

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Churchill 28J-203**

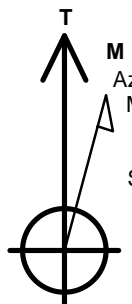
Surface Location: Churchill 28J-HZ Pad Sec.28-T5N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4634.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1381538.33	3262023.29	40.376910	-104.559500	

RKB - 15' WELL @ 4649.0ft (RKB - 15')

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, 1395'FWL, SEC.33	6634.0	-7195.1	105.9	Point

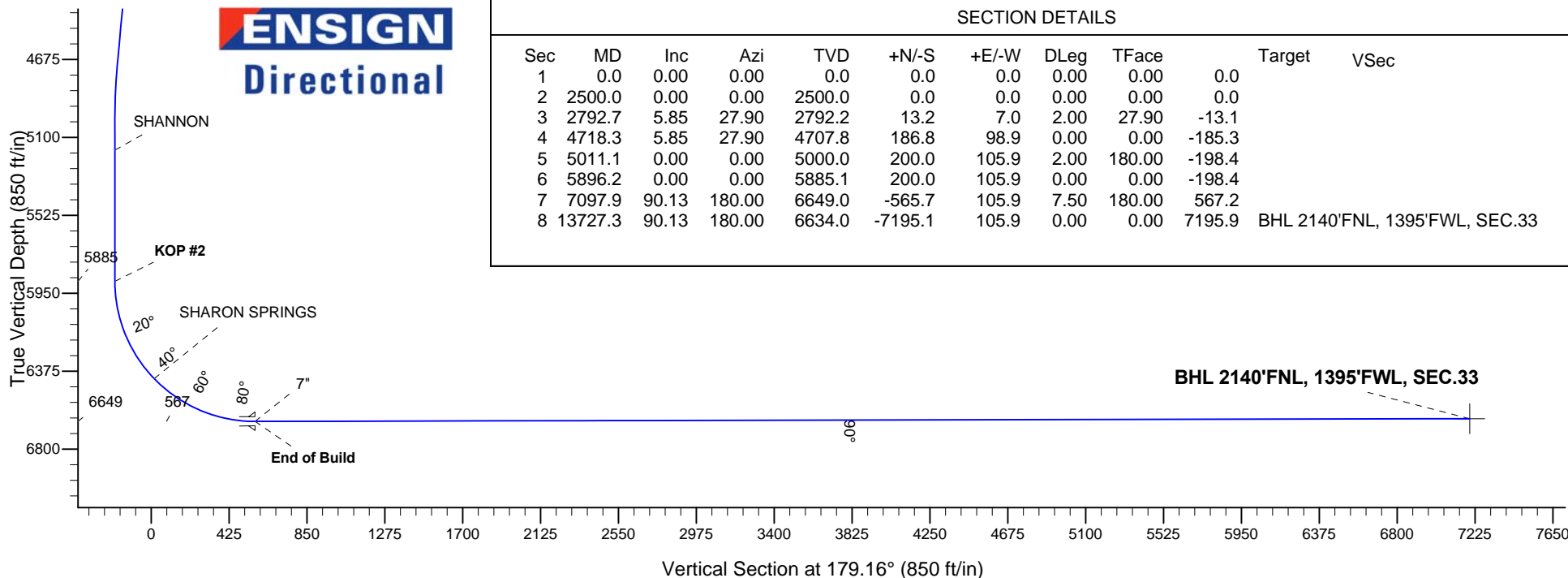
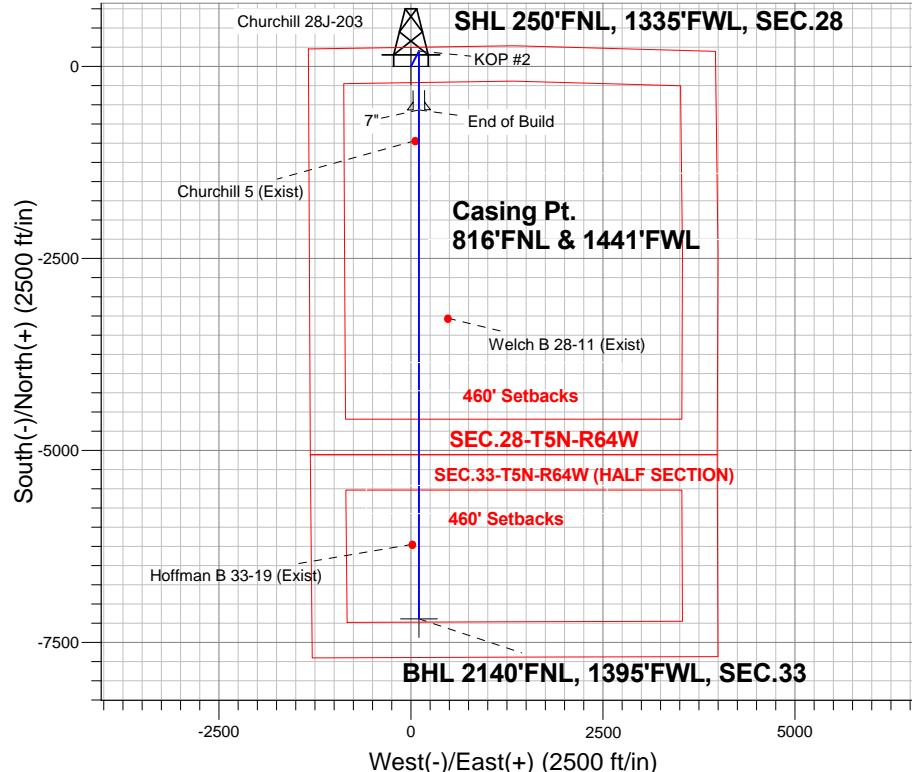


Azimuths to True North
 Magnetic North: 8.41°
 Magnetic Field
 Strength: 52874.4snT
 Dip Angle: 66.98°
 Date: 12/30/2013
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
2500.0	2500.0	KOP #1
5885.1	5896.2	KOP #2
6649.0	7097.9	End of Build

Churchill 28J-HZ Pad Sec.28-T5N-R64W
 Churchill 28J-203
 Plan #1 (12-30-13)
 13:39, January 08 2014





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 #1 (12-30-13)

Standard Planning Report

08 January, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)		

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	12/30/2013	8.41	66.98	52,874

Design	Plan #1 (12-30-13)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	179.16

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,792.7	5.85	27.90	2,792.2	13.2	7.0	2.00	2.00	0.00	27.90	
4,718.3	5.85	27.90	4,707.8	186.8	98.9	0.00	0.00	0.00	0.00	
5,011.1	0.00	0.00	5,000.0	200.0	105.9	2.00	-2.00	0.00	180.00	
5,896.2	0.00	0.00	5,885.1	200.0	105.9	0.00	0.00	0.00	0.00	
7,097.9	90.13	180.00	6,649.0	-565.7	105.9	7.50	7.50	0.00	180.00	
13,727.3	90.13	180.00	6,634.0	-7,195.1	105.9	0.00	0.00	0.00	0.00	BHL 2140°FNL, 139

Database:	Landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 250'FNL, 1335'FWL, SEC.28									
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
KOP #1									
2,600.0	2.00	27.90	2,600.0	1.5	0.8	-1.5	2.00	2.00	0.00
2,700.0	4.00	27.90	2,699.8	6.2	3.3	-6.1	2.00	2.00	0.00
2,792.7	5.85	27.90	2,792.2	13.2	7.0	-13.1	2.00	2.00	0.00
2,800.0	5.85	27.90	2,799.5	13.9	7.3	-13.8	0.00	0.00	0.00
2,900.0	5.85	27.90	2,898.9	22.9	12.1	-22.7	0.00	0.00	0.00
3,000.0	5.85	27.90	2,998.4	31.9	16.9	-31.6	0.00	0.00	0.00
3,100.0	5.85	27.90	3,097.9	40.9	21.7	-40.6	0.00	0.00	0.00
3,200.0	5.85	27.90	3,197.4	49.9	26.4	-49.5	0.00	0.00	0.00
3,300.0	5.85	27.90	3,296.8	58.9	31.2	-58.5	0.00	0.00	0.00
3,400.0	5.85	27.90	3,396.3	67.9	36.0	-67.4	0.00	0.00	0.00
3,500.0	5.85	27.90	3,495.8	77.0	40.8	-76.4	0.00	0.00	0.00
3,554.5	5.85	27.90	3,550.0	81.9	43.4	-81.2	0.00	0.00	0.00
PARKMAN									
3,600.0	5.85	27.90	3,595.3	86.0	45.5	-85.3	0.00	0.00	0.00
3,700.0	5.85	27.90	3,694.8	95.0	50.3	-94.2	0.00	0.00	0.00
3,800.0	5.85	27.90	3,794.2	104.0	55.1	-103.2	0.00	0.00	0.00
3,900.0	5.85	27.90	3,893.7	113.0	59.8	-112.1	0.00	0.00	0.00
4,000.0	5.85	27.90	3,993.2	122.0	64.6	-121.1	0.00	0.00	0.00
4,100.0	5.85	27.90	4,092.7	131.1	69.4	-130.0	0.00	0.00	0.00
4,172.7	5.85	27.90	4,165.0	137.6	72.9	-136.5	0.00	0.00	0.00
SUSSEX									
4,200.0	5.85	27.90	4,192.2	140.1	74.2	-139.0	0.00	0.00	0.00
4,300.0	5.85	27.90	4,291.6	149.1	78.9	-147.9	0.00	0.00	0.00
4,400.0	5.85	27.90	4,391.1	158.1	83.7	-156.8	0.00	0.00	0.00

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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 #1 (12-30-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	5.85	27.90	4,490.6	167.1	88.5	-165.8	0.00	0.00	0.00
4,600.0	5.85	27.90	4,590.1	176.1	93.3	-174.7	0.00	0.00	0.00
4,700.0	5.85	27.90	4,689.5	185.1	98.0	-183.7	0.00	0.00	0.00
4,718.3	5.85	27.90	4,707.8	186.8	98.9	-185.3	0.00	0.00	0.00
4,800.0	4.22	27.90	4,789.1	193.1	102.3	-191.6	2.00	-2.00	0.00
4,900.0	2.22	27.90	4,889.0	198.1	104.9	-196.5	2.00	-2.00	0.00
5,000.0	0.22	27.90	4,988.9	200.0	105.9	-198.4	2.00	-2.00	0.00
5,011.1	0.00	0.00	5,000.0	200.0	105.9	-198.4	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,088.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,181.1	0.00	0.00	5,170.0	200.0	105.9	-198.4	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,188.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,300.0	0.00	0.00	5,288.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,400.0	0.00	0.00	5,388.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,500.0	0.00	0.00	5,488.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,600.0	0.00	0.00	5,588.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,700.0	0.00	0.00	5,688.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,788.9	200.0	105.9	-198.4	0.00	0.00	0.00
5,896.2	0.00	0.00	5,885.1	200.0	105.9	-198.4	0.00	0.00	0.00
KOP #2									
5,900.0	0.29	180.00	5,888.9	200.0	105.9	-198.4	7.58	7.58	0.00
6,000.0	7.79	180.00	5,988.6	193.0	105.9	-191.4	7.50	7.50	0.00
6,100.0	15.29	180.00	6,086.5	173.0	105.9	-171.4	7.50	7.50	0.00
6,200.0	22.79	180.00	6,181.0	140.4	105.9	-138.8	7.50	7.50	0.00
6,300.0	30.29	180.00	6,270.4	95.7	105.9	-94.2	7.50	7.50	0.00
6,400.0	37.79	180.00	6,353.2	39.8	105.9	-38.2	7.50	7.50	0.00
6,483.1	44.02	180.00	6,416.0	-14.6	105.9	16.2	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	45.29	180.00	6,428.0	-26.5	105.9	28.0	7.50	7.50	0.00
6,600.0	52.79	180.00	6,493.5	-101.9	105.9	103.5	7.50	7.50	0.00
6,700.0	60.29	180.00	6,548.6	-185.3	105.9	186.8	7.50	7.50	0.00
6,800.0	67.79	180.00	6,592.4	-275.1	105.9	276.7	7.50	7.50	0.00
6,900.0	75.29	180.00	6,624.0	-369.9	105.9	371.4	7.50	7.50	0.00
7,000.0	82.79	180.00	6,643.0	-468.0	105.9	469.5	7.50	7.50	0.00
7,097.9	90.13	180.00	6,649.0	-565.7	105.9	567.2	7.50	7.50	0.00
End of Build - 7"									
7,100.0	90.13	180.00	6,649.0	-567.8	105.9	569.3	0.00	0.00	0.00
7,200.0	90.13	180.00	6,648.8	-667.8	105.9	669.3	0.00	0.00	0.00
7,300.0	90.13	180.00	6,648.6	-767.8	105.9	769.3	0.00	0.00	0.00
7,400.0	90.13	180.00	6,648.4	-867.8	105.9	869.2	0.00	0.00	0.00
7,500.0	90.13	180.00	6,648.1	-967.8	105.9	969.2	0.00	0.00	0.00
7,600.0	90.13	180.00	6,647.9	-1,067.8	105.9	1,069.2	0.00	0.00	0.00
7,700.0	90.13	180.00	6,647.7	-1,167.8	105.9	1,169.2	0.00	0.00	0.00
7,800.0	90.13	180.00	6,647.4	-1,267.8	105.9	1,269.2	0.00	0.00	0.00
7,900.0	90.13	180.00	6,647.2	-1,367.8	105.9	1,369.2	0.00	0.00	0.00
8,000.0	90.13	180.00	6,647.0	-1,467.8	105.9	1,469.2	0.00	0.00	0.00
8,100.0	90.13	180.00	6,646.8	-1,567.8	105.9	1,569.2	0.00	0.00	0.00
8,200.0	90.13	180.00	6,646.5	-1,667.8	105.9	1,669.2	0.00	0.00	0.00
8,300.0	90.13	180.00	6,646.3	-1,767.8	105.9	1,769.1	0.00	0.00	0.00
8,400.0	90.13	180.00	6,646.1	-1,867.8	105.9	1,869.1	0.00	0.00	0.00
8,500.0	90.13	180.00	6,645.9	-1,967.8	105.9	1,969.1	0.00	0.00	0.00
8,600.0	90.13	180.00	6,645.6	-2,067.8	105.9	2,069.1	0.00	0.00	0.00

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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 #1 (12-30-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	90.13	180.00	6,645.4	-2,167.8	105.9	2,169.1	0.00	0.00	0.00
8,800.0	90.13	180.00	6,645.2	-2,267.8	105.9	2,269.1	0.00	0.00	0.00
8,900.0	90.13	180.00	6,645.0	-2,367.8	105.9	2,369.1	0.00	0.00	0.00
9,000.0	90.13	180.00	6,644.7	-2,467.8	105.9	2,469.1	0.00	0.00	0.00
9,100.0	90.13	180.00	6,644.5	-2,567.8	105.9	2,569.1	0.00	0.00	0.00
9,200.0	90.13	180.00	6,644.3	-2,667.8	105.9	2,669.0	0.00	0.00	0.00
9,300.0	90.13	180.00	6,644.0	-2,767.8	105.9	2,769.0	0.00	0.00	0.00
9,400.0	90.13	180.00	6,643.8	-2,867.8	105.9	2,869.0	0.00	0.00	0.00
9,500.0	90.13	180.00	6,643.6	-2,967.8	105.9	2,969.0	0.00	0.00	0.00
9,600.0	90.13	180.00	6,643.4	-3,067.8	105.9	3,069.0	0.00	0.00	0.00
9,700.0	90.13	180.00	6,643.1	-3,167.8	105.9	3,169.0	0.00	0.00	0.00
9,800.0	90.13	180.00	6,642.9	-3,267.8	105.9	3,269.0	0.00	0.00	0.00
9,900.0	90.13	180.00	6,642.7	-3,367.8	105.9	3,369.0	0.00	0.00	0.00
10,000.0	90.13	180.00	6,642.5	-3,467.8	105.9	3,469.0	0.00	0.00	0.00
10,100.0	90.13	180.00	6,642.2	-3,567.8	105.9	3,568.9	0.00	0.00	0.00
10,200.0	90.13	180.00	6,642.0	-3,667.8	105.9	3,668.9	0.00	0.00	0.00
10,300.0	90.13	180.00	6,641.8	-3,767.8	105.9	3,768.9	0.00	0.00	0.00
10,400.0	90.13	180.00	6,641.5	-3,867.8	105.9	3,868.9	0.00	0.00	0.00
10,500.0	90.13	180.00	6,641.3	-3,967.8	105.9	3,968.9	0.00	0.00	0.00
10,600.0	90.13	180.00	6,641.1	-4,067.8	105.9	4,068.9	0.00	0.00	0.00
10,700.0	90.13	180.00	6,640.9	-4,167.8	105.9	4,168.9	0.00	0.00	0.00
10,800.0	90.13	180.00	6,640.6	-4,267.8	105.9	4,268.9	0.00	0.00	0.00
10,900.0	90.13	180.00	6,640.4	-4,367.8	105.9	4,368.9	0.00	0.00	0.00
11,000.0	90.13	180.00	6,640.2	-4,467.8	105.9	4,468.8	0.00	0.00	0.00
11,100.0	90.13	180.00	6,640.0	-4,567.8	105.9	4,568.8	0.00	0.00	0.00
11,200.0	90.13	180.00	6,639.7	-4,667.8	105.9	4,668.8	0.00	0.00	0.00
11,300.0	90.13	180.00	6,639.5	-4,767.8	105.9	4,768.8	0.00	0.00	0.00
11,400.0	90.13	180.00	6,639.3	-4,867.8	105.9	4,868.8	0.00	0.00	0.00
11,500.0	90.13	180.00	6,639.1	-4,967.8	105.9	4,968.8	0.00	0.00	0.00
11,600.0	90.13	180.00	6,638.8	-5,067.8	105.9	5,068.8	0.00	0.00	0.00
11,700.0	90.13	180.00	6,638.6	-5,167.8	105.9	5,168.8	0.00	0.00	0.00
11,800.0	90.13	180.00	6,638.4	-5,267.8	105.9	5,268.8	0.00	0.00	0.00
11,900.0	90.13	180.00	6,638.1	-5,367.8	105.9	5,368.7	0.00	0.00	0.00
12,000.0	90.13	180.00	6,637.9	-5,467.8	105.9	5,468.7	0.00	0.00	0.00
12,100.0	90.13	180.00	6,637.7	-5,567.8	105.9	5,568.7	0.00	0.00	0.00
12,200.0	90.13	180.00	6,637.5	-5,667.8	105.9	5,668.7	0.00	0.00	0.00
12,300.0	90.13	180.00	6,637.2	-5,767.8	105.9	5,768.7	0.00	0.00	0.00
12,400.0	90.13	180.00	6,637.0	-5,867.8	105.9	5,868.7	0.00	0.00	0.00
12,500.0	90.13	180.00	6,636.8	-5,967.8	105.9	5,968.7	0.00	0.00	0.00
12,600.0	90.13	180.00	6,636.6	-6,067.8	105.9	6,068.7	0.00	0.00	0.00
12,700.0	90.13	180.00	6,636.3	-6,167.8	105.9	6,168.7	0.00	0.00	0.00
12,800.0	90.13	180.00	6,636.1	-6,267.8	105.9	6,268.6	0.00	0.00	0.00
12,900.0	90.13	180.00	6,635.9	-6,367.8	105.9	6,368.6	0.00	0.00	0.00
13,000.0	90.13	180.00	6,635.7	-6,467.8	105.9	6,468.6	0.00	0.00	0.00
13,100.0	90.13	180.00	6,635.4	-6,567.8	105.9	6,568.6	0.00	0.00	0.00
13,200.0	90.13	180.00	6,635.2	-6,667.8	105.9	6,668.6	0.00	0.00	0.00
13,300.0	90.13	180.00	6,635.0	-6,767.8	105.9	6,768.6	0.00	0.00	0.00
13,400.0	90.13	180.00	6,634.7	-6,867.8	105.9	6,868.6	0.00	0.00	0.00
13,500.0	90.13	180.00	6,634.5	-6,967.8	105.9	6,968.6	0.00	0.00	0.00
13,600.0	90.13	180.00	6,634.3	-7,067.8	105.9	7,068.6	0.00	0.00	0.00
13,700.0	90.13	180.00	6,634.1	-7,167.8	105.9	7,168.5	0.00	0.00	0.00
13,727.3	90.13	180.00	6,634.0	-7,195.1	105.9	7,195.9	0.00	0.00	0.00
BHL 2140'FNL, 1395'FWL, SEC.33									

Database:	Landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Project:	SEC.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,097.9	6,649.0	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,554.5	3,550.0	PARKMAN			
4,172.7	4,165.0	SUSSEX			
5,181.1	5,170.0	SHANNON			
6,483.1	6,416.0	SHARON SPRINGS			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP #1
5,896.2	5,885.1	200.0	105.9	KOP #2
7,097.9	6,649.0	-565.7	105.9	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W

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

Churchill 28J-203

Wellbore #1

Plan #1 (12-30-13)

Anticollision Report

08 January, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (12-30-13)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	1/6/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,727.3	Plan #1 (12-30-13) (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-423 - Wellbore #1 - Plan #1 (12-30-13)	366.3	367.3	89.2	87.8	62.652	CC
Churchill 28E-423 - Wellbore #1 - Plan #1 (12-30-13)	400.0	400.0	89.2	87.7	56.718	ES
Churchill 28E-423 - Wellbore #1 - Plan #1 (12-30-13)	13,727.3	13,936.2	1,003.9	728.4	3.645	SF
Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)	566.3	567.3	58.5	56.2	25.184	CC
Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)	600.0	601.0	58.5	56.0	23.645	ES
Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)	13,727.3	13,825.7	664.0	386.2	2.390	SF
Churchill 28J-423 - Wellbore #1 - Plan #1 (12-30-13)	1,500.0	1,499.0	30.6	24.1	4.704	CC, ES
Churchill 28J-423 - Wellbore #1 - Plan #1 (12-30-13)	13,727.3	13,900.2	371.1	119.6	1.476	Level 3, SF
Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)	800.0	800.0	27.9	24.5	8.264	CC, ES
Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)	13,727.3	13,884.4	373.1	120.3	1.476	Level 3, SF
Churchill 28M-343 - Wellbore #1 - Plan #1 (12-30-13)	1,000.0	999.0	61.3	57.0	14.361	CC, ES
Churchill 28M-343 - Wellbore #1 - Plan #1 (12-30-13)	13,727.3	13,860.3	660.2	382.2	2.375	SF
Churchill 28M-443 - Wellbore #1 - Plan #1 (12-30-13)	400.0	398.0	91.9	90.4	58.605	CC, ES
Churchill 28M-443 - Wellbore #1 - Plan #1 (12-30-13)	13,727.3	13,973.0	1,004.4	729.4	3.652	SF
Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W						
Churchill 5 (Exist) - Wellbore #1 - Wellbore #1	7,497.6	6,638.1	47.4	-109.3	0.302	Level 1, CC, ES, SF
Hoffman B 33-19 (Exist) - Wellbore #1 - Wellbore #1	12,754.7	6,678.2	86.4	-168.1	0.339	Level 1, CC, ES, SF
Welch B 28-11 (Exist) - Wellbore #1 - Wellbore #1	9,811.0	6,634.9	376.2	178.3	1.901	CC, ES, SF

Offset Design	Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #1 (12-30-13)											Offset Site Error:	0.0ft
Survey Program:	0-MWD											Offset Well Error:	0.0ft
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	Warning
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	400.0	400.0	0.8	0.8	-92.34	-3.6	-89.2	89.2	87.7	1.57	56.718	ES
500.0	500.0	498.0	498.0	1.0	1.0	-92.04	-3.2	-90.8	90.9	88.9	2.01	45.221	
600.0	600.0	594.9	594.7	1.2	1.2	-91.21	-2.0	-95.6	95.8	93.4	2.45	39.183	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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
700.0	700.0	691.3	690.8	1.5	1.4	-90.02		0.0	-103.5	104.0	101.1	2.89	35.971	
800.0	800.0	787.0	785.8	1.7	1.7	-88.63		2.7	-114.5	115.5	112.2	3.35	34.475	
900.0	900.0	882.8	880.5	1.9	2.0	-87.22		6.2	-128.4	130.2	126.4	3.83	34.035	
1,000.0	1,000.0	981.5	977.9	2.1	2.3	-85.98		10.1	-143.8	146.0	141.7	4.31	33.863	
1,100.0	1,100.0	1,080.2	1,075.3	2.4	2.7	-84.98		14.0	-159.2	161.8	157.0	4.80	33.713	
1,200.0	1,200.0	1,178.9	1,172.8	2.6	3.0	-84.16		17.9	-174.5	177.7	172.4	5.29	33.577	
1,300.0	1,300.0	1,277.6	1,270.2	2.8	3.4	-83.47		21.7	-189.9	193.6	187.8	5.79	33.457	
1,400.0	1,400.0	1,376.3	1,367.6	3.0	3.7	-82.89		25.6	-205.2	209.5	203.2	6.28	33.351	
1,500.0	1,500.0	1,475.0	1,465.0	3.3	4.1	-82.39		29.5	-220.6	225.5	218.7	6.78	33.259	
1,600.0	1,600.0	1,573.7	1,562.5	3.5	4.4	-81.96		33.3	-236.0	241.4	234.1	7.28	33.178	
1,700.0	1,700.0	1,672.4	1,659.9	3.7	4.8	-81.58		37.2	-251.3	257.4	249.6	7.77	33.106	
1,800.0	1,800.0	1,771.1	1,757.3	3.9	5.2	-81.25		41.1	-266.7	273.4	265.1	8.27	33.043	
1,900.0	1,900.0	1,869.8	1,854.7	4.2	5.5	-80.95		44.9	-282.1	289.3	280.6	8.77	32.986	
2,000.0	2,000.0	1,968.5	1,952.2	4.4	5.9	-80.68		48.8	-297.4	305.3	296.1	9.27	32.936	
2,100.0	2,100.0	2,067.2	2,049.6	4.6	6.3	-80.44		52.7	-312.8	321.3	311.6	9.77	32.890	
2,200.0	2,200.0	2,165.9	2,147.0	4.8	6.7	-80.22		56.5	-328.1	337.3	327.1	10.27	32.849	
2,300.0	2,300.0	2,264.6	2,244.4	5.1	7.0	-80.03		60.4	-343.5	353.3	342.6	10.77	32.811	
2,400.0	2,400.0	2,363.3	2,341.9	5.3	7.4	-79.85		64.3	-358.9	369.3	358.1	11.27	32.777	
2,500.0	2,500.0	2,462.0	2,439.3	5.5	7.8	-79.68		68.1	-374.2	385.4	373.6	11.77	32.746	
2,600.0	2,600.0	2,560.6	2,536.6	5.7	8.1	-107.35		72.0	-389.6	401.9	390.2	11.66	34.478	
2,700.0	2,699.8	2,659.0	2,633.7	6.0	8.5	-107.55		75.9	-404.9	419.5	407.4	12.11	34.637	
2,800.0	2,799.5	2,757.0	2,730.4	6.2	8.9	-108.15		79.7	-420.1	438.2	425.6	12.56	34.871	
2,900.0	2,898.9	2,854.8	2,827.0	6.4	9.3	-109.19		83.5	-435.4	457.4	444.4	13.03	35.094	
3,000.0	2,998.4	2,952.6	2,923.5	6.6	9.6	-110.15		87.4	-450.6	476.8	463.3	13.51	35.294	
3,100.0	3,097.9	3,050.4	3,020.0	6.9	10.0	-111.03		91.2	-465.8	496.4	482.4	13.99	35.474	
3,200.0	3,197.4	3,148.2	3,116.6	7.1	10.4	-111.84		95.0	-481.0	516.0	501.5	14.48	35.637	
3,300.0	3,296.8	3,246.0	3,213.1	7.4	10.7	-112.60		98.9	-496.3	535.7	520.7	14.97	35.785	
3,400.0	3,396.3	3,343.8	3,309.6	7.6	11.1	-113.30		102.7	-511.5	555.5	540.1	15.47	35.920	
3,500.0	3,495.8	3,441.6	3,406.1	7.9	11.5	-113.95		106.5	-526.7	575.4	559.4	15.96	36.043	
3,600.0	3,595.3	3,539.4	3,502.7	8.1	11.8	-114.56		110.4	-541.9	595.4	578.9	16.47	36.155	
3,700.0	3,694.8	3,637.2	3,599.2	8.4	12.2	-115.13		114.2	-557.1	615.4	598.4	16.97	36.259	
3,800.0	3,794.2	3,735.0	3,695.7	8.6	12.6	-115.67		118.0	-572.4	635.4	617.9	17.48	36.354	
3,900.0	3,893.7	3,832.8	3,792.3	8.9	13.0	-116.17		121.9	-587.6	655.5	637.6	17.99	36.442	
4,000.0	3,993.2	3,930.6	3,888.8	9.1	13.3	-116.64		125.7	-602.8	675.7	657.2	18.50	36.524	
4,100.0	4,092.7	4,028.4	3,985.3	9.4	13.7	-117.08		129.5	-618.0	695.9	676.9	19.01	36.600	
4,200.0	4,192.2	4,126.2	4,081.9	9.7	14.1	-117.50		133.4	-633.2	716.1	696.6	19.53	36.670	
4,300.0	4,291.6	4,224.0	4,178.4	9.9	14.4	-117.90		137.2	-648.5	736.4	716.4	20.05	36.736	
4,400.0	4,391.1	4,321.8	4,274.9	10.2	14.8	-118.28		141.0	-663.7	756.7	736.2	20.56	36.797	
4,500.0	4,490.6	4,419.6	4,371.5	10.5	15.2	-118.63		144.9	-678.9	777.1	756.0	21.08	36.855	
4,600.0	4,590.1	4,517.4	4,468.0	10.7	15.6	-118.97		148.7	-694.1	797.4	775.8	21.61	36.909	
4,700.0	4,689.5	4,615.2	4,564.5	11.0	15.9	-119.29		152.5	-709.4	817.8	795.7	22.13	36.960	
4,800.0	4,789.1	4,713.1	4,661.2	11.3	16.3	-119.81		156.4	-724.6	837.7	815.0	22.66	36.963	
4,900.0	4,889.0	4,811.5	4,758.3	11.5	16.7	-120.15		160.2	-739.9	858.8	832.7	23.15	36.968	
5,000.0	4,988.9	4,910.1	4,855.6	11.6	17.0	-120.26		164.1	-755.2	872.3	848.7	23.61	36.944	
5,100.0	5,088.9	5,008.8	4,953.0	11.8	17.4	-92.09		167.9	-770.6	887.7	863.7	24.04	36.920	
5,200.0	5,188.9	5,107.5	5,050.4	12.0	17.8	-91.81		171.8	-786.0	903.2	878.7	24.50	36.865	
5,300.0	5,288.9	5,206.2	5,147.8	12.2	18.2	-91.54		175.7	-801.3	918.6	893.7	24.95	36.812	
5,400.0	5,388.9	5,304.9	5,245.3	12.4	18.5	-91.27		179.5	-816.7	934.1	908.7	25.41	36.762	
5,500.0	5,488.9	5,403.6	5,342.7	12.7	18.9	-91.01		183.4	-832.1	949.6	923.7	25.87	36.713	
5,600.0	5,588.9	5,502.3	5,440.1	12.9	19.3	-90.76		187.3	-847.4	965.1	938.8	26.32	36.667	
5,700.0	5,688.9	5,649.7	5,586.2	13.1	19.7	-90.46		192.1	-866.7	978.2	951.3	26.84	36.446	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #1 (12-30-13)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,800.0	5,788.9	5,798.9	5,734.9	13.3	20.0	-90.28	195.2	-878.8	986.3	959.0	27.32	36.099		
5,900.0	5,888.9	5,949.0	5,884.9	13.5	20.2	89.79	196.3	-883.4	989.3	961.5	27.79	35.606		
6,000.0	5,988.6	6,053.8	5,989.6	13.6	20.4	90.20	196.4	-883.4	989.4	961.3	28.09	35.220		
6,100.0	6,086.5	6,153.0	6,088.8	13.7	20.5	91.25	195.0	-883.4	989.6	961.3	28.30	34.969		
6,200.0	6,181.0	6,255.2	6,190.2	13.8	20.6	92.41	182.2	-883.4	990.3	961.8	28.42	34.838		
6,300.0	6,270.4	6,360.5	6,291.7	13.9	20.7	93.55	155.0	-883.4	991.3	962.8	28.52	34.759		
6,400.0	6,353.2	6,468.9	6,391.4	13.9	20.7	94.65	112.6	-883.4	992.7	964.1	28.65	34.648		
6,500.0	6,428.0	6,580.6	6,486.8	14.0	20.7	95.67	54.7	-883.4	994.4	965.5	28.90	34.406		
6,600.0	6,493.5	6,695.5	6,575.1	14.3	20.8	96.60	-18.7	-883.4	996.1	966.8	29.36	33.928		
6,700.0	6,548.6	6,813.5	6,653.2	14.8	20.9	97.42	-107.0	-883.4	997.8	967.7	30.12	33.128		
6,800.0	6,592.4	6,934.3	6,718.2	15.5	21.2	98.09	-208.7	-883.4	999.4	968.1	31.26	31.973		
6,900.0	6,624.0	7,057.5	6,767.0	16.3	21.6	98.60	-321.6	-883.4	1,000.7	967.9	32.81	30.503		
7,000.0	6,643.0	7,182.3	6,797.4	17.3	22.2	98.92	-442.6	-883.4	1,001.5	966.7	34.77	28.807		
7,100.0	6,649.0	7,291.5	6,810.1	18.4	23.0	99.19	-551.0	-883.4	1,002.4	965.5	36.88	27.176		
7,200.0	6,648.8	7,406.3	6,817.4	19.7	24.1	99.61	-665.5	-883.4	1,003.5	964.0	39.40	25.467		
7,300.0	6,648.6	7,508.9	6,817.3	21.1	25.2	99.62	-768.1	-883.4	1,003.5	961.4	42.05	23.864		
7,400.0	6,648.4	7,608.9	6,817.2	22.5	26.3	99.63	-868.1	-883.4	1,003.5	958.6	44.83	22.383		
7,500.0	6,648.1	7,708.9	6,817.0	24.0	27.6	99.63	-968.1	-883.4	1,003.5	955.7	47.75	21.013		
7,600.0	6,647.9	7,808.9	6,816.8	25.6	29.0	99.63	-1,068.1	-883.4	1,003.5	952.7	50.79	19.757		
7,700.0	6,647.7	7,908.9	6,816.6	27.2	30.4	99.63	-1,168.1	-883.4	1,003.5	949.6	53.93	18.609		
7,800.0	6,647.4	8,008.9	6,816.4	28.8	31.8	99.63	-1,268.1	-883.4	1,003.5	946.4	57.14	17.562		
7,900.0	6,647.2	8,108.9	6,816.2	30.5	33.4	99.64	-1,368.1	-883.4	1,003.5	943.1	60.42	16.608		
8,000.0	6,647.0	8,208.9	6,816.0	32.2	34.9	99.64	-1,468.1	-883.4	1,003.5	939.8	63.76	15.739		
8,100.0	6,646.8	8,308.9	6,815.8	33.9	36.5	99.64	-1,568.1	-883.4	1,003.5	936.4	67.15	14.945		
8,200.0	6,646.5	8,408.9	6,815.6	35.7	38.2	99.64	-1,668.1	-883.4	1,003.5	933.0	70.58	14.219		
8,300.0	6,646.3	8,508.9	6,815.4	37.4	39.8	99.64	-1,768.1	-883.4	1,003.5	929.5	74.04	13.554		
8,400.0	6,646.1	8,608.9	6,815.2	39.2	41.5	99.65	-1,868.1	-883.4	1,003.5	926.0	77.54	12.943		
8,500.0	6,645.9	8,708.9	6,815.0	41.0	43.2	99.65	-1,968.1	-883.4	1,003.5	922.5	81.06	12.380		
8,600.0	6,645.6	8,808.9	6,814.9	42.8	44.9	99.65	-2,068.1	-883.4	1,003.6	918.9	84.61	11.862		
8,700.0	6,645.4	8,908.9	6,814.7	44.6	46.6	99.65	-2,168.1	-883.4	1,003.6	915.4	88.17	11.382		
8,800.0	6,645.2	9,008.9	6,814.5	46.5	48.4	99.65	-2,268.1	-883.4	1,003.6	911.8	91.76	10.937		
8,900.0	6,645.0	9,108.9	6,814.3	48.3	50.1	99.66	-2,368.1	-883.4	1,003.6	908.2	95.36	10.524		
9,000.0	6,644.7	9,208.9	6,814.1	50.1	51.9	99.66	-2,468.1	-883.4	1,003.6	904.6	98.97	10.140		
9,100.0	6,644.5	9,308.9	6,813.9	52.0	53.7	99.66	-2,568.1	-883.4	1,003.6	901.0	102.60	9.781		
9,200.0	6,644.3	9,408.9	6,813.7	53.8	55.5	99.66	-2,668.1	-883.4	1,003.6	897.3	106.24	9.446		
9,300.0	6,644.0	9,508.9	6,813.5	55.7	57.3	99.66	-2,768.1	-883.4	1,003.6	893.7	109.89	9.132		
9,400.0	6,643.8	9,608.9	6,813.3	57.5	59.1	99.67	-2,868.1	-883.4	1,003.6	890.0	113.56	8.838		
9,500.0	6,643.6	9,708.9	6,813.1	59.4	60.9	99.67	-2,968.1	-883.4	1,003.6	886.4	117.22	8.561		
9,600.0	6,643.4	9,808.9	6,812.9	61.2	62.7	99.67	-3,068.1	-883.4	1,003.6	882.7	120.90	8.301		
9,700.0	6,643.1	9,908.9	6,812.7	63.1	64.5	99.67	-3,168.1	-883.4	1,003.6	879.0	124.58	8.056		
9,800.0	6,642.9	10,008.9	6,812.5	65.0	66.4	99.67	-3,268.1	-883.4	1,003.6	875.3	128.27	7.824		
9,900.0	6,642.7	10,108.9	6,812.4	66.9	68.2	99.68	-3,368.1	-883.4	1,003.6	871.7	131.97	7.605		
10,000.0	6,642.5	10,208.9	6,812.2	68.7	70.0	99.68	-3,468.1	-883.4	1,003.6	868.0	135.67	7.398		
10,100.0	6,642.2	10,308.9	6,812.0	70.6	71.9	99.68	-3,568.1	-883.4	1,003.6	864.3	139.38	7.201		
10,200.0	6,642.0	10,408.9	6,811.8	72.5	73.7	99.68	-3,668.1	-883.4	1,003.6	860.6	143.09	7.014		
10,300.0	6,641.8	10,508.9	6,811.6	74.4	75.6	99.68	-3,768.1	-883.4	1,003.7	856.8	146.80	6.837		
10,400.0	6,641.5	10,608.9	6,811.4	76.3	77.4	99.68	-3,868.1	-883.4	1,003.7	853.1	150.52	6.668		
10,500.0	6,641.3	10,708.9	6,811.2	78.2	79.3	99.69	-3,968.1	-883.4	1,003.7	849.4	154.25	6.507		
10,600.0	6,641.1	10,808.9	6,811.0	80.0	81.2	99.69	-4,068.1	-883.4	1,003.7	845.7	157.97	6.353		
10,700.0	6,640.9	10,908.9	6,810.8	81.9	83.0	99.69	-4,168.1	-883.4	1,003.7	842.0	161.70	6.207		
10,800.0	6,640.6	11,008.9	6,810.6	83.8	84.9	99.69	-4,268.1	-883.4	1,003.7	838.2	165.43	6.067		

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #1 (12-30-13)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,900.0	6,640.4	11,108.9	6,810.4	85.7	86.8	99.69	-4,368.1	-883.4	1,003.7	834.5	169.17	5.933		
11,000.0	6,640.2	11,208.9	6,810.2	87.6	88.6	99.70	-4,468.1	-883.4	1,003.7	830.8	172.91	5.805		
11,100.0	6,640.0	11,308.9	6,810.1	89.5	90.5	99.70	-4,568.1	-883.4	1,003.7	827.1	176.65	5.682		
11,200.0	6,639.7	11,408.9	6,809.9	91.4	92.4	99.70	-4,668.1	-883.4	1,003.7	823.3	180.39	5.564		
11,300.0	6,639.5	11,508.9	6,809.7	93.3	94.3	99.70	-4,768.1	-883.4	1,003.7	819.6	184.13	5.451		
11,400.0	6,639.3	11,608.9	6,809.5	95.2	96.1	99.70	-4,868.1	-883.4	1,003.7	815.8	187.88	5.342		
11,500.0	6,639.1	11,708.9	6,809.3	97.1	98.0	99.71	-4,968.1	-883.4	1,003.7	812.1	191.63	5.238		
11,600.0	6,638.8	11,808.9	6,809.1	99.0	99.9	99.71	-5,068.1	-883.4	1,003.7	808.3	195.38	5.137		
11,700.0	6,638.6	11,908.9	6,808.9	100.9	101.8	99.71	-5,168.1	-883.4	1,003.7	804.6	199.13	5.041		
11,800.0	6,638.4	12,008.9	6,808.7	102.8	103.7	99.71	-5,268.1	-883.4	1,003.7	800.9	202.88	4.947		
11,900.0	6,638.1	12,108.9	6,808.5	104.7	105.6	99.71	-5,368.1	-883.4	1,003.7	797.1	206.64	4.857		
12,000.0	6,637.9	12,208.9	6,808.3	106.6	107.4	99.72	-5,468.1	-883.4	1,003.8	793.4	210.39	4.771		
12,100.0	6,637.7	12,308.9	6,808.1	108.5	109.3	99.72	-5,568.1	-883.4	1,003.8	789.6	214.15	4.687		
12,200.0	6,637.5	12,408.9	6,807.9	110.4	111.2	99.72	-5,668.1	-883.4	1,003.8	785.9	217.91	4.606		
12,300.0	6,637.2	12,508.9	6,807.7	112.3	113.1	99.72	-5,768.1	-883.4	1,003.8	782.1	221.67	4.528		
12,400.0	6,637.0	12,608.9	6,807.6	114.2	115.0	99.72	-5,868.1	-883.4	1,003.8	778.3	225.43	4.453		
12,500.0	6,636.8	12,708.9	6,807.4	116.1	116.9	99.73	-5,968.1	-883.4	1,003.8	774.6	229.19	4.380		
12,600.0	6,636.6	12,808.9	6,807.2	118.0	118.8	99.73	-6,068.1	-883.4	1,003.8	770.8	232.96	4.309		
12,700.0	6,636.3	12,908.9	6,807.0	119.9	120.7	99.73	-6,168.1	-883.4	1,003.8	767.1	236.72	4.240		
12,800.0	6,636.1	13,008.9	6,806.8	121.9	122.6	99.73	-6,268.1	-883.4	1,003.8	763.3	240.48	4.174		
12,900.0	6,635.9	13,108.9	6,806.6	123.8	124.5	99.73	-6,368.1	-883.4	1,003.8	759.6	244.25	4.110		
13,000.0	6,635.7	13,208.9	6,806.4	125.7	126.4	99.74	-6,468.1	-883.4	1,003.8	755.8	248.02	4.047		
13,100.0	6,635.4	13,308.9	6,806.2	127.6	128.3	99.74	-6,568.1	-883.4	1,003.8	752.0	251.78	3.987		
13,200.0	6,635.2	13,408.9	6,806.0	129.5	130.2	99.74	-6,668.1	-883.4	1,003.8	748.3	255.55	3.928		
13,300.0	6,635.0	13,508.9	6,805.8	131.4	132.1	99.74	-6,768.1	-883.4	1,003.8	744.5	259.32	3.871		
13,400.0	6,634.7	13,608.9	6,805.6	133.3	134.0	99.74	-6,868.1	-883.4	1,003.8	740.7	263.09	3.816		
13,500.0	6,634.5	13,708.9	6,805.4	135.2	135.9	99.75	-6,968.1	-883.4	1,003.8	737.0	266.86	3.762		
13,600.0	6,634.3	13,808.9	6,805.3	137.1	137.8	99.75	-7,068.1	-883.4	1,003.8	733.2	270.63	3.709		
13,700.0	6,634.1	13,908.9	6,805.1	139.0	139.7	99.75	-7,168.1	-883.4	1,003.9	729.4	274.40	3.658		
13,727.3	6,634.0	13,936.2	6,805.0	139.6	140.2	99.75	-7,195.4	-883.4	1,003.9	728.4	275.43	3.645 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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	1.0	1.0	0.0	0.0	-90.00	-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	-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	-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	-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	-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	-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	-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	-90.00	0.0	-58.5	58.5	56.0	2.47	23.645 ES	
700.0	700.0	700.0	700.0	1.5	1.5	-89.38	-89.38	0.7	-60.1	60.1	57.2	2.91	20.637	
800.0	800.0	797.0	796.8	1.7	1.7	-87.76	-87.76	2.5	-64.8	65.0	61.6	3.35	19.404	
900.0	900.0	894.4	893.8	1.9	1.9	-85.55	-85.55	5.6	-72.5	73.1	69.3	3.79	19.270	
1,000.0	1,000.0	993.3	992.2	2.1	2.1	-83.32	-83.32	9.7	-82.5	83.5	79.2	4.25	19.644	
1,100.0	1,100.0	1,092.7	1,091.1	2.4	2.4	-81.57	-81.57	13.7	-92.5	94.0	89.3	4.71	19.964	
1,200.0	1,200.0	1,192.1	1,189.9	2.6	2.7	-80.18	-80.18	17.7	-102.5	104.6	99.5	5.17	20.229	
1,300.0	1,300.0	1,291.6	1,288.7	2.8	3.0	-79.04	-79.04	21.8	-112.5	115.3	109.7	5.64	20.451	
1,400.0	1,400.0	1,391.0	1,387.5	3.0	3.2	-78.10	-78.10	25.8	-122.6	126.0	119.9	6.10	20.640	
1,500.0	1,500.0	1,490.4	1,486.3	3.3	3.5	-77.30	-77.30	29.9	-132.6	136.7	130.1	6.57	20.802	
1,600.0	1,600.0	1,589.8	1,585.1	3.5	3.8	-76.62	-76.62	33.9	-142.6	147.5	140.4	7.04	20.944	
1,700.0	1,700.0	1,689.2	1,684.0	3.7	4.1	-76.04	-76.04	38.0	-152.7	158.2	150.7	7.51	21.069	
1,800.0	1,800.0	1,788.6	1,782.8	3.9	4.4	-75.52	-75.52	42.0	-162.7	169.0	161.0	7.98	21.179	
1,900.0	1,900.0	1,888.0	1,881.6	4.2	4.7	-75.07	-75.07	46.0	-172.7	179.8	171.4	8.45	21.277	
2,000.0	2,000.0	1,987.4	1,980.4	4.4	5.0	-74.67	-74.67	50.1	-182.8	190.6	181.7	8.92	21.365	
2,100.0	2,100.0	2,086.8	2,079.2	4.6	5.3	-74.32	-74.32	54.1	-192.8	201.4	192.0	9.39	21.445	
2,200.0	2,200.0	2,186.2	2,178.0	4.8	5.6	-73.99	-73.99	58.2	-202.8	212.2	202.4	9.86	21.517	
2,300.0	2,300.0	2,285.6	2,276.8	5.1	5.9	-73.70	-73.70	62.2	-212.8	223.1	212.7	10.34	21.582	
2,400.0	2,400.0	2,385.0	2,375.7	5.3	6.2	-73.44	-73.44	66.3	-222.9	233.9	223.1	10.81	21.643	
2,500.0	2,500.0	2,484.4	2,474.5	5.5	6.5	-73.20	-73.20	70.3	-232.9	244.7	233.5	11.28	21.698	
2,600.0	2,600.0	2,583.8	2,573.3	5.7	6.8	-101.05	-101.05	74.4	-242.9	255.9	244.4	11.49	22.276	
2,700.0	2,699.8	2,683.0	2,671.9	6.0	7.1	-101.71	-101.71	78.4	-252.9	267.8	255.8	11.94	22.432	
2,800.0	2,799.5	2,781.9	2,770.2	6.2	7.4	-102.98	-102.98	82.4	-262.9	280.5	268.1	12.39	22.640	
2,900.0	2,898.9	2,880.7	2,868.4	6.4	7.7	-104.64	-104.64	86.4	-272.9	293.7	280.9	12.85	22.857	
3,000.0	2,998.4	2,979.5	2,966.6	6.6	7.9	-106.16	-106.16	90.4	-282.9	307.2	293.9	13.32	23.065	
3,100.0	3,097.9	3,078.2	3,064.8	6.9	8.2	-107.55	-107.55	94.5	-292.8	320.8	307.0	13.79	23.264	
3,200.0	3,197.4	3,177.0	3,163.0	7.1	8.5	-108.83	-108.83	98.5	-302.8	334.7	320.4	14.27	23.452	
3,300.0	3,296.8	3,275.8	3,261.1	7.4	8.8	-110.00	-110.00	102.5	-312.8	348.7	333.9	14.75	23.632	
3,400.0	3,396.3	3,374.6	3,359.3	7.6	9.1	-111.09	-111.09	106.5	-322.7	362.8	347.5	15.24	23.803	
3,500.0	3,495.8	3,473.3	3,457.5	7.9	9.4	-112.09	-112.09	110.5	-332.7	377.0	361.3	15.73	23.965	
3,600.0	3,595.3	3,572.1	3,555.7	8.1	9.7	-113.02	-113.02	114.6	-342.7	391.3	375.1	16.22	24.120	
3,700.0	3,694.8	3,670.9	3,653.9	8.4	10.0	-113.89	-113.89	118.6	-352.6	405.8	389.1	16.72	24.267	
3,800.0	3,794.2	3,769.7	3,752.1	8.6	10.3	-114.69	-114.69	122.6	-362.6	420.3	403.1	17.22	24.408	
3,900.0	3,893.7	3,868.4	3,850.3	8.9	10.6	-115.44	-115.44	126.6	-372.6	434.9	417.2	17.72	24.542	
4,000.0	3,993.2	3,967.2	3,948.5	9.1	10.9	-116.14	-116.14	130.6	-382.5	449.6	431.3	18.22	24.670	
4,100.0	4,092.7	4,066.0	4,046.6	9.4	11.2	-116.80	-116.80	134.6	-392.5	464.3	445.6	18.73	24.793	
4,200.0	4,192.2	4,164.8	4,144.8	9.7	11.5	-117.42	-117.42	138.7	-402.5	479.1	459.8	19.23	24.910	
4,300.0	4,291.6	4,263.5	4,243.0	9.9	11.8	-118.00	-118.00	142.7	-412.4	493.9	474.2	19.74	25.022	
4,400.0	4,391.1	4,362.3	4,341.2	10.2	12.1	-118.55	-118.55	146.7	-422.4	508.8	488.5	20.25	25.129	
4,500.0	4,490.6	4,461.1	4,439.4	10.5	12.4	-119.06	-119.06	150.7	-432.4	523.7	503.0	20.76	25.232	
4,600.0	4,590.1	4,559.8	4,537.6	10.7	12.7	-119.55	-119.55	154.7	-442.3	538.7	517.4	21.27	25.331	
4,700.0	4,689.5	4,658.6	4,635.8	11.0	13.0	-120.01	-120.01	158.8	-452.3	553.7	531.9	21.78	25.425	
4,800.0	4,789.1	4,757.5	4,734.1	11.3	13.3	-120.55	-120.55	162.8	-462.3	568.1	545.8	22.29	25.492	
4,900.0	4,889.0	4,856.7	4,832.7	11.5	13.6	-120.80	-120.80	166.8	-472.3	580.8	558.1	22.75	25.536	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,000.0	4,988.9	4,956.0	4,931.4	11.6	13.9	-120.72	170.9	-482.3	591.8	568.6	23.18	25.531	
5,100.0	5,088.9	5,055.5	5,030.2	11.8	14.2	-92.40	174.9	-492.3	601.7	578.1	23.60	25.493	
5,200.0	5,188.9	5,154.9	5,129.1	12.0	14.5	-91.98	178.9	-502.4	611.7	587.6	24.05	25.434	
5,300.0	5,288.9	5,254.3	5,227.9	12.2	14.8	-91.58	183.0	-512.4	621.6	597.1	24.50	25.377	
5,400.0	5,388.9	5,353.7	5,326.7	12.4	15.1	-91.18	187.0	-522.4	631.6	606.7	24.94	25.324	
5,500.0	5,488.9	5,453.1	5,425.5	12.7	15.4	-90.80	191.1	-532.4	641.7	616.3	25.39	25.274	
5,600.0	5,588.9	5,562.1	5,534.0	12.9	15.7	-90.41	195.4	-543.1	651.4	625.6	25.84	25.206	
5,700.0	5,688.9	5,688.7	5,660.2	13.1	16.0	-90.11	198.7	-551.4	658.0	631.7	26.29	25.026	
5,800.0	5,788.9	5,815.8	5,787.2	13.3	16.2	-90.00	200.0	-554.6	660.5	633.8	26.72	24.716	
5,900.0	5,888.9	5,918.5	5,889.9	13.5	16.4	90.00	200.0	-554.6	660.5	633.4	27.13	24.349	
5,901.7	5,890.6	5,920.2	5,891.6	13.5	16.4	90.00	200.0	-554.6	660.5	633.4	27.13	24,344	
6,000.0	5,988.6	6,018.4	5,989.8	13.6	16.5	90.58	199.6	-554.6	660.5	633.1	27.44	24.075	
6,100.0	6,086.5	6,119.4	6,090.3	13.7	16.6	91.47	189.8	-554.6	660.7	633.1	27.63	23.911	
6,200.0	6,181.0	6,221.9	6,190.0	13.8	16.7	92.34	166.3	-554.6	661.1	633.3	27.76	23.817	
6,300.0	6,270.4	6,325.8	6,286.9	13.9	16.8	93.18	129.2	-554.6	661.5	633.7	27.86	23.745	
6,400.0	6,353.2	6,431.1	6,379.1	13.9	16.8	93.97	78.5	-554.6	662.1	634.1	28.02	23.630	
6,500.0	6,428.0	6,537.7	6,464.5	14.0	16.9	94.69	14.7	-554.6	662.7	634.4	28.32	23.399	
6,600.0	6,493.5	6,645.7	6,541.0	14.3	17.0	95.33	-61.3	-554.6	663.4	634.5	28.86	22.985	
6,700.0	6,548.6	6,754.8	6,606.7	14.8	17.2	95.87	-148.3	-554.6	664.0	634.3	29.72	22.342	
6,800.0	6,592.4	6,864.8	6,659.7	15.5	17.6	96.30	-244.6	-554.6	664.5	633.6	30.95	21.469	
6,900.0	6,624.0	6,975.6	6,698.6	16.3	18.2	96.62	-348.3	-554.6	664.9	632.4	32.57	20.413	
7,000.0	6,643.0	7,086.9	6,722.1	17.3	19.1	96.81	-457.0	-554.6	665.2	630.6	34.56	19.246	
7,100.0	6,649.0	7,198.4	6,729.6	18.4	20.2	96.87	-568.1	-554.6	665.3	628.4	36.86	18.048	
7,200.0	6,648.8	7,298.4	6,729.2	19.7	21.4	96.86	-668.1	-554.6	665.3	625.9	39.33	16.914	
7,300.0	6,648.6	7,398.4	6,728.8	21.1	22.6	96.84	-768.1	-554.6	665.2	623.2	42.00	15.837	
7,400.0	6,648.4	7,498.4	6,728.4	22.5	24.0	96.83	-868.1	-554.6	665.2	620.4	44.84	14.834	
7,500.0	6,648.1	7,598.4	6,728.0	24.0	25.4	96.81	-968.1	-554.6	665.2	617.4	47.82	13.911	
7,600.0	6,647.9	7,698.4	6,727.6	25.6	26.9	96.80	-1,068.1	-554.6	665.2	614.3	50.91	13.066	
7,700.0	6,647.7	7,798.4	6,727.2	27.2	28.4	96.78	-1,168.1	-554.6	665.2	611.1	54.09	12.297	
7,800.0	6,647.4	7,898.4	6,726.8	28.8	30.0	96.77	-1,268.1	-554.6	665.1	607.8	57.35	11.598	
7,900.0	6,647.2	7,998.4	6,726.4	30.5	31.6	96.75	-1,368.1	-554.6	665.1	604.4	60.68	10.962	
8,000.0	6,647.0	8,098.4	6,726.0	32.2	33.3	96.74	-1,468.1	-554.6	665.1	601.0	64.06	10.383	
8,100.0	6,646.8	8,198.4	6,725.6	33.9	35.0	96.72	-1,568.1	-554.6	665.1	597.6	67.49	9.855	
8,200.0	6,646.5	8,298.4	6,725.2	35.7	36.7	96.71	-1,668.1	-554.6	665.0	594.1	70.95	9.373	
8,300.0	6,646.3	8,398.4	6,724.8	37.4	38.4	96.69	-1,768.1	-554.6	665.0	590.6	74.46	8.932	
8,400.0	6,646.1	8,498.4	6,724.4	39.2	40.1	96.68	-1,868.1	-554.6	665.0	587.0	77.99	8.527	
8,500.0	6,645.9	8,598.4	6,724.0	41.0	41.9	96.66	-1,968.1	-554.6	665.0	583.4	81.55	8.154	
8,600.0	6,645.6	8,698.4	6,723.6	42.8	43.6	96.65	-2,068.1	-554.6	665.0	579.8	85.14	7.811	
8,700.0	6,645.4	8,798.4	6,723.2	44.6	45.4	96.63	-2,168.1	-554.6	664.9	576.2	88.74	7.493	
8,800.0	6,645.2	8,898.4	6,722.8	46.5	47.2	96.62	-2,268.1	-554.6	664.9	572.6	92.36	7.199	
8,900.0	6,645.0	8,998.4	6,722.4	48.3	49.0	96.60	-2,368.1	-554.6	664.9	568.9	96.00	6.926	
9,000.0	6,644.7	9,098.4	6,722.0	50.1	50.8	96.59	-2,468.1	-554.6	664.9	565.2	99.65	6.672	
9,100.0	6,644.5	9,198.4	6,721.6	52.0	52.6	96.57	-2,568.1	-554.6	664.9	561.6	103.31	6.436	
9,200.0	6,644.3	9,298.4	6,721.2	53.8	54.5	96.56	-2,668.1	-554.6	664.8	557.9	106.98	6.214	
9,300.0	6,644.0	9,398.4	6,720.8	55.7	56.3	96.54	-2,768.1	-554.6	664.8	554.2	110.67	6.007	
9,400.0	6,643.8	9,498.4	6,720.4	57.5	58.1	96.53	-2,868.1	-554.6	664.8	550.4	114.36	5.813	
9,500.0	6,643.6	9,598.4	6,720.0	59.4	60.0	96.51	-2,968.1	-554.6	664.8	546.7	118.07	5.631	
9,600.0	6,643.4	9,698.4	6,719.6	61.2	61.8	96.50	-3,068.1	-554.6	664.8	543.0	121.78	5.459	
9,700.0	6,643.1	9,798.4	6,719.2	63.1	63.7	96.48	-3,168.1	-554.6	664.7	539.3	125.50	5.297	
9,800.0	6,642.9	9,898.4	6,718.8	65.0	65.5	96.47	-3,268.1	-554.6	664.7	535.5	129.22	5.144	
9,900.0	6,642.7	9,998.4	6,718.4	66.9	67.4	96.45	-3,368.1	-554.6	664.7	531.8	132.95	5.000	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)													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	
10,000.0	6,642.5	10,098.4	6,718.0	68.7	69.3	96.44	-3,468.1	-554.6	664.7	528.0	136.68	4.863		
10,100.0	6,642.2	10,198.4	6,717.6	70.6	71.1	96.42	-3,568.1	-554.6	664.7	524.2	140.42	4.733		
10,200.0	6,642.0	10,298.4	6,717.2	72.5	73.0	96.41	-3,668.1	-554.6	664.6	520.5	144.17	4.610		
10,300.0	6,641.8	10,398.4	6,716.8	74.4	74.9	96.39	-3,768.1	-554.6	664.6	516.7	147.92	4.493		
10,400.0	6,641.5	10,498.4	6,716.4	76.3	76.7	96.38	-3,868.1	-554.6	664.6	512.9	151.67	4.382		
10,500.0	6,641.3	10,598.4	6,716.0	78.2	78.6	96.36	-3,968.1	-554.6	664.6	509.2	155.43	4.276		
10,600.0	6,641.1	10,698.4	6,715.6	80.0	80.5	96.35	-4,068.1	-554.6	664.6	505.4	159.19	4.175		
10,700.0	6,640.9	10,798.4	6,715.2	81.9	82.4	96.33	-4,168.1	-554.6	664.6	501.6	162.95	4.078		
10,800.0	6,640.6	10,898.4	6,714.8	83.8	84.3	96.32	-4,268.1	-554.6	664.5	497.8	166.72	3.986		
10,900.0	6,640.4	10,998.4	6,714.4	85.7	86.1	96.30	-4,368.1	-554.6	664.5	494.0	170.49	3.898		
11,000.0	6,640.2	11,098.4	6,714.0	87.6	88.0	96.29	-4,468.1	-554.6	664.5	490.2	174.26	3.813		
11,100.0	6,640.0	11,198.4	6,713.6	89.5	89.9	96.27	-4,568.1	-554.6	664.5	486.4	178.04	3.732		
11,200.0	6,639.7	11,298.4	6,713.2	91.4	91.8	96.26	-4,668.1	-554.6	664.5	482.6	181.81	3.655		
11,300.0	6,639.5	11,398.4	6,712.8	93.3	93.7	96.24	-4,768.1	-554.6	664.4	478.8	185.59	3.580		
11,400.0	6,639.3	11,498.4	6,712.4	95.2	95.6	96.23	-4,868.1	-554.6	664.4	475.0	189.37	3.509		
11,500.0	6,639.1	11,598.4	6,712.0	97.1	97.5	96.21	-4,968.1	-554.6	664.4	471.2	193.16	3.440		
11,600.0	6,638.8	11,698.4	6,711.6	99.0	99.4	96.20	-5,068.1	-554.6	664.4	467.4	196.94	3.373		
11,700.0	6,638.6	11,798.4	6,711.2	100.9	101.3	96.18	-5,168.1	-554.6	664.4	463.6	200.73	3.310		
11,800.0	6,638.4	11,898.4	6,710.8	102.8	103.1	96.17	-5,268.1	-554.6	664.3	459.8	204.52	3.248		
11,900.0	6,638.1	11,998.4	6,710.3	104.7	105.0	96.15	-5,368.1	-554.6	664.3	456.0	208.31	3.189		
12,000.0	6,637.9	12,098.4	6,709.9	106.6	106.9	96.14	-5,468.1	-554.6	664.3	452.2	212.10	3.132		
12,100.0	6,637.7	12,198.4	6,709.5	108.5	108.8	96.12	-5,568.1	-554.6	664.3	448.4	215.89	3.077		
12,200.0	6,637.5	12,298.4	6,709.1	110.4	110.7	96.11	-5,668.1	-554.6	664.3	444.6	219.69	3.024		
12,300.0	6,637.2	12,398.4	6,708.7	112.3	112.6	96.09	-5,768.1	-554.6	664.3	440.8	223.48	2.972		
12,400.0	6,637.0	12,498.4	6,708.3	114.2	114.5	96.08	-5,868.1	-554.6	664.2	437.0	227.28	2.923		
12,500.0	6,636.8	12,598.4	6,707.9	116.1	116.4	96.06	-5,968.0	-554.6	664.2	433.1	231.08	2.874		
12,600.0	6,636.6	12,698.4	6,707.5	118.0	118.3	96.05	-6,068.0	-554.6	664.2	429.3	234.88	2.828		
12,700.0	6,636.3	12,798.4	6,707.1	119.9	120.2	96.03	-6,168.0	-554.6	664.2	425.5	238.68	2.783		
12,800.0	6,636.1	12,898.4	6,706.7	121.9	122.1	96.02	-6,268.0	-554.6	664.2	421.7	242.48	2.739		
12,900.0	6,635.9	12,998.4	6,706.3	123.8	124.0	96.00	-6,368.0	-554.6	664.1	417.9	246.29	2.697		
13,000.0	6,635.7	13,098.4	6,705.9	125.7	125.9	95.99	-6,468.0	-554.6	664.1	414.0	250.09	2.656		
13,100.0	6,635.4	13,198.4	6,705.5	127.6	127.8	95.97	-6,568.0	-554.6	664.1	410.2	253.89	2.616		
13,200.0	6,635.2	13,298.4	6,705.1	129.5	129.8	95.96	-6,668.0	-554.6	664.1	406.4	257.70	2.577		
13,300.0	6,635.0	13,398.4	6,704.7	131.4	131.7	95.94	-6,768.0	-554.6	664.1	402.6	261.51	2.539		
13,400.0	6,634.7	13,498.4	6,704.3	133.3	133.6	95.93	-6,868.0	-554.6	664.0	398.7	265.31	2.503		
13,500.0	6,634.5	13,598.4	6,703.9	135.2	135.5	95.91	-6,968.0	-554.6	664.0	394.9	269.12	2.467		
13,600.0	6,634.3	13,698.4	6,703.5	137.1	137.4	95.90	-7,068.0	-554.6	664.0	391.1	272.93	2.433		
13,700.0	6,634.1	13,798.4	6,703.1	139.0	139.3	95.88	-7,168.0	-554.6	664.0	387.3	276.74	2.399		
13,727.3	6,634.0	13,825.7	6,703.0	139.6	139.8	95.88	-7,195.4	-554.6	664.0	386.2	277.78	2.390 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #1 (12-30-13)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	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	1,598.0	1,598.0	3.5	3.5	88.69	0.7	32.2	32.2	25.2	6.96	4.626			
1,700.0	1,700.0	1,696.8	1,696.6	3.7	3.7	85.34	3.0	36.7	36.9	29.5	7.39	4.993			
1,800.0	1,800.0	1,795.1	1,794.6	3.9	3.9	81.36	6.7	44.3	45.0	37.2	7.83	5.746			
1,900.0	1,900.0	1,894.1	1,892.9	4.2	4.1	77.89	11.6	54.1	55.7	47.4	8.27	6.733			
2,000.0	2,000.0	1,993.4	1,991.6	4.4	4.4	75.51	16.6	64.2	66.7	58.0	8.72	7.650			
2,100.0	2,100.0	2,092.8	2,090.4	4.6	4.6	73.81	21.5	74.2	77.7	68.6	9.16	8.484			
2,200.0	2,200.0	2,192.1	2,189.1	4.8	4.9	72.53	26.5	84.2	88.9	79.2	9.61	9.243			
2,300.0	2,300.0	2,291.5	2,287.8	5.1	5.1	71.54	31.5	94.3	100.0	89.9	10.07	9.934			
2,400.0	2,400.0	2,390.9	2,386.6	5.3	5.4	70.74	36.4	104.3	111.2	100.7	10.52	10.566			
2,500.0	2,500.0	2,490.2	2,485.3	5.5	5.7	70.09	41.4	114.3	122.4	111.4	10.98	11.145			
2,600.0	2,600.0	2,589.7	2,584.2	5.7	5.9	42.02	46.4	124.4	132.3	120.9	11.37	11.635			
2,700.0	2,699.8	2,689.4	2,683.2	6.0	6.2	42.85	51.4	134.4	139.6	127.8	11.81	11.824			
2,800.0	2,799.5	2,789.2	2,782.4	6.2	6.5	44.58	56.4	144.5	144.5	132.3	12.25	11.799			
2,900.0	2,898.9	2,889.0	2,881.5	6.4	6.8	46.67	61.3	154.6	148.5	135.8	12.70	11.689			
3,000.0	2,998.4	2,988.8	2,980.7	6.6	7.1	48.65	66.3	164.7	152.7	139.5	13.17	11.596			
3,100.0	3,097.9	3,088.5	3,079.8	6.9	7.4	50.52	71.3	174.8	157.0	143.4	13.63	11.516			
3,200.0	3,197.4	3,188.3	3,178.9	7.1	7.6	52.28	76.3	184.8	161.5	147.4	14.11	11.448			
3,300.0	3,296.8	3,288.1	3,278.1	7.4	7.9	53.96	81.3	194.9	166.2	151.6	14.59	11.388			
3,400.0	3,396.3	3,387.9	3,377.2	7.6	8.2	55.54	86.3	205.0	171.0	155.9	15.08	11.337			
3,500.0	3,495.8	3,487.7	3,476.4	7.9	8.5	57.03	91.3	215.1	175.9	160.3	15.57	11.293			
3,600.0	3,595.3	3,587.4	3,575.5	8.1	8.8	58.44	96.2	225.1	180.9	164.8	16.07	11.254			
3,700.0	3,694.8	3,687.2	3,674.7	8.4	9.1	59.77	101.2	235.2	186.0	169.4	16.58	11.220			
3,800.0	3,794.2	3,787.0	3,773.8	8.6	9.4	61.03	106.2	245.3	191.2	174.1	17.09	11.191			
3,900.0	3,893.7	3,886.8	3,872.9	8.9	9.7	62.23	111.2	255.4	196.5	178.9	17.60	11.165			
4,000.0	3,993.2	3,986.5	3,972.1	9.1	10.0	63.36	116.2	265.4	201.9	183.8	18.12	11.142			
4,100.0	4,092.7	4,086.3	4,071.2	9.4	10.3	64.43	121.2	275.5	207.4	188.7	18.64	11.122			
4,200.0	4,192.2	4,186.1	4,170.4	9.7	10.6	65.45	126.2	285.6	212.9	193.7	19.17	11.105			
4,300.0	4,291.6	4,285.9	4,269.5	9.9	10.9	66.41	131.2	295.7	218.5	198.8	19.70	11.089			
4,400.0	4,391.1	4,385.6	4,368.6	10.2	11.2	67.33	136.1	305.7	224.1	203.9	20.24	11.076			
4,500.0	4,490.6	4,485.4	4,467.8	10.5	11.5	68.20	141.1	315.8	229.8	209.1	20.77	11.064			
4,600.0	4,590.1	4,585.2	4,566.9	10.7	11.8	69.03	146.1	325.9	235.6	214.3	21.31	11.054			
4,700.0	4,689.5	4,685.0	4,666.1	11.0	12.1	69.82	151.1	336.0	241.4	219.5	21.86	11.045			
4,800.0	4,789.1	4,784.8	4,765.2	11.3	12.4	70.42	156.1	346.0	247.6	225.3	22.37	11.071			
4,900.0	4,889.0	4,884.5	4,864.3	11.5	12.7	70.30	161.1	356.1	255.0	232.2	22.81	11.182			
5,000.0	4,988.9	4,984.0	4,963.2	11.6	13.0	69.51	166.0	366.2	263.6	240.4	23.20	11.363			

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #1 (12-30-13)												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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,088.9	5,083.4	5,061.9	11.8	13.3	96.12	171.0	376.2	273.1	249.5	23.59	11.575	
5,200.0	5,188.9	5,182.7	5,160.7	12.0	13.6	94.90	176.0	386.2	282.7	258.7	24.01	11.774	
5,300.0	5,288.9	5,282.1	5,259.4	12.2	13.9	93.75	180.9	396.3	292.4	268.0	24.43	11.970	
5,400.0	5,388.9	5,381.5	5,358.1	12.4	14.2	92.69	185.9	406.3	302.2	277.4	24.85	12.162	
5,500.0	5,488.9	5,480.8	5,456.8	12.7	14.5	91.68	190.9	416.3	312.1	286.9	25.27	12.352	
5,600.0	5,588.9	5,588.9	5,564.4	12.9	14.8	90.77	195.7	426.1	321.1	295.4	25.69	12.496	
5,700.0	5,688.9	5,700.0	5,675.2	13.1	15.0	90.21	198.8	432.3	326.7	300.6	26.10	12.518	
5,800.0	5,788.9	5,811.3	5,786.6	13.3	15.2	90.00	200.0	434.7	328.8	302.3	26.50	12.410	
5,900.0	5,888.9	5,912.7	5,887.9	13.5	15.3	-90.00	200.0	434.8	328.9	302.0	26.90	12.225	
5,925.1	5,914.0	5,937.8	5,913.0	13.5	15.4	-90.09	200.0	434.8	328.9	301.9	26.98	12.187	
6,000.0	5,988.6	6,012.4	5,987.6	13.6	15.5	-91.21	200.0	434.8	328.9	301.7	27.20	12.095	
6,100.0	6,086.5	6,111.8	6,087.0	13.7	15.7	-94.39	198.8	434.8	329.9	302.5	27.35	12.060	
6,200.0	6,181.0	6,214.5	6,188.8	13.8	15.8	-97.89	186.1	434.8	332.1	304.7	27.41	12.119	
6,300.0	6,270.4	6,320.3	6,291.0	13.9	15.9	-101.25	158.9	434.8	335.6	308.1	27.41	12.240	
6,400.0	6,353.2	6,429.4	6,391.3	13.9	15.9	-104.41	116.3	434.8	339.9	312.5	27.42	12.395	
6,500.0	6,428.0	6,541.8	6,487.3	14.0	16.0	-107.28	58.1	434.8	344.9	317.4	27.49	12.546	
6,600.0	6,493.5	6,657.4	6,576.0	14.3	16.1	-109.82	-16.0	434.8	350.0	322.3	27.69	12.642	
6,700.0	6,548.6	6,776.2	6,654.5	14.8	16.3	-111.96	-105.0	434.8	355.0	326.9	28.11	12.628	
6,800.0	6,592.4	6,897.8	6,719.5	15.5	16.6	-113.67	-207.6	434.8	359.3	330.5	28.84	12.458	
6,900.0	6,624.0	7,021.6	6,768.1	16.3	17.3	-114.91	-321.3	434.8	362.7	332.8	29.97	12.102	
7,000.0	6,643.0	7,147.1	6,798.0	17.3	18.4	-115.66	-443.0	434.8	364.9	333.3	31.52	11.576	
7,100.0	6,649.0	7,255.5	6,810.5	18.4	19.5	-116.28	-550.7	434.8	367.2	334.0	33.22	11.053	
7,200.0	6,648.8	7,371.2	6,817.5	19.7	20.8	-117.29	-666.1	434.8	370.0	334.7	35.36	10.464	
7,300.0	6,648.6	7,473.2	6,817.3	21.1	22.2	-117.30	-768.1	434.8	370.1	332.3	37.80	9.791	
7,400.0	6,648.4	7,573.2	6,817.1	22.5	23.5	-117.31	-868.1	434.8	370.1	329.7	40.37	9.168	
7,500.0	6,648.1	7,673.2	6,817.0	24.0	25.0	-117.31	-968.1	434.8	370.1	327.1	43.06	8.595	
7,600.0	6,647.9	7,773.2	6,816.8	25.6	26.5	-117.32	-1,068.1	434.8	370.1	324.3	45.86	8.070	
7,700.0	6,647.7	7,873.2	6,816.6	27.2	28.0	-117.32	-1,168.1	434.8	370.1	321.4	48.75	7.593	
7,800.0	6,647.4	7,973.2	6,816.4	28.8	29.6	-117.33	-1,268.1	434.8	370.2	318.5	51.71	7.158	
7,900.0	6,647.2	8,073.2	6,816.2	30.5	31.3	-117.33	-1,368.1	434.8	370.2	315.4	54.73	6.764	
8,000.0	6,647.0	8,173.2	6,816.0	32.2	32.9	-117.34	-1,468.1	434.8	370.2	312.4	57.80	6.404	
8,100.0	6,646.8	8,273.2	6,815.8	33.9	34.6	-117.34	-1,568.1	434.8	370.2	309.3	60.92	6.077	
8,200.0	6,646.5	8,373.2	6,815.6	35.7	36.3	-117.35	-1,668.1	434.8	370.2	306.2	64.07	5.778	
8,300.0	6,646.3	8,473.2	6,815.4	37.4	38.1	-117.35	-1,768.1	434.8	370.2	303.0	67.25	5.505	
8,400.0	6,646.1	8,573.2	6,815.2	39.2	39.8	-117.36	-1,868.1	434.8	370.3	299.8	70.46	5.255	
8,500.0	6,645.9	8,673.2	6,815.0	41.0	41.6	-117.36	-1,968.1	434.8	370.3	296.6	73.70	5.024	
8,600.0	6,645.6	8,773.2	6,814.8	42.8	43.4	-117.37	-2,068.1	434.8	370.3	293.3	76.95	4.812	
8,700.0	6,645.4	8,873.2	6,814.7	44.6	45.2	-117.37	-2,168.1	434.8	370.3	290.1	80.23	4.616	
8,800.0	6,645.2	8,973.2	6,814.5	46.5	47.0	-117.37	-2,268.1	434.8	370.3	286.8	83.52	4.434	
8,900.0	6,645.0	9,073.2	6,814.3	48.3	48.8	-117.38	-2,368.1	434.8	370.3	283.5	86.82	4.266	
9,000.0	6,644.7	9,173.2	6,814.1	50.1	50.6	-117.38	-2,468.1	434.8	370.4	280.2	90.14	4.109	
9,100.0	6,644.5	9,273.2	6,813.9	52.0	52.4	-117.39	-2,568.1	434.8	370.4	276.9	93.46	3.963	
9,200.0	6,644.3	9,373.2	6,813.7	53.8	54.2	-117.39	-2,668.1	434.8	370.4	273.6	96.80	3.826	
9,300.0	6,644.0	9,473.2	6,813.5	55.7	56.1	-117.40	-2,768.1	434.8	370.4	270.3	100.15	3.699	
9,400.0	6,643.8	9,573.2	6,813.3	57.5	57.9	-117.40	-2,868.1	434.8	370.4	266.9	103.50	3.579	
9,500.0	6,643.6	9,673.2	6,813.1	59.4	59.8	-117.41	-2,968.1	434.8	370.4	263.6	106.86	3.466	
9,600.0	6,643.4	9,773.2	6,812.9	61.2	61.6	-117.41	-3,068.1	434.8	370.5	260.2	110.23	3.361	
9,700.0	6,643.1	9,873.2	6,812.7	63.1	63.5	-117.42	-3,168.1	434.8	370.5	256.9	113.61	3.261	
9,800.0	6,642.9	9,973.2	6,812.5	65.0	65.3	-117.42	-3,268.1	434.8	370.5	253.5	116.99	3.167	
9,900.0	6,642.7	10,073.2	6,812.3	66.9	67.2	-117.43	-3,368.1	434.8	370.5	250.1	120.37	3.078	
10,000.0	6,642.5	10,173.2	6,812.2	68.7	69.1	-117.43	-3,468.1	434.8	370.5	246.8	123.76	2.994	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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
10,100.0	6,642.2	10,273.2	6,812.0	70.6	70.9	-117.44	-3,568.1	434.8	370.5	243.4	127.15	2.914		
10,200.0	6,642.0	10,373.2	6,811.8	72.5	72.8	-117.44	-3,668.1	434.8	370.6	240.0	130.55	2.838		
10,300.0	6,641.8	10,473.2	6,811.6	74.4	74.7	-117.45	-3,768.1	434.8	370.6	236.6	133.95	2.766		
10,400.0	6,641.5	10,573.2	6,811.4	76.3	76.6	-117.45	-3,868.1	434.8	370.6	233.2	137.36	2.698		
10,500.0	6,641.3	10,673.2	6,811.2	78.2	78.4	-117.46	-3,968.1	434.8	370.6	229.8	140.76	2.633		
10,600.0	6,641.1	10,773.2	6,811.0	80.0	80.3	-117.46	-4,068.1	434.8	370.6	226.4	144.17	2.571		
10,700.0	6,640.9	10,873.2	6,810.8	81.9	82.2	-117.47	-4,168.1	434.8	370.6	223.0	147.59	2.511		
10,800.0	6,640.6	10,973.2	6,810.6	83.8	84.1	-117.47	-4,268.1	434.8	370.6	219.6	151.00	2.455		
10,900.0	6,640.4	11,073.2	6,810.4	85.7	86.0	-117.48	-4,368.1	434.8	370.7	216.2	154.42	2.400		
11,000.0	6,640.2	11,173.2	6,810.2	87.6	87.9	-117.48	-4,468.1	434.8	370.7	212.8	157.84	2.349		
11,100.0	6,640.0	11,273.2	6,810.0	89.5	89.8	-117.49	-4,568.1	434.8	370.7	209.4	161.26	2.299		
11,200.0	6,639.7	11,373.2	6,809.9	91.4	91.6	-117.49	-4,668.1	434.8	370.7	206.0	164.68	2.251		
11,300.0	6,639.5	11,473.2	6,809.7	93.3	93.5	-117.49	-4,768.1	434.8	370.7	202.6	168.10	2.205		
11,400.0	6,639.3	11,573.2	6,809.5	95.2	95.4	-117.50	-4,868.1	434.8	370.7	199.2	171.53	2.161		
11,500.0	6,639.1	11,673.2	6,809.3	97.1	97.3	-117.50	-4,968.1	434.8	370.8	195.8	174.96	2.119		
11,600.0	6,638.8	11,773.2	6,809.1	99.0	99.2	-117.51	-5,068.1	434.8	370.8	192.4	178.38	2.079		
11,700.0	6,638.6	11,873.2	6,808.9	100.9	101.1	-117.51	-5,168.1	434.8	370.8	189.0	181.81	2.039		
11,800.0	6,638.4	11,973.2	6,808.7	102.8	103.0	-117.52	-5,268.1	434.8	370.8	185.6	185.24	2.002		
11,900.0	6,638.1	12,073.2	6,808.5	104.7	104.9	-117.52	-5,368.1	434.8	370.8	182.1	188.68	1.965		
12,000.0	6,637.9	12,173.2	6,808.3	106.6	106.8	-117.53	-5,468.1	434.8	370.8	178.7	192.11	1.930		
12,100.0	6,637.7	12,273.2	6,808.1	108.5	108.7	-117.53	-5,568.1	434.8	370.9	175.3	195.54	1.897		
12,200.0	6,637.5	12,373.2	6,807.9	110.4	110.6	-117.54	-5,668.1	434.8	370.9	171.9	198.98	1.864		
12,300.0	6,637.2	12,473.2	6,807.7	112.3	112.5	-117.54	-5,768.1	434.8	370.9	168.5	202.41	1.832		
12,400.0	6,637.0	12,573.2	6,807.5	114.2	114.4	-117.55	-5,868.1	434.8	370.9	165.1	205.85	1.802		
12,500.0	6,636.8	12,673.2	6,807.4	116.1	116.3	-117.55	-5,968.1	434.8	370.9	161.6	209.28	1.772		
12,600.0	6,636.6	12,773.2	6,807.2	118.0	118.2	-117.56	-6,068.1	434.8	370.9	158.2	212.72	1.744		
12,700.0	6,636.3	12,873.2	6,807.0	119.9	120.1	-117.56	-6,168.1	434.8	371.0	154.8	216.16	1.716		
12,800.0	6,636.1	12,973.2	6,806.8	121.9	122.0	-117.57	-6,268.1	434.8	371.0	151.4	219.60	1.689		
12,900.0	6,635.9	13,073.2	6,806.6	123.8	123.9	-117.57	-6,368.1	434.8	371.0	147.9	223.04	1.663		
13,000.0	6,635.7	13,173.2	6,806.4	125.7	125.8	-117.58	-6,468.1	434.8	371.0	144.5	226.48	1.638		
13,100.0	6,635.4	13,273.2	6,806.2	127.6	127.7	-117.58	-6,568.1	434.8	371.0	141.1	229.92	1.614		
13,200.0	6,635.2	13,373.2	6,806.0	129.5	129.6	-117.59	-6,668.1	434.8	371.0	137.7	233.36	1.590		
13,300.0	6,635.0	13,473.2	6,805.8	131.4	131.5	-117.59	-6,768.1	434.8	371.1	134.3	236.80	1.567		
13,400.0	6,634.7	13,573.2	6,805.6	133.3	133.5	-117.60	-6,868.1	434.8	371.1	130.8	240.24	1.545		
13,500.0	6,634.5	13,673.2	6,805.4	135.2	135.4	-117.60	-6,968.1	434.8	371.1	127.4	243.68	1.523		
13,600.0	6,634.3	13,773.2	6,805.2	137.1	137.3	-117.60	-7,068.1	434.8	371.1	124.0	247.12	1.502		
13,700.0	6,634.1	13,873.2	6,805.1	139.0	139.2	-117.61	-7,168.1	434.8	371.1	120.5	250.57	1.481 Level 3		
13,709.6	6,634.0	13,882.7	6,805.0	139.2	139.4	-117.61	-7,177.7	434.8	371.1	120.2	250.89	1.479 Level 3		
13,727.3	6,634.0	13,900.2	6,805.0	139.6	139.7	-117.61	-7,195.1	434.8	371.1	119.6	251.50	1.476 Level 3, SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-27.9	27.9				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-27.9	27.9	27.6	0.22	123.959	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-27.9	27.9	27.2	0.67	41.320	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-27.9	27.9	26.7	1.12	24.792	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-27.9	27.9	26.3	1.57	17.708	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-27.9	27.9	25.8	2.02	13.773	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-27.9	27.9	25.4	2.47	11.269	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-27.9	27.9	24.9	2.92	9.535	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-27.9	27.9	24.5	3.37	8.264 CC, ES	
900.0	900.0	899.3	899.3	1.9	1.9	-87.59	-87.59	1.2	-29.1	29.1	25.3	3.82	7.629	
1,000.0	1,000.0	998.5	998.4	2.1	2.1	-81.57	-81.57	4.8	-32.6	33.0	28.8	4.26	7.759	
1,100.0	1,100.0	1,098.3	1,098.0	2.4	2.4	-75.98	-75.98	9.2	-37.0	38.2	33.5	4.71	8.115	
1,200.0	1,200.0	1,198.1	1,197.6	2.6	2.6	-71.74	-71.74	13.6	-41.4	43.6	38.5	5.16	8.459	
1,300.0	1,300.0	1,297.9	1,297.2	2.8	2.8	-68.45	-68.45	18.1	-45.7	49.2	43.6	5.61	8.779	
1,400.0	1,400.0	1,397.7	1,396.8	3.0	3.1	-65.85	-65.85	22.5	-50.1	55.0	48.9	6.06	9.071	
1,500.0	1,500.0	1,497.5	1,496.4	3.3	3.3	-63.74	-63.74	26.9	-54.4	60.8	54.3	6.51	9.335	
1,600.0	1,600.0	1,597.4	1,596.0	3.5	3.5	-62.00	-62.00	31.3	-58.8	66.7	59.7	6.97	9.575	
1,700.0	1,700.0	1,697.2	1,695.7	3.7	3.8	-60.54	-60.54	35.7	-63.2	72.7	65.2	7.42	9.791	
1,800.0	1,800.0	1,797.0	1,795.3	3.9	4.0	-59.30	-59.30	40.1	-67.5	78.7	70.8	7.88	9.987	
1,900.0	1,900.0	1,896.8	1,894.9	4.2	4.3	-58.24	-58.24	44.5	-71.9	84.7	76.4	8.33	10.165	
2,000.0	2,000.0	1,996.6	1,994.5	4.4	4.5	-57.33	-57.33	48.9	-76.2	90.7	81.9	8.79	10.327	
2,100.0	2,100.0	2,096.4	2,094.1	4.6	4.8	-56.52	-56.52	53.3	-80.6	96.8	87.6	9.24	10.475	
2,200.0	2,200.0	2,196.2	2,193.7	4.8	5.0	-55.81	-55.81	57.7	-85.0	102.9	93.2	9.70	10.611	
2,300.0	2,300.0	2,296.0	2,293.3	5.1	5.3	-55.18	-55.18	62.1	-89.3	109.0	98.8	10.15	10.736	
2,400.0	2,400.0	2,395.8	2,393.0	5.3	5.5	-54.62	-54.62	66.5	-93.7	115.1	104.5	10.61	10.851	
2,500.0	2,500.0	2,495.6	2,492.6	5.5	5.7	-54.12	-54.12	70.9	-98.0	121.2	110.2	11.06	10.958	
2,600.0	2,600.0	2,595.4	2,592.2	5.7	6.0	-82.22	-82.22	75.3	-102.4	127.1	115.7	11.44	11.107	
2,700.0	2,699.8	2,695.2	2,691.8	6.0	6.2	-83.90	-83.90	79.7	-106.7	132.6	120.7	11.89	11.148	
2,800.0	2,799.5	2,794.8	2,791.2	6.2	6.5	-86.89	-86.89	84.1	-111.1	138.0	125.6	12.35	11.174	
2,900.0	2,898.9	2,894.3	2,890.4	6.4	6.7	-90.32	-90.32	88.5	-115.4	143.7	130.9	12.81	11.222	
3,000.0	2,998.4	2,993.7	2,989.7	6.6	7.0	-93.48	-93.48	92.9	-119.8	149.9	136.7	13.27	11.296	
3,100.0	3,097.9	3,093.2	3,089.0	6.9	7.2	-96.39	-96.39	97.3	-124.1	156.6	142.8	13.75	11.391	
3,200.0	3,197.4	3,192.7	3,188.3	7.1	7.5	-99.05	-99.05	101.7	-128.5	163.6	149.4	14.22	11.501	
3,300.0	3,296.8	3,292.2	3,287.6	7.4	7.7	-101.49	-101.49	106.1	-132.8	170.9	156.2	14.70	11.623	
3,400.0	3,396.3	3,391.6	3,386.9	7.6	8.0	-103.73	-103.73	110.5	-137.2	178.5	163.4	15.19	11.754	
3,500.0	3,495.8	3,491.1	3,486.1	7.9	8.2	-105.78	-105.78	114.9	-141.5	186.4	170.7	15.68	11.890	
3,600.0	3,595.3	3,590.6	3,585.4	8.1	8.5	-107.67	-107.67	119.3	-145.9	194.5	178.3	16.17	12.029	
3,700.0	3,694.8	3,690.1	3,684.7	8.4	8.7	-109.40	-109.40	123.6	-150.2	202.8	186.1	16.66	12.171	
3,800.0	3,794.2	3,789.5	3,784.0	8.6	9.0	-111.00	-111.00	128.0	-154.5	211.2	194.1	17.16	12.313	
3,900.0	3,893.7	3,889.0	3,883.3	8.9	9.2	-112.47	-112.47	132.4	-158.9	219.8	202.2	17.65	12.455	
4,000.0	3,993.2	3,988.5	3,982.6	9.1	9.5	-113.83	-113.83	136.8	-163.2	228.6	210.4	18.15	12.595	
4,100.0	4,092.7	4,088.0	4,081.9	9.4	9.7	-115.09	-115.09	141.2	-167.6	237.4	218.8	18.65	12.734	
4,200.0	4,192.2	4,187.4	4,181.1	9.7	10.0	-116.26	-116.26	145.6	-171.9	246.4	227.3	19.14	12.871	
4,300.0	4,291.6	4,286.9	4,280.4	9.9	10.2	-117.35	-117.35	150.0	-176.3	255.5	235.8	19.64	13.006	
4,400.0	4,391.1	4,386.4	4,379.7	10.2	10.5	-118.36	-118.36	154.4	-180.6	264.6	244.5	20.14	13.137	
4,500.0	4,490.6	4,485.9	4,479.0	10.5	10.7	-119.30	-119.30	158.8	-185.0	273.8	253.2	20.64	13.266	
4,600.0	4,590.1	4,585.3	4,578.3	10.7	11.0	-120.19	-120.19	163.2	-189.3	283.1	262.0	21.14	13.392	
4,700.0	4,689.5	4,684.8	4,677.6	11.0	11.2	-121.01	-121.01	167.6	-193.6	292.5	270.8	21.64	13.514	
4,800.0	4,789.1	4,784.4	4,776.9	11.3	11.5	-121.72	-121.72	172.0	-198.0	301.3	279.1	22.13	13.613	
4,900.0	4,889.0	4,884.1	4,876.5	11.5	11.7	-121.85	-121.85	176.4	-202.3	308.3	285.7	22.57	13.658	
5,000.0	4,988.9	4,984.0	4,976.1	11.6	12.0	-121.41	-121.41	180.8	-206.7	313.5	290.5	22.99	13.634	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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
5,100.0	5,088.9	5,083.8	5,075.7	11.8	12.2	-92.68		185.2	-211.1	317.6	294.2	23.41	13.565	
5,200.0	5,188.9	5,183.6	5,175.3	12.0	12.5	-91.86		189.6	-215.4	321.8	297.9	23.86	13.487	
5,300.0	5,288.9	5,283.4	5,275.0	12.2	12.7	-91.06		194.0	-219.8	326.0	301.7	24.30	13.415	
5,400.0	5,388.9	5,387.8	5,379.2	12.4	13.0	-90.31		198.2	-223.9	330.0	305.3	24.74	13.337	
5,500.0	5,488.9	5,496.6	5,488.0	12.7	13.1	-90.00		200.0	-225.7	331.6	306.5	25.15	13.187	
5,600.0	5,588.9	5,597.6	5,588.9	12.9	13.3	-90.00		200.0	-225.7	331.6	306.1	25.55	12.980	
5,700.0	5,688.9	5,697.6	5,688.9	13.1	13.5	-90.00		200.0	-225.7	331.6	305.7	25.97	12.769	
5,800.0	5,788.9	5,797.6	5,788.9	13.3	13.7	-90.00		200.0	-225.7	331.6	305.2	26.39	12.565	
5,866.0	5,855.0	5,863.6	5,855.0	13.4	13.9	90.02		200.0	-225.7	331.6	305.0	26.67	12.433	
5,900.0	5,888.9	5,897.6	5,888.9	13.5	13.9	90.00		200.0	-225.7	331.6	304.8	26.82	12.367	
5,925.0	5,913.9	5,922.6	5,913.9	13.5	14.0	90.09		200.0	-225.7	331.6	304.7	26.90	12.327	
6,000.0	5,988.6	5,997.2	5,988.6	13.6	14.1	91.21		200.0	-225.7	331.7	304.6	27.16	12.216	
6,100.0	6,086.5	6,096.7	6,088.0	13.7	14.3	94.35		198.7	-225.7	332.6	305.2	27.41	12.138	
6,200.0	6,181.0	6,199.4	6,189.9	13.8	14.5	97.80		185.9	-225.7	334.9	307.3	27.53	12.165	
6,300.0	6,270.4	6,305.2	6,292.0	13.9	14.5	101.11		158.5	-225.7	338.2	310.7	27.56	12.271	
6,400.0	6,353.2	6,414.2	6,392.2	13.9	14.6	104.22		115.9	-225.7	342.5	314.9	27.56	12.426	
6,500.0	6,428.0	6,526.5	6,488.0	14.0	14.7	107.06		57.5	-225.7	347.3	319.7	27.59	12.588	
6,600.0	6,493.5	6,642.1	6,576.6	14.3	14.8	109.56		-16.5	-225.7	352.4	324.6	27.76	12.695	
6,700.0	6,548.6	6,760.8	6,654.9	14.8	15.0	111.68		-105.6	-225.7	357.3	329.1	28.17	12.681	
6,800.0	6,592.4	6,882.2	6,719.7	15.5	15.5	113.37		-208.1	-225.7	361.5	332.6	28.95	12.487	
6,900.0	6,624.0	7,005.9	6,768.3	16.3	16.4	114.59		-321.7	-225.7	364.9	334.7	30.18	12.089	
7,000.0	6,643.0	7,131.1	6,798.1	17.3	17.5	115.33		-443.2	-225.7	367.0	335.1	31.90	11.502	
7,100.0	6,649.0	7,239.5	6,810.5	18.4	18.7	115.96		-550.8	-225.7	369.3	335.4	33.81	10.920	
7,200.0	6,648.8	7,355.0	6,817.5	19.7	20.1	116.95		-666.1	-225.7	372.1	336.1	36.01	10.334	
7,300.0	6,648.6	7,457.0	6,817.3	21.1	21.5	116.97		-768.1	-225.7	372.1	333.6	38.47	9.673	
7,400.0	6,648.4	7,557.0	6,817.2	22.5	22.9	116.97		-868.1	-225.7	372.1	331.1	41.05	9.065	
7,500.0	6,648.1	7,657.0	6,817.0	24.0	24.4	116.98		-968.1	-225.7	372.1	328.4	43.76	8.503	
7,600.0	6,647.9	7,757.0	6,816.8	25.6	25.9	116.98		-1,068.1	-225.7	372.2	325.6	46.58	7.990	
7,700.0	6,647.7	7,857.0	6,816.6	27.2	27.5	116.99		-1,168.1	-225.7	372.2	322.7	49.48	7.522	
7,800.0	6,647.4	7,957.0	6,816.4	28.8	29.1	116.99		-1,268.1	-225.7	372.2	319.7	52.45	7.096	
7,900.0	6,647.2	8,057.0	6,816.2	30.5	30.8	117.00		-1,368.1	-225.7	372.2	316.7	55.48	6.709	
8,000.0	6,647.0	8,157.0	6,816.0	32.2	32.5	117.00		-1,468.1	-225.7	372.2	313.7	58.56	6.356	
8,100.0	6,646.8	8,257.0	6,815.8	33.9	34.2	117.01		-1,568.1	-225.7	372.2	310.6	61.69	6.034	
8,200.0	6,646.5	8,357.0	6,815.6	35.7	35.9	117.01		-1,668.1	-225.7	372.3	307.4	64.85	5.740	
8,300.0	6,646.3	8,457.0	6,815.4	37.4	37.7	117.02		-1,768.1	-225.7	372.3	304.2	68.04	5.471	
8,400.0	6,646.1	8,557.0	6,815.2	39.2	39.4	117.02		-1,868.1	-225.7	372.3	301.0	71.26	5.224	
8,500.0	6,645.9	8,657.0	6,815.0	41.0	41.2	117.03		-1,968.1	-225.7	372.3	297.8	74.51	4.997	
8,600.0	6,645.6	8,757.0	6,814.9	42.8	43.0	117.03		-2,068.1	-225.7	372.3	294.5	77.77	4.787	
8,700.0	6,645.4	8,857.0	6,814.7	44.6	44.8	117.04		-2,168.1	-225.7	372.3	291.3	81.05	4.594	
8,800.0	6,645.2	8,957.0	6,814.5	46.5	46.6	117.04		-2,268.1	-225.7	372.4	288.0	84.35	4.414	
8,900.0	6,645.0	9,057.0	6,814.3	48.3	48.5	117.05		-2,368.1	-225.7	372.4	284.7	87.67	4.248	
9,000.0	6,644.7	9,157.0	6,814.1	50.1	50.3	117.05		-2,468.1	-225.7	372.4	281.4	90.99	4.092	
9,100.0	6,644.5	9,257.0	6,813.9	52.0	52.1	117.06		-2,568.1	-225.7	372.4	278.1	94.33	3.948	
9,200.0	6,644.3	9,357.0	6,813.7	53.8	54.0	117.06		-2,668.1	-225.7	372.4	274.7	97.68	3.813	
9,300.0	6,644.0	9,457.0	6,813.5	55.7	55.8	117.07		-2,768.1	-225.7	372.4	271.4	101.03	3.686	
9,400.0	6,643.8	9,557.0	6,813.3	57.5	57.7	117.07		-2,868.1	-225.7	372.4	268.1	104.40	3.568	
9,500.0	6,643.6	9,657.0	6,813.1	59.4	59.5	117.08		-2,968.1	-225.7	372.5	264.7	107.77	3.456	
9,600.0	6,643.4	9,757.0	6,812.9	61.2	61.4	117.08		-3,068.1	-225.7	372.5	261.3	111.14	3.351	
9,700.0	6,643.1	9,857.0	6,812.7	63.1	63.2	117.09		-3,168.1	-225.7	372.5	258.0	114.53	3.252	
9,800.0	6,642.9	9,957.0	6,812.5	65.0	65.1	117.09		-3,268.1	-225.7	372.5	254.6	117.92	3.159	
9,900.0	6,642.7	10,057.0	6,812.4	66.9	67.0	117.09		-3,368.1	-225.7	372.5	251.2	121.31	3.071	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,642.5	10,157.0	6,812.2	68.7	68.9	117.10	117.10	-3,468.1	-225.7	372.5	247.8	124.71	2.987	
10,100.0	6,642.2	10,257.0	6,812.0	70.6	70.7	117.10	117.10	-3,568.1	-225.7	372.6	244.4	128.11	2.908	
10,200.0	6,642.0	10,357.0	6,811.8	72.5	72.6	117.11	117.11	-3,668.1	-225.7	372.6	241.1	131.52	2.833	
10,300.0	6,641.8	10,457.0	6,811.6	74.4	74.5	117.11	117.11	-3,768.1	-225.7	372.6	237.7	134.93	2.761	
10,400.0	6,641.5	10,557.0	6,811.4	76.3	76.4	117.12	117.12	-3,868.1	-225.7	372.6	234.3	138.35	2.693	
10,500.0	6,641.3	10,657.0	6,811.2	78.2	78.3	117.12	117.12	-3,968.1	-225.7	372.6	230.9	141.76	2.628	
10,600.0	6,641.1	10,757.0	6,811.0	80.0	80.1	117.13	117.13	-4,068.1	-225.7	372.6	227.5	145.18	2.567	
10,700.0	6,640.9	10,857.0	6,810.8	81.9	82.0	117.13	117.13	-4,168.1	-225.7	372.7	224.0	148.61	2.508	
10,800.0	6,640.6	10,957.0	6,810.6	83.8	83.9	117.14	117.14	-4,268.1	-225.7	372.7	220.6	152.03	2.451	
10,900.0	6,640.4	11,057.0	6,810.4	85.7	85.8	117.14	117.14	-4,368.1	-225.7	372.7	217.2	155.46	2.397	
11,000.0	6,640.2	11,157.0	6,810.2	87.6	87.7	117.15	117.15	-4,468.1	-225.7	372.7	213.8	158.89	2.346	
11,100.0	6,640.0	11,257.0	6,810.1	89.5	89.6	117.15	117.15	-4,568.1	-225.7	372.7	210.4	162.32	2.296	
11,200.0	6,639.7	11,357.0	6,809.9	91.4	91.5	117.16	117.16	-4,668.1	-225.7	372.7	207.0	165.75	2.249	
11,300.0	6,639.5	11,457.0	6,809.7	93.3	93.4	117.16	117.16	-4,768.1	-225.7	372.7	203.6	169.18	2.203	
11,400.0	6,639.3	11,557.0	6,809.5	95.2	95.3	117.17	117.17	-4,868.1	-225.7	372.8	200.1	172.62	2.159	
11,500.0	6,639.1	11,657.0	6,809.3	97.1	97.2	117.17	117.17	-4,968.1	-225.7	372.8	196.7	176.06	2.117	
11,600.0	6,638.8	11,757.0	6,809.1	99.0	99.1	117.18	117.18	-5,068.1	-225.7	372.8	193.3	179.50	2.077	
11,700.0	6,638.6	11,857.0	6,808.9	100.9	101.0	117.18	117.18	-5,168.1	-225.7	372.8	189.9	182.94	2.038	
11,800.0	6,638.4	11,957.0	6,808.7	102.8	102.9	117.19	117.19	-5,268.1	-225.7	372.8	186.5	186.38	2.000	
11,900.0	6,638.1	12,057.0	6,808.5	104.7	104.8	117.19	117.19	-5,368.1	-225.7	372.8	183.0	189.82	1.964	
12,000.0	6,637.9	12,157.0	6,808.3	106.6	106.7	117.19	117.19	-5,468.1	-225.7	372.9	179.6	193.26	1.929	
12,100.0	6,637.7	12,257.0	6,808.1	108.5	108.6	117.20	117.20	-5,568.1	-225.7	372.9	176.2	196.71	1.896	
12,200.0	6,637.5	12,357.0	6,807.9	110.4	110.5	117.20	117.20	-5,668.1	-225.7	372.9	172.7	200.15	1.863	
12,300.0	6,637.2	12,457.0	6,807.7	112.3	112.4	117.21	117.21	-5,768.1	-225.7	372.9	169.3	203.60	1.832	
12,400.0	6,637.0	12,557.0	6,807.6	114.2	114.3	117.21	117.21	-5,868.1	-225.7	372.9	165.9	207.04	1.801	
12,500.0	6,636.8	12,657.0	6,807.4	116.1	116.2	117.22	117.22	-5,968.1	-225.7	372.9	162.4	210.49	1.772	
12,600.0	6,636.6	12,757.0	6,807.2	118.0	118.1	117.22	117.22	-6,068.1	-225.7	373.0	159.0	213.94	1.743	
12,700.0	6,636.3	12,857.0	6,807.0	119.9	120.0	117.23	117.23	-6,168.1	-225.7	373.0	155.6	217.39	1.716	
12,800.0	6,636.1	12,957.0	6,806.8	121.9	121.9	117.23	117.23	-6,268.1	-225.7	373.0	152.2	220.84	1.689	
12,900.0	6,635.9	13,057.0	6,806.6	123.8	123.8	117.24	117.24	-6,368.1	-225.7	373.0	148.7	224.29	1.663	
13,000.0	6,635.7	13,157.0	6,806.4	125.7	125.7	117.24	117.24	-6,468.1	-225.7	373.0	145.3	227.74	1.638	
13,100.0	6,635.4	13,257.0	6,806.2	127.6	127.6	117.25	117.25	-6,568.1	-225.7	373.0	141.8	231.19	1.614	
13,200.0	6,635.2	13,357.0	6,806.0	129.5	129.5	117.25	117.25	-6,668.1	-225.7	373.1	138.4	234.64	1.590	
13,300.0	6,635.0	13,457.0	6,805.8	131.4	131.4	117.26	117.26	-6,768.1	-225.7	373.1	135.0	238.09	1.567	
13,400.0	6,634.7	13,557.0	6,805.6	133.3	133.3	117.26	117.26	-6,868.1	-225.7	373.1	131.5	241.54	1.545	
13,500.0	6,634.5	13,657.0	6,805.4	135.2	135.3	117.27	117.27	-6,968.1	-225.7	373.1	128.1	244.99	1.523	
13,600.0	6,634.3	13,757.0	6,805.3	137.1	137.2	117.27	117.27	-7,068.1	-225.7	373.1	124.7	248.45	1.502	
13,700.0	6,634.1	13,857.0	6,805.1	139.0	139.1	117.28	117.28	-7,168.1	-225.7	373.1	121.2	251.90	1.481 Level 3	
13,727.3	6,634.0	13,884.4	6,805.0	139.6	139.6	117.28	117.28	-7,195.4	-225.7	373.1	120.3	252.84	1.476 Level 3, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (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	90.00	90.00	0.0	61.3	61.3				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	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	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	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	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	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	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	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	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	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	90.00	0.0	61.3	61.3	57.0	4.27	14.361 CC, ES	
1,100.0	1,100.0	1,097.0	1,096.9	2.4	2.3	89.59	89.59	0.4	62.9	62.9	58.2	4.70	13.373	
1,200.0	1,200.0	1,194.7	1,194.5	2.6	2.6	88.47	88.47	1.8	67.7	67.8	62.7	5.14	13.208	
1,300.0	1,300.0	1,292.0	1,291.5	2.8	2.8	86.92	86.92	4.1	75.6	76.1	70.5	5.57	13.656	
1,400.0	1,400.0	1,388.6	1,387.4	3.0	3.0	85.24	85.24	7.2	86.6	87.7	81.7	6.01	14.583	
1,500.0	1,500.0	1,484.3	1,482.0	3.3	3.3	83.65	83.65	11.2	100.6	102.6	96.2	6.46	15.886	
1,600.0	1,600.0	1,581.4	1,577.5	3.5	3.6	82.26	82.26	15.9	117.2	120.2	113.3	6.92	17.379	
1,700.0	1,700.0	1,679.7	1,674.2	3.7	3.9	81.20	81.20	20.8	134.3	138.1	130.7	7.38	18.714	
1,800.0	1,800.0	1,778.1	1,771.0	3.9	4.2	80.38	80.38	25.7	151.4	156.1	148.2	7.85	19.877	
1,900.0	1,900.0	1,876.4	1,867.7	4.2	4.5	79.73	79.73	30.5	168.4	174.0	165.7	8.33	20.897	
2,000.0	2,000.0	1,974.8	1,964.5	4.4	4.9	79.20	79.20	35.4	185.5	192.0	183.2	8.81	21.795	
2,100.0	2,100.0	2,073.2	2,061.2	4.6	5.3	78.77	78.77	40.2	202.6	210.0	200.7	9.30	22.591	
2,200.0	2,200.0	2,171.5	2,158.0	4.8	5.6	78.40	78.40	45.1	219.7	228.0	218.2	9.78	23.300	
2,300.0	2,300.0	2,269.9	2,254.7	5.1	6.0	78.08	78.08	50.0	236.8	246.0	235.7	10.28	23.935	
2,400.0	2,400.0	2,368.2	2,351.4	5.3	6.4	77.81	77.81	54.8	253.8	264.0	253.2	10.77	24.506	
2,500.0	2,500.0	2,466.6	2,448.2	5.5	6.7	77.57	77.57	59.7	270.9	282.0	270.8	11.27	25.022	
2,600.0	2,600.0	2,565.1	2,545.1	5.7	7.1	49.46	49.46	64.6	288.0	298.9	287.5	11.46	26.093	
2,700.0	2,699.8	2,664.0	2,642.4	6.0	7.5	49.77	49.77	69.5	305.2	313.6	301.7	11.92	26.308	
2,800.0	2,799.5	2,763.1	2,739.8	6.2	7.9	50.55	50.55	74.4	322.4	326.1	313.7	12.39	26.331	
2,900.0	2,898.9	2,862.2	2,837.3	6.4	8.3	51.64	51.64	79.3	339.6	337.8	324.9	12.86	26.269	
3,000.0	2,998.4	2,961.3	2,934.8	6.6	8.7	52.65	52.65	84.2	356.8	349.6	336.2	13.34	26.207	
3,100.0	3,097.9	3,060.4	3,032.3	6.9	9.1	53.60	53.60	89.1	374.0	361.5	347.6	13.82	26.145	
3,200.0	3,197.4	3,159.5	3,129.8	7.1	9.5	54.49	54.49	94.0	391.2	373.4	359.1	14.32	26.084	
3,300.0	3,296.8	3,258.7	3,227.2	7.4	9.9	55.32	55.32	98.9	408.4	385.5	370.7	14.81	26.022	
3,400.0	3,396.3	3,357.8	3,324.7	7.6	10.3	56.11	56.11	103.8	425.6	397.6	382.3	15.32	25.961	
3,500.0	3,495.8	3,456.9	3,422.2	7.9	10.7	56.84	56.84	108.7	442.9	409.8	394.0	15.82	25.900	
3,600.0	3,595.3	3,556.0	3,519.7	8.1	11.1	57.54	57.54	113.6	460.1	422.1	405.8	16.34	25.839	
3,700.0	3,694.8	3,655.1	3,617.2	8.4	11.5	58.19	58.19	118.5	477.3	434.4	417.6	16.85	25.779	
3,800.0	3,794.2	3,754.3	3,714.7	8.6	11.9	58.81	58.81	123.4	494.5	446.8	429.4	17.37	25.719	
3,900.0	3,893.7	3,853.4	3,812.2	8.9	12.3	59.40	59.40	128.3	511.7	459.2	441.3	17.90	25.660	
4,000.0	3,993.2	3,952.5	3,909.7	9.1	12.7	59.95	59.95	133.2	528.9	471.7	453.3	18.42	25.602	
4,100.0	4,092.7	4,051.6	4,007.2	9.4	13.1	60.48	60.48	138.1	546.1	484.2	465.2	18.95	25.545	
4,200.0	4,192.2	4,150.7	4,104.7	9.7	13.5	60.98	60.98	143.0	563.3	496.8	477.3	19.49	25.489	
4,300.0	4,291.6	4,249.8	4,202.1	9.9	13.9	61.45	61.45	147.9	580.5	509.3	489.3	20.03	25.434	
4,400.0	4,391.1	4,349.0	4,299.6	10.2	14.3	61.91	61.91	152.8	597.7	522.0	501.4	20.57	25.380	
4,500.0	4,490.6	4,448.1	4,397.1	10.5	14.7	62.34	62.34	157.7	615.0	534.6	513.5	21.11	25.327	
4,600.0	4,590.1	4,547.2	4,494.6	10.7	15.1	62.75	62.75	162.6	632.2	547.3	525.6	21.65	25.275	
4,700.0	4,689.5	4,646.3	4,592.1	11.0	15.5	63.14	63.14	167.5	649.4	560.0	537.8	22.20	25.225	
4,800.0	4,789.1	4,745.4	4,689.6	11.3	15.9	63.61	63.61	172.4	666.6	573.2	550.5	22.72	25.234	
4,900.0	4,889.0	4,844.3	4,786.8	11.5	16.3	63.83	63.83	177.3	683.7	588.0	564.8	23.17	25.377	
5,000.0	4,988.9	4,942.9	4,883.8	11.6	16.7	63.78	63.78	182.1	700.9	604.3	580.7	23.59	25.618	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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
5,100.0	5,088.9	5,041.3	4,980.5	11.8	17.1	91.22	91.22	187.0	717.9	621.5	597.5	24.01	25.891	
5,200.0	5,188.9	5,165.7	5,103.4	12.0	17.5	90.69	90.69	192.4	737.1	636.9	612.4	24.46	26.032	
5,300.0	5,288.9	5,292.3	5,229.1	12.2	17.8	90.31	90.31	196.5	751.3	648.0	623.1	24.91	26.016	
5,400.0	5,388.9	5,419.9	5,356.4	12.4	18.0	90.09	90.09	199.0	760.1	655.0	629.7	25.34	25.844	
5,500.0	5,488.9	5,548.1	5,484.5	12.7	18.2	90.00	90.00	200.0	763.6	657.7	631.9	25.77	25.517	
5,600.0	5,588.9	5,651.5	5,587.9	12.9	18.4	90.00	90.00	200.0	763.6	657.7	631.5	26.18	25.127	
5,700.0	5,688.9	5,751.5	5,687.9	13.1	18.5	90.00	90.00	200.0	763.6	657.7	631.1	26.58	24.747	
5,800.0	5,788.9	5,851.5	5,787.9	13.3	18.6	90.00	90.00	200.0	763.6	657.7	630.7	26.98	24.377	
5,866.0	5,854.9	5,917.5	5,853.9	13.4	18.7	-90.01	-90.01	200.0	763.6	657.7	630.5	27.25	24.140	
5,900.0	5,888.9	5,951.5	5,887.9	13.5	18.8	-90.00	-90.00	200.0	763.6	657.7	630.3	27.38	24.018	
5,903.9	5,892.8	5,955.4	5,891.8	13.5	18.8	-90.00	-90.00	200.0	763.6	657.7	630.3	27.40	24.007	
6,000.0	5,988.6	6,051.4	5,987.8	13.6	18.9	-90.58	-90.58	199.7	763.6	657.7	630.1	27.67	23.768	
6,100.0	6,086.5	6,152.4	6,088.3	13.7	19.0	-91.50	-91.50	190.0	763.6	657.9	630.1	27.84	23.631	
6,200.0	6,181.0	6,254.9	6,188.1	13.8	19.1	-92.40	-92.40	166.8	763.6	658.3	630.3	27.94	23.558	
6,300.0	6,270.4	6,358.9	6,285.1	13.9	19.2	-93.26	-93.26	129.9	763.6	658.8	630.7	28.04	23.498	
6,400.0	6,353.2	6,464.3	6,377.5	13.9	19.2	-94.06	-94.06	79.3	763.6	659.4	631.2	28.19	23.388	
6,500.0	6,428.0	6,571.1	6,463.1	14.0	19.2	-94.80	-94.80	15.6	763.6	660.0	631.5	28.50	23.159	
6,600.0	6,493.5	6,679.2	6,539.9	14.3	19.3	-95.46	-95.46	-60.4	763.6	660.7	631.7	29.04	22.756	
6,700.0	6,548.6	6,788.5	6,605.8	14.8	19.5	-96.02	-96.02	-147.4	763.6	661.4	631.5	29.88	22.133	
6,800.0	6,592.4	6,898.8	6,659.1	15.5	19.8	-96.46	-96.46	-243.9	763.6	661.9	630.8	31.08	21.297	
6,900.0	6,624.0	7,009.8	6,698.1	16.3	20.3	-96.79	-96.79	-347.8	763.6	662.4	629.7	32.66	20.282	
7,000.0	6,643.0	7,121.4	6,721.8	17.3	21.1	-96.98	-96.98	-456.7	763.6	662.6	628.0	34.58	19.160	
7,100.0	6,649.0	7,233.3	6,729.3	18.4	22.0	-97.05	-97.05	-568.2	763.6	662.7	625.9	36.81	18.004	
7,200.0	6,648.8	7,333.3	6,728.7	19.7	23.0	-97.01	-97.01	-668.3	763.6	662.7	623.4	39.27	16.874	
7,300.0	6,648.6	7,433.3	6,728.1	21.1	24.2	-96.98	-96.98	-768.3	763.6	662.6	620.7	41.93	15.804	
7,400.0	6,648.4	7,533.3	6,727.5	22.5	25.4	-96.95	-96.95	-868.3	763.6	662.6	617.8	44.75	14.806	
7,500.0	6,648.1	7,633.3	6,727.0	24.0	26.7	-96.92	-96.92	-968.3	763.6	662.5	614.8	47.71	13.885	
7,600.0	6,647.9	7,733.3	6,726.4	25.6	28.1	-96.89	-96.89	-1,068.3	763.6	662.5	611.7	50.79	13.043	
7,700.0	6,647.7	7,833.3	6,725.8	27.2	29.6	-96.86	-96.86	-1,168.2	763.6	662.4	608.5	53.97	12.275	
7,800.0	6,647.4	7,933.3	6,725.2	28.8	31.1	-96.83	-96.83	-1,268.2	763.6	662.4	605.2	57.22	11.576	
7,900.0	6,647.2	8,033.3	6,724.6	30.5	32.7	-96.79	-96.79	-1,368.2	763.6	662.4	601.8	60.54	10.941	
8,000.0	6,647.0	8,133.3	6,724.0	32.2	34.3	-96.76	-96.76	-1,468.2	763.6	662.3	598.4	63.92	10.362	
8,100.0	6,646.8	8,233.3	6,723.4	33.9	35.9	-96.73	-96.73	-1,568.2	763.6	662.3	594.9	67.34	9.834	
8,200.0	6,646.5	8,333.3	6,722.8	35.7	37.5	-96.70	-96.70	-1,668.2	763.6	662.2	591.4	70.81	9.352	
8,300.0	6,646.3	8,433.3	6,722.2	37.4	39.2	-96.67	-96.67	-1,768.2	763.6	662.2	587.9	74.31	8.911	
8,400.0	6,646.1	8,533.3	6,721.6	39.2	40.9	-96.64	-96.64	-1,868.2	763.6	662.1	584.3	77.84	8.506	
8,500.0	6,645.9	8,633.3	6,721.0	41.0	42.6	-96.60	-96.60	-1,968.2	763.6	662.1	580.7	81.40	8.134	
8,600.0	6,645.6	8,733.3	6,720.4	42.8	44.4	-96.57	-96.57	-2,068.2	763.6	662.1	577.1	84.99	7.790	
8,700.0	6,645.4	8,833.3	6,719.8	44.6	46.1	-96.54	-96.54	-2,168.2	763.6	662.0	573.4	88.59	7.473	
8,800.0	6,645.2	8,933.3	6,719.2	46.5	47.9	-96.51	-96.51	-2,268.2	763.6	662.0	569.8	92.21	7.179	
8,900.0	6,645.0	9,033.3	6,718.6	48.3	49.7	-96.48	-96.48	-2,368.2	763.6	661.9	566.1	95.85	6.906	
9,000.0	6,644.7	9,133.3	6,718.1	50.1	51.4	-96.45	-96.45	-2,468.2	763.6	661.9	562.4	99.50	6.652	
9,100.0	6,644.5	9,233.3	6,717.5	52.0	53.2	-96.42	-96.42	-2,568.2	763.6	661.9	558.7	103.17	6.415	
9,200.0	6,644.3	9,333.3	6,716.9	53.8	55.0	-96.38	-96.38	-2,668.2	763.6	661.8	555.0	106.84	6.194	
9,300.0	6,644.0	9,433.3	6,716.3	55.7	56.8	-96.35	-96.35	-2,768.2	763.6	661.8	551.2	110.53	5.987	
9,400.0	6,643.8	9,533.3	6,715.7	57.5	58.7	-96.32	-96.32	-2,868.2	763.6	661.7	547.5	114.23	5.793	
9,500.0	6,643.6	9,633.3	6,715.1	59.4	60.5	-96.29	-96.29	-2,968.2	763.6	661.7	543.8	117.94	5.611	
9,600.0	6,643.4	9,733.3	6,714.5	61.2	62.3	-96.26	-96.26	-3,068.2	763.6	661.7	540.0	121.65	5.439	
9,700.0	6,643.1	9,833.3	6,713.9	63.1	64.2	-96.23	-96.23	-3,168.2	763.6	661.6	536.2	125.37	5.277	
9,800.0	6,642.9	9,933.3	6,713.3	65.0	66.0	-96.20	-96.20	-3,268.2	763.6	661.6	532.5	129.10	5.125	
9,900.0	6,642.7	10,033.3	6,712.7	66.9	67.8	-96.16	-96.16	-3,368.2	763.6	661.5	528.7	132.83	4.980	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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
10,000.0	6,642.5	10,133.3	6,712.1	68.7	69.7	-96.13	-3,468.2	763.6	661.5	524.9	136.57	4.844		
10,100.0	6,642.2	10,233.3	6,711.5	70.6	71.5	-96.10	-3,568.2	763.6	661.5	521.1	140.32	4.714		
10,200.0	6,642.0	10,333.3	6,710.9	72.5	73.4	-96.07	-3,668.2	763.6	661.4	517.3	144.07	4.591		
10,300.0	6,641.8	10,433.3	6,710.3	74.4	75.3	-96.04	-3,768.2	763.6	661.4	513.6	147.82	4.474		
10,400.0	6,641.5	10,533.3	6,709.7	76.3	77.1	-96.01	-3,868.2	763.6	661.3	509.8	151.58	4.363		
10,500.0	6,641.3	10,633.3	6,709.1	78.2	79.0	-95.97	-3,968.2	763.6	661.3	506.0	155.34	4.257		
10,600.0	6,641.1	10,733.3	6,708.6	80.0	80.8	-95.94	-4,068.2	763.6	661.3	502.2	159.11	4.156		
10,700.0	6,640.9	10,833.3	6,708.0	81.9	82.7	-95.91	-4,168.2	763.6	661.2	498.3	162.88	4.060		
10,800.0	6,640.6	10,933.3	6,707.4	83.8	84.6	-95.88	-4,268.2	763.6	661.2	494.5	166.65	3.967		
10,900.0	6,640.4	11,033.3	6,706.8	85.7	86.5	-95.85	-4,368.2	763.6	661.2	490.7	170.43	3.879		
11,000.0	6,640.2	11,133.3	6,706.2	87.6	88.3	-95.82	-4,468.2	763.6	661.1	486.9	174.21	3.795		
11,100.0	6,640.0	11,233.3	6,705.6	89.5	90.2	-95.78	-4,568.2	763.6	661.1	483.1	177.99	3.714		
11,200.0	6,639.7	11,333.3	6,705.0	91.4	92.1	-95.75	-4,668.2	763.6	661.0	479.3	181.77	3.637		
11,300.0	6,639.5	11,433.3	6,704.4	93.3	94.0	-95.72	-4,768.2	763.6	661.0	475.4	185.56	3.562		
11,400.0	6,639.3	11,533.3	6,703.8	95.2	95.9	-95.69	-4,868.2	763.6	661.0	471.6	189.35	3.491		
11,500.0	6,639.1	11,633.3	6,703.2	97.1	97.7	-95.66	-4,968.2	763.6	660.9	467.8	193.14	3.422		
11,600.0	6,638.8	11,733.3	6,702.6	99.0	99.6	-95.63	-5,068.2	763.6	660.9	464.0	196.93	3.356		
11,700.0	6,638.6	11,833.3	6,702.0	100.9	101.5	-95.59	-5,168.2	763.6	660.9	460.1	200.73	3.292		
11,800.0	6,638.4	11,933.3	6,701.4	102.8	103.4	-95.56	-5,268.1	763.6	660.8	456.3	204.52	3.231		
11,900.0	6,638.1	12,033.3	6,700.8	104.7	105.3	-95.53	-5,368.1	763.6	660.8	452.5	208.32	3.172		
12,000.0	6,637.9	12,133.3	6,700.2	106.6	107.2	-95.50	-5,468.1	763.6	660.8	448.6	212.12	3.115		
12,100.0	6,637.7	12,233.3	6,699.7	108.5	109.1	-95.47	-5,568.1	763.6	660.7	444.8	215.92	3.060		
12,200.0	6,637.5	12,333.3	6,699.1	110.4	111.0	-95.44	-5,668.1	763.6	660.7	441.0	219.73	3.007		
12,300.0	6,637.2	12,433.3	6,698.5	112.3	112.9	-95.41	-5,768.1	763.6	660.6	437.1	223.53	2.955		
12,400.0	6,637.0	12,533.3	6,697.9	114.2	114.8	-95.37	-5,868.1	763.6	660.6	433.3	227.34	2.906		
12,500.0	6,636.8	12,633.3	6,697.3	116.1	116.7	-95.34	-5,968.1	763.6	660.6	429.4	231.15	2.858		
12,600.0	6,636.6	12,733.3	6,696.7	118.0	118.6	-95.31	-6,068.1	763.6	660.5	425.6	234.96	2.811		
12,700.0	6,636.3	12,833.3	6,696.1	119.9	120.5	-95.28	-6,168.1	763.6	660.5	421.7	238.77	2.766		
12,800.0	6,636.1	12,933.3	6,695.5	121.9	122.4	-95.25	-6,268.1	763.6	660.5	417.9	242.58	2.723		
12,900.0	6,635.9	13,033.3	6,694.9	123.8	124.2	-95.22	-6,368.1	763.6	660.4	414.1	246.39	2.680		
13,000.0	6,635.7	13,133.3	6,694.3	125.7	126.1	-95.18	-6,468.1	763.6	660.4	410.2	250.20	2.640		
13,100.0	6,635.4	13,233.3	6,693.7	127.6	128.0	-95.15	-6,568.1	763.6	660.4	406.4	254.02	2.600		
13,200.0	6,635.2	13,333.3	6,693.1	129.5	129.9	-95.12	-6,668.1	763.6	660.3	402.5	257.83	2.561		
13,300.0	6,635.0	13,433.3	6,692.5	131.4	131.8	-95.09	-6,768.1	763.6	660.3	398.7	261.65	2.524		
13,400.0	6,634.7	13,533.3	6,691.9	133.3	133.8	-95.06	-6,868.1	763.6	660.3	394.8	265.47	2.487		
13,500.0	6,634.5	13,633.3	6,691.3	135.2	135.7	-95.03	-6,968.1	763.6	660.2	391.0	269.29	2.452		
13,600.0	6,634.3	13,733.3	6,690.8	137.1	137.6	-94.99	-7,068.1	763.6	660.2	387.1	273.10	2.417		
13,700.0	6,634.1	13,833.3	6,690.2	139.0	139.5	-94.96	-7,168.1	763.6	660.2	383.3	276.92	2.384		
13,727.3	6,634.0	13,860.3	6,690.0	139.6	140.0	-94.95	-7,195.1	763.6	660.2	382.2	277.96	2.375		
13,727.3	6,634.0	13,860.3	6,690.0	139.6	140.0	-94.95	-7,195.1	763.6	660.2	382.2	277.96	2.375 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.01	90.01	0.0	91.9	92.0				
100.0	100.0	98.0	98.0	0.1	0.1	90.01	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	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	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	90.01	0.0	91.9	91.9	90.4	1.57	58.605 CC, ES	
500.0	500.0	495.0	495.0	1.0	1.0	89.82	89.82	0.3	93.5	93.5	91.5	2.00	46.696	
600.0	600.0	591.7	591.5	1.2	1.2	89.28	89.28	1.2	98.2	98.5	96.0	2.44	40.374	
700.0	700.0	687.9	687.4	1.5	1.4	88.48	88.48	2.8	106.1	106.7	103.8	2.88	37.016	
800.0	800.0	783.5	782.4	1.7	1.7	87.56	87.56	5.0	117.1	118.2	114.9	3.33	35.455	
900.0	900.0	878.3	876.1	1.9	2.0	86.61	86.61	7.8	131.0	133.1	129.3	3.80	35.057	
1,000.0	1,000.0	972.0	968.2	2.1	2.3	85.70	85.70	11.1	147.8	151.1	146.9	4.27	35.416	
1,100.0	1,100.0	1,069.1	1,063.2	2.4	2.7	84.88	84.88	15.0	167.1	171.4	166.6	4.76	36.024	
1,200.0	1,200.0	1,167.0	1,159.1	2.6	3.1	84.23	84.23	18.9	186.7	191.7	186.4	5.25	36.514	
1,300.0	1,300.0	1,264.9	1,254.9	2.8	3.5	83.70	83.70	22.8	206.3	212.0	206.2	5.75	36.872	
1,400.0	1,400.0	1,362.7	1,350.7	3.0	3.9	83.26	83.26	26.7	225.9	232.3	226.1	6.26	37.140	
1,500.0	1,500.0	1,460.6	1,446.6	3.3	4.3	82.90	82.90	30.6	245.5	252.7	245.9	6.77	37.343	
1,600.0	1,600.0	1,558.5	1,542.4	3.5	4.7	82.59	82.59	34.5	265.1	273.0	265.7	7.28	37.499	
1,700.0	1,700.0	1,656.4	1,638.3	3.7	5.2	82.32	82.32	38.4	284.7	293.4	285.6	7.80	37.621	
1,800.0	1,800.0	1,754.3	1,734.1	3.9	5.6	82.08	82.08	42.3	304.2	313.7	305.4	8.32	37.718	
1,900.0	1,900.0	1,852.2	1,829.9	4.2	6.0	81.88	81.88	46.2	323.8	334.1	325.3	8.84	37.795	
2,000.0	2,000.0	1,950.1	1,925.8	4.4	6.5	81.70	81.70	50.1	343.4	354.5	345.1	9.36	37.858	
2,100.0	2,100.0	2,048.0	2,021.6	4.6	6.9	81.54	81.54	54.0	363.0	374.9	365.0	9.89	37.909	
2,200.0	2,200.0	2,145.9	2,117.5	4.8	7.3	81.39	81.39	57.9	382.6	395.2	384.8	10.41	37.950	
2,300.0	2,300.0	2,243.8	2,213.3	5.1	7.8	81.26	81.26	61.8	402.2	415.6	404.7	10.94	37.985	
2,400.0	2,400.0	2,341.7	2,309.1	5.3	8.2	81.14	81.14	65.7	421.8	436.0	424.5	11.47	38.013	
2,500.0	2,500.0	2,439.6	2,405.0	5.5	8.6	81.03	81.03	69.6	441.3	456.4	444.4	12.00	38.037	
2,600.0	2,600.0	2,537.7	2,501.0	5.7	9.1	82.89	82.89	73.5	461.0	475.7	464.0	11.78	40.383	
2,700.0	2,699.8	2,636.1	2,597.4	6.0	9.5	53.00	53.00	77.5	480.7	493.0	480.8	12.27	40.195	
2,800.0	2,799.5	2,734.8	2,693.9	6.2	10.0	53.46	53.46	81.4	500.4	508.3	495.6	12.75	39.865	
2,900.0	2,898.9	2,833.5	2,790.6	6.4	10.4	54.24	54.24	85.3	520.1	522.8	509.6	13.24	39.497	
3,000.0	2,998.4	2,932.2	2,887.2	6.6	10.9	54.98	54.98	89.3	539.9	537.4	523.6	13.73	39.145	
3,100.0	3,097.9	3,030.9	2,983.8	6.9	11.3	55.68	55.68	93.2	559.6	552.0	537.8	14.22	38.808	
3,200.0	3,197.4	3,129.6	3,080.4	7.1	11.7	56.34	56.34	97.1	579.4	566.7	552.0	14.73	38.486	
3,300.0	3,296.8	3,228.3	3,177.1	7.4	12.2	56.97	56.97	101.1	599.1	581.5	566.3	15.23	38.177	
3,400.0	3,396.3	3,327.0	3,273.7	7.6	12.6	57.57	57.57	105.0	618.9	596.4	580.7	15.74	37.880	
3,500.0	3,495.8	3,425.7	3,370.3	7.9	13.1	58.14	58.14	109.0	638.6	611.3	595.1	16.26	37.596	
3,600.0	3,595.3	3,524.4	3,466.9	8.1	13.5	58.68	58.68	112.9	658.4	626.3	609.5	16.78	37.324	
3,700.0	3,694.8	3,623.1	3,563.6	8.4	14.0	59.20	59.20	116.8	678.1	641.3	624.0	17.30	37.063	
3,800.0	3,794.2	3,721.8	3,660.2	8.6	14.4	59.69	59.69	120.8	697.9	656.4	638.6	17.83	36.812	
3,900.0	3,893.7	3,820.5	3,756.8	8.9	14.8	60.17	60.17	124.7	717.6	671.6	653.2	18.36	36.572	
4,000.0	3,993.2	3,919.2	3,853.4	9.1	15.3	60.62	60.62	128.6	737.4	686.7	667.8	18.90	36.341	
4,100.0	4,092.7	4,017.9	3,950.1	9.4	15.7	61.05	61.05	132.6	757.1	701.9	682.5	19.43	36.119	
4,200.0	4,192.2	4,116.6	4,046.7	9.7	16.2	61.46	61.46	136.5	776.9	717.2	697.2	19.97	35.905	
4,300.0	4,291.6	4,215.3	4,143.3	9.9	16.6	61.86	61.86	140.4	796.6	732.5	712.0	20.52	35.700	
4,400.0	4,391.1	4,314.0	4,239.9	10.2	17.1	62.24	62.24	144.4	816.3	747.8	726.7	21.06	35.503	
4,500.0	4,490.6	4,412.7	4,336.6	10.5	17.5	62.60	62.60	148.3	836.1	763.1	741.5	21.61	35.313	
4,600.0	4,590.1	4,511.4	4,433.2	10.7	18.0	62.95	62.95	152.3	855.8	778.5	756.4	22.16	35.131	
4,700.0	4,689.5	4,610.1	4,529.8	11.0	18.4	63.29	63.29	156.2	875.6	793.9	771.2	22.71	34.955	
4,800.0	4,789.1	4,708.8	4,626.4	11.3	18.8	63.77	63.77	160.1	895.3	809.9	786.6	23.23	34.858	
4,900.0	4,889.0	4,807.2	4,722.8	11.5	19.3	64.12	64.12	164.1	915.0	827.3	803.6	23.69	34.917	
5,000.0	4,988.9	4,905.4	4,818.9	11.6	19.7	64.27	64.27	168.0	934.7	846.2	822.1	24.12	35.083	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (12-30-13)													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	Semi Major Axis	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
5,100.0	5,088.9	5,003.3	4,914.7	11.8	20.2	91.90	91.90	171.9	954.3	866.1	841.6	24.55	35.278	
5,200.0	5,188.9	5,101.2	5,010.5	12.0	20.6	91.60	91.60	175.8	973.8	886.0	861.0	25.01	35.432	
5,300.0	5,288.9	5,199.1	5,106.4	12.2	21.1	91.31	91.31	179.7	993.4	905.9	880.5	25.46	35.579	
5,400.0	5,388.9	5,297.0	5,202.2	12.4	21.5	91.04	91.04	183.6	1,013.0	925.9	899.9	25.92	35.721	
5,500.0	5,488.9	5,394.9	5,298.1	12.7	21.9	90.77	90.77	187.5	1,032.6	945.8	919.4	26.38	35.857	
5,600.0	5,588.9	5,532.2	5,432.9	12.9	22.4	90.45	90.45	192.5	1,057.7	964.2	937.3	26.89	35.850	
5,700.0	5,688.9	5,680.5	5,579.8	13.1	22.8	90.21	90.21	196.5	1,077.7	977.6	950.3	27.39	35.693	
5,800.0	5,788.9	5,830.5	5,729.3	13.3	23.1	90.06	90.06	199.0	1,090.3	986.0	958.2	27.87	35.383	
5,900.0	5,888.9	5,981.6	5,880.2	13.5	23.3	-90.00	-90.00	200.0	1,095.2	989.3	961.0	28.33	34.921	
6,000.0	5,988.6	6,087.9	5,986.6	13.6	23.5	-90.40	-90.40	200.0	1,095.3	989.4	960.8	28.61	34.576	
6,100.0	6,086.5	6,187.3	6,086.0	13.7	23.6	-91.47	-91.47	198.8	1,095.3	989.7	960.9	28.78	34.383	
6,200.0	6,181.0	6,290.0	6,187.8	13.8	23.6	-92.65	-92.65	186.3	1,095.3	990.5	961.6	28.88	34.290	
6,300.0	6,270.4	6,395.8	6,290.0	13.9	23.7	-93.80	-93.80	159.2	1,095.3	991.6	962.7	28.97	34.234	
6,400.0	6,353.2	6,504.9	6,390.4	13.9	23.7	-94.90	-94.90	116.8	1,095.3	993.1	964.0	29.10	34.133	
6,500.0	6,428.0	6,617.3	6,486.5	14.0	23.8	-95.93	-95.93	58.6	1,095.3	994.8	965.5	29.35	33.894	
6,600.0	6,493.5	6,733.1	6,575.4	14.3	23.8	-96.87	-96.87	-15.4	1,095.3	996.7	966.9	29.81	33.431	
6,700.0	6,548.6	6,852.0	6,654.0	14.8	24.0	-97.68	-97.68	-104.4	1,095.3	998.4	967.9	30.56	32.667	
6,800.0	6,592.4	6,973.7	6,719.2	15.5	24.2	-98.34	-98.34	-207.1	1,095.3	1,000.0	968.4	31.67	31.573	
6,900.0	6,624.0	7,097.7	6,768.0	16.3	24.6	-98.83	-98.83	-320.9	1,095.3	1,001.3	968.1	33.16	30.193	
7,000.0	6,643.0	7,223.4	6,798.0	17.3	25.2	-99.13	-99.13	-442.8	1,095.3	1,002.1	967.0	35.04	28.597	
7,100.0	6,649.0	7,331.9	6,810.5	18.4	25.9	-99.38	-99.38	-550.6	1,095.3	1,002.9	965.9	37.04	27.077	
7,200.0	6,648.8	7,447.6	6,817.4	19.7	26.8	-99.79	-99.79	-666.1	1,095.3	1,004.0	964.4	39.53	25.397	
7,300.0	6,648.6	7,549.7	6,817.3	21.1	27.7	-99.79	-99.79	-768.1	1,095.3	1,004.0	961.8	42.15	23.820	
7,400.0	6,648.4	7,649.7	6,817.1	22.5	28.8	-99.79	-99.79	-868.1	1,095.3	1,004.0	959.1	44.90	22.358	
7,500.0	6,648.1	7,749.7	6,816.9	24.0	29.9	-99.80	-99.80	-968.1	1,095.3	1,004.0	956.2	47.80	21.003	
7,600.0	6,647.9	7,849.7	6,816.8	25.6	31.2	-99.80	-99.80	-1,068.1	1,095.3	1,004.0	953.2	50.82	19.756	
7,700.0	6,647.7	7,949.7	6,816.6	27.2	32.5	-99.80	-99.80	-1,168.1	1,095.3	1,004.0	950.1	53.93	18.616	
7,800.0	6,647.4	8,049.7	6,816.4	28.8	33.8	-99.80	-99.80	-1,268.1	1,095.3	1,004.0	946.9	57.13	17.574	
7,900.0	6,647.2	8,149.7	6,816.2	30.5	35.3	-99.80	-99.80	-1,368.1	1,095.3	1,004.0	943.6	60.40	16.624	
8,000.0	6,647.0	8,249.7	6,816.0	32.2	36.7	-99.81	-99.81	-1,468.1	1,095.3	1,004.0	940.3	63.72	15.757	
8,100.0	6,646.8	8,349.7	6,815.8	33.9	38.2	-99.81	-99.81	-1,568.1	1,095.3	1,004.0	936.9	67.09	14.965	
8,200.0	6,646.5	8,449.7	6,815.6	35.7	39.8	-99.81	-99.81	-1,668.1	1,095.3	1,004.0	933.5	70.51	14.240	
8,300.0	6,646.3	8,549.7	6,815.4	37.4	41.4	-99.81	-99.81	-1,768.1	1,095.3	1,004.0	930.1	73.96	13.575	
8,400.0	6,646.1	8,649.7	6,815.2	39.2	43.0	-99.81	-99.81	-1,868.1	1,095.3	1,004.0	926.6	77.45	12.964	
8,500.0	6,645.9	8,749.7	6,815.0	41.0	44.6	-99.82	-99.82	-1,968.1	1,095.3	1,004.0	923.1	80.96	12.402	
8,600.0	6,645.6	8,849.7	6,814.8	42.8	46.3	-99.82	-99.82	-2,068.1	1,095.3	1,004.1	919.6	84.50	11.883	
8,700.0	6,645.4	8,949.7	6,814.6	44.6	48.0	-99.82	-99.82	-2,168.1	1,095.3	1,004.1	916.0	88.05	11.403	
8,800.0	6,645.2	9,049.7	6,814.5	46.5	49.7	-99.82	-99.82	-2,268.1	1,095.3	1,004.1	912.4	91.63	10.958	
8,900.0	6,645.0	9,149.7	6,814.3	48.3	51.4	-99.82	-99.82	-2,368.1	1,095.3	1,004.1	908.8	95.22	10.544	
9,000.0	6,644.7	9,249.7	6,814.1	50.1	53.1	-99.83	-99.83	-2,468.1	1,095.3	1,004.1	905.2	98.83	10.159	
9,100.0	6,644.5	9,349.7	6,813.9	52.0	54.8	-99.83	-99.83	-2,568.1	1,095.3	1,004.1	901.6	102.45	9.800	
9,200.0	6,644.3	9,449.7	6,813.7	53.8	56.6	-99.83	-99.83	-2,668.1	1,095.3	1,004.1	898.0	106.09	9.465	
9,300.0	6,644.0	9,549.7	6,813.5	55.7	58.4	-99.83	-99.83	-2,768.1	1,095.3	1,004.1	894.4	109.73	9.150	
9,400.0	6,643.8	9,649.7	6,813.3	57.5	60.1	-99.83	-99.83	-2,868.1	1,095.3	1,004.1	890.7	113.39	8.856	
9,500.0	6,643.6	9,749.7	6,813.1	59.4	61.9	-99.84	-99.84	-2,968.1	1,095.3	1,004.1	887.1	117.05	8.578	
9,600.0	6,643.4	9,849.7	6,812.9	61.2	63.7	-99.84	-99.84	-3,068.1	1,095.3	1,004.1	883.4	120.72	8.318	
9,700.0	6,643.1	9,949.7	6,812.7	63.1	65.5	-99.84	-99.84	-3,168.1	1,095.3	1,004.1	879.7	124.40	8.072	
9,800.0	6,642.9	10,049.7	6,812.5	65.0	67.3	-99.84	-99.84	-3,268.1	1,095.3	1,004.1	876.0	128.08	7.840	
9,900.0	6,642.7	10,149.7	6,812.3	66.9	69.1	-99.84	-99.84	-3,368.1	1,095.3	1,004.1	872.4	131.77	7.620	
10,000.0	6,642.5	10,249.7	6,812.1	68.7	70.9	-99.85	-99.85	-3,468.1	1,095.3	1,004.1	868.7	135.47	7.412	
10,100.0	6,642.2	10,349.7	6,812.0	70.6	72.8	-99.85	-99.85	-3,568.1	1,095.3	1,004.1	865.0	139.17	7.215	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (12-30-13)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
10,200.0	6,642.0	10,449.7	6,811.8	72.5	74.6	-99.85	-3,668.1	1,095.3	1,004.2	861.3	142.88	7.028	
10,300.0	6,641.8	10,549.7	6,811.6	74.4	76.4	-99.85	-3,768.1	1,095.3	1,004.2	857.6	146.59	6.850	
10,400.0	6,641.5	10,649.7	6,811.4	76.3	78.3	-99.85	-3,868.1	1,095.3	1,004.2	853.9	150.30	6.681	
10,500.0	6,641.3	10,749.7	6,811.2	78.2	80.1	-99.85	-3,968.1	1,095.3	1,004.2	850.1	154.02	6.520	
10,600.0	6,641.1	10,849.7	6,811.0	80.0	81.9	-99.86	-4,068.1	1,095.3	1,004.2	846.4	157.74	6.366	
10,700.0	6,640.9	10,949.7	6,810.8	81.9	83.8	-99.86	-4,168.1	1,095.3	1,004.2	842.7	161.47	6.219	
10,800.0	6,640.6	11,049.7	6,810.6	83.8	85.6	-99.86	-4,268.1	1,095.3	1,004.2	839.0	165.20	6.079	
10,900.0	6,640.4	11,149.7	6,810.4	85.7	87.5	-99.86	-4,368.1	1,095.3	1,004.2	835.3	168.93	5.944	
11,000.0	6,640.2	11,249.7	6,810.2	87.6	89.3	-99.86	-4,468.1	1,095.3	1,004.2	831.5	172.66	5.816	
11,100.0	6,640.0	11,349.7	6,810.0	89.5	91.2	-99.87	-4,568.1	1,095.3	1,004.2	827.8	176.40	5.693	
11,200.0	6,639.7	11,449.7	6,809.8	91.4	93.1	-99.87	-4,668.1	1,095.3	1,004.2	824.1	180.14	5.575	
11,300.0	6,639.5	11,549.7	6,809.7	93.3	94.9	-99.87	-4,768.1	1,095.3	1,004.2	820.3	183.88	5.461	
11,400.0	6,639.3	11,649.7	6,809.5	95.2	96.8	-99.87	-4,868.1	1,095.3	1,004.2	816.6	187.62	5.352	
11,500.0	6,639.1	11,749.7	6,809.3	97.1	98.7	-99.87	-4,968.1	1,095.3	1,004.2	812.9	191.36	5.248	
11,600.0	6,638.8	11,849.7	6,809.1	99.0	100.5	-99.88	-5,068.1	1,095.3	1,004.2	809.1	195.11	5.147	
11,700.0	6,638.6	11,949.7	6,808.9	100.9	102.4	-99.88	-5,168.1	1,095.3	1,004.2	805.4	198.86	5.050	
11,800.0	6,638.4	12,049.7	6,808.7	102.8	104.3	-99.88	-5,268.1	1,095.3	1,004.2	801.6	202.61	4.957	
11,900.0	6,638.1	12,149.7	6,808.5	104.7	106.1	-99.88	-5,368.1	1,095.3	1,004.3	797.9	206.36	4.867	
12,000.0	6,637.9	12,249.7	6,808.3	106.6	108.0	-99.88	-5,468.1	1,095.3	1,004.3	794.1	210.11	4.780	
12,100.0	6,637.7	12,349.7	6,808.1	108.5	109.9	-99.89	-5,568.1	1,095.3	1,004.3	790.4	213.87	4.696	
12,200.0	6,637.5	12,449.7	6,807.9	110.4	111.8	-99.89	-5,668.1	1,095.3	1,004.3	786.6	217.62	4.615	
12,300.0	6,637.2	12,549.7	6,807.7	112.3	113.7	-99.89	-5,768.1	1,095.3	1,004.3	782.9	221.38	4.536	
12,400.0	6,637.0	12,649.7	6,807.5	114.2	115.5	-99.89	-5,868.1	1,095.3	1,004.3	779.1	225.13	4.461	
12,500.0	6,636.8	12,749.7	6,807.3	116.1	117.4	-99.89	-5,968.1	1,095.3	1,004.3	775.4	228.89	4.388	
12,600.0	6,636.6	12,849.7	6,807.2	118.0	119.3	-99.90	-6,068.1	1,095.3	1,004.3	771.6	232.65	4.317	
12,700.0	6,636.3	12,949.7	6,807.0	119.9	121.2	-99.90	-6,168.1	1,095.3	1,004.3	767.9	236.41	4.248	
12,800.0	6,636.1	13,049.7	6,806.8	121.9	123.1	-99.90	-6,268.1	1,095.3	1,004.3	764.1	240.17	4.182	
12,900.0	6,635.9	13,149.7	6,806.6	123.8	125.0	-99.90	-6,368.1	1,095.3	1,004.3	760.4	243.94	4.117	
13,000.0	6,635.7	13,249.7	6,806.4	125.7	126.9	-99.90	-6,468.1	1,095.3	1,004.3	756.6	247.70	4.055	
13,100.0	6,635.4	13,349.7	6,806.2	127.6	128.8	-99.91	-6,568.1	1,095.3	1,004.3	752.9	251.46	3.994	
13,200.0	6,635.2	13,449.7	6,806.0	129.5	130.6	-99.91	-6,668.1	1,095.3	1,004.3	749.1	255.23	3.935	
13,300.0	6,635.0	13,549.7	6,805.8	131.4	132.5	-99.91	-6,768.1	1,095.3	1,004.3	745.3	258.99	3.878	
13,400.0	6,634.7	13,649.7	6,805.6	133.3	134.4	-99.91	-6,868.1	1,095.3	1,004.3	741.6	262.76	3.822	
13,500.0	6,634.5	13,749.7	6,805.4	135.2	136.3	-99.91	-6,968.1	1,095.3	1,004.3	737.8	266.53	3.768	
13,600.0	6,634.3	13,849.7	6,805.2	137.1	138.2	-99.92	-7,068.1	1,095.3	1,004.4	734.1	270.30	3.716	
13,700.0	6,634.1	13,949.7	6,805.0	139.0	140.1	-99.92	-7,168.1	1,095.3	1,004.4	730.3	274.06	3.665	
13,710.9	6,634.0	13,960.5	6,805.0	139.2	140.3	-99.92	-7,178.9	1,095.3	1,004.4	729.9	274.47	3.659	
13,727.3	6,634.0	13,973.0	6,805.0	139.6	140.6	-99.92	-7,191.4	1,095.3	1,004.4	729.4	275.02	3.652 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	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: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	176.53	176.53	-965.4	58.5	967.2				
100.0	100.0	90.0	90.0	0.1	1.8	176.53	176.53	-965.4	58.5	967.2	965.3	1.91	505.701	
200.0	200.0	190.0	190.0	0.3	3.8	176.53	176.53	-965.4	58.5	967.2	963.1	4.14	233.772	
300.0	300.0	290.0	290.0	0.6	5.8	176.53	176.53	-965.4	58.5	967.2	960.8	6.36	152.024	
400.0	400.0	390.0	390.0	0.8	7.8	176.53	176.53	-965.4	58.5	967.2	958.6	8.59	112.636	
500.0	500.0	490.0	490.0	1.0	9.8	176.53	176.53	-965.4	58.5	967.2	956.4	10.81	89.459	
600.0	600.0	590.0	590.0	1.2	11.8	176.53	176.53	-965.4	58.5	967.2	954.2	13.04	74.192	
700.0	700.0	690.0	690.0	1.5	13.8	176.53	176.53	-965.4	58.5	967.2	951.9	15.26	63.376	
800.0	800.0	790.0	790.0	1.7	15.8	176.53	176.53	-965.4	58.5	967.2	949.7	17.49	55.313	
900.0	900.0	890.0	890.0	1.9	17.8	176.53	176.53	-965.4	58.5	967.2	947.5	19.71	49.070	
1,000.0	1,000.0	990.0	990.0	2.1	19.8	176.53	176.53	-965.4	58.5	967.2	945.3	21.94	44.093	
1,100.0	1,100.0	1,090.0	1,090.0	2.4	21.8	176.53	176.53	-965.4	58.5	967.2	943.0	24.16	40.033	
1,200.0	1,200.0	1,190.0	1,190.0	2.6	23.8	176.53	176.53	-965.4	58.5	967.2	940.8	26.38	36.657	
1,300.0	1,300.0	1,290.0	1,290.0	2.8	25.8	176.53	176.53	-965.4	58.5	967.2	938.6	28.61	33.806	
1,400.0	1,400.0	1,390.0	1,390.0	3.0	27.8	176.53	176.53	-965.4	58.5	967.2	936.4	30.83	31.367	
1,500.0	1,500.0	1,490.0	1,490.0	3.3	29.8	176.53	176.53	-965.4	58.5	967.2	934.1	33.06	29.256	
1,600.0	1,600.0	1,590.0	1,590.0	3.5	31.8	176.53	176.53	-965.4	58.5	967.2	931.9	35.28	27.412	
1,700.0	1,700.0	1,690.0	1,690.0	3.7	33.8	176.53	176.53	-965.4	58.5	967.2	929.7	37.51	25.786	
1,800.0	1,800.0	1,790.0	1,790.0	3.9	35.8	176.53	176.53	-965.4	58.5	967.2	927.5	39.73	24.342	
1,900.0	1,900.0	1,890.0	1,890.0	4.2	37.8	176.53	176.53	-965.4	58.5	967.2	925.2	41.96	23.051	
2,000.0	2,000.0	1,990.0	1,990.0	4.4	39.8	176.53	176.53	-965.4	58.5	967.2	923.0	44.18	21.891	
2,100.0	2,100.0	2,090.0	2,090.0	4.6	41.8	176.53	176.53	-965.4	58.5	967.2	920.8	46.41	20.841	
2,200.0	2,200.0	2,190.0	2,190.0	4.8	43.8	176.53	176.53	-965.4	58.5	967.2	918.6	48.63	19.888	
2,300.0	2,300.0	2,290.0	2,290.0	5.1	45.8	176.53	176.53	-965.4	58.5	967.2	916.3	50.86	19.018	
2,400.0	2,400.0	2,390.0	2,390.0	5.3	47.8	176.53	176.53	-965.4	58.5	967.2	914.1	53.08	18.221	
2,500.0	2,500.0	2,490.0	2,490.0	5.5	49.8	176.53	176.53	-965.4	58.5	967.2	911.9	55.31	17.488	
2,600.0	2,600.0	2,590.0	2,590.0	5.7	51.8	148.67	148.67	-965.4	58.5	968.7	911.2	57.50	16.845	
2,700.0	2,699.8	2,689.8	2,689.8	6.0	53.8	148.78	148.78	-965.4	58.5	973.2	913.5	59.64	16.316	
2,800.0	2,799.5	2,789.5	2,789.5	6.2	55.8	148.97	148.97	-965.4	58.5	980.6	918.9	61.73	15.885	
2,900.0	2,898.9	2,888.9	2,888.9	6.4	57.8	149.28	149.28	-965.4	58.5	989.4	925.4	63.94	15.474	
3,000.0	2,998.4	2,988.4	2,988.4	6.6	59.8	149.58	149.58	-965.4	58.5	998.2	932.0	66.15	15.090	
3,100.0	3,097.9	3,087.9	3,087.9	6.9	61.8	149.87	149.87	-965.4	58.5	1,007.0	938.6	68.36	14.732	
3,200.0	3,197.4	3,187.4	3,187.4	7.1	63.7	150.16	150.16	-965.4	58.5	1,015.8	945.3	70.57	14.395	
3,300.0	3,296.8	3,286.8	3,286.8	7.4	65.7	150.44	150.44	-965.4	58.5	1,024.7	951.9	72.78	14.080	
3,400.0	3,396.3	3,386.3	3,386.3	7.6	67.7	150.72	150.72	-965.4	58.5	1,033.6	958.6	74.99	13.783	
3,500.0	3,495.8	3,485.8	3,485.8	7.9	69.7	150.99	150.99	-965.4	58.5	1,042.5	965.3	77.21	13.503	
3,600.0	3,595.3	3,585.3	3,585.3	8.1	71.7	151.26	151.26	-965.4	58.5	1,051.5	972.1	79.42	13.239	
3,700.0	3,694.8	3,684.8	3,684.8	8.4	73.7	151.53	151.53	-965.4	58.5	1,060.4	978.8	81.64	12.990	
3,800.0	3,794.2	3,784.2	3,784.2	8.6	75.7	151.79	151.79	-965.4	58.5	1,069.4	985.6	83.85	12.754	
3,900.0	3,893.7	3,883.7	3,883.7	8.9	77.7	152.04	152.04	-965.4	58.5	1,078.4	992.4	86.07	12.530	
4,000.0	3,993.2	3,983.2	3,983.2	9.1	79.7	152.30	152.30	-965.4	58.5	1,087.5	999.2	88.29	12.318	
4,100.0	4,092.7	4,082.7	4,082.7	9.4	81.7	152.54	152.54	-965.4	58.5	1,096.5	1,006.0	90.50	12.116	
4,200.0	4,192.2	4,182.2	4,182.2	9.7	83.6	152.79	152.79	-965.4	58.5	1,105.6	1,012.9	92.72	11.924	
4,300.0	4,291.6	4,281.6	4,281.6	9.9	85.6	153.03	153.03	-965.4	58.5	1,114.7	1,019.8	94.94	11.741	
4,400.0	4,391.1	4,381.1	4,381.1	10.2	87.6	153.26	153.26	-965.4	58.5	1,123.8	1,026.6	97.16	11.567	
4,500.0	4,490.6	4,480.6	4,480.6	10.5	89.6	153.49	153.49	-965.4	58.5	1,132.9	1,033.6	99.38	11.401	
4,600.0	4,590.1	4,580.1	4,580.1	10.7	91.6	153.72	153.72	-965.4	58.5	1,142.1	1,040.5	101.59	11.242	
4,700.0	4,689.5	4,679.5	4,679.5	11.0	93.6	153.95	153.95	-965.4	58.5	1,151.2	1,047.4	103.81	11.090	
4,800.0	4,789.1	4,779.1	4,779.1	11.3	95.6	154.20	154.20	-965.4	58.5	1,159.4	1,053.2	106.21	10.916	
4,900.0	4,889.0	4,879.0	4,879.0	11.5	97.6	154.36	154.36	-965.4	58.5	1,164.4	1,055.9	108.53	10.729	
5,000.0	4,988.9	4,978.9	4,978.9	11.6	99.6	154.43	154.43	-965.4	58.5	1,166.4	1,055.6	110.76	10.531	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	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: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,088.9	5,078.9	5,078.9	11.8	101.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,053.4	112.95	10.327	
5,200.0	5,188.9	5,178.9	5,178.9	12.0	103.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,051.2	115.17	10.128	
5,300.0	5,288.9	5,278.9	5,278.9	12.2	105.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,049.0	117.39	9.936	
5,400.0	5,388.9	5,378.9	5,378.9	12.4	107.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,046.8	119.61	9.752	
5,500.0	5,488.9	5,478.9	5,478.9	12.7	109.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,044.6	121.83	9.574	
5,600.0	5,588.9	5,578.9	5,578.9	12.9	111.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,042.3	124.05	9.403	
5,700.0	5,688.9	5,678.9	5,678.9	13.1	113.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,040.1	126.27	9.237	
5,800.0	5,788.9	5,778.9	5,778.9	13.3	115.6	-177.67	-177.67	-965.4	58.5	1,166.4	1,037.9	128.49	9.078	
5,900.0	5,888.9	5,878.9	5,878.9	13.5	117.6	2.33	2.33	-965.4	58.5	1,166.4	1,035.7	130.70	8.924	
6,000.0	5,988.6	5,978.6	5,978.6	13.6	119.6	2.36	2.36	-965.4	58.5	1,159.3	1,027.7	131.61	8.809	
6,100.0	6,086.5	6,076.5	6,076.5	13.7	121.5	2.47	2.47	-965.4	58.5	1,139.4	1,009.2	130.21	8.751	
6,200.0	6,181.0	6,171.0	6,171.0	13.8	123.4	2.66	2.66	-965.4	58.5	1,106.8	980.4	126.42	8.755	
6,300.0	6,270.4	6,260.4	6,260.4	13.9	125.2	2.96	2.96	-965.4	58.5	1,062.2	941.9	120.26	8.833	
6,400.0	6,353.2	6,343.2	6,343.2	13.9	126.9	3.41	3.41	-965.4	58.5	1,006.3	894.5	111.80	9.001	
6,500.0	6,428.0	6,418.0	6,418.0	14.0	128.4	4.10	4.10	-965.4	58.5	940.1	838.9	101.24	9.286	
6,600.0	6,493.5	6,483.5	6,483.5	14.3	129.7	5.19	5.19	-965.4	58.5	864.8	775.9	88.90	9.728	
6,700.0	6,548.6	6,538.6	6,538.6	14.8	130.8	6.99	6.99	-965.4	58.5	781.6	706.1	75.49	10.353	
6,800.0	6,592.4	6,582.4	6,582.4	15.5	131.6	10.29	10.29	-965.4	58.5	691.9	628.8	63.07	10.970	
6,900.0	6,624.0	6,614.0	6,614.0	16.3	132.3	17.40	17.40	-965.4	58.5	597.4	537.5	59.91	9.970	
7,000.0	6,643.0	6,633.0	6,633.0	17.3	132.7	37.20	37.20	-965.4	58.5	499.6	406.3	93.30	5.355	
7,100.0	6,649.0	6,639.0	6,639.0	18.4	132.8	91.09	91.09	-965.4	58.5	400.5	249.3	151.15	2.649	
7,200.0	6,648.8	6,638.8	6,638.8	19.7	132.8	90.82	90.82	-965.4	58.5	301.4	149.0	152.41	1.977	
7,300.0	6,648.6	6,638.6	6,638.6	21.1	132.8	90.54	90.54	-965.4	58.5	203.2	49.5	153.78	1.322 Level 3	
7,400.0	6,648.4	6,638.4	6,638.4	22.5	132.8	90.27	90.27	-965.4	58.5	108.5	-46.7	155.22	0.699 Level 1	
7,497.6	6,648.1	6,638.1	6,638.1	24.0	132.8	90.00	90.00	-965.4	58.5	47.4	-109.3	156.68	0.302 Level 1, CC, ES, SF	
7,500.0	6,648.1	6,638.1	6,638.1	24.0	132.8	89.99	89.99	-965.4	58.5	47.5	-109.3	156.72	0.303 Level 1	
7,600.0	6,647.9	6,637.9	6,637.9	25.6	132.8	89.72	89.72	-965.4	58.5	112.8	-45.5	158.28	0.713 Level 1	
7,700.0	6,647.7	6,637.7	6,637.7	27.2	132.8	89.44	89.44	-965.4	58.5	207.8	48.0	159.87	1.300 Level 3	
7,800.0	6,647.4	6,637.4	6,637.4	28.8	132.7	89.17	89.17	-965.4	58.5	306.0	144.5	161.51	1.895	
7,900.0	6,647.2	6,637.2	6,637.2	30.5	132.7	88.90	88.90	-965.4	58.5	405.1	242.0	163.17	2.483	
8,000.0	6,647.0	6,637.0	6,637.0	32.2	132.7	88.62	88.62	-965.4	58.5	504.6	339.7	164.85	3.061	
8,100.0	6,646.8	6,636.8	6,636.8	33.9	132.7	88.35	88.35	-965.4	58.5	604.2	437.7	166.55	3.628	
8,200.0	6,646.5	6,636.5	6,636.5	35.7	132.7	88.07	88.07	-965.4	58.5	704.0	535.7	168.27	4.183	
8,300.0	6,646.3	6,636.3	6,636.3	37.4	132.7	87.80	87.80	-965.4	58.5	803.8	633.8	170.00	4.728	
8,400.0	6,646.1	6,636.1	6,636.1	39.2	132.7	87.53	87.53	-965.4	58.5	903.6	731.9	171.75	5.261	
8,500.0	6,645.9	6,635.9	6,635.9	41.0	132.7	87.25	87.25	-965.4	58.5	1,003.5	830.0	173.49	5.784	
8,600.0	6,645.6	6,635.6	6,635.6	42.8	132.7	86.98	86.98	-965.4	58.5	1,103.4	928.1	175.25	6.296	
8,700.0	6,645.4	6,635.4	6,635.4	44.6	132.7	86.71	86.71	-965.4	58.5	1,203.3	1,026.3	177.01	6.798	
8,800.0	6,645.2	6,635.2	6,635.2	46.5	132.7	86.43	86.43	-965.4	58.5	1,303.2	1,124.4	178.78	7.290	
8,900.0	6,645.0	6,635.0	6,635.0	48.3	132.7	86.16	86.16	-965.4	58.5	1,403.2	1,222.6	180.54	7.772	
9,000.0	6,644.7	6,634.7	6,634.7	50.1	132.7	85.89	85.89	-965.4	58.5	1,503.1	1,320.8	182.31	8.245	
9,100.0	6,644.5	6,634.5	6,634.5	52.0	132.7	85.61	85.61	-965.4	58.5	1,603.1	1,419.0	184.09	8.708	
9,200.0	6,644.3	6,634.3	6,634.3	53.8	132.7	85.34	85.34	-965.4	58.5	1,703.0	1,517.2	185.86	9.163	
9,300.0	6,644.0	6,634.0	6,634.0	55.7	132.7	85.07	85.07	-965.4	58.5	1,803.0	1,615.3	187.63	9.609	
9,400.0	6,643.8	6,633.8	6,633.8	57.5	132.7	84.80	84.80	-965.4	58.5	1,902.9	1,713.5	189.40	10.047	
9,500.0	6,643.6	6,633.6	6,633.6	59.4	132.7	84.52	84.52	-965.4	58.5	2,002.9	1,811.7	191.16	10.477	
9,600.0	6,643.4	6,633.4	6,633.4	61.2	132.7	84.25	84.25	-965.4	58.5	2,102.9	1,910.0	192.93	10.900	
9,700.0	6,643.1	6,633.1	6,633.1	63.1	132.7	83.98	83.98	-965.4	58.5	2,202.9	2,008.2	194.70	11.314	
9,800.0	6,642.9	6,632.9	6,632.9	65.0	132.7	83.71	83.71	-965.4	58.5	2,302.8	2,106.4	196.46	11.722	
9,900.0	6,642.7	6,632.7	6,632.7	66.9	132.7	83.44	83.44	-965.4	58.5	2,402.8	2,204.6	198.22	12.122	
10,000.0	6,642.5	6,632.5	6,632.5	68.7	132.6	83.17	83.17	-965.4	58.5	2,502.8	2,302.8	199.97	12.516	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	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: 7600-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance								Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor					
10,100.0	6,642.2	6,632.2	6,632.2	70.6	132.6	82.90	-965.4	58.5	2,602.8	2,401.1	201.72	12.903					
10,200.0	6,642.0	6,632.0	6,632.0	72.5	132.6	82.63	-965.4	58.5	2,702.8	2,499.3	203.47	13.283					
10,300.0	6,641.8	6,631.8	6,631.8	74.4	132.6	82.36	-965.4	58.5	2,802.8	2,597.5	205.22	13.658					
10,400.0	6,641.5	6,631.5	6,631.5	76.3	132.6	82.09	-965.4	58.5	2,902.7	2,695.8	206.96	14.026					
10,500.0	6,641.3	6,631.3	6,631.3	78.2	132.6	81.82	-965.4	58.5	3,002.7	2,794.0	208.69	14.388					
10,600.0	6,641.1	6,631.1	6,631.1	80.0	132.6	81.55	-965.4	58.5	3,102.7	2,892.3	210.42	14.745					
10,700.0	6,640.9	6,630.9	6,630.9	81.9	132.6	81.28	-965.4	58.5	3,202.7	2,990.6	212.15	15.097					
10,800.0	6,640.6	6,630.6	6,630.6	83.8	132.6	81.02	-965.4	58.5	3,302.7	3,088.8	213.87	15.443					
10,900.0	6,640.4	6,630.4	6,630.4	85.7	132.6	80.75	-965.4	58.5	3,402.7	3,187.1	215.58	15.784					
11,000.0	6,640.2	6,630.2	6,630.2	87.6	132.6	80.48	-965.4	58.5	3,502.7	3,285.4	217.29	16.120					
11,100.0	6,640.0	6,630.0	6,630.0	89.5	132.6	80.22	-965.4	58.5	3,602.7	3,383.7	219.00	16.451					
11,200.0	6,639.7	6,629.7	6,629.7	91.4	132.6	79.95	-965.4	58.5	3,702.7	3,482.0	220.69	16.777					
11,300.0	6,639.5	6,629.5	6,629.5	93.3	132.6	79.68	-965.4	58.5	3,802.6	3,580.3	222.39	17.099					
11,400.0	6,639.3	6,629.3	6,629.3	95.2	132.6	79.42	-965.4	58.5	3,902.6	3,678.6	224.07	17.417					
11,500.0	6,639.1	6,629.1	6,629.1	97.1	132.6	79.15	-965.4	58.5	4,002.6	3,776.9	225.75	17.730					
11,600.0	6,638.8	6,628.8	6,628.8	99.0	132.6	78.89	-965.4	58.5	4,102.6	3,875.2	227.43	18.039					
11,700.0	6,638.6	6,628.6	6,628.6	100.9	132.6	78.62	-965.4	58.5	4,202.6	3,973.5	229.10	18.344					
11,800.0	6,638.4	6,628.4	6,628.4	102.8	132.6	78.36	-965.4	58.5	4,302.6	4,071.8	230.76	18.645					
11,900.0	6,638.1	6,628.1	6,628.1	104.7	132.6	78.10	-965.4	58.5	4,402.6	4,170.2	232.42	18.943					
12,000.0	6,637.9	6,627.9	6,627.9	106.6	132.6	77.84	-965.4	58.5	4,502.6	4,268.5	234.06	19.237					
12,100.0	6,637.7	6,627.7	6,627.7	108.5	132.6	77.57	-965.4	58.5	4,602.6	4,366.9	235.71	19.527					
12,200.0	6,637.5	6,627.5	6,627.5	110.4	132.5	77.31	-965.4	58.5	4,702.6	4,465.2	237.34	19.814					
12,300.0	6,637.2	6,627.2	6,627.2	112.3	132.5	77.05	-965.4	58.5	4,802.6	4,563.6	238.97	20.097					
12,400.0	6,637.0	6,627.0	6,627.0	114.2	132.5	76.79	-965.4	58.5	4,902.6	4,662.0	240.59	20.377					
12,500.0	6,636.8	6,626.8	6,626.8	116.1	132.5	76.53	-965.4	58.5	5,002.6	4,760.4	242.21	20.654					
12,600.0	6,636.6	6,626.6	6,626.6	118.0	132.5	76.27	-965.4	58.5	5,102.6	4,858.7	243.82	20.928					
12,700.0	6,636.3	6,626.3	6,626.3	119.9	132.5	76.01	-965.4	58.5	5,202.6	4,957.1	245.42	21.199					
12,800.0	6,636.1	6,626.1	6,626.1	121.9	132.5	75.76	-965.4	58.5	5,302.6	5,055.5	247.01	21.467					
12,900.0	6,635.9	6,625.9	6,625.9	123.8	132.5	75.50	-965.4	58.5	5,402.6	5,154.0	248.60	21.732					
13,000.0	6,635.7	6,625.7	6,625.7	125.7	132.5	75.24	-965.4	58.5	5,502.5	5,252.4	250.18	21.995					
13,100.0	6,635.4	6,625.4	6,625.4	127.6	132.5	74.99	-965.4	58.5	5,602.5	5,350.8	251.75	22.254					
13,200.0	6,635.2	6,625.2	6,625.2	129.5	132.5	74.73	-965.4	58.5	5,702.5	5,449.2	253.31	22.512					
13,300.0	6,635.0	6,625.0	6,625.0	131.4	132.5	74.48	-965.4	58.5	5,802.5	5,547.7	254.87	22.767					
13,400.0	6,634.7	6,624.7	6,624.7	133.3	132.5	74.22	-965.4	58.5	5,902.5	5,646.1	256.42	23.019					
13,500.0	6,634.5	6,624.5	6,624.5	135.2	132.5	73.97	-965.4	58.5	6,002.5	5,744.6	257.96	23.269					
13,600.0	6,634.3	6,624.3	6,624.3	137.1	132.5	73.71	-965.4	58.5	6,102.5	5,843.0	259.50	23.517					
13,700.0	6,634.1	6,624.1	6,624.1	139.0	132.5	73.46	-965.4	58.5	6,202.5	5,941.5	261.03	23.762					
13,727.3	6,634.0	6,624.0	6,624.0	139.6	132.5	73.39	-965.4	58.5	6,229.9	5,968.4	261.44	23.829					

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Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	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: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,088.9	5,130.9	5,130.9	11.8	102.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,309.0	114.00	56.341	
5,200.0	5,188.9	5,230.9	5,230.9	12.0	104.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,306.8	116.22	55.265	
5,300.0	5,288.9	5,330.9	5,330.9	12.2	106.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,304.6	118.44	54.230	
5,400.0	5,388.9	5,430.9	5,430.9	12.4	108.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,302.3	120.66	53.232	
5,500.0	5,488.9	5,530.9	5,530.9	12.7	110.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,300.1	122.88	52.271	
5,600.0	5,588.9	5,630.9	5,630.9	12.9	112.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,297.9	125.10	51.343	
5,700.0	5,688.9	5,730.9	5,730.9	13.1	114.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,295.7	127.32	50.448	
5,800.0	5,788.9	5,830.9	5,830.9	13.3	116.6	-179.23	-179.23	-6,222.4	19.5	6,423.0	6,293.5	129.54	49.583	
5,900.0	5,888.9	5,930.9	5,930.9	13.5	118.6	0.77	0.77	-6,222.4	19.5	6,423.0	6,291.2	131.76	48.749	
6,000.0	5,988.6	6,030.6	6,030.6	13.6	120.6	0.78	0.78	-6,222.4	19.5	6,416.0	6,283.3	132.65	48.366	
6,100.0	6,086.5	6,128.5	6,128.5	13.7	122.6	0.80	0.80	-6,222.4	19.5	6,396.0	6,264.8	131.21	48.745	
6,200.0	6,181.0	6,223.0	6,223.0	13.8	124.5	0.84	0.84	-6,222.4	19.5	6,363.4	6,236.0	127.37	49.961	
6,300.0	6,270.4	6,312.4	6,312.4	13.9	126.2	0.91	0.91	-6,222.4	19.5	6,318.7	6,197.6	121.12	52.170	
6,400.0	6,353.2	6,395.2	6,395.2	13.9	127.9	1.00	1.00	-6,222.4	19.5	6,262.8	6,150.3	112.53	55.654	
6,500.0	6,428.0	6,470.0	6,470.0	14.0	129.4	1.14	1.14	-6,222.4	19.5	6,196.5	6,094.8	101.75	60.902	
6,600.0	6,493.5	6,535.5	6,535.5	14.3	130.7	1.34	1.34	-6,222.4	19.5	6,121.1	6,032.1	88.98	68.790	
6,700.0	6,548.6	6,590.6	6,590.6	14.8	131.8	1.65	1.65	-6,222.4	19.5	6,037.7	5,963.2	74.55	80.993	
6,800.0	6,592.4	6,634.4	6,634.4	15.5	132.7	2.20	2.20	-6,222.4	19.5	5,947.9	5,889.0	58.87	101.039	
6,900.0	6,624.0	6,666.0	6,666.0	16.3	133.3	3.33	3.33	-6,222.4	19.5	5,853.1	5,810.4	42.74	136.949	
7,000.0	6,643.0	6,685.0	6,685.0	17.3	133.7	6.82	6.82	-6,222.4	19.5	5,755.0	5,724.0	31.07	185.257	
7,100.0	6,649.0	6,691.0	6,691.0	18.4	133.8	98.45	98.45	-6,222.4	19.5	5,655.3	5,504.6	150.65	37.539	
7,200.0	6,648.8	6,690.8	6,690.8	19.7	133.8	98.30	98.30	-6,222.4	19.5	5,555.3	5,403.4	151.95	36.561	
7,300.0	6,648.6	6,690.6	6,690.6	21.1	133.8	98.15	98.15	-6,222.4	19.5	5,455.3	5,302.0	153.35	35.575	
7,400.0	6,648.4	6,690.4	6,690.4	22.5	133.8	98.00	98.00	-6,222.4	19.5	5,355.3	5,200.5	154.82	34.590	
7,500.0	6,648.1	6,690.1	6,690.1	24.0	133.8	97.86	97.86	-6,222.4	19.5	5,255.3	5,099.0	156.37	33.609	
7,600.0	6,647.9	6,689.9	6,689.9	25.6	133.8	97.71	97.71	-6,222.4	19.5	5,155.4	4,997.4	157.97	32.635	
7,700.0	6,647.7	6,689.7	6,689.7	27.2	133.8	97.56	97.56	-6,222.4	19.5	5,055.4	4,895.8	159.61	31.672	
7,800.0	6,647.4	6,689.4	6,689.4	28.8	133.8	97.41	97.41	-6,222.4	19.5	4,955.4	4,794.1	161.30	30.722	
7,900.0	6,647.2	6,689.2	6,689.2	30.5	133.8	97.27	97.27	-6,222.4	19.5	4,855.4	4,692.4	163.01	29.785	
8,000.0	6,647.0	6,689.0	6,689.0	32.2	133.8	97.12	97.12	-6,222.4	19.5	4,755.4	4,590.7	164.76	28.864	
8,100.0	6,646.8	6,688.8	6,688.8	33.9	133.8	96.97	96.97	-6,222.4	19.5	4,655.4	4,488.9	166.52	27.957	
8,200.0	6,646.5	6,688.5	6,688.5	35.7	133.8	96.82	96.82	-6,222.4	19.5	4,555.5	4,387.2	168.30	27.067	
8,300.0	6,646.3	6,688.3	6,688.3	37.4	133.8	96.67	96.67	-6,222.4	19.5	4,455.5	4,285.4	170.10	26.193	
8,400.0	6,646.1	6,688.1	6,688.1	39.2	133.8	96.52	96.52	-6,222.4	19.5	4,355.5	4,183.6	171.92	25.335	
8,500.0	6,645.9	6,687.9	6,687.9	41.0	133.8	96.38	96.38	-6,222.4	19.5	4,255.5	4,081.8	173.75	24.493	
8,600.0	6,645.6	6,687.6	6,687.6	42.8	133.8	96.23	96.23	-6,222.4	19.5	4,155.5	3,980.0	175.58	23.667	
8,700.0	6,645.4	6,687.4	6,687.4	44.6	133.7	96.08	96.08	-6,222.4	19.5	4,055.6	3,878.1	177.43	22.857	
8,800.0	6,645.2	6,687.2	6,687.2	46.5	133.7	95.93	95.93	-6,222.4	19.5	3,955.6	3,776.3	179.29	22.063	
8,900.0	6,645.0	6,687.0	6,687.0	48.3	133.7	95.78	95.78	-6,222.4	19.5	3,855.6	3,674.5	181.15	21.284	
9,000.0	6,644.7	6,686.7	6,686.7	50.1	133.7	95.63	95.63	-6,222.4	19.5	3,755.6	3,572.6	183.02	20.520	
9,100.0	6,644.5	6,686.5	6,686.5	52.0	133.7	95.48	95.48	-6,222.4	19.5	3,655.7	3,470.8	184.89	19.772	
9,200.0	6,644.3	6,686.3	6,686.3	53.8	133.7	95.33	95.33	-6,222.4	19.5	3,555.7	3,368.9	186.77	19.037	
9,300.0	6,644.0	6,686.0	6,686.0	55.7	133.7	95.18	95.18	-6,222.4	19.5	3,455.7	3,267.1	188.66	18.317	
9,400.0	6,643.8	6,685.8	6,685.8	57.5	133.7	95.03	95.03	-6,222.4	19.5	3,355.8	3,165.2	190.55	17.611	
9,500.0	6,643.6	6,685.6	6,685.6	59.4	133.7	94.89	94.89	-6,222.4	19.5	3,255.8	3,063.3	192.44	16.919	
9,600.0	6,643.4	6,685.4	6,685.4	61.2	133.7	94.74	94.74	-6,222.4	19.5	3,155.8	2,961.5	194.33	16.239	
9,700.0	6,643.1	6,685.1	6,685.1	63.1	133.7	94.59	94.59	-6,222.4	19.5	3,055.9	2,859.6	196.23	15.573	
9,800.0	6,642.9	6,684.9	6,684.9	65.0	133.7	94.44	94.44	-6,222.4	19.5	2,955.9	2,757.8	198.13	14.919	
9,900.0	6,642.7	6,684.7	6,684.7	66.9	133.7	94.29	94.29	-6,222.4	19.5	2,855.9	2,655.9	200.03	14.277	
10,000.0	6,642.5	6,684.5	6,684.5	68.7	133.7	94.14	94.14	-6,222.4	19.5	2,756.0	2,554.1	201.94	13.648	
10,100.0	6,642.2	6,684.2	6,684.2	70.6	133.7	93.99	93.99	-6,222.4	19.5	2,656.0	2,452.2	203.84	13.030	

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
10,200.0	6,642.0	6,684.0	6,684.0	72.5	133.7	93.84	-6,222.4	19.5	2,556.1	2,350.3	205.75	12.423		
10,300.0	6,641.8	6,683.8	6,683.8	74.4	133.7	93.69	-6,222.4	19.5	2,456.2	2,248.5	207.66	11.828		
10,400.0	6,641.5	6,683.5	6,683.5	76.3	133.7	93.54	-6,222.4	19.5	2,356.2	2,146.7	209.57	11.243		
10,500.0	6,641.3	6,683.3	6,683.3	78.2	133.7	93.39	-6,222.4	19.5	2,256.3	2,044.8	211.48	10.669		
10,600.0	6,641.1	6,683.1	6,683.1	80.0	133.7	93.24	-6,222.4	19.5	2,156.4	1,943.0	213.39	10.105		
10,700.0	6,640.9	6,682.9	6,682.9	81.9	133.7	93.09	-6,222.4	19.5	2,056.5	1,841.2	215.30	9.551		
10,800.0	6,640.6	6,682.6	6,682.6	83.8	133.7	92.94	-6,222.4	19.5	1,956.6	1,739.3	217.22	9.007		
10,900.0	6,640.4	6,682.4	6,682.4	85.7	133.6	92.79	-6,222.4	19.5	1,856.7	1,637.5	219.13	8.473		
11,000.0	6,640.2	6,682.2	6,682.2	87.6	133.6	92.64	-6,222.4	19.5	1,756.8	1,535.7	221.04	7.948		
11,100.0	6,640.0	6,682.0	6,682.0	89.5	133.6	92.49	-6,222.4	19.5	1,656.9	1,433.9	222.95	7.432		
11,200.0	6,639.7	6,681.7	6,681.7	91.4	133.6	92.34	-6,222.4	19.5	1,557.0	1,332.2	224.87	6.924		
11,300.0	6,639.5	6,681.5	6,681.5	93.3	133.6	92.19	-6,222.4	19.5	1,457.2	1,230.4	226.78	6.426		
11,400.0	6,639.3	6,681.3	6,681.3	95.2	133.6	92.04	-6,222.4	19.5	1,357.4	1,128.7	228.69	5.935		
11,500.0	6,639.1	6,681.1	6,681.1	97.1	133.6	91.89	-6,222.4	19.5	1,257.6	1,027.0	230.61	5.454		
11,600.0	6,638.8	6,680.8	6,680.8	99.0	133.6	91.74	-6,222.4	19.5	1,157.9	925.4	232.52	4.980		
11,700.0	6,638.6	6,680.6	6,680.6	100.9	133.6	91.59	-6,222.4	19.5	1,058.2	823.7	234.43	4.514		
11,800.0	6,638.4	6,680.4	6,680.4	102.8	133.6	91.44	-6,222.4	19.5	958.5	722.2	236.34	4.056		
11,900.0	6,638.1	6,680.1	6,680.1	104.7	133.6	91.29	-6,222.4	19.5	859.0	620.8	238.25	3.605		
12,000.0	6,637.9	6,679.9	6,679.9	106.6	133.6	91.14	-6,222.4	19.5	759.6	519.4	240.16	3.163		
12,100.0	6,637.7	6,679.7	6,679.7	108.5	133.6	90.98	-6,222.4	19.5	660.3	418.3	242.07	2.728		
12,200.0	6,637.5	6,679.5	6,679.5	110.4	133.6	90.83	-6,222.4	19.5	561.3	317.4	243.98	2.301		
12,300.0	6,637.2	6,679.2	6,679.2	112.3	133.6	90.68	-6,222.4	19.5	462.8	216.9	245.88	1.882		
12,400.0	6,637.0	6,679.0	6,679.0	114.2	133.6	90.53	-6,222.4	19.5	365.0	117.2	247.79	1.473 Level 3		
12,500.0	6,636.8	6,678.8	6,678.8	116.1	133.6	90.38	-6,222.4	19.5	268.9	19.2	249.70	1.077 Level 2		
12,600.0	6,636.6	6,678.6	6,678.6	118.0	133.6	90.23	-6,222.4	19.5	177.1	-74.5	251.60	0.704 Level 1		
12,700.0	6,636.3	6,678.3	6,678.3	119.9	133.6	90.08	-6,222.4	19.5	102.2	-151.3	253.50	0.403 Level 1		
12,754.7	6,636.2	6,678.2	6,678.2	121.0	133.6	90.00	-6,222.4	19.5	86.4	-168.1	254.54	0.339 Level 1, CC, ES, SF		
12,800.0	6,636.1	6,678.1	6,678.1	121.9	133.6	89.93	-6,222.4	19.5	97.6	-157.8	255.40	0.382 Level 1		
12,900.0	6,635.9	6,677.9	6,677.9	123.8	133.6	89.78	-6,222.4	19.5	169.1	-88.2	257.31	0.657 Level 1		
13,000.0	6,635.7	6,677.7	6,677.7	125.7	133.6	89.63	-6,222.4	19.5	260.1	0.9	259.20	1.004 Level 2		
13,100.0	6,635.4	6,677.4	6,677.4	127.6	133.5	89.48	-6,222.4	19.5	356.0	94.9	261.10	1.363 Level 3		
13,200.0	6,635.2	6,677.2	6,677.2	129.5	133.5	89.33	-6,222.4	19.5	453.7	190.7	263.00	1.725		
13,300.0	6,635.0	6,677.0	6,677.0	131.4	133.5	89.18	-6,222.4	19.5	552.2	287.3	264.89	2.084		
13,400.0	6,634.7	6,676.7	6,676.7	133.3	133.5	89.03	-6,222.4	19.5	651.1	384.3	266.79	2.441		
13,500.0	6,634.5	6,676.5	6,676.5	135.2	133.5	88.88	-6,222.4	19.5	750.3	481.7	268.68	2.793		
13,600.0	6,634.3	6,676.3	6,676.3	137.1	133.5	88.73	-6,222.4	19.5	849.8	579.2	270.57	3.141		
13,700.0	6,634.1	6,676.1	6,676.1	139.0	133.5	88.58	-6,222.4	19.5	949.3	676.8	272.46	3.484		
13,727.3	6,634.0	6,676.0	6,676.0	139.6	133.5	88.54	-6,222.4	19.5	976.5	703.6	272.98	3.577		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													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	171.64	-3,278.8	482.1	3,314.0					
100.0	100.0	92.0	92.0	0.1	1.8	171.64	-3,278.8	482.1	3,314.0	3,312.1	1.95	1,697.260		
200.0	200.0	192.0	192.0	0.3	3.8	171.64	-3,278.8	482.1	3,314.0	3,309.9	4.18	793.336		
300.0	300.0	292.0	292.0	0.6	5.8	171.64	-3,278.8	482.1	3,314.0	3,307.6	6.40	517.648		
400.0	400.0	392.0	392.0	0.8	7.8	171.64	-3,278.8	482.1	3,314.0	3,305.4	8.63	384.153		
500.0	500.0	492.0	492.0	1.0	9.8	171.64	-3,278.8	482.1	3,314.0	3,303.2	10.85	305.395		
600.0	600.0	592.0	592.0	1.2	11.8	171.64	-3,278.8	482.1	3,314.0	3,301.0	13.08	253.437		
700.0	700.0	692.0	692.0	1.5	13.8	171.64	-3,278.8	482.1	3,314.0	3,298.7	15.30	216.587		
800.0	800.0	792.0	792.0	1.7	15.8	171.64	-3,278.8	482.1	3,314.0	3,296.5	17.53	189.093		
900.0	900.0	892.0	892.0	1.9	17.8	171.64	-3,278.8	482.1	3,314.0	3,294.3	19.75	167.794		
1,000.0	1,000.0	992.0	992.0	2.1	19.8	171.64	-3,278.8	482.1	3,314.0	3,292.1	21.98	150.806		
1,100.0	1,100.0	1,092.0	1,092.0	2.4	21.8	171.64	-3,278.8	482.1	3,314.0	3,289.8	24.20	136.942		
1,200.0	1,200.0	1,192.0	1,192.0	2.6	23.8	171.64	-3,278.8	482.1	3,314.0	3,287.6	26.42	125.413		
1,300.0	1,300.0	1,292.0	1,292.0	2.8	25.8	171.64	-3,278.8	482.1	3,314.0	3,285.4	28.65	115.674		
1,400.0	1,400.0	1,392.0	1,392.0	3.0	27.8	171.64	-3,278.8	482.1	3,314.0	3,283.2	30.87	107.339		
1,500.0	1,500.0	1,492.0	1,492.0	3.3	29.8	171.64	-3,278.8	482.1	3,314.0	3,280.9	33.10	100.124		
1,600.0	1,600.0	1,592.0	1,592.0	3.5	31.8	171.64	-3,278.8	482.1	3,314.0	3,278.7	35.32	93.818		
1,700.0	1,700.0	1,692.0	1,692.0	3.7	33.8	171.64	-3,278.8	482.1	3,314.0	3,276.5	37.55	88.259		
1,800.0	1,800.0	1,792.0	1,792.0	3.9	35.8	171.64	-3,278.8	482.1	3,314.0	3,274.3	39.77	83.323		
1,900.0	1,900.0	1,892.0	1,892.0	4.2	37.8	171.64	-3,278.8	482.1	3,314.0	3,272.0	42.00	78.909		
2,000.0	2,000.0	1,992.0	1,992.0	4.4	39.8	171.64	-3,278.8	482.1	3,314.0	3,269.8	44.22	74.939		
2,100.0	2,100.0	2,092.0	2,092.0	4.6	41.8	171.64	-3,278.8	482.1	3,314.0	3,267.6	46.45	71.350		
2,200.0	2,200.0	2,192.0	2,192.0	4.8	43.8	171.64	-3,278.8	482.1	3,314.0	3,265.4	48.67	68.088		
2,300.0	2,300.0	2,292.0	2,292.0	5.1	45.8	171.64	-3,278.8	482.1	3,314.0	3,263.1	50.90	65.112		
2,400.0	2,400.0	2,392.0	2,392.0	5.3	47.8	171.64	-3,278.8	482.1	3,314.0	3,260.9	53.12	62.385		
2,500.0	2,500.0	2,492.0	2,492.0	5.5	49.8	171.64	-3,278.8	482.1	3,314.0	3,258.7	55.35	59.878		
2,600.0	2,600.0	2,592.0	2,592.0	5.7	51.8	143.73	-3,278.8	482.1	3,315.4	3,257.9	57.55	57.613		
2,700.0	2,699.8	2,691.8	2,691.8	6.0	53.8	143.74	-3,278.8	482.1	3,319.7	3,260.0	59.70	55.610		
2,800.0	2,799.5	2,791.5	2,791.5	6.2	55.8	143.75	-3,278.8	482.1	3,326.7	3,264.9	61.80	53.831		
2,900.0	2,898.9	2,890.9	2,890.9	6.4	57.8	143.85	-3,278.8	482.1	3,334.9	3,270.9	64.01	52.102		
3,000.0	2,998.4	2,990.4	2,990.4	6.6	59.8	143.96	-3,278.8	482.1	3,343.2	3,277.0	66.22	50.487		
3,100.0	3,097.9	3,089.9	3,089.9	6.9	61.8	144.06	-3,278.8	482.1	3,351.5	3,283.0	68.43	48.975		
3,200.0	3,197.4	3,189.4	3,189.4	7.1	63.8	144.16	-3,278.8	482.1	3,359.7	3,289.1	70.65	47.557		
3,300.0	3,296.8	3,288.8	3,288.8	7.4	65.8	144.26	-3,278.8	482.1	3,368.0	3,295.2	72.86	46.224		
3,400.0	3,396.3	3,388.3	3,388.3	7.6	67.8	144.36	-3,278.8	482.1	3,376.3	3,301.3	75.08	44.970		
3,500.0	3,495.8	3,487.8	3,487.8	7.9	69.8	144.46	-3,278.8	482.1	3,384.6	3,307.3	77.30	43.786		
3,600.0	3,595.3	3,587.3	3,587.3	8.1	71.7	144.56	-3,278.8	482.1	3,393.0	3,313.4	79.52	42.668		
3,700.0	3,694.8	3,686.8	3,686.8	8.4	73.7	144.66	-3,278.8	482.1	3,401.3	3,319.6	81.74	41.611		
3,800.0	3,794.2	3,786.2	3,786.2	8.6	75.7	144.76	-3,278.8	482.1	3,409.6	3,325.7	83.96	40.609		
3,900.0	3,893.7	3,885.7	3,885.7	8.9	77.7	144.86	-3,278.8	482.1	3,418.0	3,331.8	86.19	39.659		
4,000.0	3,993.2	3,985.2	3,985.2	9.1	79.7	144.96	-3,278.8	482.1	3,426.4	3,337.9	88.41	38.756		
4,100.0	4,092.7	4,084.7	4,084.7	9.4	81.7	145.06	-3,278.8	482.1	3,434.7	3,344.1	90.63	37.897		
4,200.0	4,192.2	4,184.2	4,184.2	9.7	83.7	145.15	-3,278.8	482.1	3,443.1	3,350.2	92.86	37.080		
4,300.0	4,291.6	4,283.6	4,283.6	9.9	85.7	145.25	-3,278.8	482.1	3,451.5	3,356.4	95.08	36.300		
4,400.0	4,391.1	4,383.1	4,383.1	10.2	87.7	145.35	-3,278.8	482.1	3,459.9	3,362.6	97.31	35.556		
4,500.0	4,490.6	4,482.6	4,482.6	10.5	89.7	145.44	-3,278.8	482.1	3,468.3	3,368.8	99.53	34.845		
4,600.0	4,590.1	4,582.1	4,582.1	10.7	91.6	145.54	-3,278.8	482.1	3,476.7	3,375.0	101.76	34.166		
4,700.0	4,689.5	4,681.5	4,681.5	11.0	93.6	145.63	-3,278.8	482.1	3,485.2	3,381.2	103.99	33.515		
4,800.0	4,789.1	4,781.1	4,781.1	11.3	95.6	145.78	-3,278.8	482.1	3,492.6	3,386.3	106.36	32.838		
4,900.0	4,889.0	4,881.0	4,881.0	11.5	97.6	145.89	-3,278.8	482.1	3,497.3	3,388.6	108.66	32.184		
5,000.0	4,988.9	4,980.9	4,980.9	11.6	99.6	145.93	-3,278.8	482.1	3,499.0	3,388.2	110.88	31.557		

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 @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Welch B 28-11 (Exist) - Wellbore #1 - Wellbore													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	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
5,100.0	5,088.9	5,080.9	5,080.9	11.8	101.6	173.83	-3,278.8	482.1	3,499.1	3,386.0	113.07	30.946		
5,200.0	5,188.9	5,180.9	5,180.9	12.0	103.6	173.83	-3,278.8	482.1	3,499.1	3,383.8	115.29	30.351		
5,300.0	5,288.9	5,280.9	5,280.9	12.2	105.6	173.83	-3,278.8	482.1	3,499.1	3,381.6	117.50	29.778		
5,400.0	5,388.9	5,380.9	5,380.9	12.4	107.6	173.83	-3,278.8	482.1	3,499.1	3,379.3	119.72	29.226		
5,500.0	5,488.9	5,480.9	5,480.9	12.7	109.6	173.83	-3,278.8	482.1	3,499.1	3,377.1	121.94	28.695		
5,600.0	5,588.9	5,580.9	5,580.9	12.9	111.6	173.83	-3,278.8	482.1	3,499.1	3,374.9	124.16	28.182		
5,700.0	5,688.9	5,680.9	5,680.9	13.1	113.6	173.83	-3,278.8	482.1	3,499.1	3,372.7	126.38	27.687		
5,800.0	5,788.9	5,780.9	5,780.9	13.3	115.6	173.83	-3,278.8	482.1	3,499.1	3,370.5	128.60	27.209		
5,900.0	5,888.9	5,880.9	5,880.9	13.5	117.6	-6.17	-3,278.8	482.1	3,499.1	3,368.2	130.81	26.749		
6,000.0	5,988.6	5,980.6	5,980.6	13.6	119.6	-6.24	-3,278.8	482.1	3,492.1	3,360.3	131.74	26.508		
6,100.0	6,086.5	6,078.5	6,078.5	13.7	121.6	-6.45	-3,278.8	482.1	3,472.2	3,341.8	130.37	26.634		
6,200.0	6,181.0	6,173.0	6,173.0	13.8	123.5	-6.81	-3,278.8	482.1	3,439.8	3,313.1	126.65	27.159		
6,300.0	6,270.4	6,262.4	6,262.4	13.9	125.2	-7.36	-3,278.8	482.1	3,395.4	3,274.8	120.63	28.147		
6,400.0	6,353.2	6,345.2	6,345.2	13.9	126.9	-8.16	-3,278.8	482.1	3,339.8	3,227.4	112.43	29.705		
6,500.0	6,428.0	6,420.0	6,420.0	14.0	128.4	-9.34	-3,278.8	482.1	3,274.0	3,171.6	102.37	31.983		
6,600.0	6,493.5	6,485.5	6,485.5	14.3	129.7	-11.08	-3,278.8	482.1	3,199.0	3,108.0	91.04	35.138		
6,700.0	6,548.6	6,540.6	6,540.6	14.8	130.8	-13.78	-3,278.8	482.1	3,116.3	3,036.4	79.84	39.034		
6,800.0	6,592.4	6,584.4	6,584.4	15.5	131.7	-18.33	-3,278.8	482.1	3,027.1	2,954.8	72.28	41.877		
6,900.0	6,624.0	6,616.0	6,616.0	16.3	132.3	-26.98	-3,278.8	482.1	2,933.1	2,855.6	77.48	37.857		
7,000.0	6,643.0	6,635.0	6,635.0	17.3	132.7	-46.83	-3,278.8	482.1	2,835.8	2,724.5	111.29	25.481		
7,100.0	6,649.0	6,641.0	6,641.0	18.4	132.8	-90.94	-3,278.8	482.1	2,737.0	2,585.8	151.19	18.103		
7,200.0	6,648.8	6,640.8	6,640.8	19.7	132.8	-90.90	-3,278.8	482.1	2,638.0	2,485.5	152.44	17.305		
7,300.0	6,648.6	6,640.6	6,640.6	21.1	132.8	-90.87	-3,278.8	482.1	2,539.0	2,385.2	153.80	16.509		
7,400.0	6,648.4	6,640.4	6,640.4	22.5	132.8	-90.83	-3,278.8	482.1	2,440.2	2,284.9	155.23	15.719		
7,500.0	6,648.1	6,640.1	6,640.1	24.0	132.8	-90.80	-3,278.8	482.1	2,341.4	2,184.7	156.74	14.938		
7,600.0	6,647.9	6,639.9	6,639.9	25.6	132.8	-90.76	-3,278.8	482.1	2,242.8	2,084.5	158.30	14.168		
7,700.0	6,647.7	6,639.7	6,639.7	27.2	132.8	-90.73	-3,278.8	482.1	2,144.3	1,984.4	159.91	13.409		
7,800.0	6,647.4	6,639.4	6,639.4	28.8	132.8	-90.69	-3,278.8	482.1	2,045.9	1,884.3	161.55	12.664		
7,900.0	6,647.2	6,639.2	6,639.2	30.5	132.8	-90.66	-3,278.8	482.1	1,947.7	1,784.4	163.23	11.932		
8,000.0	6,647.0	6,639.0	6,639.0	32.2	132.8	-90.63	-3,278.8	482.1	1,849.7	1,684.7	164.93	11.215		
8,100.0	6,646.8	6,638.8	6,638.8	33.9	132.8	-90.59	-3,278.8	482.1	1,751.9	1,585.2	166.66	10.512		
8,200.0	6,646.5	6,638.5	6,638.5	35.7	132.8	-90.56	-3,278.8	482.1	1,654.3	1,485.9	168.41	9.824		
8,300.0	6,646.3	6,638.3	6,638.3	37.4	132.8	-90.52	-3,278.8	482.1	1,557.1	1,387.0	170.17	9.150		
8,400.0	6,646.1	6,638.1	6,638.1	39.2	132.8	-90.49	-3,278.8	482.1	1,460.3	1,288.3	171.95	8.493		
8,500.0	6,645.9	6,637.9	6,637.9	41.0	132.8	-90.45	-3,278.8	482.1	1,363.9	1,190.2	173.74	7.850		
8,600.0	6,645.6	6,637.6	6,637.6	42.8	132.8	-90.42	-3,278.8	482.1	1,268.1	1,092.5	175.54	7.224		
8,700.0	6,645.4	6,637.4	6,637.4	44.6	132.7	-90.38	-3,278.8	482.1	1,173.0	995.6	177.35	6.614		
8,800.0	6,645.2	6,637.2	6,637.2	46.5	132.7	-90.35	-3,278.8	482.1	1,078.7	899.6	179.17	6.021		
8,900.0	6,645.0	6,637.0	6,637.0	48.3	132.7	-90.31	-3,278.8	482.1	985.6	804.6	180.99	5.446		
9,000.0	6,644.7	6,636.7	6,636.7	50.1	132.7	-90.28	-3,278.8	482.1	894.0	711.2	182.83	4.890		
9,100.0	6,644.5	6,636.5	6,636.5	52.0	132.7	-90.25	-3,278.8	482.1	804.4	619.7	184.67	4.356		
9,200.0	6,644.3	6,636.3	6,636.3	53.8	132.7	-90.21	-3,278.8	482.1	717.5	531.0	186.51	3.847		
9,300.0	6,644.0	6,636.0	6,636.0	55.7	132.7	-90.18	-3,278.8	482.1	634.5	446.2	188.36	3.369		
9,400.0	6,643.8	6,635.8	6,635.8	57.5	132.7	-90.14	-3,278.8	482.1	557.2	366.9	190.22	2.929		
9,500.0	6,643.6	6,635.6	6,635.6	59.4	132.7	-90.11	-3,278.8	482.1	488.1	296.0	192.07	2.541		
9,600.0	6,643.4	6,635.4	6,635.4	61.2	132.7	-90.07	-3,278.8	482.1	431.3	237.4	193.94	2.224		
9,700.0	6,643.1	6,635.1	6,635.1	63.1	132.7	-90.04	-3,278.8	482.1	392.2	196.4	195.80	2.003		
9,800.0	6,642.9	6,634.9	6,634.9	65.0	132.7	-90.00	-3,278.8	482.1	376.3	178.7	197.67	1.904		
9,811.0	6,642.9	6,634.9	6,634.9	65.2	132.7	-90.00	-3,278.8	482.1	376.2	178.3	197.87	1.901 CC, ES, SF		
9,900.0	6,642.7	6,634.7	6,634.7	66.9	132.7	-89.97	-3,278.8	482.1	386.5	187.0	199.54	1.937		
10,000.0	6,642.5	6,634.5	6,634.5	68.7	132.7	-89.93	-3,278.8	482.1	421.0	219.6	201.41	2.090		

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

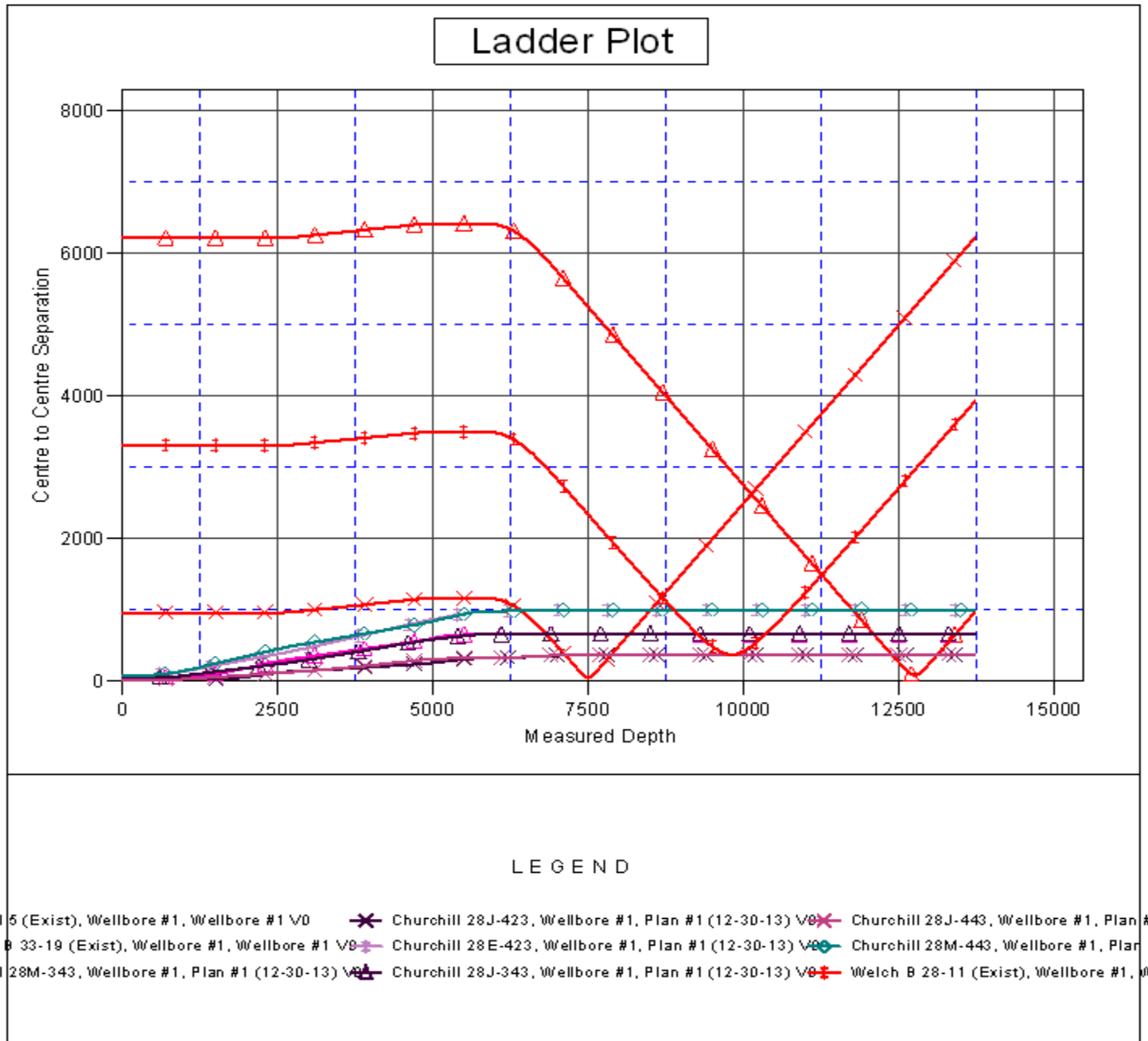
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Welch B 28-11 (Exist) - Wellbore #1 - Wellbore										Offset Site Error:		0.0 ft
Survey Program: 7600-UNKNOWN										Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)				
10,100.0	6,642.2	6,634.2	6,634.2	70.6	132.7	-89.90	-3,278.8	482.1	474.4	271.1	203.29	2.333
10,200.0	6,642.0	6,634.0	6,634.0	72.5	132.7	-89.87	-3,278.8	482.1	541.1	336.0	205.16	2.637
10,300.0	6,641.8	6,633.8	6,633.8	74.4	132.7	-89.83	-3,278.8	482.1	616.9	409.9	207.04	2.980
10,400.0	6,641.5	6,633.5	6,633.5	76.3	132.7	-89.80	-3,278.8	482.1	698.9	489.9	208.93	3.345
10,500.0	6,641.3	6,633.3	6,633.3	78.2	132.7	-89.76	-3,278.8	482.1	785.0	574.2	210.81	3.724
10,600.0	6,641.1	6,633.1	6,633.1	80.0	132.7	-89.73	-3,278.8	482.1	874.1	661.4	212.69	4.110
10,700.0	6,640.9	6,632.9	6,632.9	81.9	132.7	-89.69	-3,278.8	482.1	965.3	750.7	214.58	4.499
10,800.0	6,640.6	6,632.6	6,632.6	83.8	132.7	-89.66	-3,278.8	482.1	1,058.1	841.6	216.46	4.888
10,900.0	6,640.4	6,632.4	6,632.4	85.7	132.6	-89.62	-3,278.8	482.1	1,152.1	933.8	218.35	5.276
11,000.0	6,640.2	6,632.2	6,632.2	87.6	132.6	-89.59	-3,278.8	482.1	1,247.1	1,026.8	220.24	5.662
11,100.0	6,640.0	6,632.0	6,632.0	89.5	132.6	-89.55	-3,278.8	482.1	1,342.8	1,120.6	222.13	6.045
11,200.0	6,639.7	6,631.7	6,631.7	91.4	132.6	-89.52	-3,278.8	482.1	1,439.0	1,215.0	224.02	6.424
11,300.0	6,639.5	6,631.5	6,631.5	93.3	132.6	-89.49	-3,278.8	482.1	1,535.8	1,309.8	225.92	6.798
11,400.0	6,639.3	6,631.3	6,631.3	95.2	132.6	-89.45	-3,278.8	482.1	1,632.9	1,405.1	227.81	7.168
11,500.0	6,639.1	6,631.1	6,631.1	97.1	132.6	-89.42	-3,278.8	482.1	1,730.4	1,500.7	229.70	7.533
11,600.0	6,638.8	6,630.8	6,630.8	99.0	132.6	-89.38	-3,278.8	482.1	1,828.1	1,596.5	231.60	7.893
11,700.0	6,638.6	6,630.6	6,630.6	100.9	132.6	-89.35	-3,278.8	482.1	1,926.1	1,692.6	233.49	8.249
11,800.0	6,638.4	6,630.4	6,630.4	102.8	132.6	-89.31	-3,278.8	482.1	2,024.2	1,788.9	235.39	8.600
11,900.0	6,638.1	6,630.1	6,630.1	104.7	132.6	-89.28	-3,278.8	482.1	2,122.6	1,885.3	237.28	8.945
12,000.0	6,637.9	6,629.9	6,629.9	106.6	132.6	-89.24	-3,278.8	482.1	2,221.1	1,981.9	239.18	9.286
12,100.0	6,637.7	6,629.7	6,629.7	108.5	132.6	-89.21	-3,278.8	482.1	2,319.7	2,078.6	241.08	9.622
12,200.0	6,637.5	6,629.5	6,629.5	110.4	132.6	-89.17	-3,278.8	482.1	2,418.4	2,175.4	242.98	9.953
12,300.0	6,637.2	6,629.2	6,629.2	112.3	132.6	-89.14	-3,278.8	482.1	2,517.2	2,272.4	244.88	10.280
12,400.0	6,637.0	6,629.0	6,629.0	114.2	132.6	-89.11	-3,278.8	482.1	2,616.2	2,369.4	246.77	10.601
12,500.0	6,636.8	6,628.8	6,628.8	116.1	132.6	-89.07	-3,278.8	482.1	2,715.2	2,466.5	248.67	10.919
12,600.0	6,636.6	6,628.6	6,628.6	118.0	132.6	-89.04	-3,278.8	482.1	2,814.2	2,563.7	250.57	11.231
12,700.0	6,636.3	6,628.3	6,628.3	119.9	132.6	-89.00	-3,278.8	482.1	2,913.4	2,660.9	252.47	11.539
12,800.0	6,636.1	6,628.1	6,628.1	121.9	132.6	-88.97	-3,278.8	482.1	3,012.6	2,758.2	254.37	11.843
12,900.0	6,635.9	6,627.9	6,627.9	123.8	132.6	-88.93	-3,278.8	482.1	3,111.8	2,855.5	256.27	12.142
13,000.0	6,635.7	6,627.7	6,627.7	125.7	132.6	-88.90	-3,278.8	482.1	3,211.1	2,952.9	258.18	12.438
13,100.0	6,635.4	6,627.4	6,627.4	127.6	132.5	-88.86	-3,278.8	482.1	3,310.4	3,050.3	260.08	12.729
13,200.0	6,635.2	6,627.2	6,627.2	129.5	132.5	-88.83	-3,278.8	482.1	3,409.8	3,147.8	261.98	13.016
13,300.0	6,635.0	6,627.0	6,627.0	131.4	132.5	-88.79	-3,278.8	482.1	3,509.2	3,245.3	263.88	13.298
13,400.0	6,634.7	6,626.7	6,626.7	133.3	132.5	-88.76	-3,278.8	482.1	3,608.6	3,342.9	265.78	13.577
13,500.0	6,634.5	6,626.5	6,626.5	135.2	132.5	-88.73	-3,278.8	482.1	3,708.1	3,440.4	267.68	13.853
13,600.0	6,634.3	6,626.3	6,626.3	137.1	132.5	-88.69	-3,278.8	482.1	3,807.6	3,538.0	269.59	14.124
13,700.0	6,634.1	6,626.1	6,626.1	139.0	132.5	-88.66	-3,278.8	482.1	3,907.1	3,635.6	271.49	14.392
13,727.3	6,634.0	6,626.0	6,626.0	139.6	132.5	-88.65	-3,278.8	482.1	3,934.3	3,662.3	272.01	14.464

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 4649.0ft (RKB - 15')
Reference Site:	Churchill 28J-HZ Pad Sec.28-T5N-R64W	MD Reference:	WELL @ 4649.0ft (RKB - 15')
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 #1 (12-30-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4649.0ft (RKB - 15')
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Churchill 28J-203
 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
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