.1	8.80	110.264			
2,300.0	2,300.0	2,281.5	2,281.4	5.1	4.2	176.76	-970.8	55.0	972.4	963.2	9.22	105.420			
2,400.0	2,400.0	2,383.4	2,383.3	5.3	4.4	176.74	-971.8	55.4	973.4	963.8	9.64	101.021			
2,500.0	2,500.0	2,489.1	2,489.1	5.5	4.5	176.70	-972.5	56.0	974.1	964.1	10.05	96.967			
2,600.0	2,600.0	2,591.5	2,591.4	5.7	4.7	176.68	-972.7	56.3	974.3	963.9	10.44	93.353			
2,700.0	2,700.0	2,687.7	2,687.6	6.0	4.9	176.65	-972.9	57.0	974.6	963.8	10.81	90.158			
2,800.0	2,800.0	2,787.4	2,787.3	6.2	5.0	176.59	-973.4	58.0	975.1	963.9	11.20	87.041			
2,900.0	2,900.0	2,881.8	2,881.7	6.4	5.2	176.53	-974.1	59.0	975.9	964.3	11.61	84.088			
3,000.0	3,000.0	2,983.2	2,983.1	6.6	5.4	176.47	-975.1	60.1	977.0	965.0	12.03	81.201			
3,100.0	3,100.0	3,082.3	3,082.1	6.8	5.6	108.47	-976.0	61.2	978.3	965.8	12.45	78.568			
3,200.0	3,200.0	3,191.6	3,191.5	7.1	5.8	108.54	-976.7	62.4	979.8	966.9	12.87	76.117			
3,300.0	3,299.9	3,303.6	3,303.4	7.3	6.0	108.69	-976.0	64.4	980.7	967.4	13.26	73.974			
3,400.0	3,399.7	3,411.0	3,410.8	7.5	6.1	108.93	-974.2	66.0	980.9	967.3	13.62	72.040			
3,500.0	3,499.5	3,500.0	3,499.8	7.7	6.3	109.11	-972.9	68.0	981.6	967.6	13.97	70.281			
3,600.0	3,599.3	3,603.4	3,603.1	7.9	6.4	109.27	-971.8	70.9	982.6	968.2	14.36	68.414			
3,700.0	3,699.2	3,701.6	3,701.3	8.1	6.6	109.43	-970.6	73.7	983.5	968.8	14.76	66.654			
3,800.0	3,799.0	3,801.3	3,801.0	8.4	6.8	109.60	-969.5	76.4	984.5	969.4	15.16	64.949			
3,900.0	3,898.8	3,903.8	3,903.4	8.6	7.0	109.79	-968.3	78.8	985.5	969.9	15.57	63.290			
4,000.0	3,998.6	4,013.8	4,013.4	8.8	7.2	109.97	-966.2	81.8	985.7	969.7	16.00	61.618			
4,100.0	4,098.4	4,112.3	4,111.8	9.0	7.4	110.09	-964.0	85.1	985.5	969.1	16.41	60.068			
4,184.9	4,183.2	4,197.3	4,196.7	9.2	7.5	110.14	-962.0	89.1	985.5	968.7	16.77	58.770			
4,200.0	4,198.3	4,210.5	4,209.8	9.3	7.6	110.14	-961.7	89.8	985.5	968.7	16.83	58.555			
4,300.0	4,298.1	4,300.0	4,299.2	9.5	7.8	110.18	-960.6	94.1	986.5	969.2	17.25	57.193			
4,400.0	4,397.9	4,397.5	4,396.6	9.7	8.0	110.23	-960.1	98.6	988.1	970.4	17.69	55.853			
4,500.0	4,497.7	4,489.3	4,488.3	9.9	8.2	110.27	-959.7	103.1	989.9	971.8	18.13	54.614			
4,600.0	4,597.6	4,597.4	4,596.2	10.2	8.4	110.32	-959.5	108.2	991.9	973.3	18.60	53.325			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 5 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error: 0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,700.0	4,697.4	4,699.8	4,698.6	10.4	8.7	110.41	-958.6	112.4	993.2	974.1	19.06	52.104	
4,800.0	4,797.2	4,805.9	4,804.6	10.6	8.9	110.59	-957.2	115.2	994.1	974.6	19.52	50.925	
4,900.0	4,897.0	4,907.6	4,906.4	10.9	9.1	110.82	-955.6	116.9	994.6	974.7	19.96	49.832	
5,000.0	4,996.8	5,011.4	5,010.0	11.1	9.3	111.06	-953.5	118.4	994.8	974.4	20.40	48.775	
5,100.0	5,096.7	5,110.0	5,108.7	11.3	9.5	111.32	-951.5	119.4	995.0	974.1	20.81	47.804	
5,200.0	5,196.5	5,204.0	5,202.6	11.6	9.6	111.61	-949.9	119.5	995.5	974.3	21.20	46.956	
5,300.0	5,296.3	5,300.0	5,298.6	11.8	9.8	111.93	-948.8	119.2	996.5	974.9	21.58	46.186	
5,400.0	5,396.1	5,389.6	5,388.2	12.1	9.9	112.23	-948.3	119.0	998.2	976.3	21.93	45.520	
6,100.0	6,092.3	6,094.9	6,093.5	13.6	11.0	14.43	-945.4	115.6	978.7	955.0	23.73	41.237	
6,200.0	6,186.4	6,177.2	6,175.7	13.8	11.1	11.57	-945.0	113.0	945.5	922.4	23.10	40.930	
6,300.0	6,275.3	6,261.0	6,259.4	14.0	11.2	10.83	-945.4	108.5	901.2	879.1	22.16	40.665	
6,400.0	6,357.6	6,340.2	6,338.4	14.3	11.2	11.32	-945.8	103.1	846.2	825.2	20.98	40.337	
6,500.0	6,431.8	6,411.6	6,409.7	14.6	11.3	12.65	-946.7	99.6	781.2	761.6	19.64	39.784	
6,600.0	6,496.7	6,473.2	6,471.3	15.1	11.4	15.04	-947.8	97.5	707.6	689.3	18.32	38.629	
6,700.0	6,551.1	6,527.8	6,525.8	15.7	11.5	19.28	-949.1	95.9	626.6	609.1	17.42	35.967	
6,800.0	6,594.1	6,572.9	6,571.0	16.6	11.6	26.94	-950.2	94.7	539.2	521.4	17.84	30.227	
6,900.0	6,625.0	6,606.1	6,604.1	17.6	11.6	40.86	-951.0	93.8	447.4	426.2	21.13	21.167	
7,000.0	6,643.2	6,626.7	6,624.7	18.7	11.7	63.41	-951.5	93.3	353.1	325.8	27.29	12.936	
7,100.0	6,648.6	6,634.5	6,632.5	20.0	11.7	85.39	-951.7	93.0	259.2	227.9	31.27	8.288	
7,200.0	6,648.4	6,636.7	6,634.7	21.4	11.7	86.67	-951.8	93.0	171.4	138.7	32.70	5.240	
7,300.0	6,648.1	6,639.0	6,636.9	22.8	11.7	87.94	-951.8	92.9	107.4	73.2	34.20	3.141	
7,339.1	6,648.0	6,639.8	6,637.8	23.4	11.7	88.44	-951.8	92.9	100.0	65.2	34.81	2.874 CC, ES, SF	
7,400.0	6,647.9	6,641.2	6,639.2	24.3	11.7	89.22	-951.9	92.9	117.1	81.3	35.75	3.275	
7,500.0	6,647.7	6,643.4	6,641.4	25.9	11.7	90.49	-951.9	92.8	189.4	152.0	37.34	5.072	
7,600.0	6,647.4	6,645.6	6,643.6	27.5	11.7	91.77	-952.0	92.7	279.3	240.4	38.97	7.168	
7,700.0	6,647.2	6,647.9	6,645.9	29.1	11.7	93.04	-952.0	92.7	374.4	333.8	40.60	9.220	
7,800.0	6,647.0	6,650.1	6,648.1	30.8	11.7	94.31	-952.1	92.6	471.5	429.2	42.25	11.158	
7,900.0	6,646.8	6,652.3	6,650.3	32.5	11.7	95.57	-952.1	92.6	569.6	525.7	43.91	12.972	
8,000.0	6,646.5	6,654.6	6,652.5	34.2	11.7	96.82	-952.2	92.5	668.2	622.7	45.56	14.667	
8,100.0	6,646.3	6,656.8	6,654.8	36.0	11.7	98.06	-952.2	92.4	767.2	720.0	47.20	16.253	
8,200.0	6,646.1	6,659.0	6,657.0	37.7	11.7	99.30	-952.3	92.4	866.4	817.6	48.84	17.741	
8,300.0	6,645.9	6,661.3	6,659.2	39.5	11.7	100.53	-952.4	92.3	965.8	915.4	50.46	19.142	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Hoffman B 33-19 (Exist) - Wellbore #1 - Wellbor										Offset Site Error:		0.0 ft	
Survey Program: 100-NS-GYRO-MS										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)		
11,600.0	6,638.4	6,686.1	6,684.4	101.1	12.8	91.09	-6,154.2	-2.5	961.6	847.7	113.89	8.443	
11,700.0	6,638.1	6,685.9	6,684.3	103.0	12.8	91.04	-6,154.2	-2.5	863.9	748.1	115.79	7.461	
11,800.0	6,637.9	6,685.8	6,684.1	104.9	12.8	91.00	-6,154.2	-2.5	766.9	649.2	117.69	6.516	
11,900.0	6,637.7	6,685.6	6,684.0	106.8	12.8	90.95	-6,154.2	-2.5	670.6	551.0	119.60	5.607	
12,000.0	6,637.5	6,685.5	6,683.8	108.7	12.8	90.90	-6,154.2	-2.5	575.7	454.2	121.50	4.738	
12,100.0	6,637.2	6,685.3	6,683.7	110.6	12.8	90.86	-6,154.2	-2.5	482.9	359.4	123.41	3.913	
12,200.0	6,637.0	6,685.2	6,683.5	112.6	12.8	90.81	-6,154.2	-2.5	393.5	268.2	125.31	3.140	
12,300.0	6,636.8	6,685.0	6,683.4	114.5	12.8	90.77	-6,154.2	-2.5	310.7	183.5	127.22	2.442	
12,400.0	6,636.6	6,684.9	6,683.2	116.4	12.8	90.72	-6,154.2	-2.5	241.3	112.2	129.12	1.869	
12,500.0	6,636.3	6,684.7	6,683.0	118.3	12.8	90.67	-6,154.2	-2.5	199.8	68.7	131.03	1.525	
12,541.5	6,636.2	6,684.6	6,683.0	119.1	12.8	90.66	-6,154.2	-2.5	195.4	63.6	131.82	1.482	Level 3, CC, ES, SF
12,600.0	6,636.1	6,684.5	6,682.9	120.2	12.8	90.63	-6,154.2	-2.5	204.0	71.0	132.94	1.534	
12,700.0	6,635.9	6,684.4	6,682.7	122.1	12.8	90.58	-6,154.2	-2.5	251.6	116.7	134.85	1.866	
12,800.0	6,635.6	6,684.2	6,682.6	124.0	12.8	90.54	-6,154.2	-2.5	324.0	187.3	136.75	2.369	
12,900.0	6,635.4	6,684.1	6,682.4	125.9	12.8	90.49	-6,154.2	-2.5	408.3	269.6	138.66	2.944	
13,000.0	6,635.2	6,683.9	6,682.2	127.8	12.8	90.44	-6,154.2	-2.5	498.4	357.8	140.57	3.545	
13,100.0	6,635.0	6,683.7	6,682.1	129.7	12.8	90.40	-6,154.2	-2.5	591.6	449.2	142.48	4.153	
13,200.0	6,634.7	6,683.6	6,681.9	131.6	12.8	90.35	-6,154.2	-2.5	686.8	542.4	144.39	4.757	
13,300.0	6,634.5	6,683.4	6,681.8	133.5	12.8	90.30	-6,154.2	-2.5	783.2	636.9	146.30	5.354	
13,400.0	6,634.3	6,683.3	6,681.6	135.4	12.8	90.26	-6,154.2	-2.5	880.4	732.2	148.21	5.940	
13,500.0	6,634.1	6,683.1	6,681.5	137.3	12.8	90.21	-6,154.2	-2.5	978.2	828.0	150.12	6.516	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

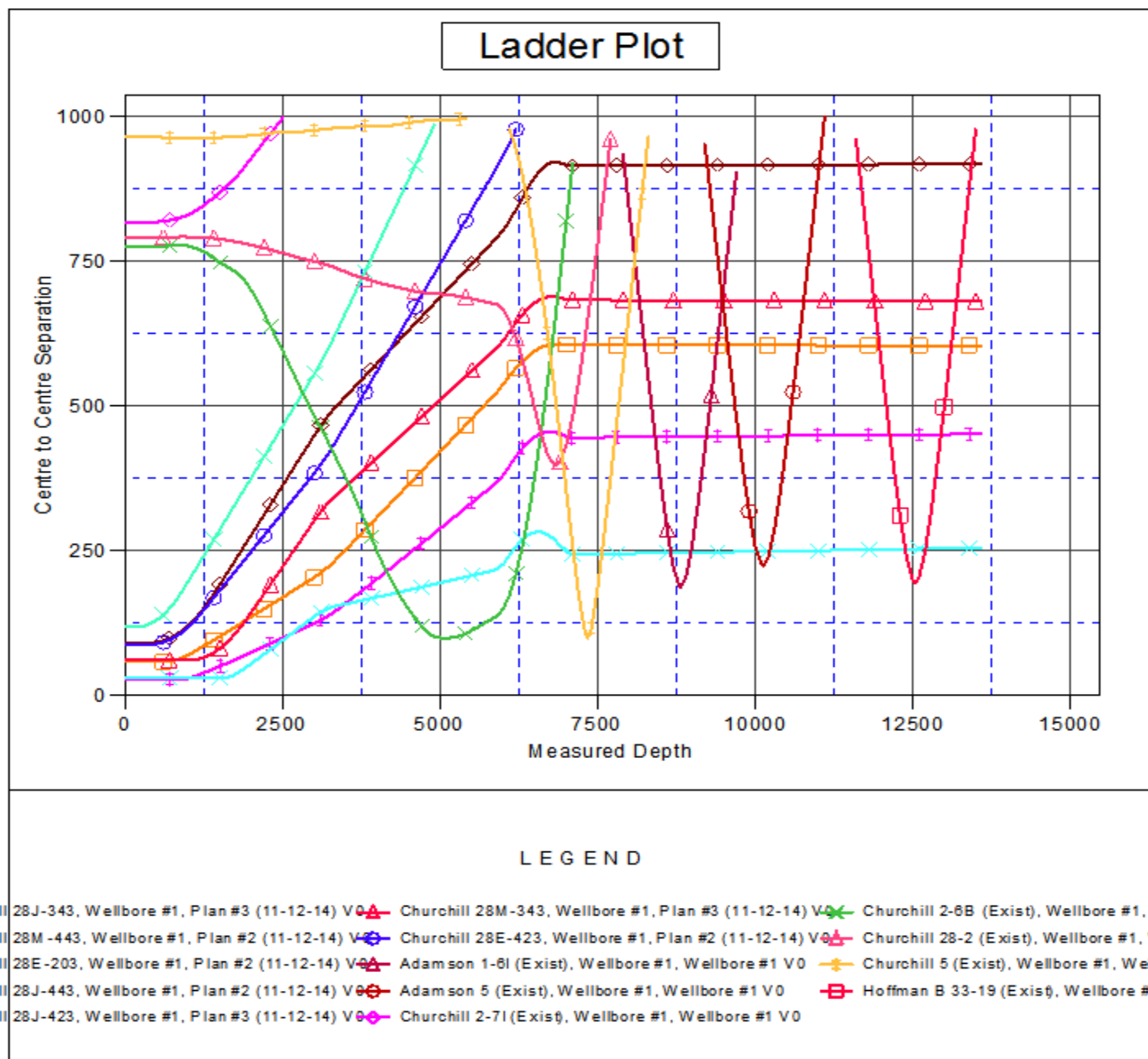
Reference Depths are relative to WELL @ 4646.5ft (Ensign Rig# 136 RCoordinates are relative to: Churchill 28J-203

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4646.5ft (Ensign Rig# 136 RKB - 12.5')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Churchill 28J-203	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 #3 (11-12-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4646.5ft (Ensign Rig# 136 RCoordinates are relative to: Churchill 28J-203

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

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