

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Churchill 28E-423**

Surface Location: Churchill 28J-HZ Pad Sec.28-T5N-R64W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4635.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1381533.75	3261934.18	40.376900	-104.559820	
RKB - 15' WELL @ 4650.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 250'FNL, 1245'FWL, SEC.28	1.0	0.0	0.0	Point
BHL 2143'FNL, 405'FWL, SEC.33	6805.0	-7195.1	-794.3	Point



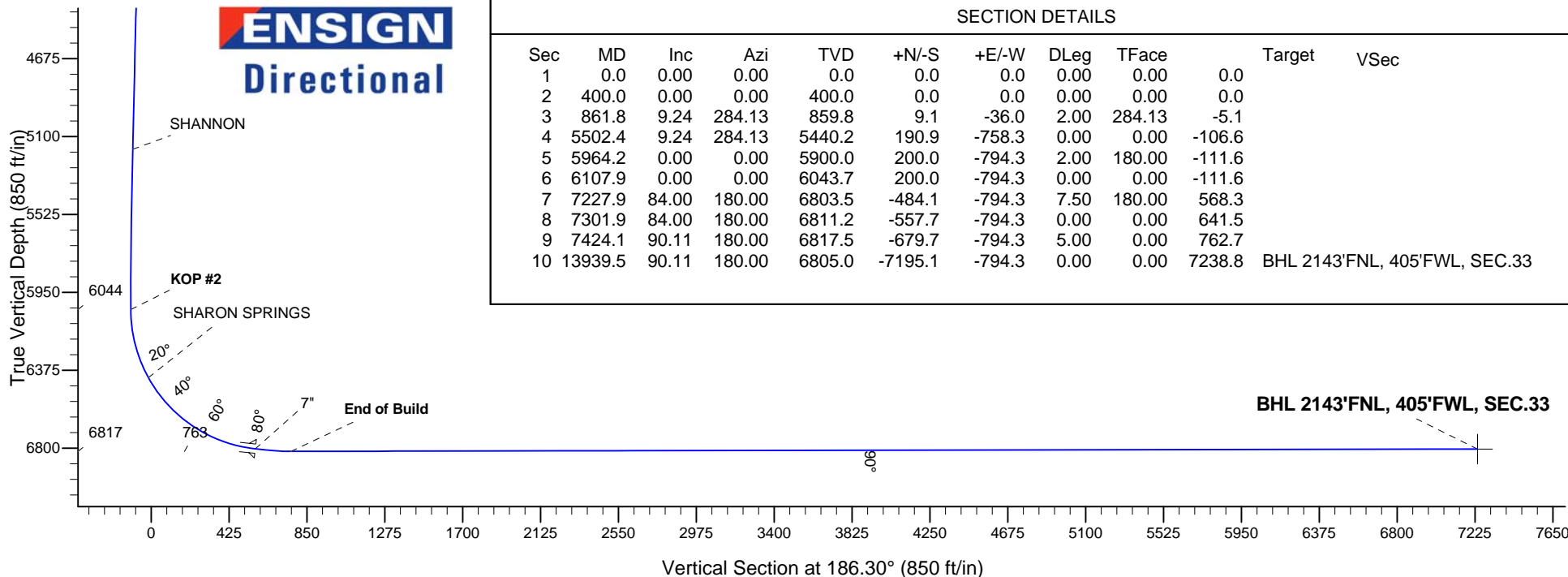
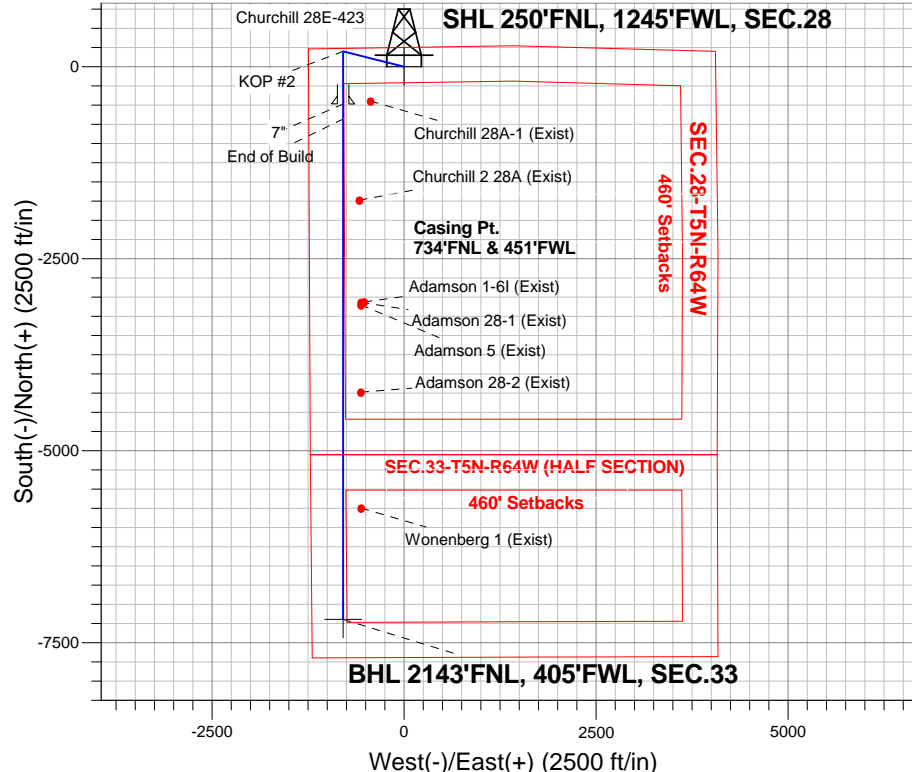
Azimuths to True North  
 Magnetic North: 8.41°

Magnetic Field  
 Strength: 52874.3snT  
 Dip Angle: 66.98°  
 Date: 12/30/2013  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6043.7	6107.9	KOP #2
6817.5	7424.1	End of Build

Churchill 28J-HZ Pad Sec.28-T5N-R64W  
 Churchill 28E-423  
 Plan #1 (12-30-13)  
 13:17, January 09 2014



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	861.8	9.24	284.13	859.8	9.1	-36.0	2.00	284.13	-5.1	
4	5502.4	9.24	284.13	5440.2	190.9	-758.3	0.00	0.00	-106.6	
5	5964.2	0.00	0.00	5900.0	200.0	-794.3	2.00	180.00	-111.6	
6	6107.9	0.00	0.00	6043.7	200.0	-794.3	0.00	0.00	-111.6	
7	7227.9	84.00	180.00	6803.5	-484.1	-794.3	7.50	180.00	568.3	
8	7301.9	84.00	180.00	6811.2	-557.7	-794.3	0.00	0.00	641.5	
9	7424.1	90.11	180.00	6817.5	-679.7	-794.3	5.00	0.00	762.7	
10	13939.5	90.11	180.00	6805.0	-7195.1	-794.3	0.00	0.00	7238.8	BHL 2143'FNL, 405'FWL, SEC.33



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.28-T5N-R64W**

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

**Churchill 28E-423**

**Wellbore #1**

**Plan: Plan #1 (12-30-13)**

## **Standard Planning Report**

**08 January, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Project:</b>	SEC.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-30-13)		

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

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

Well	Churchill 28E-423					
Well Position	+N/-S	0.0 ft	Northing:	1,381,533.75 ft	Latitude:	40.376900
	+E/-W	30.6 ft	Easting:	3,261,934.18 ft	Longitude:	-104.559820
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,635.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/30/2013	8.41	66.98	52,874

<b>Design</b>	Plan #1 (12-30-13)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	186.30

<b>Plan Sections</b>										
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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
861.8	9.24	284.13	859.8	9.1	-36.0	2.00	2.00	0.00	284.13	
5,502.4	9.24	284.13	5,440.2	190.9	-758.3	0.00	0.00	0.00	0.00	
5,964.2	0.00	0.00	5,900.0	200.0	-794.3	2.00	-2.00	0.00	180.00	
6,107.9	0.00	0.00	6,043.7	200.0	-794.3	0.00	0.00	0.00	0.00	
7,227.9	84.00	180.00	6,803.5	-484.1	-794.3	7.50	7.50	0.00	180.00	
7,301.9	84.00	180.00	6,811.2	-557.7	-794.3	0.00	0.00	0.00	0.00	
7,424.1	90.11	180.00	6,817.5	-679.7	-794.3	5.00	5.00	0.00	0.00	
13,939.5	90.11	180.00	6,805.0	-7,195.1	-794.3	0.00	0.00	0.00	0.00	BHL 2143'FNL, 405

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Project:</b>	SEC.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-30-13)		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL 250'FNL, 1245'FWL, SEC.28</b>									
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
<b>KOP #1</b>									
500.0	2.00	284.13	500.0	0.4	-1.7	-0.2	2.00	2.00	0.00
600.0	4.00	284.13	599.8	1.7	-6.8	-1.0	2.00	2.00	0.00
700.0	6.00	284.13	699.5	3.8	-15.2	-2.1	2.00	2.00	0.00
800.0	8.00	284.13	798.7	6.8	-27.0	-3.8	2.00	2.00	0.00
861.8	9.24	284.13	859.8	9.1	-36.0	-5.1	2.00	2.00	0.00
900.0	9.24	284.13	897.5	10.6	-42.0	-5.9	0.00	0.00	0.00
1,000.0	9.24	284.13	996.2	14.5	-57.5	-8.1	0.00	0.00	0.00
1,100.0	9.24	284.13	1,094.9	18.4	-73.1	-10.3	0.00	0.00	0.00
1,200.0	9.24	284.13	1,193.6	22.3	-88.7	-12.5	0.00	0.00	0.00
1,300.0	9.24	284.13	1,292.3	26.2	-104.2	-14.6	0.00	0.00	0.00
1,400.0	9.24	284.13	1,391.0	30.2	-119.8	-16.8	0.00	0.00	0.00
1,500.0	9.24	284.13	1,489.7	34.1	-135.3	-19.0	0.00	0.00	0.00
1,600.0	9.24	284.13	1,588.4	38.0	-150.9	-21.2	0.00	0.00	0.00
1,700.0	9.24	284.13	1,687.1	41.9	-166.5	-23.4	0.00	0.00	0.00
1,800.0	9.24	284.13	1,785.8	45.8	-182.0	-25.6	0.00	0.00	0.00
1,900.0	9.24	284.13	1,884.5	49.8	-197.6	-27.8	0.00	0.00	0.00
2,000.0	9.24	284.13	1,983.2	53.7	-213.2	-30.0	0.00	0.00	0.00
2,100.0	9.24	284.13	2,082.0	57.6	-228.7	-32.1	0.00	0.00	0.00
2,200.0	9.24	284.13	2,180.7	61.5	-244.3	-34.3	0.00	0.00	0.00
2,300.0	9.24	284.13	2,279.4	65.4	-259.9	-36.5	0.00	0.00	0.00
2,400.0	9.24	284.13	2,378.1	69.4	-275.4	-38.7	0.00	0.00	0.00
2,500.0	9.24	284.13	2,476.8	73.3	-291.0	-40.9	0.00	0.00	0.00
2,600.0	9.24	284.13	2,575.5	77.2	-306.6	-43.1	0.00	0.00	0.00
2,700.0	9.24	284.13	2,674.2	81.1	-322.1	-45.3	0.00	0.00	0.00
2,800.0	9.24	284.13	2,772.9	85.0	-337.7	-47.5	0.00	0.00	0.00
2,900.0	9.24	284.13	2,871.6	88.9	-353.2	-49.6	0.00	0.00	0.00
3,000.0	9.24	284.13	2,970.3	92.9	-368.8	-51.8	0.00	0.00	0.00
3,100.0	9.24	284.13	3,069.0	96.8	-384.4	-54.0	0.00	0.00	0.00
3,200.0	9.24	284.13	3,167.7	100.7	-399.9	-56.2	0.00	0.00	0.00
3,300.0	9.24	284.13	3,266.4	104.6	-415.5	-58.4	0.00	0.00	0.00
3,400.0	9.24	284.13	3,365.1	108.5	-431.1	-60.6	0.00	0.00	0.00
3,500.0	9.24	284.13	3,463.8	112.5	-446.6	-62.8	0.00	0.00	0.00
3,587.3	9.24	284.13	3,550.0	115.9	-460.2	-64.7	0.00	0.00	0.00
<b>PARKMAN</b>									
3,600.0	9.24	284.13	3,562.5	116.4	-462.2	-65.0	0.00	0.00	0.00
3,700.0	9.24	284.13	3,661.2	120.3	-477.8	-67.1	0.00	0.00	0.00
3,800.0	9.24	284.13	3,759.9	124.2	-493.3	-69.3	0.00	0.00	0.00
3,900.0	9.24	284.13	3,858.6	128.1	-508.9	-71.5	0.00	0.00	0.00
4,000.0	9.24	284.13	3,957.3	132.1	-524.4	-73.7	0.00	0.00	0.00
4,100.0	9.24	284.13	4,056.0	136.0	-540.0	-75.9	0.00	0.00	0.00
4,200.0	9.24	284.13	4,154.7	139.9	-555.6	-78.1	0.00	0.00	0.00
4,210.4	9.24	284.13	4,165.0	140.3	-557.2	-78.3	0.00	0.00	0.00
<b>SUSSEX</b>									
4,300.0	9.24	284.13	4,253.4	143.8	-571.1	-80.3	0.00	0.00	0.00
4,400.0	9.24	284.13	4,352.1	147.7	-586.7	-82.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Project:</b>	SEC.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-30-13)		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	9.24	284.13	4,450.8	151.6	-602.3	-84.6	0.00	0.00	0.00
4,600.0	9.24	284.13	4,549.5	155.6	-617.8	-86.8	0.00	0.00	0.00
4,700.0	9.24	284.13	4,648.2	159.5	-633.4	-89.0	0.00	0.00	0.00
4,800.0	9.24	284.13	4,746.9	163.4	-649.0	-91.2	0.00	0.00	0.00
4,900.0	9.24	284.13	4,845.7	167.3	-664.5	-93.4	0.00	0.00	0.00
5,000.0	9.24	284.13	4,944.4	171.2	-680.1	-95.6	0.00	0.00	0.00
5,100.0	9.24	284.13	5,043.1	175.2	-695.7	-97.8	0.00	0.00	0.00
5,200.0	9.24	284.13	5,141.8	179.1	-711.2	-100.0	0.00	0.00	0.00
5,228.6	9.24	284.13	5,170.0	180.2	-715.7	-100.6	0.00	0.00	0.00
<b>SHANNON</b>									
5,300.0	9.24	284.13	5,240.5	183.0	-726.8	-102.1	0.00	0.00	0.00
5,400.0	9.24	284.13	5,339.2	186.9	-742.3	-104.3	0.00	0.00	0.00
5,500.0	9.24	284.13	5,437.9	190.8	-757.9	-106.5	0.00	0.00	0.00
5,502.4	9.24	284.13	5,440.2	190.9	-758.3	-106.6	0.00	0.00	0.00
5,600.0	7.28	284.13	5,536.8	194.4	-771.9	-108.5	2.00	-2.00	0.00
5,700.0	5.28	284.13	5,636.2	197.0	-782.5	-110.0	2.00	-2.00	0.00
5,800.0	3.28	284.13	5,735.9	198.9	-789.7	-111.0	2.00	-2.00	0.00
5,900.0	1.28	284.13	5,835.9	199.8	-793.6	-111.5	2.00	-2.00	0.00
5,964.2	0.00	0.00	5,900.0	200.0	-794.3	-111.6	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,935.8	200.0	-794.3	-111.6	0.00	0.00	0.00
6,100.0	0.00	0.00	6,035.8	200.0	-794.3	-111.6	0.00	0.00	0.00
6,107.9	0.00	0.00	6,043.7	200.0	-794.3	-111.6	0.00	0.00	0.00
<b>KOP #2</b>									
6,200.0	6.91	180.00	6,135.6	194.5	-794.3	-106.1	7.50	7.50	0.00
6,300.0	14.41	180.00	6,233.8	176.0	-794.3	-87.8	7.50	7.50	0.00
6,400.0	21.91	180.00	6,328.8	144.8	-794.3	-56.8	7.50	7.50	0.00
6,496.7	29.16	180.00	6,416.0	103.2	-794.3	-15.4	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
6,500.0	29.41	180.00	6,418.9	101.6	-794.3	-13.8	7.50	7.50	0.00
6,600.0	36.91	180.00	6,502.5	46.9	-794.3	40.5	7.50	7.50	0.00
6,700.0	44.41	180.00	6,578.3	-18.2	-794.3	105.2	7.50	7.50	0.00
6,800.0	51.91	180.00	6,645.0	-92.6	-794.3	179.2	7.50	7.50	0.00
6,900.0	59.41	180.00	6,701.4	-175.2	-794.3	261.3	7.50	7.50	0.00
7,000.0	66.91	180.00	6,746.5	-264.3	-794.3	349.9	7.50	7.50	0.00
7,100.0	74.41	180.00	6,779.6	-358.6	-794.3	443.6	7.50	7.50	0.00
7,200.0	81.91	180.00	6,800.1	-456.4	-794.3	540.8	7.50	7.50	0.00
7,227.9	84.00	180.00	6,803.5	-484.1	-794.3	568.3	7.50	7.50	0.00
<b>7"</b>									
7,300.0	84.00	180.00	6,811.0	-555.8	-794.3	639.6	0.00	0.00	0.00
7,301.9	84.00	180.00	6,811.2	-557.7	-794.3	641.5	0.00	0.00	0.00
7,400.0	88.91	180.00	6,817.3	-655.6	-794.3	738.8	5.00	5.00	0.00
7,424.1	90.11	180.00	6,817.5	-679.7	-794.3	762.7	5.00	5.00	0.00
<b>End of Build</b>									
7,500.0	90.11	180.00	6,817.4	-755.6	-794.3	838.2	0.00	0.00	0.00
7,600.0	90.11	180.00	6,817.2	-855.6	-794.3	937.6	0.00	0.00	0.00
7,700.0	90.11	180.00	6,817.0	-955.6	-794.3	1,037.0	0.00	0.00	0.00
7,800.0	90.11	180.00	6,816.8	-1,055.6	-794.3	1,136.4	0.00	0.00	0.00
7,900.0	90.11	180.00	6,816.6	-1,155.6	-794.3	1,235.7	0.00	0.00	0.00
8,000.0	90.11	180.00	6,816.4	-1,255.6	-794.3	1,335.1	0.00	0.00	0.00
8,100.0	90.11	180.00	6,816.2	-1,355.6	-794.3	1,434.5	0.00	0.00	0.00
8,200.0	90.11	180.00	6,816.0	-1,455.6	-794.3	1,533.9	0.00	0.00	0.00
8,300.0	90.11	180.00	6,815.8	-1,555.6	-794.3	1,633.3	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Project:</b>	SEC.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-30-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.0	90.11	180.00	6,815.6	-1,655.6	-794.3	1,732.7	0.00	0.00	0.00
8,500.0	90.11	180.00	6,815.4	-1,755.6	-794.3	1,832.1	0.00	0.00	0.00
8,600.0	90.11	180.00	6,815.3	-1,855.6	-794.3	1,931.5	0.00	0.00	0.00
8,700.0	90.11	180.00	6,815.1	-1,955.6	-794.3	2,030.9	0.00	0.00	0.00
8,800.0	90.11	180.00	6,814.9	-2,055.6	-794.3	2,130.3	0.00	0.00	0.00
8,900.0	90.11	180.00	6,814.7	-2,155.6	-794.3	2,229.7	0.00	0.00	0.00
9,000.0	90.11	180.00	6,814.5	-2,255.6	-794.3	2,329.1	0.00	0.00	0.00
9,100.0	90.11	180.00	6,814.3	-2,355.6	-794.3	2,428.5	0.00	0.00	0.00
9,200.0	90.11	180.00	6,814.1	-2,455.6	-794.3	2,527.9	0.00	0.00	0.00
9,300.0	90.11	180.00	6,813.9	-2,555.6	-794.3	2,627.3	0.00	0.00	0.00
9,400.0	90.11	180.00	6,813.7	-2,655.6	-794.3	2,726.7	0.00	0.00	0.00
9,500.0	90.11	180.00	6,813.5	-2,755.6	-794.3	2,826.1	0.00	0.00	0.00
9,600.0	90.11	180.00	6,813.3	-2,855.6	-794.3	2,925.5	0.00	0.00	0.00
9,700.0	90.11	180.00	6,813.1	-2,955.6	-794.3	3,024.9	0.00	0.00	0.00
9,800.0	90.11	180.00	6,812.9	-3,055.6	-794.3	3,124.3	0.00	0.00	0.00
9,900.0	90.11	180.00	6,812.8	-3,155.6	-794.3	3,223.7	0.00	0.00	0.00
10,000.0	90.11	180.00	6,812.6	-3,255.6	-794.3	3,323.1	0.00	0.00	0.00
10,100.0	90.11	180.00	6,812.4	-3,355.6	-794.3	3,422.5	0.00	0.00	0.00
10,200.0	90.11	180.00	6,812.2	-3,455.6	-794.3	3,521.9	0.00	0.00	0.00
10,300.0	90.11	180.00	6,812.0	-3,555.6	-794.3	3,621.3	0.00	0.00	0.00
10,400.0	90.11	180.00	6,811.8	-3,655.6	-794.3	3,720.6	0.00	0.00	0.00
10,500.0	90.11	180.00	6,811.6	-3,755.6	-794.3	3,820.0	0.00	0.00	0.00
10,600.0	90.11	180.00	6,811.4	-3,855.6	-794.3	3,919.4	0.00	0.00	0.00
10,700.0	90.11	180.00	6,811.2	-3,955.6	-794.3	4,018.8	0.00	0.00	0.00
10,800.0	90.11	180.00	6,811.0	-4,055.6	-794.3	4,118.2	0.00	0.00	0.00
10,900.0	90.11	180.00	6,810.8	-4,155.6	-794.3	4,217.6	0.00	0.00	0.00
11,000.0	90.11	180.00	6,810.6	-4,255.6	-794.3	4,317.0	0.00	0.00	0.00
11,100.0	90.11	180.00	6,810.5	-4,355.6	-794.3	4,416.4	0.00	0.00	0.00
11,200.0	90.11	180.00	6,810.3	-4,455.6	-794.3	4,515.8	0.00	0.00	0.00
11,300.0	90.11	180.00	6,810.1	-4,555.6	-794.3	4,615.2	0.00	0.00	0.00
11,400.0	90.11	180.00	6,809.9	-4,655.6	-794.3	4,714.6	0.00	0.00	0.00
11,500.0	90.11	180.00	6,809.7	-4,755.6	-794.3	4,814.0	0.00	0.00	0.00
11,600.0	90.11	180.00	6,809.5	-4,855.6	-794.3	4,913.4	0.00	0.00	0.00
11,700.0	90.11	180.00	6,809.3	-4,955.6	-794.3	5,012.8	0.00	0.00	0.00
11,800.0	90.11	180.00	6,809.1	-5,055.6	-794.3	5,112.2	0.00	0.00	0.00
11,900.0	90.11	180.00	6,808.9	-5,155.6	-794.3	5,211.6	0.00	0.00	0.00
12,000.0	90.11	180.00	6,808.7	-5,255.6	-794.3	5,311.0	0.00	0.00	0.00
12,100.0	90.11	180.00	6,808.5	-5,355.6	-794.3	5,410.4	0.00	0.00	0.00
12,200.0	90.11	180.00	6,808.3	-5,455.6	-794.3	5,509.8	0.00	0.00	0.00
12,300.0	90.11	180.00	6,808.1	-5,555.6	-794.3	5,609.2	0.00	0.00	0.00
12,400.0	90.11	180.00	6,808.0	-5,655.6	-794.3	5,708.6	0.00	0.00	0.00
12,500.0	90.11	180.00	6,807.8	-5,755.6	-794.3	5,808.0	0.00	0.00	0.00
12,600.0	90.11	180.00	6,807.6	-5,855.6	-794.3	5,907.4	0.00	0.00	0.00
12,700.0	90.11	180.00	6,807.4	-5,955.6	-794.3	6,006.8	0.00	0.00	0.00
12,800.0	90.11	180.00	6,807.2	-6,055.6	-794.3	6,106.2	0.00	0.00	0.00
12,900.0	90.11	180.00	6,807.0	-6,155.6	-794.3	6,205.5	0.00	0.00	0.00
13,000.0	90.11	180.00	6,806.8	-6,255.6	-794.3	6,304.9	0.00	0.00	0.00
13,100.0	90.11	180.00	6,806.6	-6,355.6	-794.3	6,404.3	0.00	0.00	0.00
13,200.0	90.11	180.00	6,806.4	-6,455.6	-794.3	6,503.7	0.00	0.00	0.00
13,300.0	90.11	180.00	6,806.2	-6,555.6	-794.3	6,603.1	0.00	0.00	0.00
13,400.0	90.11	180.00	6,806.0	-6,655.6	-794.3	6,702.5	0.00	0.00	0.00
13,500.0	90.11	180.00	6,805.8	-6,755.6	-794.3	6,801.9	0.00	0.00	0.00
13,600.0	90.11	180.00	6,805.7	-6,855.6	-794.3	6,901.3	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Project:</b>	SEC.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-30-13)		

#### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,700.0	90.11	180.00	6,805.5	-6,955.6	-794.3	7,000.7	0.00	0.00	0.00
13,800.0	90.11	180.00	6,805.3	-7,055.6	-794.3	7,100.1	0.00	0.00	0.00
13,900.0	90.11	180.00	6,805.1	-7,155.6	-794.3	7,199.5	0.00	0.00	0.00
13,939.5	90.11	180.00	6,805.0	-7,195.1	-794.3	7,238.8	0.00	0.00	0.00
BHL 2143'FNL, 405'FWL, SEC.33									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,227.9	6,803.5	7"	7	7-1/2

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,587.3	3,550.0	PARKMAN			
4,210.4	4,165.0	SUSSEX			
5,228.6	5,170.0	SHANNON			
6,496.7	6,416.0	SHARON SPRINGS			

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
400.0	400.0	0.0	0.0	KOP #1
6,107.9	6,043.7	200.0	-794.3	KOP #2
7,424.1	6,817.5	-679.7	-794.3	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.28-T5N-R64W**

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

**Churchill 28E-423**

**Wellbore #1**

**Plan #1 (12-30-13)**

## **Anticollision Report**

**08 January, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

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

<b>Survey Tool Program</b>	<b>Date</b>	1/6/2014		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	13,939.5	Plan #1 (12-30-13) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Churchill 28J-HZ Pad Sec.28-T5N-R64W						
Churchill 28E-203 - Wellbore #1 - Plan #1 (12-30-13)	200.0	200.0	30.6	30.0	45.452	CC, ES
Churchill 28E-203 - Wellbore #1 - Plan #1 (12-30-13)	13,939.5	13,837.0	375.0	120.0	1.471	Level 3, SF
Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)	400.0	400.0	30.9	29.3	19.616	CC, ES
Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)	13,939.5	13,828.7	344.3	76.7	1.287	Level 3, SF
Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)	400.0	399.0	61.4	59.8	39.083	CC, ES
Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)	13,939.5	13,887.7	657.7	378.4	2.355	SF
Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W						
Adamson 1-6I (Exist) - Wellbore #1 - Wellbore #1	9,808.3	6,835.9	276.0	77.8	1.392	Level 3, CC, ES, SF
Adamson 28-1 (Exist) - Wellbore #1 - Wellbore #1	9,811.9	6,835.9	237.0	38.7	1.195	Level 2, CC, ES, SF
Adamson 28-2 (Exist) - Wellbore #1 - Wellbore #1	10,981.4	6,834.7	231.4	11.2	1.051	Level 2, CC, ES, SF
Adamson 5 (Exist) - Wellbore #1 - Wellbore #1	9,848.4	6,836.9	234.2	35.2	1.177	Level 2, CC, ES, SF
Churchill 2 28A (Exist) - Wellbore #1 - Wellbore #1	8,482.2	6,822.5	214.7	40.8	1.235	Level 2, CC, ES, SF
Churchill 28A-1 (Exist) - Wellbore #1 - Wellbore #1	7,191.6	6,799.8	359.6	205.4	2.332	CC
Churchill 28A-1 (Exist) - Wellbore #1 - Wellbore #1	7,200.0	6,801.1	359.7	205.4	2.331	ES, SF
Wonenberg 1 (Exist) - Wellbore #1 - Wellbore #1	12,493.2	6,856.8	236.9	-12.3	0.950	Level 1, CC
Wonenberg 1 (Exist) - Wellbore #1 - Wellbore #1	12,500.0	6,856.8	237.0	-12.4	0.950	Level 1, ES, SF

<b>Offset Design</b> Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #1 (12-30-13)											
Survey Program: 0-MWD											
Reference											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-30.6	30.6	30.4	0.22
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-30.6	30.6	30.0	0.67
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-30.6	30.6	30.0	0.67
300.0	300.0	298.9	298.9	0.6	0.6	-89.45	0.3	-32.3	32.3	31.2	1.11
400.0	400.0	397.6	397.4	0.8	0.8	-88.12	1.2	-37.3	37.5	35.9	1.56
500.0	500.0	496.0	495.5	1.0	1.0	-11.08	2.7	-45.7	44.3	42.3	2.00
600.0	599.8	594.1	592.9	1.2	1.3	-10.48	4.9	-57.3	51.1	48.7	2.43
700.0	699.5	692.0	689.6	1.5	1.6	-10.24	7.6	-72.1	57.9	55.0	2.88
800.0	798.7	789.7	785.6	1.7	2.0	-10.25	10.9	-90.2	64.6	61.3	3.34
900.0	897.5	888.2	881.7	2.0	2.4	-10.45	14.7	-111.3	71.2	67.4	3.82

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #1 (12-30-13)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
1,000.0	996.2	988.0	978.9	2.4	2.9	-10.67	18.7	-133.2	77.8	73.5	4.32	18.008			
1,100.0	1,094.9	1,087.8	1,076.2	2.7	3.4	-10.85	22.7	-155.2	84.3	79.5	4.83	17.477			
1,200.0	1,193.6	1,187.6	1,173.5	3.1	3.8	-11.00	26.8	-177.2	90.9	85.5	5.34	17.029			
1,300.0	1,292.3	1,287.4	1,270.7	3.4	4.3	-11.14	30.8	-199.1	97.4	91.6	5.85	16.651			
1,400.0	1,391.0	1,387.1	1,368.0	3.8	4.8	-11.26	34.8	-221.1	104.0	97.6	6.37	16.320			
1,500.0	1,489.7	1,486.9	1,465.2	4.2	5.3	-11.36	38.8	-243.0	110.6	103.7	6.89	16.035			
1,600.0	1,588.4	1,586.7	1,562.5	4.5	5.7	-11.45	42.8	-265.0	117.1	109.7	7.42	15.785			
1,700.0	1,687.1	1,686.5	1,659.7	4.9	6.2	-11.54	46.8	-287.0	123.7	115.7	7.94	15.565			
1,800.0	1,785.8	1,786.3	1,757.0	5.3	6.7	-11.61	50.8	-308.9	130.2	121.7	8.47	15.371			
1,900.0	1,884.5	1,886.1	1,854.2	5.7	7.2	-11.68	54.8	-330.9	136.8	127.8	9.00	15.197			
2,000.0	1,983.2	1,985.8	1,951.5	6.0	7.7	-11.74	58.8	-352.8	143.3	133.8	9.53	15.040			
2,100.0	2,082.0	2,085.6	2,048.8	6.4	8.2	-11.80	62.8	-374.8	149.9	139.8	10.06	14.899			
2,200.0	2,180.7	2,185.4	2,146.0	6.8	8.7	-11.85	66.9	-396.8	156.4	145.9	10.59	14.772			
2,300.0	2,279.4	2,285.2	2,243.3	7.2	9.2	-11.89	70.9	-418.7	163.0	151.9	11.12	14.655			
2,400.0	2,378.1	2,385.0	2,340.5	7.5	9.6	-11.94	74.9	-440.7	169.6	157.9	11.65	14.549			
2,500.0	2,476.8	2,484.8	2,437.8	7.9	10.1	-11.98	78.9	-462.6	176.1	163.9	12.19	14.451			
2,600.0	2,575.5	2,584.6	2,535.0	8.3	10.6	-12.01	82.9	-484.6	182.7	169.9	12.72	14.361			
2,700.0	2,674.2	2,684.3	2,632.3	8.7	11.1	-12.05	86.9	-506.6	189.2	176.0	13.25	14.278			
2,800.0	2,772.9	2,784.1	2,729.5	9.0	11.6	-12.08	90.9	-528.5	195.8	182.0	13.79	14.201			
2,900.0	2,871.6	2,883.9	2,826.8	9.4	12.1	-12.11	94.9	-550.5	202.3	188.0	14.32	14.129			
3,000.0	2,970.3	2,983.7	2,924.1	9.8	12.6	-12.14	98.9	-572.4	208.9	194.0	14.85	14.063			
3,100.0	3,069.0	3,083.5	3,021.3	10.2	13.1	-12.17	102.9	-594.4	215.5	200.1	15.39	14.000			
3,200.0	3,167.7	3,183.3	3,118.6	10.6	13.5	-12.19	107.0	-616.4	222.0	206.1	15.92	13.942			
3,300.0	3,266.4	3,283.0	3,215.8	10.9	14.0	-12.21	111.0	-638.3	228.6	212.1	16.46	13.887			
3,400.0	3,365.1	3,382.8	3,313.1	11.3	14.5	-12.24	115.0	-660.3	235.1	218.1	16.99	13.836			
3,500.0	3,463.8	3,482.6	3,410.3	11.7	15.0	-12.26	119.0	-682.2	241.7	224.2	17.53	13.788			
3,600.0	3,562.5	3,582.4	3,507.6	12.1	15.5	-12.28	123.0	-704.2	248.2	230.2	18.06	13.742			
3,700.0	3,661.2	3,682.2	3,604.8	12.5	16.0	-12.30	127.0	-726.1	254.8	236.2	18.60	13.699			
3,800.0	3,759.9	3,782.0	3,702.1	12.8	16.5	-12.31	131.0	-748.1	261.4	242.2	19.13	13.658			
3,900.0	3,858.6	3,881.8	3,799.4	13.2	17.0	-12.33	135.0	-770.1	267.9	248.2	19.67	13.620			
4,000.0	3,957.3	3,981.5	3,896.6	13.6	17.5	-12.35	139.0	-792.0	274.5	254.3	20.21	13.583			
4,100.0	4,056.0	4,081.3	3,993.9	14.0	18.0	-12.36	143.0	-814.0	281.0	260.3	20.74	13.548			
4,200.0	4,154.7	4,181.1	4,091.1	14.4	18.4	-12.38	147.1	-835.9	287.6	266.3	21.28	13.515			
4,300.0	4,253.4	4,280.9	4,188.4	14.7	18.9	-12.39	151.1	-857.9	294.1	272.3	21.81	13.484			
4,400.0	4,352.1	4,380.7	4,285.6	15.1	19.4	-12.41	155.1	-879.9	300.7	278.3	22.35	13.454			
4,500.0	4,450.8	4,480.5	4,382.9	15.5	19.9	-12.42	159.1	-901.8	307.3	284.4	22.89	13.425			
4,600.0	4,549.5	4,580.2	4,480.2	15.9	20.4	-12.43	163.1	-923.8	313.8	290.4	23.42	13.398			
4,700.0	4,648.2	4,680.0	4,577.4	16.3	20.9	-12.44	167.1	-945.7	320.4	296.4	23.96	13.372			
4,800.0	4,746.9	4,779.8	4,674.7	16.6	21.4	-12.45	171.1	-967.7	326.9	302.4	24.50	13.346			
4,900.0	4,845.7	4,879.6	4,771.9	17.0	21.9	-12.47	175.1	-989.7	333.5	308.5	25.03	13.322			
5,000.0	4,944.4	4,979.4	4,869.2	17.4	22.4	-12.48	179.1	-1,011.6	340.0	314.5	25.57	13.299			
5,100.0	5,043.1	5,079.2	4,966.4	17.8	22.8	-12.49	183.1	-1,033.6	346.6	320.5	26.10	13.277			
5,200.0	5,141.8	5,179.6	5,064.3	18.2	23.3	-12.50	187.2	-1,055.7	353.2	326.5	26.64	13.255			
5,300.0	5,240.5	5,293.5	5,175.8	18.5	23.7	-12.57	191.3	-1,078.4	357.6	330.4	27.17	13.160			
5,400.0	5,339.2	5,407.5	5,288.4	18.9	24.1	-12.75	194.7	-1,096.7	358.1	330.4	27.69	12.931			
5,500.0	5,437.9	5,521.5	5,401.4	19.3	24.3	-13.05	197.2	-1,110.6	354.6	326.4	28.20	12.573			
5,600.0	5,536.8	5,635.0	5,514.6	19.6	24.6	-13.38	198.9	-1,120.0	348.9	320.2	28.65	12.178			
5,700.0	5,636.2	5,748.3	5,627.7	19.8	24.7	-13.69	199.8	-1,125.0	342.7	313.7	29.01	11.812			
5,800.0	5,735.9	5,856.6	5,735.9	20.0	24.8	-13.96	200.0	-1,125.9	336.2	306.9	29.32	11.468			
5,900.0	5,835.9	5,956.5	5,835.9	20.2	24.9	-14.11	200.0	-1,125.9	332.3	302.8	29.56	11.242			
5,991.7	5,927.5	6,048.1	5,927.4	20.3	25.0	-14.35	198.9	-1,125.9	331.3	301.4	29.82	11.109			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,000.0	5,935.8	6,056.4	5,935.7	20.3	25.0	-90.28		198.4	-1,125.9	331.6	301.8	29.85	11.112	
6,100.0	6,035.8	6,154.6	6,033.0	20.4	25.1	-92.47		185.7	-1,125.9	332.0	301.5	30.44	10.907	
6,200.0	6,135.6	6,250.0	6,125.3	20.5	25.2	84.15		161.5	-1,125.9	333.4	302.2	31.20	10.689	
6,300.0	6,233.8	6,342.3	6,210.9	20.6	25.2	80.95		127.3	-1,125.9	336.0	304.1	31.85	10.549	
6,400.0	6,328.8	6,433.1	6,290.7	20.7	25.2	77.95		83.9	-1,125.9	339.3	307.0	32.32	10.499	
6,500.0	6,418.9	6,522.3	6,363.4	20.7	25.2	75.20		32.3	-1,125.9	343.3	310.7	32.57	10.540	
6,600.0	6,502.5	6,610.0	6,428.5	20.8	25.3	72.74		-26.4	-1,125.9	347.6	315.0	32.63	10.653	
6,700.0	6,578.3	6,696.5	6,485.8	20.8	25.3	70.59		-91.1	-1,125.9	351.9	319.4	32.59	10.799	
6,800.0	6,645.0	6,782.0	6,534.8	20.9	25.4	68.76		-161.0	-1,125.9	356.1	323.5	32.59	10.926	
6,900.0	6,701.4	6,866.5	6,575.3	21.1	25.6	67.25		-235.2	-1,125.9	359.8	327.0	32.81	10.968	
7,000.0	6,746.5	6,950.0	6,607.1	21.4	25.8	66.08		-312.4	-1,125.9	362.9	329.5	33.42	10.859	
7,100.0	6,779.6	7,033.9	6,630.3	21.8	26.1	65.23		-392.9	-1,125.9	365.3	330.7	34.60	10.558	
7,200.0	6,800.1	7,116.9	6,644.4	22.4	26.5	64.71		-474.7	-1,125.9	366.8	330.4	36.38	10.082	
7,300.0	6,811.0	7,200.0	6,649.6	23.1	26.9	64.15		-557.6	-1,125.9	368.8	330.6	38.20	9.654	
7,400.0	6,817.3	7,297.5	6,649.4	24.0	27.6	63.15		-655.1	-1,125.9	371.7	331.1	40.65	9.145	
7,500.0	6,817.4	7,397.5	6,649.1	25.1	28.4	63.10		-755.1	-1,125.9	371.9	328.8	43.13	8.623	
7,600.0	6,817.2	7,497.5	6,648.8	26.2	29.4	63.09		-855.1	-1,125.9	371.9	326.3	45.62	8.152	
7,700.0	6,817.0	7,597.5	6,648.5	27.5	30.5	63.07		-955.1	-1,125.9	372.0	323.7	48.24	7.711	
7,800.0	6,816.8	7,697.5	6,648.2	28.8	31.6	63.06		-1,055.1	-1,125.9	372.0	321.1	50.96	7.300	
7,900.0	6,816.6	7,797.5	6,647.9	30.2	32.9	63.04		-1,155.1	-1,125.9	372.1	318.3	53.77	6.919	
8,000.0	6,816.4	7,897.5	6,647.6	31.7	34.2	63.03		-1,255.1	-1,125.9	372.1	315.5	56.66	6.568	
8,100.0	6,816.2	7,997.5	6,647.3	33.2	35.6	63.01		-1,355.1	-1,125.9	372.2	312.6	59.60	6.244	
8,200.0	6,816.0	8,097.5	6,647.0	34.8	37.0	63.00		-1,455.1	-1,125.9	372.2	309.6	62.61	5.945	
8,300.0	6,815.8	8,197.5	6,646.7	36.4	38.5	62.98		-1,555.1	-1,125.9	372.3	306.6	65.65	5.670	
8,400.0	6,815.6	8,297.5	6,646.4	38.0	40.0	62.97		-1,655.1	-1,125.9	372.3	303.6	68.74	5.416	
8,500.0	6,815.4	8,397.5	6,646.1	39.7	41.6	62.96		-1,755.1	-1,125.9	372.4	300.5	71.87	5.181	
8,600.0	6,815.3	8,497.5	6,645.8	41.3	43.1	62.94		-1,855.1	-1,125.9	372.4	297.4	75.02	4.964	
8,700.0	6,815.1	8,597.5	6,645.5	43.0	44.8	62.93		-1,955.1	-1,125.9	372.5	294.2	78.20	4.763	
8,800.0	6,814.9	8,697.5	6,645.3	44.7	46.4	62.91		-2,055.1	-1,125.9	372.5	291.1	81.41	4.576	
8,900.0	6,814.7	8,797.5	6,645.0	46.5	48.1	62.90		-2,155.1	-1,125.9	372.5	287.9	84.64	4.402	
9,000.0	6,814.5	8,897.5	6,644.7	48.2	49.8	62.88		-2,255.1	-1,125.9	372.6	284.7	87.88	4.240	
9,100.0	6,814.3	8,997.5	6,644.4	50.0	51.5	62.87		-2,355.1	-1,125.9	372.6	281.5	91.14	4.089	
9,200.0	6,814.1	9,097.5	6,644.1	51.7	53.2	62.86		-2,455.1	-1,125.9	372.7	278.3	94.42	3.947	
9,300.0	6,813.9	9,197.5	6,643.8	53.5	54.9	62.84		-2,555.1	-1,125.9	372.7	275.0	97.71	3.815	
9,400.0	6,813.7	9,297.5	6,643.5	55.3	56.7	62.83		-2,655.1	-1,125.9	372.8	271.8	101.01	3.691	
9,500.0	6,813.5	9,397.5	6,643.2	57.1	58.4	62.81		-2,755.1	-1,125.9	372.8	268.5	104.32	3.574	
9,600.0	6,813.3	9,497.5	6,642.9	58.9	60.2	62.80		-2,855.1	-1,125.9	372.9	265.2	107.64	3.464	
9,700.0	6,813.1	9,597.5	6,642.6	60.7	62.0	62.78		-2,955.1	-1,125.9	372.9	262.0	110.97	3.361	
9,800.0	6,812.9	9,697.5	6,642.3	62.6	63.7	62.77		-3,055.1	-1,125.9	373.0	258.7	114.31	3.263	
9,900.0	6,812.8	9,797.5	6,642.0	64.4	65.5	62.76		-3,155.1	-1,125.9	373.0	255.4	117.65	3.171	
10,000.0	6,812.6	9,897.5	6,641.7	66.2	67.3	62.74		-3,255.1	-1,125.9	373.1	252.1	121.00	3.083	
10,100.0	6,812.4	9,997.5	6,641.4	68.0	69.1	62.73		-3,355.1	-1,125.9	373.1	248.8	124.36	3.000	
10,200.0	6,812.2	10,097.5	6,641.1	69.9	71.0	62.71		-3,455.1	-1,125.9	373.2	245.5	127.72	2.922	
10,300.0	6,812.0	10,197.5	6,640.8	71.7	72.8	62.70		-3,555.1	-1,125.9	373.2	242.1	131.08	2.847	
10,400.0	6,811.8	10,297.5	6,640.5	73.6	74.6	62.68		-3,655.1	-1,125.9	373.3	238.8	134.46	2.776	
10,500.0	6,811.6	10,397.5	6,640.2	75.4	76.4	62.67		-3,755.1	-1,125.9	373.3	235.5	137.83	2.709	
10,600.0	6,811.4	10,497.5	6,639.9	77.3	78.3	62.66		-3,855.1	-1,125.9	373.4	232.2	141.21	2.644	
10,700.0	6,811.2	10,597.5	6,639.6	79.1	80.1	62.64		-3,955.1	-1,125.9	373.4	228.8	144.59	2.583	
10,800.0	6,811.0	10,697.5	6,639.3	81.0	81.9	62.63		-4,055.1	-1,125.9	373.5	225.5	147.97	2.524	
10,900.0	6,810.8	10,797.5	6,639.0	82.9	83.8	62.61		-4,155.1	-1,125.9	373.5	222.1	151.36	2.468	
11,000.0	6,810.6	10,897.5	6,638.7	84.7	85.6	62.60		-4,255.1	-1,125.9	373.6	218.8	154.75	2.414	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28E-203 - Wellbore #1 - Plan #1 (12-30-13)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
11,100.0	6,810.5	10,997.5	6,638.4	86.6	87.5	62.58	-4,355.1	-1,125.9	373.6	215.5	158.15	2.362		
11,200.0	6,810.3	11,097.5	6,638.1	88.5	89.3	62.57	-4,455.1	-1,125.9	373.7	212.1	161.54	2.313		
11,300.0	6,810.1	11,197.5	6,637.8	90.3	91.2	62.56	-4,555.1	-1,125.9	373.7	208.8	164.94	2.266		
11,400.0	6,809.9	11,297.5	6,637.5	92.2	93.0	62.54	-4,655.1	-1,125.9	373.7	205.4	168.34	2.220		
11,500.0	6,809.7	11,397.5	6,637.2	94.1	94.9	62.53	-4,755.1	-1,125.9	373.8	202.1	171.74	2.177		
11,600.0	6,809.5	11,497.5	6,636.9	96.0	96.8	62.51	-4,855.1	-1,125.9	373.8	198.7	175.14	2.135		
11,700.0	6,809.3	11,597.5	6,636.6	97.9	98.6	62.50	-4,955.1	-1,125.9	373.9	195.4	178.54	2.094		
11,800.0	6,809.1	11,697.5	6,636.3	99.7	100.5	62.48	-5,055.1	-1,125.9	373.9	192.0	181.95	2.055		
11,900.0	6,808.9	11,797.5	6,636.1	101.6	102.4	62.47	-5,155.1	-1,125.9	374.0	188.6	185.35	2.018		
12,000.0	6,808.7	11,897.5	6,635.8	103.5	104.2	62.46	-5,255.1	-1,125.9	374.0	185.3	188.76	1.982		
12,100.0	6,808.5	11,997.5	6,635.5	105.4	106.1	62.44	-5,355.0	-1,125.9	374.1	181.9	192.17	1.947		
12,200.0	6,808.3	12,097.5	6,635.2	107.3	108.0	62.43	-5,455.0	-1,125.9	374.1	178.6	195.57	1.913		
12,300.0	6,808.1	12,197.5	6,634.9	109.2	109.9	62.41	-5,555.0	-1,125.9	374.2	175.2	198.98	1.880		
12,400.0	6,808.0	12,297.5	6,634.6	111.1	111.7	62.40	-5,655.0	-1,125.9	374.2	171.8	202.39	1.849		
12,500.0	6,807.8	12,397.5	6,634.3	112.9	113.6	62.38	-5,755.0	-1,125.9	374.3	168.5	205.80	1.819		
12,600.0	6,807.6	12,497.5	6,634.0	114.8	115.5	62.37	-5,855.0	-1,125.9	374.3	165.1	209.22	1.789		
12,700.0	6,807.4	12,597.5	6,633.7	116.7	117.4	62.36	-5,955.0	-1,125.9	374.4	161.8	212.63	1.761		
12,800.0	6,807.2	12,697.5	6,633.4	118.6	119.3	62.34	-6,055.0	-1,125.9	374.4	158.4	216.04	1.733		
12,900.0	6,807.0	12,797.5	6,633.1	120.5	121.2	62.33	-6,155.0	-1,125.9	374.5	155.0	219.45	1.706		
13,000.0	6,806.8	12,897.5	6,632.8	122.4	123.0	62.31	-6,255.0	-1,125.9	374.5	151.7	222.87	1.680		
13,100.0	6,806.6	12,997.5	6,632.5	124.3	124.9	62.30	-6,355.0	-1,125.9	374.6	148.3	226.28	1.655		
13,200.0	6,806.4	13,097.5	6,632.2	126.2	126.8	62.29	-6,455.0	-1,125.9	374.6	144.9	229.69	1.631		
13,300.0	6,806.2	13,197.5	6,631.9	128.1	128.7	62.27	-6,555.0	-1,125.9	374.7	141.6	233.11	1.607		
13,400.0	6,806.0	13,297.5	6,631.6	130.0	130.6	62.26	-6,655.0	-1,125.9	374.7	138.2	236.52	1.584		
13,500.0	6,805.8	13,397.5	6,631.3	131.9	132.5	62.24	-6,755.0	-1,125.9	374.8	134.8	239.93	1.562		
13,600.0	6,805.7	13,497.5	6,631.0	133.8	134.4	62.23	-6,855.0	-1,125.9	374.8	131.5	243.35	1.540		
13,700.0	6,805.5	13,597.5	6,630.7	135.7	136.3	62.21	-6,955.0	-1,125.9	374.9	128.1	246.76	1.519		
13,800.0	6,805.3	13,697.5	6,630.4	137.6	138.2	62.20	-7,055.0	-1,125.9	374.9	124.7	250.18	1.499 Level 3		
13,900.0	6,805.1	13,797.5	6,630.1	139.5	140.1	62.19	-7,155.0	-1,125.9	375.0	121.4	253.59	1.479 Level 3		
13,939.5	6,805.0	13,837.0	6,630.0	140.2	140.8	62.18	-7,194.6	-1,125.9	375.0	120.0	254.94	1.471 Level 3, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	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	83.22	3.6	30.6	30.9					
100.0	100.0	100.0	100.0	0.1	0.1	83.22	3.6	30.6	30.9	30.6	0.22	137.315		
200.0	200.0	200.0	200.0	0.3	0.3	83.22	3.6	30.6	30.9	30.2	0.67	45.772		
300.0	300.0	300.0	300.0	0.6	0.6	83.22	3.6	30.6	30.9	29.7	1.12	27.463		
400.0	400.0	400.0	400.0	0.8	0.8	83.22	3.6	30.6	30.9	29.3	1.57	19.616 CC, ES		
500.0	500.0	500.0	500.0	1.0	1.0	160.18	3.6	30.6	32.5	30.5	2.02	16.120		
600.0	599.8	599.8	599.8	1.2	1.2	162.86	3.6	30.6	37.5	35.0	2.46	15.250		
700.0	699.5	700.9	700.9	1.5	1.5	165.22	4.3	29.0	44.2	41.4	2.89	15.302		
800.0	798.7	802.2	802.1	1.7	1.7	166.42	6.3	24.0	51.2	47.9	3.32	15.408		
900.0	897.5	903.8	903.2	2.0	1.9	166.81	9.7	15.7	58.0	54.2	3.76	15.405		
1,000.0	996.2	1,003.8	1,002.7	2.4	2.2	166.61	13.7	5.6	63.5	59.3	4.22	15.037		
1,100.0	1,094.9	1,103.7	1,101.9	2.7	2.4	166.43	17.8	-4.4	69.0	64.3	4.69	14.706		
1,200.0	1,193.6	1,203.5	1,201.2	3.1	2.7	166.28	21.8	-14.5	74.5	69.4	5.17	14.417		
1,300.0	1,292.3	1,303.4	1,300.4	3.4	3.0	166.16	25.9	-24.6	80.0	74.4	5.65	14.164		
1,400.0	1,391.0	1,403.2	1,399.7	3.8	3.3	166.05	30.0	-34.7	85.6	79.4	6.14	13.942		
1,500.0	1,489.7	1,503.1	1,498.9	4.2	3.6	165.95	34.0	-44.7	91.1	84.5	6.63	13.746		
1,600.0	1,588.4	1,602.9	1,598.2	4.5	3.8	165.86	38.1	-54.8	96.6	89.5	7.12	13.573		
1,700.0	1,687.1	1,702.7	1,697.4	4.9	4.1	165.78	42.2	-64.9	102.1	94.5	7.61	13.419		
1,800.0	1,785.8	1,802.6	1,796.7	5.3	4.4	165.72	46.2	-75.0	107.6	99.5	8.10	13.281		
1,900.0	1,884.5	1,902.4	1,895.9	5.7	4.7	165.65	50.3	-85.0	113.1	104.5	8.60	13.156		
2,000.0	1,983.2	2,002.3	1,995.2	6.0	5.0	165.60	54.3	-95.1	118.7	109.6	9.10	13.044		
2,100.0	2,082.0	2,102.1	2,094.5	6.4	5.3	165.54	58.4	-105.2	124.2	114.6	9.60	12.942		
2,200.0	2,180.7	2,202.0	2,193.7	6.8	5.6	165.50	62.5	-115.3	129.7	119.6	10.09	12.848		
2,300.0	2,279.4	2,301.8	2,293.0	7.2	5.9	165.45	66.5	-125.3	135.2	124.6	10.59	12.763		
2,400.0	2,378.1	2,401.7	2,392.2	7.5	6.2	165.41	70.6	-135.4	140.7	129.6	11.09	12.685		
2,500.0	2,476.8	2,501.5	2,491.5	7.9	6.5	165.38	74.6	-145.5	146.3	134.7	11.60	12.613		
2,600.0	2,575.5	2,601.4	2,590.7	8.3	6.8	165.34	78.7	-155.6	151.8	139.7	12.10	12.546		
2,700.0	2,674.2	2,701.2	2,690.0	8.7	7.1	165.31	82.8	-165.6	157.3	144.7	12.60	12.485		
2,800.0	2,772.9	2,801.1	2,789.2	9.0	7.4	165.28	86.8	-175.7	162.8	149.7	13.10	12.427		
2,900.0	2,871.6	2,900.9	2,888.5	9.4	7.7	165.25	90.9	-185.8	168.3	154.7	13.60	12.374		
3,000.0	2,970.3	3,000.8	2,987.8	9.8	8.0	165.23	95.0	-195.9	173.8	159.7	14.11	12.324		
3,100.0	3,069.0	3,100.6	3,087.0	10.2	8.3	165.20	99.0	-205.9	179.4	164.8	14.61	12.277		
3,200.0	3,167.7	3,200.5	3,186.3	10.6	8.6	165.18	103.1	-216.0	184.9	169.8	15.11	12.234		
3,300.0	3,266.4	3,300.3	3,285.5	10.9	8.9	165.16	107.1	-226.1	190.4	174.8	15.62	12.193		
3,400.0	3,365.1	3,400.2	3,384.8	11.3	9.2	165.14	111.2	-236.1	195.9	179.8	16.12	12.154		
3,500.0	3,463.8	3,500.0	3,484.0	11.7	9.5	165.12	115.3	-246.2	201.4	184.8	16.62	12.117		
3,600.0	3,562.5	3,599.9	3,583.3	12.1	9.8	165.10	119.3	-256.3	207.0	189.8	17.13	12.083		
3,700.0	3,661.2	3,699.7	3,682.5	12.5	10.1	165.08	123.4	-266.4	212.5	194.8	17.63	12.050		
3,800.0	3,759.9	3,799.5	3,781.8	12.8	10.4	165.07	127.5	-276.4	218.0	199.9	18.14	12.019		
3,900.0	3,858.6	3,899.4	3,881.0	13.2	10.7	165.05	131.5	-286.5	223.5	204.9	18.64	11.990		
4,000.0	3,957.3	3,999.2	3,980.3	13.6	11.0	165.04	135.6	-296.6	229.0	209.9	19.15	11.962		
4,100.0	4,056.0	4,099.1	4,079.6	14.0	11.3	165.02	139.6	-306.7	234.6	214.9	19.65	11.936		
4,200.0	4,154.7	4,198.9	4,178.8	14.4	11.6	165.01	143.7	-316.7	240.1	219.9	20.16	11.911		
4,300.0	4,253.4	4,298.8	4,278.1	14.7	11.9	165.00	147.8	-326.8	245.6	224.9	20.66	11.887		
4,400.0	4,352.1	4,398.6	4,377.3	15.1	12.2	164.98	151.8	-336.9	251.1	229.9	21.17	11.864		
4,500.0	4,450.8	4,498.5	4,476.6	15.5	12.5	164.97	155.9	-347.0	256.6	235.0	21.67	11.842		
4,600.0	4,549.5	4,598.3	4,575.8	15.9	12.8	164.96	159.9	-357.0	262.1	240.0	22.18	11.821		
4,700.0	4,648.2	4,698.2	4,675.1	16.3	13.1	164.95	164.0	-367.1	267.7	245.0	22.68	11.801		
4,800.0	4,746.9	4,798.0	4,774.3	16.6	13.4	164.94	168.1	-377.2	273.2	250.0	23.19	11.782		
4,900.0	4,845.7	4,897.9	4,873.6	17.0	13.7	164.93	172.1	-387.3	278.7	255.0	23.69	11.763		
5,000.0	4,944.4	4,997.7	4,972.9	17.4	14.1	164.92	176.2	-397.3	284.2	260.0	24.20	11.745		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,043.1	5,097.6	5,072.1	17.8	14.4	164.91	180.3	-407.4	289.7	265.0	24.70	11.728		
5,200.0	5,141.8	5,197.4	5,171.4	18.2	14.7	164.90	184.3	-417.5	295.3	270.0	25.21	11.712		
5,300.0	5,240.5	5,297.3	5,270.6	18.5	15.0	164.89	188.4	-427.6	300.8	275.1	25.72	11.696		
5,400.0	5,339.2	5,397.1	5,369.9	18.9	15.3	164.88	192.4	-437.6	306.3	280.1	26.22	11.681		
5,500.0	5,437.9	5,497.0	5,469.1	19.3	15.6	164.88	196.5	-447.7	311.8	285.1	26.73	11.667		
5,600.0	5,536.8	5,589.4	5,561.1	19.6	15.8	164.89	199.9	-456.2	316.7	289.5	27.18	11.650		
5,700.0	5,636.2	5,680.0	5,651.5	19.8	16.0	164.95	202.2	-461.9	321.0	293.5	27.54	11.659		
5,800.0	5,735.9	5,770.6	5,742.0	20.0	16.1	165.05	203.4	-464.9	324.9	297.1	27.84	11.673		
5,900.0	5,835.9	5,864.4	5,835.9	20.2	16.3	165.20	203.6	-465.4	328.2	300.1	28.10	11.678		
6,000.0	5,935.8	5,964.4	5,935.8	20.3	16.4	89.37	203.6	-465.4	328.9	300.5	28.41	11.576		
6,100.0	6,035.8	6,064.5	6,035.9	20.4	16.6	89.93	200.4	-465.4	328.9	300.1	28.71	11.455		
6,104.5	6,040.3	6,069.0	6,040.3	20.4	16.6	-90.00	200.0	-465.4	328.9	300.1	28.72	11.452		
6,200.0	6,135.6	6,163.4	6,133.5	20.5	16.7	-88.32	185.0	-465.4	329.0	300.2	28.82	11.414		
6,300.0	6,233.8	6,261.1	6,227.1	20.6	16.8	-86.60	157.5	-465.4	329.4	300.6	28.88	11.408		
6,400.0	6,328.8	6,357.5	6,315.4	20.7	16.8	-84.95	118.9	-465.4	330.1	301.2	28.93	11.411		
6,500.0	6,418.9	6,452.9	6,397.3	20.7	16.8	-83.40	70.0	-465.4	331.1	302.0	29.04	11.399		
6,600.0	6,502.5	6,547.3	6,471.7	20.8	16.9	-81.97	12.0	-465.4	332.1	302.9	29.26	11.350		
6,700.0	6,578.3	6,640.9	6,537.8	20.8	17.0	-80.68	-54.1	-465.4	333.3	303.6	29.63	11.247		
6,800.0	6,645.0	6,733.6	6,594.9	20.9	17.2	-79.55	-127.1	-465.4	334.4	304.2	30.19	11.076		
6,900.0	6,701.4	6,825.8	6,642.5	21.1	17.4	-78.59	-206.0	-465.4	335.5	304.5	30.96	10.836		
7,000.0	6,746.5	6,917.4	6,680.0	21.4	17.9	-77.82	-289.5	-465.4	336.4	304.5	31.96	10.528		
7,100.0	6,779.6	7,008.7	6,707.2	21.8	18.5	-77.23	-376.5	-465.4	337.2	304.0	33.18	10.161		
7,200.0	6,800.1	7,100.0	6,723.8	22.4	19.2	-76.84	-466.3	-465.4	337.7	303.1	34.64	9.750		
7,300.0	6,811.0	7,190.2	6,729.6	23.1	20.1	-76.16	-556.2	-465.4	338.8	302.3	36.46	9.291		
7,400.0	6,817.3	7,289.2	6,729.3	24.0	21.3	-75.01	-655.2	-465.4	340.4	302.1	38.31	8.886		
7,500.0	6,817.4	7,389.2	6,728.9	25.1	22.5	-74.94	-755.2	-465.4	340.6	299.8	40.74	8.359		
7,600.0	6,817.2	7,489.2	6,728.5	26.2	23.9	-74.90	-855.2	-465.4	340.6	297.2	43.42	7.844		
7,700.0	6,817.0	7,589.2	6,728.0	27.5	25.3	-74.87	-955.2	-465.4	340.7	294.4	46.25	7.367		
7,800.0	6,816.8	7,689.2	6,727.6	28.8	26.8	-74.83	-1,055.2	-465.4	340.7	291.5	49.19	6.927		
7,900.0	6,816.6	7,789.2	6,727.2	30.2	28.3	-74.80	-1,155.2	-465.4	340.8	288.5	52.23	6.525		
8,000.0	6,816.4	7,889.2	6,726.8	31.7	29.9	-74.77	-1,255.2	-465.4	340.8	285.5	55.35	6.157		
8,100.0	6,816.2	7,989.2	6,726.4	33.2	31.5	-74.73	-1,355.2	-465.4	340.9	282.3	58.55	5.823		
8,200.0	6,816.0	8,089.2	6,726.0	34.8	33.1	-74.70	-1,455.2	-465.4	340.9	279.1	61.80	5.517		
8,300.0	6,815.8	8,189.2	6,725.6	36.4	34.8	-74.66	-1,555.2	-465.4	341.0	275.9	65.10	5.238		
8,400.0	6,815.6	8,289.2	6,725.2	38.0	36.5	-74.63	-1,655.2	-465.4	341.1	272.6	68.44	4.983		
8,500.0	6,815.4	8,389.2	6,724.8	39.7	38.2	-74.60	-1,755.2	-465.4	341.1	269.3	71.82	4.750		
8,600.0	6,815.3	8,489.2	6,724.4	41.3	40.0	-74.56	-1,855.2	-465.4	341.2	265.9	75.22	4.535		
8,700.0	6,815.1	8,589.2	6,724.0	43.0	41.7	-74.53	-1,955.2	-465.4	341.2	262.6	78.66	4.338		
8,800.0	6,814.9	8,689.2	6,723.6	44.7	43.5	-74.49	-2,055.2	-465.4	341.3	259.2	82.12	4.156		
8,900.0	6,814.7	8,789.2	6,723.2	46.5	45.3	-74.46	-2,155.2	-465.4	341.3	255.7	85.60	3.988		
9,000.0	6,814.5	8,889.2	6,722.8	48.2	47.0	-74.43	-2,255.2	-465.4	341.4	252.3	89.09	3.832		
9,100.0	6,814.3	8,989.2	6,722.4	50.0	48.8	-74.39	-2,355.2	-465.4	341.4	248.8	92.60	3.687		
9,200.0	6,814.1	9,089.2	6,722.0	51.7	50.7	-74.36	-2,455.2	-465.4	341.5	245.4	96.13	3.553		
9,300.0	6,813.9	9,189.2	6,721.6	53.5	52.5	-74.33	-2,555.2	-465.4	341.6	241.9	99.67	3.427		
9,400.0	6,813.7	9,289.2	6,721.2	55.3	54.3	-74.29	-2,655.2	-465.4	341.6	238.4	103.21	3.310		
9,500.0	6,813.5	9,389.2	6,720.8	57.1	56.1	-74.26	-2,755.2	-465.4	341.7	234.9	106.77	3.200		
9,600.0	6,813.3	9,489.2	6,720.4	58.9	58.0	-74.22	-2,855.2	-465.4	341.7	231.4	110.34	3.097		
9,700.0	6,813.1	9,589.2	6,720.0	60.7	59.8	-74.19	-2,955.2	-465.4	341.8	227.9	113.91	3.000		
9,800.0	6,812.9	9,689.2	6,719.6	62.6	61.7	-74.16	-3,055.2	-465.4	341.8	224.3	117.49	2.909		
9,900.0	6,812.8	9,789.2	6,719.2	64.4	63.5	-74.12	-3,155.2	-465.4	341.9	220.8	121.08	2.824		
10,000.0	6,812.6	9,889.2	6,718.8	66.2	65.4	-74.09	-3,255.2	-465.4	342.0	217.3	124.67	2.743		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-343 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,812.4	9,989.2	6,718.4	68.0	67.2	-74.05	-3,355.2	-465.4	342.0	213.7	128.27	2.666		
10,200.0	6,812.2	10,089.2	6,718.0	69.9	69.1	-74.02	-3,455.2	-465.4	342.1	210.2	131.87	2.594		
10,300.0	6,812.0	10,189.2	6,717.6	71.7	70.9	-73.99	-3,555.2	-465.4	342.1	206.6	135.48	2.525		
10,400.0	6,811.8	10,289.2	6,717.2	73.6	72.8	-73.95	-3,655.2	-465.4	342.2	203.1	139.09	2.460		
10,500.0	6,811.6	10,389.2	6,716.8	75.4	74.7	-73.92	-3,755.2	-465.4	342.2	199.5	142.70	2.398		
10,600.0	6,811.4	10,489.2	6,716.4	77.3	76.6	-73.89	-3,855.2	-465.4	342.3	196.0	146.32	2.339		
10,700.0	6,811.2	10,589.2	6,716.0	79.1	78.4	-73.85	-3,955.2	-465.4	342.4	192.4	149.94	2.283		
10,800.0	6,811.0	10,689.2	6,715.6	81.0	80.3	-73.82	-4,055.2	-465.4	342.4	188.9	153.56	2.230		
10,900.0	6,810.8	10,789.2	6,715.2	82.9	82.2	-73.79	-4,155.2	-465.4	342.5	185.3	157.18	2.179		
11,000.0	6,810.6	10,889.2	6,714.8	84.7	84.1	-73.75	-4,255.2	-465.4	342.5	181.7	160.81	2.130		
11,100.0	6,810.5	10,989.2	6,714.4	86.6	86.0	-73.72	-4,355.2	-465.4	342.6	178.2	164.43	2.083		
11,200.0	6,810.3	11,089.2	6,714.0	88.5	87.8	-73.68	-4,455.2	-465.4	342.7	174.6	168.06	2.039		
11,300.0	6,810.1	11,189.2	6,713.6	90.3	89.7	-73.65	-4,555.2	-465.4	342.7	171.0	171.69	1.996		
11,400.0	6,809.9	11,289.2	6,713.2	92.2	91.6	-73.62	-4,655.2	-465.4	342.8	167.4	175.32	1.955		
11,500.0	6,809.7	11,389.2	6,712.8	94.1	93.5	-73.58	-4,755.2	-465.4	342.8	163.9	178.95	1.916		
11,600.0	6,809.5	11,489.2	6,712.4	96.0	95.4	-73.55	-4,855.2	-465.4	342.9	160.3	182.59	1.878		
11,700.0	6,809.3	11,589.2	6,712.0	97.9	97.3	-73.52	-4,955.2	-465.4	342.9	156.7	186.22	1.842		
11,800.0	6,809.1	11,689.2	6,711.6	99.7	99.2	-73.48	-5,055.2	-465.4	343.0	153.2	189.86	1.807		
11,900.0	6,808.9	11,789.2	6,711.2	101.6	101.1	-73.45	-5,155.2	-465.4	343.1	149.6	193.49	1.773		
12,000.0	6,808.7	11,889.2	6,710.8	103.5	103.0	-73.42	-5,255.2	-465.4	343.1	146.0	197.13	1.741		
12,100.0	6,808.5	11,989.2	6,710.4	105.4	104.9	-73.38	-5,355.2	-465.4	343.2	142.4	200.76	1.709		
12,200.0	6,808.3	12,089.2	6,710.0	107.3	106.8	-73.35	-5,455.2	-465.4	343.2	138.9	204.40	1.679		
12,300.0	6,808.1	12,189.2	6,709.6	109.2	108.7	-73.32	-5,555.2	-465.4	343.3	135.3	208.03	1.650		
12,400.0	6,808.0	12,289.2	6,709.2	111.1	110.6	-73.28	-5,655.2	-465.4	343.4	131.7	211.67	1.622		
12,500.0	6,807.8	12,389.2	6,708.8	112.9	112.5	-73.25	-5,755.2	-465.4	343.4	128.1	215.31	1.595		
12,600.0	6,807.6	12,489.2	6,708.4	114.8	114.4	-73.21	-5,855.2	-465.4	343.5	124.5	218.94	1.569		
12,700.0	6,807.4	12,589.2	6,708.0	116.7	116.3	-73.18	-5,955.2	-465.4	343.6	121.0	222.58	1.544		
12,800.0	6,807.2	12,689.2	6,707.6	118.6	118.2	-73.15	-6,055.2	-465.4	343.6	117.4	226.21	1.519		
12,900.0	6,807.0	12,789.2	6,707.2	120.5	120.1	-73.11	-6,155.2	-465.4	343.7	113.8	229.85	1.495 Level 3		
13,000.0	6,806.8	12,889.2	6,706.8	122.4	122.0	-73.08	-6,255.2	-465.4	343.7	110.2	233.49	1.472 Level 3		
13,100.0	6,806.6	12,989.2	6,706.4	124.3	123.9	-73.05	-6,355.2	-465.4	343.8	106.7	237.12	1.450 Level 3		
13,200.0	6,806.4	13,089.2	6,706.0	126.2	125.8	-73.01	-6,455.2	-465.4	343.9	103.1	240.76	1.428 Level 3		
13,300.0	6,806.2	13,189.2	6,705.6	128.1	127.7	-72.98	-6,555.2	-465.4	343.9	99.5	244.39	1.407 Level 3		
13,400.0	6,806.0	13,289.2	6,705.2	130.0	129.6	-72.95	-6,655.2	-465.4	344.0	95.9	248.03	1.387 Level 3		
13,500.0	6,805.8	13,389.2	6,704.8	131.9	131.5	-72.91	-6,755.2	-465.4	344.0	92.4	251.66	1.367 Level 3		
13,600.0	6,805.7	13,489.1	6,704.4	133.8	133.4	-72.88	-6,855.2	-465.4	344.1	88.8	255.30	1.348 Level 3		
13,700.0	6,805.5	13,589.1	6,704.0	135.7	135.3	-72.85	-6,955.2	-465.4	344.2	85.2	258.93	1.329 Level 3		
13,800.0	6,805.3	13,689.1	6,703.6	137.6	137.2	-72.81	-7,055.2	-465.4	344.2	81.7	262.56	1.311 Level 3		
13,900.0	6,805.1	13,789.1	6,703.2	139.5	139.1	-72.78	-7,155.2	-465.4	344.3	78.1	266.19	1.293 Level 3		
13,939.5	6,805.0	13,828.7	6,703.0	140.2	139.9	-72.77	-7,194.7	-465.4	344.3	76.7	267.63	1.287 Level 3, SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.0	0.0	0.0	0.0	0.0	0.0	86.60	3.6	61.3	61.4						
100.0	100.0	99.0	99.0	0.1	0.1	86.60	3.6	61.3	61.4	61.2	0.22	274.561	39.083 CC, ES		
200.0	200.0	199.0	199.0	0.3	0.3	86.60	3.6	61.3	61.4	60.7	0.67	91.368			
300.0	300.0	299.0	299.0	0.6	0.6	86.60	3.6	61.3	61.4	60.3	1.12	54.748			
400.0	400.0	399.0	399.0	0.8	0.8	86.60	3.6	61.3	61.4	59.8	1.57	26.965			
500.0	500.0	499.0	499.0	1.0	1.0	162.93	3.6	61.3	63.1	61.1	2.01	31.316			
600.0	599.8	598.8	598.8	1.2	1.2	164.20	3.6	61.3	68.1	65.6	2.45	27.741			
700.0	699.5	698.5	698.5	1.5	1.5	165.93	3.6	61.3	76.5	73.6	2.90	26.390			
800.0	798.7	797.7	797.7	1.7	1.7	167.80	3.6	61.3	88.4	85.0	3.35	26.412			
900.0	897.5	899.2	899.1	2.0	1.9	168.97	4.9	60.1	102.2	98.5	3.79	26.965			
1,000.0	996.2	1,000.6	1,000.5	2.4	2.1	168.78	8.6	56.4	114.2	110.0	4.24	26.961			
1,100.0	1,094.9	1,100.0	1,099.6	2.7	2.4	168.30	13.0	52.1	125.4	120.7	4.70	26.704			
1,200.0	1,193.6	1,199.3	1,198.8	3.1	2.6	167.89	17.3	47.7	136.6	131.5	5.16	26.461			
1,300.0	1,292.3	1,298.7	1,298.0	3.4	2.8	167.55	21.7	43.4	147.8	142.2	5.63	26.236			
1,400.0	1,391.0	1,398.1	1,397.2	3.8	3.1	167.26	26.1	39.1	159.1	152.9	6.11	26.029			
1,500.0	1,489.7	1,497.4	1,496.3	4.2	3.3	167.00	30.5	34.7	170.3	163.7	6.59	25.840			
1,600.0	1,588.4	1,596.8	1,595.5	4.5	3.5	166.78	34.9	30.4	181.5	174.4	7.07	25.668			
1,700.0	1,687.1	1,696.2	1,694.7	4.9	3.8	166.58	39.3	26.0	192.7	185.2	7.55	25.512			
1,800.0	1,785.8	1,795.5	1,793.9	5.3	4.0	166.40	43.7	21.7	204.0	195.9	8.04	25.368			
1,900.0	1,884.5	1,894.9	1,893.0	5.7	4.3	166.25	48.0	17.4	215.2	206.7	8.53	25.236			
2,000.0	1,983.2	1,994.3	1,992.2	6.0	4.5	166.10	52.4	13.0	226.4	217.4	9.01	25.116			
2,100.0	2,082.0	2,093.6	2,091.4	6.4	4.8	165.98	56.8	8.7	237.6	228.1	9.50	25.005			
2,200.0	2,180.7	2,193.0	2,190.5	6.8	5.0	165.86	61.2	4.3	248.9	238.9	9.99	24.903			
2,300.0	2,279.4	2,292.4	2,289.7	7.2	5.2	165.75	65.6	0.0	260.1	249.6	10.48	24.808			
2,400.0	2,378.1	2,391.7	2,388.9	7.5	5.5	165.65	70.0	-4.3	271.3	260.4	10.98	24.721			
2,500.0	2,476.8	2,491.1	2,488.1	7.9	5.7	165.56	74.4	-8.7	282.6	271.1	11.47	24.639			
2,600.0	2,575.5	2,590.5	2,587.2	8.3	6.0	165.48	78.8	-13.0	293.8	281.9	11.96	24.563			
2,700.0	2,674.2	2,689.8	2,686.4	8.7	6.2	165.40	83.1	-17.4	305.1	292.6	12.45	24.493			
2,800.0	2,772.9	2,789.2	2,785.6	9.0	6.5	165.33	87.5	-21.7	316.3	303.3	12.95	24.427			
2,900.0	2,871.6	2,888.6	2,884.8	9.4	6.7	165.27	91.9	-26.0	327.5	314.1	13.44	24.365			
3,000.0	2,970.3	2,987.9	2,983.9	9.8	7.0	165.20	96.3	-30.4	338.8	324.8	13.94	24.307			
3,100.0	3,069.0	3,087.3	3,083.1	10.2	7.2	165.15	100.7	-34.7	350.0	335.6	14.43	24.252			
3,200.0	3,167.7	3,186.7	3,182.3	10.6	7.5	165.09	105.1	-39.1	361.2	346.3	14.93	24.201			
3,300.0	3,266.4	3,286.0	3,281.5	10.9	7.7	165.04	109.5	-43.4	372.5	357.1	15.42	24.152			
3,400.0	3,365.1	3,385.4	3,380.6	11.3	8.0	164.99	113.8	-47.7	383.7	367.8	15.92	24.106			
3,500.0	3,463.8	3,484.8	3,479.8	11.7	8.2	164.95	118.2	-52.1	395.0	378.5	16.41	24.063			
3,600.0	3,562.5	3,584.1	3,579.0	12.1	8.5	164.90	122.6	-56.4	406.2	389.3	16.91	24.022			
3,700.0	3,661.2	3,683.5	3,678.2	12.5	8.7	164.86	127.0	-60.8	417.4	400.0	17.41	23.983			
3,800.0	3,759.9	3,782.9	3,777.3	12.8	9.0	164.82	131.4	-65.1	428.7	410.8	17.90	23.945			
3,900.0	3,858.6	3,882.2	3,876.5	13.2	9.2	164.79	135.8	-69.4	439.9	421.5	18.40	23.910			
4,000.0	3,957.3	3,981.6	3,975.7	13.6	9.5	164.75	140.2	-73.8	451.2	432.3	18.90	23.876			
4,100.0	4,056.0	4,081.0	4,074.9	14.0	9.7	164.72	144.5	-78.1	462.4	443.0	19.39	23.844			
4,200.0	4,154.7	4,180.3	4,174.0	14.4	10.0	164.69	148.9	-82.5	473.6	453.8	19.89	23.814			
4,300.0	4,253.4	4,279.7	4,273.2	14.7	10.2	164.66	153.3	-86.8	484.9	464.5	20.39	23.784			
4,400.0	4,352.1	4,379.1	4,372.4	15.1	10.4	164.63	157.7	-91.1	496.1	475.2	20.88	23.756			
4,500.0	4,450.8	4,478.4	4,471.6	15.5	10.7	164.60	162.1	-95.5	507.4	486.0	21.38	23.730			
4,600.0	4,549.5	4,577.8	4,570.7	15.9	10.9	164.57	166.5	-99.8	518.6	496.7	21.88	23.704			
4,700.0	4,648.2	4,677.2	4,669.9	16.3	11.2	164.55	170.9	-104.2	529.9	507.5	22.38	23.679			
4,800.0	4,746.9	4,776.5	4,769.1	16.6	11.4	164.53	175.3	-108.5	541.1	518.2	22.87	23.656			
4,900.0	4,845.7	4,875.9	4,868.2	17.0	11.7	164.50	179.6	-112.8	552.3	529.0	23.37	23.633			
5,000.0	4,944.4	4,975.3	4,967.4	17.4	11.9	164.48	184.0	-117.2	563.6	539.7	23.87	23.611			

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,043.1	5,074.6	5,066.6	17.8	12.2	164.46	164.46	188.4	-121.5	574.8	550.5	24.37	23.590	
5,200.0	5,141.8	5,174.0	5,165.8	18.2	12.4	164.44	164.44	192.8	-125.9	586.1	561.2	24.87	23.570	
5,300.0	5,240.5	5,273.3	5,264.9	18.5	12.7	164.42	164.42	197.2	-130.2	597.3	571.9	25.36	23.550	
5,400.0	5,339.2	5,367.4	5,358.8	18.9	12.9	164.42	164.42	201.2	-134.1	608.7	582.9	25.84	23.561	
5,500.0	5,437.9	5,453.7	5,445.1	19.3	13.1	164.56	164.56	203.3	-136.2	621.9	595.6	26.25	23.692	
5,600.0	5,536.8	5,544.5	5,535.8	19.6	13.2	164.91	164.91	203.6	-136.6	635.4	608.7	26.65	23.839	
5,700.0	5,636.2	5,643.8	5,635.2	19.8	13.4	165.22	165.22	203.6	-136.6	645.9	618.9	27.03	23.894	
5,800.0	5,735.9	5,743.6	5,734.9	20.0	13.6	165.42	165.42	203.6	-136.6	653.2	625.8	27.40	23.841	
5,900.0	5,835.9	5,843.5	5,834.9	20.2	13.8	165.53	165.53	203.6	-136.6	657.0	629.3	27.73	23.693	
6,000.0	5,935.8	5,943.5	5,934.8	20.3	14.0	89.68	89.68	203.6	-136.6	657.7	629.6	28.07	23.430	
6,100.0	6,035.8	6,043.5	6,034.8	20.4	14.2	89.68	89.68	203.6	-136.6	657.7	629.3	28.47	23.106	
6,200.0	6,135.6	6,143.9	6,135.1	20.5	14.4	-90.33	-90.33	198.2	-136.6	657.7	628.9	28.78	22.856	
6,300.0	6,233.8	6,244.4	6,233.8	20.6	14.5	-90.33	-90.33	179.6	-136.6	657.7	628.8	28.97	22.703	
6,400.0	6,328.8	6,344.9	6,329.2	20.7	14.6	-90.33	-90.33	148.3	-136.6	657.7	628.6	29.10	22.605	
6,500.0	6,418.9	6,445.4	6,419.7	20.7	14.6	-90.32	-90.32	104.8	-136.6	657.7	628.5	29.21	22.516	
6,600.0	6,502.5	6,545.9	6,503.6	20.8	14.7	-90.31	-90.31	49.7	-136.6	657.7	628.3	29.39	22.379	
6,700.0	6,578.3	6,646.3	6,579.6	20.8	14.8	-90.29	-90.29	-15.8	-136.6	657.7	628.0	29.72	22.132	
6,800.0	6,645.0	6,746.7	6,646.4	20.9	14.9	-90.26	-90.26	-90.8	-136.6	657.7	627.4	30.28	21.723	
6,900.0	6,701.4	6,847.1	6,702.7	21.1	15.3	-90.24	-90.24	-173.8	-136.6	657.7	626.6	31.14	21.124	
7,000.0	6,746.5	6,947.4	6,747.6	21.4	15.9	-90.20	-90.20	-263.4	-136.6	657.7	625.4	32.34	20.337	
7,100.0	6,779.6	7,047.7	6,780.4	21.8	16.7	-90.17	-90.17	-358.1	-136.6	657.7	623.8	33.90	19.402	
7,200.0	6,800.1	7,148.0	6,800.6	22.4	17.7	-90.13	-90.13	-456.2	-136.6	657.7	621.9	35.79	18.377	
7,300.0	6,811.0	7,248.0	6,811.4	23.1	18.8	-90.12	-90.12	-555.7	-136.6	657.7	619.7	37.97	17.324	
7,400.0	6,817.3	7,348.1	6,817.4	24.0	20.0	-90.09	-90.09	-655.6	-136.6	657.7	617.3	40.38	16.286	
7,463.7	6,818.1	7,411.8	6,817.4	24.7	20.9	-90.03	-90.03	-719.2	-136.6	657.7	615.7	42.03	15.647	
7,500.0	6,817.4	7,448.1	6,817.4	25.1	21.4	-90.09	-90.09	-755.6	-136.6	657.7	614.7	43.00	15.295	
7,600.0	6,817.2	7,548.1	6,817.2	26.2	22.8	-90.09	-90.09	-855.6	-136.6	657.7	611.9	45.78	14.365	
7,700.0	6,817.0	7,648.1	6,817.0	27.5	24.2	-90.09	-90.09	-955.6	-136.6	657.7	609.0	48.71	13.502	
7,800.0	6,816.8	7,748.1	6,816.8	28.8	25.8	-90.09	-90.09	-1,055.6	-136.6	657.7	606.0	51.76	12.707	
7,900.0	6,816.6	7,848.1	6,816.6	30.2	27.4	-90.09	-90.09	-1,155.6	-136.6	657.7	602.8	54.91	11.979	
8,000.0	6,816.4	7,948.1	6,816.4	31.7	29.0	-90.09	-90.09	-1,255.6	-136.6	657.7	599.6	58.14	11.313	
8,100.0	6,816.2	8,048.1	6,816.2	33.2	30.6	-90.09	-90.09	-1,355.6	-136.6	657.7	596.3	61.44	10.705	
8,200.0	6,816.0	8,148.1	6,816.0	34.8	32.3	-90.09	-90.09	-1,455.6	-136.6	657.7	592.9	64.80	10.150	
8,300.0	6,815.8	8,248.1	6,815.8	36.4	34.0	-90.09	-90.09	-1,555.6	-136.6	657.7	589.5	68.21	9.642	
8,400.0	6,815.6	8,348.1	6,815.6	38.0	35.8	-90.09	-90.09	-1,655.6	-136.6	657.7	586.0	71.67	9.178	
8,500.0	6,815.4	8,448.1	6,815.4	39.7	37.5	-90.09	-90.09	-1,755.6	-136.6	657.7	582.6	75.16	8.751	
8,600.0	6,815.3	8,548.1	6,815.3	41.3	39.3	-90.09	-90.09	-1,855.6	-136.6	657.7	579.0	78.68	8.359	
8,700.0	6,815.1	8,648.1	6,815.1	43.0	41.1	-90.09	-90.09	-1,955.6	-136.6	657.7	575.5	82.24	7.998	
8,800.0	6,814.9	8,748.1	6,814.9	44.7	42.9	-90.09	-90.09	-2,055.6	-136.6	657.7	571.9	85.82	7.664	
8,900.0	6,814.7	8,848.1	6,814.7	46.5	44.7	-90.09	-90.09	-2,155.6	-136.6	657.7	568.3	89.42	7.356	
9,000.0	6,814.5	8,948.1	6,814.5	48.2	46.5	-90.09	-90.09	-2,255.6	-136.6	657.7	564.7	93.04	7.069	
9,100.0	6,814.3	9,048.1	6,814.3	50.0	48.3	-90.09	-90.09	-2,355.6	-136.6	657.7	561.0	96.67	6.803	
9,200.0	6,814.1	9,148.1	6,814.1	51.7	50.1	-90.09	-90.09	-2,455.6	-136.6	657.7	557.4	100.32	6.556	
9,300.0	6,813.9	9,248.1	6,813.9	53.5	52.0	-90.09	-90.09	-2,555.6	-136.6	657.7	553.7	103.99	6.325	
9,400.0	6,813.7	9,348.1	6,813.7	55.3	53.8	-90.09	-90.09	-2,655.6	-136.6	657.7	550.0	107.67	6.109	
9,500.0	6,813.5	9,448.1	6,813.5	57.1	55.6	-90.09	-90.09	-2,755.6	-136.6	657.7	546.4	111.36	5.906	
9,600.0	6,813.3	9,548.1	6,813.3	58.9	57.5	-90.09	-90.09	-2,855.6	-136.6	657.7	542.7	115.06	5.716	
9,700.0	6,813.1	9,648.1	6,813.1	60.7	59.4	-90.09	-90.09	-2,955.6	-136.6	657.7	538.9	118.77	5.538	
9,800.0	6,812.9	9,748.1	6,812.9	62.6	61.2	-90.09	-90.09	-3,055.6	-136.6	657.7	535.2	122.48	5.370	
9,900.0	6,812.8	9,848.1	6,812.8	64.4	63.1	-90.09	-90.09	-3,155.6	-136.6	657.7	531.5	126.21	5.211	
10,000.0	6,812.6	9,948.1	6,812.6	66.2	64.9	-90.09	-90.09	-3,255.6	-136.6	657.7	527.8	129.94	5.062	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Churchill 28J-HZ Pad Sec.28-T5N-R64W - Churchill 28J-443 - Wellbore #1 - Plan #1 (12-30-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,812.4	10,048.1	6,812.4	68.0	66.8	-90.09	-90.09	-3,355.6	-136.6	657.7	524.0	133.67	4.920	
10,200.0	6,812.2	10,148.1	6,812.2	69.9	68.7	-90.09	-90.09	-3,455.6	-136.6	657.7	520.3	137.42	4.786	
10,300.0	6,812.0	10,248.1	6,812.0	71.7	70.6	-90.09	-90.09	-3,555.6	-136.6	657.7	516.5	141.17	4.659	
10,400.0	6,811.8	10,348.1	6,811.8	73.6	72.4	-90.09	-90.09	-3,655.6	-136.6	657.7	512.8	144.92	4.538	
10,500.0	6,811.6	10,448.1	6,811.6	75.4	74.3	-90.09	-90.09	-3,755.6	-136.6	657.7	509.0	148.68	4.424	
10,600.0	6,811.4	10,548.1	6,811.4	77.3	76.2	-90.09	-90.09	-3,855.6	-136.6	657.7	505.3	152.44	4.315	
10,700.0	6,811.2	10,648.1	6,811.2	79.1	78.1	-90.09	-90.09	-3,955.6	-136.6	657.7	501.5	156.20	4.211	
10,800.0	6,811.0	10,748.1	6,811.0	81.0	80.0	-90.09	-90.09	-4,055.6	-136.6	657.7	497.7	159.97	4.111	
10,900.0	6,810.8	10,848.1	6,810.8	82.9	81.9	-90.09	-90.09	-4,155.6	-136.6	657.7	494.0	163.75	4.017	
11,000.0	6,810.6	10,948.1	6,810.6	84.7	83.7	-90.09	-90.09	-4,255.6	-136.6	657.7	490.2	167.52	3.926	
11,100.0	6,810.5	11,048.1	6,810.5	86.6	85.6	-90.09	-90.09	-4,355.6	-136.6	657.7	486.4	171.30	3.839	
11,200.0	6,810.3	11,148.1	6,810.3	88.5	87.5	-90.09	-90.09	-4,455.6	-136.6	657.7	482.6	175.08	3.757	
11,300.0	6,810.1	11,248.1	6,810.1	90.3	89.4	-90.09	-90.09	-4,555.6	-136.6	657.7	478.8	178.87	3.677	
11,400.0	6,809.9	11,348.1	6,809.9	92.2	91.3	-90.09	-90.09	-4,655.6	-136.6	657.7	475.1	182.65	3.601	
11,500.0	6,809.7	11,448.1	6,809.7	94.1	93.2	-90.09	-90.09	-4,755.6	-136.6	657.7	471.3	186.44	3.528	
11,600.0	6,809.5	11,548.1	6,809.5	96.0	95.1	-90.09	-90.09	-4,855.6	-136.6	657.7	467.5	190.23	3.457	
11,700.0	6,809.3	11,648.1	6,809.3	97.9	97.0	-90.09	-90.09	-4,955.6	-136.6	657.7	463.7	194.03	3.390	
11,800.0	6,809.1	11,748.1	6,809.1	99.7	98.9	-90.09	-90.09	-5,055.6	-136.6	657.7	459.9	197.82	3.325	
11,900.0	6,808.9	11,848.1	6,808.9	101.6	100.8	-90.09	-90.09	-5,155.6	-136.6	657.7	456.1	201.62	3.262	
12,000.0	6,808.7	11,948.1	6,808.7	103.5	102.7	-90.09	-90.09	-5,255.6	-136.6	657.7	452.3	205.42	3.202	
12,100.0	6,808.5	12,048.1	6,808.5	105.4	104.6	-90.09	-90.09	-5,355.6	-136.6	657.7	448.5	209.22	3.144	
12,200.0	6,808.3	12,148.1	6,808.3	107.3	106.5	-90.09	-90.09	-5,455.6	-136.6	657.7	444.7	213.02	3.088	
12,300.0	6,808.1	12,248.1	6,808.1	109.2	108.4	-90.09	-90.09	-5,555.6	-136.6	657.7	440.9	216.82	3.033	
12,400.0	6,808.0	12,348.1	6,808.0	111.1	110.3	-90.09	-90.09	-5,655.6	-136.6	657.7	437.1	220.63	2.981	
12,500.0	6,807.8	12,448.1	6,807.8	112.9	112.2	-90.09	-90.09	-5,755.6	-136.6	657.7	433.3	224.43	2.931	
12,600.0	6,807.6	12,548.1	6,807.6	114.8	114.1	-90.09	-90.09	-5,855.6	-136.6	657.7	429.5	228.24	2.882	
12,700.0	6,807.4	12,648.1	6,807.4	116.7	116.0	-90.09	-90.09	-5,955.6	-136.6	657.7	425.7	232.05	2.834	
12,800.0	6,807.2	12,748.1	6,807.2	118.6	117.9	-90.09	-90.09	-6,055.6	-136.6	657.7	421.9	235.85	2.789	
12,900.0	6,807.0	12,848.1	6,807.0	120.5	119.8	-90.09	-90.09	-6,155.6	-136.6	657.7	418.0	239.66	2.744	
13,000.0	6,806.8	12,948.1	6,806.8	122.4	121.7	-90.09	-90.09	-6,255.6	-136.6	657.7	414.2	243.48	2.701	
13,100.0	6,806.6	13,048.1	6,806.6	124.3	123.6	-90.09	-90.09	-6,355.6	-136.6	657.7	410.4	247.29	2.660	
13,200.0	6,806.4	13,148.1	6,806.4	126.2	125.5	-90.09	-90.09	-6,455.6	-136.6	657.7	406.6	251.10	2.619	
13,300.0	6,806.2	13,248.1	6,806.2	128.1	127.5	-90.09	-90.09	-6,555.6	-136.6	657.7	402.8	254.91	2.580	
13,400.0	6,806.0	13,348.1	6,806.0	130.0	129.4	-90.09	-90.09	-6,655.6	-136.6	657.7	399.0	258.73	2.542	
13,500.0	6,805.8	13,448.1	6,805.8	131.9	131.3	-90.09	-90.09	-6,755.6	-136.6	657.7	395.2	262.54	2.505	
13,600.0	6,805.7	13,548.1	6,805.7	133.8	133.2	-90.09	-90.09	-6,855.6	-136.6	657.7	391.4	266.36	2.469	
13,700.0	6,805.5	13,648.1	6,805.5	135.7	135.1	-90.09	-90.09	-6,955.6	-136.6	657.7	387.5	270.18	2.434	
13,800.0	6,805.3	13,748.1	6,805.3	137.6	137.0	-90.09	-90.09	-7,055.6	-136.6	657.7	383.7	274.00	2.400	
13,900.0	6,805.1	13,848.1	6,805.1	139.5	138.9	-90.09	-90.09	-7,155.6	-136.6	657.7	379.9	277.81	2.367	
13,939.5	6,805.0	13,887.7	6,805.0	140.2	139.7	-90.09	-90.09	-7,195.1	-136.6	657.7	378.4	279.32	2.355 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	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	23.0	23.0	0.0	0.5	-170.40	-3,063.8	-518.3	3,107.4	3,106.9	0.46	6,752.233		
100.0	100.0	123.0	123.0	0.1	2.5	-170.40	-3,063.8	-518.3	3,107.4	3,104.8	2.57	1,207.882		
200.0	200.0	223.0	223.0	0.3	4.5	-170.40	-3,063.8	-518.3	3,107.4	3,102.6	4.80	647.728		
300.0	300.0	323.0	323.0	0.6	6.5	-170.40	-3,063.8	-518.3	3,107.4	3,100.4	7.02	442.513		
400.0	400.0	423.0	423.0	0.8	8.5	-170.40	-3,063.8	-518.3	3,107.4	3,098.1	9.25	336.046		
500.0	500.0	523.0	523.0	1.0	10.5	-94.56	-3,063.8	-518.3	3,107.5	3,096.0	11.46	271.097		
600.0	599.8	622.8	622.8	1.2	12.5	-94.65	-3,063.8	-518.3	3,107.9	3,094.3	13.68	227.213		
700.0	699.5	722.5	722.5	1.5	14.4	-94.79	-3,063.8	-518.3	3,108.7	3,092.7	15.91	195.381		
800.0	798.7	821.7	821.7	1.7	16.4	-94.99	-3,063.8	-518.3	3,109.7	3,091.5	18.17	171.176		
900.0	897.5	920.5	920.5	2.0	18.4	-95.26	-3,063.8	-518.3	3,111.1	3,090.6	20.45	152.109		
1,000.0	996.2	1,019.2	1,019.2	2.4	20.4	-95.55	-3,063.8	-518.3	3,112.6	3,089.9	22.76	136.754		
1,100.0	1,094.9	1,117.9	1,117.9	2.7	22.4	-95.84	-3,063.8	-518.3	3,114.2	3,089.2	25.08	124.171		
1,200.0	1,193.6	1,216.6	1,216.6	3.1	24.3	-96.13	-3,063.8	-518.3	3,115.9	3,088.5	27.41	113.688		
1,300.0	1,292.3	1,315.3	1,315.3	3.4	26.3	-96.42	-3,063.8	-518.3	3,117.7	3,088.0	29.74	104.831		
1,400.0	1,391.0	1,414.0	1,414.0	3.8	28.3	-96.71	-3,063.8	-518.3	3,119.6	3,087.5	32.08	97.253		
1,500.0	1,489.7	1,512.7	1,512.7	4.2	30.3	-97.00	-3,063.8	-518.3	3,121.5	3,087.1	34.42	90.700		
1,600.0	1,588.4	1,611.4	1,611.4	4.5	32.2	-97.28	-3,063.8	-518.3	3,123.5	3,086.8	36.76	84.978		
1,700.0	1,687.1	1,710.1	1,710.1	4.9	34.2	-97.57	-3,063.8	-518.3	3,125.6	3,086.5	39.10	79.941		
1,800.0	1,785.8	1,808.8	1,808.8	5.3	36.2	-97.86	-3,063.8	-518.3	3,127.8	3,086.4	41.44	75.473		
1,900.0	1,884.5	1,907.5	1,907.5	5.7	38.2	-98.15	-3,063.8	-518.3	3,130.1	3,086.3	43.79	71.484		
2,000.0	1,983.2	2,006.2	2,006.2	6.0	40.1	-98.43	-3,063.8	-518.3	3,132.4	3,086.3	46.13	67.902		
2,100.0	2,082.0	2,105.0	2,105.0	6.4	42.1	-98.72	-3,063.8	-518.3	3,134.8	3,086.4	48.48	64.667		
2,200.0	2,180.7	2,203.7	2,203.7	6.8	44.1	-99.01	-3,063.8	-518.3	3,137.3	3,086.5	50.82	61.733		
2,300.0	2,279.4	2,302.4	2,302.4	7.2	46.0	-99.29	-3,063.8	-518.3	3,139.9	3,086.8	53.17	59.058		
2,400.0	2,378.1	2,401.1	2,401.1	7.5	48.0	-99.58	-3,063.8	-518.3	3,142.6	3,087.1	55.51	56.611		
2,500.0	2,476.8	2,499.8	2,499.8	7.9	50.0	-99.86	-3,063.8	-518.3	3,145.3	3,087.5	57.86	54.364		
2,600.0	2,575.5	2,598.5	2,598.5	8.3	52.0	-100.15	-3,063.8	-518.3	3,148.2	3,088.0	60.20	52.293		
2,700.0	2,674.2	2,697.2	2,697.2	8.7	53.9	-100.43	-3,063.8	-518.3	3,151.1	3,088.5	62.55	50.379		
2,800.0	2,772.9	2,795.9	2,795.9	9.0	55.9	-100.71	-3,063.8	-518.3	3,154.0	3,089.2	64.89	48.605		
2,900.0	2,871.6	2,894.6	2,894.6	9.4	57.9	-101.00	-3,063.8	-518.3	3,157.1	3,089.9	67.24	46.956		
3,000.0	2,970.3	2,993.3	2,993.3	9.8	59.9	-101.28	-3,063.8	-518.3	3,160.2	3,090.7	69.58	45.419		
3,100.0	3,069.0	3,092.0	3,092.0	10.2	61.8	-101.56	-3,063.8	-518.3	3,163.5	3,091.5	71.92	43.984		
3,200.0	3,167.7	3,190.7	3,190.7	10.6	63.8	-101.84	-3,063.8	-518.3	3,166.8	3,092.5	74.27	42.641		
3,300.0	3,266.4	3,289.4	3,289.4	10.9	65.8	-102.12	-3,063.8	-518.3	3,170.1	3,093.5	76.61	41.381		
3,400.0	3,365.1	3,388.1	3,388.1	11.3	67.8	-102.40	-3,063.8	-518.3	3,173.6	3,094.6	78.95	40.197		
3,500.0	3,463.8	3,486.8	3,486.8	11.7	69.7	-102.68	-3,063.8	-518.3	3,177.1	3,095.8	81.29	39.083		
3,600.0	3,562.5	3,585.5	3,585.5	12.1	71.7	-102.96	-3,063.8	-518.3	3,180.7	3,097.1	83.63	38.032		
3,700.0	3,661.2	3,684.2	3,684.2	12.5	73.7	-103.24	-3,063.8	-518.3	3,184.4	3,098.4	85.97	37.040		
3,800.0	3,759.9	3,782.9	3,782.9	12.8	75.7	-103.51	-3,063.8	-518.3	3,188.2	3,099.8	88.31	36.101		
3,900.0	3,858.6	3,881.6	3,881.6	13.2	77.6	-103.79	-3,063.8	-518.3	3,192.0	3,101.3	90.65	35.212		
4,000.0	3,957.3	3,980.3	3,980.3	13.6	79.6	-104.07	-3,063.8	-518.3	3,195.9	3,102.9	92.99	34.368		
4,100.0	4,056.0	4,079.0	4,079.0	14.0	81.6	-104.34	-3,063.8	-518.3	3,199.9	3,104.6	95.33	33.567		
4,200.0	4,154.7	4,177.7	4,177.7	14.4	83.6	-104.62	-3,063.8	-518.3	3,204.0	3,106.3	97.66	32.806		
4,300.0	4,253.4	4,276.4	4,276.4	14.7	85.5	-104.89	-3,063.8	-518.3	3,208.1	3,108.1	100.00	32.080		
4,400.0	4,352.1	4,375.1	4,375.1	15.1	87.5	-105.16	-3,063.8	-518.3	3,212.3	3,110.0	102.34	31.389		
4,500.0	4,450.8	4,473.8	4,473.8	15.5	89.5	-105.44	-3,063.8	-518.3	3,216.6	3,111.9	104.67	30.730		
4,600.0	4,549.5	4,572.5	4,572.5	15.9	91.5	-105.71	-3,063.8	-518.3	3,221.0	3,113.9	107.01	30.100		
4,700.0	4,648.2	4,671.2	4,671.2	16.3	93.4	-105.98	-3,063.8	-518.3	3,225.4	3,116.0	109.34	29.499		
4,800.0	4,746.9	4,769.9	4,769.9	16.6	95.4	-106.25	-3,063.8	-518.3	3,229.9	3,118.2	111.67	28.923		
4,900.0	4,845.7	4,868.7	4,868.7	17.0	97.4	-106.52	-3,063.8	-518.3	3,234.5	3,120.5	114.01	28.371		
5,000.0	4,944.4	4,967.4	4,967.4	17.4	99.3	-106.79	-3,063.8	-518.3	3,239.1	3,122.8	116.34	27.843		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	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: 7600-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)						
5,100.0	5,043.1	5,066.1	5,066.1	17.8	101.3	-107.06	-3,063.8	-518.3	3,243.9	3,125.2	118.67	27.336					
5,200.0	5,141.8	5,164.8	5,164.8	18.2	103.3	-107.32	-3,063.8	-518.3	3,248.7	3,127.7	121.00	26.849					
5,300.0	5,240.5	5,263.5	5,263.5	18.5	105.3	-107.59	-3,063.8	-518.3	3,253.5	3,130.2	123.33	26.382					
5,400.0	5,339.2	5,362.2	5,362.2	18.9	107.2	-107.86	-3,063.8	-518.3	3,258.5	3,132.8	125.65	25.932					
5,500.0	5,437.9	5,460.9	5,460.9	19.3	109.2	-108.12	-3,063.8	-518.3	3,263.5	3,135.5	127.98	25.500					
5,600.0	5,536.8	5,559.8	5,559.8	19.6	111.2	-108.44	-3,063.8	-518.3	3,268.1	3,137.8	130.30	25.082					
5,700.0	5,636.2	5,659.2	5,659.2	19.8	113.2	-108.69	-3,063.8	-518.3	3,271.6	3,139.0	132.53	24.685					
5,800.0	5,735.9	5,758.9	5,758.9	20.0	115.2	-108.86	-3,063.8	-518.3	3,274.0	3,139.2	134.73	24.301					
5,900.0	5,835.9	5,858.9	5,858.9	20.2	117.2	-108.95	-3,063.8	-518.3	3,275.3	3,138.4	136.88	23.927					
6,000.0	5,935.8	5,958.8	5,958.8	20.3	119.2	175.17	-3,063.8	-518.3	3,275.5	3,136.5	139.01	23.563					
6,100.0	6,035.8	6,058.8	6,058.8	20.4	121.2	175.17	-3,063.8	-518.3	3,275.5	3,134.3	141.15	23.205					
6,200.0	6,135.6	6,158.6	6,158.6	20.5	123.2	-4.88	-3,063.8	-518.3	3,270.0	3,127.8	142.20	22.996					
6,300.0	6,233.8	6,256.8	6,256.8	20.6	125.1	-5.03	-3,063.8	-518.3	3,251.6	3,110.8	140.77	23.099					
6,400.0	6,328.8	6,351.8	6,351.8	20.7	127.0	-5.30	-3,063.8	-518.3	3,220.5	3,083.7	136.80	23.542					
6,500.0	6,418.9	6,441.9	6,441.9	20.7	128.8	-5.72	-3,063.8	-518.3	3,177.4	3,047.1	130.32	24.382					
6,600.0	6,502.5	6,525.5	6,525.5	20.8	130.5	-6.33	-3,063.8	-518.3	3,123.0	3,001.5	121.43	25.718					
6,700.0	6,578.3	6,601.3	6,601.3	20.8	132.0	-7.23	-3,063.8	-518.3	3,058.1	2,947.7	110.37	27.707					
6,800.0	6,645.0	6,668.0	6,668.0	20.9	133.4	-8.56	-3,063.8	-518.3	2,984.0	2,886.4	97.59	30.576					
6,900.0	6,701.4	6,724.4	6,724.4	21.1	134.5	-10.63	-3,063.8	-518.3	2,901.8	2,817.8	84.04	34.528					
7,000.0	6,746.5	6,769.5	6,769.5	21.4	135.4	-14.11	-3,063.8	-518.3	2,813.1	2,740.9	72.18	38.976					
7,100.0	6,779.6	6,802.6	6,802.6	21.8	136.1	-20.79	-3,063.8	-518.3	2,719.3	2,649.8	69.44	39.158					
7,200.0	6,800.1	6,823.1	6,823.1	22.4	136.5	-36.94	-3,063.8	-518.3	2,622.0	2,526.7	95.28	27.518					
7,300.0	6,811.0	6,834.0	6,834.0	23.1	136.7	-46.47	-3,063.8	-518.3	2,523.2	2,409.5	113.67	22.198					
7,400.0	6,817.3	6,840.3	6,840.3	24.0	136.8	-80.54	-3,063.8	-518.3	2,424.0	2,269.2	154.82	15.657					
7,500.0	6,817.4	6,840.4	6,840.4	25.1	136.8	-90.92	-3,063.8	-518.3	2,324.7	2,166.1	158.64	14.654					
7,600.0	6,817.2	6,840.2	6,840.2	26.2	136.8	-90.88	-3,063.8	-518.3	2,225.5	2,065.4	160.01	13.908					
7,700.0	6,817.0	6,840.0	6,840.0	27.5	136.8	-90.84	-3,063.8	-518.3	2,126.3	1,964.8	161.45	13.170					
7,800.0	6,816.8	6,839.8	6,839.8	28.8	136.8	-90.80	-3,063.8	-518.3	2,027.1	1,864.2	162.95	12.440					
7,900.0	6,816.6	6,839.6	6,839.6	30.2	136.8	-90.76	-3,063.8	-518.3	1,928.1	1,763.6	164.51	11.721					
8,000.0	6,816.4	6,839.4	6,839.4	31.7	136.8	-90.72	-3,063.8	-518.3	1,829.2	1,663.1	166.10	11.012					
8,100.0	6,816.2	6,839.2	6,839.2	33.2	136.8	-90.68	-3,063.8	-518.3	1,730.4	1,562.7	167.74	10.316					
8,200.0	6,816.0	6,839.0	6,839.0	34.8	136.8	-90.64	-3,063.8	-518.3	1,631.8	1,462.4	169.40	9.633					
8,300.0	6,815.8	6,838.8	6,838.8	36.4	136.8	-90.60	-3,063.8	-518.3	1,533.3	1,362.2	171.09	8.962					
8,400.0	6,815.6	6,838.6	6,838.6	38.0	136.8	-90.56	-3,063.8	-518.3	1,435.1	1,262.3	172.80	8.305					
8,500.0	6,815.4	6,838.4	6,838.4	39.7	136.8	-90.52	-3,063.8	-518.3	1,337.1	1,162.5	174.54	7.661					
8,600.0	6,815.3	6,838.3	6,838.3	41.3	136.8	-90.48	-3,063.8	-518.3	1,239.4	1,063.1	176.29	7.031					
8,700.0	6,815.1	6,838.1	6,838.1	43.0	136.8	-90.44	-3,063.8	-518.3	1,142.1	964.1	178.05	6.415					
8,800.0	6,814.9	6,837.9	6,837.9	44.7	136.8	-90.40	-3,063.8	-518.3	1,045.4	865.5	179.83	5.813					
8,900.0	6,814.7	6,837.7	6,837.7	46.5	136.8	-90.36	-3,063.8	-518.3	949.3	767.7	181.62	5.227					
9,000.0	6,814.5	6,837.5	6,837.5	48.2	136.7	-90.32	-3,063.8	-518.3	854.1	670.7	183.41	4.657					
9,100.0	6,814.3	6,837.3	6,837.3	50.0	136.7	-90.28	-3,063.8	-518.3	760.2	574.9	185.22	4.104					
9,200.0	6,814.1	6,837.1	6,837.1	51.7	136.7	-90.24	-3,063.8	-518.3	668.0	480.9	187.04	3.571					
9,300.0	6,813.9	6,836.9	6,836.9	53.5	136.7	-90.20	-3,063.8	-518.3	578.4	389.5	188.86	3.062					
9,400.0	6,813.7	6,836.7	6,836.7	55.3	136.7	-90.16	-3,063.8	-518.3	492.8	302.1	190.69	2.584					
9,500.0	6,813.5	6,836.5	6,836.5	57.1	136.7	-90.12	-3,063.8	-518.3	413.8	221.2	192.52	2.149					
9,600.0	6,813.3	6,836.3	6,836.3	58.9	136.7	-90.08	-3,063.8	-518.3	345.8	151.4	194.37	1.779					
9,700.0	6,813.1	6,836.1	6,836.1	60.7	136.7	-90.04	-3,063.8	-518.3	296.5	100.3	196.21	1.511					
9,800.0	6,812.9	6,835.9	6,835.9	62.6	136.7	-90.00	-3,063.8	-518.3	276.1	78.1	198.06	1.394 Level 3					
9,808.3	6,812.9	6,835.9	6,835.9	62.7	136.7	-90.00	-3,063.8	-518.3	276.0	77.8	198.21	1.392 Level 3, CC, ES, SF					
9,900.0	6,812.8	6,835.8	6,835.8	64.4	136.7	-89.96	-3,063.8	-518.3	290.8	90.9	199.91	1.455 Level 3					
10,000.0	6,812.6	6,835.6	6,835.6	66.2	136.7	-89.92	-3,063.8	-518.3	336.1	134.3	201.77	1.666					

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	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: 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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,812.4	6,835.4	6,835.4	68.0	136.7	-89.88	-3,063.8	-518.3	401.6	198.0	203.63	1.972		
10,200.0	6,812.2	6,835.2	6,835.2	69.9	136.7	-89.84	-3,063.8	-518.3	479.2	273.7	205.49	2.332		
10,300.0	6,812.0	6,835.0	6,835.0	71.7	136.7	-89.80	-3,063.8	-518.3	563.9	356.5	207.36	2.719		
10,400.0	6,811.8	6,834.8	6,834.8	73.6	136.7	-89.76	-3,063.8	-518.3	652.9	443.7	209.22	3.121		
10,500.0	6,811.6	6,834.6	6,834.6	75.4	136.7	-89.72	-3,063.8	-518.3	744.8	533.7	211.09	3.528		
10,600.0	6,811.4	6,834.4	6,834.4	77.3	136.7	-89.68	-3,063.8	-518.3	838.4	625.5	212.97	3.937		
10,700.0	6,811.2	6,834.2	6,834.2	79.1	136.7	-89.64	-3,063.8	-518.3	933.5	718.6	214.84	4.345		
10,800.0	6,811.0	6,834.0	6,834.0	81.0	136.7	-89.60	-3,063.8	-518.3	1,029.4	812.7	216.72	4.750		
10,900.0	6,810.8	6,833.8	6,833.8	82.9	136.7	-89.56	-3,063.8	-518.3	1,126.1	907.5	218.60	5.151		
11,000.0	6,810.6	6,833.6	6,833.6	84.7	136.7	-89.53	-3,063.8	-518.3	1,223.3	1,002.8	220.47	5.548		
11,100.0	6,810.5	6,833.5	6,833.5	86.6	136.7	-89.49	-3,063.8	-518.3	1,320.9	1,098.5	222.36	5.940		
11,200.0	6,810.3	6,833.3	6,833.3	88.5	136.7	-89.45	-3,063.8	-518.3	1,418.8	1,194.6	224.24	6.327		
11,300.0	6,810.1	6,833.1	6,833.1	90.3	136.7	-89.41	-3,063.8	-518.3	1,517.0	1,290.9	226.12	6.709		
11,400.0	6,809.9	6,832.9	6,832.9	92.2	136.7	-89.37	-3,063.8	-518.3	1,615.5	1,387.5	228.01	7.085		
11,500.0	6,809.7	6,832.7	6,832.7	94.1	136.7	-89.33	-3,063.8	-518.3	1,714.1	1,484.2	229.89	7.456		
11,600.0	6,809.5	6,832.5	6,832.5	96.0	136.6	-89.29	-3,063.8	-518.3	1,812.9	1,581.1	231.78	7.822		
11,700.0	6,809.3	6,832.3	6,832.3	97.9	136.6	-89.25	-3,063.8	-518.3	1,911.7	1,678.1	233.67	8.182		
11,800.0	6,809.1	6,832.1	6,832.1	99.7	136.6	-89.21	-3,063.8	-518.3	2,010.8	1,775.2	235.55	8.536		
11,900.0	6,808.9	6,831.9	6,831.9	101.6	136.6	-89.17	-3,063.8	-518.3	2,109.8	1,872.4	237.44	8.886		
12,000.0	6,808.7	6,831.7	6,831.7	103.5	136.6	-89.13	-3,063.8	-518.3	2,209.0	1,969.7	239.33	9.230		
12,100.0	6,808.5	6,831.5	6,831.5	105.4	136.6	-89.09	-3,063.8	-518.3	2,308.3	2,067.1	241.22	9.569		
12,200.0	6,808.3	6,831.3	6,831.3	107.3	136.6	-89.05	-3,063.8	-518.3	2,407.6	2,164.5	243.11	9.903		
12,300.0	6,808.1	6,831.1	6,831.1	109.2	136.6	-89.01	-3,063.8	-518.3	2,507.0	2,262.0	245.01	10.232		
12,400.0	6,808.0	6,831.0	6,831.0	111.1	136.6	-88.97	-3,063.8	-518.3	2,606.4	2,359.5	246.90	10.556		
12,500.0	6,807.8	6,830.8	6,830.8	112.9	136.6	-88.93	-3,063.8	-518.3	2,705.8	2,457.0	248.79	10.876		
12,600.0	6,807.6	6,830.6	6,830.6	114.8	136.6	-88.89	-3,063.8	-518.3	2,805.3	2,554.6	250.69	11.191		
12,700.0	6,807.4	6,830.4	6,830.4	116.7	136.6	-88.85	-3,063.8	-518.3	2,904.9	2,652.3	252.58	11.501		
12,800.0	6,807.2	6,830.2	6,830.2	118.6	136.6	-88.81	-3,063.8	-518.3	3,004.4	2,749.9	254.47	11.806		
12,900.0	6,807.0	6,830.0	6,830.0	120.5	136.6	-88.77	-3,063.8	-518.3	3,104.0	2,847.6	256.37	12.108		
13,000.0	6,806.8	6,829.8	6,829.8	122.4	136.6	-88.73	-3,063.8	-518.3	3,203.6	2,945.4	258.26	12.404		
13,100.0	6,806.6	6,829.6	6,829.6	124.3	136.6	-88.69	-3,063.8	-518.3	3,303.3	3,043.1	260.16	12.697		
13,200.0	6,806.4	6,829.4	6,829.4	126.2	136.6	-88.65	-3,063.8	-518.3	3,402.9	3,140.9	262.06	12.985		
13,300.0	6,806.2	6,829.2	6,829.2	128.1	136.6	-88.61	-3,063.8	-518.3	3,502.6	3,238.7	263.95	13.270		
13,400.0	6,806.0	6,829.0	6,829.0	130.0	136.6	-88.57	-3,063.8	-518.3	3,602.3	3,336.5	265.85	13.550		
13,500.0	6,805.8	6,828.8	6,828.8	131.9	136.6	-88.53	-3,063.8	-518.3	3,702.0	3,434.3	267.75	13.827		
13,600.0	6,805.7	6,828.7	6,828.7	133.8	136.6	-88.49	-3,063.8	-518.3	3,801.7	3,532.1	269.64	14.099		
13,700.0	6,805.5	6,828.5	6,828.5	135.7	136.6	-88.45	-3,063.8	-518.3	3,901.5	3,630.0	271.54	14.368		
13,800.0	6,805.3	6,828.3	6,828.3	137.6	136.6	-88.41	-3,063.8	-518.3	4,001.2	3,727.8	273.44	14.633		
13,900.0	6,805.1	6,828.1	6,828.1	139.5	136.6	-88.37	-3,063.8	-518.3	4,101.0	3,825.7	275.33	14.895		
13,939.5	6,805.0	6,828.0	6,828.0	140.2	136.6	-88.35	-3,063.8	-518.3	4,140.5	3,864.4	276.08	14.997		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 28-1 (Exist) - Wellbore #1 - Wellbore #										Offset Site Error:		0.0 ft			
Survey Program: 7600-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis				Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
0.0	0.0	23.0	23.0	0.0	0.5	-169.70	-3,067.5	-557.3	3,117.7	3,117.2	0.46	6,774.675					
100.0	100.0	123.0	123.0	0.1	2.5	-169.70	-3,067.5	-557.3	3,117.7	3,115.1	2.57	1,211.897					
200.0	200.0	223.0	223.0	0.3	4.5	-169.70	-3,067.5	-557.3	3,117.7	3,112.9	4.80	649.881					
300.0	300.0	323.0	323.0	0.6	6.5	-169.70	-3,067.5	-557.3	3,117.7	3,110.7	7.02	443.984					
400.0	400.0	423.0	423.0	0.8	8.5	-169.70	-3,067.5	-557.3	3,117.7	3,108.5	9.25	337.163					
500.0	500.0	523.0	523.0	1.0	10.5	-93.87	-3,067.5	-557.3	3,117.8	3,106.4	11.46	271.996					
600.0	599.8	622.8	622.8	1.2	12.5	-93.95	-3,067.5	-557.3	3,118.2	3,104.5	13.68	227.961					
700.0	699.5	722.5	722.5	1.5	14.4	-94.10	-3,067.5	-557.3	3,118.8	3,102.9	15.91	196.016					
800.0	798.7	821.7	821.7	1.7	16.4	-94.30	-3,067.5	-557.3	3,119.7	3,101.5	18.17	171.723					
900.0	897.5	920.5	920.5	2.0	18.4	-94.57	-3,067.5	-557.3	3,120.9	3,100.4	20.45	152.584					
1,000.0	996.2	1,019.2	1,019.2	2.4	20.4	-94.86	-3,067.5	-557.3	3,122.2	3,099.5	22.76	137.172					
1,100.0	1,094.9	1,117.9	1,117.9	2.7	22.4	-95.15	-3,067.5	-557.3	3,123.6	3,098.6	25.08	124.541					
1,200.0	1,193.6	1,216.6	1,216.6	3.1	24.3	-95.44	-3,067.5	-557.3	3,125.1	3,097.7	27.41	114.019					
1,300.0	1,292.3	1,315.3	1,315.3	3.4	26.3	-95.73	-3,067.5	-557.3	3,126.7	3,097.0	29.74	105.128					
1,400.0	1,391.0	1,414.0	1,414.0	3.8	28.3	-96.02	-3,067.5	-557.3	3,128.4	3,096.3	32.08	97.522					
1,500.0	1,489.7	1,512.7	1,512.7	4.2	30.3	-96.30	-3,067.5	-557.3	3,130.1	3,095.7	34.42	90.944					
1,600.0	1,588.4	1,611.4	1,611.4	4.5	32.2	-96.59	-3,067.5	-557.3	3,132.0	3,095.2	36.76	85.201					
1,700.0	1,687.1	1,710.1	1,710.1	4.9	34.2	-96.88	-3,067.5	-557.3	3,133.9	3,094.8	39.10	80.145					
1,800.0	1,785.8	1,808.8	1,808.8	5.3	36.2	-97.17	-3,067.5	-557.3	3,135.9	3,094.4	41.45	75.661					
1,900.0	1,884.5	1,907.5	1,907.5	5.7	38.2	-97.45	-3,067.5	-557.3	3,137.9	3,094.1	43.79	71.657					
2,000.0	1,983.2	2,006.2	2,006.2	6.0	40.1	-97.74	-3,067.5	-557.3	3,140.1	3,093.9	46.14	68.061					
2,100.0	2,082.0	2,105.0	2,105.0	6.4	42.1	-98.03	-3,067.5	-557.3	3,142.3	3,093.8	48.48	64.814					
2,200.0	2,180.7	2,203.7	2,203.7	6.8	44.1	-98.31	-3,067.5	-557.3	3,144.6	3,093.8	50.83	61.868					
2,300.0	2,279.4	2,302.4	2,302.4	7.2	46.0	-98.60	-3,067.5	-557.3	3,147.0	3,093.8	53.17	59.184					
2,400.0	2,378.1	2,401.1	2,401.1	7.5	48.0	-98.88	-3,067.5	-557.3	3,149.5	3,094.0	55.52	56.728					
2,500.0	2,476.8	2,499.8	2,499.8	7.9	50.0	-99.17	-3,067.5	-557.3	3,152.0	3,094.2	57.87	54.472					
2,600.0	2,575.5	2,598.5	2,598.5	8.3	52.0	-99.45	-3,067.5	-557.3	3,154.7	3,094.4	60.21	52.393					
2,700.0	2,674.2	2,697.2	2,697.2	8.7	53.9	-99.74	-3,067.5	-557.3	3,157.4	3,094.8	62.56	50.472					
2,800.0	2,772.9	2,795.9	2,795.9	9.0	55.9	-100.02	-3,067.5	-557.3	3,160.2	3,095.3	64.90	48.691					
2,900.0	2,871.6	2,894.6	2,894.6	9.4	57.9	-100.30	-3,067.5	-557.3	3,163.0	3,095.8	67.25	47.036					
3,000.0	2,970.3	2,993.3	2,993.3	9.8	59.9	-100.58	-3,067.5	-557.3	3,166.0	3,096.4	69.59	45.494					
3,100.0	3,069.0	3,092.0	3,092.0	10.2	61.8	-100.87	-3,067.5	-557.3	3,169.0	3,097.1	71.94	44.053					
3,200.0	3,167.7	3,190.7	3,190.7	10.6	63.8	-101.15	-3,067.5	-557.3	3,172.1	3,097.8	74.28	42.705					
3,300.0	3,266.4	3,289.4	3,289.4	10.9	65.8	-101.43	-3,067.5	-557.3	3,175.3	3,098.7	76.62	41.440					
3,400.0	3,365.1	3,388.1	3,388.1	11.3	67.8	-101.71	-3,067.5	-557.3	3,178.5	3,099.6	78.97	40.252					
3,500.0	3,463.8	3,486.8	3,486.8	11.7	69.7	-101.99	-3,067.5	-557.3	3,181.9	3,100.6	81.31	39.133					
3,600.0	3,562.5	3,585.5	3,585.5	12.1	71.7	-102.27	-3,067.5	-557.3	3,185.3	3,101.6	83.65	38.079					
3,700.0	3,661.2	3,684.2	3,684.2	12.5	73.7	-102.54	-3,067.5	-557.3	3,188.8	3,102.8	85.99	37.082					
3,800.0	3,759.9	3,782.9	3,782.9	12.8	75.7	-102.82	-3,067.5	-557.3	3,192.3	3,104.0	88.33	36.140					
3,900.0	3,858.6	3,881.6	3,881.6	13.2	77.6	-103.10	-3,067.5	-557.3	3,196.0	3,105.3	90.67	35.248					
4,000.0	3,957.3	3,980.3	3,980.3	13.6	79.6	-103.38	-3,067.5	-557.3	3,199.7	3,106.7	93.01	34.401					
4,100.0	4,056.0	4,079.0	4,079.0	14.0	81.6	-103.65	-3,067.5	-557.3	3,203.5	3,108.2	95.35	33.597					
4,200.0	4,154.7	4,177.7	4,177.7	14.4	83.6	-103.93	-3,067.5	-557.3	3,207.4	3,109.7	97.69	32.832					
4,300.0	4,253.4	4,276.4	4,276.4	14.7	85.5	-104.20	-3,067.5	-557.3	3,211.3	3,111.3	100.03	32.105					
4,400.0	4,352.1	4,375.1	4,375.1	15.1	87.5	-104.48	-3,067.5	-557.3	3,215.4	3,113.0	102.36	31.411					
4,500.0	4,450.8	4,473.8	4,473.8	15.5	89.5	-104.75	-3,067.5	-557.3	3,219.4	3,114.7	104.70	30.749					
4,600.0	4,549.5	4,572.5	4,572.5	15.9	91.5	-105.02	-3,067.5	-557.3	3,223.6	3,116.6	107.04	30.117					
4,700.0	4,648.2	4,671.2	4,671.2	16.3	93.4	-105.29	-3,067.5	-557.3	3,227.9	3,118.5	109.37	29.513					
4,800.0	4,746.9	4,769.9	4,769.9	16.6	95.4	-105.56	-3,067.5	-557.3	3,232.2	3,120.5	111.71	28.935					
4,900.0	4,845.7	4,868.7	4,868.7	17.0	97.4	-105.83	-3,067.5	-557.3	3,236.6	3,122.5	114.04	28.382					
5,000.0	4,944.4	4,967.4	4,967.4	17.4	99.3	-106.10	-3,067.5	-557.3	3,241.1	3,124.7	116.37	27.851					

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 28-1 (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	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,043.1	5,066.1	5,066.1	17.8	101.3	-106.37	-3,067.5	-557.3	3,245.6	3,126.9	118.70	27.342		
5,200.0	5,141.8	5,164.8	5,164.8	18.2	103.3	-106.64	-3,067.5	-557.3	3,250.2	3,129.2	121.03	26.854		
5,300.0	5,240.5	5,263.5	5,263.5	18.5	105.3	-106.91	-3,067.5	-557.3	3,254.9	3,131.5	123.36	26.385		
5,400.0	5,339.2	5,362.2	5,362.2	18.9	107.2	-107.18	-3,067.5	-557.3	3,259.7	3,134.0	125.69	25.933		
5,500.0	5,437.9	5,460.9	5,460.9	19.3	109.2	-107.44	-3,067.5	-557.3	3,264.5	3,136.5	128.02	25.499		
5,600.0	5,536.8	5,559.8	5,559.8	19.6	111.2	-107.76	-3,067.5	-557.3	3,268.9	3,138.6	130.34	25.081		
5,700.0	5,636.2	5,659.2	5,659.2	19.8	113.2	-108.01	-3,067.5	-557.3	3,272.3	3,139.7	132.57	24.684		
5,800.0	5,735.9	5,758.9	5,758.9	20.0	115.2	-108.18	-3,067.5	-557.3	3,274.6	3,139.8	134.76	24.299		
5,900.0	5,835.9	5,858.9	5,858.9	20.2	117.2	-108.27	-3,067.5	-557.3	3,275.8	3,138.9	136.92	23.925		
6,000.0	5,935.8	5,958.8	5,958.8	20.3	119.2	175.85	-3,067.5	-557.3	3,276.1	3,137.0	139.05	23.561		
6,100.0	6,035.8	6,058.8	6,058.8	20.4	121.2	175.85	-3,067.5	-557.3	3,276.1	3,134.9	141.19	23.204		
6,200.0	6,135.6	6,158.6	6,158.6	20.5	123.2	-4.19	-3,067.5	-557.3	3,270.5	3,128.3	142.23	22.994		
6,300.0	6,233.8	6,256.8	6,256.8	20.6	125.1	-4.31	-3,067.5	-557.3	3,252.1	3,111.3	140.79	23.098		
6,400.0	6,328.8	6,351.8	6,351.8	20.7	127.0	-4.55	-3,067.5	-557.3	3,221.0	3,084.2	136.82	23.543		
6,500.0	6,418.9	6,441.9	6,441.9	20.7	128.8	-4.91	-3,067.5	-557.3	3,177.9	3,047.6	130.31	24.388		
6,600.0	6,502.5	6,525.5	6,525.5	20.8	130.5	-5.44	-3,067.5	-557.3	3,123.4	3,002.0	121.37	25.734		
6,700.0	6,578.3	6,601.3	6,601.3	20.8	132.0	-6.21	-3,067.5	-557.3	3,058.5	2,948.3	110.21	27.751		
6,800.0	6,645.0	6,668.0	6,668.0	20.9	133.4	-7.36	-3,067.5	-557.3	2,984.3	2,887.0	97.23	30.694		
6,900.0	6,701.4	6,724.4	6,724.4	21.1	134.5	-9.15	-3,067.5	-557.3	2,902.0	2,818.8	83.21	34.877		
7,000.0	6,746.5	6,769.5	6,769.5	21.4	135.4	-12.16	-3,067.5	-557.3	2,813.2	2,743.0	70.18	40.087		
7,100.0	6,779.6	6,802.6	6,802.6	21.8	136.1	-18.03	-3,067.5	-557.3	2,719.2	2,654.6	64.67	42.049		
7,200.0	6,800.1	6,823.1	6,823.1	22.4	136.5	-32.81	-3,067.5	-557.3	2,621.8	2,534.9	86.86	30.184		
7,300.0	6,811.0	6,834.0	6,834.0	23.1	136.7	-42.07	-3,067.5	-557.3	2,522.8	2,417.4	105.47	23.920		
7,400.0	6,817.3	6,840.3	6,840.3	24.0	136.8	-79.00	-3,067.5	-557.3	2,423.5	2,269.5	154.03	15.735		
7,500.0	6,817.4	6,840.4	6,840.4	25.1	136.8	-91.07	-3,067.5	-557.3	2,324.0	2,165.4	158.64	14.649		
7,600.0	6,817.2	6,840.2	6,840.2	26.2	136.8	-91.03	-3,067.5	-557.3	2,224.6	2,064.6	160.01	13.903		
7,700.0	6,817.0	6,840.0	6,840.0	27.5	136.8	-90.98	-3,067.5	-557.3	2,125.2	1,963.7	161.45	13.163		
7,800.0	6,816.8	6,839.8	6,839.8	28.8	136.8	-90.93	-3,067.5	-557.3	2,025.8	1,862.9	162.96	12.432		
7,900.0	6,816.6	6,839.6	6,839.6	30.2	136.8	-90.89	-3,067.5	-557.3	1,926.5	1,762.0	164.51	11.711		
8,000.0	6,816.4	6,839.4	6,839.4	31.7	136.8	-90.84	-3,067.5	-557.3	1,827.3	1,661.2	166.11	11.001		
8,100.0	6,816.2	6,839.2	6,839.2	33.2	136.8	-90.79	-3,067.5	-557.3	1,728.2	1,560.5	167.74	10.303		
8,200.0	6,816.0	6,839.0	6,839.0	34.8	136.8	-90.75	-3,067.5	-557.3	1,629.2	1,459.8	169.40	9.618		
8,300.0	6,815.8	6,838.8	6,838.8	36.4	136.8	-90.70	-3,067.5	-557.3	1,530.4	1,359.3	171.09	8.945		
8,400.0	6,815.6	6,838.6	6,838.6	38.0	136.8	-90.66	-3,067.5	-557.3	1,431.7	1,258.9	172.81	8.285		
8,500.0	6,815.4	6,838.4	6,838.4	39.7	136.8	-90.61	-3,067.5	-557.3	1,333.1	1,158.6	174.54	7.638		
8,600.0	6,815.3	6,838.3	6,838.3	41.3	136.8	-90.56	-3,067.5	-557.3	1,234.9	1,058.6	176.29	7.005		
8,700.0	6,815.1	6,838.1	6,838.1	43.0	136.8	-90.52	-3,067.5	-557.3	1,136.9	958.8	178.05	6.385		
8,800.0	6,814.9	6,837.9	6,837.9	44.7	136.8	-90.47	-3,067.5	-557.3	1,039.3	859.5	179.83	5.779		
8,900.0	6,814.7	6,837.7	6,837.7	46.5	136.8	-90.42	-3,067.5	-557.3	942.2	760.6	181.62	5.188		
9,000.0	6,814.5	6,837.5	6,837.5	48.2	136.7	-90.38	-3,067.5	-557.3	845.8	662.4	183.42	4.611		
9,100.0	6,814.3	6,837.3	6,837.3	50.0	136.7	-90.33	-3,067.5	-557.3	750.3	565.1	185.22	4.051		
9,200.0	6,814.1	6,837.1	6,837.1	51.7	136.7	-90.28	-3,067.5	-557.3	656.2	469.2	187.04	3.508		
9,300.0	6,813.9	6,836.9	6,836.9	53.5	136.7	-90.24	-3,067.5	-557.3	564.1	375.3	188.86	2.987		
9,400.0	6,813.7	6,836.7	6,836.7	55.3	136.7	-90.19	-3,067.5	-557.3	475.2	284.5	190.69	2.492		
9,500.0	6,813.5	6,836.5	6,836.5	57.1	136.7	-90.14	-3,067.5	-557.3	391.7	199.2	192.53	2.035		
9,600.0	6,813.3	6,836.3	6,836.3	58.9	136.7	-90.10	-3,067.5	-557.3	317.9	123.6	194.37	1.636		
9,700.0	6,813.1	6,836.1	6,836.1	60.7	136.7	-90.05	-3,067.5	-557.3	262.1	65.9	196.21	1.336 Level 3		
9,800.0	6,812.9	6,835.9	6,835.9	62.6	136.7	-90.01	-3,067.5	-557.3	237.3	39.2	198.06	1.198 Level 2		
9,811.9	6,812.9	6,835.9	6,835.9	62.8	136.7	-90.00	-3,067.5	-557.3	237.0	38.7	198.28	1.195 Level 2, CC, ES, SF		
9,900.0	6,812.8	6,835.8	6,835.8	64.4	136.7	-89.96	-3,067.5	-557.3	252.8	52.9	199.91	1.265 Level 3		
10,000.0	6,812.6	6,835.6	6,835.6	66.2	136.7	-89.91	-3,067.5	-557.3	302.6	100.8	201.77	1.499 Level 3		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 28-1 (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 (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
10,100.0	6,812.4	6,835.4	6,835.4	68.0	136.7	-89.87	-3,067.5	-557.3	373.0	169.4	203.63	1.832		
10,200.0	6,812.2	6,835.2	6,835.2	69.9	136.7	-89.82	-3,067.5	-557.3	454.7	249.2	205.49	2.213		
10,300.0	6,812.0	6,835.0	6,835.0	71.7	136.7	-89.77	-3,067.5	-557.3	542.6	335.2	207.35	2.617		
10,400.0	6,811.8	6,834.8	6,834.8	73.6	136.7	-89.73	-3,067.5	-557.3	634.0	424.8	209.22	3.030		
10,500.0	6,811.6	6,834.6	6,834.6	75.4	136.7	-89.68	-3,067.5	-557.3	727.7	516.7	211.09	3.448		
10,600.0	6,811.4	6,834.4	6,834.4	77.3	136.7	-89.63	-3,067.5	-557.3	822.9	610.0	212.96	3.864		
10,700.0	6,811.2	6,834.2	6,834.2	79.1	136.7	-89.59	-3,067.5	-557.3	919.2	704.3	214.84	4.278		
10,800.0	6,811.0	6,834.0	6,834.0	81.0	136.7	-89.54	-3,067.5	-557.3	1,016.1	799.4	216.71	4.689		
10,900.0	6,810.8	6,833.8	6,833.8	82.9	136.7	-89.49	-3,067.5	-557.3	1,113.6	895.0	218.59	5.094		
11,000.0	6,810.6	6,833.6	6,833.6	84.7	136.7	-89.45	-3,067.5	-557.3	1,211.5	991.0	220.47	5.495		
11,100.0	6,810.5	6,833.5	6,833.5	86.6	136.7	-89.40	-3,067.5	-557.3	1,309.7	1,087.3	222.35	5.890		
11,200.0	6,810.3	6,833.3	6,833.3	88.5	136.7	-89.36	-3,067.5	-557.3	1,408.2	1,183.9	224.23	6.280		
11,300.0	6,810.1	6,833.1	6,833.1	90.3	136.7	-89.31	-3,067.5	-557.3	1,506.8	1,280.7	226.11	6.664		
11,400.0	6,809.9	6,832.9	6,832.9	92.2	136.7	-89.26	-3,067.5	-557.3	1,605.7	1,377.7	228.00	7.042		
11,500.0	6,809.7	6,832.7	6,832.7	94.1	136.7	-89.22	-3,067.5	-557.3	1,704.6	1,474.8	229.88	7.415		
11,600.0	6,809.5	6,832.5	6,832.5	96.0	136.6	-89.17	-3,067.5	-557.3	1,803.7	1,571.9	231.77	7.782		
11,700.0	6,809.3	6,832.3	6,832.3	97.9	136.6	-89.12	-3,067.5	-557.3	1,902.9	1,669.2	233.65	8.144		
11,800.0	6,809.1	6,832.1	6,832.1	99.7	136.6	-89.08	-3,067.5	-557.3	2,002.2	1,766.6	235.54	8.500		
11,900.0	6,808.9	6,831.9	6,831.9	101.6	136.6	-89.03	-3,067.5	-557.3	2,101.5	1,864.1	237.43	8.851		
12,000.0	6,808.7	6,831.7	6,831.7	103.5	136.6	-88.98	-3,067.5	-557.3	2,200.9	1,961.6	239.32	9.196		
12,100.0	6,808.5	6,831.5	6,831.5	105.4	136.6	-88.94	-3,067.5	-557.3	2,300.3	2,059.1	241.21	9.537		
12,200.0	6,808.3	6,831.3	6,831.3	107.3	136.6	-88.89	-3,067.5	-557.3	2,399.8	2,156.7	243.10	9.872		
12,300.0	6,808.1	6,831.1	6,831.1	109.2	136.6	-88.85	-3,067.5	-557.3	2,499.3	2,254.3	244.99	10.202		
12,400.0	6,808.0	6,831.0	6,831.0	111.1	136.6	-88.80	-3,067.5	-557.3	2,598.9	2,352.0	246.88	10.527		
12,500.0	6,807.8	6,830.8	6,830.8	112.9	136.6	-88.75	-3,067.5	-557.3	2,698.5	2,449.7	248.77	10.847		
12,600.0	6,807.6	6,830.6	6,830.6	114.8	136.6	-88.71	-3,067.5	-557.3	2,798.1	2,547.5	250.66	11.163		
12,700.0	6,807.4	6,830.4	6,830.4	116.7	136.6	-88.66	-3,067.5	-557.3	2,897.8	2,645.2	252.56	11.474		
12,800.0	6,807.2	6,830.2	6,830.2	118.6	136.6	-88.61	-3,067.5	-557.3	2,997.5	2,743.0	254.45	11.780		
12,900.0	6,807.0	6,830.0	6,830.0	120.5	136.6	-88.57	-3,067.5	-557.3	3,097.2	2,840.8	256.34	12.082		
13,000.0	6,806.8	6,829.8	6,829.8	122.4	136.6	-88.52	-3,067.5	-557.3	3,196.9	2,938.6	258.24	12.380		
13,100.0	6,806.6	6,829.6	6,829.6	124.3	136.6	-88.47	-3,067.5	-557.3	3,296.6	3,036.5	260.13	12.673		
13,200.0	6,806.4	6,829.4	6,829.4	126.2	136.6	-88.43	-3,067.5	-557.3	3,396.4	3,134.3	262.02	12.962		
13,300.0	6,806.2	6,829.2	6,829.2	128.1	136.6	-88.38	-3,067.5	-557.3	3,496.1	3,232.2	263.92	13.247		
13,400.0	6,806.0	6,829.0	6,829.0	130.0	136.6	-88.34	-3,067.5	-557.3	3,595.9	3,330.1	265.81	13.528		
13,500.0	6,805.8	6,828.8	6,828.8	131.9	136.6	-88.29	-3,067.5	-557.3	3,695.7	3,428.0	267.71	13.805		
13,600.0	6,805.7	6,828.7	6,828.7	133.8	136.6	-88.24	-3,067.5	-557.3	3,795.5	3,525.9	269.60	14.078		
13,700.0	6,805.5	6,828.5	6,828.5	135.7	136.6	-88.20	-3,067.5	-557.3	3,895.3	3,623.8	271.50	14.347		
13,800.0	6,805.3	6,828.3	6,828.3	137.6	136.6	-88.15	-3,067.5	-557.3	3,995.1	3,721.7	273.39	14.613		
13,900.0	6,805.1	6,828.1	6,828.1	139.5	136.6	-88.10	-3,067.5	-557.3	4,094.9	3,819.6	275.29	14.875		
13,939.5	6,805.0	6,828.0	6,828.0	140.2	136.6	-88.08	-3,067.5	-557.3	4,134.4	3,858.4	276.04	14.978		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	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	24.0	24.0	0.0	0.5	-172.43	-4,236.9	-562.9	4,274.2	4,273.7	0.48	8,900.783		
100.0	100.0	124.0	124.0	0.1	2.5	-172.43	-4,236.9	-562.9	4,274.2	4,271.6	2.59	1,648.609		
200.0	200.0	224.0	224.0	0.3	4.5	-172.43	-4,236.9	-562.9	4,274.2	4,269.3	4.82	887.242		
300.0	300.0	324.0	324.0	0.6	6.5	-172.43	-4,236.9	-562.9	4,274.2	4,267.1	7.04	606.942		
400.0	400.0	424.0	424.0	0.8	8.5	-172.43	-4,236.9	-562.9	4,274.2	4,264.9	9.27	461.229		
500.0	500.0	524.0	524.0	1.0	10.5	-96.58	-4,236.9	-562.9	4,274.4	4,262.9	11.48	372.243		
600.0	599.8	623.8	623.8	1.2	12.5	-96.64	-4,236.9	-562.9	4,275.0	4,261.3	13.70	312.078		
700.0	699.5	723.5	723.5	1.5	14.5	-96.74	-4,236.9	-562.9	4,276.0	4,260.0	15.93	268.419		
800.0	798.7	822.7	822.7	1.7	16.5	-96.87	-4,236.9	-562.9	4,277.4	4,259.2	18.19	235.212		
900.0	897.5	921.5	921.5	2.0	18.4	-97.05	-4,236.9	-562.9	4,279.3	4,258.8	20.47	209.043		
1,000.0	996.2	1,020.2	1,020.2	2.4	20.4	-97.26	-4,236.9	-562.9	4,281.3	4,258.6	22.78	187.959		
1,100.0	1,094.9	1,118.9	1,118.9	2.7	22.4	-97.47	-4,236.9	-562.9	4,283.4	4,258.3	25.10	170.674		
1,200.0	1,193.6	1,217.6	1,217.6	3.1	24.4	-97.68	-4,236.9	-562.9	4,285.6	4,258.1	27.42	156.272		
1,300.0	1,292.3	1,316.3	1,316.3	3.4	26.3	-97.89	-4,236.9	-562.9	4,287.8	4,258.0	29.76	144.098		
1,400.0	1,391.0	1,415.0	1,415.0	3.8	28.3	-98.10	-4,236.9	-562.9	4,290.0	4,257.9	32.09	133.680		
1,500.0	1,489.7	1,513.7	1,513.7	4.2	30.3	-98.31	-4,236.9	-562.9	4,292.3	4,257.9	34.43	124.668		
1,600.0	1,588.4	1,612.4	1,612.4	4.5	32.2	-98.52	-4,236.9	-562.9	4,294.7	4,258.0	36.77	116.797		
1,700.0	1,687.1	1,711.1	1,711.1	4.9	34.2	-98.73	-4,236.9	-562.9	4,297.2	4,258.1	39.11	109.866		
1,800.0	1,785.8	1,809.8	1,809.8	5.3	36.2	-98.94	-4,236.9	-562.9	4,299.7	4,258.2	41.46	103.717		
1,900.0	1,884.5	1,908.5	1,908.5	5.7	38.2	-99.14	-4,236.9	-562.9	4,302.2	4,258.4	43.80	98.225		
2,000.0	1,983.2	2,007.2	2,007.2	6.0	40.1	-99.35	-4,236.9	-562.9	4,304.8	4,258.7	46.14	93.291		
2,100.0	2,082.0	2,106.0	2,106.0	6.4	42.1	-99.56	-4,236.9	-562.9	4,307.5	4,259.0	48.49	88.835		
2,200.0	2,180.7	2,204.7	2,204.7	6.8	44.1	-99.77	-4,236.9	-562.9	4,310.2	4,259.4	50.83	84.790		
2,300.0	2,279.4	2,303.4	2,303.4	7.2	46.1	-99.98	-4,236.9	-562.9	4,313.0	4,259.8	53.18	81.103		
2,400.0	2,378.1	2,402.1	2,402.1	7.5	48.0	-100.18	-4,236.9	-562.9	4,315.9	4,260.3	55.52	77.728		
2,500.0	2,476.8	2,500.8	2,500.8	7.9	50.0	-100.39	-4,236.9	-562.9	4,318.8	4,260.9	57.87	74.628		
2,600.0	2,575.5	2,599.5	2,599.5	8.3	52.0	-100.60	-4,236.9	-562.9	4,321.7	4,261.5	60.22	71.770		
2,700.0	2,674.2	2,698.2	2,698.2	8.7	54.0	-100.80	-4,236.9	-562.9	4,324.7	4,262.2	62.56	69.128		
2,800.0	2,772.9	2,796.9	2,796.9	9.0	55.9	-101.01	-4,236.9	-562.9	4,327.8	4,262.9	64.91	66.678		
2,900.0	2,871.6	2,895.6	2,895.6	9.4	57.9	-101.21	-4,236.9	-562.9	4,330.9	4,263.7	67.25	64.399		
3,000.0	2,970.3	2,994.3	2,994.3	9.8	59.9	-101.42	-4,236.9	-562.9	4,334.1	4,264.5	69.60	62.275		
3,100.0	3,069.0	3,093.0	3,093.0	10.2	61.9	-101.63	-4,236.9	-562.9	4,337.4	4,265.4	71.94	60.291		
3,200.0	3,167.7	3,191.7	3,191.7	10.6	63.8	-101.83	-4,236.9	-562.9	4,340.7	4,266.4	74.29	58.432		
3,300.0	3,266.4	3,290.4	3,290.4	10.9	65.8	-102.04	-4,236.9	-562.9	4,344.0	4,267.4	76.63	56.689		
3,400.0	3,365.1	3,389.1	3,389.1	11.3	67.8	-102.24	-4,236.9	-562.9	4,347.5	4,268.5	78.97	55.050		
3,500.0	3,463.8	3,487.8	3,487.8	11.7	69.8	-102.44	-4,236.9	-562.9	4,350.9	4,269.6	81.32	53.506		
3,600.0	3,562.5	3,586.5	3,586.5	12.1	71.7	-102.65	-4,236.9	-562.9	4,354.5	4,270.8	83.66	52.049		
3,700.0	3,661.2	3,685.2	3,685.2	12.5	73.7	-102.85	-4,236.9	-562.9	4,358.1	4,272.0	86.00	50.673		
3,800.0	3,759.9	3,783.9	3,783.9	12.8	75.7	-103.05	-4,236.9	-562.9	4,361.7	4,273.3	88.35	49.371		
3,900.0	3,858.6	3,882.6	3,882.6	13.2	77.7	-103.26	-4,236.9	-562.9	4,365.4	4,274.7	90.69	48.136		
4,000.0	3,957.3	3,981.3	3,981.3	13.6	79.6	-103.46	-4,236.9	-562.9	4,369.1	4,276.1	93.03	46.965		
4,100.0	4,056.0	4,080.0	4,080.0	14.0	81.6	-103.66	-4,236.9	-562.9	4,373.0	4,277.6	95.37	45.852		
4,200.0	4,154.7	4,178.7	4,178.7	14.4	83.6	-103.86	-4,236.9	-562.9	4,376.8	4,279.1	97.71	44.793		
4,300.0	4,253.4	4,277.4	4,277.4	14.7	85.5	-104.06	-4,236.9	-562.9	4,380.7	4,280.7	100.05	43.785		
4,400.0	4,352.1	4,376.1	4,376.1	15.1	87.5	-104.26	-4,236.9	-562.9	4,384.7	4,282.3	102.39	42.823		
4,500.0	4,450.8	4,474.8	4,474.8	15.5	89.5	-104.47	-4,236.9	-562.9	4,388.7	4,284.0	104.73	41.905		
4,600.0	4,549.5	4,573.5	4,573.5	15.9	91.5	-104.67	-4,236.9	-562.9	4,392.8	4,285.8	107.07	41.027		
4,700.0	4,648.2	4,672.2	4,672.2	16.3	93.4	-104.87	-4,236.9	-562.9	4,397.0	4,287.6	109.41	40.188		
4,800.0	4,746.9	4,770.9	4,770.9	16.6	95.4	-105.06	-4,236.9	-562.9	4,401.2	4,289.4	111.75	39.385		
4,900.0	4,845.7	4,869.7	4,869.7	17.0	97.4	-105.26	-4,236.9	-562.9	4,405.4	4,291.3	114.09	38.615		
5,000.0	4,944.4	4,968.4	4,968.4	17.4	99.4	-105.46	-4,236.9	-562.9	4,409.7	4,293.3	116.42	37.877		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,043.1	5,067.1	5,067.1	17.8	101.3	-105.66	-105.66	-4,236.9	-562.9	4,414.1	4,295.3	118.76	37.168	
5,200.0	5,141.8	5,165.8	5,165.8	18.2	103.3	-105.86	-105.86	-4,236.9	-562.9	4,418.5	4,297.4	121.09	36.488	
5,300.0	5,240.5	5,264.5	5,264.5	18.5	105.3	-106.06	-106.06	-4,236.9	-562.9	4,423.0	4,299.5	123.43	35.834	
5,400.0	5,339.2	5,363.2	5,363.2	18.9	107.3	-106.25	-106.25	-4,236.9	-562.9	4,427.5	4,301.7	125.77	35.204	
5,500.0	5,437.9	5,461.9	5,461.9	19.3	109.2	-106.45	-106.45	-4,236.9	-562.9	4,432.1	4,304.0	128.10	34.598	
5,600.0	5,536.8	5,560.8	5,560.8	19.6	111.2	-106.70	-106.70	-4,236.9	-562.9	4,436.2	4,305.8	130.41	34.016	
5,700.0	5,636.2	5,660.2	5,660.2	19.8	113.2	-106.90	-106.90	-4,236.9	-562.9	4,439.4	4,306.7	132.65	33.468	
5,800.0	5,735.9	5,759.9	5,759.9	20.0	115.2	-107.03	-107.03	-4,236.9	-562.9	4,441.6	4,306.7	134.84	32.939	
5,900.0	5,835.9	5,859.9	5,859.9	20.2	117.2	-107.11	-107.11	-4,236.9	-562.9	4,442.7	4,305.7	137.00	32.429	
6,000.0	5,935.8	5,959.8	5,959.8	20.3	119.2	-177.01	-177.01	-4,236.9	-562.9	4,443.0	4,303.8	139.12	31.935	
6,100.0	6,035.8	6,059.8	6,059.8	20.4	121.2	-177.01	-177.01	-4,236.9	-562.9	4,443.0	4,301.7	141.26	31.451	
6,200.0	6,135.6	6,159.6	6,159.6	20.5	123.2	-3.01	-3.01	-4,236.9	-562.9	4,437.4	4,295.1	142.31	31.181	
6,300.0	6,233.8	6,257.8	6,257.8	20.6	125.2	-3.10	-3.10	-4,236.9	-562.9	4,419.0	4,278.1	140.86	31.371	
6,400.0	6,328.8	6,352.8	6,352.8	20.7	127.1	-3.26	-3.26	-4,236.9	-562.9	4,387.9	4,251.0	136.86	32.060	
6,500.0	6,418.9	6,442.9	6,442.9	20.7	128.9	-3.50	-3.50	-4,236.9	-562.9	4,344.6	4,214.3	130.32	33.339	
6,600.0	6,502.5	6,526.5	6,526.5	20.8	130.5	-3.86	-3.86	-4,236.9	-562.9	4,290.1	4,168.8	121.31	35.365	
6,700.0	6,578.3	6,602.3	6,602.3	20.8	132.0	-4.39	-4.39	-4,236.9	-562.9	4,225.1	4,115.1	110.01	38.407	
6,800.0	6,645.0	6,669.0	6,669.0	20.9	133.4	-5.17	-5.17	-4,236.9	-562.9	4,150.7	4,054.0	96.72	42.915	
6,900.0	6,701.4	6,725.4	6,725.4	21.1	134.5	-6.39	-6.39	-4,236.9	-562.9	4,068.4	3,986.4	81.99	49.621	
7,000.0	6,746.5	6,770.5	6,770.5	21.4	135.4	-8.45	-8.45	-4,236.9	-562.9	3,979.3	3,912.3	67.04	59.358	
7,100.0	6,779.6	6,803.6	6,803.6	21.8	136.1	-12.51	-12.51	-4,236.9	-562.9	3,885.2	3,829.2	56.04	69.335	
7,200.0	6,800.1	6,824.1	6,824.1	22.4	136.5	-23.50	-23.50	-4,236.9	-562.9	3,787.6	3,720.6	67.03	56.504	
7,300.0	6,811.0	6,835.0	6,835.0	23.1	136.7	-31.02	-31.02	-4,236.9	-562.9	3,688.4	3,605.6	82.79	44.552	
7,400.0	6,817.3	6,841.3	6,841.3	24.0	136.8	-73.53	-73.53	-4,236.9	-562.9	3,588.8	3,438.5	150.34	23.871	
7,500.0	6,817.4	6,841.4	6,841.4	25.1	136.8	-91.65	-91.65	-4,236.9	-562.9	3,489.0	3,330.4	158.65	21.991	
7,600.0	6,817.2	6,841.2	6,841.2	26.2	136.8	-91.61	-91.61	-4,236.9	-562.9	3,389.3	3,229.2	160.02	21.180	
7,700.0	6,817.0	6,841.0	6,841.0	27.5	136.8	-91.56	-91.56	-4,236.9	-562.9	3,289.5	3,128.0	161.47	20.373	
7,800.0	6,816.8	6,840.8	6,840.8	28.8	136.8	-91.51	-91.51	-4,236.9	-562.9	3,189.8	3,026.8	162.97	19.573	
7,900.0	6,816.6	6,840.6	6,840.6	30.2	136.8	-91.46	-91.46	-4,236.9	-562.9	3,090.0	2,925.5	164.52	18.782	
8,000.0	6,816.4	6,840.4	6,840.4	31.7	136.8	-91.42	-91.42	-4,236.9	-562.9	2,990.3	2,824.2	166.12	18.001	
8,100.0	6,816.2	6,840.2	6,840.2	33.2	136.8	-91.37	-91.37	-4,236.9	-562.9	2,890.6	2,722.9	167.76	17.231	
8,200.0	6,816.0	6,840.0	6,840.0	34.8	136.8	-91.32	-91.32	-4,236.9	-562.9	2,791.0	2,621.5	169.42	16.474	
8,300.0	6,815.8	6,839.8	6,839.8	36.4	136.8	-91.27	-91.27	-4,236.9	-562.9	2,691.3	2,520.2	171.11	15.728	
8,400.0	6,815.6	6,839.6	6,839.6	38.0	136.8	-91.23	-91.23	-4,236.9	-562.9	2,591.7	2,418.9	172.83	14.996	
8,500.0	6,815.4	6,839.4	6,839.4	39.7	136.8	-91.18	-91.18	-4,236.9	-562.9	2,492.1	2,317.6	174.56	14.277	
8,600.0	6,815.3	6,839.3	6,839.3	41.3	136.8	-91.13	-91.13	-4,236.9	-562.9	2,392.6	2,216.3	176.31	13.570	
8,700.0	6,815.1	6,839.1	6,839.1	43.0	136.8	-91.08	-91.08	-4,236.9	-562.9	2,293.1	2,115.0	178.07	12.877	
8,800.0	6,814.9	6,838.9	6,838.9	44.7	136.8	-91.04	-91.04	-4,236.9	-562.9	2,193.6	2,013.7	179.85	12.197	
8,900.0	6,814.7	6,838.7	6,838.7	46.5	136.8	-90.99	-90.99	-4,236.9	-562.9	2,094.2	1,912.5	181.64	11.529	
9,000.0	6,814.5	6,838.5	6,838.5	48.2	136.8	-90.94	-90.94	-4,236.9	-562.9	1,994.8	1,811.4	183.44	10.874	
9,100.0	6,814.3	6,838.3	6,838.3	50.0	136.8	-90.89	-90.89	-4,236.9	-562.9	1,895.5	1,710.3	185.25	10.232	
9,200.0	6,814.1	6,838.1	6,838.1	51.7	136.8	-90.85	-90.85	-4,236.9	-562.9	1,796.3	1,609.3	187.07	9.603	
9,300.0	6,813.9	6,837.9	6,837.9	53.5	136.8	-90.80	-90.80	-4,236.9	-562.9	1,697.2	1,508.3	188.89	8.985	
9,400.0	6,813.7	6,837.7	6,837.7	55.3	136.8	-90.75	-90.75	-4,236.9	-562.9	1,598.2	1,407.5	190.72	8.380	
9,500.0	6,813.5	6,837.5	6,837.5	57.1	136.8	-90.70	-90.70	-4,236.9	-562.9	1,499.3	1,306.8	192.56	7.786	
9,600.0	6,813.3	6,837.3	6,837.3	58.9	136.7	-90.66	-90.66	-4,236.9	-562.9	1,400.6	1,206.2	194.40	7.205	
9,700.0	6,813.1	6,837.1	6,837.1	60.7	136.7	-90.61	-90.61	-4,236.9	-562.9	1,302.1	1,105.8	196.24	6.635	
9,800.0	6,812.9	6,836.9	6,836.9	62.6	136.7	-90.56	-90.56	-4,236.9	-562.9	1,203.8	1,005.7	198.09	6.077	
9,900.0	6,812.8	6,836.8	6,836.8	64.4	136.7	-90.51	-90.51	-4,236.9	-562.9	1,105.8	905.9	199.95	5.531	
10,000.0	6,812.6	6,836.6	6,836.6	66.2	136.7	-90.47	-90.47	-4,236.9	-562.9	1,008.3	806.5	201.81	4.996	
10,100.0	6,812.4	6,836.4	6,836.4	68.0	136.7	-90.42	-90.42	-4,236.9	-562.9	911.2	707.6	203.67	4.474	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	6,812.2	6,836.2	6,836.2	69.9	136.7	-90.37	-90.37	-4,236.9	-562.9	814.9	609.4	205.53	3.965	
10,300.0	6,812.0	6,836.0	6,836.0	71.7	136.7	-90.32	-90.32	-4,236.9	-562.9	719.6	512.2	207.40	3.470	
10,400.0	6,811.8	6,835.8	6,835.8	73.6	136.7	-90.28	-90.28	-4,236.9	-562.9	625.7	416.4	209.27	2.990	
10,500.0	6,811.6	6,835.6	6,835.6	75.4	136.7	-90.23	-90.23	-4,236.9	-562.9	534.1	322.9	211.14	2.530	
10,600.0	6,811.4	6,835.4	6,835.4	77.3	136.7	-90.18	-90.18	-4,236.9	-562.9	446.1	233.1	213.01	2.094	
10,700.0	6,811.2	6,835.2	6,835.2	79.1	136.7	-90.13	-90.13	-4,236.9	-562.9	364.3	149.4	214.89	1.695	
10,800.0	6,811.0	6,835.0	6,835.0	81.0	136.7	-90.09	-90.09	-4,236.9	-562.9	294.0	77.2	216.76	1.356	Level 3
10,900.0	6,810.8	6,834.8	6,834.8	82.9	136.7	-90.04	-90.04	-4,236.9	-562.9	245.3	26.6	218.64	1.122	Level 2
10,981.4	6,810.7	6,834.7	6,834.7	84.4	136.7	-90.00	-90.00	-4,236.9	-562.9	231.4	11.2	220.17	1.051	Level 2, CC, ES, SF
11,000.0	6,810.6	6,834.6	6,834.6	84.7	136.7	-89.99	-89.99	-4,236.9	-562.9	232.1	11.6	220.52	1.053	Level 2
11,100.0	6,810.5	6,834.5	6,834.5	86.6	136.7	-89.94	-89.94	-4,236.9	-562.9	260.0	37.6	222.40	1.169	Level 2
11,200.0	6,810.3	6,834.3	6,834.3	88.5	136.7	-89.90	-89.90	-4,236.9	-562.9	318.3	94.1	224.29	1.419	Level 3
11,300.0	6,810.1	6,834.1	6,834.1	90.3	136.7	-89.85	-89.85	-4,236.9	-562.9	393.8	167.6	226.17	1.741	
11,400.0	6,809.9	6,833.9	6,833.9	92.2	136.7	-89.80	-89.80	-4,236.9	-562.9	478.3	250.3	228.06	2.097	
11,500.0	6,809.7	6,833.7	6,833.7	94.1	136.7	-89.75	-89.75	-4,236.9	-562.9	567.9	338.0	229.94	2.470	
11,600.0	6,809.5	6,833.5	6,833.5	96.0	136.7	-89.71	-89.71	-4,236.9	-562.9	660.5	428.7	231.83	2.849	
11,700.0	6,809.3	6,833.3	6,833.3	97.9	136.7	-89.66	-89.66	-4,236.9	-562.9	755.0	521.3	233.72	3.230	
11,800.0	6,809.1	6,833.1	6,833.1	99.7	136.7	-89.61	-89.61	-4,236.9	-562.9	850.7	615.1	235.61	3.611	
11,900.0	6,808.9	6,832.9	6,832.9	101.6	136.7	-89.56	-89.56	-4,236.9	-562.9	947.3	709.8	237.50	3.989	
12,000.0	6,808.7	6,832.7	6,832.7	103.5	136.7	-89.52	-89.52	-4,236.9	-562.9	1,044.6	805.2	239.39	4.364	
12,100.0	6,808.5	6,832.5	6,832.5	105.4	136.7	-89.47	-89.47	-4,236.9	-562.9	1,142.3	901.0	241.28	4.734	
12,200.0	6,808.3	6,832.3	6,832.3	107.3	136.6	-89.42	-89.42	-4,236.9	-562.9	1,240.4	997.2	243.17	5.101	
12,300.0	6,808.1	6,832.1	6,832.1	109.2	136.6	-89.37	-89.37	-4,236.9	-562.9	1,338.8	1,093.7	245.06	5.463	
12,400.0	6,808.0	6,832.0	6,832.0	111.1	136.6	-89.33	-89.33	-4,236.9	-562.9	1,437.4	1,190.4	246.96	5.820	
12,500.0	6,807.8	6,831.8	6,831.8	112.9	136.6	-89.28	-89.28	-4,236.9	-562.9	1,536.2	1,287.3	248.85	6.173	
12,600.0	6,807.6	6,831.6	6,831.6	114.8	136.6	-89.23	-89.23	-4,236.9	-562.9	1,635.1	1,384.4	250.74	6.521	
12,700.0	6,807.4	6,831.4	6,831.4	116.7	136.6	-89.18	-89.18	-4,236.9	-562.9	1,734.1	1,481.5	252.64	6.864	
12,800.0	6,807.2	6,831.2	6,831.2	118.6	136.6	-89.14	-89.14	-4,236.9	-562.9	1,833.3	1,578.8	254.53	7.203	
12,900.0	6,807.0	6,831.0	6,831.0	120.5	136.6	-89.09	-89.09	-4,236.9	-562.9	1,932.5	1,676.1	256.43	7.536	
13,000.0	6,806.8	6,830.8	6,830.8	122.4	136.6	-89.04	-89.04	-4,236.9	-562.9	2,031.9	1,773.5	258.32	7.866	
13,100.0	6,806.6	6,830.6	6,830.6	124.3	136.6	-88.99	-88.99	-4,236.9	-562.9	2,131.2	1,871.0	260.22	8.190	
13,200.0	6,806.4	6,830.4	6,830.4	126.2	136.6	-88.95	-88.95	-4,236.9	-562.9	2,230.7	1,968.6	262.11	8.510	
13,300.0	6,806.2	6,830.2	6,830.2	128.1	136.6	-88.90	-88.90	-4,236.9	-562.9	2,330.2	2,066.1	264.01	8.826	
13,400.0	6,806.0	6,830.0	6,830.0	130.0	136.6	-88.85	-88.85	-4,236.9	-562.9	2,429.7	2,163.8	265.91	9.137	
13,500.0	6,805.8	6,829.8	6,829.8	131.9	136.6	-88.80	-88.80	-4,236.9	-562.9	2,529.2	2,261.4	267.80	9.444	
13,600.0	6,805.7	6,829.7	6,829.7	133.8	136.6	-88.76	-88.76	-4,236.9	-562.9	2,628.8	2,359.1	269.70	9.747	
13,700.0	6,805.5	6,829.5	6,829.5	135.7	136.6	-88.71	-88.71	-4,236.9	-562.9	2,728.5	2,456.9	271.60	10.046	
13,800.0	6,805.3	6,829.3	6,829.3	137.6	136.6	-88.66	-88.66	-4,236.9	-562.9	2,828.1	2,554.6	273.50	10.341	
13,900.0	6,805.1	6,829.1	6,829.1	139.5	136.6	-88.61	-88.61	-4,236.9	-562.9	2,927.8	2,652.4	275.39	10.631	
13,939.5	6,805.0	6,829.0	6,829.0	140.2	136.6	-88.59	-88.59	-4,236.9	-562.9	2,967.2	2,691.1	276.14	10.745	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 5 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	24.0	24.0	0.0	0.5	-169.77	-3,103.9	-560.1	3,154.0	3,153.6	0.48	6,568.201	
100.0	100.0	124.0	124.0	0.1	2.5	-169.77	-3,103.9	-560.1	3,154.0	3,151.5	2.59	1,216.567	
200.0	200.0	224.0	224.0	0.3	4.5	-169.77	-3,103.9	-560.1	3,154.0	3,149.2	4.82	654.727	
300.0	300.0	324.0	324.0	0.6	6.5	-169.77	-3,103.9	-560.1	3,154.0	3,147.0	7.04	447.884	
400.0	400.0	424.0	424.0	0.8	8.5	-169.77	-3,103.9	-560.1	3,154.0	3,144.8	9.27	340.357	
500.0	500.0	524.0	524.0	1.0	10.5	-93.93	-3,103.9	-560.1	3,154.2	3,142.7	11.48	274.688	
600.0	599.8	623.8	623.8	1.2	12.5	-94.02	-3,103.9	-560.1	3,154.5	3,140.8	13.70	230.282	
700.0	699.5	723.5	723.5	1.5	14.5	-94.17	-3,103.9	-560.1	3,155.2	3,139.2	15.93	198.053	
800.0	798.7	822.7	822.7	1.7	16.5	-94.37	-3,103.9	-560.1	3,156.1	3,137.9	18.19	173.535	
900.0	897.5	921.5	921.5	2.0	18.4	-94.63	-3,103.9	-560.1	3,157.3	3,136.8	20.47	154.213	
1,000.0	996.2	1,020.2	1,020.2	2.4	20.4	-94.91	-3,103.9	-560.1	3,158.6	3,135.9	22.78	138.650	
1,100.0	1,094.9	1,118.9	1,118.9	2.7	22.4	-95.20	-3,103.9	-560.1	3,160.1	3,135.0	25.10	125.893	
1,200.0	1,193.6	1,217.6	1,217.6	3.1	24.4	-95.49	-3,103.9	-560.1	3,161.6	3,134.2	27.43	115.265	
1,300.0	1,292.3	1,316.3	1,316.3	3.4	26.3	-95.77	-3,103.9	-560.1	3,163.2	3,133.4	29.76	106.283	
1,400.0	1,391.0	1,415.0	1,415.0	3.8	28.3	-96.06	-3,103.9	-560.1	3,164.9	3,132.8	32.10	98.598	
1,500.0	1,489.7	1,513.7	1,513.7	4.2	30.3	-96.34	-3,103.9	-560.1	3,166.6	3,132.2	34.44	91.951	
1,600.0	1,588.4	1,612.4	1,612.4	4.5	32.2	-96.63	-3,103.9	-560.1	3,168.4	3,131.7	36.78	86.147	
1,700.0	1,687.1	1,711.1	1,711.1	4.9	34.2	-96.91	-3,103.9	-560.1	3,170.4	3,131.2	39.12	81.037	
1,800.0	1,785.8	1,809.8	1,809.8	5.3	36.2	-97.20	-3,103.9	-560.1	3,172.4	3,130.9	41.47	76.505	
1,900.0	1,884.5	1,908.5	1,908.5	5.7	38.2	-97.48	-3,103.9	-560.1	3,174.4	3,130.6	43.81	72.458	
2,000.0	1,983.2	2,007.2	2,007.2	6.0	40.1	-97.76	-3,103.9	-560.1	3,176.6	3,130.4	46.16	68.823	
2,100.0	2,082.0	2,106.0	2,106.0	6.4	42.1	-98.05	-3,103.9	-560.1	3,178.8	3,130.3	48.50	65.541	
2,200.0	2,180.7	2,204.7	2,204.7	6.8	44.1	-98.33	-3,103.9	-560.1	3,181.1	3,130.3	50.85	62.562	
2,300.0	2,279.4	2,303.4	2,303.4	7.2	46.1	-98.61	-3,103.9	-560.1	3,183.5	3,130.3	53.19	59.848	
2,400.0	2,378.1	2,402.1	2,402.1	7.5	48.0	-98.89	-3,103.9	-560.1	3,186.0	3,130.5	55.54	57.365	
2,500.0	2,476.8	2,500.8	2,500.8	7.9	50.0	-99.17	-3,103.9	-560.1	3,188.6	3,130.7	57.89	55.084	
2,600.0	2,575.5	2,599.5	2,599.5	8.3	52.0	-99.45	-3,103.9	-560.1	3,191.2	3,131.0	60.23	52.983	
2,700.0	2,674.2	2,698.2	2,698.2	8.7	54.0	-99.73	-3,103.9	-560.1	3,193.9	3,131.3	62.58	51.040	
2,800.0	2,772.9	2,796.9	2,796.9	9.0	55.9	-100.01	-3,103.9	-560.1	3,196.7	3,131.8	64.92	49.239	
2,900.0	2,871.6	2,895.6	2,895.6	9.4	57.9	-100.29	-3,103.9	-560.1	3,199.6	3,132.3	67.27	47.565	
3,000.0	2,970.3	2,994.3	2,994.3	9.8	59.9	-100.57	-3,103.9	-560.1	3,202.5	3,132.9	69.61	46.005	
3,100.0	3,069.0	3,093.0	3,093.0	10.2	61.9	-100.85	-3,103.9	-560.1	3,205.5	3,133.6	71.96	44.548	
3,200.0	3,167.7	3,191.7	3,191.7	10.6	63.8	-101.13	-3,103.9	-560.1	3,208.6	3,134.3	74.30	43.185	
3,300.0	3,266.4	3,290.4	3,290.4	10.9	65.8	-101.41	-3,103.9	-560.1	3,211.8	3,135.2	76.64	41.906	
3,400.0	3,365.1	3,389.1	3,389.1	11.3	67.8	-101.68	-3,103.9	-560.1	3,215.0	3,136.1	78.99	40.704	
3,500.0	3,463.8	3,487.8	3,487.8	11.7	69.8	-101.96	-3,103.9	-560.1	3,218.4	3,137.0	81.33	39.572	
3,600.0	3,562.5	3,586.5	3,586.5	12.1	71.7	-102.24	-3,103.9	-560.1	3,221.8	3,138.1	83.67	38.505	
3,700.0	3,661.2	3,685.2	3,685.2	12.5	73.7	-102.51	-3,103.9	-560.1	3,225.3	3,139.3	86.01	37.498	
3,800.0	3,759.9	3,783.9	3,783.9	12.8	75.7	-102.79	-3,103.9	-560.1	3,228.8	3,140.5	88.35	36.544	
3,900.0	3,858.6	3,882.6	3,882.6	13.2	77.7	-103.06	-3,103.9	-560.1	3,232.5	3,141.8	90.69	35.642	
4,000.0	3,957.3	3,981.3	3,981.3	13.6	79.6	-103.33	-3,103.9	-560.1	3,236.2	3,143.1	93.03	34.785	
4,100.0	4,056.0	4,080.0	4,080.0	14.0	81.6	-103.61	-3,103.9	-560.1	3,240.0	3,144.6	95.37	33.972	
4,200.0	4,154.7	4,178.7	4,178.7	14.4	83.6	-103.88	-3,103.9	-560.1	3,243.8	3,146.1	97.71	33.198	
4,300.0	4,253.4	4,277.4	4,277.4	14.7	85.5	-104.15	-3,103.9	-560.1	3,247.7	3,147.7	100.05	32.462	
4,400.0	4,352.1	4,376.1	4,376.1	15.1	87.5	-104.42	-3,103.9	-560.1	3,251.8	3,149.4	102.39	31.760	
4,500.0	4,450.8	4,474.8	4,474.8	15.5	89.5	-104.69	-3,103.9	-560.1	3,255.8	3,151.1	104.72	31.090	
4,600.0	4,549.5	4,573.5	4,573.5	15.9	91.5	-104.96	-3,103.9	-560.1	3,260.0	3,152.9	107.06	30.451	
4,700.0	4,648.2	4,672.2	4,672.2	16.3	93.4	-105.23	-3,103.9	-560.1	3,264.2	3,154.8	109.39	29.839	
4,800.0	4,746.9	4,770.9	4,770.9	16.6	95.4	-105.50	-3,103.9	-560.1	3,268.5	3,156.8	111.73	29.254	
4,900.0	4,845.7	4,869.7	4,869.7	17.0	97.4	-105.77	-3,103.9	-560.1	3,272.9	3,158.8	114.06	28.694	
5,000.0	4,944.4	4,968.4	4,968.4	17.4	99.4	-106.03	-3,103.9	-560.1	3,277.4	3,161.0	116.39	28.157	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 5 (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft	
Survey Program: 7600-UNKNOWN												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)				
5,100.0	5,043.1	5,067.1	5,067.1	17.8	101.3	-106.30	-3,103.9	-560.1	3,281.9	3,163.2	118.73	27.642			
5,200.0	5,141.8	5,165.8	5,165.8	18.2	103.3	-106.56	-3,103.9	-560.1	3,286.5	3,165.4	121.06	27.148			
5,300.0	5,240.5	5,264.5	5,264.5	18.5	105.3	-106.83	-3,103.9	-560.1	3,291.1	3,167.8	123.39	26.673			
5,400.0	5,339.2	5,363.2	5,363.2	18.9	107.3	-107.09	-3,103.9	-560.1	3,295.9	3,170.2	125.72	26.216			
5,500.0	5,437.9	5,461.9	5,461.9	19.3	109.2	-107.36	-3,103.9	-560.1	3,300.7	3,172.6	128.05	25.777			
5,600.0	5,536.8	5,560.8	5,560.8	19.6	111.2	-107.67	-3,103.9	-560.1	3,305.1	3,174.7	130.36	25.353			
5,700.0	5,636.2	5,660.2	5,660.2	19.8	113.2	-107.92	-3,103.9	-560.1	3,308.4	3,175.8	132.59	24.952			
5,800.0	5,735.9	5,759.9	5,759.9	20.0	115.2	-108.08	-3,103.9	-560.1	3,310.7	3,176.0	134.79	24.563			
5,900.0	5,835.9	5,859.9	5,859.9	20.2	117.2	-108.17	-3,103.9	-560.1	3,312.0	3,175.0	136.94	24.185			
6,000.0	5,935.8	5,959.8	5,959.8	20.3	119.2	175.95	-3,103.9	-560.1	3,312.2	3,173.1	139.07	23.817			
6,100.0	6,035.8	6,059.8	6,059.8	20.4	121.2	175.95	-3,103.9	-560.1	3,312.2	3,171.0	141.21	23.456			
6,200.0	6,135.6	6,159.6	6,159.6	20.5	123.2	-4.09	-3,103.9	-560.1	3,306.7	3,164.4	142.26	23.244			
6,300.0	6,233.8	6,257.8	6,257.8	20.6	125.2	-4.22	-3,103.9	-560.1	3,288.2	3,147.4	140.82	23.351			
6,400.0	6,328.8	6,352.8	6,352.8	20.7	127.1	-4.44	-3,103.9	-560.1	3,257.2	3,120.3	136.84	23.804			
6,500.0	6,418.9	6,442.9	6,442.9	20.7	128.9	-4.79	-3,103.9	-560.1	3,214.0	3,083.7	130.32	24.662			
6,600.0	6,502.5	6,526.5	6,526.5	20.8	130.5	-5.31	-3,103.9	-560.1	3,159.5	3,038.1	121.38	26.030			
6,700.0	6,578.3	6,602.3	6,602.3	20.8	132.0	-6.06	-3,103.9	-560.1	3,094.6	2,984.4	110.21	28.080			
6,800.0	6,645.0	6,669.0	6,669.0	20.9	133.4	-7.19	-3,103.9	-560.1	3,020.4	2,923.2	97.19	31.077			
6,900.0	6,701.4	6,725.4	6,725.4	21.1	134.5	-8.93	-3,103.9	-560.1	2,938.1	2,855.0	83.11	35.353			
7,000.0	6,746.5	6,770.5	6,770.5	21.4	135.4	-11.88	-3,103.9	-560.1	2,849.2	2,779.3	69.91	40.758			
7,100.0	6,779.6	6,803.6	6,803.6	21.8	136.1	-17.61	-3,103.9	-560.1	2,755.3	2,691.3	63.97	43.072			
7,200.0	6,800.1	6,824.1	6,824.1	22.4	136.5	-32.15	-3,103.9	-560.1	2,657.8	2,572.4	85.49	31.091			
7,300.0	6,811.0	6,835.0	6,835.0	23.1	136.7	-41.32	-3,103.9	-560.1	2,558.9	2,454.8	104.04	24.595			
7,400.0	6,817.3	6,841.3	6,841.3	24.0	136.8	-78.70	-3,103.9	-560.1	2,459.5	2,305.6	153.88	15.983			
7,500.0	6,817.4	6,841.4	6,841.4	25.1	136.8	-91.10	-3,103.9	-560.1	2,360.0	2,201.3	158.66	14.874			
7,600.0	6,817.2	6,841.2	6,841.2	26.2	136.8	-91.06	-3,103.9	-560.1	2,260.5	2,100.5	160.03	14.125			
7,700.0	6,817.0	6,841.0	6,841.0	27.5	136.8	-91.01	-3,103.9	-560.1	2,161.1	1,999.6	161.47	13.384			
7,800.0	6,816.8	6,840.8	6,840.8	28.8	136.8	-90.96	-3,103.9	-560.1	2,061.7	1,898.7	162.98	12.650			
7,900.0	6,816.6	6,840.6	6,840.6	30.2	136.8	-90.92	-3,103.9	-560.1	1,962.4	1,797.8	164.53	11.927			
8,000.0	6,816.4	6,840.4	6,840.4	31.7	136.8	-90.87	-3,103.9	-560.1	1,863.1	1,697.0	166.13	11.215			
8,100.0	6,816.2	6,840.2	6,840.2	33.2	136.8	-90.82	-3,103.9	-560.1	1,764.0	1,596.2	167.76	10.515			
8,200.0	6,816.0	6,840.0	6,840.0	34.8	136.8	-90.77	-3,103.9	-560.1	1,664.9	1,495.5	169.42	9.827			
8,300.0	6,815.8	6,839.8	6,839.8	36.4	136.8	-90.73	-3,103.9	-560.1	1,566.0	1,394.8	171.11	9.152			
8,400.0	6,815.6	6,839.6	6,839.6	38.0	136.8	-90.68	-3,103.9	-560.1	1,467.2	1,294.3	172.83	8.489			
8,500.0	6,815.4	6,839.4	6,839.4	39.7	136.8	-90.63	-3,103.9	-560.1	1,368.5	1,194.0	174.56	7.840			
8,600.0	6,815.3	6,839.3	6,839.3	41.3	136.8	-90.59	-3,103.9	-560.1	1,270.1	1,093.8	176.31	7.204			
8,700.0	6,815.1	6,839.1	6,839.1	43.0	136.8	-90.54	-3,103.9	-560.1	1,172.0	993.9	178.07	6.582			
8,800.0	6,814.9	6,838.9	6,838.9	44.7	136.8	-90.49	-3,103.9	-560.1	1,074.2	894.3	179.85	5.973			
8,900.0	6,814.7	6,838.7	6,838.7	46.5	136.8	-90.45	-3,103.9	-560.1	976.8	795.2	181.64	5.378			
9,000.0	6,814.5	6,838.5	6,838.5	48.2	136.8	-90.40	-3,103.9	-560.1	880.1	696.6	183.44	4.798			
9,100.0	6,814.3	6,838.3	6,838.3	50.0	136.8	-90.35	-3,103.9	-560.1	784.1	598.9	185.24	4.233			
9,200.0	6,814.1	6,838.1	6,838.1	51.7	136.8	-90.30	-3,103.9	-560.1	689.4	502.3	187.06	3.685			
9,300.0	6,813.9	6,837.9	6,837.9	53.5	136.8	-90.26	-3,103.9	-560.1	596.3	407.4	188.88	3.157			
9,400.0	6,813.7	6,837.7	6,837.7	55.3	136.8	-90.21	-3,103.9	-560.1	505.8	315.1	190.71	2.652			
9,500.0	6,813.5	6,837.5	6,837.5	57.1	136.8	-90.16	-3,103.9	-560.1	419.8	227.2	192.55	2.180			
9,600.0	6,813.3	6,837.3	6,837.3	58.9	136.7	-90.12	-3,103.9	-560.1	341.4	147.0	194.39	1.756			
9,700.0	6,813.1	6,837.1	6,837.1	60.7	136.7	-90.07	-3,103.9	-560.1	277.2	81.0	196.23	1.413 Level 3			
9,800.0	6,812.9	6,836.9	6,836.9	62.6	136.7	-90.02	-3,103.9	-560.1	239.1	41.1	198.08	1.207 Level 2			
9,848.4	6,812.9	6,836.9	6,836.9	63.4	136.7	-90.00	-3,103.9	-560.1	234.2	35.2	198.98	1.177 Level 2, CC, ES, SF			
9,900.0	6,812.8	6,836.8	6,836.8	64.4	136.7	-89.98	-3,103.9	-560.1	239.8	39.9	199.93	1.200 Level 2			
10,000.0	6,812.6	6,836.6	6,836.6	66.2	136.7	-89.93	-3,103.9	-560.1	279.0	77.2	201.79	1.383 Level 3			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Adamson 5 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	6,812.4	6,836.4	6,836.4	68.0	136.7	-89.88	-3,103.9	-560.1	343.8	140.1	203.65	1.688		
10,200.0	6,812.2	6,836.2	6,836.2	69.9	136.7	-89.83	-3,103.9	-560.1	422.5	217.0	205.51	2.056		
10,300.0	6,812.0	6,836.0	6,836.0	71.7	136.7	-89.79	-3,103.9	-560.1	508.8	301.4	207.38	2.453		
10,400.0	6,811.8	6,835.8	6,835.8	73.6	136.7	-89.74	-3,103.9	-560.1	599.3	390.1	209.24	2.864		
10,500.0	6,811.6	6,835.6	6,835.6	75.4	136.7	-89.69	-3,103.9	-560.1	692.5	481.3	211.11	3.280		
10,600.0	6,811.4	6,835.4	6,835.4	77.3	136.7	-89.65	-3,103.9	-560.1	787.3	574.3	212.98	3.696		
10,700.0	6,811.2	6,835.2	6,835.2	79.1	136.7	-89.60	-3,103.9	-560.1	883.3	668.4	214.86	4.111		
10,800.0	6,811.0	6,835.0	6,835.0	81.0	136.7	-89.55	-3,103.9	-560.1	980.0	763.3	216.73	4.522		
10,900.0	6,810.8	6,834.8	6,834.8	82.9	136.7	-89.51	-3,103.9	-560.1	1,077.4	858.8	218.61	4.928		
11,000.0	6,810.6	6,834.6	6,834.6	84.7	136.7	-89.46	-3,103.9	-560.1	1,175.2	954.7	220.49	5.330		
11,100.0	6,810.5	6,834.5	6,834.5	86.6	136.7	-89.41	-3,103.9	-560.1	1,273.4	1,051.0	222.37	5.726		
11,200.0	6,810.3	6,834.3	6,834.3	88.5	136.7	-89.37	-3,103.9	-560.1	1,371.8	1,147.5	224.25	6.117		
11,300.0	6,810.1	6,834.1	6,834.1	90.3	136.7	-89.32	-3,103.9	-560.1	1,470.4	1,244.3	226.13	6.502		
11,400.0	6,809.9	6,833.9	6,833.9	92.2	136.7	-89.27	-3,103.9	-560.1	1,569.2	1,341.2	228.02	6.882		
11,500.0	6,809.7	6,833.7	6,833.7	94.1	136.7	-89.22	-3,103.9	-560.1	1,668.2	1,438.3	229.90	7.256		
11,600.0	6,809.5	6,833.5	6,833.5	96.0	136.7	-89.18	-3,103.9	-560.1	1,767.2	1,535.4	231.79	7.624		
11,700.0	6,809.3	6,833.3	6,833.3	97.9	136.7	-89.13	-3,103.9	-560.1	1,866.4	1,632.7	233.67	7.987		
11,800.0	6,809.1	6,833.1	6,833.1	99.7	136.7	-89.08	-3,103.9	-560.1	1,965.6	1,730.1	235.56	8.345		
11,900.0	6,808.9	6,832.9	6,832.9	101.6	136.7	-89.04	-3,103.9	-560.1	2,065.0	1,827.5	237.45	8.696		
12,000.0	6,808.7	6,832.7	6,832.7	103.5	136.7	-88.99	-3,103.9	-560.1	2,164.4	1,925.0	239.34	9.043		
12,100.0	6,808.5	6,832.5	6,832.5	105.4	136.7	-88.94	-3,103.9	-560.1	2,263.8	2,022.6	241.23	9.384		
12,200.0	6,808.3	6,832.3	6,832.3	107.3	136.6	-88.90	-3,103.9	-560.1	2,363.3	2,120.2	243.12	9.721		
12,300.0	6,808.1	6,832.1	6,832.1	109.2	136.6	-88.85	-3,103.9	-560.1	2,462.8	2,217.8	245.01	10.052		
12,400.0	6,808.0	6,832.0	6,832.0	111.1	136.6	-88.80	-3,103.9	-560.1	2,562.4	2,315.5	246.90	10.378		
12,500.0	6,807.8	6,831.8	6,831.8	112.9	136.6	-88.75	-3,103.9	-560.1	2,662.0	2,413.2	248.79	10.700		
12,600.0	6,807.6	6,831.6	6,831.6	114.8	136.6	-88.71	-3,103.9	-560.1	2,761.6	2,510.9	250.68	11.016		
12,700.0	6,807.4	6,831.4	6,831.4	116.7	136.6	-88.66	-3,103.9	-560.1	2,861.2	2,608.7	252.58	11.328		
12,800.0	6,807.2	6,831.2	6,831.2	118.6	136.6	-88.61	-3,103.9	-560.1	2,960.9	2,706.5	254.47	11.636		
12,900.0	6,807.0	6,831.0	6,831.0	120.5	136.6	-88.57	-3,103.9	-560.1	3,060.6	2,804.3	256.36	11.939		
13,000.0	6,806.8	6,830.8	6,830.8	122.4	136.6	-88.52	-3,103.9	-560.1	3,160.3	2,902.1	258.26	12.237		
13,100.0	6,806.6	6,830.6	6,830.6	124.3	136.6	-88.47	-3,103.9	-560.1	3,260.1	2,999.9	260.15	12.532		
13,200.0	6,806.4	6,830.4	6,830.4	126.2	136.6	-88.43	-3,103.9	-560.1	3,359.8	3,097.8	262.04	12.822		
13,300.0	6,806.2	6,830.2	6,830.2	128.1	136.6	-88.38	-3,103.9	-560.1	3,459.6	3,195.6	263.94	13.108		
13,400.0	6,806.0	6,830.0	6,830.0	130.0	136.6	-88.33	-3,103.9	-560.1	3,559.4	3,293.5	265.83	13.390		
13,500.0	6,805.8	6,829.8	6,829.8	131.9	136.6	-88.29	-3,103.9	-560.1	3,659.1	3,391.4	267.73	13.667		
13,600.0	6,805.7	6,829.7	6,829.7	133.8	136.6	-88.24	-3,103.9	-560.1	3,758.9	3,489.3	269.62	13.942		
13,700.0	6,805.5	6,829.5	6,829.5	135.7	136.6	-88.19	-3,103.9	-560.1	3,858.8	3,587.2	271.52	14.212		
13,800.0	6,805.3	6,829.3	6,829.3	137.6	136.6	-88.14	-3,103.9	-560.1	3,958.6	3,685.2	273.41	14.478		
13,900.0	6,805.1	6,829.1	6,829.1	139.5	136.6	-88.10	-3,103.9	-560.1	4,058.4	3,783.1	275.31	14.741		
13,939.5	6,805.0	6,829.0	6,829.0	140.2	136.6	-88.08	-3,103.9	-560.1	4,097.9	3,821.8	276.06	14.844		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	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	7.0	7.0	0.0	0.1	-161.56	-1,737.8	-579.6	1,831.9	1,831.7	0.14	N/A	
100.0	100.0	107.0	107.0	0.1	2.1	-161.56	-1,737.8	-579.6	1,831.9	1,829.6	2.25	813.224	
200.0	200.0	207.0	207.0	0.3	4.1	-161.56	-1,737.8	-579.6	1,831.9	1,827.4	4.48	409.138	
300.0	300.0	307.0	307.0	0.6	6.1	-161.56	-1,737.8	-579.6	1,831.9	1,825.2	6.70	273.325	
400.0	400.0	407.0	407.0	0.8	8.1	-161.56	-1,737.8	-579.6	1,831.9	1,822.9	8.93	205.207	
500.0	500.0	507.0	507.0	1.0	10.1	-85.75	-1,737.8	-579.6	1,831.7	1,820.6	11.14	164.388	
600.0	599.8	606.8	606.8	1.2	12.1	-85.92	-1,737.8	-579.6	1,831.3	1,818.0	13.36	137.095	
700.0	699.5	706.5	706.5	1.5	14.1	-86.20	-1,737.8	-579.6	1,830.7	1,815.1	15.59	117.430	
800.0	798.7	805.7	805.7	1.7	16.1	-86.59	-1,737.8	-579.6	1,830.0	1,812.1	17.85	102.543	
900.0	897.5	904.5	904.5	2.0	18.1	-87.08	-1,737.8	-579.6	1,829.1	1,809.0	20.13	90.854	
1,000.0	996.2	1,003.2	1,003.2	2.4	20.1	-87.57	-1,737.8	-579.6	1,828.4	1,805.9	22.44	81.475	
1,100.0	1,094.9	1,101.9	1,101.9	2.7	22.0	-88.07	-1,737.8	-579.6	1,827.7	1,803.0	24.76	73.814	
1,200.0	1,193.6	1,200.6	1,200.6	3.1	24.0	-88.57	-1,737.8	-579.6	1,827.3	1,800.2	27.09	67.451	
1,300.0	1,292.3	1,299.3	1,299.3	3.4	26.0	-89.06	-1,737.8	-579.6	1,826.9	1,797.5	29.42	62.088	
1,400.0	1,391.0	1,398.0	1,398.0	3.8	28.0	-89.56	-1,737.8	-579.6	1,826.7	1,795.0	31.76	57.510	
1,488.4	1,478.3	1,485.3	1,485.3	4.1	29.7	-90.00	-1,737.8	-579.6	1,826.7	1,792.8	33.83	53.991	
1,500.0	1,489.7	1,496.7	1,496.7	4.2	29.9	-90.06	-1,737.8	-579.6	1,826.7	1,792.6	34.10	53.560	
1,600.0	1,588.4	1,595.4	1,595.4	4.5	31.9	-90.55	-1,737.8	-579.6	1,826.8	1,790.3	36.45	50.118	
1,700.0	1,687.1	1,694.1	1,694.1	4.9	33.9	-91.05	-1,737.8	-579.6	1,827.0	1,788.2	38.79	47.094	
1,800.0	1,785.8	1,792.8	1,792.8	5.3	35.9	-91.55	-1,737.8	-579.6	1,827.4	1,786.2	41.14	44.417	
1,900.0	1,884.5	1,891.5	1,891.5	5.7	37.8	-92.04	-1,737.8	-579.6	1,827.9	1,784.4	43.49	42.031	
2,000.0	1,983.2	1,990.2	1,990.2	6.0	39.8	-92.54	-1,737.8	-579.6	1,828.5	1,782.7	45.84	39.892	
2,100.0	2,082.0	2,089.0	2,089.0	6.4	41.8	-93.04	-1,737.8	-579.6	1,829.3	1,781.1	48.18	37.964	
2,200.0	2,180.7	2,187.7	2,187.7	6.8	43.8	-93.53	-1,737.8	-579.6	1,830.2	1,779.7	50.53	36.218	
2,300.0	2,279.4	2,286.4	2,286.4	7.2	45.7	-94.03	-1,737.8	-579.6	1,831.3	1,778.4	52.88	34.630	
2,400.0	2,378.1	2,385.1	2,385.1	7.5	47.7	-94.52	-1,737.8	-579.6	1,832.5	1,777.3	55.23	33.179	
2,500.0	2,476.8	2,483.8	2,483.8	7.9	49.7	-95.01	-1,737.8	-579.6	1,833.9	1,776.3	57.58	31.849	
2,600.0	2,575.5	2,582.5	2,582.5	8.3	51.6	-95.51	-1,737.8	-579.6	1,835.4	1,775.4	59.93	30.626	
2,700.0	2,674.2	2,681.2	2,681.2	8.7	53.6	-96.00	-1,737.8	-579.6	1,837.0	1,774.7	62.28	29.498	
2,800.0	2,772.9	2,779.9	2,779.9	9.0	55.6	-96.49	-1,737.8	-579.6	1,838.8	1,774.1	64.62	28.454	
2,900.0	2,871.6	2,878.6	2,878.6	9.4	57.6	-96.98	-1,737.8	-579.6	1,840.7	1,773.7	66.97	27.485	
3,000.0	2,970.3	2,977.3	2,977.3	9.8	59.5	-97.47	-1,737.8	-579.6	1,842.7	1,773.4	69.32	26.585	
3,100.0	3,069.0	3,076.0	3,076.0	10.2	61.5	-97.96	-1,737.8	-579.6	1,844.9	1,773.2	71.66	25.745	
3,200.0	3,167.7	3,174.7	3,174.7	10.6	63.5	-98.44	-1,737.8	-579.6	1,847.2	1,773.2	74.00	24.961	
3,300.0	3,266.4	3,273.4	3,273.4	10.9	65.5	-98.93	-1,737.8	-579.6	1,849.7	1,773.3	76.35	24.227	
3,400.0	3,365.1	3,372.1	3,372.1	11.3	67.4	-99.41	-1,737.8	-579.6	1,852.3	1,773.6	78.69	23.538	
3,500.0	3,463.8	3,470.8	3,470.8	11.7	69.4	-99.90	-1,737.8	-579.6	1,855.0	1,774.0	81.03	22.892	
3,600.0	3,562.5	3,569.5	3,569.5	12.1	71.4	-100.38	-1,737.8	-579.6	1,857.8	1,774.5	83.37	22.283	
3,700.0	3,661.2	3,668.2	3,668.2	12.5	73.4	-100.86	-1,737.8	-579.6	1,860.8	1,775.1	85.71	21.710	
3,800.0	3,759.9	3,766.9	3,766.9	12.8	75.3	-101.34	-1,737.8	-579.6	1,864.0	1,775.9	88.05	21.169	
3,900.0	3,858.6	3,865.6	3,865.6	13.2	77.3	-101.81	-1,737.8	-579.6	1,867.2	1,776.8	90.39	20.658	
4,000.0	3,957.3	3,964.3	3,964.3	13.6	79.3	-102.29	-1,737.8	-579.6	1,870.6	1,777.9	92.72	20.174	
4,100.0	4,056.0	4,063.0	4,063.0	14.0	81.3	-102.76	-1,737.8	-579.6	1,874.1	1,779.1	95.06	19.715	
4,200.0	4,154.7	4,161.7	4,161.7	14.4	83.2	-103.23	-1,737.8	-579.6	1,877.8	1,780.4	97.39	19.281	
4,300.0	4,253.4	4,260.4	4,260.4	14.7	85.2	-103.70	-1,737.8	-579.6	1,881.6	1,781.9	99.73	18.868	
4,400.0	4,352.1	4,359.1	4,359.1	15.1	87.2	-104.17	-1,737.8	-579.6	1,885.5	1,783.4	102.06	18.475	
4,500.0	4,450.8	4,457.8	4,457.8	15.5	89.2	-104.64	-1,737.8	-579.6	1,889.5	1,785.2	104.39	18.102	
4,600.0	4,549.5	4,556.5	4,556.5	15.9	91.1	-105.10	-1,737.8	-579.6	1,893.7	1,787.0	106.71	17.746	
4,700.0	4,648.2	4,655.2	4,655.2	16.3	93.1	-105.56	-1,737.8	-579.6	1,898.0	1,789.0	109.04	17.407	
4,800.0	4,746.9	4,753.9	4,753.9	16.6	95.1	-106.02	-1,737.8	-579.6	1,902.4	1,791.1	111.36	17.083	
4,900.0	4,845.7	4,852.7	4,852.7	17.0	97.1	-106.48	-1,737.8	-579.6	1,907.0	1,793.3	113.69	16.774	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2 28A (Exist) - Wellbore #1 - Wellbore													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,944.4	4,951.4	4,951.4	17.4	99.0	-106.94	-1,737.8	-579.6	1,911.6	1,795.6	116.01	16.478		
5,100.0	5,043.1	5,050.1	5,050.1	17.8	101.0	-107.39	-1,737.8	-579.6	1,916.4	1,798.1	118.33	16.196		
5,200.0	5,141.8	5,148.8	5,148.8	18.2	103.0	-107.84	-1,737.8	-579.6	1,921.4	1,800.7	120.65	15.925		
5,300.0	5,240.5	5,247.5	5,247.5	18.5	104.9	-108.29	-1,737.8	-579.6	1,926.4	1,803.4	122.96	15.666		
5,400.0	5,339.2	5,346.2	5,346.2	18.9	106.9	-108.74	-1,737.8	-579.6	1,931.5	1,806.3	125.28	15.418		
5,500.0	5,437.9	5,444.9	5,444.9	19.3	108.9	-109.18	-1,737.8	-579.6	1,936.8	1,809.2	127.59	15.180		
5,600.0	5,536.8	5,543.8	5,543.8	19.6	110.9	-109.67	-1,737.8	-579.6	1,941.7	1,811.8	129.90	14.947		
5,700.0	5,636.2	5,643.2	5,643.2	19.8	112.9	-110.04	-1,737.8	-579.6	1,945.4	1,813.3	132.13	14.723		
5,800.0	5,735.9	5,742.9	5,742.9	20.0	114.9	-110.30	-1,737.8	-579.6	1,948.0	1,813.7	134.33	14.502		
5,900.0	5,835.9	5,842.9	5,842.9	20.2	116.9	-110.43	-1,737.8	-579.6	1,949.4	1,812.9	136.48	14.283		
6,000.0	5,935.8	5,942.8	5,942.8	20.3	118.9	-110.68	-1,737.8	-579.6	1,949.6	1,811.0	138.61	14.066		
6,100.0	6,035.8	6,042.8	6,042.8	20.4	120.9	-110.94	-1,737.8	-579.6	1,949.6	1,808.9	140.75	13.852		
6,200.0	6,135.6	6,142.6	6,142.6	20.5	122.9	-111.20	-1,737.8	-579.6	1,944.1	1,802.3	141.80	13.710		
6,300.0	6,233.8	6,240.8	6,240.8	20.6	124.8	-111.46	-1,737.8	-579.6	1,925.7	1,785.3	140.39	13.717		
6,400.0	6,328.8	6,335.8	6,335.8	20.7	126.7	-111.72	-1,737.8	-579.6	1,894.8	1,758.3	136.48	13.884		
6,500.0	6,418.9	6,425.9	6,425.9	20.7	128.5	-111.98	-1,737.8	-579.6	1,851.8	1,721.7	130.09	14.235		
6,600.0	6,502.5	6,509.5	6,509.5	20.8	130.2	-112.24	-1,737.8	-579.6	1,797.5	1,676.1	121.39	14.808		
6,700.0	6,578.3	6,585.3	6,585.3	20.8	131.7	-112.50	-1,737.8	-579.6	1,732.9	1,622.2	110.69	15.655		
6,800.0	6,645.0	6,652.0	6,652.0	20.9	133.0	-112.76	-1,737.8	-579.6	1,659.1	1,560.4	98.71	16.808		
6,900.0	6,701.4	6,708.4	6,708.4	21.1	134.2	-113.02	-1,737.8	-579.6	1,577.3	1,490.3	87.03	18.124		
7,000.0	6,746.5	6,753.5	6,753.5	21.4	135.1	-113.28	-1,737.8	-579.6	1,489.0	1,409.3	79.72	18.678		
7,100.0	6,779.6	6,786.6	6,786.6	21.8	135.7	-113.54	-1,737.8	-579.6	1,395.8	1,309.5	86.28	16.177		
7,200.0	6,800.1	6,807.1	6,807.1	22.4	136.1	-113.80	-1,737.8	-579.6	1,299.2	1,180.2	118.99	10.919		
7,300.0	6,811.0	6,818.0	6,818.0	23.1	136.4	-114.06	-1,737.8	-579.6	1,201.3	1,066.5	134.80	8.912		
7,400.0	6,817.3	6,824.3	6,824.3	24.0	136.5	-114.32	-1,737.8	-579.6	1,103.3	947.2	156.06	7.069		
7,500.0	6,817.4	6,824.4	6,824.4	25.1	136.5	-114.58	-1,737.8	-579.6	1,005.4	847.1	158.32	6.350		
7,600.0	6,817.2	6,824.2	6,824.2	26.2	136.5	-114.84	-1,737.8	-579.6	907.9	748.3	159.68	5.686		
7,700.0	6,817.0	6,824.0	6,824.0	27.5	136.5	-115.10	-1,737.8	-579.6	811.1	650.0	161.12	5.034		
7,800.0	6,816.8	6,823.8	6,823.8	28.8	136.5	-115.36	-1,737.8	-579.6	715.2	552.6	162.62	4.398		
7,900.0	6,816.6	6,823.6	6,823.6	30.2	136.5	-115.62	-1,737.8	-579.6	620.5	456.3	164.18	3.780		
8,000.0	6,816.4	6,823.4	6,823.4	31.7	136.5	-115.88	-1,737.8	-579.6	527.8	362.1	165.77	3.184		
8,100.0	6,816.2	6,823.2	6,823.2	33.2	136.5	-116.14	-1,737.8	-579.6	438.4	271.0	167.40	2.619		
8,200.0	6,816.0	6,823.0	6,823.0	34.8	136.5	-116.40	-1,737.8	-579.6	354.6	185.5	169.07	2.097		
8,300.0	6,815.8	6,822.8	6,822.8	36.4	136.5	-116.66	-1,737.8	-579.6	281.6	110.8	170.76	1.649		
8,400.0	6,815.6	6,822.6	6,822.6	38.0	136.5	-116.92	-1,737.8	-579.6	229.9	57.4	172.47	1.333 Level 3		
8,482.2	6,815.5	6,822.5	6,822.5	39.4	136.4	-117.18	-1,737.8	-579.6	214.7	40.8	173.89	1.235 Level 2, CC, ES, SF		
8,500.0	6,815.4	6,822.4	6,822.4	39.7	136.4	-117.44	-1,737.8	-579.6	215.5	41.3	174.20	1.237 Level 2		
8,600.0	6,815.3	6,822.3	6,822.3	41.3	136.4	-117.70	-1,737.8	-579.6	244.9	69.0	175.95	1.392 Level 3		
8,700.0	6,815.1	6,822.1	6,822.1	43.0	136.4	-117.96	-1,737.8	-579.6	305.9	128.2	177.71	1.721		
8,800.0	6,814.9	6,821.9	6,821.9	44.7	136.4	-118.22	-1,737.8	-579.6	383.6	204.1	179.48	2.137		
8,900.0	6,814.7	6,821.7	6,821.7	46.5	136.4	-118.48	-1,737.8	-579.6	469.8	288.5	181.27	2.591		
9,000.0	6,814.5	6,821.5	6,821.5	48.2	136.4	-118.74	-1,737.8	-579.6	560.6	377.5	183.07	3.062		
9,100.0	6,814.3	6,821.3	6,821.3	50.0	136.4	-119.00	-1,737.8	-579.6	654.1	469.2	184.87	3.538		
9,200.0	6,814.1	6,821.1	6,821.1	51.7	136.4	-119.26	-1,737.8	-579.6	749.2	562.6	186.69	4.013		
9,300.0	6,813.9	6,820.9	6,820.9	53.5	136.4	-119.52	-1,737.8	-579.6	845.5	657.0	188.51	4.485		
9,400.0	6,813.7	6,820.7	6,820.7	55.3	136.4	-119.78	-1,737.8	-579.6	942.6	752.3	190.34	4.952		
9,500.0	6,813.5	6,820.5	6,820.5	57.1	136.4	-120.04	-1,737.8	-579.6	1,040.2	848.0	192.17	5.413		
9,600.0	6,813.3	6,820.3	6,820.3	58.9	136.4	-120.30	-1,737.8	-579.6	1,138.3	944.2	194.01	5.867		
9,700.0	6,813.1	6,820.1	6,820.1	60.7	136.4	-120.56	-1,737.8	-579.6	1,236.6	1,040.7	195.85	6.314		
9,800.0	6,812.9	6,819.9	6,819.9	62.6	136.4	-120.82	-1,737.8	-579.6	1,335.2	1,137.5	197.70	6.754		
9,900.0	6,812.8	6,819.8	6,819.8	64.4	136.4	-121.08	-1,737.8	-579.6	1,434.0	1,234.4	199.55	7.186		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 2 28A (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
10,000.0	6,812.6	6,819.6	6,819.6	66.2	136.4	-89.22	-89.22	-1,737.8	-579.6	1,532.9	1,331.5	201.40	7.611	
10,100.0	6,812.4	6,819.4	6,819.4	68.0	136.4	-89.17	-89.17	-1,737.8	-579.6	1,632.0	1,428.7	203.26	8.029	
10,200.0	6,812.2	6,819.2	6,819.2	69.9	136.4	-89.12	-89.12	-1,737.8	-579.6	1,731.2	1,526.1	205.12	8.440	
10,300.0	6,812.0	6,819.0	6,819.0	71.7	136.4	-89.07	-89.07	-1,737.8	-579.6	1,830.5	1,623.5	206.98	8.844	
10,400.0	6,811.8	6,818.8	6,818.8	73.6	136.4	-89.02	-89.02	-1,737.8	-579.6	1,929.8	1,721.0	208.84	9.240	
10,500.0	6,811.6	6,818.6	6,818.6	75.4	136.4	-88.97	-88.97	-1,737.8	-579.6	2,029.2	1,818.5	210.71	9.630	
10,600.0	6,811.4	6,818.4	6,818.4	77.3	136.4	-88.92	-88.92	-1,737.8	-579.6	2,128.7	1,916.1	212.58	10.013	
10,700.0	6,811.2	6,818.2	6,818.2	79.1	136.4	-88.86	-88.86	-1,737.8	-579.6	2,228.2	2,013.7	214.45	10.390	
10,800.0	6,811.0	6,818.0	6,818.0	81.0	136.4	-88.81	-88.81	-1,737.8	-579.6	2,327.7	2,111.4	216.32	10.760	
10,900.0	6,810.8	6,817.8	6,817.8	82.9	136.4	-88.76	-88.76	-1,737.8	-579.6	2,427.3	2,209.1	218.20	11.124	
11,000.0	6,810.6	6,817.6	6,817.6	84.7	136.4	-88.71	-88.71	-1,737.8	-579.6	2,527.0	2,306.9	220.07	11.482	
11,100.0	6,810.5	6,817.5	6,817.5	86.6	136.3	-88.66	-88.66	-1,737.8	-579.6	2,626.6	2,404.7	221.95	11.834	
11,200.0	6,810.3	6,817.3	6,817.3	88.5	136.3	-88.61	-88.61	-1,737.8	-579.6	2,726.3	2,502.5	223.83	12.180	
11,300.0	6,810.1	6,817.1	6,817.1	90.3	136.3	-88.56	-88.56	-1,737.8	-579.6	2,826.0	2,600.3	225.71	12.520	
11,400.0	6,809.9	6,816.9	6,816.9	92.2	136.3	-88.51	-88.51	-1,737.8	-579.6	2,925.7	2,698.1	227.59	12.855	
11,500.0	6,809.7	6,816.7	6,816.7	94.1	136.3	-88.45	-88.45	-1,737.8	-579.6	3,025.4	2,796.0	229.47	13.184	
11,600.0	6,809.5	6,816.5	6,816.5	96.0	136.3	-88.40	-88.40	-1,737.8	-579.6	3,125.2	2,893.8	231.35	13.508	
11,700.0	6,809.3	6,816.3	6,816.3	97.9	136.3	-88.35	-88.35	-1,737.8	-579.6	3,225.0	2,991.7	233.24	13.827	
11,800.0	6,809.1	6,816.1	6,816.1	99.7	136.3	-88.30	-88.30	-1,737.8	-579.6	3,324.8	3,089.6	235.12	14.141	
11,900.0	6,808.9	6,815.9	6,815.9	101.6	136.3	-88.25	-88.25	-1,737.8	-579.6	3,424.5	3,187.5	237.00	14.449	
12,000.0	6,808.7	6,815.7	6,815.7	103.5	136.3	-88.20	-88.20	-1,737.8	-579.6	3,524.4	3,285.5	238.89	14.753	
12,100.0	6,808.5	6,815.5	6,815.5	105.4	136.3	-88.15	-88.15	-1,737.8	-579.6	3,624.2	3,383.4	240.78	15.052	
12,200.0	6,808.3	6,815.3	6,815.3	107.3	136.3	-88.10	-88.10	-1,737.8	-579.6	3,724.0	3,481.3	242.66	15.346	
12,300.0	6,808.1	6,815.1	6,815.1	109.2	136.3	-88.04	-88.04	-1,737.8	-579.6	3,823.8	3,579.3	244.55	15.636	
12,400.0	6,808.0	6,815.0	6,815.0	111.1	136.3	-87.99	-87.99	-1,737.8	-579.6	3,923.7	3,677.3	246.44	15.922	
12,500.0	6,807.8	6,814.8	6,814.8	112.9	136.3	-87.94	-87.94	-1,737.8	-579.6	4,023.5	3,775.2	248.32	16.203	
12,600.0	6,807.6	6,814.6	6,814.6	114.8	136.3	-87.89	-87.89	-1,737.8	-579.6	4,123.4	3,873.2	250.21	16.480	
12,700.0	6,807.4	6,814.4	6,814.4	116.7	136.3	-87.84	-87.84	-1,737.8	-579.6	4,223.3	3,971.2	252.10	16.752	
12,800.0	6,807.2	6,814.2	6,814.2	118.6	136.3	-87.79	-87.79	-1,737.8	-579.6	4,323.1	4,069.2	253.99	17.021	
12,900.0	6,807.0	6,814.0	6,814.0	120.5	136.3	-87.74	-87.74	-1,737.8	-579.6	4,423.0	4,167.1	255.88	17.286	
13,000.0	6,806.8	6,813.8	6,813.8	122.4	136.3	-87.69	-87.69	-1,737.8	-579.6	4,522.9	4,265.1	257.77	17.547	
13,100.0	6,806.6	6,813.6	6,813.6	124.3	136.3	-87.64	-87.64	-1,737.8	-579.6	4,622.8	4,363.1	259.66	17.804	
13,200.0	6,806.4	6,813.4	6,813.4	126.2	136.3	-87.58	-87.58	-1,737.8	-579.6	4,722.7	4,461.1	261.54	18.057	
13,300.0	6,806.2	6,813.2	6,813.2	128.1	136.3	-87.53	-87.53	-1,737.8	-579.6	4,822.6	4,559.2	263.43	18.307	
13,400.0	6,806.0	6,813.0	6,813.0	130.0	136.3	-87.48	-87.48	-1,737.8	-579.6	4,922.5	4,657.2	265.32	18.553	
13,500.0	6,805.8	6,812.8	6,812.8	131.9	136.3	-87.43	-87.43	-1,737.8	-579.6	5,022.4	4,755.2	267.21	18.795	
13,600.0	6,805.7	6,812.7	6,812.7	133.8	136.3	-87.38	-87.38	-1,737.8	-579.6	5,122.3	4,853.2	269.10	19.035	
13,700.0	6,805.5	6,812.5	6,812.5	135.7	136.2	-87.33	-87.33	-1,737.8	-579.6	5,222.2	4,951.2	270.99	19.271	
13,800.0	6,805.3	6,812.3	6,812.3	137.6	136.2	-87.28	-87.28	-1,737.8	-579.6	5,322.1	5,049.3	272.88	19.503	
13,900.0	6,805.1	6,812.1	6,812.1	139.5	136.2	-87.23	-87.23	-1,737.8	-579.6	5,422.1	5,147.3	274.77	19.733	
13,939.5	6,805.0	6,812.0	6,812.0	140.2	136.2	-87.21	-87.21	-1,737.8	-579.6	5,461.6	5,186.0	275.52	19.823	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 28A-1 (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
0.0	0.0	1.0	1.0	0.0	0.0	-135.87	-135.87	-448.1	-434.7	624.3	624.2	0.02	N/A	
100.0	100.0	101.0	101.0	0.1	2.0	-135.87	-135.87	-448.1	-434.7	624.3	622.1	2.13	292.730	
200.0	200.0	201.0	201.0	0.3	4.0	-135.87	-135.87	-448.1	-434.7	624.3	619.9	4.36	143.269	
300.0	300.0	301.0	301.0	0.6	6.0	-135.87	-135.87	-448.1	-434.7	624.3	617.7	6.58	94.844	
400.0	400.0	401.0	401.0	0.8	8.0	-135.87	-135.87	-448.1	-434.7	624.3	615.5	8.81	70.884	
500.0	500.0	501.0	501.0	1.0	10.0	-60.16	-60.16	-448.1	-434.7	623.4	612.4	11.02	56.565	
600.0	599.8	600.8	600.8	1.2	12.0	-60.62	-60.62	-448.1	-434.7	620.8	607.6	13.23	46.929	
700.0	699.5	700.5	700.5	1.5	14.0	-61.40	-61.40	-448.1	-434.7	616.6	601.1	15.44	39.925	
800.0	798.7	799.7	799.7	1.7	16.0	-62.50	-62.50	-448.1	-434.7	610.8	593.1	17.67	34.564	
900.0	897.5	898.5	898.5	2.0	18.0	-63.86	-63.86	-448.1	-434.7	603.8	583.9	19.93	30.296	
1,000.0	896.2	897.2	897.2	2.4	19.9	-65.23	-65.23	-448.1	-434.7	596.8	574.6	22.22	26.857	
1,100.0	1,094.9	1,095.9	1,095.9	2.7	21.9	-66.63	-66.63	-448.1	-434.7	590.2	565.7	24.53	24.060	
1,200.0	1,193.6	1,194.6	1,194.6	3.1	23.9	-68.06	-68.06	-448.1	-434.7	584.0	557.1	26.85	21.749	
1,300.0	1,292.3	1,293.3	1,293.3	3.4	25.9	-69.52	-69.52	-448.1	-434.7	578.1	548.9	29.18	19.811	
1,400.0	1,391.0	1,392.0	1,392.0	3.8	27.8	-71.00	-71.00	-448.1	-434.7	572.6	541.1	31.52	18.168	
1,500.0	1,489.7	1,490.7	1,490.7	4.2	29.8	-72.52	-72.52	-448.1	-434.7	567.5	533.7	33.86	16.760	
1,600.0	1,588.4	1,589.4	1,589.4	4.5	31.8	-74.06	-74.06	-448.1	-434.7	562.8	526.6	36.21	15.543	
1,700.0	1,687.1	1,688.1	1,688.1	4.9	33.8	-75.62	-75.62	-448.1	-434.7	558.6	520.0	38.57	14.484	
1,800.0	1,785.8	1,786.8	1,786.8	5.3	35.7	-77.21	-77.21	-448.1	-434.7	554.8	513.9	40.93	13.556	
1,900.0	1,884.5	1,885.5	1,885.5	5.7	37.7	-78.82	-78.82	-448.1	-434.7	551.4	508.1	43.29	12.739	
2,000.0	1,983.2	1,984.2	1,984.2	6.0	39.7	-80.44	-80.44	-448.1	-434.7	548.5	502.8	45.65	12.015	
2,100.0	2,082.0	2,083.0	2,083.0	6.4	41.7	-82.08	-82.08	-448.1	-434.7	546.0	498.0	48.01	11.372	
2,200.0	2,180.7	2,181.7	2,181.7	6.8	43.6	-83.73	-83.73	-448.1	-434.7	544.0	493.6	50.38	10.799	
2,300.0	2,279.4	2,280.4	2,280.4	7.2	45.6	-85.40	-85.40	-448.1	-434.7	542.5	489.7	52.74	10.286	
2,400.0	2,378.1	2,379.1	2,379.1	7.5	47.6	-87.07	-87.07	-448.1	-434.7	541.4	486.3	55.10	9.825	
2,500.0	2,476.8	2,477.8	2,477.8	7.9	49.6	-88.74	-88.74	-448.1	-434.7	540.8	483.3	57.46	9.411	
2,574.8	2,550.6	2,551.6	2,551.6	8.2	51.0	-90.00	-90.00	-448.1	-434.7	540.7	481.4	59.23	9.129	
2,600.0	2,575.5	2,576.5	2,576.5	8.3	51.5	-90.42	-90.42	-448.1	-434.7	540.7	480.9	59.82	9.039	
2,700.0	2,674.2	2,675.2	2,675.2	8.7	53.5	-92.10	-92.10	-448.1	-434.7	541.0	478.9	62.17	8.702	
2,800.0	2,772.9	2,773.9	2,773.9	9.0	55.5	-93.77	-93.77	-448.1	-434.7	541.9	477.4	64.52	8.399	
2,900.0	2,871.6	2,872.6	2,872.6	9.4	57.5	-95.44	-95.44	-448.1	-434.7	543.2	476.3	66.86	8.124	
3,000.0	2,970.3	2,971.3	2,971.3	9.8	59.4	-97.10	-97.10	-448.1	-434.7	545.0	475.8	69.20	7.875	
3,100.0	3,069.0	3,070.0	3,070.0	10.2	61.4	-98.75	-98.75	-448.1	-434.7	547.2	475.7	71.53	7.650	
3,200.0	3,167.7	3,168.7	3,168.7	10.6	63.4	-100.38	-100.38	-448.1	-434.7	549.9	476.0	73.85	7.446	
3,300.0	3,266.4	3,267.4	3,267.4	10.9	65.3	-102.00	-102.00	-448.1	-434.7	553.1	476.9	76.17	7.261	
3,400.0	3,365.1	3,366.1	3,366.1	11.3	67.3	-103.59	-103.59	-448.1	-434.7	556.7	478.2	78.48	7.093	
3,500.0	3,463.8	3,464.8	3,464.8	11.7	69.3	-105.17	-105.17	-448.1	-434.7	560.7	479.9	80.78	6.941	
3,600.0	3,562.5	3,563.5	3,563.5	12.1	71.3	-106.72	-106.72	-448.1	-434.7	565.1	482.1	83.08	6.803	
3,700.0	3,661.2	3,662.2	3,662.2	12.5	73.2	-108.25	-108.25	-448.1	-434.7	570.0	484.7	85.36	6.678	
3,800.0	3,759.9	3,760.9	3,760.9	12.8	75.2	-109.75	-109.75	-448.1	-434.7	575.3	487.7	87.64	6.564	
3,900.0	3,858.6	3,859.6	3,859.6	13.2	77.2	-111.22	-111.22	-448.1	-434.7	581.0	491.1	89.91	6.462	
4,000.0	3,957.3	3,958.3	3,958.3	13.6	79.2	-112.66	-112.66	-448.1	-434.7	587.1	494.9	92.18	6.369	
4,100.0	4,056.0	4,057.0	4,057.0	14.0	81.1	-114.08	-114.08	-448.1	-434.7	593.5	499.1	94.43	6.285	
4,200.0	4,154.7	4,155.7	4,155.7	14.4	83.1	-115.46	-115.46	-448.1	-434.7	600.3	503.6	96.68	6.209	
4,300.0	4,253.4	4,254.4	4,254.4	14.7	85.1	-116.82	-116.82	-448.1	-434.7	607.4	508.5	98.92	6.140	
4,400.0	4,352.1	4,353.1	4,353.1	15.1	87.1	-118.14	-118.14	-448.1	-434.7	614.9	513.8	101.16	6.079	
4,500.0	4,450.8	4,451.8	4,451.8	15.5	89.0	-119.43	-119.43	-448.1	-434.7	622.7	519.3	103.39	6.023	
4,600.0	4,549.5	4,550.5	4,550.5	15.9	91.0	-120.68	-120.68	-448.1	-434.7	630.8	525.2	105.61	5.973	
4,700.0	4,648.2	4,649.2	4,649.2	16.3	93.0	-121.91	-121.91	-448.1	-434.7	639.3	531.4	107.83	5.928	
4,800.0	4,746.9	4,747.9	4,747.9	16.6	95.0	-123.10	-123.10	-448.1	-434.7	648.0	537.9	110.04	5.888	
4,900.0	4,845.7	4,846.7	4,846.7	17.0	96.9	-124.27	-124.27	-448.1	-434.7	657.0	544.7	112.25	5.853	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 28A-1 (Exist) - Wellbore #1 - Wellbore													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,944.4	4,945.4	4,945.4	17.4	98.9	-125.40	-448.1	-434.7	666.2	551.8	114.45	5.821		
5,100.0	5,043.1	5,044.1	5,044.1	17.8	100.9	-126.50	-448.1	-434.7	675.7	559.1	116.65	5.793		
5,200.0	5,141.8	5,142.8	5,142.8	18.2	102.9	-127.57	-448.1	-434.7	685.5	566.6	118.84	5.768		
5,300.0	5,240.5	5,241.5	5,241.5	18.5	104.8	-128.61	-448.1	-434.7	695.4	574.4	121.03	5.746		
5,400.0	5,339.2	5,340.2	5,340.2	18.9	106.8	-129.62	-448.1	-434.7	705.6	582.4	123.22	5.727		
5,500.0	5,437.9	5,438.9	5,438.9	19.3	108.8	-130.60	-448.1	-434.7	716.1	590.7	125.41	5.710		
5,600.0	5,536.8	5,537.8	5,537.8	19.6	110.8	-131.60	-448.1	-434.7	725.6	597.8	127.77	5.679		
5,700.0	5,636.2	5,637.2	5,637.2	19.8	112.7	-132.34	-448.1	-434.7	732.9	602.9	130.05	5.636		
5,800.0	5,735.9	5,736.9	5,736.9	20.0	114.7	-132.85	-448.1	-434.7	738.0	605.7	132.29	5.579		
5,900.0	5,835.9	5,836.9	5,836.9	20.2	116.7	-133.11	-448.1	-434.7	740.7	606.2	134.47	5.508		
6,000.0	5,935.8	5,936.8	5,936.8	20.3	118.7	-150.97	-448.1	-434.7	741.2	604.6	136.60	5.426		
6,100.0	6,035.8	6,036.8	6,036.8	20.4	120.7	-150.97	-448.1	-434.7	741.2	602.4	138.76	5.342		
6,200.0	6,135.6	6,136.6	6,136.6	20.5	122.7	-29.41	-448.1	-434.7	736.4	596.4	139.99	5.260		
6,300.0	6,233.8	6,234.8	6,234.8	20.6	124.7	-30.75	-448.1	-434.7	720.3	580.9	139.35	5.169		
6,400.0	6,328.8	6,329.8	6,329.8	20.7	126.6	-33.18	-448.1	-434.7	693.5	556.3	137.16	5.056		
6,500.0	6,418.9	6,419.9	6,419.9	20.7	128.4	-36.91	-448.1	-434.7	656.9	522.7	134.17	4.896		
6,600.0	6,502.5	6,503.5	6,503.5	20.8	130.1	-42.26	-448.1	-434.7	611.9	480.1	131.78	4.643		
6,700.0	6,578.3	6,579.3	6,579.3	20.8	131.6	-49.50	-448.1	-434.7	560.5	428.6	131.92	4.249		
6,800.0	6,645.0	6,646.0	6,646.0	20.9	132.9	-58.63	-448.1	-434.7	505.7	369.7	135.94	3.720		
6,900.0	6,701.4	6,702.4	6,702.4	21.1	134.0	-68.88	-448.1	-434.7	451.5	308.8	142.72	3.163		
7,000.0	6,746.5	6,747.5	6,747.5	21.4	134.9	-78.67	-448.1	-434.7	403.9	254.9	148.96	2.711		
7,100.0	6,779.6	6,780.6	6,780.6	21.8	135.6	-86.17	-448.1	-434.7	370.6	218.0	152.58	2.429		
7,191.6	6,798.8	6,799.8	6,799.8	22.3	136.0	-90.00	-448.1	-434.7	359.6	205.4	154.20	2.332 CC		
7,200.0	6,800.1	6,801.1	6,801.1	22.4	136.0	-90.19	-448.1	-434.7	359.7	205.4	154.31	2.331 ES, SF		
7,300.0	6,811.0	6,812.0	6,812.0	23.1	136.2	-91.79	-448.1	-434.7	375.4	219.8	155.57	2.413		
7,400.0	6,817.3	6,818.3	6,818.3	24.0	136.4	-90.63	-448.1	-434.7	415.2	258.3	156.91	2.646		
7,500.0	6,817.4	6,818.4	6,818.4	25.1	136.4	-89.91	-448.1	-434.7	473.2	315.0	158.17	2.991		
7,600.0	6,817.2	6,818.2	6,818.2	26.2	136.4	-89.88	-448.1	-434.7	543.5	383.9	159.54	3.407		
7,700.0	6,817.0	6,818.0	6,818.0	27.5	136.4	-89.84	-448.1	-434.7	622.0	461.0	160.98	3.864		
7,800.0	6,816.8	6,817.8	6,817.8	28.8	136.4	-89.81	-448.1	-434.7	705.9	543.5	162.48	4.345		
7,900.0	6,816.6	6,817.6	6,817.6	30.2	136.4	-89.78	-448.1	-434.7	793.6	629.6	164.03	4.838		
8,000.0	6,816.4	6,817.4	6,817.4	31.7	136.3	-89.75	-448.1	-434.7	883.9	718.3	165.63	5.337		
8,100.0	6,816.2	6,817.2	6,817.2	33.2	136.3	-89.72	-448.1	-434.7	976.1	808.9	167.26	5.836		
8,200.0	6,816.0	6,817.0	6,817.0	34.8	136.3	-89.69	-448.1	-434.7	1,069.7	900.8	168.92	6.333		
8,300.0	6,815.8	6,816.8	6,816.8	36.4	136.3	-89.66	-448.1	-434.7	1,164.4	993.8	170.61	6.825		
8,400.0	6,815.6	6,816.6	6,816.6	38.0	136.3	-89.63	-448.1	-434.7	1,259.9	1,087.6	172.32	7.311		
8,500.0	6,815.4	6,816.4	6,816.4	39.7	136.3	-89.60	-448.1	-434.7	1,356.0	1,182.0	174.06	7.791		
8,600.0	6,815.3	6,816.3	6,816.3	41.3	136.3	-89.57	-448.1	-434.7	1,452.7	1,276.9	175.80	8.263		
8,700.0	6,815.1	6,816.1	6,816.1	43.0	136.3	-89.54	-448.1	-434.7	1,549.8	1,372.2	177.57	8.728		
8,800.0	6,814.9	6,815.9	6,815.9	44.7	136.3	-89.51	-448.1	-434.7	1,647.2	1,467.9	179.34	9.185		
8,900.0	6,814.7	6,815.7	6,815.7	46.5	136.3	-89.48	-448.1	-434.7	1,744.9	1,563.8	181.13	9.634		
9,000.0	6,814.5	6,815.5	6,815.5	48.2	136.3	-89.45	-448.1	-434.7	1,842.9	1,660.0	182.93	10.074		
9,100.0	6,814.3	6,815.3	6,815.3	50.0	136.3	-89.42	-448.1	-434.7	1,941.1	1,756.3	184.74	10.507		
9,200.0	6,814.1	6,815.1	6,815.1	51.7	136.3	-89.39	-448.1	-434.7	2,039.4	1,852.9	186.55	10.932		
9,300.0	6,813.9	6,814.9	6,814.9	53.5	136.3	-89.36	-448.1	-434.7	2,137.9	1,949.6	188.37	11.350		
9,400.0	6,813.7	6,814.7	6,814.7	55.3	136.3	-89.32	-448.1	-434.7	2,236.6	2,046.4	190.20	11.759		
9,500.0	6,813.5	6,814.5	6,814.5	57.1	136.3	-89.29	-448.1	-434.7	2,335.3	2,143.3	192.03	12.161		
9,600.0	6,813.3	6,814.3	6,814.3	58.9	136.3	-89.26	-448.1	-434.7	2,434.2	2,240.3	193.87	12.556		
9,700.0	6,813.1	6,814.1	6,814.1	60.7	136.3	-89.23	-448.1	-434.7	2,533.1	2,337.4	195.72	12.943		
9,800.0	6,812.9	6,813.9	6,813.9	62.6	136.3	-89.20	-448.1	-434.7	2,632.2	2,434.6	197.57	13.323		
9,900.0	6,812.8	6,813.8	6,813.8	64.4	136.3	-89.17	-448.1	-434.7	2,731.3	2,531.8	199.42	13.696		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Churchill 28A-1 (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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,812.6	6,813.6	6,813.6	66.2	136.3	-89.14	-89.14	-448.1	-434.7	2,830.4	2,629.1	201.27	14.063	
10,100.0	6,812.4	6,813.4	6,813.4	68.0	136.3	-89.11	-89.11	-448.1	-434.7	2,929.6	2,726.5	203.13	14.422	
10,200.0	6,812.2	6,813.2	6,813.2	69.9	136.3	-89.08	-89.08	-448.1	-434.7	3,028.9	2,823.9	204.99	14.776	
10,300.0	6,812.0	6,813.0	6,813.0	71.7	136.3	-89.05	-89.05	-448.1	-434.7	3,128.2	2,921.4	206.86	15.123	
10,400.0	6,811.8	6,812.8	6,812.8	73.6	136.3	-89.02	-89.02	-448.1	-434.7	3,227.6	3,018.8	208.72	15.463	
10,500.0	6,811.6	6,812.6	6,812.6	75.4	136.3	-88.99	-88.99	-448.1	-434.7	3,327.0	3,116.4	210.59	15.798	
10,600.0	6,811.4	6,812.4	6,812.4	77.3	136.2	-88.96	-88.96	-448.1	-434.7	3,426.4	3,213.9	212.47	16.127	
10,700.0	6,811.2	6,812.2	6,812.2	79.1	136.2	-88.93	-88.93	-448.1	-434.7	3,525.9	3,311.5	214.34	16.450	
10,800.0	6,811.0	6,812.0	6,812.0	81.0	136.2	-88.90	-88.90	-448.1	-434.7	3,625.3	3,409.1	216.21	16.767	
10,900.0	6,810.8	6,811.8	6,811.8	82.9	136.2	-88.87	-88.87	-448.1	-434.7	3,724.9	3,506.8	218.09	17.079	
11,000.0	6,810.6	6,811.6	6,811.6	84.7	136.2	-88.84	-88.84	-448.1	-434.7	3,824.4	3,604.4	219.97	17.386	
11,100.0	6,810.5	6,811.5	6,811.5	86.6	136.2	-88.81	-88.81	-448.1	-434.7	3,924.0	3,702.1	221.85	17.688	
11,200.0	6,810.3	6,811.3	6,811.3	88.5	136.2	-88.77	-88.77	-448.1	-434.7	4,023.6	3,799.8	223.73	17.984	
11,300.0	6,810.1	6,811.1	6,811.1	90.3	136.2	-88.74	-88.74	-448.1	-434.7	4,123.2	3,897.6	225.61	18.275	
11,400.0	6,809.9	6,810.9	6,810.9	92.2	136.2	-88.71	-88.71	-448.1	-434.7	4,222.8	3,995.3	227.50	18.562	
11,500.0	6,809.7	6,810.7	6,810.7	94.1	136.2	-88.68	-88.68	-448.1	-434.7	4,322.5	4,093.1	229.38	18.844	
11,600.0	6,809.5	6,810.5	6,810.5	96.0	136.2	-88.65	-88.65	-448.1	-434.7	4,422.1	4,190.8	231.27	19.121	
11,700.0	6,809.3	6,810.3	6,810.3	97.9	136.2	-88.62	-88.62	-448.1	-434.7	4,521.8	4,288.6	233.15	19.394	
11,800.0	6,809.1	6,810.1	6,810.1	99.7	136.2	-88.59	-88.59	-448.1	-434.7	4,621.5	4,386.4	235.04	19.662	
11,900.0	6,808.9	6,809.9	6,809.9	101.6	136.2	-88.56	-88.56	-448.1	-434.7	4,721.2	4,484.3	236.93	19.926	
12,000.0	6,808.7	6,809.7	6,809.7	103.5	136.2	-88.53	-88.53	-448.1	-434.7	4,820.9	4,582.1	238.82	20.186	
12,100.0	6,808.5	6,809.5	6,809.5	105.4	136.2	-88.50	-88.50	-448.1	-434.7	4,920.6	4,679.9	240.71	20.442	
12,200.0	6,808.3	6,809.3	6,809.3	107.3	136.2	-88.47	-88.47	-448.1	-434.7	5,020.4	4,777.8	242.60	20.694	
12,300.0	6,808.1	6,809.1	6,809.1	109.2	136.2	-88.44	-88.44	-448.1	-434.7	5,120.1	4,875.6	244.49	20.942	
12,400.0	6,808.0	6,809.0	6,809.0	111.1	136.2	-88.41	-88.41	-448.1	-434.7	5,219.9	4,973.5	246.38	21.186	
12,500.0	6,807.8	6,808.8	6,808.8	112.9	136.2	-88.38	-88.38	-448.1	-434.7	5,319.6	5,071.4	248.28	21.426	
12,600.0	6,807.6	6,808.6	6,808.6	114.8	136.2	-88.35	-88.35	-448.1	-434.7	5,419.4	5,169.2	250.17	21.663	
12,700.0	6,807.4	6,808.4	6,808.4	116.7	136.2	-88.32	-88.32	-448.1	-434.7	5,519.2	5,267.1	252.06	21.896	
12,800.0	6,807.2	6,808.2	6,808.2	118.6	136.2	-88.29	-88.29	-448.1	-434.7	5,619.0	5,365.0	253.96	22.126	
12,900.0	6,807.0	6,808.0	6,808.0	120.5	136.2	-88.25	-88.25	-448.1	-434.7	5,718.8	5,462.9	255.85	22.352	
13,000.0	6,806.8	6,807.8	6,807.8	122.4	136.2	-88.22	-88.22	-448.1	-434.7	5,818.6	5,560.8	257.75	22.575	
13,100.0	6,806.6	6,807.6	6,807.6	124.3	136.2	-88.19	-88.19	-448.1	-434.7	5,918.4	5,658.8	259.64	22.794	
13,200.0	6,806.4	6,807.4	6,807.4	126.2	136.1	-88.16	-88.16	-448.1	-434.7	6,018.2	5,756.7	261.54	23.011	
13,300.0	6,806.2	6,807.2	6,807.2	128.1	136.1	-88.13	-88.13	-448.1	-434.7	6,118.0	5,854.6	263.44	23.224	
13,400.0	6,806.0	6,807.0	6,807.0	130.0	136.1	-88.10	-88.10	-448.1	-434.7	6,217.9	5,952.5	265.33	23.434	
13,500.0	6,805.8	6,806.8	6,806.8	131.9	136.1	-88.07	-88.07	-448.1	-434.7	6,317.7	6,050.5	267.23	23.642	
13,600.0	6,805.7	6,806.7	6,806.7	133.8	136.1	-88.04	-88.04	-448.1	-434.7	6,417.5	6,148.4	269.13	23.846	
13,700.0	6,805.5	6,806.5	6,806.5	135.7	136.1	-88.01	-88.01	-448.1	-434.7	6,517.4	6,246.4	271.02	24.047	
13,800.0	6,805.3	6,806.3	6,806.3	137.6	136.1	-87.98	-87.98	-448.1	-434.7	6,617.2	6,344.3	272.92	24.246	
13,900.0	6,805.1	6,806.1	6,806.1	139.5	136.1	-87.95	-87.95	-448.1	-434.7	6,717.1	6,442.3	274.82	24.442	
13,939.5	6,805.0	6,806.0	6,806.0	140.2	136.1	-87.94	-87.94	-448.1	-434.7	6,756.6	6,481.0	275.57	24.519	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Wonenberg 1 (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)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	49.0	49.0	0.0	1.0	-174.46	-174.46	-5,748.8	-557.4	5,775.8	5,774.8	0.98	5,892.440	
100.0	100.0	149.0	149.0	0.1	3.0	-174.46	-174.46	-5,748.8	-557.4	5,775.8	5,772.7	3.09	1,867.620	
200.0	200.0	249.0	249.0	0.3	5.0	-174.46	-174.46	-5,748.8	-557.4	5,775.8	5,770.4	5.32	1,086.212	
300.0	300.0	349.0	349.0	0.6	7.0	-174.46	-174.46	-5,748.8	-557.4	5,775.8	5,768.2	7.54	765.802	
400.0	400.0	449.0	449.0	0.8	9.0	-174.46	-174.46	-5,748.8	-557.4	5,775.8	5,766.0	9.77	591.363	
500.0	500.0	549.0	549.0	1.0	11.0	-98.61	-98.61	-5,748.8	-557.4	5,776.0	5,764.0	11.98	482.032	
600.0	599.8	648.8	648.8	1.2	13.0	-98.64	-98.64	-5,748.8	-557.4	5,776.8	5,762.6	14.20	406.873	
700.0	699.5	748.5	748.5	1.5	15.0	-98.70	-98.70	-5,748.8	-557.4	5,778.1	5,761.7	16.43	351.695	
800.0	798.7	847.7	847.7	1.7	17.0	-98.78	-98.78	-5,748.8	-557.4	5,780.0	5,761.3	18.68	309.362	
900.0	897.5	946.5	946.5	2.0	18.9	-98.90	-98.90	-5,748.8	-557.4	5,782.4	5,761.4	20.97	275.773	
1,000.0	996.2	1,045.2	1,045.2	2.4	20.9	-99.06	-99.06	-5,748.8	-557.4	5,784.9	5,761.7	23.27	248.555	
1,100.0	1,094.9	1,143.9	1,143.9	2.7	22.9	-99.21	-99.21	-5,748.8	-557.4	5,787.5	5,761.9	25.59	226.142	
1,200.0	1,193.6	1,242.6	1,242.6	3.1	24.9	-99.37	-99.37	-5,748.8	-557.4	5,790.1	5,762.2	27.92	207.395	
1,300.0	1,292.3	1,341.3	1,341.3	3.4	26.8	-99.52	-99.52	-5,748.8	-557.4	5,792.8	5,762.5	30.25	191.500	
1,400.0	1,391.0	1,440.0	1,440.0	3.8	28.8	-99.68	-99.68	-5,748.8	-557.4	5,795.5	5,762.9	32.58	177.861	
1,500.0	1,489.7	1,538.7	1,538.7	4.2	30.8	-99.83	-99.83	-5,748.8	-557.4	5,798.3	5,763.3	34.92	166.033	
1,600.0	1,588.4	1,637.4	1,637.4	4.5	32.7	-99.99	-99.99	-5,748.8	-557.4	5,801.1	5,763.8	37.26	155.683	
1,700.0	1,687.1	1,736.1	1,736.1	4.9	34.7	-100.14	-100.14	-5,748.8	-557.4	5,803.9	5,764.3	39.60	146.551	
1,800.0	1,785.8	1,834.8	1,834.8	5.3	36.7	-100.29	-100.29	-5,748.8	-557.4	5,806.8	5,764.8	41.95	138.436	
1,900.0	1,884.5	1,933.5	1,933.5	5.7	38.7	-100.45	-100.45	-5,748.8	-557.4	5,809.7	5,765.4	44.29	131.178	
2,000.0	1,983.2	2,032.2	2,032.2	6.0	40.6	-100.60	-100.60	-5,748.8	-557.4	5,812.7	5,766.0	46.63	124.649	
2,100.0	2,082.0	2,131.0	2,131.0	6.4	42.6	-100.76	-100.76	-5,748.8	-557.4	5,815.7	5,766.7	48.98	118.744	
2,200.0	2,180.7	2,229.7	2,229.7	6.8	44.6	-100.91	-100.91	-5,748.8	-557.4	5,818.7	5,767.4	51.32	113.378	
2,300.0	2,279.4	2,328.4	2,328.4	7.2	46.6	-101.06	-101.06	-5,748.8	-557.4	5,821.8	5,768.2	53.67	108.482	
2,400.0	2,378.1	2,427.1	2,427.1	7.5	48.5	-101.22	-101.22	-5,748.8	-557.4	5,825.0	5,769.0	56.01	103.996	
2,500.0	2,476.8	2,525.8	2,525.8	7.9	50.5	-101.37	-101.37	-5,748.8	-557.4	5,828.2	5,769.8	58.36	99.871	
2,600.0	2,575.5	2,624.5	2,624.5	8.3	52.5	-101.52	-101.52	-5,748.8	-557.4	5,831.4	5,770.7	60.70	96.066	
2,700.0	2,674.2	2,723.2	2,723.2	8.7	54.5	-101.67	-101.67	-5,748.8	-557.4	5,834.7	5,771.6	63.05	92.544	
2,800.0	2,772.9	2,821.9	2,821.9	9.0	56.4	-101.83	-101.83	-5,748.8	-557.4	5,838.0	5,772.6	65.39	89.276	
2,900.0	2,871.6	2,920.6	2,920.6	9.4	58.4	-101.98	-101.98	-5,748.8	-557.4	5,841.3	5,773.6	67.74	86.235	
3,000.0	2,970.3	3,019.3	3,019.3	9.8	60.4	-102.13	-102.13	-5,748.8	-557.4	5,844.7	5,774.6	70.08	83.397	
3,100.0	3,069.0	3,118.0	3,118.0	10.2	62.4	-102.28	-102.28	-5,748.8	-557.4	5,848.1	5,775.7	72.43	80.745	
3,200.0	3,167.7	3,216.7	3,216.7	10.6	64.3	-102.43	-102.43	-5,748.8	-557.4	5,851.6	5,776.9	74.77	78.259	
3,300.0	3,266.4	3,315.4	3,315.4	10.9	66.3	-102.58	-102.58	-5,748.8	-557.4	5,855.1	5,778.0	77.12	75.925	
3,400.0	3,365.1	3,414.1	3,414.1	11.3	68.3	-102.74	-102.74	-5,748.8	-557.4	5,858.7	5,779.2	79.46	73.730	
3,500.0	3,463.8	3,512.8	3,512.8	11.7	70.3	-102.89	-102.89	-5,748.8	-557.4	5,862.3	5,780.5	81.81	71.661	
3,600.0	3,562.5	3,611.5	3,611.5	12.1	72.2	-103.04	-103.04	-5,748.8	-557.4	5,866.0	5,781.8	84.15	69.709	
3,700.0	3,661.2	3,710.2	3,710.2	12.5	74.2	-103.19	-103.19	-5,748.8	-557.4	5,869.6	5,783.1	86.49	67.862	
3,800.0	3,759.9	3,808.9	3,808.9	12.8	76.2	-103.34	-103.34	-5,748.8	-557.4	5,873.4	5,784.5	88.84	66.114	
3,900.0	3,858.6	3,907.6	3,907.6	13.2	78.2	-103.49	-103.49	-5,748.8	-557.4	5,877.1	5,786.0	91.18	64.456	
4,000.0	3,957.3	4,006.3	4,006.3	13.6	80.1	-103.64	-103.64	-5,748.8	-557.4	5,881.0	5,787.4	93.52	62.882	
4,100.0	4,056.0	4,105.0	4,105.0	14.0	82.1	-103.79	-103.79	-5,748.8	-557.4	5,884.8	5,788.9	95.87	61.386	
4,200.0	4,154.7	4,203.7	4,203.7	14.4	84.1	-103.94	-103.94	-5,748.8	-557.4	5,888.7	5,790.5	98.21	59.961	
4,300.0	4,253.4	4,302.4	4,302.4	14.7	86.0	-104.09	-104.09	-5,748.8	-557.4	5,892.6	5,792.1	100.55	58.604	
4,400.0	4,352.1	4,401.1	4,401.1	15.1	88.0	-104.24	-104.24	-5,748.8	-557.4	5,896.6	5,793.7	102.89	57.308	
4,500.0	4,450.8	4,499.8	4,499.8	15.5	90.0	-104.39	-104.39	-5,748.8	-557.4	5,900.6	5,795.4	105.23	56.071	
4,600.0	4,549.5	4,598.5	4,598.5	15.9	92.0	-104.54	-104.54	-5,748.8	-557.4	5,904.7	5,797.1	107.58	54.889	
4,700.0	4,648.2	4,697.2	4,697.2	16.3	93.9	-104.69	-104.69	-5,748.8	-557.4	5,908.8	5,798.9	109.92	53.757	
4,800.0	4,746.9	4,795.9	4,795.9	16.6	95.9	-104.83	-104.83	-5,748.8	-557.4	5,912.9	5,800.7	112.26	52.673	
4,900.0	4,845.7	4,894.7	4,894.7	17.0	97.9	-104.98	-104.98	-5,748.8	-557.4	5,917.1	5,802.5	114.60	51.634	
5,000.0	4,944.4	4,993.4	4,993.4	17.4	99.9	-105.13	-105.13	-5,748.8	-557.4	5,921.3	5,804.4	116.94	50.637	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Wonenberg 1 (Exist) - Wellbore #1 - Wellbore #										Offset Site Error:		0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			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)			
5,100.0	5,043.1	5,092.1	5,092.1	17.8	101.8	-105.28	-5,748.8	-557.4	5,925.6	5,806.3	119.28	49.679		
5,200.0	5,141.8	5,190.8	5,190.8	18.2	103.8	-105.43	-5,748.8	-557.4	5,929.9	5,808.3	121.62	48.759		
5,300.0	5,240.5	5,289.5	5,289.5	18.5	105.8	-105.57	-5,748.8	-557.4	5,934.2	5,810.3	123.95	47.874		
5,400.0	5,339.2	5,388.2	5,388.2	18.9	107.8	-105.72	-5,748.8	-557.4	5,938.6	5,812.3	126.29	47.022		
5,500.0	5,437.9	5,486.9	5,486.9	19.3	109.7	-105.87	-5,748.8	-557.4	5,943.0	5,814.4	128.63	46.202		
5,600.0	5,536.8	5,585.8	5,585.8	19.6	111.7	-106.08	-5,748.8	-557.4	5,947.0	5,816.1	130.95	45.416		
5,700.0	5,636.2	5,685.2	5,685.2	19.8	113.7	-106.24	-5,748.8	-557.4	5,950.1	5,816.9	133.18	44.678		
5,800.0	5,735.9	5,784.9	5,784.9	20.0	115.7	-106.35	-5,748.8	-557.4	5,952.2	5,816.8	135.37	43.969		
5,900.0	5,835.9	5,884.9	5,884.9	20.2	117.7	-106.40	-5,748.8	-557.4	5,953.3	5,815.8	137.53	43.287		
6,000.0	5,935.8	5,984.8	5,984.8	20.3	119.7	177.72	-5,748.8	-557.4	5,953.5	5,813.9	139.66	42.630		
6,100.0	6,035.8	6,084.8	6,084.8	20.4	121.7	177.72	-5,748.8	-557.4	5,953.5	5,811.7	141.80	41.986		
6,200.0	6,135.6	6,184.6	6,184.6	20.5	123.7	-2.30	-5,748.8	-557.4	5,948.0	5,805.1	142.84	41.641		
6,300.0	6,233.8	6,282.8	6,282.8	20.6	125.7	-2.36	-5,748.8	-557.4	5,929.5	5,788.1	141.38	41.941		
6,400.0	6,328.8	6,377.8	6,377.8	20.7	127.6	-2.48	-5,748.8	-557.4	5,898.4	5,761.0	137.35	42.945		
6,500.0	6,418.9	6,467.9	6,467.9	20.7	129.4	-2.66	-5,748.8	-557.4	5,855.2	5,724.4	130.76	44.778		
6,600.0	6,502.5	6,551.5	6,551.5	20.8	131.0	-2.93	-5,748.8	-557.4	5,800.6	5,678.9	121.68	47.670		
6,700.0	6,578.3	6,627.3	6,627.3	20.8	132.5	-3.31	-5,748.8	-557.4	5,735.5	5,625.2	110.28	52.010		
6,800.0	6,645.0	6,694.0	6,694.0	20.9	133.9	-3.88	-5,748.8	-557.4	5,661.1	5,564.3	96.81	58.474		
6,900.0	6,701.4	6,750.4	6,750.4	21.1	135.0	-4.77	-5,748.8	-557.4	5,578.7	5,497.0	81.73	68.260		
7,000.0	6,746.5	6,795.5	6,795.5	21.4	135.9	-6.29	-5,748.8	-557.4	5,489.6	5,423.7	65.88	83.322		
7,100.0	6,779.6	6,828.6	6,828.6	21.8	136.6	-9.29	-5,748.8	-557.4	5,395.4	5,343.4	52.03	103.701		
7,200.0	6,800.1	6,849.1	6,849.1	22.4	137.0	-17.64	-5,748.8	-557.4	5,297.7	5,243.1	54.60	97.020		
7,300.0	6,811.0	6,860.0	6,860.0	23.1	137.2	-23.58	-5,748.8	-557.4	5,198.4	5,131.8	66.56	78.096		
7,400.0	6,817.3	6,866.3	6,866.3	24.0	137.3	-67.67	-5,748.8	-557.4	5,098.7	4,953.4	145.37	35.075		
7,500.0	6,817.4	6,866.4	6,866.4	25.1	137.3	-92.32	-5,748.8	-557.4	4,998.9	4,839.7	159.12	31.415		
7,600.0	6,817.2	6,866.2	6,866.2	26.2	137.3	-92.27	-5,748.8	-557.4	4,899.0	4,738.5	160.49	30.524		
7,700.0	6,817.0	6,866.0	6,866.0	27.5	137.3	-92.22	-5,748.8	-557.4	4,799.1	4,637.1	161.94	29.635		
7,800.0	6,816.8	6,865.8	6,865.8	28.8	137.3	-92.18	-5,748.8	-557.4	4,699.2	4,535.8	163.44	28.752		
7,900.0	6,816.6	6,865.6	6,865.6	30.2	137.3	-92.13	-5,748.8	-557.4	4,599.3	4,434.3	165.00	27.875		
8,000.0	6,816.4	6,865.4	6,865.4	31.7	137.3	-92.09	-5,748.8	-557.4	4,499.5	4,332.9	166.60	27.008		
8,100.0	6,816.2	6,865.2	6,865.2	33.2	137.3	-92.04	-5,748.8	-557.4	4,399.6	4,231.4	168.23	26.152		
8,200.0	6,816.0	6,865.0	6,865.0	34.8	137.3	-91.99	-5,748.8	-557.4	4,299.8	4,129.9	169.90	25.308		
8,300.0	6,815.8	6,864.8	6,864.8	36.4	137.3	-91.95	-5,748.8	-557.4	4,199.9	4,028.3	171.59	24.477		
8,400.0	6,815.6	6,864.6	6,864.6	38.0	137.3	-91.90	-5,748.8	-557.4	4,100.1	3,926.8	173.30	23.658		
8,500.0	6,815.4	6,864.4	6,864.4	39.7	137.3	-91.85	-5,748.8	-557.4	4,000.3	3,825.2	175.04	22.854		
8,600.0	6,815.3	6,864.3	6,864.3	41.3	137.3	-91.81	-5,748.8	-557.4	3,900.4	3,723.6	176.79	22.063		
8,700.0	6,815.1	6,864.1	6,864.1	43.0	137.3	-91.76	-5,748.8	-557.4	3,800.6	3,622.1	178.56	21.285		
8,800.0	6,814.9	6,863.9	6,863.9	44.7	137.3	-91.71	-5,748.8	-557.4	3,700.8	3,520.5	180.34	20.522		
8,900.0	6,814.7	6,863.7	6,863.7	46.5	137.3	-91.67	-5,748.8	-557.4	3,601.0	3,418.9	182.13	19.772		
9,000.0	6,814.5	6,863.5	6,863.5	48.2	137.3	-91.62	-5,748.8	-557.4	3,501.3	3,317.3	183.93	19.036		
9,100.0	6,814.3	6,863.3	6,863.3	50.0	137.3	-91.58	-5,748.8	-557.4	3,401.5	3,215.8	185.74	18.314		
9,200.0	6,814.1	6,863.1	6,863.1	51.7	137.3	-91.53	-5,748.8	-557.4	3,301.7	3,114.2	187.55	17.604		
9,300.0	6,813.9	6,862.9	6,862.9	53.5	137.3	-91.48	-5,748.8	-557.4	3,202.0	3,012.6	189.38	16.908		
9,400.0	6,813.7	6,862.7	6,862.7	55.3	137.3	-91.44	-5,748.8	-557.4	3,102.3	2,911.1	191.21	16.224		
9,500.0	6,813.5	6,862.5	6,862.5	57.1	137.3	-91.39	-5,748.8	-557.4	3,002.6	2,809.6	193.05	15.554		
9,600.0	6,813.3	6,862.3	6,862.3	58.9	137.2	-91.34	-5,748.8	-557.4	2,902.9	2,708.0	194.89	14.895		
9,700.0	6,813.1	6,862.1	6,862.1	60.7	137.2	-91.30	-5,748.8	-557.4	2,803.3	2,606.5	196.74	14.249		
9,800.0	6,812.9	6,861.9	6,861.9	62.6	137.2	-91.25	-5,748.8	-557.4	2,703.6	2,505.1	198.59	13.614		
9,900.0	6,812.8	6,861.8	6,861.8	64.4	137.2	-91.20	-5,748.8	-557.4	2,604.0	2,403.6	200.44	12.991		
10,000.0	6,812.6	6,861.6	6,861.6	66.2	137.2	-91.16	-5,748.8	-557.4	2,504.5	2,302.2	202.30	12.380		
10,100.0	6,812.4	6,861.4	6,861.4	68.0	137.2	-91.11	-5,748.8	-557.4	2,404.9	2,200.8	204.17	11.779		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells - Churchill 28J-HZ Sec.28-T5N-R64W - Wonenberg 1 (Exist) - Wellbore #1 - Wellbore #										Offset Site Error:		0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis				Distance						Warning
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		
10,200.0	6,812.2	6,861.2	6,861.2	69.9	137.2	-91.06	-5,748.8	-557.4	2,305.4	2,099.4	206.03	11.190		
10,300.0	6,812.0	6,861.0	6,861.0	71.7	137.2	-91.02	-5,748.8	-557.4	2,206.0	1,998.1	207.90	10.611		
10,400.0	6,811.8	6,860.8	6,860.8	73.6	137.2	-90.97	-5,748.8	-557.4	2,106.6	1,896.8	209.77	10.042		
10,500.0	6,811.6	6,860.6	6,860.6	75.4	137.2	-90.93	-5,748.8	-557.4	2,007.3	1,795.6	211.64	9.484		
10,600.0	6,811.4	6,860.4	6,860.4	77.3	137.2	-90.88	-5,748.8	-557.4	1,908.0	1,694.5	213.52	8.936		
10,700.0	6,811.2	6,860.2	6,860.2	79.1	137.2	-90.83	-5,748.8	-557.4	1,808.8	1,593.4	215.39	8.398		
10,800.0	6,811.0	6,860.0	6,860.0	81.0	137.2	-90.79	-5,748.8	-557.4	1,709.7	1,492.5	217.27	7.869		
10,900.0	6,810.8	6,859.8	6,859.8	82.9	137.2	-90.74	-5,748.8	-557.4	1,610.8	1,391.6	219.15	7.350		
11,000.0	6,810.6	6,859.6	6,859.6	84.7	137.2	-90.69	-5,748.8	-557.4	1,511.9	1,290.9	221.04	6.840		
11,100.0	6,810.5	6,859.5	6,859.5	86.6	137.2	-90.65	-5,748.8	-557.4	1,413.2	1,190.3	222.92	6.340		
11,200.0	6,810.3	6,859.3	6,859.3	88.5	137.2	-90.60	-5,748.8	-557.4	1,314.8	1,090.0	224.80	5.848		
11,300.0	6,810.1	6,859.1	6,859.1	90.3	137.2	-90.55	-5,748.8	-557.4	1,216.5	989.8	226.69	5.366		
11,400.0	6,809.9	6,858.9	6,858.9	92.2	137.2	-90.51	-5,748.8	-557.4	1,118.6	890.0	228.58	4.894		
11,500.0	6,809.7	6,858.7	6,858.7	94.1	137.2	-90.46	-5,748.8	-557.4	1,021.1	790.6	230.47	4.431		
11,600.0	6,809.5	6,858.5	6,858.5	96.0	137.2	-90.41	-5,748.8	-557.4	924.1	691.8	232.36	3.977		
11,700.0	6,809.3	6,858.3	6,858.3	97.9	137.2	-90.37	-5,748.8	-557.4	827.9	593.6	234.25	3.534		
11,800.0	6,809.1	6,858.1	6,858.1	99.7	137.2	-90.32	-5,748.8	-557.4	732.6	496.5	236.14	3.102		
11,900.0	6,808.9	6,857.9	6,857.9	101.6	137.2	-90.28	-5,748.8	-557.4	638.8	400.8	238.03	2.684		
12,000.0	6,808.7	6,857.7	6,857.7	103.5	137.2	-90.23	-5,748.8	-557.4	547.2	307.3	239.92	2.281		
12,100.0	6,808.5	6,857.5	6,857.5	105.4	137.2	-90.18	-5,748.8	-557.4	459.1	217.3	241.82	1.899		
12,200.0	6,808.3	6,857.3	6,857.3	107.3	137.1	-90.14	-5,748.8	-557.4	377.0	133.3	243.71	1.547		
12,300.0	6,808.1	6,857.1	6,857.1	109.2	137.1	-90.09	-5,748.8	-557.4	305.7	60.1	245.61	1.245 Level 2		
12,400.0	6,808.0	6,857.0	6,857.0	111.1	137.1	-90.04	-5,748.8	-557.4	254.6	7.1	247.50	1.029 Level 2		
12,493.2	6,807.8	6,856.8	6,856.8	112.8	137.1	-90.00	-5,748.8	-557.4	236.9	-12.3	249.27	0.950 Level 1, CC		
12,500.0	6,807.8	6,856.8	6,856.8	112.9	137.1	-90.00	-5,748.8	-557.4	237.0	-12.4	249.40	0.950 Level 1, ES, SF		
12,600.0	6,807.6	6,856.6	6,856.6	114.8	137.1	-89.95	-5,748.8	-557.4	259.9	8.6	251.29	1.034 Level 2		
12,700.0	6,807.4	6,856.4	6,856.4	116.7	137.1	-89.90	-5,748.8	-557.4	314.5	61.3	253.19	1.242 Level 2		
12,800.0	6,807.2	6,856.2	6,856.2	118.6	137.1	-89.86	-5,748.8	-557.4	387.6	132.5	255.09	1.519		
12,900.0	6,807.0	6,856.0	6,856.0	120.5	137.1	-89.81	-5,748.8	-557.4	470.7	213.7	256.99	1.832		
13,000.0	6,806.8	6,855.8	6,855.8	122.4	137.1	-89.76	-5,748.8	-557.4	559.4	300.5	258.88	2.161		
13,100.0	6,806.6	6,855.6	6,855.6	124.3	137.1	-89.72	-5,748.8	-557.4	651.4	390.6	260.78	2.498		
13,200.0	6,806.4	6,855.4	6,855.4	126.2	137.1	-89.67	-5,748.8	-557.4	745.4	482.7	262.68	2.838		
13,300.0	6,806.2	6,855.2	6,855.2	128.1	137.1	-89.63	-5,748.8	-557.4	840.8	576.2	264.58	3.178		
13,400.0	6,806.0	6,855.0	6,855.0	130.0	137.1	-89.58	-5,748.8	-557.4	937.2	670.7	266.48	3.517		
13,500.0	6,805.8	6,854.8	6,854.8	131.9	137.1	-89.53	-5,748.8	-557.4	1,034.3	765.9	268.38	3.854		
13,600.0	6,805.7	6,854.7	6,854.7	133.8	137.1	-89.49	-5,748.8	-557.4	1,131.8	861.6	270.28	4.188		
13,700.0	6,805.5	6,854.5	6,854.5	135.7	137.1	-89.44	-5,748.8	-557.4	1,229.8	957.6	272.18	4.518		
13,800.0	6,805.3	6,854.3	6,854.3	137.6	137.1	-89.39	-5,748.8	-557.4	1,328.1	1,054.0	274.08	4.846		
13,900.0	6,805.1	6,854.1	6,854.1	139.5	137.1	-89.35	-5,748.8	-557.4	1,426.6	1,150.6	275.98	5.169		
13,939.5	6,805.0	6,854.0	6,854.0	140.2	137.1	-89.33	-5,748.8	-557.4	1,465.6	1,188.8	276.73	5.296		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Churchill 28E-423
<b>Project:</b>	SEC.28-T5N-R64W	<b>TVD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Reference Site:</b>	Churchill 28J-HZ Pad Sec.28-T5N-R64W	<b>MD Reference:</b>	WELL @ 4650.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Churchill 28E-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-30-13)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4650.0ft (RKB - 15')

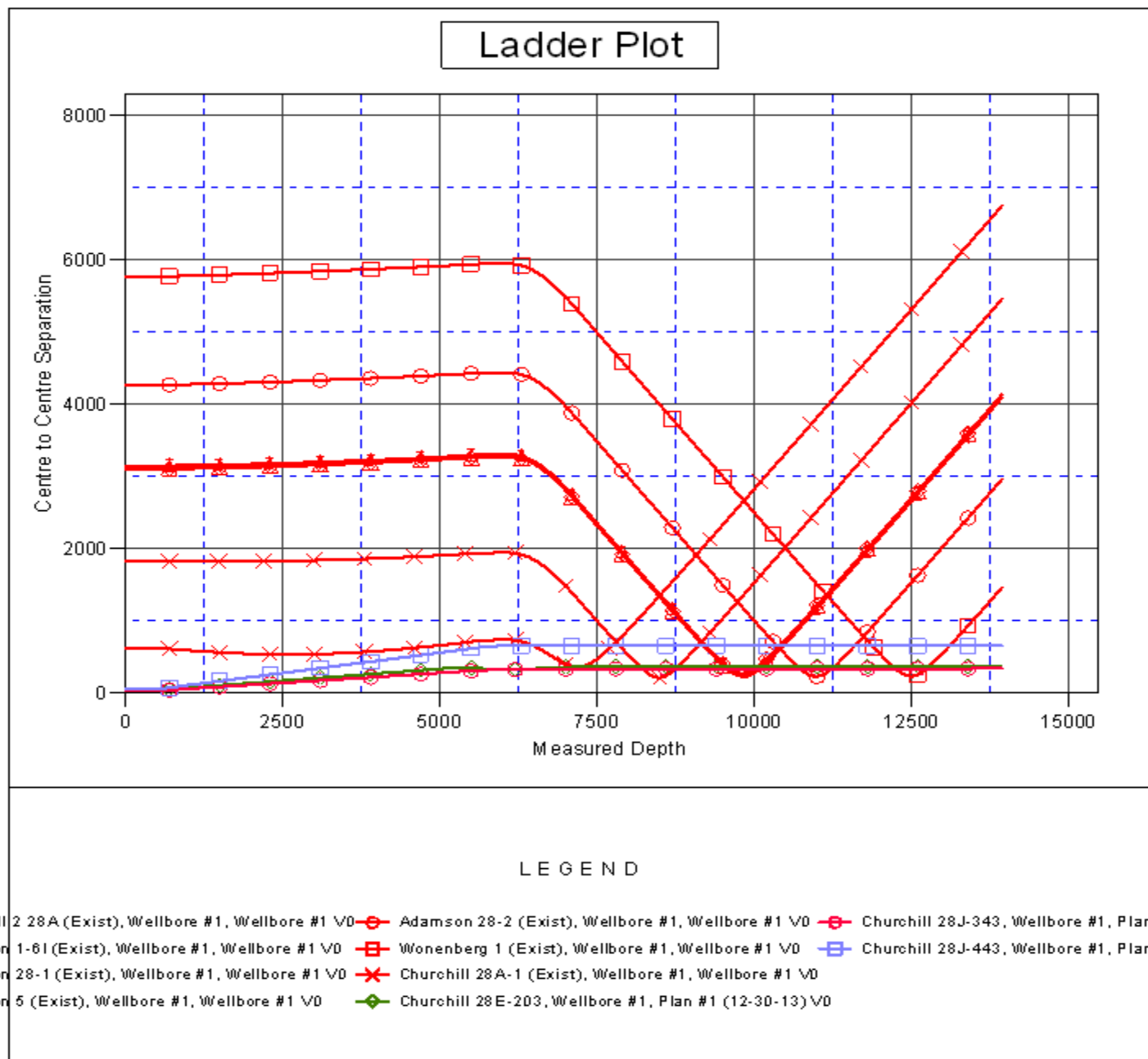
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Churchill 28E-423

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°





Coordinates are relative to: Churchill 28E-423  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.61°

