

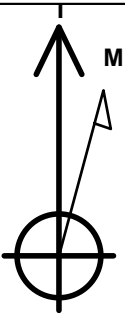
PETROLEUM DEVELOPMENT CORP Weld County CO

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, 1448'FWL, SEC.33	6634.0	-7195.1	158.9	Point

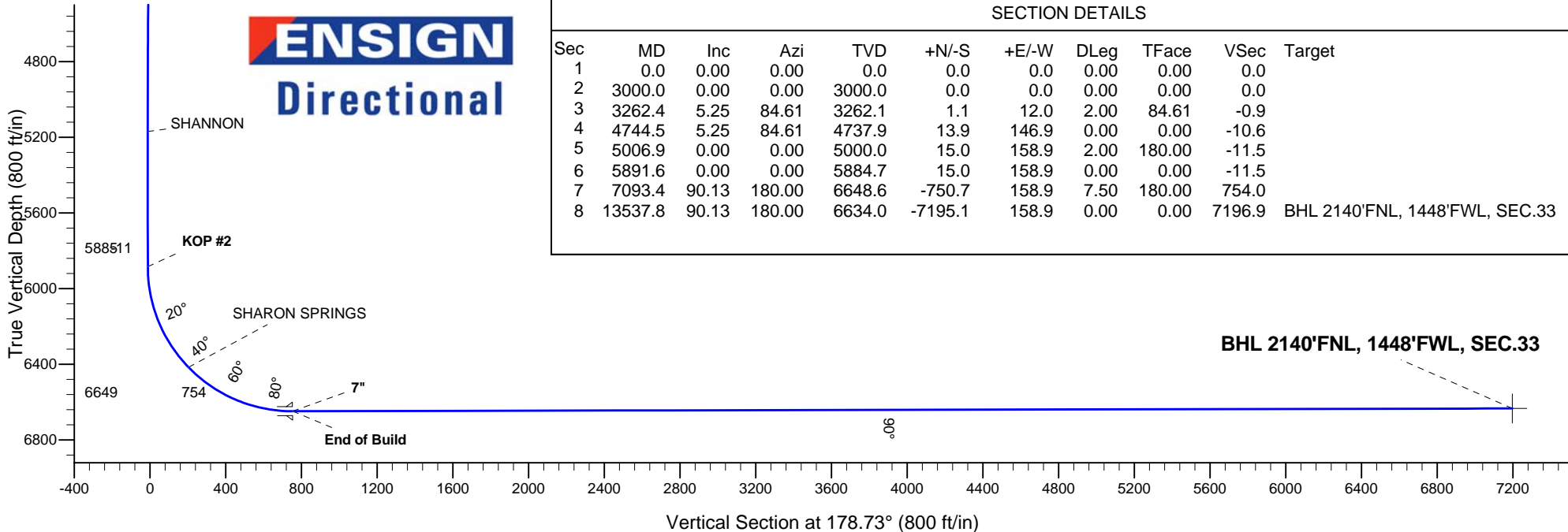
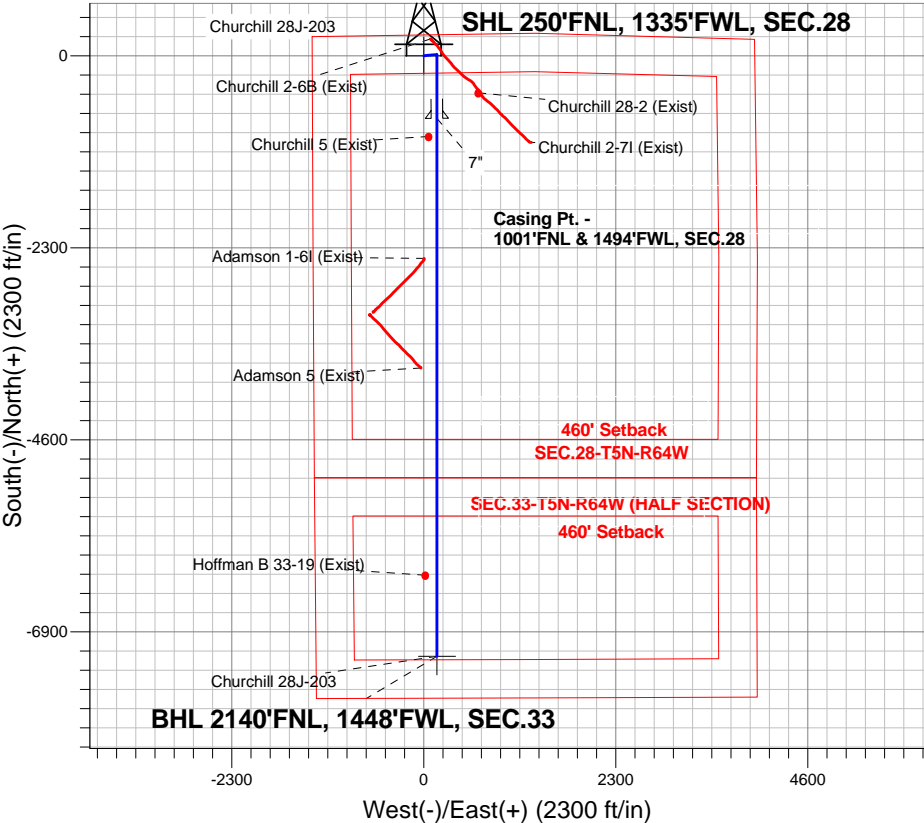


Azimuths to True North
Magnetic North: 8.39°
Magnetic Field
Strength: 52861.6nT
Dip Angle: 66.97°
Date: 2/12/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
3000.0	3000.0	KOP #1
5884.7	5891.6	KOP #2
6648.6	7093.4	End of Build

Churchill 28J-HZ Pad Sec.28-T5N-R64W
Churchill 28J-203
Plan #2 (2-11-14)
8:24, February 12 2014





Directional

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 #2 (2-11-14)

Standard Planning Report

12 February, 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 #2 (2-11-14)		

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

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

Well	Churchill 28J-203		
Well Position	+N/-S	3.6 ft	Northing:
	+E/-W	119.8 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/12/2014	8.39	66.97	52,862

Design	Plan #2 (2-11-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	178.73

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,262.4	5.25	84.61	3,262.1	1.1	12.0	2.00	2.00	0.00	84.61	
4,744.5	5.25	84.61	4,737.9	13.9	146.9	0.00	0.00	0.00	0.00	
5,006.9	0.00	0.00	5,000.0	15.0	158.9	2.00	-2.00	0.00	180.00	
5,891.6	0.00	0.00	5,884.7	15.0	158.9	0.00	0.00	0.00	0.00	
7,093.4	90.13	180.00	6,648.6	-750.7	158.9	7.50	7.50	0.00	180.00	
13,537.8	90.13	180.00	6,634.0	-7,195.1	158.9	0.00	0.00	0.00	0.00	BHL 2140°FNL, 144

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 #2 (2-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
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
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
3,100.0	2.00	84.61	3,100.0	0.2	1.7	-0.1	2.00	2.00	0.00
3,200.0	4.00	84.61	3,199.8	0.7	6.9	-0.5	2.00	2.00	0.00
3,262.4	5.25	84.61	3,262.1	1.1	12.0	-0.9	2.00	2.00	0.00
3,300.0	5.25	84.61	3,299.5	1.5	15.4	-1.1	0.00	0.00	0.00
3,400.0	5.25	84.61	3,399.1	2.3	24.5	-1.8	0.00	0.00	0.00
3,500.0	5.25	84.61	3,498.6	3.2	33.6	-2.4	0.00	0.00	0.00
3,551.6	5.25	84.61	3,550.0	3.6	38.3	-2.8	0.00	0.00	0.00
PARKMAN									
3,600.0	5.25	84.61	3,598.2	4.0	42.7	-3.1	0.00	0.00	0.00
3,700.0	5.25	84.61	3,697.8	4.9	51.8	-3.7	0.00	0.00	0.00
3,800.0	5.25	84.61	3,797.4	5.8	60.9	-4.4	0.00	0.00	0.00
3,900.0	5.25	84.61	3,897.0	6.6	70.0	-5.1	0.00	0.00	0.00
4,000.0	5.25	84.61	3,996.5	7.5	79.1	-5.7	0.00	0.00	0.00
4,100.0	5.25	84.61	4,096.1	8.3	88.2	-6.4	0.00	0.00	0.00
4,169.2	5.25	84.61	4,165.0	8.9	94.5	-6.8	0.00	0.00	0.00
SUSSEX									
4,200.0	5.25	84.61	4,195.7	9.2	97.3	-7.0	0.00	0.00	0.00
4,300.0	5.25	84.61	4,295.3	10.0	106.5	-7.7	0.00	0.00	0.00
4,400.0	5.25	84.61	4,394.9	10.9	115.6	-8.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 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 #2 (2-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	5.25	84.61	4,494.4	11.8	124.7	-9.0	0.00	0.00	0.00
4,600.0	5.25	84.61	4,594.0	12.6	133.8	-9.7	0.00	0.00	0.00
4,700.0	5.25	84.61	4,693.6	13.5	142.9	-10.3	0.00	0.00	0.00
4,744.5	5.25	84.61	4,737.9	13.9	146.9	-10.6	0.00	0.00	0.00
4,800.0	4.14	84.61	4,793.2	14.3	151.5	-11.0	2.00	-2.00	0.00
4,900.0	2.14	84.61	4,893.1	14.8	156.9	-11.3	2.00	-2.00	0.00
5,000.0	0.14	84.61	4,993.1	15.0	158.9	-11.5	2.00	-2.00	0.00
5,006.9	0.00	0.00	5,000.0	15.0	158.9	-11.5	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,093.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,176.9	0.00	0.00	5,170.0	15.0	158.9	-11.5	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,193.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,300.0	0.00	0.00	5,293.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,393.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,493.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,593.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,693.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,793.1	15.0	158.9	-11.5	0.00	0.00	0.00
5,891.6	0.00	0.00	5,884.7	15.0	158.9	-11.5	0.00	0.00	0.00
KOP #2									
5,900.0	0.63	180.00	5,893.1	15.0	158.9	-11.4	7.48	7.48	0.00
6,000.0	8.13	180.00	5,992.7	7.3	158.9	-3.8	7.50	7.50	0.00
6,100.0	15.63	180.00	6,090.5	-13.2	158.9	16.7	7.50	7.50	0.00
6,200.0	23.13	180.00	6,184.7	-46.4	158.9	49.9	7.50	7.50	0.00
6,300.0	30.63	180.00	6,273.9	-91.6	158.9	95.1	7.50	7.50	0.00
6,400.0	38.13	180.00	6,356.4	-148.0	158.9	151.5	7.50	7.50	0.00
6,479.2	44.07	180.00	6,416.0	-200.0	158.9	203.5	7.50	7.50	0.00
SHARON SPRINGS									
6,500.0	45.63	180.00	6,430.8	-214.7	158.9	218.2	7.50	7.50	0.00
6,600.0	53.13	180.00	6,495.8	-290.6	158.9	294.0	7.50	7.50	0.00
6,700.0	60.63	180.00	6,550.4	-374.2	158.9	377.7	7.50	7.50	0.00
6,800.0	68.13	180.00	6,593.6	-464.3	158.9	467.7	7.50	7.50	0.00
6,900.0	75.63	180.00	6,624.7	-559.3	158.9	562.7	7.50	7.50	0.00
7,000.0	83.13	180.00	6,643.1	-657.5	158.9	660.9	7.50	7.50	0.00
7,093.4	90.13	180.00	6,648.6	-750.7	158.9	754.0	7.50	7.50	0.00
End of Build - 7"									
7,100.0	90.13	180.00	6,648.6	-757.3	158.9	760.6	0.00	0.00	0.00
7,200.0	90.13	180.00	6,648.4	-857.3	158.9	860.6	0.00	0.00	0.00
7,300.0	90.13	180.00	6,648.2	-957.3	158.9	960.6	0.00	0.00	0.00
7,400.0	90.13	180.00	6,647.9	-1,057.3	158.9	1,060.6	0.00	0.00	0.00
7,500.0	90.13	180.00	6,647.7	-1,157.3	158.9	1,160.5	0.00	0.00	0.00
7,600.0	90.13	180.00	6,647.5	-1,257.3	158.9	1,260.5	0.00	0.00	0.00
7,700.0	90.13	180.00	6,647.2	-1,357.3	158.9	1,360.5	0.00	0.00	0.00
7,800.0	90.13	180.00	6,647.0	-1,457.3	158.9	1,460.5	0.00	0.00	0.00
7,900.0	90.13	180.00	6,646.8	-1,557.3	158.9	1,560.4	0.00	0.00	0.00
8,000.0	90.13	180.00	6,646.6	-1,657.3	158.9	1,660.4	0.00	0.00	0.00
8,100.0	90.13	180.00	6,646.3	-1,757.3	158.9	1,760.4	0.00	0.00	0.00
8,200.0	90.13	180.00	6,646.1	-1,857.3	158.9	1,860.4	0.00	0.00	0.00
8,300.0	90.13	180.00	6,645.9	-1,957.3	158.9	1,960.3	0.00	0.00	0.00
8,400.0	90.13	180.00	6,645.7	-2,057.3	158.9	2,060.3	0.00	0.00	0.00
8,500.0	90.13	180.00	6,645.4	-2,157.3	158.9	2,160.3	0.00	0.00	0.00
8,600.0	90.13	180.00	6,645.2	-2,257.3	158.9	2,260.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Churchill 28J-203
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 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 #2 (2-11-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	90.13	180.00	6,645.0	-2,357.3	158.9	2,360.2	0.00	0.00	0.00
8,800.0	90.13	180.00	6,644.7	-2,457.3	158.9	2,460.2	0.00	0.00	0.00
8,900.0	90.13	180.00	6,644.5	-2,557.3	158.9	2,560.2	0.00	0.00	0.00
9,000.0	90.13	180.00	6,644.3	-2,657.3	158.9	2,660.2	0.00	0.00	0.00
9,100.0	90.13	180.00	6,644.1	-2,757.3	158.9	2,760.1	0.00	0.00	0.00
9,200.0	90.13	180.00	6,643.8	-2,857.3	158.9	2,860.1	0.00	0.00	0.00
9,300.0	90.13	180.00	6,643.6	-2,957.3	158.9	2,960.1	0.00	0.00	0.00
9,400.0	90.13	180.00	6,643.4	-3,057.3	158.9	3,060.1	0.00	0.00	0.00
9,500.0	90.13	180.00	6,643.2	-3,157.3	158.9	3,160.0	0.00	0.00	0.00
9,600.0	90.13	180.00	6,642.9	-3,257.3	158.9	3,260.0	0.00	0.00	0.00
9,700.0	90.13	180.00	6,642.7	-3,357.3	158.9	3,360.0	0.00	0.00	0.00
9,800.0	90.13	180.00	6,642.5	-3,457.3	158.9	3,460.0	0.00	0.00	0.00
9,900.0	90.13	180.00	6,642.3	-3,557.3	158.9	3,559.9	0.00	0.00	0.00
10,000.0	90.13	180.00	6,642.0	-3,657.3	158.9	3,659.9	0.00	0.00	0.00
10,100.0	90.13	180.00	6,641.8	-3,757.3	158.9	3,759.9	0.00	0.00	0.00
10,200.0	90.13	180.00	6,641.6	-3,857.3	158.9	3,859.9	0.00	0.00	0.00
10,300.0	90.13	180.00	6,641.3	-3,957.3	158.9	3,959.9	0.00	0.00	0.00
10,400.0	90.13	180.00	6,641.1	-4,057.3	158.9	4,059.8	0.00	0.00	0.00
10,500.0	90.13	180.00	6,640.9	-4,157.3	158.9	4,159.8	0.00	0.00	0.00
10,600.0	90.13	180.00	6,640.7	-4,257.3	158.9	4,259.8	0.00	0.00	0.00
10,700.0	90.13	180.00	6,640.4	-4,357.3	158.9	4,359.8	0.00	0.00	0.00
10,800.0	90.13	180.00	6,640.2	-4,457.3	158.9	4,459.7	0.00	0.00	0.00
10,900.0	90.13	180.00	6,640.0	-4,557.3	158.9	4,559.7	0.00	0.00	0.00
11,000.0	90.13	180.00	6,639.8	-4,657.3	158.9	4,659.7	0.00	0.00	0.00
11,100.0	90.13	180.00	6,639.5	-4,757.3	158.9	4,759.7	0.00	0.00	0.00
11,200.0	90.13	180.00	6,639.3	-4,857.3	158.9	4,859.6	0.00	0.00	0.00
11,300.0	90.13	180.00	6,639.1	-4,957.3	158.9	4,959.6	0.00	0.00	0.00
11,400.0	90.13	180.00	6,638.9	-5,057.3	158.9	5,059.6	0.00	0.00	0.00
11,500.0	90.13	180.00	6,638.6	-5,157.3	158.9	5,159.6	0.00	0.00	0.00
11,600.0	90.13	180.00	6,638.4	-5,257.3	158.9	5,259.5	0.00	0.00	0.00
11,700.0	90.13	180.00	6,638.2	-5,357.3	158.9	5,359.5	0.00	0.00	0.00
11,800.0	90.13	180.00	6,637.9	-5,457.3	158.9	5,459.5	0.00	0.00	0.00
11,900.0	90.13	180.00	6,637.7	-5,557.3	158.9	5,559.5	0.00	0.00	0.00
12,000.0	90.13	180.00	6,637.5	-5,657.3	158.9	5,659.4	0.00	0.00	0.00
12,100.0	90.13	180.00	6,637.3	-5,757.3	158.9	5,759.4	0.00	0.00	0.00
12,200.0	90.13	180.00	6,637.0	-5,857.3	158.9	5,859.4	0.00	0.00	0.00
12,300.0	90.13	180.00	6,636.8	-5,957.3	158.9	5,959.4	0.00	0.00	0.00
12,400.0	90.13	180.00	6,636.6	-6,057.3	158.9	6,059.3	0.00	0.00	0.00
12,500.0	90.13	180.00	6,636.4	-6,157.3	158.9	6,159.3	0.00	0.00	0.00
12,600.0	90.13	180.00	6,636.1	-6,257.3	158.9	6,259.3	0.00	0.00	0.00
12,700.0	90.13	180.00	6,635.9	-6,357.3	158.9	6,359.3	0.00	0.00	0.00
12,800.0	90.13	180.00	6,635.7	-6,457.3	158.9	6,459.2	0.00	0.00	0.00
12,900.0	90.13	180.00	6,635.4	-6,557.3	158.9	6,559.2	0.00	0.00	0.00
13,000.0	90.13	180.00	6,635.2	-6,657.3	158.9	6,659.2	0.00	0.00	0.00
13,100.0	90.13	180.00	6,635.0	-6,757.3	158.9	6,759.2	0.00	0.00	0.00
13,200.0	90.13	180.00	6,634.8	-6,857.3	158.9	6,859.1	0.00	0.00	0.00
13,300.0	90.13	180.00	6,634.5	-6,957.3	158.9	6,959.1	0.00	0.00	0.00
13,400.0	90.13	180.00	6,634.3	-7,057.3	158.9	7,059.1	0.00	0.00	0.00
13,500.0	90.13	180.00	6,634.1	-7,157.3	158.9	7,159.1	0.00	0.00	0.00
13,537.8	90.13	180.00	6,634.0	-7,195.1	158.9	7,196.9	0.00	0.00	0.00
BHL 2140'FNL, 1448'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 #2 (2-11-14)		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
SHL 250'FNL, 1335'F	0.00	0.00	1.0	0.0	0.0	1,381,538.34	3,262,023.29	40.376910	-104.559500
- plan hits target center									
- Point									
BHL 2140'FNL, 1448'I	0.00	0.00	6,634.0	-7,195.1	158.9	1,374,345.62	3,262,258.48	40.357160	-104.558930
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
7,093.4	6,648.6	7"		7	7-1/2

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(ft)	(ft)				(°)	(°)
3,551.6	3,550.0	PARKMAN				
4,169.2	4,165.0	SUSSEX				
5,176.9	5,170.0	SHANNON				
6,479.2	6,416.0	SHARON SPRINGS				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
3,000.0	3,000.0	0.0	0.0	KOP #1	
5,891.6	5,884.7	15.0	158.9	KOP #2	
7,093.4	6,648.6	-750.7	158.9	End of Build	



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.28-T5N-R64W

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

Churchill 28J-203

Wellbore #1

Plan #2 (2-11-14)

Anticollision Report

12 February, 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (2-11-14)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	2/12/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,537.8	Plan #2 (2-11-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Churchill 28J-HZ Pad Sec.28-T5N-R64W						
Churchill 28E-203 - Wellbore #1 - Plan #1 (1-22-14)	166.3	167.3	119.9	119.3	228.224	CC
Churchill 28E-203 - Wellbore #1 - Plan #1 (1-22-14)	200.0	200.0	119.9	119.2	177.762	ES
Churchill 28E-203 - Wellbore #1 - Plan #1 (1-22-14)	3,000.0	2,909.3	668.7	649.9	35.552	SF
Churchill 28E-423 - Wellbore #1 - Plan #1 (1-22-14)	366.3	367.3	89.2	87.8	62.652	CC
Churchill 28E-423 - Wellbore #1 - Plan #1 (1-22-14)	400.0	400.0	89.2	87.7	56.718	ES
Churchill 28E-423 - Wellbore #1 - Plan #1 (1-22-14)	3,000.0	2,955.5	465.5	449.2	28.641	SF
Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)	566.3	567.3	58.5	56.2	25.184	CC
Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)	600.0	601.0	58.5	56.0	23.644	ES
Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)	13,537.8	13,814.4	587.5	310.9	2.124	SF
Churchill 28J-423 - Wellbore #1 - Plan #2 (2-11-14)	1,500.0	1,499.0	30.6	24.1	4.704	CC, ES
Churchill 28J-423 - Wellbore #1 - Plan #2 (2-11-14)	13,537.8	13,895.2	281.5	53.0	1.232	Level 2, SF
Churchill 28J-443 - Wellbore #1 - Plan #1 (1-22-14)	800.0	800.0	27.9	24.5	8.264	CC, ES
Churchill 28J-443 - Wellbore #1 - Plan #1 (1-22-14)	13,537.8	13,884.4	420.9	163.1	1.633	SF
Churchill 28M-343 - Wellbore #1 - Plan #2 (2-11-14)	1,000.0	999.0	61.3	57.0	14.361	CC, ES
Churchill 28M-343 - Wellbore #1 - Plan #2 (2-11-14)	13,537.8	13,867.6	649.2	372.2	2.344	SF
Churchill 28M-443 - Wellbore #1 - Plan #1 (1-22-14)	400.0	398.0	91.9	90.4	58.605	CC, ES
Churchill 28M-443 - Wellbore #1 - Plan #1 (1-22-14)	13,537.8	13,973.0	952.2	678.6	3.480	SF
Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W						
Adamson 1-6I (Exist) - Wellbore #1 - Wellbore #1	8,772.3	6,755.2	153.3	-94.0	0.620	Level 1, CC, ES, SF
Adamson 5 (Exist) - Wellbore #1 - Wellbore #1	10,081.2	6,754.6	191.1	-97.3	0.663	Level 1, CC, ES, SF
Churchill 2-6B (Exist) - Wellbore #1 - Wellbore #1	4,758.6	4,798.0	78.2	55.8	3.488	CC, ES, SF
Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1	100.0	79.0	817.0	816.8	4,050.205	CC
Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1	200.0	177.6	817.2	816.6	1,519.235	ES
Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1	2,500.0	2,341.8	998.7	987.8	91.361	SF
Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #1	6,778.4	6,565.3	495.9	348.3	3.360	CC, ES
Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #1	6,800.0	6,573.6	496.3	348.3	3.354	SF
Churchill 5 (Exist) - Wellbore #1 - Wellbore #1	7,308.1	6,638.1	100.4	-55.5	0.644	Level 1, CC, ES, SF
Hoffman B 33-19 (Exist) - Wellbore #1 - Wellbore #1	12,565.1	6,678.2	139.4	-114.2	0.550	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-91.74	-3.6	-119.8	119.9	119.9	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-91.74	-3.6	-119.8	119.9	119.6	0.23	527.989		
166.3	166.3	167.3	167.3	0.3	0.3	-91.74	-3.6	-119.8	119.9	119.3	0.53	228.224 CC		
200.0	200.0	200.0	200.0	0.3	0.3	-91.74	-3.6	-119.8	119.9	119.2	0.67	177.762 ES		
300.0	300.0	297.0	297.0	0.6	0.5	-91.58	-3.3	-121.4	121.5	120.4	1.11	109.543		
400.0	400.0	392.8	392.7	0.8	0.8	-91.12	-2.5	-126.2	126.5	124.9	1.55	81.603		
500.0	500.0	488.2	487.7	1.0	1.0	-90.44	-1.0	-134.1	134.7	132.7	2.01	66.897		
600.0	600.0	582.9	581.8	1.2	1.3	-89.62	1.0	-144.9	146.2	143.7	2.51	58.303		
700.0	700.0	676.9	674.7	1.5	1.6	-88.75	3.5	-158.8	161.0	157.9	3.04	52.965		
800.0	800.0	769.7	766.0	1.7	1.9	-87.88	6.5	-175.4	178.9	175.3	3.61	49.540		
900.0	900.0	862.5	856.6	1.9	2.3	-87.05	10.1	-194.8	200.0	195.8	4.23	47.330		
1,000.0	1,000.0	960.0	951.6	2.1	2.8	-86.30	14.0	-216.2	222.2	217.3	4.90	45.400		
1,100.0	1,100.0	1,057.4	1,046.6	2.4	3.2	-85.70	17.9	-237.7	244.5	238.9	5.57	43.869		
1,200.0	1,200.0	1,154.9	1,141.6	2.6	3.7	-85.19	21.8	-259.1	266.7	260.5	6.26	42.630		
1,300.0	1,300.0	1,252.3	1,236.6	2.8	4.1	-84.76	25.7	-280.6	289.0	282.1	6.95	41.612		
1,400.0	1,400.0	1,349.8	1,331.6	3.0	4.6	-84.40	29.6	-302.0	311.3	303.7	7.64	40.765		
1,500.0	1,500.0	1,447.3	1,426.6	3.3	5.1	-84.08	33.6	-323.5	333.6	325.3	8.33	40.049		
1,600.0	1,600.0	1,544.7	1,521.6	3.5	5.5	-83.80	37.5	-344.9	355.9	346.9	9.03	39.438		
1,700.0	1,700.0	1,642.2	1,616.6	3.7	6.0	-83.56	41.4	-366.4	378.2	368.5	9.72	38.910		
1,800.0	1,800.0	1,739.7	1,711.6	3.9	6.5	-83.34	45.3	-387.8	400.6	390.2	10.42	38.451		
1,900.0	1,900.0	1,837.1	1,806.6	4.2	7.0	-83.14	49.2	-409.3	422.9	411.8	11.12	38.047		
2,000.0	2,000.0	1,934.6	1,901.6	4.4	7.4	-82.97	53.1	-430.7	445.2	433.4	11.81	37.689		
2,100.0	2,100.0	2,032.1	1,996.6	4.6	7.9	-82.81	57.1	-452.2	467.6	455.1	12.51	37.370		
2,200.0	2,200.0	2,129.5	2,091.5	4.8	8.4	-82.66	61.0	-473.6	489.9	476.7	13.21	37.085		
2,300.0	2,300.0	2,227.0	2,186.5	5.1	8.9	-82.53	64.9	-495.1	512.3	498.3	13.91	36.827		
2,400.0	2,400.0	2,324.5	2,281.5	5.3	9.3	-82.41	68.8	-516.5	534.6	520.0	14.61	36.593		
2,500.0	2,500.0	2,421.9	2,376.5	5.5	9.8	-82.30	72.7	-538.0	556.9	541.6	15.31	36.381		
2,600.0	2,600.0	2,519.4	2,471.5	5.7	10.3	-82.20	76.6	-559.4	579.3	563.3	16.01	36.187		
2,700.0	2,700.0	2,616.9	2,566.5	6.0	10.8	-82.10	80.6	-580.9	601.6	584.9	16.71	36.008		
2,800.0	2,800.0	2,714.3	2,661.5	6.2	11.2	-82.02	84.5	-602.3	624.0	606.6	17.41	35.844		
2,900.0	2,900.0	2,811.8	2,756.5	6.4	11.7	-81.94	88.4	-623.8	646.3	628.2	18.11	35.693		
3,000.0	3,000.0	2,909.3	2,851.5	6.6	12.2	-81.86	92.3	-645.2	668.7	649.9	18.81	35.552 SF		
3,100.0	3,100.0	3,006.3	2,946.1	6.8	12.7	-166.31	96.2	-666.6	692.7	678.4	14.33	48.326		
3,200.0	3,199.8	3,102.5	3,039.9	7.0	13.2	-166.21	100.1	-687.7	720.0	705.3	14.72	48.906		
3,262.4	3,262.1	3,162.1	3,098.0	7.2	13.4	-166.17	102.5	-700.9	738.7	723.7	14.95	49.397		
3,300.0	3,299.5	3,197.8	3,132.8	7.3	13.6	-166.21	103.9	-708.7	750.3	735.2	15.12	49.614		
3,400.0	3,399.1	3,292.9	3,225.4	7.5	14.1	-166.31	107.7	-729.6	781.2	765.6	15.57	50.162		
3,500.0	3,498.6	3,388.0	3,318.1	7.7	14.6	-166.40	111.5	-750.6	812.2	796.1	16.03	50.673		
3,600.0	3,598.2	3,483.1	3,410.8	7.9	15.0	-166.49	115.4	-771.5	843.1	826.6	16.48	51.149		
3,700.0	3,697.8	3,578.2	3,503.5	8.1	15.5	-166.56	119.2	-792.4	874.0	857.1	16.94	51.595		
3,800.0	3,797.4	3,673.3	3,596.1	8.4	15.9	-166.64	123.0	-813.3	905.0	887.6	17.40	52.013		
3,900.0	3,897.0	3,768.3	3,688.8	8.6	16.4	-166.70	126.8	-834.3	935.9	918.1	17.86	52.404		
4,000.0	3,996.5	3,863.4	3,781.5	8.8	16.9	-166.77	130.6	-855.2	966.9	948.5	18.32	52.772		
4,100.0	4,096.1	3,958.5	3,874.2	9.1	17.3	-166.83	134.5	-876.1	997.8	979.0	18.78	53.118		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	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	1.0	1.0	0.0	0.0	-92.34	-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	-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	-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	-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	-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	-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	-92.04	-3.2	-90.8	90.9	88.9	2.01	45.214	
600.0	600.0	594.9	594.7	1.2	1.2	-91.21	-91.21	-2.0	-95.6	95.8	93.4	2.45	39.154	
700.0	700.0	691.3	690.8	1.5	1.4	-90.02	-90.02	0.0	-103.5	104.0	101.1	2.90	35.836	
800.0	800.0	787.0	785.8	1.7	1.7	-88.63	-88.63	2.7	-114.5	115.5	112.1	3.38	34.129	
900.0	900.0	882.8	880.5	1.9	2.0	-87.22	-87.22	6.2	-128.4	130.2	126.3	3.90	33.389	
1,000.0	1,000.0	981.5	977.9	2.1	2.3	-85.98	-85.98	10.1	-143.8	146.0	141.5	4.45	32.789	
1,100.0	1,100.0	1,080.2	1,075.3	2.4	2.7	-84.98	-84.98	14.0	-159.2	161.8	156.8	5.02	32.255	
1,200.0	1,200.0	1,178.9	1,172.8	2.6	3.0	-84.16	-84.16	17.9	-174.5	177.7	172.1	5.59	31.787	
1,300.0	1,300.0	1,277.6	1,270.2	2.8	3.4	-83.47	-83.47	21.7	-189.9	193.6	187.4	6.17	31.381	
1,400.0	1,400.0	1,376.3	1,367.6	3.0	3.7	-82.89	-82.89	25.6	-205.2	209.5	202.8	6.75	31.029	
1,500.0	1,500.0	1,475.0	1,465.0	3.3	4.1	-82.39	-82.39	29.5	-220.6	225.5	218.1	7.34	30.722	
1,600.0	1,600.0	1,573.7	1,562.5	3.5	4.4	-81.96	-81.96	33.3	-236.0	241.4	233.5	7.93	30.455	
1,700.0	1,700.0	1,672.4	1,659.9	3.7	4.8	-81.58	-81.58	37.2	-251.3	257.4	248.9	8.52	30.219	
1,800.0	1,800.0	1,771.1	1,757.3	3.9	5.2	-81.25	-81.25	41.1	-266.7	273.4	264.2	9.11	30.011	
1,900.0	1,900.0	1,869.8	1,854.7	4.2	5.5	-80.95	-80.95	44.9	-282.1	289.3	279.6	9.70	29.826	
2,000.0	2,000.0	1,968.5	1,952.2	4.4	5.9	-80.68	-80.68	48.8	-297.4	305.3	295.0	10.29	29.660	
2,100.0	2,100.0	2,067.2	2,049.6	4.6	6.3	-80.44	-80.44	52.7	-312.8	321.3	310.4	10.89	29.511	
2,200.0	2,200.0	2,165.9	2,147.0	4.8	6.7	-80.22	-80.22	56.5	-328.1	337.3	325.8	11.48	29.377	
2,300.0	2,300.0	2,264.6	2,244.4	5.1	7.0	-80.03	-80.03	60.4	-343.5	353.3	341.3	12.08	29.255	
2,400.0	2,400.0	2,363.3	2,341.9	5.3	7.4	-79.85	-79.85	64.3	-358.9	369.3	356.7	12.67	29.143	
2,500.0	2,500.0	2,462.0	2,439.3	5.5	7.8	-79.68	-79.68	68.1	-374.2	385.4	372.1	13.27	29.042	
2,600.0	2,600.0	2,560.7	2,536.7	5.7	8.1	-79.53	-79.53	72.0	-389.6	401.4	387.5	13.87	28.948	
2,700.0	2,700.0	2,659.4	2,634.1	6.0	8.5	-79.39	-79.39	75.9	-405.0	417.4	402.9	14.46	28.862	
2,800.0	2,800.0	2,758.1	2,731.6	6.2	8.9	-79.26	-79.26	79.7	-420.3	433.4	418.4	15.06	28.783	
2,900.0	2,900.0	2,856.8	2,829.0	6.4	9.3	-79.14	-79.14	83.6	-435.7	449.4	433.8	15.66	28.709	
3,000.0	3,000.0	2,955.5	2,926.4	6.6	9.6	-79.02	-79.02	87.5	-451.0	465.5	449.2	16.25	28.641 SF	
3,100.0	3,100.0	3,054.0	3,023.5	6.8	10.0	-163.48	-163.48	91.3	-466.4	483.1	469.2	13.96	34.604	
3,200.0	3,199.8	3,151.7	3,120.1	7.0	10.4	-163.43	-163.43	95.2	-481.6	504.1	489.7	14.35	35.119	
3,262.4	3,262.1	3,212.4	3,179.9	7.2	10.6	-163.45	-163.45	97.5	-491.0	518.8	504.3	14.59	35.561	
3,300.0	3,299.5	3,248.8	3,215.9	7.3	10.7	-163.52	-163.52	99.0	-496.7	528.1	513.3	14.75	35.792	
3,400.0	3,399.1	3,345.7	3,311.5	7.5	11.1	-163.69	-163.69	102.8	-511.8	552.7	537.5	15.19	36.378	
3,500.0	3,498.6	3,442.6	3,407.2	7.7	11.5	-163.85	-163.85	106.6	-526.9	577.4	561.7	15.64	36.926	
3,600.0	3,598.2	3,539.5	3,502.8	7.9	11.8	-164.00	-164.00	110.4	-541.9	602.0	585.9	16.08	37.441	
3,700.0	3,697.8	3,636.4	3,598.5	8.1	12.2	-164.14	-164.14	114.2	-557.0	626.6	610.1	16.52	37.923	
3,800.0	3,797.4	3,733.3	3,694.1	8.4	12.6	-164.26	-164.26	118.0	-572.1	651.3	634.3	16.97	38.377	
3,900.0	3,897.0	3,830.2	3,789.8	8.6	12.9	-164.38	-164.38	121.8	-587.2	675.9	658.5	17.42	38.804	
4,000.0	3,996.5	3,927.1	3,885.4	8.8	13.3	-164.49	-164.49	125.6	-602.3	700.6	682.7	17.87	39.207	
4,100.0	4,096.1	4,024.0	3,981.1	9.1	13.7	-164.59	-164.59	129.4	-617.3	725.2	706.9	18.32	39.587	
4,200.0	4,195.7	4,121.0	4,076.7	9.3	14.1	-164.68	-164.68	133.2	-632.4	749.9	731.1	18.77	39.947	
4,300.0	4,295.3	4,217.9	4,172.4	9.6	14.4	-164.77	-164.77	136.9	-647.5	774.6	755.3	19.23	40.287	
4,400.0	4,394.9	4,314.8	4,268.0	9.8	14.8	-164.85	-164.85	140.7	-662.6	799.2	779.5	19.68	40.609	
4,500.0	4,494.4	4,411.7	4,363.7	10.1	15.2	-164.93	-164.93	144.5	-677.7	823.9	803.7	20.14	40.915	
4,600.0	4,594.0	4,508.6	4,459.3	10.3	15.5	-165.00	-165.00	148.3	-692.8	848.5	827.9	20.59	41.206	
4,700.0	4,693.6	4,605.5	4,555.0	10.6	15.9	-165.07	-165.07	152.1	-707.8	873.2	852.1	21.05	41.482	
4,744.5	4,737.9	4,648.6	4,597.5	10.7	16.1	-165.10	-165.10	153.8	-714.6	884.2	862.9	21.25	41.601	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-423 - Wellbore #1 - Plan #1 (1-22-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,793.2	4,702.5	4,650.7	10.8	16.3	-165.20	155.9	-722.9	897.4	875.8	21.55	41.640	
4,900.0	4,893.1	4,800.2	4,747.2	11.0	16.6	-165.31	159.8	-738.2	918.6	896.5	22.06	41.642	
5,006.9	5,000.0	4,905.5	4,851.1	11.2	17.0	-80.74	163.9	-754.5	937.6	915.0	22.58	41.530	
5,100.0	5,093.1	4,997.3	4,941.7	11.4	17.4	-80.67	167.5	-768.8	952.4	929.4	22.99	41.428	
5,200.0	5,193.1	5,096.0	5,039.1	11.6	17.8	-80.59	171.4	-784.2	968.4	945.0	23.46	41.288	
5,300.0	5,293.1	5,194.7	5,136.6	11.8	18.1	-80.51	175.2	-799.6	984.4	960.5	23.92	41.154	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-58.5	58.5	58.5	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-58.5	58.5	58.3	0.23	257.736		
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-58.5	58.5	57.8	0.68	86.483		
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-58.5	58.5	57.4	1.13	51.959		
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-58.5	58.5	56.9	1.58	37.135		
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-58.5	58.5	56.5	2.03	28.892		
566.3	566.3	567.3	567.3	1.2	1.2	-90.00	0.0	-58.5	58.5	56.2	2.32	25.184 CC		
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-58.5	58.5	56.0	2.47	23.644 ES		
700.0	700.0	700.0	700.0	1.5	1.5	-89.20	0.8	-60.0	60.1	57.1	2.92	20.594		
800.0	800.0	797.1	797.0	1.7	1.7	-87.11	3.3	-64.5	64.7	61.3	3.35	19.275		
900.0	900.0	895.9	895.4	1.9	1.9	-84.35	7.1	-71.4	72.0	68.2	3.81	18.899		
1,000.0	1,000.0	995.6	994.7	2.1	2.1	-82.00	11.1	-78.8	79.8	75.5	4.28	18.659		
1,100.0	1,100.0	1,095.2	1,094.0	2.4	2.4	-80.07	15.1	-86.1	87.7	82.9	4.75	18.463		
1,200.0	1,200.0	1,194.9	1,193.3	2.6	2.6	-78.46	19.1	-93.4	95.7	90.4	5.23	18.301		
1,300.0	1,300.0	1,294.5	1,292.6	2.8	2.9	-77.10	23.1	-100.8	103.7	98.0	5.71	18.166		
1,400.0	1,400.0	1,394.2	1,391.9	3.0	3.2	-75.93	27.1	-108.1	111.8	105.6	6.19	18.052		
1,500.0	1,500.0	1,493.8	1,491.2	3.3	3.4	-74.92	31.1	-115.4	119.9	113.3	6.68	17.954		
1,600.0	1,600.0	1,593.5	1,590.5	3.5	3.7	-74.04	35.1	-122.8	128.1	120.9	7.17	17.871		
1,700.0	1,700.0	1,693.1	1,689.8	3.7	3.9	-73.27	39.1	-130.1	136.3	128.6	7.66	17.798		
1,800.0	1,800.0	1,792.8	1,789.1	3.9	4.2	-72.58	43.1	-137.4	144.5	136.4	8.15	17.735		
1,900.0	1,900.0	1,892.4	1,888.4	4.2	4.5	-71.97	47.1	-144.7	152.7	144.1	8.64	17.679		
2,000.0	2,000.0	1,992.0	1,987.7	4.4	4.7	-71.42	51.1	-152.1	161.0	151.8	9.13	17.630		
2,100.0	2,100.0	2,091.7	2,087.0	4.6	5.0	-70.93	55.1	-159.4	169.2	159.6	9.62	17.586		
2,200.0	2,200.0	2,191.3	2,186.3	4.8	5.3	-70.48	59.1	-166.7	177.5	167.4	10.12	17.547		
2,300.0	2,300.0	2,291.0	2,285.6	5.1	5.6	-70.07	63.1	-174.1	185.8	175.2	10.61	17.512		
2,400.0	2,400.0	2,390.6	2,384.9	5.3	5.8	-69.69	67.1	-181.4	194.1	183.0	11.10	17.480		
2,500.0	2,500.0	2,490.3	2,484.2	5.5	6.1	-69.35	71.1	-188.7	202.4	190.8	11.60	17.451		
2,600.0	2,600.0	2,589.9	2,583.5	5.7	6.4	-69.03	75.1	-196.1	210.7	198.6	12.09	17.424		
2,700.0	2,700.0	2,689.6	2,682.8	6.0	6.6	-68.74	79.1	-203.4	219.0	206.4	12.59	17.400		
2,800.0	2,800.0	2,789.2	2,782.1	6.2	6.9	-68.47	83.1	-210.7	227.3	214.2	13.08	17.378		
2,900.0	2,900.0	2,888.9	2,881.4	6.4	7.2	-68.21	87.2	-218.0	235.6	222.1	13.58	17.357		
3,000.0	3,000.0	2,988.5	2,980.7	6.6	7.4	-67.98	91.2	-225.4	244.0	229.9	14.07	17.338		
3,100.0	3,100.0	3,088.0	3,079.8	6.8	7.7	-152.46	95.2	-232.7	253.8	240.1	13.71	18.520		
3,200.0	3,199.8	3,187.2	3,178.6	7.0	8.0	-152.65	99.1	-240.0	266.8	252.7	14.11	18.913		
3,262.4	3,262.1	3,248.8	3,240.1	7.2	8.1	-152.92	101.6	-244.5	276.4	262.1	14.35	19.265		
3,300.0	3,299.5	3,285.9	3,277.0	7.3	8.2	-153.15	103.1	-247.2	282.6	268.1	14.51	19.476		
3,400.0	3,399.1	3,384.5	3,375.2	7.5	8.5	-153.74	107.1	-254.5	299.0	284.1	14.94	20.016		
3,500.0	3,498.6	3,483.1	3,473.5	7.7	8.8	-154.26	111.0	-261.7	315.5	300.1	15.37	20.525		
3,600.0	3,598.2	3,581.7	3,571.7	7.9	9.1	-154.73	115.0	-269.0	332.0	316.2	15.81	21.004		
3,700.0	3,697.8	3,680.3	3,670.0	8.1	9.3	-155.16	119.0	-276.3	348.5	332.3	16.24	21.456		
3,800.0	3,797.4	3,778.9	3,768.2	8.4	9.6	-155.55	122.9	-283.5	365.1	348.4	16.68	21.883		
3,900.0	3,897.0	3,877.4	3,866.5	8.6	9.9	-155.90	126.9	-290.8	381.6	364.5	17.12	22.287		
4,000.0	3,996.5	3,976.0	3,964.7	8.8	10.1	-156.23	130.8	-298.0	398.2	380.6	17.56	22.670		
4,100.0	4,096.1	4,074.6	4,063.0	9.1	10.4	-156.53	134.8	-305.3	414.7	396.7	18.01	23.033		
4,200.0	4,195.7	4,173.2	4,161.2	9.3	10.7	-156.81	138.8	-312.5	431.3	412.9	18.45	23.377		
4,300.0	4,295.3	4,271.8	4,259.5	9.6	10.9	-157.06	142.7	-319.8	447.9	429.0	18.90	23.705		
4,400.0	4,394.9	4,370.4	4,357.7	9.8	11.2	-157.30	146.7	-327.0	464.5	445.2	19.34	24.016		
4,500.0	4,494.4	4,469.0	4,456.0	10.1	11.5	-157.52	150.6	-334.3	481.1	461.3	19.79	24.312		
4,600.0	4,594.0	4,567.6	4,554.2	10.3	11.7	-157.73	154.6	-341.5	497.7	477.5	20.24	24.595		
4,700.0	4,693.6	4,666.2	4,652.5	10.6	12.0	-157.92	158.6	-348.8	514.4	493.7	20.69	24.864		
4,744.5	4,737.9	4,710.1	4,696.2	10.7	12.1	-158.00	160.3	-352.0	521.8	500.9	20.89	24.980		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	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)			
4,800.0	4,793.2	4,764.9	4,750.8	10.8	12.3	-158.15	162.5	-356.0	530.5	509.3	21.16	25.069		
4,900.0	4,893.1	4,864.0	4,849.6	11.0	12.5	-158.27	166.5	-363.3	543.7	522.1	21.63	25.140		
5,006.9	5,000.0	4,970.4	4,955.6	11.2	12.8	-73.62	170.8	-371.2	554.3	532.2	22.10	25.083		
5,100.0	5,093.1	5,063.1	5,048.0	11.4	13.1	-73.45	174.5	-378.0	562.0	539.5	22.50	24.974		
5,200.0	5,193.1	5,162.8	5,147.3	11.6	13.4	-73.28	178.5	-385.3	570.2	547.2	22.95	24.842		
5,300.0	5,293.1	5,262.4	5,246.6	11.8	13.6	-73.10	182.5	-392.6	578.4	555.0	23.40	24.714		
5,400.0	5,393.1	5,362.1	5,345.9	12.0	13.9	-72.94	186.5	-400.0	586.6	562.7	23.85	24.592		
5,500.0	5,493.1	5,461.7	5,445.2	12.2	14.2	-72.77	190.5	-407.3	594.8	570.5	24.30	24.474		
5,600.0	5,593.1	5,561.4	5,544.5	12.5	14.5	-72.62	194.5	-414.6	603.0	578.3	24.75	24.360		
5,700.0	5,693.1	5,683.3	5,666.1	12.7	14.7	-72.47	198.5	-421.9	609.7	584.5	25.20	24.190		
5,800.0	5,793.1	5,809.7	5,792.5	12.9	14.9	-72.41	200.0	-424.6	612.1	586.5	25.64	23.872		
5,891.6	5,884.7	5,902.9	5,885.7	13.1	15.1	-72.41	200.0	-424.6	612.1	586.1	26.02	23.523		
5,900.0	5,893.1	5,911.3	5,894.1	13.1	15.1	107.59	200.0	-424.6	612.1	586.1	26.05	23.495		
5,950.0	5,943.0	5,961.2	5,944.0	13.2	15.2	107.74	200.0	-424.6	612.8	586.6	26.23	23.366		
6,000.0	5,992.7	6,020.3	6,003.1	13.3	15.3	108.14	199.1	-424.6	614.3	587.9	26.39	23.275		
6,050.0	6,041.9	6,087.1	6,069.6	13.4	15.4	108.53	192.9	-424.6	615.6	589.0	26.54	23.195		
6,100.0	6,090.5	6,154.5	6,135.8	13.5	15.4	108.82	180.8	-424.6	616.5	589.9	26.66	23.122		
6,150.0	6,138.2	6,222.2	6,201.0	13.6	15.5	108.99	162.8	-424.6	617.1	590.3	26.78	23.047		
6,200.0	6,184.7	6,290.1	6,264.6	13.7	15.5	109.06	139.1	-424.6	617.3	590.5	26.89	22.962		
6,250.0	6,230.1	6,357.9	6,325.8	13.8	15.6	109.01	109.8	-424.6	617.2	590.2	27.01	22.854		
6,300.0	6,273.9	6,425.7	6,384.1	13.9	15.6	108.85	75.2	-424.6	616.6	589.5	27.15	22.709		
6,350.0	6,316.0	6,493.1	6,438.8	14.0	15.6	108.58	35.9	-424.6	615.7	588.4	27.34	22.519		
6,400.0	6,356.4	6,560.0	6,489.4	14.2	15.7	108.20	-7.8	-424.6	614.5	586.9	27.60	22.262		
6,450.0	6,394.6	6,626.2	6,535.6	14.3	15.8	107.72	-55.2	-424.6	612.9	585.0	27.93	21.948		
6,500.0	6,430.8	6,691.6	6,577.0	14.5	15.9	107.14	-105.8	-424.6	611.1	582.7	28.35	21.553		
6,550.0	6,464.5	6,756.2	6,613.5	14.8	16.1	106.47	-159.1	-424.6	609.0	580.2	28.89	21.084		
6,600.0	6,495.8	6,819.8	6,644.9	15.1	16.3	105.72	-214.3	-424.6	606.8	577.3	29.54	20.546		
6,650.0	6,524.5	6,882.3	6,671.2	15.4	16.6	104.89	-271.0	-424.6	604.5	574.2	30.30	19.951		
6,700.0	6,550.4	6,943.6	6,692.5	15.8	17.1	103.98	-328.6	-424.6	602.0	570.9	31.17	19.313		
6,750.0	6,573.5	7,003.9	6,708.7	16.2	17.6	103.02	-386.5	-424.6	599.6	567.4	32.16	18.644		
6,800.0	6,593.6	7,062.9	6,720.2	16.7	18.1	101.99	-444.5	-424.6	597.2	564.0	33.25	17.960		
6,850.0	6,610.7	7,120.8	6,727.1	17.2	18.7	100.92	-501.9	-424.6	594.9	560.4	34.43	17.277		
6,900.0	6,624.7	7,177.6	6,729.6	17.8	19.3	99.80	-558.6	-424.6	592.7	557.0	35.68	16.609		
6,950.0	6,635.5	7,227.5	6,729.5	18.3	19.9	98.89	-608.5	-424.6	590.9	553.9	36.92	16.002		
7,000.0	6,643.1	7,276.8	6,729.3	18.9	20.5	98.24	-657.9	-424.6	589.7	551.5	38.19	15.442		
7,050.0	6,647.5	7,326.6	6,729.1	19.6	21.1	97.85	-707.7	-424.6	589.0	549.6	39.49	14.917		
7,093.4	6,648.6	7,370.0	6,728.9	20.2	21.7	97.74	-751.0	-424.6	588.9	548.2	40.64	14.491		
7,100.0	6,648.6	7,376.6	6,728.9	20.3	21.8	97.73	-757.6	-424.6	588.9	548.1	40.82	14.428		
7,200.0	6,648.4	7,476.6	6,728.5	21.6	23.2	97.72	-857.6	-424.6	588.8	545.2	43.61	13.502		
7,300.0	6,648.2	7,576.6	6,728.1	23.1	24.6	97.70	-957.6	-424.6	588.8	542.3	46.55	12.648		
7,400.0	6,647.9	7,676.6	6,727.7	24.7	26.1	97.68	-1,057.6	-424.6	588.8	539.2	49.61	11.868		
7,500.0	6,647.7	7,776.6	6,727.3	26.2	27.7	97.67	-1,157.6	-424.6	588.8	536.0	52.77	11.157		
7,600.0	6,647.5	7,876.6	6,726.8	27.9	29.3	97.65	-1,257.6	-424.6	588.7	532.7	56.01	10.511		
7,700.0	6,647.2	7,976.6	6,726.4	29.5	31.0	97.63	-1,357.6	-424.6	588.7	529.4	59.32	9.924		
7,800.0	6,647.0	8,076.6	6,726.0	31.2	32.6	97.62	-1,457.6	-424.6	588.7	526.0	62.69	9.391		
7,900.0	6,646.8	8,176.6	6,725.6	32.9	34.3	97.60	-1,557.6	-424.6	588.7	522.6	66.11	8.905		
8,000.0	6,646.6	8,276.6	6,725.2	34.7	36.0	97.58	-1,657.6	-424.6	588.7	519.1	69.57	8.462		
8,100.0	6,646.3	8,376.6	6,724.8	36.4	37.8	97.57	-1,757.6	-424.6	588.6	515.6	73.06	8.057		
8,200.0	6,646.1	8,476.6	6,724.4	38.2	39.5	97.55	-1,857.6	-424.6	588.6	512.0	76.58	7.686		
8,300.0	6,645.9	8,576.6	6,724.0	40.0	41.3	97.53	-1,957.6	-424.6	588.6	508.5	80.14	7.345		
8,400.0	6,645.7	8,676.6	6,723.6	41.8	43.1	97.52	-2,057.6	-424.6	588.6	504.9	83.71	7.031		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)												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)			
8,500.0	6,645.4	8,776.6	6,723.2	43.6	44.9	97.50	-2,157.6	-424.6	588.5	501.2	87.31	6.741	
8,600.0	6,645.2	8,876.6	6,722.8	45.4	46.7	97.48	-2,257.6	-424.6	588.5	497.6	90.92	6.473	
8,700.0	6,645.0	8,976.6	6,722.4	47.2	48.5	97.46	-2,357.6	-424.6	588.5	493.9	94.55	6.224	
8,800.0	6,644.7	9,076.6	6,722.0	49.1	50.3	97.45	-2,457.6	-424.6	588.5	490.3	98.20	5.993	
8,900.0	6,644.5	9,176.6	6,721.6	50.9	52.1	97.43	-2,557.6	-424.6	588.5	486.6	101.85	5.777	
9,000.0	6,644.3	9,276.6	6,721.2	52.7	54.0	97.41	-2,657.6	-424.6	588.4	482.9	105.52	5.576	
9,100.0	6,644.1	9,376.6	6,720.8	54.6	55.8	97.40	-2,757.6	-424.6	588.4	479.2	109.20	5.388	
9,200.0	6,643.8	9,476.6	6,720.4	56.5	57.7	97.38	-2,857.6	-424.6	588.4	475.5	112.89	5.212	
9,300.0	6,643.6	9,576.6	6,720.0	58.3	59.5	97.36	-2,957.6	-424.6	588.4	471.8	116.59	5.046	
9,400.0	6,643.4	9,676.6	6,719.6	60.2	61.4	97.35	-3,057.6	-424.6	588.3	468.0	120.30	4.891	
9,500.0	6,643.2	9,776.6	6,719.2	62.0	63.2	97.33	-3,157.6	-424.6	588.3	464.3	124.01	4.744	
9,600.0	6,642.9	9,876.6	6,718.8	63.9	65.1	97.31	-3,257.6	-424.6	588.3	460.6	127.73	4.606	
9,700.0	6,642.7	9,976.6	6,718.4	65.8	67.0	97.30	-3,357.6	-424.6	588.3	456.8	131.45	4.475	
9,800.0	6,642.5	10,076.6	6,718.0	67.7	68.8	97.28	-3,457.6	-424.6	588.3	453.1	135.18	4.351	
9,900.0	6,642.3	10,176.6	6,717.6	69.5	70.7	97.26	-3,557.6	-424.6	588.2	449.3	138.92	4.234	
10,000.0	6,642.0	10,276.6	6,717.2	71.4	72.6	97.25	-3,657.6	-424.6	588.2	445.5	142.66	4.123	
10,100.0	6,641.8	10,376.6	6,716.8	73.3	74.4	97.23	-3,757.6	-424.6	588.2	441.8	146.40	4.018	
10,200.0	6,641.6	10,476.6	6,716.4	75.2	76.3	97.21	-3,857.6	-424.6	588.2	438.0	150.15	3.917	
10,300.0	6,641.3	10,576.6	6,716.0	77.1	78.2	97.20	-3,957.6	-424.6	588.1	434.2	153.91	3.821	
10,400.0	6,641.1	10,676.6	6,715.6	79.0	80.1	97.18	-4,057.6	-424.6	588.1	430.5	157.66	3.730	
10,500.0	6,640.9	10,776.6	6,715.2	80.9	82.0	97.16	-4,157.6	-424.6	588.1	426.7	161.42	3.643	
10,600.0	6,640.7	10,876.6	6,714.8	82.7	83.9	97.14	-4,257.6	-424.6	588.1	422.9	165.18	3.560	
10,700.0	6,640.4	10,976.6	6,714.4	84.6	85.7	97.13	-4,357.6	-424.6	588.1	419.1	168.95	3.481	
10,800.0	6,640.2	11,076.6	6,714.0	86.5	87.6	97.11	-4,457.6	-424.6	588.0	415.3	172.72	3.405	
10,900.0	6,640.0	11,176.6	6,713.6	88.4	89.5	97.09	-4,557.6	-424.6	588.0	411.5	176.49	3.332	
11,000.0	6,639.8	11,276.6	6,713.2	90.3	91.4	97.08	-4,657.6	-424.6	588.0	407.7	180.26	3.262	
11,100.0	6,639.5	11,376.6	6,712.8	92.2	93.3	97.06	-4,757.6	-424.6	588.0	403.9	184.04	3.195	
11,200.0	6,639.3	11,476.6	6,712.4	94.1	95.2	97.04	-4,857.6	-424.6	587.9	400.1	187.81	3.130	
11,300.0	6,639.1	11,576.6	6,712.0	96.0	97.1	97.03	-4,957.6	-424.6	587.9	396.3	191.59	3.069	
11,400.0	6,638.9	11,676.6	6,711.6	97.9	99.0	97.01	-5,057.6	-424.6	587.9	392.5	195.38	3.009	
11,500.0	6,638.6	11,776.6	6,711.2	99.8	100.9	96.99	-5,157.6	-424.6	587.9	388.7	199.16	2.952	
11,600.0	6,638.4	11,876.6	6,710.8	101.7	102.8	96.98	-5,257.6	-424.6	587.9	384.9	202.94	2.897	
11,700.0	6,638.2	11,976.6	6,710.4	103.6	104.7	96.96	-5,357.6	-424.6	587.8	381.1	206.73	2.844	
11,800.0	6,637.9	12,076.6	6,710.0	105.5	106.6	96.94	-5,457.6	-424.6	587.8	377.3	210.52	2.792	
11,900.0	6,637.7	12,176.6	6,709.6	107.4	108.5	96.93	-5,557.6	-424.6	587.8	373.5	214.31	2.743	
12,000.0	6,637.5	12,276.6	6,709.2	109.3	110.4	96.91	-5,657.6	-424.6	587.8	369.7	218.10	2.695	
12,100.0	6,637.3	12,376.6	6,708.8	111.2	112.3	96.89	-5,757.6	-424.6	587.8	365.9	221.89	2.649	
12,200.0	6,637.0	12,476.6	6,708.4	113.1	114.2	96.87	-5,857.6	-424.6	587.7	362.0	225.69	2.604	
12,300.0	6,636.8	12,576.6	6,708.0	115.0	116.1	96.86	-5,957.6	-424.6	587.7	358.2	229.48	2.561	
12,400.0	6,636.6	12,676.6	6,707.6	116.9	118.0	96.84	-6,057.6	-424.6	587.7	354.4	233.28	2.519	
12,500.0	6,636.4	12,776.6	6,707.2	118.9	119.9	96.82	-6,157.6	-424.6	587.7	350.6	237.07	2.479	
12,600.0	6,636.1	12,876.6	6,706.8	120.8	121.8	96.81	-6,257.6	-424.6	587.7	346.8	240.87	2.440	
12,700.0	6,635.9	12,976.6	6,706.4	122.7	123.7	96.79	-6,357.6	-424.6	587.6	343.0	244.67	2.402	
12,800.0	6,635.7	13,076.6	6,706.0	124.6	125.6	96.77	-6,457.6	-424.6	587.6	339.1	248.47	2.365	
12,900.0	6,635.4	13,176.6	6,705.6	126.5	127.5	96.76	-6,557.6	-424.6	587.6	335.3	252.28	2.329	
13,000.0	6,635.2	13,276.6	6,705.2	128.4	129.4	96.74	-6,657.6	-424.6	587.6	331.5	256.08	2.294	
13,100.0	6,635.0	13,376.6	6,704.8	130.3	131.3	96.72	-6,757.6	-424.6	587.5	327.7	259.88	2.261	
13,200.0	6,634.8	13,476.6	6,704.4	132.2	133.2	96.71	-6,857.6	-424.6	587.5	323.8	263.69	2.228	
13,300.0	6,634.5	13,576.6	6,704.0	134.1	135.1	96.69	-6,957.6	-424.6	587.5	320.0	267.49	2.196	
13,400.0	6,634.3	13,676.6	6,703.6	136.0	137.0	96.67	-7,057.6	-424.6	587.5	316.2	271.30	2.165	
13,500.0	6,634.1	13,776.6	6,703.2	137.9	139.0	96.65	-7,157.6	-424.6	587.5	312.4	275.10	2.135	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #2 (2-11-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,537.8	6,634.0	13,814.4	6,703.0	138.7	139.7	96.65	-7,195.4	-424.6	587.5	310.9	276.54	2.124 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	90.02	90.02	0.0	30.6	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	90.02	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	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	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	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	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	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	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	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	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	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	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	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	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	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	90.02	0.0	30.6	30.6	24.1	6.52	4.704 CC, ES	
1,600.0	1,600.0	1,598.1	1,598.0	3.5	3.5	88.53	88.53	0.8	32.1	32.1	25.2	6.96	4.618	
1,700.0	1,700.0	1,696.9	1,696.7	3.7	3.7	84.78	84.78	3.3	36.5	36.7	29.4	7.40	4.969	
1,800.0	1,800.0	1,795.3	1,794.8	3.9	3.9	80.28	80.28	7.5	43.9	44.7	36.9	7.84	5.701	
1,900.0	1,900.0	1,894.8	1,893.8	4.2	4.1	76.66	76.66	12.4	52.5	54.2	45.9	8.29	6.537	
2,000.0	2,000.0	1,994.3	1,992.8	4.4	4.4	74.14	74.14	17.4	61.2	63.9	55.1	8.76	7.298	
2,100.0	2,100.0	2,093.8	2,091.8	4.6	4.6	72.28	72.28	22.3	69.8	73.7	64.5	9.22	7.988	
2,200.0	2,200.0	2,193.3	2,190.8	4.8	4.9	70.86	70.86	27.3	78.5	83.5	73.8	9.70	8.612	
2,300.0	2,300.0	2,292.8	2,289.8	5.1	5.1	69.73	69.73	32.2	87.2	93.4	83.2	10.17	9.178	
2,400.0	2,400.0	2,392.3	2,388.8	5.3	5.4	68.82	68.82	37.1	95.8	103.3	92.6	10.65	9.693	
2,500.0	2,500.0	2,491.8	2,487.8	5.5	5.6	68.08	68.08	42.1	104.5	113.2	102.1	11.14	10.162	
2,600.0	2,600.0	2,591.3	2,586.8	5.7	5.9	67.45	67.45	47.0	113.2	123.1	111.5	11.63	10.591	
2,700.0	2,700.0	2,690.8	2,685.8	6.0	6.2	66.91	66.91	51.9	121.8	133.1	121.0	12.12	10.985	
2,800.0	2,800.0	2,790.3	2,784.7	6.2	6.4	66.45	66.45	56.9	130.5	143.0	130.4	12.61	11.346	
2,900.0	2,900.0	2,889.8	2,883.7	6.4	6.7	66.05	66.05	61.8	139.1	153.0	139.9	13.10	11.680	
3,000.0	3,000.0	2,989.3	2,982.7	6.6	7.0	65.70	65.70	66.7	147.8	163.0	149.4	13.60	11.988	
3,100.0	3,100.0	3,088.9	3,081.9	6.8	7.2	-19.35	-19.35	71.7	156.5	171.3	157.7	13.62	12.582	
3,200.0	3,199.8	3,188.7	3,181.2	7.0	7.5	-20.16	-20.16	76.6	165.2	176.4	162.4	14.03	12.569	
3,262.4	3,262.1	3,251.1	3,243.3	7.2	7.7	-20.85	-20.85	79.7	170.6	177.9	163.6	14.29	12.451	
3,300.0	3,299.5	3,288.6	3,280.6	7.3	7.8	-21.32	-21.32	81.6	173.9	178.5	164.0	14.45	12.349	
3,400.0	3,399.1	3,388.6	3,380.0	7.5	8.1	-22.54	-22.54	86.5	182.6	180.0	165.1	14.89	12.089	
3,500.0	3,498.6	3,488.5	3,479.4	7.7	8.3	-23.74	-23.74	91.5	191.3	181.6	166.3	15.33	11.846	
3,600.0	3,598.2	3,588.4	3,578.8	7.9	8.6	-24.92	-24.92	96.4	200.0	183.3	167.6	15.78	11.620	
3,700.0	3,697.8	3,688.3	3,678.3	8.1	8.9	-26.07	-26.07	101.4	208.7	185.1	168.9	16.23	11.407	
3,800.0	3,797.4	3,788.2	3,777.7	8.4	9.2	-27.21	-27.21	106.4	217.4	186.9	170.3	16.68	11.208	
3,900.0	3,897.0	3,888.1	3,877.1	8.6	9.5	-28.32	-28.32	111.3	226.1	188.9	171.7	17.14	11.022	
4,000.0	3,996.5	3,988.1	3,976.5	8.8	9.7	-29.41	-29.41	116.3	234.8	190.8	173.2	17.59	10.847	
4,100.0	4,096.1	4,088.0	4,075.9	9.1	10.0	-30.47	-30.47	121.2	243.5	192.9	174.8	18.06	10.682	
4,200.0	4,195.7	4,187.9	4,175.3	9.3	10.3	-31.52	-31.52	126.2	252.2	195.0	176.5	18.53	10.527	
4,300.0	4,295.3	4,287.8	4,274.7	9.6	10.6	-32.54	-32.54	131.1	260.9	197.2	178.2	19.00	10.380	
4,400.0	4,394.9	4,387.7	4,374.1	9.8	10.9	-33.54	-33.54	136.1	269.6	199.4	180.0	19.47	10.243	
4,500.0	4,494.4	4,487.6	4,473.6	10.1	11.2	-34.51	-34.51	141.0	278.3	201.7	181.8	19.95	10.112	
4,600.0	4,594.0	4,587.5	4,573.0	10.3	11.4	-35.46	-35.46	146.0	287.0	204.1	183.7	20.43	9.990	
4,700.0	4,693.6	4,687.5	4,672.4	10.6	11.7	-36.40	-36.40	151.0	295.7	206.5	185.6	20.92	9.873	
4,744.5	4,737.9	4,731.9	4,716.6	10.7	11.9	-36.80	-36.80	153.2	299.5	207.6	186.5	21.13	9.824	
4,800.0	4,793.2	4,787.4	4,771.8	10.8	12.0	-37.24	-37.24	155.9	304.4	209.4	188.0	21.40	9.787	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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
4,900.0	4,893.1	4,887.2	4,871.1	11.0	12.3	-37.59		160.9	313.1	214.8	193.0	21.83	9.840	
5,006.9	5,000.0	4,993.8	4,977.2	11.2	12.6	47.24		166.1	322.3	223.7	201.4	22.26	10.048	
5,100.0	5,093.1	5,086.4	5,069.3	11.4	12.9	47.76		170.7	330.4	232.8	210.1	22.65	10.276	
5,200.0	5,193.1	5,185.9	5,168.3	11.6	13.2	48.27		175.7	339.1	242.6	219.5	23.09	10.503	
5,300.0	5,293.1	5,285.4	5,267.3	11.8	13.4	48.75		180.6	347.7	252.4	228.8	23.54	10.722	
5,400.0	5,393.1	5,384.9	5,366.3	12.0	13.7	49.19		185.5	356.4	262.2	238.2	23.98	10.934	
5,500.0	5,493.1	5,484.4	5,465.3	12.2	14.0	49.59		190.5	365.0	272.0	247.6	24.43	11.137	
5,600.0	5,593.1	5,589.4	5,569.8	12.5	14.3	49.97		195.4	373.7	281.4	256.5	24.87	11.315	
5,700.0	5,693.1	5,700.0	5,680.2	12.7	14.5	50.22		198.8	379.6	287.4	262.1	25.28	11.368	
5,800.0	5,793.1	5,811.0	5,791.2	12.9	14.7	50.30		200.0	381.7	289.6	263.9	25.69	11.274	
5,891.6	5,884.7	5,903.5	5,883.7	13.1	14.9	50.30		200.0	381.7	289.6	263.6	26.07	11.110	
5,900.0	5,893.1	5,911.9	5,892.1	13.1	14.9	-129.70		200.0	381.7	289.7	263.6	26.10	11.100	
5,950.0	5,943.0	5,961.8	5,942.0	13.2	15.0	-129.95		200.0	381.7	291.1	264.8	26.23	11.096	
6,000.0	5,992.7	6,011.5	5,991.7	13.3	15.1	-130.56		200.0	381.7	294.6	268.3	26.33	11.187	
6,050.0	6,041.9	6,060.7	6,040.9	13.4	15.2	-131.48		200.0	381.7	300.3	273.9	26.40	11.377	
6,100.0	6,090.5	6,126.9	6,107.0	13.5	15.3	-132.96		197.4	381.7	307.1	280.7	26.44	11.616	
6,150.0	6,138.2	6,195.4	6,175.0	13.6	15.3	-134.26		188.6	381.7	313.3	286.9	26.42	11.856	
6,200.0	6,184.7	6,265.4	6,243.2	13.7	15.4	-135.35		173.5	381.7	318.7	292.3	26.36	12.089	
6,250.0	6,230.1	6,336.5	6,310.9	13.8	15.4	-136.23		151.8	381.7	323.2	296.9	26.25	12.309	
6,300.0	6,273.9	6,408.6	6,377.2	13.9	15.5	-136.90		123.4	381.7	326.7	300.6	26.12	12.508	
6,350.0	6,316.0	6,481.4	6,441.1	14.0	15.5	-137.36		88.5	381.7	329.2	303.2	25.97	12.676	
6,400.0	6,356.4	6,554.7	6,501.8	14.2	15.6	-137.61		47.5	381.7	330.6	304.8	25.82	12.802	
6,450.0	6,394.6	6,628.3	6,558.4	14.3	15.6	-137.66		0.6	381.7	330.9	305.2	25.71	12.867	
6,500.0	6,430.8	6,701.7	6,610.2	14.5	15.7	-137.50		-51.4	381.7	330.0	304.4	25.63	12.874	
6,550.0	6,464.5	6,774.8	6,656.6	14.8	15.8	-137.13		-107.9	381.7	328.0	302.4	25.64	12.791	
6,600.0	6,495.8	6,847.3	6,697.1	15.1	16.0	-136.56		-168.0	381.7	324.9	299.2	25.76	12.613	
6,650.0	6,524.5	6,918.9	6,731.2	15.4	16.4	-135.78		-230.8	381.7	320.9	294.8	26.02	12.332	
6,700.0	6,550.4	6,989.4	6,759.0	15.8	16.8	-134.79		-295.6	381.7	315.9	289.4	26.43	11.950	
6,750.0	6,573.5	7,058.6	6,780.4	16.2	17.3	-133.59		-361.4	381.7	310.0	283.0	27.03	11.472	
6,800.0	6,593.6	7,126.4	6,795.4	16.7	17.9	-132.17		-427.6	381.7	303.5	275.7	27.82	10.910	
6,850.0	6,610.7	7,190.4	6,804.2	17.2	18.6	-130.63		-490.9	381.7	296.5	267.7	28.77	10.304	
6,900.0	6,624.7	7,239.6	6,809.4	17.8	19.1	-129.65		-539.8	381.7	290.7	261.1	29.58	9.828	
6,950.0	6,635.5	7,295.2	6,814.6	18.3	19.7	-128.82		-595.2	381.7	286.8	256.3	30.50	9.401	
7,000.0	6,643.1	7,354.0	6,817.3	18.9	20.4	-128.03		-653.9	381.7	283.5	251.9	31.56	8.981	
7,050.0	6,647.5	7,407.7	6,817.5	19.6	21.1	-127.45		-707.7	381.7	280.9	248.3	32.58	8.621	
7,093.1	6,648.6	7,450.8	6,817.4	20.2	21.7	-127.30		-750.7	381.7	280.1	246.8	33.37	8.394	
7,093.4	6,648.6	7,451.1	6,817.4	20.2	21.7	-127.30		-751.0	381.7	280.1	246.8	33.38	8.393	
7,100.0	6,648.6	7,457.7	6,817.4	20.3	21.8	-127.30		-757.6	381.7	280.1	246.6	33.52	8.356	
7,200.0	6,648.4	7,557.7	6,817.2	21.6	23.2	-127.30		-857.6	381.7	280.2	244.3	35.81	7.823	
7,300.0	6,648.2	7,657.7	6,817.0	23.1	24.6	-127.31		-957.6	381.7	280.2	242.0	38.23	7.330	
7,400.0	6,647.9	7,757.7	6,816.8	24.7	26.1	-127.32		-1,057.6	381.7	280.2	239.5	40.75	6.877	
7,500.0	6,647.7	7,857.7	6,816.6	26.2	27.7	-127.32		-1,157.6	381.7	280.2	236.9	43.35	6.464	
7,600.0	6,647.5	7,957.7	6,816.4	27.9	29.3	-127.33		-1,257.6	381.7	280.2	234.2	46.03	6.088	
7,700.0	6,647.2	8,057.7	6,816.2	29.5	30.9	-127.33		-1,357.6	381.7	280.3	231.5	48.77	5.747	
7,800.0	6,647.0	8,157.7	6,816.0	31.2	32.6	-127.34		-1,457.6	381.7	280.3	228.7	51.56	5.436	
7,900.0	6,646.8	8,257.7	6,815.8	32.9	34.3	-127.34		-1,557.6	381.7	280.3	225.9	54.39	5.154	
8,000.0	6,646.6	8,357.7	6,815.6	34.7	36.0	-127.35		-1,657.6	381.7	280.3	223.1	57.26	4.896	
8,100.0	6,646.3	8,457.7	6,815.4	36.4	37.8	-127.35		-1,757.6	381.7	280.3	220.2	60.15	4.661	
8,200.0	6,646.1	8,557.7	6,815.2	38.2	39.5	-127.36		-1,857.6	381.7	280.4	217.3	63.08	4.445	
8,300.0	6,645.9	8,657.7	6,815.1	40.0	41.3	-127.37		-1,957.6	381.7	280.4	214.4	66.02	4.247	
8,400.0	6,645.7	8,757.7	6,814.9	41.8	43.1	-127.37		-2,057.6	381.7	280.4	211.4	68.99	4.064	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #2 (2-11-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	6,645.4	8,857.7	6,814.7	43.6	44.9	-127.38	-2,157.6	381.7	280.4	208.5	71.98	3.896	
8,600.0	6,645.2	8,957.7	6,814.5	45.4	46.7	-127.38	-2,257.6	381.7	280.5	205.5	74.97	3.741	
8,700.0	6,645.0	9,057.7	6,814.3	47.2	48.5	-127.39	-2,357.6	381.7	280.5	202.5	77.99	3.596	
8,800.0	6,644.7	9,157.7	6,814.1	49.1	50.3	-127.39	-2,457.6	381.7	280.5	199.5	81.01	3.462	
8,900.0	6,644.5	9,257.7	6,813.9	50.9	52.1	-127.40	-2,557.6	381.7	280.5	196.5	84.05	3.338	
9,000.0	6,644.3	9,357.7	6,813.7	52.7	54.0	-127.41	-2,657.6	381.7	280.5	193.4	87.09	3.221	
9,100.0	6,644.1	9,457.7	6,813.5	54.6	55.8	-127.41	-2,757.6	381.7	280.6	190.4	90.15	3.112	
9,200.0	6,643.8	9,557.7	6,813.3	56.5	57.6	-127.42	-2,857.6	381.7	280.6	187.4	93.21	3.010	
9,300.0	6,643.6	9,657.7	6,813.1	58.3	59.5	-127.42	-2,957.6	381.7	280.6	184.3	96.28	2.915	
9,400.0	6,643.4	9,757.7	6,812.9	60.2	61.4	-127.43	-3,057.6	381.7	280.6	181.3	99.35	2.825	
9,500.0	6,643.2	9,857.7	6,812.8	62.0	63.2	-127.43	-3,157.6	381.7	280.6	178.2	102.43	2.740	
9,600.0	6,642.9	9,957.7	6,812.6	63.9	65.1	-127.44	-3,257.6	381.7	280.7	175.2	105.51	2.660	
9,700.0	6,642.7	10,057.7	6,812.4	65.8	66.9	-127.45	-3,357.6	381.7	280.7	172.1	108.60	2.585	
9,800.0	6,642.5	10,157.7	6,812.2	67.7	68.8	-127.45	-3,457.6	381.7	280.7	169.0	111.70	2.513	
9,900.0	6,642.3	10,257.7	6,812.0	69.5	70.7	-127.46	-3,557.6	381.7	280.7	165.9	114.79	2.446	
10,000.0	6,642.0	10,357.7	6,811.8	71.4	72.5	-127.46	-3,657.6	381.7	280.8	162.9	117.90	2.381	
10,100.0	6,641.8	10,457.7	6,811.6	73.3	74.4	-127.47	-3,757.6	381.7	280.8	159.8	121.00	2.320	
10,200.0	6,641.6	10,557.7	6,811.4	75.2	76.3	-127.47	-3,857.6	381.7	280.8	156.7	124.11	2.263	
10,300.0	6,641.3	10,657.7	6,811.2	77.1	78.2	-127.48	-3,957.6	381.7	280.8	153.6	127.22	2.207	
10,400.0	6,641.1	10,757.7	6,811.0	79.0	80.1	-127.48	-4,057.6	381.7	280.8	150.5	130.33	2.155	
10,500.0	6,640.9	10,857.7	6,810.8	80.9	82.0	-127.49	-4,157.6	381.7	280.9	147.4	133.44	2.105	
10,600.0	6,640.7	10,957.7	6,810.6	82.7	83.8	-127.50	-4,257.6	381.7	280.9	144.3	136.56	2.057	
10,700.0	6,640.4	11,057.7	6,810.4	84.6	85.7	-127.50	-4,357.6	381.7	280.9	141.2	139.68	2.011	
10,800.0	6,640.2	11,157.7	6,810.3	86.5	87.6	-127.51	-4,457.6	381.7	280.9	138.1	142.80	1.967	
10,900.0	6,640.0	11,257.7	6,810.1	88.4	89.5	-127.51	-4,557.6	381.7	280.9	135.0	145.92	1.925	
11,000.0	6,639.8	11,357.7	6,809.9	90.3	91.4	-127.52	-4,657.6	381.7	281.0	131.9	149.04	1.885	
11,100.0	6,639.5	11,457.7	6,809.7	92.2	93.3	-127.52	-4,757.6	381.7	281.0	128.8	152.16	1.847	
11,200.0	6,639.3	11,557.7	6,809.5	94.1	95.2	-127.53	-4,857.6	381.7	281.0	125.7	155.29	1.810	
11,300.0	6,639.1	11,657.7	6,809.3	96.0	97.1	-127.54	-4,957.6	381.7	281.0	122.6	158.42	1.774	
11,400.0	6,638.9	11,757.7	6,809.1	97.9	99.0	-127.54	-5,057.6	381.7	281.0	119.5	161.54	1.740	
11,500.0	6,638.6	11,857.7	6,808.9	99.8	100.9	-127.55	-5,157.6	381.7	281.1	116.4	164.67	1.707	
11,600.0	6,638.4	11,957.7	6,808.7	101.7	102.8	-127.55	-5,257.6	381.7	281.1	113.3	167.80	1.675	
11,700.0	6,638.2	12,057.7	6,808.5	103.6	104.7	-127.56	-5,357.6	381.7	281.1	110.2	170.93	1.645	
11,800.0	6,637.9	12,157.7	6,808.3	105.5	106.6	-127.56	-5,457.6	381.7	281.1	107.1	174.07	1.615	
11,900.0	6,637.7	12,257.7	6,808.1	107.4	108.5	-127.57	-5,557.6	381.7	281.2	104.0	177.20	1.587	
12,000.0	6,637.5	12,357.7	6,808.0	109.3	110.4	-127.58	-5,657.6	381.7	281.2	100.8	180.33	1.559	
12,100.0	6,637.3	12,457.7	6,807.8	111.2	112.3	-127.58	-5,757.6	381.7	281.2	97.7	183.46	1.533	
12,200.0	6,637.0	12,557.7	6,807.6	113.1	114.2	-127.59	-5,857.6	381.7	281.2	94.6	186.60	1.507	
12,300.0	6,636.8	12,657.7	6,807.4	115.0	116.1	-127.59	-5,957.6	381.7	281.2	91.5	189.73	1.482 Level 3	
12,400.0	6,636.6	12,757.7	6,807.2	116.9	118.0	-127.60	-6,057.6	381.7	281.3	88.4	192.87	1.458 Level 3	
12,500.0	6,636.4	12,857.7	6,807.0	118.9	119.9	-127.60	-6,157.6	381.7	281.3	85.3	196.00	1.435 Level 3	
12,600.0	6,636.1	12,957.7	6,806.8	120.8	121.8	-127.61	-6,257.6	381.7	281.3	82.2	199.14	1.413 Level 3	
12,700.0	6,635.9	13,057.7	6,806.6	122.7	123.7	-127.61	-6,357.6	381.7	281.3	79.1	202.27	1.391 Level 3	
12,800.0	6,635.7	13,157.7	6,806.4	124.6	125.6	-127.62	-6,457.6	381.7	281.3	75.9	205.41	1.370 Level 3	
12,900.0	6,635.4	13,257.7	6,806.2	126.5	127.5	-127.63	-6,557.6	381.7	281.4	72.8	208.55	1.349 Level 3	
13,000.0	6,635.2	13,357.7	6,806.0	128.4	129.4	-127.63	-6,657.6	381.7	281.4	69.7	211.68	1.329 Level 3	
13,100.0	6,635.0	13,457.7	6,805.8	130.3	131.3	-127.64	-6,757.6	381.7	281.4	66.6	214.82	1.310 Level 3	
13,200.0	6,634.8	13,557.7	6,805.6	132.2	133.2	-127.64	-6,857.6	381.7	281.4	63.5	217.96	1.291 Level 3	
13,300.0	6,634.5	13,657.7	6,805.5	134.1	135.1	-127.65	-6,957.6	381.7	281.5	60.4	221.10	1.273 Level 3	
13,400.0	6,634.3	13,757.7	6,805.3	136.0	137.0	-127.65	-7,057.6	381.7	281.5	57.2	224.23	1.255 Level 3	
13,500.0	6,634.1	13,857.7	6,805.1	137.9	138.9	-127.66	-7,157.6	381.7	281.5	54.1	227.37	1.238 Level 2	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-423 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
13,515.4	6,634.1	13,873.1	6,805.0	138.2	139.2	-127.66	-7,173.0	381.7	281.5	53.6	227.86	1.235	Level 2	
13,537.8	6,634.0	13,895.2	6,805.0	138.7	139.7	-127.66	-7,195.1	381.7	281.5	53.0	228.55	1.232	Level 2, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Churchill 28J-203
Project:	SEC.28-T5N-R64W	TVD Reference:	WELL @ 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	7.627	
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	7.751	
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	8.102	
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	5.17	8.437	
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	5.63	8.746	
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	6.09	9.025	
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	6.56	9.276	
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	7.02	9.501	
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	7.49	9.703	
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	70.7	7.96	9.885	
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	76.3	8.43	10.050	
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	81.8	8.90	10.199	
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	87.4	9.37	10.335	
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	93.1	9.84	10.459	
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	98.7	10.31	10.572	
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	104.3	10.78	10.677	
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	110.0	11.25	10.773	
2,600.0	2,600.0	2,595.4	2,592.2	5.7	6.0	-53.66	-53.66	75.3	-102.4	127.4	115.6	11.73	10.862	
2,700.0	2,700.0	2,695.2	2,691.8	6.0	6.2	-53.24	-53.24	79.7	-106.7	133.5	121.3	12.20	10.944	
2,800.0	2,800.0	2,795.0	2,791.4	6.2	6.5	-52.86	-52.86	84.1	-111.1	139.6	127.0	12.67	11.021	
2,900.0	2,900.0	2,894.8	2,891.0	6.4	6.7	-52.52	-52.52	88.5	-115.5	145.8	132.6	13.14	11.092	
3,000.0	3,000.0	2,994.7	2,990.6	6.6	7.0	-52.20	-52.20	93.0	-119.8	151.9	138.3	13.62	11.159	
3,100.0	3,100.0	3,094.4	3,090.2	6.8	7.2	-136.84	-136.84	97.4	-124.2	159.4	145.7	13.68	11.648	
3,200.0	3,199.8	3,193.8	3,189.4	7.0	7.5	-137.64	-137.64	101.7	-128.5	169.4	155.3	14.09	12.019	
3,262.4	3,262.1	3,255.7	3,251.2	7.2	7.6	-138.45	-138.45	104.5	-131.2	176.9	162.6	14.34	12.336	
3,300.0	3,299.5	3,292.9	3,288.4	7.3	7.7	-139.05	-139.05	106.1	-132.9	181.8	167.3	14.50	12.536	
3,400.0	3,399.1	3,392.0	3,387.2	7.5	8.0	-140.50	-140.50	110.5	-137.2	194.9	180.0	14.93	13.050	
3,500.0	3,498.6	3,491.0	3,486.0	7.7	8.2	-141.76	-141.76	114.9	-141.5	208.1	192.7	15.37	13.540	
3,600.0	3,598.2	3,590.0	3,584.9	7.9	8.5	-142.87	-142.87	119.2	-145.8	221.3	205.5	15.80	14.007	
3,700.0	3,697.8	3,689.1	3,683.7	8.1	8.7	-143.86	-143.86	123.6	-150.2	234.7	218.5	16.24	14.450	
3,800.0	3,797.4	3,788.1	3,782.5	8.4	9.0	-144.74	-144.74	128.0	-154.5	248.1	231.4	16.68	14.873	
3,900.0	3,897.0	3,887.1	3,881.4	8.6	9.2	-145.53	-145.53	132.3	-158.8	261.6	244.4	17.12	15.275	
4,000.0	3,996.5	3,986.1	3,980.2	8.8	9.5	-146.24	-146.24	136.7	-163.1	275.1	257.5	17.57	15.658	
4,100.0	4,096.1	4,085.2	4,079.1	9.1	9.7	-146.89	-146.89	141.1	-167.5	288.6	270.6	18.01	16.023	
4,200.0	4,195.7	4,184.2	4,177.9	9.3	10.0	-147.48	-147.48	145.5	-171.8	302.2	283.7	18.46	16.371	
4,300.0	4,295.3	4,283.2	4,276.7	9.6	10.2	-148.01	-148.01	149.8	-176.1	315.8	296.9	18.91	16.703	
4,400.0	4,394.9	4,382.3	4,375.6	9.8	10.5	-148.51	-148.51	154.2	-180.4	329.4	310.1	19.36	17.020	
4,500.0	4,494.4	4,481.3	4,474.4	10.1	10.7	-148.96	-148.96	158.6	-184.8	343.1	323.3	19.81	17.322	
4,600.0	4,494.0	4,480.3	4,473.2	10.3	11.0	-149.38	-149.38	162.9	-189.1	356.7	336.5	20.26	17.612	
4,700.0	4,493.6	4,479.3	4,472.1	10.6	11.2	-149.77	-149.77	167.3	-193.4	370.4	349.7	20.71	17.889	
4,744.5	4,737.9	4,723.4	4,716.1	10.7	11.3	-149.93	-149.93	169.3	-195.3	376.5	355.6	20.91	18.009	
4,800.0	4,793.2	4,778.4	4,771.0	10.8	11.4	-150.16	-150.16	171.7	-197.7	383.7	362.5	21.18	18.118	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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
4,900.0	4,893.1	4,877.9	4,870.2	11.0	11.7	-150.34		176.1	-202.1	394.2	372.6	21.63	18.222	
5,006.9	5,000.0	4,984.5	4,976.7	11.2	12.0	-65.61		180.8	-206.7	402.1	380.0	22.10	18.201	
5,100.0	5,093.1	5,077.4	5,069.4	11.4	12.2	-65.32		184.9	-210.8	407.5	385.1	22.49	18.118	
5,200.0	5,193.1	5,177.2	5,169.0	11.6	12.4	-65.02		189.3	-215.1	413.4	390.4	22.94	18.018	
5,300.0	5,293.1	5,277.0	5,268.6	11.8	12.7	-64.72		193.7	-219.5	419.2	395.8	23.39	17.922	
5,400.0	5,393.1	5,384.3	5,375.7	12.0	12.9	-64.44		198.1	-223.8	424.6	400.8	23.84	17.812	
5,500.0	5,493.1	5,500.5	5,491.9	12.2	13.2	-64.31		200.0	-225.7	426.8	402.5	24.26	17.590	
5,600.0	5,593.1	5,601.7	5,593.1	12.5	13.3	-64.31		200.0	-225.7	426.8	402.1	24.68	17.295	
5,700.0	5,693.1	5,701.7	5,693.1	12.7	13.5	-64.31		200.0	-225.7	426.8	401.7	25.11	16.996	
5,800.0	5,793.1	5,801.7	5,793.1	12.9	13.7	-64.31		200.0	-225.7	426.8	401.3	25.55	16.708	
5,891.6	5,884.7	5,893.3	5,884.7	13.1	13.9	-64.31		200.0	-225.7	426.8	400.9	25.94	16.451	
5,900.0	5,893.1	5,901.7	5,893.1	13.1	13.9	115.69		200.0	-225.7	426.8	400.9	25.98	16.431	
5,950.0	5,943.0	5,951.6	5,943.0	13.2	14.0	115.89		200.0	-225.7	427.8	401.6	26.15	16.359	
6,000.0	5,992.7	6,001.3	5,992.7	13.3	14.2	116.38		200.0	-225.7	430.2	403.9	26.30	16.358	
6,050.0	6,041.9	6,050.5	6,041.9	13.4	14.3	117.13		200.0	-225.7	434.2	407.7	26.42	16.434	
6,100.0	6,090.5	6,117.0	6,108.3	13.5	14.4	118.35		197.3	-225.7	438.8	412.3	26.52	16.550	
6,150.0	6,138.2	6,185.6	6,176.3	13.6	14.4	119.44		188.4	-225.7	443.1	416.6	26.56	16.681	
6,200.0	6,184.7	6,255.6	6,244.6	13.7	14.5	120.37		173.1	-225.7	446.9	420.3	26.58	16.814	
6,250.0	6,230.1	6,326.7	6,312.2	13.8	14.6	121.13		151.3	-225.7	450.1	423.5	26.57	16.940	
6,300.0	6,273.9	6,398.7	6,378.3	13.9	14.6	121.72		122.8	-225.7	452.6	426.0	26.55	17.047	
6,350.0	6,316.0	6,471.5	6,442.1	14.0	14.6	122.12		87.9	-225.7	454.3	427.8	26.54	17.118	
6,400.0	6,356.4	6,544.7	6,502.7	14.2	14.7	122.34		46.8	-225.7	455.3	428.7	26.56	17.139	
6,450.0	6,394.6	6,618.2	6,559.2	14.3	14.7	122.38		-0.1	-225.7	455.5	428.8	26.66	17.087	
6,500.0	6,430.8	6,691.5	6,610.9	14.5	14.8	122.23		-52.1	-225.7	454.8	428.0	26.81	16.960	
6,550.0	6,464.5	6,764.5	6,657.1	14.8	15.0	121.89		-108.6	-225.7	453.3	426.2	27.11	16.721	
6,600.0	6,495.8	6,836.9	6,697.4	15.1	15.3	121.37		-168.6	-225.7	451.1	423.5	27.54	16.381	
6,650.0	6,524.5	6,908.3	6,731.5	15.4	15.7	120.67		-231.4	-225.7	448.1	420.0	28.12	15.936	
6,700.0	6,550.4	6,978.7	6,759.2	15.8	16.2	119.80		-296.1	-225.7	444.6	415.7	28.88	15.395	
6,750.0	6,573.5	7,047.8	6,780.5	16.2	16.7	118.77		-361.8	-225.7	440.5	410.7	29.80	14.781	
6,800.0	6,593.6	7,115.5	6,795.5	16.7	17.4	117.58		-427.8	-225.7	435.9	405.0	30.90	14.109	
6,850.0	6,610.7	7,179.3	6,804.2	17.2	18.0	116.32		-491.0	-225.7	431.0	398.9	32.11	13.424	
6,900.0	6,624.7	7,228.5	6,809.4	17.8	18.6	115.53		-539.9	-225.7	427.1	393.9	33.20	12.865	
6,950.0	6,635.5	7,284.1	6,814.6	18.3	19.2	114.87		-595.2	-225.7	424.5	390.0	34.42	12.332	
7,000.0	6,643.1	7,342.9	6,817.3	18.9	20.0	114.26		-654.0	-225.7	422.2	386.5	35.76	11.808	
7,050.0	6,647.5	7,396.6	6,817.5	19.6	20.7	113.81		-707.7	-225.7	420.5	383.5	37.07	11.345	
7,093.1	6,648.6	7,439.6	6,817.4	20.2	21.2	113.69		-750.7	-225.7	420.0	381.9	38.16	11.008	
7,093.4	6,648.6	7,439.9	6,817.4	20.2	21.3	113.69		-751.0	-225.7	420.0	381.9	38.16	11.006	
7,100.0	6,648.6	7,446.5	6,817.4	20.3	21.3	113.69		-757.6	-225.7	420.0	381.7	38.33	10.958	
7,200.0	6,648.4	7,546.5	6,817.2	21.6	22.7	113.69		-857.6	-225.7	420.0	379.1	40.93	10.261	
7,300.0	6,648.2	7,646.5	6,817.0	23.1	24.2	113.70		-957.6	-225.7	420.1	376.4	43.67	9.618	
7,400.0	6,647.9	7,746.5	6,816.8	24.7	25.8	113.70		-1,057.6	-225.7	420.1	373.5	46.53	9.029	
7,500.0	6,647.7	7,846.5	6,816.6	26.2	27.3	113.71		-1,157.6	-225.7	420.1	370.6	49.47	8.491	
7,600.0	6,647.5	7,946.5	6,816.4	27.9	29.0	113.71		-1,257.6	-225.7	420.1	367.6	52.50	8.003	
7,700.0	6,647.2	8,046.5	6,816.2	29.5	30.6	113.72		-1,357.6	-225.7	420.1	364.5	55.58	7.558	
7,800.0	6,647.0	8,146.5	6,816.0	31.2	32.3	113.72		-1,457.6	-225.7	420.1	361.4	58.72	7.154	
7,900.0	6,646.8	8,246.5	6,815.8	32.9	34.0	113.72		-1,557.6	-225.7	420.1	358.2	61.91	6.786	
8,000.0	6,646.6	8,346.5	6,815.6	34.7	35.7	113.73		-1,657.6	-225.7	420.2	355.0	65.14	6.450	
8,100.0	6,646.3	8,446.5	6,815.4	36.4	37.5	113.73		-1,757.6	-225.7	420.2	351.8	68.40	6.143	
8,200.0	6,646.1	8,546.5	6,815.3	38.2	39.3	113.74		-1,857.6	-225.7	420.2	348.5	71.68	5.862	
8,300.0	6,645.9	8,646.5	6,815.1	40.0	41.0	113.74		-1,957.6	-225.7	420.2	345.2	75.00	5.603	
8,400.0	6,645.7	8,746.5	6,814.9	41.8	42.8	113.75		-2,057.6	-225.7	420.2	341.9	78.33	5.364	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (1-22-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning		
Measured Depth	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)				
8,500.0	6,645.4	8,846.5	6,814.7	43.6	44.6	113.75	-2,157.6	-225.7	420.2	338.5	81.69	5.144			
8,600.0	6,645.2	8,946.5	6,814.5	45.4	46.4	113.75	-2,257.6	-225.7	420.2	335.2	85.06	4.940			
8,700.0	6,645.0	9,046.5	6,814.3	47.2	48.3	113.76	-2,357.6	-225.7	420.3	331.8	88.45	4.751			
8,800.0	6,644.7	9,146.5	6,814.1	49.1	50.1	113.76	-2,457.6	-225.7	420.3	328.4	91.85	4.576			
8,900.0	6,644.5	9,246.5	6,813.9	50.9	51.9	113.77	-2,557.6	-225.7	420.3	325.0	95.26	4.412			
9,000.0	6,644.3	9,346.5	6,813.7	52.7	53.8	113.77	-2,657.6	-225.7	420.3	321.6	98.68	4.259			
9,100.0	6,644.1	9,446.5	6,813.5	54.6	55.6	113.78	-2,757.6	-225.7	420.3	318.2	102.11	4.116			
9,200.0	6,643.8	9,546.5	6,813.3	56.5	57.5	113.78	-2,857.6	-225.7	420.3	314.8	105.55	3.982			
9,300.0	6,643.6	9,646.5	6,813.1	58.3	59.3	113.79	-2,957.6	-225.7	420.3	311.3	109.00	3.856			
9,400.0	6,643.4	9,746.5	6,813.0	60.2	61.2	113.79	-3,057.6	-225.7	420.4	307.9	112.46	3.738			
9,500.0	6,643.2	9,846.5	6,812.8	62.0	63.0	113.79	-3,157.6	-225.7	420.4	304.5	115.92	3.626			
9,600.0	6,642.9	9,946.5	6,812.6	63.9	64.9	113.80	-3,257.6	-225.7	420.4	301.0	119.38	3.521			
9,700.0	6,642.7	10,046.5	6,812.4	65.8	66.8	113.80	-3,357.6	-225.7	420.4	297.5	122.86	3.422			
9,800.0	6,642.5	10,146.5	6,812.2	67.7	68.7	113.81	-3,457.6	-225.7	420.4	294.1	126.33	3.328			
9,900.0	6,642.3	10,246.5	6,812.0	69.5	70.5	113.81	-3,557.6	-225.7	420.4	290.6	129.82	3.239			
10,000.0	6,642.0	10,346.5	6,811.8	71.4	72.4	113.82	-3,657.6	-225.7	420.4	287.1	133.30	3.154			
10,100.0	6,641.8	10,446.5	6,811.6	73.3	74.3	113.82	-3,757.6	-225.7	420.5	283.7	136.79	3.074			
10,200.0	6,641.6	10,546.5	6,811.4	75.2	76.2	113.82	-3,857.6	-225.7	420.5	280.2	140.28	2.997			
10,300.0	6,641.3	10,646.5	6,811.2	77.1	78.1	113.83	-3,957.6	-225.7	420.5	276.7	143.78	2.924			
10,400.0	6,641.1	10,746.5	6,811.0	79.0	79.9	113.83	-4,057.6	-225.7	420.5	273.2	147.28	2.855			
10,500.0	6,640.9	10,846.5	6,810.8	80.9	81.8	113.84	-4,157.6	-225.7	420.5	269.7	150.78	2.789			
10,600.0	6,640.7	10,946.5	6,810.6	82.7	83.7	113.84	-4,257.6	-225.7	420.5	266.2	154.28	2.726			
10,700.0	6,640.4	11,046.5	6,810.5	84.6	85.6	113.85	-4,357.6	-225.7	420.5	262.7	157.79	2.665			
10,800.0	6,640.2	11,146.5	6,810.3	86.5	87.5	113.85	-4,457.6	-225.7	420.6	259.3	161.30	2.607			
10,900.0	6,640.0	11,246.5	6,810.1	88.4	89.4	113.85	-4,557.6	-225.7	420.6	255.8	164.81	2.552			
11,000.0	6,639.8	11,346.5	6,809.9	90.3	91.3	113.86	-4,657.6	-225.7	420.6	252.3	168.32	2.499			
11,100.0	6,639.5	11,446.5	6,809.7	92.2	93.2	113.86	-4,757.6	-225.7	420.6	248.8	171.84	2.448			
11,200.0	6,639.3	11,546.5	6,809.5	94.1	95.1	113.87	-4,857.6	-225.7	420.6	245.3	175.35	2.399			
11,300.0	6,639.1	11,646.5	6,809.3	96.0	97.0	113.87	-4,957.6	-225.7	420.6	241.8	178.87	2.352			
11,400.0	6,638.9	11,746.5	6,809.1	97.9	98.9	113.88	-5,057.6	-225.7	420.6	238.2	182.39	2.306			
11,500.0	6,638.6	11,846.5	6,808.9	99.8	100.8	113.88	-5,157.6	-225.7	420.7	234.7	185.91	2.263			
11,600.0	6,638.4	11,946.5	6,808.7	101.7	102.7	113.89	-5,257.6	-225.7	420.7	231.2	189.43	2.221			
11,700.0	6,638.2	12,046.5	6,808.5	103.6	104.6	113.89	-5,357.6	-225.7	420.7	227.7	192.95	2.180			
11,800.0	6,637.9	12,146.5	6,808.3	105.5	106.5	113.89	-5,457.6	-225.7	420.7	224.2	196.48	2.141			
11,900.0	6,637.7	12,246.5	6,808.2	107.4	108.4	113.90	-5,557.6	-225.7	420.7	220.7	200.00	2.104			
12,000.0	6,637.5	12,346.5	6,808.0	109.3	110.3	113.90	-5,657.6	-225.7	420.7	217.2	203.53	2.067			
12,100.0	6,637.3	12,446.5	6,807.8	111.2	112.2	113.91	-5,757.6	-225.7	420.7	213.7	207.05	2.032			
12,200.0	6,637.0	12,546.5	6,807.6	113.1	114.1	113.91	-5,857.6	-225.7	420.7	210.2	210.58	1.998			
12,300.0	6,636.8	12,646.5	6,807.4	115.0	116.0	113.92	-5,957.6	-225.7	420.8	206.7	214.11	1.965			
12,400.0	6,636.6	12,746.5	6,807.2	116.9	117.9	113.92	-6,057.6	-225.7	420.8	203.1	217.64	1.933			
12,500.0	6,636.4	12,846.5	6,807.0	118.9	119.8	113.92	-6,157.6	-225.7	420.8	199.6	221.17	1.903			
12,600.0	6,636.1	12,946.5	6,806.8	120.8	121.7	113.93	-6,257.6	-225.7	420.8	196.1	224.70	1.873			
12,700.0	6,635.9	13,046.5	6,806.6	122.7	123.6	113.93	-6,357.6	-225.7	420.8	192.6	228.23	1.844			
12,800.0	6,635.7	13,146.5	6,806.4	124.6	125.5	113.94	-6,457.6	-225.7	420.8	189.1	231.76	1.816			
12,900.0	6,635.4	13,246.5	6,806.2	126.5	127.4	113.94	-6,557.6	-225.7	420.8	185.6	235.29	1.789			
13,000.0	6,635.2	13,346.5	6,806.0	128.4	129.3	113.95	-6,657.6	-225.7	420.9	182.0	238.83	1.762			
13,100.0	6,635.0	13,446.5	6,805.8	130.3	131.2	113.95	-6,757.6	-225.7	420.9	178.5	242.36	1.737			
13,200.0	6,634.8	13,546.5	6,805.7	132.2	133.1	113.95	-6,857.6	-225.7	420.9	175.0	245.89	1.712			
13,300.0	6,634.5	13,646.5	6,805.5	134.1	135.1	113.96	-6,957.6	-225.7	420.9	171.5	249.43	1.687			
13,400.0	6,634.3	13,746.5	6,805.3	136.0	137.0	113.96	-7,057.6	-225.7	420.9	168.0	252.96	1.664			
13,500.0	6,634.1	13,846.5	6,805.1	137.9	138.9	113.97	-7,157.6	-225.7	420.9	164.4	256.49	1.641			

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,537.8	6,634.0	13,884.4	6,805.0	138.7	139.6	113.97	-7,195.4	-225.7	420.9	163.1	257.83	1.633 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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	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	89.61	89.61	0.4	62.9	62.9	58.2	4.70	13.374	
1,200.0	1,200.0	1,194.7	1,194.5	2.6	2.6	88.55	88.55	1.7	67.7	67.9	62.7	5.14	13.209	
1,300.0	1,300.0	1,291.9	1,291.4	2.8	2.8	87.08	87.08	3.9	75.6	76.1	70.5	5.58	13.645	
1,400.0	1,400.0	1,388.5	1,387.3	3.0	3.0	85.49	85.49	6.8	86.7	87.7	81.7	6.04	14.533	
1,500.0	1,500.0	1,484.2	1,481.9	3.3	3.3	83.99	83.99	10.6	100.7	102.7	96.2	6.52	15.752	
1,600.0	1,600.0	1,580.0	1,576.1	3.5	3.6	82.65	82.65	15.2	117.7	120.8	113.8	7.03	17.180	
1,700.0	1,700.0	1,678.1	1,672.4	3.7	3.9	81.60	81.60	20.0	135.8	139.8	132.3	7.58	18.443	
1,800.0	1,800.0	1,776.3	1,768.7	3.9	4.2	80.80	80.80	24.9	154.0	158.9	150.7	8.15	19.502	
1,900.0	1,900.0	1,874.4	1,865.1	4.2	4.6	80.17	80.17	29.8	172.1	177.9	169.2	8.72	20.395	
2,000.0	2,000.0	1,972.6	1,961.4	4.4	4.9	79.66	79.66	34.7	190.2	197.0	187.7	9.31	21.154	
2,100.0	2,100.0	2,070.7	2,057.7	4.6	5.3	79.25	79.25	39.6	208.4	216.1	206.2	9.91	21.805	
2,200.0	2,200.0	2,168.9	2,154.1	4.8	5.7	78.90	78.90	44.5	226.5	235.2	224.7	10.51	22.369	
2,300.0	2,300.0	2,267.0	2,250.4	5.1	6.1	78.60	78.60	49.3	244.7	254.3	243.2	11.12	22.861	
2,400.0	2,400.0	2,365.2	2,346.8	5.3	6.5	78.34	78.34	54.2	262.8	273.4	261.7	11.74	23.293	
2,500.0	2,500.0	2,463.4	2,443.1	5.5	6.9	78.12	78.12	59.1	281.0	292.5	280.2	12.35	23.676	
2,600.0	2,600.0	2,561.5	2,539.4	5.7	7.3	77.92	77.92	64.0	299.1	311.6	298.7	12.98	24.016	
2,700.0	2,700.0	2,659.7	2,635.8	6.0	7.7	77.75	77.75	68.9	317.3	330.7	317.1	13.60	24.321	
2,800.0	2,800.0	2,757.8	2,732.1	6.2	8.1	77.60	77.60	73.8	335.4	349.9	335.6	14.22	24.596	
2,900.0	2,900.0	2,856.0	2,828.4	6.4	8.5	77.46	77.46	78.6	353.5	369.0	354.1	14.85	24.844	
3,000.0	3,000.0	2,954.1	2,924.8	6.6	8.9	77.34	77.34	83.5	371.7	388.1	372.6	15.48	25.070	
3,100.0	3,100.0	3,052.6	3,021.4	6.8	9.3	-7.37	-7.37	88.4	389.9	405.5	391.7	13.80	29.379	
3,200.0	3,199.8	3,151.6	3,118.6	7.0	9.7	-7.53	-7.53	93.3	408.2	419.6	405.3	14.26	29.431	
3,262.4	3,262.1	3,213.6	3,179.5	7.2	9.9	-7.66	-7.66	96.4	419.7	426.6	412.0	14.53	29.352	
3,300.0	3,299.5	3,251.0	3,216.1	7.3	10.1	-7.75	-7.75	98.3	426.6	430.4	415.7	14.70	29.270	
3,400.0	3,399.1	3,350.4	3,313.7	7.5	10.5	-7.99	-7.99	103.2	445.0	440.5	425.4	15.16	29.058	
3,500.0	3,498.6	3,449.9	3,411.4	7.7	10.9	-8.23	-8.23	108.2	463.3	450.7	435.1	15.62	28.854	
3,600.0	3,598.2	3,549.4	3,509.0	7.9	11.4	-8.45	-8.45	113.1	481.7	460.9	444.8	16.08	28.659	
3,700.0	3,697.8	3,648.8	3,606.6	8.1	11.8	-8.66	-8.66	118.1	500.1	471.1	454.5	16.55	28.471	
3,800.0	3,797.4	3,748.3	3,704.3	8.4	12.2	-8.86	-8.86	123.0	518.5	481.3	464.3	17.01	28.290	
3,900.0	3,897.0	3,847.7	3,801.9	8.6	12.6	-9.05	-9.05	128.0	536.9	491.5	474.0	17.48	28.116	
4,000.0	3,996.5	3,947.2	3,899.5	8.8	13.0	-9.24	-9.24	132.9	555.3	501.7	483.7	17.95	27.949	
4,100.0	4,096.1	4,046.7	3,997.1	9.1	13.4	-9.42	-9.42	137.9	573.7	511.9	493.5	18.42	27.788	
4,200.0	4,195.7	4,146.1	4,094.8	9.3	13.9	-9.59	-9.59	142.8	592.1	522.1	503.2	18.89	27.634	
4,300.0	4,295.3	4,245.6	4,192.4	9.6	14.3	-9.76	-9.76	147.8	610.4	532.3	512.9	19.37	27.485	
4,400.0	4,394.9	4,345.1	4,290.0	9.8	14.7	-9.92	-9.92	152.7	628.8	542.5	522.7	19.84	27.341	
4,500.0	4,494.4	4,444.5	4,387.6	10.1	15.1	-10.07	-10.07	157.7	647.2	552.7	532.4	20.32	27.203	
4,600.0	4,594.0	4,544.0	4,485.3	10.3	15.6	-10.22	-10.22	162.6	665.6	563.0	542.2	20.80	27.070	
4,700.0	4,693.6	4,643.5	4,582.9	10.6	16.0	-10.36	-10.36	167.5	684.0	573.2	551.9	21.28	26.941	
4,744.5	4,737.9	4,687.7	4,626.3	10.7	16.2	-10.42	-10.42	169.8	692.2	577.8	556.3	21.49	26.885	
4,800.0	4,793.2	4,742.9	4,680.5	10.8	16.4	-10.51	-10.51	172.5	702.4	584.0	562.2	21.74	26.856	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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
4,900.0	4,893.1	4,841.9	4,777.7	11.0	16.8	-10.63		177.4	720.7	597.8	575.6	22.17	26.966	
5,006.9	5,000.0	4,947.2	4,881.0	11.2	17.3	73.91		182.7	740.1	616.3	593.7	22.59	27.287	
5,100.0	5,093.1	5,044.1	4,976.1	11.4	17.7	73.94		187.4	757.9	634.1	611.0	23.02	27.550	
5,200.0	5,193.1	5,171.3	5,101.7	11.6	18.1	73.97		192.8	777.7	650.2	626.7	23.51	27.661	
5,300.0	5,293.1	5,300.1	5,229.6	11.8	18.4	73.99		196.7	792.2	661.8	637.9	23.97	27.607	
5,400.0	5,393.1	5,430.1	5,359.2	12.0	18.6	74.01		199.1	801.3	669.0	644.6	24.43	27.387	
5,500.0	5,493.1	5,560.6	5,489.6	12.2	18.8	74.01		200.0	804.6	671.7	646.8	24.87	27.003	
5,600.0	5,593.1	5,663.0	5,592.1	12.5	19.0	74.01		200.0	804.6	671.7	646.4	25.28	26.564	
5,700.0	5,693.1	5,763.0	5,692.1	12.7	19.1	74.01		200.0	804.6	671.7	646.0	25.70	26.137	
5,800.0	5,793.1	5,863.0	5,792.1	12.9	19.2	74.01		200.0	804.6	671.7	645.6	26.11	25.723	
5,891.6	5,884.7	5,954.6	5,883.7	13.1	19.4	74.01		200.0	804.6	671.7	645.2	26.49	25.353	
5,900.0	5,893.1	5,963.0	5,892.1	13.1	19.4	-105.99		200.0	804.6	671.7	645.2	26.52	25.328	
5,950.0	5,943.0	6,012.9	5,942.0	13.2	19.5	-106.13		200.0	804.6	672.3	645.6	26.67	25.208	
6,000.0	5,992.7	6,071.5	6,000.5	13.3	19.5	-106.49		199.2	804.6	673.7	646.8	26.82	25.114	
6,050.0	6,041.9	6,138.3	6,067.0	13.4	19.6	-106.87		193.2	804.6	674.9	647.9	26.97	25.019	
6,100.0	6,090.5	6,205.6	6,133.3	13.5	19.6	-107.14		181.3	804.6	675.8	648.7	27.12	24.920	
6,150.0	6,138.2	6,273.3	6,198.6	13.6	19.7	-107.32		163.5	804.6	676.4	649.1	27.26	24.811	
6,200.0	6,184.7	6,341.3	6,262.3	13.7	19.7	-107.39		139.9	804.6	676.6	649.2	27.41	24.685	
6,250.0	6,230.1	6,409.3	6,323.7	13.8	19.7	-107.36		110.8	804.6	676.5	648.9	27.58	24.532	
6,300.0	6,273.9	6,477.1	6,382.1	13.9	19.8	-107.22		76.3	804.6	676.1	648.3	27.77	24.341	
6,350.0	6,316.0	6,544.6	6,437.0	14.0	19.8	-106.98		37.1	804.6	675.3	647.3	28.01	24.109	
6,400.0	6,356.4	6,611.6	6,487.8	14.2	19.8	-106.64		-6.6	804.6	674.2	645.9	28.32	23.806	
6,450.0	6,394.6	6,678.0	6,534.2	14.3	19.9	-106.21		-54.0	804.6	672.8	644.1	28.66	23.478	
6,500.0	6,430.8	6,743.6	6,575.9	14.5	20.0	-105.69		-104.7	804.6	671.1	642.0	29.10	23.064	
6,550.0	6,464.5	6,808.3	6,612.6	14.8	20.1	-105.08		-158.0	804.6	669.3	639.7	29.63	22.589	
6,600.0	6,495.8	6,872.1	6,644.1	15.1	20.3	-104.40		-213.3	804.7	667.3	637.0	30.25	22.055	
6,650.0	6,524.5	6,934.8	6,670.6	15.4	20.5	-103.64		-270.1	804.7	665.1	634.2	30.98	21.472	
6,700.0	6,550.4	6,996.3	6,691.9	15.8	20.7	-102.82		-327.8	804.7	662.9	631.1	31.80	20.849	
6,750.0	6,573.5	7,056.7	6,708.3	16.2	21.1	-101.94		-386.0	804.7	660.7	628.0	32.72	20.195	
6,800.0	6,593.6	7,115.9	6,719.9	16.7	21.5	-101.01		-444.0	804.7	658.5	624.8	33.73	19.522	
6,850.0	6,610.7	7,174.0	6,726.8	17.2	21.9	-100.03		-501.7	804.7	656.4	621.6	34.83	18.845	
6,900.0	6,624.7	7,230.9	6,729.3	17.8	22.4	-99.02		-558.5	804.7	654.4	618.4	36.01	18.174	
6,950.0	6,635.5	7,281.0	6,729.1	18.3	22.8	-98.18		-608.6	804.7	652.7	615.5	37.17	17.560	
7,000.0	6,643.1	7,330.4	6,728.8	18.9	23.3	-97.58		-658.0	804.7	651.6	613.2	38.37	16.981	
7,050.0	6,647.5	7,380.1	6,728.5	19.6	23.9	-97.22		-707.7	804.7	651.0	611.4	39.61	16.437	
7,093.4	6,648.6	7,423.5	6,728.2	20.2	24.4	-97.12		-751.1	804.7	650.8	610.1	40.69	15.993	
7,100.0	6,648.6	7,430.1	6,728.2	20.3	24.4	-97.11		-757.7	804.7	650.8	610.0	40.87	15.923	
7,200.0	6,648.4	7,530.1	6,727.6	21.6	25.6	-97.08		-857.7	804.7	650.8	607.2	43.65	14.910	
7,300.0	6,648.2	7,630.1	6,727.0	23.1	26.9	-97.05		-957.7	804.8	650.8	604.2	46.57	13.974	
7,400.0	6,647.9	7,730.1	6,726.4	24.7	28.3	-97.02		-1,057.7	804.8	650.7	601.1	49.62	13.115	
7,500.0	6,647.7	7,830.1	6,725.8	26.2	29.7	-96.98		-1,157.7	804.8	650.7	597.9	52.76	12.333	
7,600.0	6,647.5	7,930.1	6,725.2	27.9	31.2	-96.95		-1,257.7	804.8	650.7	594.7	55.99	11.620	
7,700.0	6,647.2	8,030.1	6,724.6	29.5	32.8	-96.92		-1,357.7	804.8	650.6	591.3	59.30	10.973	
7,800.0	6,647.0	8,130.1	6,724.0	31.2	34.3	-96.89		-1,457.7	804.8	650.6	588.0	62.66	10.384	
7,900.0	6,646.8	8,230.1	6,723.5	32.9	36.0	-96.86		-1,557.7	804.8	650.6	584.5	66.07	9.847	
8,000.0	6,646.6	8,330.1	6,722.9	34.7	37.6	-96.82		-1,657.7	804.8	650.6	581.0	69.53	9.357	
8,100.0	6,646.3	8,430.1	6,722.3	36.4	39.3	-96.79		-1,757.7	804.9	650.5	577.5	73.02	8.909	
8,200.0	6,646.1	8,530.1	6,721.7	38.2	41.0	-96.76		-1,857.7	804.9	650.5	574.0	76.54	8.499	
8,300.0	6,645.9	8,630.1	6,721.1	40.0	42.7	-96.73		-1,957.7	804.9	650.5	570.4	80.09	8.121	
8,400.0	6,645.7	8,730.1	6,720.5	41.8	44.4	-96.69		-2,057.7	804.9	650.4	566.8	83.67	7.774	
8,500.0	6,645.4	8,830.1	6,719.9	43.6	46.1	-96.66		-2,157.7	804.9	650.4	563.1	87.27	7.453	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
8,600.0	6,645.2	8,930.1	6,719.3	45.4	47.9	-96.63	-2,257.7	804.9	650.4	559.5	90.89	7.156		
8,700.0	6,645.0	9,030.1	6,718.7	47.2	49.6	-96.60	-2,357.7	804.9	650.3	555.8	94.52	6.881		
8,800.0	6,644.7	9,130.1	6,718.1	49.1	51.4	-96.57	-2,457.7	805.0	650.3	552.2	98.17	6.625		
8,900.0	6,644.5	9,230.1	6,717.5	50.9	53.2	-96.53	-2,557.7	805.0	650.3	548.5	101.83	6.386		
9,000.0	6,644.3	9,330.1	6,716.9	52.7	55.0	-96.50	-2,657.7	805.0	650.3	544.8	105.50	6.163		
9,100.0	6,644.1	9,430.1	6,716.3	54.6	56.8	-96.47	-2,757.7	805.0	650.2	541.0	109.19	5.955		
9,200.0	6,643.8	9,530.1	6,715.7	56.5	58.6	-96.44	-2,857.7	805.0	650.2	537.3	112.88	5.760		
9,300.0	6,643.6	9,630.1	6,715.1	58.3	60.4	-96.40	-2,957.7	805.0	650.2	533.6	116.59	5.577		
9,400.0	6,643.4	9,730.1	6,714.6	60.2	62.3	-96.37	-3,057.7	805.0	650.2	529.9	120.30	5.404		
9,500.0	6,643.2	9,830.1	6,714.0	62.0	64.1	-96.34	-3,157.6	805.0	650.1	526.1	124.02	5.242		
9,600.0	6,642.9	9,930.1	6,713.4	63.9	65.9	-96.31	-3,257.6	805.1	650.1	522.4	127.75	5.089		
9,700.0	6,642.7	10,030.1	6,712.8	65.8	67.8	-96.28	-3,357.6	805.1	650.1	518.6	131.48	4.944		
9,800.0	6,642.5	10,130.1	6,712.2	67.7	69.6	-96.24	-3,457.6	805.1	650.0	514.8	135.22	4.807		
9,900.0	6,642.3	10,230.1	6,711.6	69.5	71.5	-96.21	-3,557.6	805.1	650.0	511.1	138.96	4.678		
10,000.0	6,642.0	10,330.1	6,711.0	71.4	73.3	-96.18	-3,657.6	805.1	650.0	507.3	142.71	4.555		
10,100.0	6,641.8	10,430.1	6,710.4	73.3	75.2	-96.15	-3,757.6	805.1	650.0	503.5	146.46	4.438		
10,200.0	6,641.6	10,530.1	6,709.8	75.2	77.0	-96.11	-3,857.6	805.1	649.9	499.7	150.22	4.327		
10,300.0	6,641.3	10,630.1	6,709.2	77.1	78.9	-96.08	-3,957.6	805.2	649.9	495.9	153.98	4.221		
10,400.0	6,641.1	10,730.1	6,708.6	79.0	80.8	-96.05	-4,057.6	805.2	649.9	492.1	157.75	4.120		
10,500.0	6,640.9	10,830.1	6,708.0	80.9	82.6	-96.02	-4,157.6	805.2	649.9	488.3	161.52	4.023		
10,600.0	6,640.7	10,930.1	6,707.4	82.7	84.5	-95.99	-4,257.6	805.2	649.8	484.6	165.29	3.932		
10,700.0	6,640.4	11,030.1	6,706.8	84.6	86.4	-95.95	-4,357.6	805.2	649.8	480.8	169.07	3.844		
10,800.0	6,640.2	11,130.1	6,706.2	86.5	88.2	-95.92	-4,457.6	805.2	649.8	476.9	172.84	3.759		
10,900.0	6,640.0	11,230.1	6,705.7	88.4	90.1	-95.89	-4,557.6	805.2	649.8	473.1	176.62	3.679		
11,000.0	6,639.8	11,330.1	6,705.1	90.3	92.0	-95.86	-4,657.6	805.3	649.7	469.3	180.41	3.602		
11,100.0	6,639.5	11,430.1	6,704.5	92.2	93.9	-95.82	-4,757.6	805.3	649.7	465.5	184.19	3.527		
11,200.0	6,639.3	11,530.1	6,703.9	94.1	95.8	-95.79	-4,857.6	805.3	649.7	461.7	187.98	3.456		
11,300.0	6,639.1	11,630.1	6,703.3	96.0	97.6	-95.76	-4,957.6	805.3	649.7	457.9	191.77	3.388		
11,400.0	6,638.9	11,730.1	6,702.7	97.9	99.5	-95.73	-5,057.6	805.3	649.7	454.1	195.57	3.322		
11,500.0	6,638.6	11,830.1	6,702.1	99.8	101.4	-95.70	-5,157.6	805.3	649.6	450.3	199.36	3.259		
11,600.0	6,638.4	11,930.1	6,701.5	101.7	103.3	-95.66	-5,257.6	805.3	649.6	446.4	203.16	3.198		
11,700.0	6,638.2	12,030.1	6,700.9	103.6	105.2	-95.63	-5,357.6	805.3	649.6	442.6	206.95	3.139		
11,800.0	6,637.9	12,130.1	6,700.3	105.5	107.1	-95.60	-5,457.6	805.4	649.6	438.8	210.75	3.082		
11,900.0	6,637.7	12,230.1	6,699.7	107.4	109.0	-95.57	-5,557.6	805.4	649.5	435.0	214.56	3.027		
12,000.0	6,637.5	12,330.1	6,699.1	109.3	110.9	-95.53	-5,657.6	805.4	649.5	431.2	218.36	2.975		
12,100.0	6,637.3	12,430.1	6,698.5	111.2	112.7	-95.50	-5,757.6	805.4	649.5	427.3	222.16	2.923		
12,200.0	6,637.0	12,530.1	6,697.9	113.1	114.6	-95.47	-5,857.6	805.4	649.5	423.5	225.97	2.874		
12,300.0	6,636.8	12,630.1	6,697.3	115.0	116.5	-95.44	-5,957.6	805.4	649.5	419.7	229.78	2.826		
12,400.0	6,636.6	12,730.1	6,696.8	116.9	118.4	-95.40	-6,057.6	805.4	649.4	415.8	233.59	2.780		
12,500.0	6,636.4	12,830.1	6,696.2	118.9	120.3	-95.37	-6,157.6	805.5	649.4	412.0	237.40	2.736		
12,600.0	6,636.1	12,930.1	6,695.6	120.8	122.2	-95.34	-6,257.6	805.5	649.4	408.2	241.21	2.692		
12,700.0	6,635.9	13,030.1	6,695.0	122.7	124.1	-95.31	-6,357.6	805.5	649.4	404.3	245.02	2.650		
12,800.0	6,635.7	13,130.1	6,694.4	124.6	126.0	-95.28	-6,457.6	805.5	649.3	400.5	248.83	2.610		
12,900.0	6,635.4	13,230.1	6,693.8	126.5	127.9	-95.24	-6,557.6	805.5	649.3	396.7	252.65	2.570		
13,000.0	6,635.2	13,330.1	6,693.2	128.4	129.8	-95.21	-6,657.6	805.5	649.3	392.8	256.46	2.532		
13,100.0	6,635.0	13,430.1	6,692.6	130.3	131.7	-95.18	-6,757.6	805.5	649.3	389.0	260.28	2.495		
13,200.0	6,634.8	13,530.1	6,692.0	132.2	133.6	-95.15	-6,857.6	805.6	649.3	385.2	264.10	2.458		
13,300.0	6,634.5	13,630.1	6,691.4	134.1	135.5	-95.11	-6,957.6	805.6	649.2	381.3	267.91	2.423		
13,400.0	6,634.3	13,730.1	6,690.8	136.0	137.4	-95.08	-7,057.6	805.6	649.2	377.5	271.73	2.389		
13,500.0	6,634.1	13,830.1	6,690.2	137.9	139.3	-95.05	-7,157.6	805.6	649.2	373.7	275.55	2.356		
13,532.1	6,634.0	13,862.2	6,690.0	138.6	139.9	-95.04	-7,189.6	805.6	649.2	372.4	276.78	2.346		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-343 - Wellbore #1 - Plan #2 (2-11-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
13,537.8	6,634.0	13,867.6	6,690.0	138.7	140.0	-95.04	-7,195.1	805.6	649.2	372.2	276.99	2.344 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	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	46.699	
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	40.376	
700.0	700.0	687.9	687.4	1.5	1.4	88.48	88.48	2.8	106.1	106.7	103.8	2.89	36.899	
800.0	800.0	783.5	782.4	1.7	1.7	87.56	87.56	5.0	117.1	118.2	114.9	3.37	35.087	
900.0	900.0	878.3	876.1	1.9	2.0	86.61	86.61	7.8	131.0	133.1	129.2	3.88	34.287	
1,000.0	1,000.0	972.0	968.2	2.1	2.3	85.70	85.70	11.1	147.8	151.1	146.7	4.43	34.127	
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	166.3	5.03	34.089	
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	186.0	5.65	33.946	
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	205.7	6.28	33.773	
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	225.4	6.92	33.595	
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	245.1	7.56	33.424	
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	264.8	8.21	33.264	
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	284.5	8.86	33.116	
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	304.2	9.51	32.982	
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	323.9	10.17	32.859	
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	343.7	10.83	32.746	
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	363.4	11.48	32.644	
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	383.1	12.14	32.550	
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	402.8	12.80	32.463	
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	422.5	13.46	32.384	
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	442.3	14.12	32.311	
2,600.0	2,600.0	2,537.5	2,500.8	5.7	9.1	80.94	80.94	73.5	460.9	476.8	462.0	14.79	32.244	
2,700.0	2,700.0	2,635.4	2,596.6	6.0	9.5	80.84	80.84	77.4	480.5	497.2	481.7	15.45	32.181	
2,800.0	2,800.0	2,733.3	2,692.5	6.2	10.0	80.76	80.76	81.3	500.1	517.5	501.4	16.11	32.123	
2,900.0	2,900.0	2,831.2	2,788.3	6.4	10.4	80.68	80.68	85.2	519.7	537.9	521.2	16.77	32.069	
3,000.0	3,000.0	2,929.1	2,884.2	6.6	10.8	80.61	80.61	89.2	539.3	558.3	540.9	17.44	32.018	
3,100.0	3,100.0	3,027.3	2,980.3	6.8	11.3	-4.05	-4.05	93.1	558.9	577.0	562.8	14.18	40.697	
3,200.0	3,199.8	3,126.2	3,077.1	7.0	11.7	-4.12	-4.12	97.0	578.7	592.3	577.6	14.65	40.424	
3,262.4	3,262.1	3,188.1	3,137.7	7.2	12.0	-4.18	-4.18	99.5	591.1	600.0	585.1	14.94	40.159	
3,300.0	3,299.5	3,225.4	3,174.2	7.3	12.2	-4.23	-4.23	101.0	598.6	604.3	589.2	15.12	39.979	
3,400.0	3,399.1	3,324.8	3,271.5	7.5	12.6	-4.35	-4.35	104.9	618.4	615.7	600.1	15.58	39.515	
3,500.0	3,498.6	3,424.1	3,368.7	7.7	13.1	-4.46	-4.46	108.9	638.3	627.1	611.0	16.05	39.073	
3,600.0	3,598.2	3,523.4	3,466.0	7.9	13.5	-4.57	-4.57	112.9	658.2	638.4	621.9	16.52	38.652	
3,700.0	3,697.8	3,622.8	3,563.3	8.1	14.0	-4.67	-4.67	116.8	678.1	649.8	632.8	16.99	38.250	
3,800.0	3,797.4	3,722.1	3,660.5	8.4	14.4	-4.77	-4.77	120.8	697.9	661.2	643.8	17.46	37.867	
3,900.0	3,897.0	3,821.5	3,757.8	8.6	14.8	-4.87	-4.87	124.7	717.8	672.6	654.7	17.94	37.501	
4,000.0	3,996.5	3,920.8	3,855.0	8.8	15.3	-4.96	-4.96	128.7	737.7	684.0	665.6	18.41	37.151	
4,100.0	4,096.1	4,020.2	3,952.3	9.1	15.7	-5.06	-5.06	132.7	757.6	695.4	676.5	18.89	36.816	
4,200.0	4,195.7	4,119.5	4,049.5	9.3	16.2	-5.14	-5.14	136.6	777.4	706.8	687.4	19.37	36.496	
4,300.0	4,295.3	4,218.8	4,146.8	9.6	16.6	-5.23	-5.23	140.6	797.3	718.2	698.3	19.85	36.189	
4,400.0	4,394.9	4,318.2	4,244.0	9.8	17.1	-5.31	-5.31	144.6	817.2	729.6	709.3	20.33	35.895	
4,500.0	4,494.4	4,417.5	4,341.3	10.1	17.5	-5.39	-5.39	148.5	837.1	741.0	720.2	20.81	35.613	
4,600.0	4,594.0	4,516.9	4,438.5	10.3	18.0	-5.47	-5.47	152.5	856.9	752.4	731.1	21.29	35.342	
4,700.0	4,693.6	4,616.2	4,535.8	10.6	18.4	-5.55	-5.55	156.4	876.8	763.8	742.0	21.77	35.081	
4,744.5	4,737.9	4,660.4	4,579.1	10.7	18.6	-5.58	-5.58	158.2	885.7	768.9	746.9	21.99	34.969	
4,800.0	4,793.2	4,715.5	4,633.0	10.8	18.9	-5.63	-5.63	160.4	896.7	775.7	753.5	22.24	34.884	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (1-22-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	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)		
4,900.0	4,893.1	4,814.3	4,729.8	11.0	19.3	-5.70	164.3	916.5	790.7	768.1	22.65	34.909	
5,006.9	5,000.0	4,919.4	4,832.6	11.2	19.8	78.84	168.5	937.5	810.6	787.6	23.06	35.153	
5,100.0	5,093.1	5,010.5	4,921.8	11.4	20.2	78.84	172.2	955.7	829.6	806.1	23.49	35.324	
5,200.0	5,193.1	5,108.4	5,017.6	11.6	20.7	78.84	176.1	975.3	850.0	826.0	23.96	35.472	
5,300.0	5,293.1	5,206.3	5,113.5	11.8	21.1	78.84	180.0	994.9	870.4	846.0	24.44	35.615	
5,400.0	5,393.1	5,304.2	5,209.3	12.0	21.5	78.83	183.9	1,014.5	890.8	865.9	24.92	35.751	
5,500.0	5,493.1	5,402.1	5,305.2	12.2	22.0	78.83	187.8	1,034.0	911.2	885.8	25.39	35.882	
5,600.0	5,593.1	5,542.0	5,442.6	12.5	22.5	78.83	192.8	1,059.2	929.6	903.7	25.93	35.850	
5,700.0	5,693.1	5,689.2	5,588.5	12.7	22.9	78.83	196.7	1,078.6	943.1	916.6	26.44	35.669	
5,800.0	5,793.1	5,838.1	5,736.9	12.9	23.1	78.83	199.1	1,090.7	951.4	924.4	26.93	35.333	
5,891.6	5,884.7	5,975.3	5,874.0	13.1	23.3	78.82	200.0	1,095.1	954.4	927.0	27.36	34.885	
5,900.0	5,893.1	5,987.9	5,886.6	13.1	23.3	-101.17	200.0	1,095.2	954.4	927.1	27.39	34.847	
5,950.0	5,943.0	6,042.3	5,941.0	13.2	23.4	-101.27	200.0	1,095.3	954.9	927.4	27.54	34.675	
6,000.0	5,992.7	6,092.0	5,990.7	13.3	23.5	-101.51	200.0	1,095.3	956.0	928.3	27.68	34.543	
6,050.0	6,041.9	6,141.2	6,039.9	13.4	23.5	-101.88	200.0	1,095.3	957.8	929.9	27.81	34.440	
6,100.0	6,090.5	6,207.0	6,105.6	13.5	23.6	-102.50	197.5	1,095.3	959.9	932.0	27.96	34.330	
6,150.0	6,138.2	6,275.6	6,173.6	13.6	23.6	-103.06	188.9	1,095.3	961.9	933.8	28.11	34.216	
6,200.0	6,184.7	6,345.5	6,241.9	13.7	23.7	-103.56	173.8	1,095.3	963.7	935.5	28.27	34.093	
6,250.0	6,230.1	6,416.6	6,309.6	13.8	23.7	-103.97	152.2	1,095.3	965.2	936.8	28.43	33.948	
6,300.0	6,273.9	6,488.8	6,376.0	13.9	23.7	-104.29	124.0	1,095.3	966.5	937.8	28.62	33.771	
6,350.0	6,316.0	6,561.7	6,440.0	14.0	23.8	-104.52	89.2	1,095.3	967.3	938.5	28.84	33.543	
6,400.0	6,356.4	6,635.0	6,500.8	14.2	23.8	-104.65	48.1	1,095.3	967.8	938.7	29.11	33.252	
6,450.0	6,394.6	6,708.7	6,557.6	14.3	23.8	-104.68	1.3	1,095.3	967.9	938.5	29.45	32.871	
6,500.0	6,430.8	6,782.2	6,609.6	14.5	23.9	-104.60	-50.7	1,095.3	967.7	937.8	29.83	32.443	
6,550.0	6,464.5	6,855.4	6,656.1	14.8	24.0	-104.43	-107.2	1,095.3	967.0	936.7	30.32	31.892	
6,600.0	6,495.8	6,928.0	6,696.7	15.1	24.1	-104.16	-167.3	1,095.3	966.0	935.1	30.91	31.251	
6,650.0	6,524.5	6,999.7	6,731.0	15.4	24.3	-103.79	-230.3	1,095.3	964.6	933.0	31.60	30.528	
6,700.0	6,550.4	7,070.4	6,758.8	15.8	24.5	-103.35	-295.2	1,095.3	963.0	930.6	32.40	29.722	
6,750.0	6,573.5	7,139.7	6,780.2	16.2	24.7	-102.82	-361.1	1,095.3	961.1	927.8	33.30	28.862	
6,800.0	6,593.6	7,207.6	6,795.4	16.7	25.1	-102.22	-427.3	1,095.3	959.0	924.7	34.30	27.959	
6,850.0	6,610.7	7,271.7	6,804.2	17.2	25.5	-101.60	-490.8	1,095.3	956.8	921.4	35.36	27.055	
6,900.0	6,624.7	7,320.9	6,809.3	17.8	25.8	-101.21	-539.7	1,095.3	955.0	918.6	36.33	26.286	
6,950.0	6,635.5	7,376.6	6,814.5	18.3	26.2	-100.90	-595.1	1,095.3	953.8	916.4	37.43	25.483	
7,000.0	6,643.1	7,435.5	6,817.3	18.9	26.7	-100.60	-653.9	1,095.3	952.8	914.2	38.62	24.668	
7,050.0	6,647.5	7,489.2	6,817.4	19.6	27.2	-100.39	-707.7	1,095.3	952.0	912.2	39.80	23.918	
7,093.1	6,648.6	7,532.3	6,817.4	20.2	27.6	-100.33	-750.7	1,095.3	951.8	911.0	40.81	23.325	
7,093.4	6,648.6	7,532.6	6,817.4	20.2	27.6	-100.33	-751.0	1,095.3	951.8	911.0	40.81	23.321	
7,100.0	6,648.6	7,539.2	6,817.4	20.3	27.6	-100.33	-757.6	1,095.3	951.8	910.8	40.99	23.222	
7,200.0	6,648.4	7,639.2	6,817.2	21.6	28.7	-100.34	-857.6	1,095.3	951.8	908.1	43.69	21.784	
7,300.0	6,648.2	7,739.2	6,817.0	23.1	29.8	-100.34	-957.6	1,095.3	951.8	905.3	46.55	20.447	
7,400.0	6,647.9	7,839.2	6,816.8	24.7	31.0	-100.34	-1,057.6	1,095.3	951.8	902.3	49.53	19.217	
7,500.0	6,647.7	7,939.2	6,816.6	26.2	32.3	-100.34	-1,157.6	1,095.3	951.8	899.2	52.62	18.090	
7,600.0	6,647.5	8,039.2	6,816.4	27.9	33.7	-100.34	-1,257.6	1,095.3	951.8	896.0	55.79	17.062	
7,700.0	6,647.2	8,139.2	6,816.2	29.5	35.1	-100.35	-1,357.6	1,095.3	951.8	892.8	59.03	16.124	
7,800.0	6,647.0	8,239.2	6,816.0	31.2	36.6	-100.35	-1,457.6	1,095.3	951.8	889.5	62.34	15.269	
7,900.0	6,646.8	8,339.2	6,815.8	32.9	38.1	-100.35	-1,557.6	1,095.3	951.8	886.2	65.70	14.489	
8,000.0	6,646.6	8,439.2	6,815.6	34.7	39.6	-100.35	-1,657.6	1,095.3	951.9	882.8	69.10	13.775	
8,100.0	6,646.3	8,539.2	6,815.4	36.4	41.2	-100.36	-1,757.6	1,095.3	951.9	879.3	72.54	13.122	
8,200.0	6,646.1	8,639.2	6,815.2	38.2	42.8	-100.36	-1,857.6	1,095.3	951.9	875.9	76.01	12.523	
8,300.0	6,645.9	8,739.2	6,815.0	40.0	44.5	-100.36	-1,957.6	1,095.3	951.9	872.4	79.51	11.971	
8,400.0	6,645.7	8,839.2	6,814.9	41.8	46.1	-100.36	-2,057.6	1,095.3	951.9	868.8	83.04	11.463	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (1-22-14)												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)			
8,500.0	6,645.4	8,939.2	6,814.7	43.6	47.8	-100.36	-2,157.6	1,095.3	951.9	865.3	86.59	10.993	
8,600.0	6,645.2	9,039.2	6,814.5	45.4	49.5	-100.37	-2,257.6	1,095.3	951.9	861.7	90.16	10.558	
8,700.0	6,645.0	9,139.2	6,814.3	47.2	51.2	-100.37	-2,357.6	1,095.3	951.9	858.2	93.74	10.154	
8,800.0	6,644.7	9,239.2	6,814.1	49.1	52.9	-100.37	-2,457.6	1,095.3	951.9	854.6	97.34	9.779	
8,900.0	6,644.5	9,339.2	6,813.9	50.9	54.7	-100.37	-2,557.6	1,095.3	951.9	851.0	100.96	9.429	
9,000.0	6,644.3	9,439.2	6,813.7	52.7	56.4	-100.37	-2,657.6	1,095.3	951.9	847.3	104.58	9.102	
9,100.0	6,644.1	9,539.2	6,813.5	54.6	58.2	-100.38	-2,757.6	1,095.3	951.9	843.7	108.22	8.796	
9,200.0	6,643.8	9,639.2	6,813.3	56.5	59.9	-100.38	-2,857.6	1,095.3	951.9	840.1	111.87	8.509	
9,300.0	6,643.6	9,739.2	6,813.1	58.3	61.7	-100.38	-2,957.6	1,095.3	951.9	836.4	115.52	8.240	
9,400.0	6,643.4	9,839.2	6,812.9	60.2	63.5	-100.38	-3,057.6	1,095.3	951.9	832.8	119.19	7.987	
9,500.0	6,643.2	9,939.2	6,812.7	62.0	65.3	-100.38	-3,157.6	1,095.3	951.9	829.1	122.86	7.748	
9,600.0	6,642.9	10,039.2	6,812.6	63.9	67.1	-100.39	-3,257.6	1,095.3	952.0	825.4	126.54	7.523	
9,700.0	6,642.7	10,139.2	6,812.4	65.8	68.9	-100.39	-3,357.6	1,095.3	952.0	821.7	130.22	7.310	
9,800.0	6,642.5	10,239.2	6,812.2	67.7	70.7	-100.39	-3,457.6	1,095.3	952.0	818.1	133.91	7.109	
9,900.0	6,642.3	10,339.2	6,812.0	69.5	72.6	-100.39	-3,557.6	1,095.3	952.0	814.4	137.61	6.918	
10,000.0	6,642.0	10,439.2	6,811.8	71.4	74.4	-100.39	-3,657.6	1,095.3	952.0	810.7	141.31	6.737	
10,100.0	6,641.8	10,539.2	6,811.6	73.3	76.2	-100.40	-3,757.6	1,095.3	952.0	807.0	145.01	6.565	
10,200.0	6,641.6	10,639.2	6,811.4	75.2	78.1	-100.40	-3,857.6	1,095.3	952.0	803.3	148.72	6.401	
10,300.0	6,641.3	10,739.2	6,811.2	77.1	79.9	-100.40	-3,957.6	1,095.3	952.0	799.6	152.44	6.245	
10,400.0	6,641.1	10,839.2	6,811.0	79.0	81.7	-100.40	-4,057.6	1,095.3	952.0	795.9	156.15	6.097	
10,500.0	6,640.9	10,939.2	6,810.8	80.9	83.6	-100.40	-4,157.6	1,095.3	952.0	792.1	159.87	5.955	
10,600.0	6,640.7	11,039.2	6,810.6	82.7	85.4	-100.41	-4,257.6	1,095.3	952.0	788.4	163.59	5.819	
10,700.0	6,640.4	11,139.2	6,810.4	84.6	87.3	-100.41	-4,357.6	1,095.3	952.0	784.7	167.32	5.690	
10,800.0	6,640.2	11,239.2	6,810.2	86.5	89.1	-100.41	-4,457.6	1,095.3	952.0	781.0	171.05	5.566	
10,900.0	6,640.0	11,339.2	6,810.1	88.4	91.0	-100.41	-4,557.6	1,095.3	952.0	777.3	174.78	5.447	
11,000.0	6,639.8	11,439.2	6,809.9	90.3	92.9	-100.41	-4,657.6	1,095.3	952.0	773.5	178.51	5.333	
11,100.0	6,639.5	11,539.2	6,809.7	92.2	94.7	-100.42	-4,757.6	1,095.3	952.0	769.8	182.25	5.224	
11,200.0	6,639.3	11,639.2	6,809.5	94.1	96.6	-100.42	-4,857.6	1,095.3	952.1	766.1	185.98	5.119	
11,300.0	6,639.1	11,739.2	6,809.3	96.0	98.5	-100.42	-4,957.6	1,095.3	952.1	762.3	189.72	5.018	
11,400.0	6,638.9	11,839.2	6,809.1	97.9	100.3	-100.42	-5,057.6	1,095.3	952.1	758.6	193.46	4.921	
11,500.0	6,638.6	11,939.2	6,808.9	99.8	102.2	-100.43	-5,157.6	1,095.3	952.1	754.9	197.20	4.828	
11,600.0	6,638.4	12,039.2	6,808.7	101.7	104.1	-100.43	-5,257.6	1,095.3	952.1	751.1	200.95	4.738	
11,700.0	6,638.2	12,139.2	6,808.5	103.6	105.9	-100.43	-5,357.6	1,095.3	952.1	747.4	204.69	4.651	
11,800.0	6,637.9	12,239.2	6,808.3	105.5	107.8	-100.43	-5,457.6	1,095.3	952.1	743.7	208.44	4.568	
11,900.0	6,637.7	12,339.2	6,808.1	107.4	109.7	-100.43	-5,557.6	1,095.3	952.1	739.9	212.19	4.487	
12,000.0	6,637.5	12,439.2	6,807.9	109.3	111.6	-100.44	-5,657.6	1,095.3	952.1	736.2	215.94	4.409	
12,100.0	6,637.3	12,539.2	6,807.8	111.2	113.5	-100.44	-5,757.6	1,095.3	952.1	732.4	219.69	4.334	
12,200.0	6,637.0	12,639.2	6,807.6	113.1	115.3	-100.44	-5,857.6	1,095.3	952.1	728.7	223.44	4.261	
12,300.0	6,636.8	12,739.2	6,807.4	115.0	117.2	-100.44	-5,957.6	1,095.3	952.1	724.9	227.19	4.191	
12,400.0	6,636.6	12,839.2	6,807.2	116.9	119.1	-100.44	-6,057.6	1,095.3	952.1	721.2	230.95	4.123	
12,500.0	6,636.4	12,939.2	6,807.0	118.9	121.0	-100.45	-6,157.6	1,095.3	952.1	717.4	234.70	4.057	
12,600.0	6,636.1	13,039.2	6,806.8	120.8	122.9	-100.45	-6,257.6	1,095.3	952.1	713.7	238.46	3.993	
12,700.0	6,635.9	13,139.2	6,806.6	122.7	124.8	-100.45	-6,357.6	1,095.3	952.2	709.9	242.21	3.931	
12,800.0	6,635.7	13,239.2	6,806.4	124.6	126.7	-100.45	-6,457.6	1,095.3	952.2	706.2	245.97	3.871	
12,900.0	6,635.4	13,339.2	6,806.2	126.5	128.6	-100.45	-6,557.6	1,095.3	952.2	702.4	249.73	3.813	
13,000.0	6,635.2	13,439.2	6,806.0	128.4	130.4	-100.46	-6,657.6	1,095.3	952.2	698.7	253.49	3.756	
13,100.0	6,635.0	13,539.2	6,805.8	130.3	132.3	-100.46	-6,757.6	1,095.3	952.2	694.9	257.25	3.701	
13,200.0	6,634.8	13,639.2	6,805.6	132.2	134.2	-100.46	-6,857.6	1,095.3	952.2	691.2	261.01	3.648	
13,300.0	6,634.5	13,739.2	6,805.4	134.1	136.1	-100.46	-6,957.6	1,095.3	952.2	687.4	264.77	3.596	
13,400.0	6,634.3	13,839.2	6,805.3	136.0	138.0	-100.46	-7,057.6	1,095.3	952.2	683.7	268.53	3.546	
13,500.0	6,634.1	13,939.2	6,805.1	137.9	139.9	-100.47	-7,157.6	1,095.3	952.2	679.9	272.29	3.497	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28M-443 - Wellbore #1 - Plan #1 (1-22-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
13,517.8	6,634.0	13,957.0	6,805.0	138.3	140.2	-100.47	-7,175.5	1,095.3	952.2	679.2	272.97	3.488		
13,537.8	6,634.0	13,973.0	6,805.0	138.7	140.5	-100.47	-7,191.4	1,095.3	952.2	678.6	273.64	3.480 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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 1-6I (Exist) - Wellbore #1 - Wellbore #													Offset Site Error:	0.0 ft
Survey Program: 629-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,800.0	6,647.0	6,770.2	6,682.6	31.2	210.9	95.15	-2,429.4	5.5	984.2	752.5	231.69	4.248		
7,900.0	6,646.8	6,768.6	6,681.0	32.9	210.9	94.55	-2,429.5	5.5	885.6	652.3	233.32	3.796		
8,000.0	6,646.6	6,767.0	6,679.4	34.7	210.9	93.96	-2,429.5	5.6	787.3	552.4	234.94	3.351		
8,100.0	6,646.3	6,765.4	6,677.8	36.4	210.9	93.37	-2,429.5	5.6	689.5	452.9	236.57	2.915		
8,200.0	6,646.1	6,763.8	6,676.3	38.2	210.8	92.79	-2,429.5	5.6	592.4	354.2	238.19	2.487		
8,300.0	6,645.9	6,762.3	6,674.7	40.0	210.8	92.21	-2,429.5	5.6	496.5	256.7	239.80	2.071		
8,400.0	6,645.7	6,760.7	6,673.2	41.8	210.8	91.64	-2,429.6	5.6	402.6	161.2	241.40	1.668		
8,500.0	6,645.4	6,759.2	6,671.7	43.6	210.8	91.07	-2,429.6	5.6	312.5	69.5	243.00	1.286 Level 3		
8,600.0	6,645.2	6,757.7	6,670.2	45.4	210.8	90.51	-2,429.6	5.6	230.6	-14.0	244.58	0.943 Level 1		
8,700.0	6,645.0	6,756.2	6,668.7	47.2	210.8	89.96	-2,429.6	5.6	169.5	-76.7	246.15	0.688 Level 1		
8,772.3	6,644.8	6,755.2	6,667.6	48.6	210.8	89.56	-2,429.6	5.6	153.3	-94.0	247.28	0.620 Level 1, CC, ES, SF		
8,800.0	6,644.7	6,754.8	6,667.2	49.1	210.8	89.41	-2,429.6	5.7	155.7	-92.0	247.71	0.629 Level 1		
8,900.0	6,644.5	6,753.3	6,665.8	50.9	210.8	88.86	-2,429.7	5.7	199.5	-49.8	249.25	0.800 Level 1		
9,000.0	6,644.3	6,751.9	6,664.3	52.7	210.8	88.32	-2,429.7	5.7	274.4	23.7	250.79	1.094 Level 2		
9,100.0	6,644.1	6,750.4	6,662.9	54.6	210.8	87.79	-2,429.7	5.7	361.7	109.4	252.30	1.434 Level 3		
9,200.0	6,643.8	6,749.0	6,661.5	56.5	210.8	87.26	-2,429.7	5.7	454.3	200.5	253.81	1.790		
9,300.0	6,643.6	6,747.6	6,660.1	58.3	210.8	86.74	-2,429.7	5.7	549.4	294.1	255.30	2.152		
9,400.0	6,643.4	6,746.2	6,658.7	60.2	210.8	86.22	-2,429.7	5.7	646.1	389.3	256.77	2.516		
9,500.0	6,643.2	6,744.9	6,657.3	62.0	210.8	85.71	-2,429.8	5.7	743.6	485.3	258.24	2.879		
9,600.0	6,642.9	6,743.5	6,656.0	63.9	210.8	85.20	-2,429.8	5.7	841.7	582.0	259.68	3.241		
9,700.0	6,642.7	6,742.1	6,654.6	65.8	210.8	84.70	-2,429.8	5.8	940.2	679.0	261.12	3.601		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 580-UNKNOWN												Offset Well Error:	0.0 ft
Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 5 (Exist) - Wellbore #1 - Wellbore #1													
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,100.0	6,644.1	6,752.2	6,664.9	54.6	226.6	89.42	-3,738.5	-32.2	999.6	730.1	269.58	3.708	
9,200.0	6,643.8	6,752.5	6,665.1	56.5	226.6	89.49	-3,738.5	-32.2	901.7	630.2	271.48	3.321	
9,300.0	6,643.6	6,752.7	6,665.4	58.3	226.6	89.56	-3,738.5	-32.2	804.2	530.9	273.38	2.942	
9,400.0	6,643.4	6,752.9	6,665.6	60.2	226.6	89.63	-3,738.5	-32.2	707.5	432.2	275.29	2.570	
9,500.0	6,643.2	6,753.2	6,665.9	62.0	226.6	89.70	-3,738.5	-32.2	611.8	334.6	277.21	2.207	
9,600.0	6,642.9	6,753.4	6,666.1	63.9	226.6	89.78	-3,738.5	-32.2	517.8	238.7	279.13	1.855	
9,700.0	6,642.7	6,753.7	6,666.3	65.8	226.6	89.85	-3,738.5	-32.2	426.4	145.4	281.04	1.517	
9,800.0	6,642.5	6,753.9	6,666.6	67.7	226.6	89.93	-3,738.5	-32.2	340.0	57.0	282.97	1.202	Level 2
9,900.0	6,642.3	6,754.2	6,666.9	69.5	226.7	90.00	-3,738.5	-32.2	263.4	-21.5	284.89	0.924	Level 1
10,000.0	6,642.0	6,754.4	6,667.1	71.4	226.7	90.08	-3,738.5	-32.2	207.7	-79.2	286.82	0.724	Level 1
10,081.2	6,641.8	6,754.6	6,667.3	72.9	226.7	90.14	-3,738.5	-32.2	191.1	-97.3	288.38	0.663	Level 1, CC, ES, SF
10,100.0	6,641.8	6,754.7	6,667.4	73.3	226.7	90.16	-3,738.5	-32.2	192.1	-96.7	288.75	0.665	Level 1
10,200.0	6,641.6	6,755.0	6,667.6	75.2	226.7	90.24	-3,738.5	-32.2	225.0	-65.6	290.68	0.774	Level 1
10,300.0	6,641.3	6,755.2	6,667.9	77.1	226.7	90.31	-3,738.5	-32.2	290.5	-2.1	292.61	0.993	Level 1
10,400.0	6,641.1	6,755.5	6,668.2	79.0	226.7	90.39	-3,738.5	-32.2	371.7	77.1	294.55	1.262	Level 3
10,500.0	6,640.9	6,755.8	6,668.4	80.9	226.7	90.48	-3,738.5	-32.2	460.3	163.9	296.48	1.553	
10,600.0	6,640.7	6,756.0	6,668.7	82.7	226.7	90.56	-3,738.5	-32.2	552.9	254.5	298.42	1.853	
10,700.0	6,640.4	6,756.3	6,669.0	84.6	226.7	90.64	-3,738.5	-32.2	647.6	347.3	300.36	2.156	
10,800.0	6,640.2	6,756.6	6,669.3	86.5	226.7	90.72	-3,738.5	-32.2	743.8	441.5	302.29	2.460	
10,900.0	6,640.0	6,756.9	6,669.5	88.4	226.7	90.81	-3,738.5	-32.2	840.8	536.6	304.23	2.764	
11,000.0	6,639.8	6,757.1	6,669.8	90.3	226.7	90.89	-3,738.5	-32.2	938.5	632.3	306.17	3.065	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2-6B (Exist) - Wellbore #1 - Wellbore #													Offset Site Error:	0.0 ft
Survey Program: 800-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	122.39	-415.3	654.8	775.6					
100.0	100.0	79.3	79.3	0.1	0.1	122.38	-415.3	654.8	775.4	775.2	0.22	3,558.573		
200.0	200.0	178.5	178.5	0.3	0.2	122.38	-415.3	655.0	775.5	775.0	0.57	1,350.399		
300.0	300.0	277.7	277.7	0.6	0.4	122.37	-415.3	655.3	775.8	774.9	0.93	833.542		
400.0	400.0	376.8	376.8	0.8	0.5	122.35	-415.3	655.7	776.1	774.9	1.29	603.007		
500.0	500.0	476.0	476.0	1.0	0.6	122.32	-415.3	656.2	776.6	775.0	1.64	472.523		
600.0	600.0	575.2	575.2	1.2	0.8	122.30	-415.2	656.9	777.2	775.2	2.00	388.600		
700.0	700.0	674.3	674.3	1.5	0.9	122.26	-415.2	657.7	777.8	775.5	2.36	330.110		
800.0	800.0	773.5	773.5	1.7	1.0	122.22	-415.2	658.7	778.6	775.9	2.71	287.029		
900.0	900.0	885.7	885.7	1.9	1.2	122.18	-414.8	659.2	778.9	775.8	3.10	251.398		
1,000.0	1,000.0	999.8	999.8	2.1	1.3	122.14	-413.3	657.9	777.2	773.7	3.47	223.749		
1,100.0	1,100.0	1,109.2	1,109.1	2.4	1.5	122.00	-409.9	655.9	774.0	770.2	3.82	202.870		
1,200.0	1,200.0	1,216.9	1,216.6	2.6	1.6	121.85	-405.7	653.1	769.7	765.5	4.21	182.888		
1,300.0	1,300.0	1,331.9	1,331.5	2.8	1.8	121.77	-401.3	648.2	764.1	759.5	4.63	165.190		
1,400.0	1,400.0	1,439.6	1,438.9	3.0	2.0	121.64	-395.8	642.3	756.7	751.6	5.06	149.542		
1,500.0	1,500.0	1,535.6	1,534.5	3.3	2.2	121.49	-390.2	637.0	749.0	743.5	5.49	136.397		
1,600.0	1,600.0	1,625.1	1,623.8	3.5	2.4	121.35	-385.7	633.1	742.6	736.7	5.92	125.444		
1,700.0	1,700.0	1,734.7	1,733.2	3.7	2.7	121.16	-380.0	628.4	736.3	729.9	6.40	114.986		
1,800.0	1,800.0	1,851.8	1,849.9	3.9	3.0	120.91	-372.1	621.5	727.7	720.8	6.91	105.251		
1,900.0	1,900.0	1,980.2	1,977.2	4.2	3.3	120.35	-358.7	612.5	716.4	708.9	7.47	95.874		
2,000.0	2,000.0	2,108.5	2,103.3	4.4	3.7	119.41	-338.5	600.5	700.3	692.2	8.05	87.044		
2,100.0	2,100.0	2,221.7	2,214.1	4.6	4.0	118.63	-320.3	586.6	681.7	673.1	8.58	79.417		
2,200.0	2,200.0	2,333.6	2,323.5	4.8	4.3	118.12	-304.1	569.1	661.0	651.8	9.12	72.477		
2,300.0	2,300.0	2,432.9	2,420.4	5.1	4.6	117.94	-292.1	550.8	639.1	629.5	9.62	66.430		
2,400.0	2,400.0	2,525.2	2,510.5	5.3	4.8	117.86	-282.0	533.6	617.5	607.4	10.10	61.123		
2,500.0	2,500.0	2,634.4	2,616.9	5.5	5.1	117.77	-270.0	512.7	595.4	584.8	10.64	55.959		
2,600.0	2,600.0	2,731.0	2,711.0	5.7	5.4	117.57	-257.9	494.0	572.4	561.3	11.15	51.341		
2,700.0	2,700.0	2,825.2	2,802.7	6.0	5.7	117.17	-244.8	476.9	549.9	538.2	11.66	47.173		
2,800.0	2,800.0	2,925.1	2,899.8	6.2	6.0	116.51	-229.2	459.5	527.3	515.1	12.19	43.267		
2,900.0	2,900.0	3,019.5	2,991.4	6.4	6.3	115.57	-212.5	444.1	504.8	492.1	12.70	39.737		
3,000.0	3,000.0	3,109.5	3,079.0	6.6	6.6	114.57	-196.8	430.4	483.5	470.3	13.20	36.624		
3,100.0	3,100.0	3,201.6	3,169.1	6.8	6.9	29.50	-183.6	416.4	462.2	449.0	13.21	34.988		
3,200.0	3,199.8	3,296.8	3,262.3	7.0	7.2	29.25	-170.7	402.3	438.7	425.1	13.62	32.208		
3,262.4	3,262.1	3,356.0	3,320.3	7.2	7.4	29.20	-162.7	393.8	422.8	408.9	13.87	30.480		
3,300.0	3,299.5	3,391.4	3,355.1	7.3	7.5	29.11	-158.1	388.7	412.9	398.9	14.04	29.411		
3,400.0	3,399.1	3,486.2	3,448.1	7.5	7.7	28.90	-146.2	375.2	387.1	372.6	14.49	26.706		
3,500.0	3,498.6	3,583.7	3,543.9	7.7	8.0	28.57	-133.5	361.7	361.4	346.4	14.96	24.156		
3,600.0	3,598.2	3,686.5	3,644.5	7.9	8.4	27.76	-117.7	347.5	334.8	319.4	15.45	21.671		
3,700.0	3,697.8	3,790.2	3,744.8	8.1	8.7	26.00	-97.1	332.0	305.6	289.7	15.96	19.149		
3,800.0	3,797.4	3,888.0	3,839.1	8.4	9.0	23.76	-76.3	316.5	275.5	259.0	16.47	16.726		
3,900.0	3,897.0	3,983.2	3,931.0	8.6	9.3	21.52	-57.6	300.0	244.8	227.8	16.97	14.422		
4,000.0	3,996.5	4,075.1	4,020.1	8.8	9.6	19.24	-41.4	284.1	215.2	197.7	17.47	12.315		
4,100.0	4,096.1	4,166.3	4,108.9	9.1	9.9	16.49	-26.2	269.9	187.8	169.8	17.98	10.441		
4,200.0	4,195.7	4,259.9	4,200.5	9.3	10.2	13.10	-11.8	257.1	163.0	144.5	18.52	8.803		
4,300.0	4,295.3	4,355.7	4,294.4	9.6	10.5	8.74	2.3	244.6	139.7	120.6	19.09	7.316		
4,400.0	4,394.9	4,450.8	4,387.7	9.8	10.8	2.72	16.5	232.9	118.2	98.5	19.71	5.995		
4,500.0	4,494.4	4,545.8	4,480.9	10.1	11.1	-6.24	31.9	222.9	100.4	80.0	20.42	4.920		
4,600.0	4,594.0	4,642.7	4,575.9	10.3	11.4	-18.87	48.4	213.5	87.3	66.1	21.21	4.117		
4,700.0	4,693.6	4,740.5	4,671.3	10.6	11.7	-36.57	66.7	202.1	79.7	57.7	22.03	3.617		
4,744.5	4,737.9	4,784.4	4,714.2	10.7	11.9	-45.39	74.5	196.3	78.3	56.0	22.33	3.507		
4,758.6	4,752.0	4,798.0	4,727.4	10.7	11.9	-48.15	76.9	194.5	78.2	55.8	22.42	3.488 CC, ES, SF		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 800-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	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
4,800.0	4,793.2	4,837.5	4,766.0	10.8	12.0	-55.97		83.7	189.0	79.3	56.7	22.61	3.506	
4,900.0	4,893.1	4,933.8	4,859.7	11.0	12.3	-71.84		101.1	176.0	89.4	66.5	22.89	3.905	
5,006.9	5,000.0	5,041.1	4,964.7	11.2	12.7	2.24		119.3	163.0	105.5	82.3	23.15	4.556	
5,100.0	5,093.1	5,137.9	5,060.0	11.4	13.0	-3.48		131.5	151.8	117.5	94.0	23.46	5.008	
5,200.0	5,193.1	5,239.8	5,161.1	11.6	13.2	-7.51		140.7	142.3	127.4	103.5	23.84	5.342	
5,300.0	5,293.1	5,341.1	5,261.8	11.8	13.5	-10.17		148.6	134.9	136.2	112.0	24.26	5.617	
5,400.0	5,393.1	5,439.3	5,359.5	12.0	13.8	-12.08		156.0	128.7	144.9	120.2	24.68	5.869	
5,500.0	5,493.1	5,538.6	5,458.2	12.2	14.1	-14.24		164.0	121.1	154.4	129.3	25.11	6.151	
5,600.0	5,593.1	5,642.5	5,561.5	12.5	14.3	-16.35		170.9	113.2	162.9	137.3	25.54	6.376	
5,700.0	5,693.1	5,740.3	5,659.0	12.7	14.6	-17.90		176.8	106.6	170.6	144.6	25.98	6.567	
5,800.0	5,793.1	5,844.6	5,763.0	12.9	14.9	-19.12		182.3	100.9	177.4	150.9	26.44	6.708	
5,891.6	5,884.7	5,936.9	5,855.0	13.1	15.1	-19.94		186.4	96.7	182.6	155.7	26.86	6.798	
5,900.0	5,893.1	5,945.8	5,864.0	13.1	15.1	159.97		186.7	96.3	183.1	156.2	26.87	6.812	
5,950.0	5,943.0	5,999.4	5,917.5	13.2	15.3	159.66		188.2	94.2	187.1	160.2	26.90	6.954	
6,000.0	5,992.7	6,049.4	5,967.5	13.3	15.4	159.72		189.0	92.7	193.5	166.6	26.83	7.209	
6,050.0	6,041.9	6,097.2	6,015.3	13.4	15.5	160.19		190.2	91.8	203.1	176.4	26.67	7.616	
6,100.0	6,090.5	6,144.8	6,062.9	13.5	15.6	160.96		191.8	91.5	216.0	189.6	26.41	8.180	
6,150.0	6,138.2	6,191.8	6,109.8	13.6	15.7	161.83		193.5	91.1	232.1	206.0	26.05	8.909	
6,200.0	6,184.7	6,238.9	6,156.8	13.7	15.8	162.74		195.1	90.9	251.0	225.5	25.59	9.812	
6,250.0	6,230.1	6,285.3	6,203.3	13.8	15.9	163.63		196.4	90.6	272.7	247.7	25.03	10.897	
6,300.0	6,273.9	6,330.7	6,248.6	13.9	16.0	164.43		197.4	90.4	297.0	272.6	24.37	12.185	
6,350.0	6,316.0	6,374.6	6,292.5	14.0	16.1	165.14		198.0	90.2	323.8	300.2	23.63	13.702	
6,400.0	6,356.4	6,414.9	6,332.8	14.2	16.2	165.67		198.3	89.9	353.1	330.3	22.80	15.485	
6,450.0	6,394.6	6,451.3	6,369.2	14.3	16.3	165.95		198.6	89.3	385.1	363.2	21.90	17.583	
6,500.0	6,430.8	6,485.5	6,403.4	14.5	16.4	166.05		199.0	88.3	419.7	398.8	20.95	20.036	
6,550.0	6,464.5	6,519.4	6,437.3	14.8	16.5	166.04		199.4	87.3	456.7	436.7	19.96	22.880	
6,600.0	6,495.8	6,551.0	6,468.9	15.1	16.6	165.89		199.7	86.4	495.7	476.7	18.95	26.151	
6,650.0	6,524.5	6,580.0	6,497.9	15.4	16.6	165.57		200.0	85.6	536.6	518.6	17.97	29.867	
6,700.0	6,550.4	6,607.3	6,525.2	15.8	16.7	165.07		200.2	85.0	579.2	562.2	17.03	34.007	
6,750.0	6,573.5	6,631.9	6,549.8	16.2	16.7	164.27		200.3	84.5	623.4	607.2	16.22	38.424	
6,800.0	6,593.6	6,653.6	6,571.4	16.7	16.8	163.06		200.4	84.1	668.9	653.3	15.65	42.756	
6,850.0	6,610.7	6,672.1	6,590.0	17.2	16.8	161.21		200.4	83.8	715.7	700.2	15.47	46.262	
6,900.0	6,624.7	6,686.9	6,604.8	17.8	16.8	158.24		200.4	83.6	763.4	747.4	16.01	47.694	
6,950.0	6,635.5	6,698.2	6,616.1	18.3	16.9	153.22		200.4	83.4	812.0	794.2	17.78	45.663	
7,000.0	6,643.1	6,706.2	6,624.1	18.9	16.9	143.88		200.4	83.3	861.2	839.4	21.81	39.482	
7,050.0	6,647.5	6,710.9	6,628.7	19.6	16.9	123.82		200.3	83.3	910.8	881.0	29.78	30.590	
7,093.4	6,648.6	6,712.2	6,630.0	20.2	16.9	89.44		200.3	83.2	954.0	917.8	36.24	26.325	
7,100.0	6,648.6	6,712.2	6,630.0	20.3	16.9	89.44		200.3	83.2	960.6	924.3	36.33	26.441	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2-7I (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 514-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	
0.0	0.0	0.0	0.0	0.0	0.0	122.96	-444.5	685.4	817.1					
100.0	100.0	79.0	79.0	0.1	0.1	122.97	-444.5	685.4	817.0	816.8	0.20	4,050.205 CC		
200.0	200.0	177.6	177.6	0.3	0.2	122.98	-444.8	685.5	817.2	816.6	0.54	1,519.235 ES		
300.0	300.0	276.3	276.3	0.6	0.3	123.01	-445.4	685.6	817.5	816.7	0.87	935.339		
400.0	400.0	375.0	375.0	0.8	0.4	123.05	-446.1	685.7	818.1	816.8	1.21	675.962		
500.0	500.0	473.7	473.7	1.0	0.5	123.10	-447.1	685.9	818.7	817.2	1.55	529.461		
600.0	600.0	569.8	569.7	1.2	0.7	123.17	-448.5	686.1	819.7	817.8	1.94	421.712		
700.0	700.0	664.0	663.9	1.5	0.9	123.32	-451.1	686.1	821.3	818.9	2.38	344.621		
800.0	800.0	756.6	756.5	1.7	1.1	123.53	-454.8	686.3	823.7	820.9	2.82	291.998		
900.0	900.0	848.4	848.1	1.9	1.4	123.75	-459.2	687.1	827.0	823.8	3.26	253.865		
1,000.0	1,000.0	937.7	937.3	2.1	1.6	123.98	-464.2	688.6	831.5	827.8	3.69	225.188		
1,100.0	1,100.0	1,027.2	1,026.5	2.4	1.8	124.22	-469.9	690.9	837.3	833.1	4.13	202.633		
1,200.0	1,200.0	1,116.7	1,115.8	2.6	2.0	124.45	-476.2	694.2	844.3	839.7	4.58	184.445		
1,300.0	1,300.0	1,211.7	1,210.4	2.8	2.3	124.66	-483.0	698.7	852.3	847.2	5.03	169.417		
1,400.0	1,400.0	1,308.5	1,306.9	3.0	2.5	124.78	-489.2	704.2	860.6	855.1	5.49	156.813		
1,500.0	1,500.0	1,402.3	1,400.3	3.3	2.7	124.91	-495.5	709.9	869.4	863.5	5.95	146.180		
1,600.0	1,600.0	1,494.9	1,492.4	3.5	3.0	125.10	-502.8	715.6	878.9	872.5	6.41	137.074		
1,700.0	1,700.0	1,582.9	1,579.9	3.7	3.2	125.23	-509.8	721.9	889.4	882.6	6.88	129.300		
1,800.0	1,800.0	1,666.4	1,662.8	3.9	3.5	125.31	-516.7	729.5	901.6	894.3	7.35	122.746		
1,900.0	1,900.0	1,754.8	1,750.3	4.2	3.7	125.34	-524.1	739.1	915.3	907.5	7.84	116.765		
2,000.0	2,000.0	1,857.4	1,852.0	4.4	4.0	125.40	-533.1	750.2	929.2	920.8	8.37	111.061		
2,100.0	2,100.0	1,954.0	1,947.6	4.6	4.3	125.44	-541.5	760.8	943.2	934.3	8.87	106.309		
2,200.0	2,200.0	2,054.2	2,046.8	4.8	4.6	125.46	-549.9	772.0	957.1	947.7	9.38	101.998		
2,300.0	2,300.0	2,156.4	2,148.0	5.1	4.9	125.47	-558.2	783.5	971.0	961.1	9.90	98.033		
2,400.0	2,400.0	2,253.7	2,244.5	5.3	5.2	125.52	-566.5	793.5	984.4	974.0	10.42	94.439		
2,500.0	2,500.0	2,341.8	2,331.6	5.5	5.4	125.57	-574.5	803.4	998.7	987.8	10.93	91.361 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 #2 (2-11-14)	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)						
0.0	0.0	0.0	0.0	0.0	0.0	124.17	-444.5	654.8	791.6					
100.0	100.0	80.0	80.0	0.1	1.6	124.17	-444.5	654.8	791.4	789.6	1.71	462.086		
200.0	200.0	180.0	180.0	0.3	3.6	124.17	-444.5	654.8	791.4	787.4	3.94	200.988		
300.0	300.0	280.0	280.0	0.6	5.6	124.17	-444.5	654.8	791.4	785.2	6.16	128.423		
400.0	400.0	380.0	380.0	0.8	7.6	124.17	-444.5	654.8	791.4	783.0	8.39	94.357		
500.0	500.0	480.0	480.0	1.0	9.6	124.17	-444.5	654.8	791.4	780.7	10.61	74.575		
600.0	600.0	580.0	580.0	1.2	11.6	124.17	-444.5	654.8	791.4	778.5	12.84	61.650		
700.0	700.0	680.0	680.0	1.5	13.6	124.17	-444.5	654.8	791.4	776.3	15.06	52.543		
800.0	800.0	780.0	780.0	1.7	15.6	124.17	-444.5	654.8	791.4	774.1	17.29	45.781		
900.0	900.0	880.0	880.0	1.9	17.6	124.17	-444.5	654.8	791.4	771.8	19.51	40.560		
1,000.0	1,000.0	980.0	980.0	2.1	19.6	124.17	-444.5	654.8	791.4	769.6	21.74	36.409		
1,100.0	1,100.0	1,080.0	1,080.0	2.4	21.6	124.17	-444.5	654.8	791.4	767.4	23.96	33.028		
1,200.0	1,200.0	1,180.0	1,180.0	2.6	23.6	124.17	-444.5	654.8	791.4	765.2	26.18	30.222		
1,300.0	1,300.0	1,280.0	1,280.0	2.8	25.6	124.17	-444.5	654.8	791.4	762.9	28.41	27.855		
1,400.0	1,400.0	1,380.0	1,380.0	3.0	27.6	124.17	-444.5	654.8	791.4	760.7	30.63	25.832		
1,500.0	1,500.0	1,480.0	1,480.0	3.3	29.6	124.17	-444.5	654.8	791.4	758.5	32.86	24.083		
1,600.0	1,600.0	1,580.0	1,580.0	3.5	31.6	124.17	-444.5	654.8	791.4	756.3	35.08	22.556		
1,700.0	1,700.0	1,680.0	1,680.0	3.7	33.6	124.17	-444.5	654.8	791.4	754.1	37.31	21.211		
1,800.0	1,800.0	1,780.0	1,780.0	3.9	35.6	124.17	-444.5	654.8	791.4	751.8	39.53	20.017		
1,900.0	1,900.0	1,880.0	1,880.0	4.2	37.6	124.17	-444.5	654.8	791.4	749.6	41.76	18.951		
2,000.0	2,000.0	1,980.0	1,980.0	4.4	39.6	124.17	-444.5	654.8	791.4	747.4	43.98	17.992		
2,100.0	2,100.0	2,080.0	2,080.0	4.6	41.6	124.17	-444.5	654.8	791.4	745.2	46.21	17.126		
2,200.0	2,200.0	2,180.0	2,180.0	4.8	43.6	124.17	-444.5	654.8	791.4	742.9	48.43	16.339		
2,300.0	2,300.0	2,280.0	2,280.0	5.1	45.6	124.17	-444.5	654.8	791.4	740.7	50.66	15.622		
2,400.0	2,400.0	2,380.0	2,380.0	5.3	47.6	124.17	-444.5	654.8	791.4	738.5	52.88	14.965		
2,500.0	2,500.0	2,480.0	2,480.0	5.5	49.6	124.17	-444.5	654.8	791.4	736.3	55.11	14.360		
2,600.0	2,600.0	2,580.0	2,580.0	5.7	51.6	124.17	-444.5	654.8	791.4	734.0	57.33	13.803		
2,700.0	2,700.0	2,680.0	2,680.0	6.0	53.6	124.17	-444.5	654.8	791.4	731.8	59.56	13.288		
2,800.0	2,800.0	2,780.0	2,780.0	6.2	55.6	124.17	-444.5	654.8	791.4	729.6	61.78	12.809		
2,900.0	2,900.0	2,880.0	2,880.0	6.4	57.6	124.17	-444.5	654.8	791.4	727.4	64.01	12.364		
3,000.0	3,000.0	2,980.0	2,980.0	6.6	59.6	124.17	-444.5	654.8	791.4	725.1	66.23	11.949		
3,100.0	3,100.0	3,080.0	3,080.0	6.8	61.6	39.66	-444.5	654.8	790.0	721.6	68.42	11.547		
3,200.0	3,199.8	3,179.8	3,179.8	7.0	63.6	39.95	-444.5	654.8	786.0	715.5	70.54	11.142		
3,262.4	3,262.1	3,242.1	3,242.1	7.2	64.8	40.24	-444.5	654.8	782.1	710.3	71.84	10.887		
3,300.0	3,299.5	3,279.5	3,279.5	7.3	65.6	40.40	-444.5	654.8	779.5	706.8	72.66	10.728		
3,400.0	3,399.1	3,379.1	3,379.1	7.5	67.6	40.84	-444.5	654.8	772.6	697.7	74.86	10.320		
3,500.0	3,498.6	3,478.6	3,478.6	7.7	69.6	41.29	-444.5	654.8	765.6	688.6	77.06	9.936		
3,600.0	3,598.2	3,578.2	3,578.2	7.9	71.6	41.74	-444.5	654.8	758.8	679.5	79.26	9.573		
3,700.0	3,697.8	3,677.8	3,677.8	8.1	73.6	42.21	-444.5	654.8	752.0	670.5	81.46	9.231		
3,800.0	3,797.4	3,777.4	3,777.4	8.4	75.5	42.68	-444.5	654.8	745.2	661.5	83.67	8.906		
3,900.0	3,897.0	3,877.0	3,877.0	8.6	77.5	43.16	-444.5	654.8	738.5	652.6	85.88	8.599		
4,000.0	3,996.5	3,976.5	3,976.5	8.8	79.5	43.65	-444.5	654.8	731.8	643.7	88.10	8.307		
4,100.0	4,096.1	4,076.1	4,076.1	9.1	81.5	44.15	-444.5	654.8	725.2	634.9	90.31	8.030		
4,200.0	4,195.7	4,175.7	4,175.7	9.3	83.5	44.65	-444.5	654.8	718.7	626.1	92.53	7.767		
4,300.0	4,295.3	4,275.3	4,275.3	9.6	85.5	45.17	-444.5	654.8	712.2	617.4	94.75	7.517		
4,400.0	4,394.9	4,374.9	4,374.9	9.8	87.5	45.69	-444.5	654.8	705.8	608.8	96.97	7.278		
4,500.0	4,494.4	4,474.4	4,474.4	10.1	89.5	46.23	-444.5	654.8	699.4	600.2	99.20	7.050		
4,600.0	4,594.0	4,574.0	4,574.0	10.3	91.5	46.77	-444.5	654.8	693.1	591.6	101.42	6.833		
4,700.0	4,693.6	4,673.6	4,673.6	10.6	93.5	47.33	-444.5	654.8	686.8	583.2	103.65	6.626		
4,744.5	4,737.9	4,717.9	4,717.9	10.7	94.4	47.58	-444.5	654.8	684.1	579.4	104.64	6.537		
4,800.0	4,793.2	4,773.2	4,773.2	10.8	95.5	47.82	-444.5	654.8	681.0	575.1	105.95	6.428		

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 28-2 (Exist) - Wellbore #1 - Wellbore #													Offset Site Error:	0.0 ft
Survey Program: 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
4,900.0	4,893.1	4,873.1	4,873.1	11.0	97.5	48.10		-444.5	654.8	677.3	569.1	108.23	6.258	
5,006.9	5,000.0	4,980.0	4,980.0	11.2	99.6	132.82		-444.5	654.8	676.0	565.4	110.60	6.112	
5,100.0	5,093.1	5,073.1	5,073.1	11.4	101.5	132.82		-444.5	654.8	676.0	563.4	112.64	6.001	
5,200.0	5,193.1	5,173.1	5,173.1	11.6	103.5	132.82		-444.5	654.8	676.0	561.1	114.86	5.885	
5,300.0	5,293.1	5,273.1	5,273.1	11.8	105.5	132.82		-444.5	654.8	676.0	558.9	117.08	5.774	
5,400.0	5,393.1	5,373.1	5,373.1	12.0	107.5	132.82		-444.5	654.8	676.0	556.7	119.29	5.667	
5,500.0	5,493.1	5,473.1	5,473.1	12.2	109.5	132.82		-444.5	654.8	676.0	554.5	121.51	5.563	
5,600.0	5,593.1	5,573.1	5,573.1	12.5	111.5	132.82		-444.5	654.8	676.0	552.3	123.73	5.463	
5,700.0	5,693.1	5,673.1	5,673.1	12.7	113.5	132.82		-444.5	654.8	676.0	550.0	125.95	5.367	
5,800.0	5,793.1	5,773.1	5,773.1	12.9	115.5	132.82		-444.5	654.8	676.0	547.8	128.17	5.274	
5,891.6	5,884.7	5,864.7	5,864.7	13.1	117.3	132.82		-444.5	654.8	676.0	545.8	130.20	5.192	
5,900.0	5,893.1	5,873.1	5,873.1	13.1	117.5	-47.19		-444.5	654.8	676.0	545.6	130.38	5.185	
5,950.0	5,943.0	5,923.0	5,923.0	13.2	118.5	-47.41		-444.5	654.8	674.5	543.2	131.30	5.137	
6,000.0	5,992.7	5,972.7	5,972.7	13.3	119.5	-47.95		-444.5	654.8	670.8	538.8	131.96	5.083	
6,050.0	6,041.9	6,021.9	6,021.9	13.4	120.4	-48.83		-444.5	654.8	665.0	532.6	132.40	5.023	
6,100.0	6,090.5	6,070.5	6,070.5	13.5	121.4	-50.06		-444.5	654.8	657.1	524.5	132.65	4.954	
6,150.0	6,138.2	6,118.2	6,118.2	13.6	122.4	-51.63		-444.5	654.8	647.4	514.6	132.81	4.874	
6,200.0	6,184.7	6,164.7	6,164.7	13.7	123.3	-53.56		-444.5	654.8	635.9	502.9	132.96	4.782	
6,250.0	6,230.1	6,210.1	6,210.1	13.8	124.2	-55.86		-444.5	654.8	622.9	489.6	133.22	4.675	
6,300.0	6,273.9	6,253.9	6,253.9	13.9	125.1	-58.52		-444.5	654.8	608.6	474.9	133.70	4.552	
6,350.0	6,316.0	6,296.0	6,296.0	14.0	125.9	-61.51		-444.5	654.8	593.4	458.9	134.50	4.412	
6,400.0	6,356.4	6,336.4	6,336.4	14.2	126.7	-64.81		-444.5	654.8	577.7	442.1	135.66	4.258	
6,450.0	6,394.6	6,374.6	6,374.6	14.3	127.5	-68.35		-444.5	654.8	561.9	424.7	137.18	4.096	
6,500.0	6,430.8	6,410.8	6,410.8	14.5	128.2	-72.05		-444.5	654.8	546.5	407.5	138.97	3.932	
6,550.0	6,464.5	6,444.5	6,444.5	14.8	128.9	-75.79		-444.5	654.8	532.1	391.2	140.90	3.776	
6,600.0	6,495.8	6,475.8	6,475.8	15.1	129.5	-79.45		-444.5	654.8	519.2	376.4	142.78	3.636	
6,650.0	6,524.5	6,504.5	6,504.5	15.4	130.1	-82.91		-444.5	654.8	508.6	364.1	144.48	3.520	
6,700.0	6,550.4	6,530.4	6,530.4	15.8	130.6	-86.03		-444.5	654.8	500.8	354.9	145.91	3.432	
6,750.0	6,573.5	6,553.5	6,553.5	16.2	131.1	-88.71		-444.5	654.8	496.5	349.5	147.05	3.377	
6,778.4	6,585.3	6,565.3	6,565.3	16.5	131.3	-90.00		-444.5	654.8	495.9	348.3	147.59	3.360 CC, ES	
6,800.0	6,593.6	6,573.6	6,573.6	16.7	131.5	-90.86		-444.5	654.8	496.3	348.3	147.95	3.354 SF	
6,850.0	6,610.7	6,590.7	6,590.7	17.2	131.8	-92.40		-444.5	654.8	500.4	351.6	148.71	3.365	
6,900.0	6,624.7	6,604.7	6,604.7	17.8	132.1	-93.29		-444.5	654.8	509.0	359.6	149.43	3.406	
6,950.0	6,635.5	6,615.5	6,615.5	18.3	132.3	-93.48		-444.5	654.8	522.2	372.0	150.19	3.477	
7,000.0	6,643.1	6,623.1	6,623.1	18.9	132.5	-92.94		-444.5	654.8	539.7	388.7	151.03	3.574	
7,050.0	6,647.5	6,627.5	6,627.5	19.6	132.5	-91.65		-444.5	654.8	561.2	409.3	151.90	3.695	
7,093.4	6,648.6	6,628.6	6,628.6	20.2	132.6	-89.92		-444.5	654.8	582.8	430.2	152.57	3.820	
7,100.0	6,648.6	6,628.6	6,628.6	20.3	132.6	-89.92		-444.5	654.8	586.3	433.7	152.66	3.841	
7,200.0	6,648.4	6,628.4	6,628.4	21.6	132.6	-89.89		-444.5	654.8	645.2	491.2	154.06	4.188	
7,300.0	6,648.2	6,628.2	6,628.2	23.1	132.6	-89.87		-444.5	654.8	713.4	557.8	155.54	4.586	
7,400.0	6,647.9	6,627.9	6,627.9	24.7	132.6	-89.84		-444.5	654.8	788.3	631.3	157.08	5.019	
7,500.0	6,647.7	6,627.7	6,627.7	26.2	132.6	-89.81		-444.5	654.8	868.4	709.7	158.66	5.473	
7,600.0	6,647.5	6,627.5	6,627.5	27.9	132.5	-89.79		-444.5	654.8	952.2	791.9	160.29	5.940	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 5 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 6992-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	176.53	176.53	-965.4	58.5	967.2	909.7	57.53	16.812	
2,700.0	2,700.0	2,690.0	2,690.0	6.0	53.8	176.53	176.53	-965.4	58.5	967.2	907.4	59.76	16.186	
2,800.0	2,800.0	2,790.0	2,790.0	6.2	55.8	176.53	176.53	-965.4	58.5	967.2	905.2	61.98	15.605	
2,900.0	2,900.0	2,890.0	2,890.0	6.4	57.8	176.53	176.53	-965.4	58.5	967.2	903.0	64.21	15.064	
3,000.0	3,000.0	2,990.0	2,990.0	6.6	59.8	176.53	176.53	-965.4	58.5	967.2	900.8	66.43	14.559	
3,100.0	3,100.0	3,090.0	3,090.0	6.8	61.8	92.03	92.03	-965.4	58.5	967.3	898.6	68.64	14.091	
3,200.0	3,199.8	3,189.8	3,189.8	7.0	63.8	92.33	92.33	-965.4	58.5	967.5	896.6	70.84	13.656	
3,262.4	3,262.1	3,252.1	3,252.1	7.2	65.0	92.62	92.62	-965.4	58.5	967.7	895.5	72.22	13.399	
3,300.0	3,299.5	3,289.5	3,289.5	7.3	65.8	92.83	92.83	-965.4	58.5	967.8	894.8	73.05	13.250	
3,400.0	3,399.1	3,389.1	3,389.1	7.5	67.8	93.36	93.36	-965.4	58.5	968.3	893.1	75.25	12.868	
3,500.0	3,498.6	3,488.6	3,488.6	7.7	69.8	93.90	93.90	-965.4	58.5	968.9	891.5	77.46	12.508	
3,600.0	3,598.2	3,588.2	3,588.2	7.9	71.8	94.44	94.44	-965.4	58.5	969.6	889.9	79.68	12.169	
3,700.0	3,697.8	3,687.8	3,687.8	8.1	73.8	94.98	94.98	-965.4	58.5	970.3	888.4	81.90	11.848	
3,800.0	3,797.4	3,787.4	3,787.4	8.4	75.7	95.51	95.51	-965.4	58.5	971.2	887.1	84.12	11.545	
3,900.0	3,897.0	3,887.0	3,887.0	8.6	77.7	96.05	96.05	-965.4	58.5	972.1	885.8	86.34	11.259	
4,000.0	3,996.5	3,986.5	3,986.5	8.8	79.7	96.58	96.58	-965.4	58.5	973.1	884.5	88.57	10.987	
4,100.0	4,096.1	4,086.1	4,086.1	9.1	81.7	97.11	97.11	-965.4	58.5	974.2	883.4	90.80	10.729	
4,200.0	4,195.7	4,185.7	4,185.7	9.3	83.7	97.64	97.64	-965.4	58.5	975.4	882.4	93.03	10.484	
4,300.0	4,295.3	4,285.3	4,285.3	9.6	85.7	98.17	98.17	-965.4	58.5	976.6	881.4	95.27	10.252	
4,400.0	4,394.9	4,384.9	4,384.9	9.8	87.7	98.70	98.70	-965.4	58.5	978.0	880.5	97.50	10.030	
4,500.0	4,494.4	4,484.4	4,484.4	10.1	89.7	99.23	99.23	-965.4	58.5	979.4	879.7	99.74	9.820	
4,600.0	4,594.0	4,584.0	4,584.0	10.3	91.7	99.75	99.75	-965.4	58.5	980.9	879.0	101.98	9.619	
4,700.0	4,693.6	4,683.6	4,683.6	10.6	93.7	100.28	100.28	-965.4	58.5	982.5	878.3	104.22	9.428	
4,744.5	4,737.9	4,727.9	4,727.9	10.7	94.6	100.51	100.51	-965.4	58.5	983.3	878.1	105.22	9.345	
4,800.0	4,793.2	4,783.2	4,783.2	10.8	95.7	100.78	100.78	-965.4	58.5	984.1	877.7	106.45	9.244	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 6992-UNKNOWN												Offset Well Error:	0.0 ft
Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 5 (Exist) - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,893.1	4,883.1	4,883.1	11.0	97.7	101.12	-965.4	58.5	985.2	876.5	108.66	9.067	
5,006.9	5,000.0	4,990.0	4,990.0	11.2	99.8	-174.15	-965.4	58.5	985.5	874.6	110.99	8.879	
5,100.0	5,093.1	5,083.1	5,083.1	11.4	101.7	-174.15	-965.4	58.5	985.5	872.5	113.04	8.719	
5,200.0	5,193.1	5,183.1	5,183.1	11.6	103.7	-174.15	-965.4	58.5	985.5	870.3	115.25	8.551	
5,300.0	5,293.1	5,283.1	5,283.1	11.8	105.7	-174.15	-965.4	58.5	985.5	868.1	117.46	8.390	
5,400.0	5,393.1	5,383.1	5,383.1	12.0	107.7	-174.15	-965.4	58.5	985.5	865.9	119.68	8.235	
5,500.0	5,493.1	5,483.1	5,483.1	12.2	109.7	-174.15	-965.4	58.5	985.5	863.7	121.90	8.085	
5,600.0	5,593.1	5,583.1	5,583.1	12.5	111.7	-174.15	-965.4	58.5	985.5	861.4	124.11	7.941	
5,700.0	5,693.1	5,683.1	5,683.1	12.7	113.7	-174.15	-965.4	58.5	985.5	859.2	126.33	7.801	
5,800.0	5,793.1	5,783.1	5,783.1	12.9	115.7	-174.15	-965.4	58.5	985.5	857.0	128.54	7.667	
5,891.6	5,884.7	5,874.7	5,874.7	13.1	117.5	-174.15	-965.4	58.5	985.5	855.0	130.58	7.548	
5,900.0	5,893.1	5,883.1	5,883.1	13.1	117.7	5.85	-965.4	58.5	985.5	854.8	130.75	7.537	
5,950.0	5,943.0	5,933.0	5,933.0	13.2	118.7	5.88	-965.4	58.5	983.3	851.9	131.47	7.480	
6,000.0	5,992.7	5,982.7	5,982.7	13.3	119.7	5.95	-965.4	58.5	977.9	846.3	131.62	7.430	
6,050.0	6,041.9	6,031.9	6,031.9	13.4	120.6	6.07	-965.4	58.5	969.3	838.1	131.21	7.387	
6,100.0	6,090.5	6,080.5	6,080.5	13.5	121.6	6.25	-965.4	58.5	957.5	827.2	130.21	7.353	
6,150.0	6,138.2	6,128.2	6,128.2	13.6	122.6	6.48	-965.4	58.5	942.5	813.9	128.63	7.327	
6,200.0	6,184.7	6,174.7	6,174.7	13.7	123.5	6.77	-965.4	58.5	924.5	798.0	126.47	7.310	
6,250.0	6,230.1	6,220.1	6,220.1	13.8	124.4	7.14	-965.4	58.5	903.5	779.8	123.74	7.302	
6,300.0	6,273.9	6,263.9	6,263.9	13.9	125.3	7.60	-965.4	58.5	879.6	759.1	120.45	7.302	
6,350.0	6,316.0	6,306.0	6,306.0	14.0	126.1	8.17	-965.4	58.5	852.9	736.3	116.64	7.312	
6,400.0	6,356.4	6,346.4	6,346.4	14.2	126.9	8.87	-965.4	58.5	823.6	711.2	112.35	7.330	
6,450.0	6,394.6	6,384.6	6,384.6	14.3	127.7	9.74	-965.4	58.5	791.7	684.0	107.64	7.355	
6,500.0	6,430.8	6,420.8	6,420.8	14.5	128.4	10.83	-965.4	58.5	757.4	654.8	102.62	7.380	
6,550.0	6,464.5	6,454.5	6,454.5	14.8	129.1	12.19	-965.4	58.5	720.9	623.4	97.45	7.398	
6,600.0	6,495.8	6,485.8	6,485.8	15.1	129.7	13.92	-965.4	58.5	682.3	589.9	92.38	7.386	
6,650.0	6,524.5	6,514.5	6,514.5	15.4	130.3	16.16	-965.4	58.5	641.8	554.0	87.86	7.305	
6,700.0	6,550.4	6,540.4	6,540.4	15.8	130.8	19.10	-965.4	58.5	599.6	515.0	84.62	7.086	
6,750.0	6,573.5	6,563.5	6,563.5	16.2	131.3	23.00	-965.4	58.5	556.0	472.2	83.79	6.635	
6,800.0	6,593.6	6,583.6	6,583.6	16.7	131.7	28.27	-965.4	58.5	511.0	424.1	86.94	5.878	
6,850.0	6,610.7	6,600.7	6,600.7	17.2	132.0	35.40	-965.4	58.5	465.1	369.5	95.56	4.867	
6,900.0	6,624.7	6,614.7	6,614.7	17.8	132.3	44.88	-965.4	58.5	418.3	308.4	109.89	3.807	
6,950.0	6,635.5	6,625.5	6,625.5	18.3	132.5	56.73	-965.4	58.5	371.1	243.8	127.34	2.914	
7,000.0	6,643.1	6,633.1	6,633.1	18.9	132.7	69.85	-965.4	58.5	323.8	181.4	142.41	2.274	
7,050.0	6,647.5	6,637.5	6,637.5	19.6	132.7	82.03	-965.4	58.5	276.9	126.2	150.68	1.838	
7,093.4	6,648.6	6,638.6	6,638.6	20.2	132.8	90.28	-965.4	58.5	237.1	84.3	152.77	1.552	
7,100.0	6,648.6	6,638.6	6,638.6	20.3	132.8	90.27	-965.4	58.5	231.1	78.2	152.86	1.512	
7,200.0	6,648.4	6,638.4	6,638.4	21.6	132.8	90.14	-965.4	58.5	147.5	-6.7	154.26	0.956 Level 1	
7,300.0	6,648.2	6,638.2	6,638.2	23.1	132.8	90.01	-965.4	58.5	100.7	-55.0	155.74	0.647 Level 1	
7,308.1	6,648.1	6,638.1	6,638.1	23.2	132.8	90.00	-965.4	58.5	100.4	-55.5	155.86	0.644 Level 1, CC, ES, SF	
7,400.0	6,647.9	6,637.9	6,637.9	24.7	132.8	89.88	-965.4	58.5	136.1	-21.2	157.27	0.865 Level 1	
7,500.0	6,647.7	6,637.7	6,637.7	26.2	132.8	89.75	-965.4	58.5	216.6	57.7	158.86	1.363 Level 3	
7,600.0	6,647.5	6,637.5	6,637.5	27.9	132.7	89.62	-965.4	58.5	308.7	148.2	160.48	1.923	
7,700.0	6,647.2	6,637.2	6,637.2	29.5	132.7	89.49	-965.4	58.5	404.5	242.4	162.14	2.495	
7,800.0	6,647.0	6,637.0	6,637.0	31.2	132.7	89.36	-965.4	58.5	502.0	338.2	163.83	3.064	
7,900.0	6,646.8	6,636.8	6,636.8	32.9	132.7	89.23	-965.4	58.5	600.3	434.8	165.54	3.627	
8,000.0	6,646.6	6,636.6	6,636.6	34.7	132.7	89.10	-965.4	58.5	699.1	531.9	167.27	4.180	
8,100.0	6,646.3	6,636.3	6,636.3	36.4	132.7	88.97	-965.4	58.5	798.2	629.2	169.02	4.723	
8,200.0	6,646.1	6,636.1	6,636.1	38.2	132.7	88.85	-965.4	58.5	897.5	726.7	170.79	5.255	
8,300.0	6,645.9	6,635.9	6,635.9	40.0	132.7	88.72	-965.4	58.5	997.0	824.4	172.56	5.777	

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Hoffman B 33-19 (Exist) - Wellbore #1 - Wellbor										Offset Site Error:		0.0 ft			
Survey Program: 7044-UNKNOWN														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)						
11,600.0	6,638.4	6,680.4	6,680.4	101.7	133.6	90.90	-6,222.4	19.5	975.1	739.9	235.27	4.145					
11,700.0	6,638.2	6,680.2	6,680.2	103.6	133.6	90.81	-6,222.4	19.5	876.3	639.1	237.17	3.695					
11,800.0	6,637.9	6,679.9	6,679.9	105.5	133.6	90.71	-6,222.4	19.5	777.7	538.6	239.07	3.253					
11,900.0	6,637.7	6,679.7	6,679.7	107.4	133.6	90.62	-6,222.4	19.5	679.6	438.6	240.98	2.820					
12,000.0	6,637.5	6,679.5	6,679.5	109.3	133.6	90.53	-6,222.4	19.5	582.0	339.2	242.88	2.396					
12,100.0	6,637.3	6,679.3	6,679.3	111.2	133.6	90.43	-6,222.4	19.5	485.6	240.8	244.78	1.984					
12,200.0	6,637.0	6,679.0	6,679.0	113.1	133.6	90.34	-6,222.4	19.5	390.8	144.1	246.68	1.584					
12,300.0	6,636.8	6,678.8	6,678.8	115.0	133.6	90.25	-6,222.4	19.5	299.5	50.9	248.59	1.205	Level 2				
12,400.0	6,636.6	6,678.6	6,678.6	116.9	133.6	90.15	-6,222.4	19.5	216.1	-34.4	250.49	0.863	Level 1				
12,500.0	6,636.4	6,678.4	6,678.4	118.9	133.6	90.06	-6,222.4	19.5	153.8	-98.5	252.39	0.610	Level 1				
12,565.1	6,636.2	6,678.2	6,678.2	120.1	133.6	90.00	-6,222.4	19.5	139.4	-114.2	253.63	0.550	Level 1, CC, ES, SF				
12,600.0	6,636.1	6,678.1	6,678.1	120.8	133.6	89.97	-6,222.4	19.5	143.7	-110.6	254.29	0.565	Level 1				
12,700.0	6,635.9	6,677.9	6,677.9	122.7	133.6	89.87	-6,222.4	19.5	194.0	-62.2	256.20	0.757	Level 1				
12,800.0	6,635.7	6,677.7	6,677.7	124.6	133.6	89.78	-6,222.4	19.5	273.1	15.0	258.10	1.058	Level 2				
12,900.0	6,635.4	6,677.4	6,677.4	126.5	133.5	89.69	-6,222.4	19.5	362.7	102.7	260.00	1.395	Level 3				
13,000.0	6,635.2	6,677.2	6,677.2	128.4	133.5	89.59	-6,222.4	19.5	456.7	194.8	261.90	1.744					
13,100.0	6,635.0	6,677.0	6,677.0	130.3	133.5	89.50	-6,222.4	19.5	552.8	288.9	263.80	2.095					
13,200.0	6,634.8	6,676.8	6,676.8	132.2	133.5	89.41	-6,222.4	19.5	650.0	384.3	265.70	2.446					
13,300.0	6,634.5	6,676.5	6,676.5	134.1	133.5	89.31	-6,222.4	19.5	748.0	480.4	267.60	2.795					
13,400.0	6,634.3	6,676.3	6,676.3	136.0	133.5	89.22	-6,222.4	19.5	846.4	576.9	269.50	3.141					
13,500.0	6,634.1	6,676.1	6,676.1	137.9	133.5	89.13	-6,222.4	19.5	945.2	673.8	271.40	3.483					
13,537.8	6,634.0	6,676.0	6,676.0	138.7	133.5	89.09	-6,222.4	19.5	982.6	710.5	272.12	3.611					

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 #2 (2-11-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4649.0ft (RKB - 15')

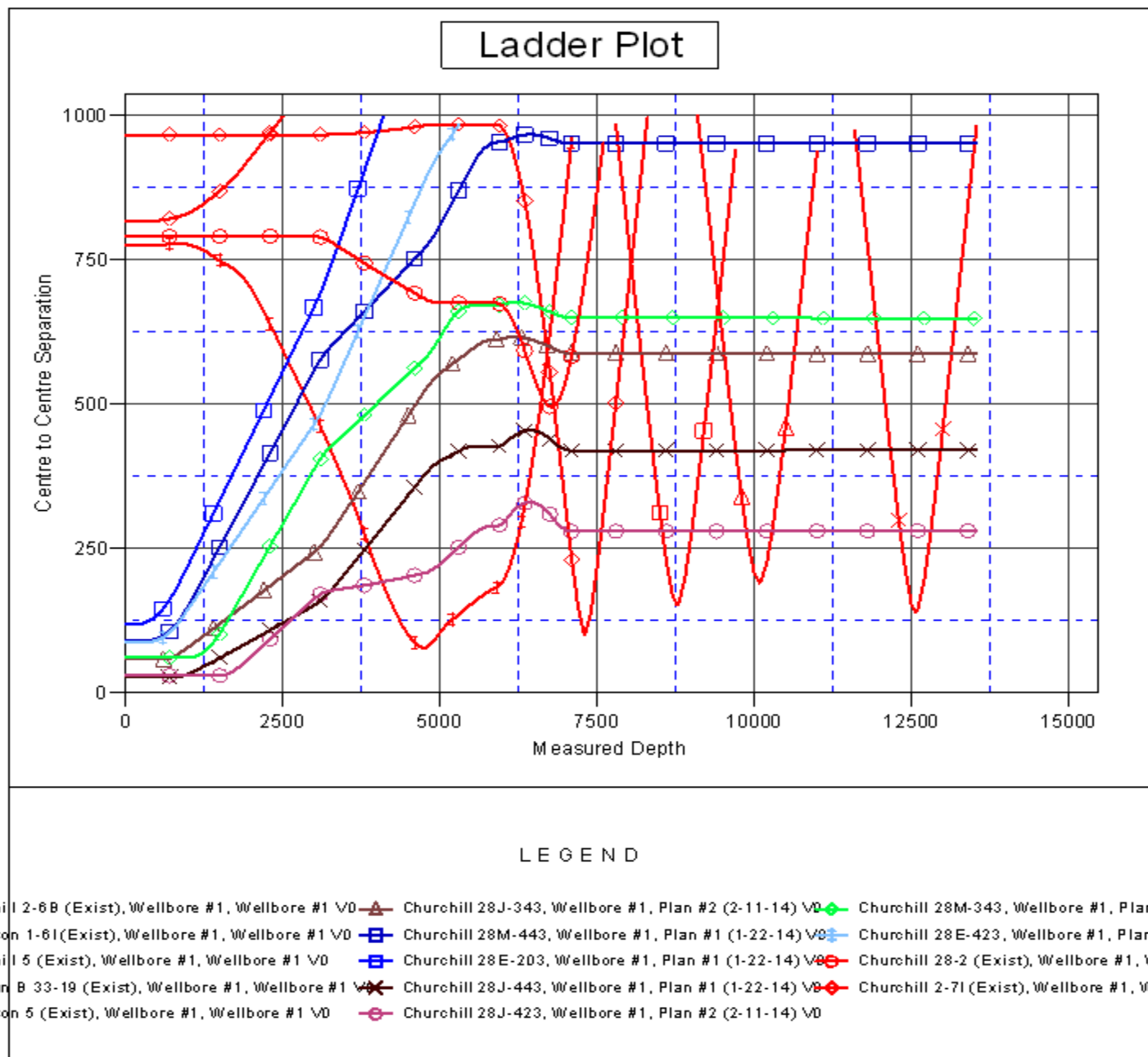
Offset Depths are relative to Offset Datum

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
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
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Reference Depths are relative to WELL @ 4649.0ft (RKB - 15')

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Central Meridian is -105.500000 °

Coordinates are relative to: Churchill 28J-203

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