

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Bolton 7Y-404**

Surface Location: PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

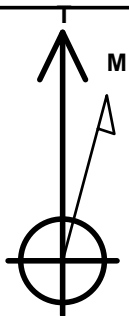
Ground Elevation: 5151.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1328359.74	3129212.75	40.233820	-105.037190	

Original Well Elev WELL @ 5166.0ft (Original Well Elev)

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 310'FSL & 211'FEL	1.0	0.0	0.0	Point
BHL 216'FSL & 500'FWL	7139.0	-156.2	-4495.2	Point



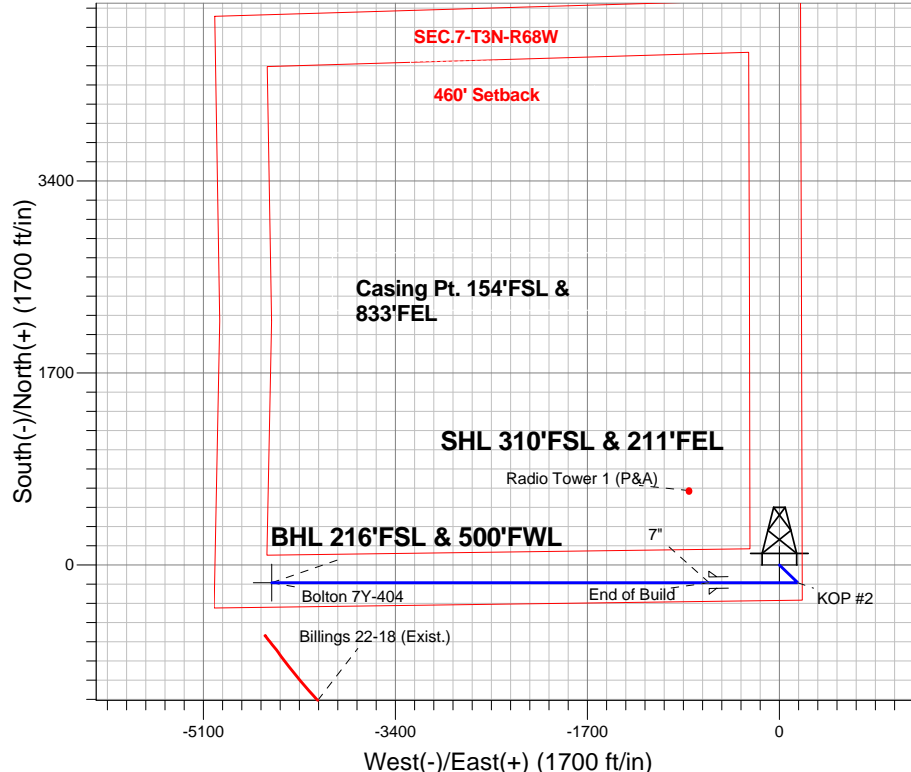
Azimuths to True North  
Magnetic North: 8.58°

Magnetic Field  
Strength: 52687.7srT  
Dip Angle: 66.77°  
Date: 7/16/2014  
Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP #1
6470.0	6481.4	KOP #2
7233.7	7700.0	End of Build

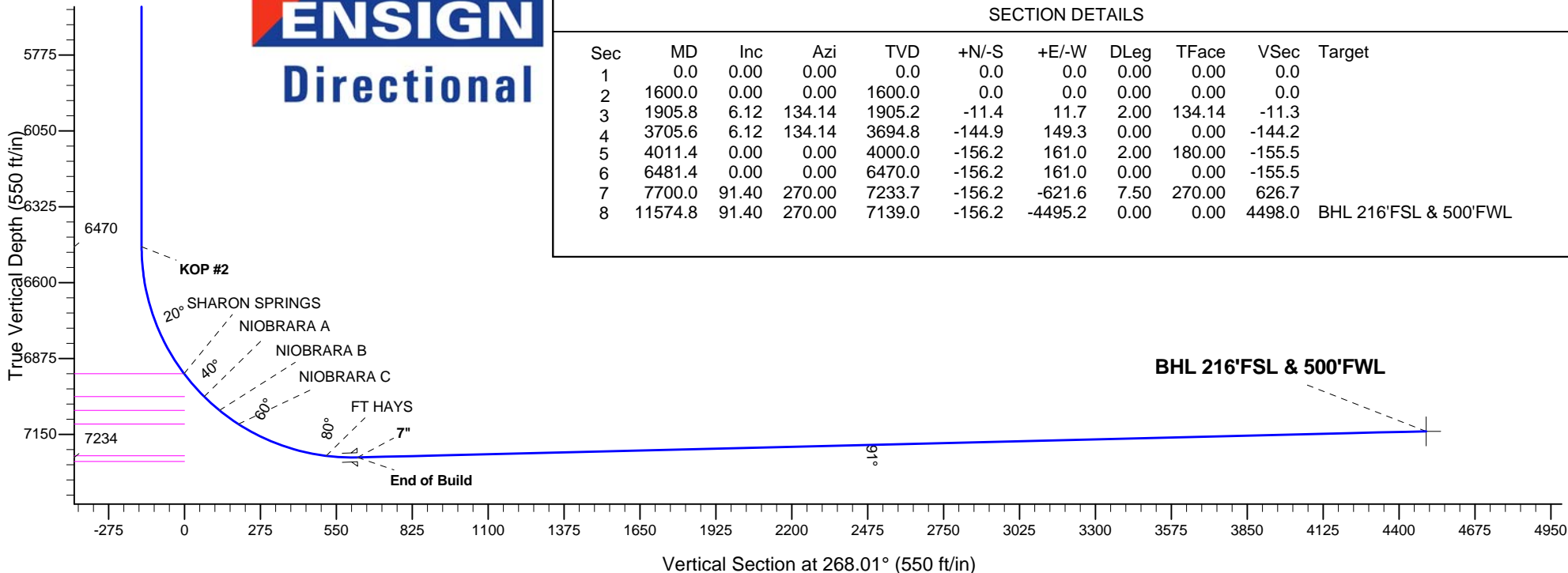
PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W  
Bolton 7Y-404  
Plan #1 (7-16-14)



**ENSIGN**  
Directional

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	1905.8	6.12	134.14	1905.2	-11.4	11.7	2.00	134.14	-11.3	
4	3705.6	6.12	134.14	3694.8	-144.9	149.3	0.00	0.00	-144.2	
5	4011.4	0.00	0.00	4000.0	-156.2	161.0	2.00	180.00	-155.5	
6	6481.4	0.00	0.00	6470.0	-156.2	161.0	0.00	0.00	-155.5	
7	7700.0	91.40	270.00	7233.7	-156.2	-621.6	7.50	270.00	626.7	
8	11574.8	91.40	270.00	7139.0	-156.2	-4495.2	0.00	0.00	4498.0	BHL 216'FSL & 500'FWL





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T3N-68W**

**PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W**

**Bolton 7Y-404**

**Wellbore #1**

**Plan: Plan #1 (7-16-14)**

## **Standard Planning Report**

**18 July, 2014**

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T3N-68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7Y-404	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-16-14)		

<b>Project</b>	SEC.7-T3N-68W, Weld County, CO		
<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						PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W											
Site Position:						Northing:			1,328,450.81 ft			Latitude:			40.234070		
From:			Lat/Long			Easting:			3,129,212.27 ft			Longitude:			-105.037190		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.30 °		

Well	Bolton 7Y-404					
Well Position	+N-S	-91.1 ft	Northing:	1,328,359.74 ft	Latitude:	40.233820
	+E-W	0.0 ft	Easting:	3,129,212.75 ft	Longitude:	-105.037190
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,151.0 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	7/16/2014	8.58	66.77	52,688

<b>Design</b>	Plan #1 (7-16-14)				
<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	268.01	

<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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,905.8	6.12	134.14	1,905.2	-11.4	11.7	2.00	2.00	0.00	134.14	
3,705.6	6.12	134.14	3,694.8	-144.9	149.3	0.00	0.00	0.00	0.00	
4,011.4	0.00	0.00	4,000.0	-156.2	161.0	2.00	-2.00	0.00	180.00	
6,481.4	0.00	0.00	6,470.0	-156.2	161.0	0.00	0.00	0.00	0.00	
7,700.0	91.40	270.00	7,233.7	-156.2	-621.6	7.50	7.50	0.00	270.00	
11,574.8	91.40	270.00	7,139.0	-156.2	-4,495.2	0.00	0.00	0.00	0.00	BHL 216°FSL & 50C

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T3N-68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7Y-404	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-16-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,700.0	2.00	134.14	1,700.0	-1.2	1.3	-1.2	2.00	2.00	0.00
1,800.0	4.00	134.14	1,799.8	-4.9	5.0	-4.8	2.00	2.00	0.00
1,900.0	6.00	134.14	1,899.5	-10.9	11.3	-10.9	2.00	2.00	0.00
1,905.8	6.12	134.14	1,905.2	-11.4	11.7	-11.3	2.00	2.00	0.00
2,000.0	6.12	134.14	1,998.9	-18.3	18.9	-18.3	0.00	0.00	0.00
2,100.0	6.12	134.14	2,098.3	-25.8	26.5	-25.6	0.00	0.00	0.00
2,200.0	6.12	134.14	2,197.7	-33.2	34.2	-33.0	0.00	0.00	0.00
2,300.0	6.12	134.14	2,297.2	-40.6	41.8	-40.4	0.00	0.00	0.00
2,400.0	6.12	134.14	2,396.6	-48.0	49.5	-47.8	0.00	0.00	0.00
2,500.0	6.12	134.14	2,496.0	-55.4	57.1	-55.2	0.00	0.00	0.00
2,600.0	6.12	134.14	2,595.5	-62.9	64.8	-62.6	0.00	0.00	0.00
2,700.0	6.12	134.14	2,694.9	-70.3	72.4	-69.9	0.00	0.00	0.00
2,800.0	6.12	134.14	2,794.3	-77.7	80.1	-77.3	0.00	0.00	0.00
2,900.0	6.12	134.14	2,893.8	-85.1	87.7	-84.7	0.00	0.00	0.00
3,000.0	6.12	134.14	2,993.2	-92.5	95.4	-92.1	0.00	0.00	0.00
3,100.0	6.12	134.14	3,092.6	-99.9	103.0	-99.5	0.00	0.00	0.00
3,200.0	6.12	134.14	3,192.1	-107.4	110.6	-106.8	0.00	0.00	0.00
3,300.0	6.12	134.14	3,291.5	-114.8	118.3	-114.2	0.00	0.00	0.00
3,400.0	6.12	134.14	3,390.9	-122.2	125.9	-121.6	0.00	0.00	0.00
3,440.3	6.12	134.14	3,431.0	-125.2	129.0	-124.6	0.00	0.00	0.00
<b>PARKMAN</b>									
3,500.0	6.12	134.14	3,490.3	-129.6	133.6	-129.0	0.00	0.00	0.00
3,600.0	6.12	134.14	3,589.8	-137.0	141.2	-136.4	0.00	0.00	0.00
3,700.0	6.12	134.14	3,689.2	-144.5	148.9	-143.8	0.00	0.00	0.00
3,705.6	6.12	134.14	3,694.8	-144.9	149.3	-144.2	0.00	0.00	0.00
3,800.0	4.23	134.14	3,788.8	-150.8	155.4	-150.1	2.00	-2.00	0.00
3,861.3	3.00	134.14	3,850.0	-153.5	158.2	-152.8	2.00	-2.00	0.00
<b>SUSSEX</b>									
3,900.0	2.23	134.14	3,888.6	-154.7	159.4	-154.0	2.00	-2.00	0.00
4,000.0	0.23	134.14	3,988.6	-156.2	161.0	-155.5	2.00	-2.00	0.00
4,011.4	0.00	0.00	4,000.0	-156.2	161.0	-155.5	2.00	-2.00	0.00
4,100.0	0.00	0.00	4,088.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,200.0	0.00	0.00	4,188.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,300.0	0.00	0.00	4,288.6	-156.2	161.0	-155.5	0.00	0.00	0.00

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<b>Project:</b>	SEC.7-T3N-68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7Y-404	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-16-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,400.0	0.00	0.00	4,388.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,436.4	0.00	0.00	4,425.0	-156.2	161.0	-155.5	0.00	0.00	0.00
<b>SHANNON</b>									
4,500.0	0.00	0.00	4,488.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,600.0	0.00	0.00	4,588.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,700.0	0.00	0.00	4,688.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,800.0	0.00	0.00	4,788.6	-156.2	161.0	-155.5	0.00	0.00	0.00
4,900.0	0.00	0.00	4,888.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,000.0	0.00	0.00	4,988.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,100.0	0.00	0.00	5,088.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,200.0	0.00	0.00	5,188.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,300.0	0.00	0.00	5,288.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,388.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,488.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,588.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,688.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,788.6	-156.2	161.0	-155.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,888.6	-156.2	161.0	-155.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,988.6	-156.2	161.0	-155.5	0.00	0.00	0.00
6,100.0	0.00	0.00	6,088.6	-156.2	161.0	-155.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,188.6	-156.2	161.0	-155.5	0.00	0.00	0.00
6,300.0	0.00	0.00	6,288.6	-156.2	161.0	-155.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,388.6	-156.2	161.0	-155.5	0.00	0.00	0.00
6,481.4	0.00	0.00	6,470.0	-156.2	161.0	-155.5	0.00	0.00	0.00
<b>KOP #2</b>									
6,500.0	1.40	270.00	6,488.6	-156.2	160.8	-155.2	7.52	7.52	0.00
6,600.0	8.90	270.00	6,588.1	-156.2	151.8	-146.3	7.50	7.50	0.00
6,700.0	16.40	270.00	6,685.6	-156.2	129.9	-124.4	7.50	7.50	0.00
6,800.0	23.90	270.00	6,779.4	-156.2	95.5	-90.0	7.50	7.50	0.00
6,900.0	31.40	270.00	6,868.0	-156.2	49.1	-43.7	7.50	7.50	0.00
6,975.1	37.03	270.00	6,930.0	-156.2	6.9	-1.5	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
7,000.0	38.90	270.00	6,949.7	-156.2	-8.4	13.8	7.50	7.50	0.00
7,085.4	45.30	270.00	7,013.0	-156.2	-65.6	71.0	7.50	7.50	0.00
<b>NIOBRARA A</b>									
7,100.0	46.40	270.00	7,023.2	-156.2	-76.1	81.5	7.50	7.50	0.00
7,160.3	50.92	270.00	7,063.0	-156.2	-121.4	126.7	7.50	7.50	0.00
<b>NIOBRARA B</b>									
7,200.0	53.90	270.00	7,087.2	-156.2	-152.8	158.1	7.50	7.50	0.00
7,245.7	57.32	270.00	7,113.0	-156.2	-190.5	195.8	7.50	7.50	0.00
<b>NIOBRARA C</b>									
7,300.0	61.40	270.00	7,140.7	-156.2	-237.2	242.5	7.50	7.50	0.00
7,400.0	68.90	270.00	7,182.7	-156.2	-327.9	333.1	7.50	7.50	0.00
7,500.0	76.40	270.00	7,212.5	-156.2	-423.3	428.5	7.50	7.50	0.00
7,586.4	82.88	270.00	7,228.0	-156.2	-508.2	513.3	7.50	7.50	0.00
<b>FT HAYS</b>									
7,600.0	83.90	270.00	7,229.6	-156.2	-521.7	526.9	7.50	7.50	0.00
7,700.0	91.40	270.00	7,233.7	-156.2	-621.6	626.6	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,800.0	91.40	270.00	7,231.2	-156.2	-721.6	726.5	0.00	0.00	0.00
7,900.0	91.40	270.00	7,228.8	-156.2	-821.5	826.5	0.00	0.00	0.00

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<b>Project:</b>	SEC.7-T3N-68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7Y-404	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-16-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,000.0	91.40	270.00	7,226.3	-156.2	-921.5	926.4	0.00	0.00	0.00
8,100.0	91.40	270.00	7,223.9	-156.2	-1,021.5	1,026.3	0.00	0.00	0.00
8,200.0	91.40	270.00	7,221.5	-156.2	-1,121.4	1,126.2	0.00	0.00	0.00
8,300.0	91.40	270.00	7,219.0	-156.2	-1,221.4	1,226.1	0.00	0.00	0.00
8,400.0	91.40	270.00	7,216.6	-156.2	-1,321.4	1,326.0	0.00	0.00	0.00
8,500.0	91.40	270.00	7,214.1	-156.2	-1,421.3	1,425.9	0.00	0.00	0.00
8,600.0	91.40	270.00	7,211.7	-156.2	-1,521.3	1,525.8	0.00	0.00	0.00
8,700.0	91.40	270.00	7,209.2	-156.2	-1,621.3	1,625.7	0.00	0.00	0.00
8,800.0	91.40	270.00	7,206.8	-156.2	-1,721.3	1,725.6	0.00	0.00	0.00
8,900.0	91.40	270.00	7,204.4	-156.2	-1,821.2	1,825.6	0.00	0.00	0.00
9,000.0	91.40	270.00	7,201.9	-156.2	-1,921.2	1,925.5	0.00	0.00	0.00
9,100.0	91.40	270.00	7,199.5	-156.2	-2,021.2	2,025.4	0.00	0.00	0.00
9,200.0	91.40	270.00	7,197.0	-156.2	-2,121.1	2,125.3	0.00	0.00	0.00
9,300.0	91.40	270.00	7,194.6	-156.2	-2,221.1	2,225.2	0.00	0.00	0.00
9,400.0	91.40	270.00	7,192.1	-156.2	-2,321.1	2,325.1	0.00	0.00	0.00
9,500.0	91.40	270.00	7,189.7	-156.2	-2,421.0	2,425.0	0.00	0.00	0.00
9,600.0	91.40	270.00	7,187.2	-156.2	-2,521.0	2,524.9	0.00	0.00	0.00
9,700.0	91.40	270.00	7,184.8	-156.2	-2,621.0	2,624.8	0.00	0.00	0.00
9,800.0	91.40	270.00	7,182.4	-156.2	-2,721.0	2,724.7	0.00	0.00	0.00
9,900.0	91.40	270.00	7,179.9	-156.2	-2,820.9	2,824.7	0.00	0.00	0.00
10,000.0	91.40	270.00	7,177.5	-156.2	-2,920.9	2,924.6	0.00	0.00	0.00
10,100.0	91.40	270.00	7,175.0	-156.2	-3,020.9	3,024.5	0.00	0.00	0.00
10,200.0	91.40	270.00	7,172.6	-156.2	-3,120.8	3,124.4	0.00	0.00	0.00
10,300.0	91.40	270.00	7,170.1	-156.2	-3,220.8	3,224.3	0.00	0.00	0.00
10,400.0	91.40	270.00	7,167.7	-156.2	-3,320.8	3,324.2	0.00	0.00	0.00
10,500.0	91.40	270.00	7,165.3	-156.2	-3,420.8	3,424.1	0.00	0.00	0.00
10,600.0	91.40	270.00	7,162.8	-156.2	-3,520.7	3,524.0	0.00	0.00	0.00
10,700.0	91.40	270.00	7,160.4	-156.2	-3,620.7	3,623.9	0.00	0.00	0.00
10,800.0	91.40	270.00	7,157.9	-156.2	-3,720.7	3,723.8	0.00	0.00	0.00
10,900.0	91.40	270.00	7,155.5	-156.2	-3,820.6	3,823.8	0.00	0.00	0.00
11,000.0	91.40	270.00	7,153.0	-156.2	-3,920.6	3,923.7	0.00	0.00	0.00
11,100.0	91.40	270.00	7,150.6	-156.2	-4,020.6	4,023.6	0.00	0.00	0.00
11,200.0	91.40	270.00	7,148.2	-156.2	-4,120.5	4,123.5	0.00	0.00	0.00
11,300.0	91.40	270.00	7,145.7	-156.2	-4,220.5	4,223.4	0.00	0.00	0.00
11,400.0	91.40	270.00	7,143.3	-156.2	-4,320.5	4,323.3	0.00	0.00	0.00
11,500.0	91.40	270.00	7,140.8	-156.2	-4,420.5	4,423.2	0.00	0.00	0.00
11,574.8	91.40	270.00	7,139.0	-156.2	-4,495.2	4,498.0	0.00	0.00	0.00

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,700.0	7,233.7	7"	7	7-1/2	

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Project:</b>	SEC.7-T3N-68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7Y-404	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-16-14)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,440.3	3,431.0	PARKMAN		0.00		
3,861.3	3,850.0	SUSSEX		0.00		
4,436.4	4,425.0	SHANNON		0.00		
6,975.1	6,930.0	SHARON SPRINGS		0.00		
7,085.4	7,013.0	NIOBRARA A		0.00		
7,160.3	7,063.0	NIOBRARA B		0.00		
7,245.7	7,113.0	NIOBRARA C		0.00		
7,586.4	7,228.0	FT HAYS		0.00		
	7,248.0	CODELL		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,600.0	1,600.0	0.0	0.0	KOP #1	
6,481.4	6,470.0	-156.2	161.0	KOP #2	
7,700.0	7,233.7	-156.2	-621.6	End of Build	



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T3N-68W**

**PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W**

**Bolton 7Y-404**

**Wellbore #1**

**Plan #1 (7-16-14)**

## **Anticollision Report**

**18 July, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (7-16-14)		
<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 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 7/17/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,574.8	Plan #1 (7-16-14) (Wellbore #1)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Billings 22-18 Pad Sec.18-T3N-R68W						
Billings 22-18 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Existings Sec.7-T3N-R68W						
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1						
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1						
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1						
PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)						
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)						
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)						
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)						
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)						

Offset Design												Existings Sec.7-T3N-R68W - Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program:												7850-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	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
7,300.0	7,140.7	7,128.7	7,128.7	17.1	142.6	71.68	659.4	-801.3	991.7	838.1	153.57	6.458					
7,400.0	7,182.7	7,170.7	7,170.7	18.4	143.4	78.20	659.4	-801.3	943.1	784.2	158.88	5.936					
7,500.0	7,212.5	7,200.5	7,200.5	20.0	144.0	83.78	659.4	-801.3	899.0	735.9	163.09	5.512					
7,600.0	7,229.6	7,217.6	7,217.6	21.8	144.4	87.91	659.4	-801.3	862.2	696.2	166.06	5.192					
7,700.0	7,233.7	7,221.7	7,221.7	23.8	144.4	90.31	659.4	-801.3	835.2	666.9	168.25	4.964					
7,800.0	7,231.2	7,219.2	7,219.2	26.0	144.4	90.14	659.4	-801.3	819.5	649.2	170.34	4.811					
7,879.8	7,229.3	7,217.3	7,217.3	27.8	144.3	90.00	659.4	-801.3	815.6	643.5	172.09	4.739 CC					
7,900.0	7,228.8	7,216.8	7,216.8	28.2	144.3	89.97	659.4	-801.3	815.9	643.3	172.54	4.729 ES					
8,000.0	7,226.3	7,214.3	7,214.3	30.6	144.3	89.79	659.4	-801.3	824.4	649.6	174.83	4.716 SF					
8,100.0	7,223.9	7,211.9	7,211.9	33.0	144.2	89.62	659.4	-801.3	844.8	667.6	177.20	4.768					
8,200.0	7,221.5	7,209.5	7,209.5	35.5	144.2	89.45	659.4	-801.3	876.2	696.6	179.61	4.878					

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 Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Existings Sec.7-T3N-R68W - Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program: 7850-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning				
8,300.0	7,219.0	7,207.0	7,207.0	38.0	144.1	89.28	659.4	-801.3	917.5	735.4	182.08	5.039					
8,400.0	7,216.6	7,204.6	7,204.6	40.5	144.1	89.11	659.4	-801.3	967.3	782.8	184.58	5.241					

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	0.00	91.1	0.0	91.1	91.1	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	0.00	91.1	0.0	91.1	90.8	0.23	401.189		
166.3	166.3	167.3	167.3	0.3	0.3	0.00	91.1	0.0	91.1	90.6	0.53	173.415 CC		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	91.1	0.0	91.1	90.4	0.67	135.075 ES		
300.0	300.0	297.9	297.9	0.6	0.6	0.22	92.7	0.4	92.8	91.6	1.12	82.779		
400.0	400.0	394.6	394.5	0.8	0.8	0.82	97.5	1.4	97.8	96.2	1.57	62.191		
500.0	500.0	490.9	490.4	1.0	1.0	1.70	105.5	3.1	106.1	104.0	2.03	52.247		
600.0	600.0	586.6	585.4	1.2	1.3	2.71	116.5	5.5	117.7	115.2	2.50	47.082		
700.0	700.0	684.2	682.0	1.5	1.6	3.72	130.2	8.5	131.9	128.9	2.99	44.157		
800.0	800.0	783.2	779.9	1.7	1.9	4.56	144.3	11.5	146.3	142.8	3.48	42.056		
900.0	900.0	882.1	877.8	1.9	2.2	5.25	158.3	14.6	160.7	156.7	3.98	40.410		
1,000.0	1,000.0	981.0	975.7	2.1	2.6	5.83	172.4	17.6	175.1	170.6	4.48	39.089		
1,100.0	1,100.0	1,080.0	1,073.6	2.4	2.9	6.32	186.4	20.6	189.6	184.6	4.99	38.010		
1,200.0	1,200.0	1,178.9	1,171.5	2.6	3.2	6.74	200.5	23.7	204.0	198.5	5.50	37.114		
1,300.0	1,300.0	1,277.9	1,269.4	2.8	3.6	7.10	214.5	26.7	218.5	212.5	6.01	36.359		
1,400.0	1,400.0	1,376.8	1,367.3	3.0	3.9	7.42	228.6	29.8	232.9	226.4	6.52	35.715		
1,500.0	1,500.0	1,475.7	1,465.2	3.3	4.2	7.70	242.6	32.8	247.4	240.4	7.04	35.159		
1,600.0	1,600.0	1,574.7	1,563.1	3.5	4.6	7.95	256.7	35.9	261.9	254.4	7.55	34.675		
1,700.0	1,700.0	1,673.5	1,660.8	3.7	4.9	-126.00	270.7	38.9	277.4	269.9	7.54	34.772		
1,800.0	1,799.8	1,771.9	1,758.1	3.9	5.3	-126.34	284.7	41.9	295.0	287.0	7.96	37.067		
1,900.0	1,899.5	1,869.8	1,855.0	4.1	5.6	-127.08	298.6	44.9	314.6	306.2	8.38	37.559		
2,000.0	1,998.9	1,967.3	1,951.5	4.3	5.9	-128.27	312.4	47.9	335.5	326.7	8.82	38.049		
2,100.0	2,098.3	2,064.9	2,048.0	4.5	6.3	-129.33	326.3	50.9	356.6	347.3	9.27	38.463		
2,200.0	2,197.7	2,162.4	2,144.6	4.7	6.6	-130.28	340.1	53.9	377.7	368.0	9.73	38.818		
2,300.0	2,297.2	2,260.0	2,241.1	5.0	7.0	-131.12	354.0	56.9	399.0	388.8	10.20	39.126		
2,400.0	2,396.6	2,357.5	2,337.6	5.2	7.3	-131.88	367.8	59.9	420.3	409.6	10.67	39.395		
2,500.0	2,496.0	2,455.1	2,434.1	5.4	7.6	-132.57	381.7	62.9	441.6	430.5	11.14	39.630		
2,600.0	2,595.5	2,552.7	2,530.7	5.7	8.0	-133.19	395.5	65.9	463.1	451.4	11.62	39.838		
2,700.0	2,694.9	2,650.2	2,627.2	6.0	8.3	-133.76	409.4	68.9	484.6	472.4	12.11	40.022		
2,800.0	2,794.3	2,747.8	2,723.7	6.2	8.6	-134.28	423.2	71.9	506.1	493.5	12.59	40.186		
2,900.0	2,893.8	2,845.3	2,820.2	6.5	9.0	-134.76	437.1	74.9	527.6	514.5	13.08	40.334		
3,000.0	2,993.2	2,942.9	2,916.7	6.8	9.3	-135.20	450.9	77.9	549.2	535.6	13.57	40.466		
3,100.0	3,092.6	3,040.4	3,013.3	7.0	9.7	-135.61	464.8	80.9	570.8	556.8	14.06	40.586		
3,200.0	3,192.1	3,138.0	3,109.8	7.3	10.0	-135.98	478.6	83.9	592.5	577.9	14.56	40.694		
3,300.0	3,291.5	3,235.6	3,206.3	7.6	10.3	-136.34	492.5	86.9	614.1	599.1	15.06	40.793		
3,400.0	3,390.9	3,333.1	3,302.8	7.9	10.7	-136.66	506.3	89.9	635.8	620.3	15.55	40.884		
3,500.0	3,490.3	3,430.7	3,399.4	8.2	11.0	-136.97	520.2	92.9	657.5	641.5	16.05	40.966		
3,600.0	3,589.8	3,528.2	3,495.9	8.5	11.3	-137.25	534.0	95.9	679.3	662.7	16.55	41.043		
3,700.0	3,689.2	3,625.8	3,592.4	8.7	11.7	-137.52	547.9	98.9	701.0	683.9	17.05	41.113		
3,800.0	3,788.8	3,723.6	3,689.2	9.0	12.0	-137.96	561.8	101.9	721.6	704.0	17.58	41.050		
3,900.0	3,888.6	3,822.0	3,786.5	9.2	12.4	-138.18	575.7	104.9	739.7	721.6	18.07	40.925		
4,000.0	3,988.6	3,920.7	3,884.2	9.4	12.7	-138.18	589.8	108.0	755.2	736.7	18.55	40.721		
4,100.0	4,088.6	4,019.6	3,982.1	9.6	13.0	-3.76	603.8	111.0	769.2	747.2	21.99	34.976		
4,200.0	4,188.6	4,118.6	4,080.0	9.8	13.4	-3.47	617.8	114.1	783.2	760.7	22.53	34.767		
4,300.0	4,288.6	4,217.5	4,177.9	10.0	13.7	-3.19	631.9	117.1	797.2	774.2	23.06	34.565		
4,400.0	4,388.6	4,316.5	4,275.8	10.1	14.1	-2.92	645.9	120.1	811.2	787.6	23.60	34.371		
4,500.0	4,488.6	4,415.4	4,373.6	10.3	14.4	-2.65	660.0	123.2	825.3	801.1	24.14	34.185		
4,600.0	4,588.6	4,514.3	4,471.5	10.5	14.8	-2.40	674.0	126.2	839.3	814.7	24.68	34.005		
4,700.0	4,688.6	4,613.3	4,569.4	10.7	15.1	-2.15	688.1	129.3	853.4	828.2	25.23	33.832		
4,800.0	4,788.6	4,712.2	4,667.3	10.9	15.5	-1.91	702.1	132.3	867.5	841.7	25.77	33.665		
4,900.0	4,888.6	4,811.2	4,765.2	11.1	15.8	-1.68	716.2	135.3	881.6	855.3	26.31	33.504		

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 Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,988.6	4,910.1	4,863.1	11.3	16.1	-1.46	730.2	138.4	895.7	868.9	26.86	33.349		
5,100.0	5,088.6	5,009.0	4,961.0	11.5	16.5	-1.24	744.3	141.4	909.9	882.5	27.41	33.199		
5,200.0	5,188.6	5,108.0	5,058.9	11.7	16.8	-1.04	758.3	144.5	924.0	896.0	27.95	33.055		
5,300.0	5,288.6	5,206.9	5,156.8	11.9	17.2	-0.83	772.4	147.5	938.2	909.7	28.50	32.915		
5,400.0	5,388.6	5,305.9	5,254.6	12.1	17.5	-0.63	786.4	150.6	952.3	923.3	29.05	32.780		
5,500.0	5,488.6	5,404.8	5,352.5	12.3	17.9	-0.44	800.5	153.6	966.5	936.9	29.60	32.650		
5,600.0	5,588.6	5,537.5	5,484.1	12.5	18.2	-0.22	817.6	157.3	979.5	949.3	30.20	32.436		
5,700.0	5,688.6	5,687.5	5,633.5	12.7	18.6	-0.06	829.9	160.0	987.8	957.0	30.73	32.145		
5,800.0	5,788.6	5,838.4	5,784.3	12.9	18.8	0.00	834.6	161.0	990.9	959.7	31.18	31.784		
5,900.0	5,888.6	5,943.7	5,889.6	13.1	18.9	0.00	834.7	161.0	990.9	959.4	31.53	31.424		
6,000.0	5,988.6	6,043.7	5,989.6	13.4	19.1	0.00	834.7	161.0	990.9	959.0	31.89	31.070		
6,100.0	6,088.6	6,143.7	6,089.6	13.6	19.2	0.00	834.7	161.0	990.9	958.6	32.25	30.722		
6,200.0	6,188.6	6,243.7	6,189.6	13.8	19.4	0.00	834.7	161.0	990.9	958.3	32.62	30.380		
6,300.0	6,288.6	6,343.7	6,289.6	14.0	19.5	0.00	834.7	161.0	990.9	957.9	32.98	30.043		
6,364.9	6,353.5	6,408.6	6,354.5	14.1	19.6	0.00	834.7	161.0	990.9	957.7	33.22	29.828		
6,400.0	6,388.6	6,443.7	6,389.6	14.2	19.7	0.00	834.7	160.9	990.9	957.5	33.35	29.714		
6,500.0	6,488.6	6,543.0	6,488.5	14.4	19.8	89.56	834.7	153.2	990.9	961.4	29.55	33.530		
6,600.0	6,588.1	6,640.5	6,583.9	14.6	19.9	88.89	834.7	133.2	991.1	961.2	29.87	33.180		
6,700.0	6,685.6	6,736.8	6,674.8	14.7	20.0	88.24	834.7	101.7	991.4	961.2	30.15	32.884		
6,800.0	6,779.4	6,831.7	6,759.9	14.8	20.1	87.62	834.7	59.7	991.8	961.3	30.44	32.584		
6,900.0	6,868.0	6,925.5	6,838.2	14.9	20.1	87.05	834.7	8.1	992.2	961.4	30.82	32.195		
7,000.0	6,949.7	7,018.3	6,908.8	15.1	20.2	86.52	834.7	-52.0	992.7	961.3	31.41	31.608		
7,100.0	7,023.2	7,110.2	6,971.1	15.5	20.4	86.06	834.7	-119.5	993.3	960.9	32.32	30.731		
7,200.0	7,087.2	7,200.0	7,023.7	16.2	20.6	85.66	834.7	-192.2	993.8	960.1	33.67	29.517		
7,300.0	7,140.7	7,291.9	7,068.4	17.1	21.0	85.32	834.7	-272.4	994.2	958.6	35.58	27.940		
7,400.0	7,182.7	7,381.9	7,102.5	18.4	21.7	85.05	834.7	-355.7	994.6	956.6	38.05	26.139		
7,500.0	7,212.5	7,471.6	7,126.4	20.0	22.8	84.87	834.7	-442.0	994.9	953.8	41.04	24.240		
7,600.0	7,229.6	7,561.0	7,140.1	21.8	24.1	84.76	834.7	-530.4	995.1	950.6	44.47	22.374		
7,700.0	7,233.7	7,650.0	7,143.4	23.8	25.7	84.74	834.7	-619.2	995.1	946.9	48.22	20.635		
7,800.0	7,231.2	7,748.7	7,139.6	26.0	27.6	84.66	834.7	-717.9	995.2	942.8	52.39	18.996		
7,900.0	7,228.8	7,848.7	7,135.6	28.2	29.7	84.57	834.7	-817.8	995.4	938.6	56.81	17.522		
8,000.0	7,226.3	7,948.7	7,131.7	30.6	31.9	84.48	834.7	-917.7	995.5	934.1	61.41	16.211		
8,100.0	7,223.9	8,048.7	7,127.7	33.0	34.2	84.39	834.7	-1,017.6	995.7	929.5	66.16	15.048		
8,200.0	7,221.5	8,148.7	7,123.7	35.5	36.6	84.30	834.7	-1,117.5	995.8	924.8	71.04	14.018		
8,300.0	7,219.0	8,248.6	7,119.7	38.0	39.0	84.22	834.7	-1,217.4	996.0	920.0	76.00	13.104		
8,400.0	7,216.6	8,348.6	7,115.7	40.5	41.5	84.13	834.7	-1,317.3	996.1	915.1	81.05	12.290		
8,500.0	7,214.1	8,448.6	7,111.8	43.1	44.0	84.04	834.7	-1,417.2	996.3	910.1	86.16	11.563		
8,600.0	7,211.7	8,548.6	7,107.8	45.7	46.5	83.95	834.7	-1,517.1	996.4	905.1	91.32	10.912		
8,700.0	7,209.2	8,648.6	7,103.8	48.4	49.1	83.87	834.7	-1,617.0	996.6	900.1	96.53	10.325		
8,800.0	7,206.8	8,748.6	7,099.8	51.0	51.7	83.78	834.7	-1,717.0	996.8	895.0	101.77	9.795		
8,900.0	7,204.4	8,848.6	7,095.9	53.7	54.3	83.69	834.7	-1,816.9	996.9	889.9	107.04	9.314		
9,000.0	7,201.9	8,948.6	7,091.9	56.4	57.0	83.60	834.7	-1,916.8	997.1	884.8	112.34	8.876		
9,100.0	7,199.5	9,048.6	7,087.9	59.1	59.6	83.51	834.7	-2,016.7	997.3	879.6	117.66	8.476		
9,200.0	7,197.0	9,148.5	7,083.9	61.8	62.3	83.43	834.7	-2,116.6	997.5	874.5	123.00	8.109		
9,300.0	7,194.6	9,248.5	7,079.9	64.5	65.0	83.34	834.7	-2,216.5	997.6	869.3	128.36	7.772		
9,400.0	7,192.1	9,348.5	7,076.0	67.2	67.6	83.25	834.7	-2,316.4	997.8	864.1	133.73	7.461		
9,500.0	7,189.7	9,448.5	7,072.0	69.9	70.3	83.16	834.7	-2,416.3	998.0	858.9	139.12	7.174		
9,600.0	7,187.2	9,548.5	7,068.0	72.7	73.0	83.08	834.7	-2,516.2	998.2	853.7	144.51	6.907		
9,700.0	7,184.8	9,648.5	7,064.0	75.4	75.8	82.99	834.7	-2,616.1	998.4	848.4	149.91	6.660		
9,800.0	7,182.4	9,748.5	7,060.1	78.1	78.5	82.90	834.7	-2,716.0	998.6	843.2	155.33	6.429		

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 Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,900.0	7,179.9	9,848.5	7,056.1	80.9	81.2	82.81	834.7	-2,816.0	998.7	838.0	160.74	6.213		
10,000.0	7,177.5	9,948.4	7,052.1	83.6	83.9	82.73	834.7	-2,915.9	998.9	832.8	166.17	6.012		
10,100.0	7,175.0	10,048.4	7,048.1	86.4	86.7	82.64	834.7	-3,015.8	999.1	827.5	171.60	5.822		
10,200.0	7,172.6	10,148.4	7,044.1	89.1	89.4	82.55	834.7	-3,115.7	999.3	822.3	177.03	5.645		
10,300.0	7,170.1	10,248.4	7,040.2	91.9	92.1	82.46	834.7	-3,215.6	999.5	817.1	182.47	5.478		
10,400.0	7,167.7	10,348.4	7,036.2	94.7	94.9	82.38	834.7	-3,315.5	999.7	811.8	187.91	5.320		
10,500.0	7,165.3	10,448.4	7,032.2	97.4	97.6	82.29	834.7	-3,415.4	999.9	806.6	193.36	5.171 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	58.3	0.0	58.3					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	58.3	0.0	58.3	58.1	0.22	259.273		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	58.3	0.0	58.3	57.6	0.67	86.424		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	58.3	0.0	58.3	57.2	1.12	51.855		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	58.3	0.0	58.3	56.7	1.57	37.039		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	58.3	0.0	58.3	56.3	2.02	28.808		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	58.3	0.0	58.3	55.8	2.47	23.570		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	58.3	0.0	58.3	55.4	2.92	19.944		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	58.3	0.0	58.3	54.9	3.37	17.285		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	58.3	0.0	58.3	54.5	3.82	15.251		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	58.3	0.0	58.3	54.0	4.27	13.646		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	58.3	0.0	58.3	53.6	4.72	12.346		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	58.3	0.0	58.3	53.1	5.17	11.273 CC, ES		
1,300.0	1,300.0	1,298.1	1,298.1	2.8	2.8	0.55	59.9	0.6	59.9	54.3	5.61	10.668		
1,400.0	1,400.0	1,395.9	1,395.8	3.0	3.0	2.02	64.6	2.3	64.8	58.7	6.06	10.688		
1,500.0	1,500.0	1,493.3	1,492.8	3.3	3.2	4.04	72.4	5.1	72.9	66.4	6.50	11.212		
1,600.0	1,600.0	1,590.1	1,588.9	3.5	3.5	6.19	83.2	9.0	84.4	77.5	6.95	12.145		
1,700.0	1,700.0	1,688.8	1,686.7	3.7	3.7	-126.64	96.0	13.6	98.9	91.5	7.39	13.387		
1,800.0	1,799.8	1,787.4	1,784.4	3.9	4.0	-126.98	108.8	18.3	115.4	107.6	7.79	14.811		
1,900.0	1,899.5	1,885.6	1,881.6	4.1	4.3	-128.34	121.5	22.9	134.1	125.9	8.21	16.340		
2,000.0	1,998.9	1,983.5	1,978.6	4.3	4.5	-130.15	134.1	27.5	154.1	145.4	8.64	17.838		
2,100.0	2,098.3	2,081.4	2,075.5	4.5	4.8	-131.55	146.8	32.0	174.2	165.1	9.08	19.186		
2,200.0	2,197.7	2,179.3	2,172.5	4.7	5.1	-132.66	159.5	36.6	194.3	184.8	9.53	20.399		
2,300.0	2,297.2	2,277.1	2,269.4	5.0	5.4	-133.57	172.1	41.2	214.6	204.6	9.98	21.493		
2,400.0	2,396.6	2,375.0	2,366.4	5.2	5.7	-134.31	184.8	45.8	234.8	224.4	10.45	22.481		
2,500.0	2,496.0	2,472.9	2,463.3	5.4	6.0	-134.94	197.5	50.4	255.1	244.2	10.91	23.377		
2,600.0	2,595.5	2,570.8	2,560.2	5.7	6.3	-135.48	210.2	55.0	275.5	264.1	11.39	24.192		
2,700.0	2,694.9	2,668.7	2,657.2	6.0	6.6	-135.94	222.8	59.6	295.8	283.9	11.86	24.934		
2,800.0	2,794.3	2,766.6	2,754.1	6.2	6.9	-136.34	235.5	64.1	316.2	303.8	12.34	25.613		
2,900.0	2,893.8	2,864.4	2,851.1	6.5	7.2	-136.70	248.2	68.7	336.5	323.7	12.83	26.236		
3,000.0	2,993.2	2,962.3	2,948.0	6.8	7.6	-137.01	260.8	73.3	356.9	343.6	13.31	26.808		
3,100.0	3,092.6	3,060.2	3,045.0	7.0	7.9	-137.29	273.5	77.9	377.3	363.5	13.80	27.335		
3,200.0	3,192.1	3,158.1	3,141.9	7.3	8.2	-137.54	286.2	82.5	397.7	383.4	14.30	27.822		
3,300.0	3,291.5	3,256.0	3,238.9	7.6	8.5	-137.77	298.9	87.1	418.1	403.4	14.79	28.274		
3,400.0	3,390.9	3,353.8	3,335.8	7.9	8.8	-137.98	311.5	91.7	438.6	423.3	15.28	28.693		
3,500.0	3,490.3	3,451.7	3,432.8	8.2	9.1	-138.16	324.2	96.2	459.0	443.2	15.78	29.082		
3,600.0	3,589.8	3,549.6	3,529.7	8.5	9.5	-138.34	336.9	100.8	479.4	463.1	16.28	29.446		
3,700.0	3,689.2	3,647.5	3,626.7	8.7	9.8	-138.49	349.5	105.4	499.8	483.1	16.78	29.786		
3,800.0	3,788.8	3,745.6	3,723.9	9.0	10.1	-138.77	362.2	110.0	519.1	501.8	17.30	30.011		
3,900.0	3,888.6	3,844.2	3,821.5	9.2	10.4	-138.77	375.0	114.6	535.8	518.1	17.78	30.133		
4,000.0	3,988.6	3,943.1	3,919.5	9.4	10.7	-138.51	387.8	119.3	550.0	531.7	18.25	30.143		
4,100.0	4,088.6	4,042.1	4,017.6	9.6	11.1	-3.81	400.6	123.9	562.6	542.6	19.96	28.189		
4,200.0	4,188.6	4,141.2	4,115.7	9.8	11.4	-3.26	413.5	128.5	575.3	554.8	20.47	28.103		
4,300.0	4,288.6	4,240.2	4,213.8	10.0	11.7	-2.73	426.3	133.2	588.0	567.0	20.98	28.019		
4,400.0	4,388.6	4,339.3	4,311.9	10.1	12.1	-2.23	439.1	137.8	600.7	579.2	21.50	27.938		
4,500.0	4,488.6	4,438.3	4,410.0	10.3	12.4	-1.75	451.9	142.5	613.5	591.5	22.02	27.860		
4,600.0	4,588.6	4,537.4	4,508.1	10.5	12.7	-1.28	464.7	147.1	626.3	603.8	22.54	27.785		
4,700.0	4,688.6	4,636.6	4,606.4	10.7	13.0	-0.84	477.6	151.8	639.2	616.1	23.07	27.712		
4,800.0	4,788.6	4,762.5	4,731.4	10.9	13.4	-0.38	491.3	156.7	650.0	626.4	23.59	27.554		
4,900.0	4,888.6	4,889.4	4,858.0	11.1	13.6	-0.10	499.8	159.8	656.8	632.7	24.06	27.299		
5,000.0	4,988.6	5,016.9	4,985.4	11.3	13.8	0.00	503.1	161.0	659.3	634.9	24.48	26.937		

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 Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
							+N/-S (ft)	+E/-W (ft)						
5,100.0	5,088.6	5,120.1	5,088.6	11.5	14.0	0.00	503.1	161.0	659.4	634.5	24.85	26.535		
5,200.0	5,188.6	5,220.1	5,188.6	11.7	14.2	0.00	503.1	161.0	659.4	634.1	25.23	26.133		
5,300.0	5,288.6	5,320.1	5,288.6	11.9	14.4	0.00	503.1	161.0	659.4	633.8	25.62	25.741		
5,400.0	5,388.6	5,420.1	5,388.6	12.1	14.5	0.00	503.1	161.0	659.4	633.4	26.00	25.358		
5,500.0	5,488.6	5,520.1	5,488.6	12.3	14.7	0.00	503.1	161.0	659.4	633.0	26.39	24.985		
5,600.0	5,588.6	5,620.1	5,588.6	12.5	14.9	0.00	503.1	161.0	659.4	632.6	26.78	24.621		
5,700.0	5,688.6	5,720.1	5,688.6	12.7	15.1	0.00	503.1	161.0	659.4	632.2	27.17	24.266		
5,800.0	5,788.6	5,820.1	5,788.6	12.9	15.2	0.00	503.1	161.0	659.4	631.8	27.57	23.919		
5,900.0	5,888.6	5,920.1	5,888.6	13.1	15.4	0.00	503.1	161.0	659.4	631.4	27.96	23.581		
6,000.0	5,988.6	6,020.1	5,988.6	13.4	15.6	0.00	503.1	161.0	659.4	631.0	28.36	23.251		
6,100.0	6,088.6	6,120.1	6,088.6	13.6	15.8	0.00	503.1	161.0	659.4	630.6	28.76	22.929		
6,200.0	6,188.6	6,220.1	6,188.6	13.8	16.0	0.00	503.1	161.0	659.4	630.2	29.16	22.615		
6,300.0	6,288.6	6,320.1	6,288.6	14.0	16.2	0.00	503.1	161.0	659.4	629.8	29.56	22.308		
6,400.0	6,388.6	6,420.1	6,388.6	14.2	16.4	0.00	503.1	161.0	659.4	629.4	29.96	22.008		
6,459.2	6,447.8	6,479.2	6,447.8	14.3	16.5	90.04	503.1	161.0	659.4	630.6	28.81	22.885		
6,500.0	6,488.6	6,520.1	6,488.6	14.4	16.5	90.00	503.1	160.8	659.4	630.4	28.98	22.751		
6,600.0	6,588.1	6,620.1	6,588.1	14.6	16.7	90.00	503.1	151.9	659.4	630.1	29.32	22.490		
6,700.0	6,685.6	6,720.1	6,685.7	14.7	16.8	90.01	503.1	130.0	659.4	629.8	29.60	22.276		
6,800.0	6,779.4	6,820.1	6,779.5	14.8	16.9	90.01	503.1	95.6	659.4	629.5	29.88	22.070		
6,900.0	6,868.0	6,920.1	6,868.0	14.9	17.0	90.01	503.1	49.3	659.4	629.1	30.23	21.814		
7,000.0	6,949.7	7,020.1	6,949.8	15.1	17.1	90.02	503.1	-8.2	659.4	628.6	30.77	21.432		
7,100.0	7,023.2	7,120.2	7,023.3	15.5	17.2	90.02	503.1	-75.9	659.4	627.7	31.63	20.846		
7,200.0	7,087.2	7,220.2	7,087.4	16.2	17.5	90.02	503.1	-152.7	659.4	626.4	32.96	20.004		
7,300.0	7,140.7	7,320.2	7,140.9	17.1	18.2	90.03	503.1	-237.1	659.4	624.5	34.87	18.912		
7,400.0	7,182.7	7,420.3	7,183.0	18.4	19.4	90.03	503.1	-327.8	659.4	622.0	37.39	17.636		
7,500.0	7,212.5	7,520.3	7,212.8	20.0	20.9	90.03	503.1	-423.2	659.4	618.9	40.50	16.283		
7,600.0	7,229.6	7,620.4	7,229.9	21.8	22.6	90.03	503.1	-521.7	659.4	615.3	44.09	14.954		
7,700.0	7,233.7	7,720.4	7,234.0	23.8	24.6	90.03	503.1	-621.6	659.4	611.3	48.04	13.725		
7,800.0	7,231.2	7,820.4	7,231.5	26.0	26.7	90.03	503.1	-721.6	659.4	607.1	52.28	12.613		
7,900.0	7,228.8	7,920.4	7,229.1	28.2	28.9	90.03	503.1	-821.5	659.4	602.6	56.75	11.620		
8,000.0	7,226.3	8,020.4	7,226.6	30.6	31.1	90.02	503.1	-921.5	659.4	598.0	61.40	10.739		
8,100.0	7,223.9	8,120.4	7,224.2	33.0	33.5	90.02	503.1	-1,021.5	659.4	593.2	66.20	9.960		
8,200.0	7,221.5	8,220.4	7,221.7	35.5	36.0	90.02	503.1	-1,121.4	659.4	588.3	71.12	9.271		
8,300.0	7,219.0	8,320.4	7,219.2	38.0	38.4	90.02	503.1	-1,221.4	659.4	583.2	76.14	8.660		
8,400.0	7,216.6	8,420.4	7,216.8	40.5	41.0	90.02	503.1	-1,321.4	659.4	578.1	81.24	8.117		
8,500.0	7,214.1	8,520.4	7,214.3	43.1	43.5	90.02	503.1	-1,421.4	659.4	573.0	86.39	7.632		
8,600.0	7,211.7	8,620.4	7,211.9	45.7	46.1	90.02	503.1	-1,521.3	659.4	567.8	91.60	7.198		
8,700.0	7,209.2	8,720.4	7,209.4	48.4	48.7	90.01	503.1	-1,621.3	659.4	562.5	96.86	6.807		
8,800.0	7,206.8	8,820.4	7,206.9	51.0	51.3	90.01	503.1	-1,721.3	659.4	557.2	102.15	6.455		
8,900.0	7,204.4	8,920.4	7,204.5	53.7	54.0	90.01	503.1	-1,821.2	659.4	551.9	107.48	6.135		
9,000.0	7,201.9	9,020.4	7,202.0	56.4	56.7	90.01	503.1	-1,921.2	659.4	546.5	112.83	5.844		
9,100.0	7,199.5	9,120.4	7,199.6	59.1	59.3	90.01	503.1	-2,021.2	659.4	541.2	118.21	5.578		
9,200.0	7,197.0	9,220.4	7,197.1	61.8	62.0	90.01	503.1	-2,121.1	659.4	535.8	123.61	5.334		
9,300.0	7,194.6	9,320.4	7,194.6	64.5	64.7	90.00	503.1	-2,221.1	659.4	530.4	129.02	5.110		
9,400.0	7,192.1	9,420.4	7,192.2	67.2	67.4	90.00	503.1	-2,321.1	659.4	524.9	134.46	4.904		
9,500.0	7,189.7	9,520.4	7,189.7	69.9	70.1	90.00	503.1	-2,421.0	659.4	519.5	139.90	4.713		
9,600.0	7,187.2	9,620.4	7,187.2	72.7	72.9	90.00	503.1	-2,521.0	659.4	514.0	145.36	4.536		
9,700.0	7,184.8	9,720.4	7,184.8	75.4	75.6	90.00	503.1	-2,621.0	659.4	508.5	150.83	4.372		
9,800.0	7,182.4	9,820.4	7,182.3	78.1	78.3	90.00	503.1	-2,721.0	659.4	503.1	156.31	4.218		
9,900.0	7,179.9	9,920.4	7,179.9	80.9	81.1	90.00	503.1	-2,820.9	659.4	497.6	161.80	4.075		

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 Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W -    Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)												Offset Site Error:	0.0 ft
Survey Program:    0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,000.0	7,177.5	10,020.4	7,177.4	83.6	83.8	89.99	503.1	-2,920.9	659.4	492.1	167.29	3.941	
10,100.0	7,175.0	10,120.4	7,174.9	86.4	86.5	89.99	503.1	-3,020.9	659.4	486.6	172.80	3.816	
10,200.0	7,172.6	10,220.4	7,172.5	89.1	89.3	89.99	503.1	-3,120.8	659.4	481.1	178.31	3.698	
10,300.0	7,170.1	10,320.4	7,170.0	91.9	92.1	89.99	503.1	-3,220.8	659.4	475.6	183.83	3.587	
10,400.0	7,167.7	10,420.4	7,167.6	94.7	94.8	89.99	503.1	-3,320.8	659.4	470.0	189.35	3.482	
10,500.0	7,165.3	10,520.4	7,165.1	97.4	97.6	89.99	503.1	-3,420.7	659.4	464.5	194.87	3.384	
10,600.0	7,162.8	10,620.4	7,162.6	100.2	100.3	89.98	503.1	-3,520.7	659.4	459.0	200.41	3.290	
10,700.0	7,160.4	10,720.4	7,160.2	103.0	103.1	89.98	503.1	-3,620.7	659.4	453.4	205.94	3.202	
10,800.0	7,157.9	10,820.4	7,157.7	105.7	105.9	89.98	503.1	-3,720.7	659.4	447.9	211.48	3.118	
10,900.0	7,155.5	10,920.4	7,155.3	108.5	108.6	89.98	503.1	-3,820.6	659.4	442.4	217.03	3.038	
11,000.0	7,153.0	11,020.4	7,152.8	111.3	111.4	89.98	503.1	-3,920.6	659.4	436.8	222.57	2.963	
11,100.0	7,150.6	11,120.4	7,150.3	114.1	114.2	89.98	503.1	-4,020.6	659.4	431.3	228.12	2.890	
11,200.0	7,148.2	11,220.4	7,147.9	116.8	116.9	89.98	503.1	-4,120.5	659.4	425.7	233.67	2.822	
11,300.0	7,145.7	11,320.4	7,145.4	119.6	119.7	89.97	503.1	-4,220.5	659.4	420.2	239.23	2.756	
11,400.0	7,143.3	11,420.4	7,143.0	122.4	122.5	89.97	503.1	-4,320.5	659.4	414.6	244.79	2.694	
11,500.0	7,140.8	11,520.4	7,140.5	125.2	125.1	89.97	503.1	-4,420.4	659.4	409.2	250.15	2.636	
11,538.5	7,139.9	11,558.9	7,139.5	126.2	125.8	89.97	503.2	-4,459.0	659.4	407.5	251.91	2.618	
11,574.8	7,139.0	11,581.1	7,139.0	127.3	126.2	89.97	503.2	-4,481.2	659.5	406.2	253.32	2.604 SF	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.664	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.221	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.933	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.523	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.407	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.788	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.974	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.644	
900.0	900.0	900.0	900.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.627	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	29.1	0.0	29.1	24.9	4.27	6.824	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	29.1	0.0	29.1	24.4	4.72	6.174	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	29.1	0.0	29.1	24.0	5.17	5.638	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	0.00	29.1	0.0	29.1	23.5	5.62	5.187	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	0.00	29.1	0.0	29.1	23.1	6.07	4.802	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	0.00	29.1	0.0	29.1	22.6	6.52	4.471	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	0.00	29.1	0.0	29.1	22.2	6.97	4.183 CC, ES	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-136.48	29.1	0.0	30.4	23.0	7.39	4.111	
1,800.0	1,799.8	1,799.8	1,799.8	3.9	3.9	-142.45	29.1	0.0	34.4	26.6	7.79	4.411	
1,900.0	1,899.5	1,899.5	1,899.5	4.1	4.2	-149.70	29.1	0.0	41.6	33.4	8.19	5.083	
2,000.0	1,998.9	1,998.9	1,998.9	4.3	4.4	-155.72	29.1	0.0	51.1	42.5	8.60	5.943	
2,100.0	2,098.3	2,098.3	2,098.3	4.5	4.6	-159.84	29.1	0.0	61.0	52.0	9.02	6.764	
2,200.0	2,197.7	2,197.7	2,197.7	4.7	4.8	-162.80	29.1	0.0	71.1	61.7	9.44	7.533	
2,300.0	2,297.2	2,297.2	2,297.2	5.0	5.1	-165.02	29.1	0.0	81.3	71.5	9.86	8.248	
2,400.0	2,396.6	2,396.6	2,396.6	5.2	5.3	-166.74	29.1	0.0	91.7	81.4	10.29	8.910	
2,500.0	2,496.0	2,496.0	2,496.0	5.4	5.5	-168.11	29.1	0.0	102.1	91.4	10.72	9.524	
2,600.0	2,595.5	2,595.0	2,595.0	5.7	5.7	-168.42	30.2	1.2	112.7	101.6	11.15	10.114	
2,700.0	2,694.9	2,693.7	2,693.6	6.0	5.9	-167.11	33.5	4.8	123.9	112.3	11.58	10.701	
2,800.0	2,794.3	2,792.0	2,791.5	6.2	6.2	-164.61	39.1	11.0	135.7	123.7	12.02	11.294	
2,900.0	2,893.8	2,890.2	2,889.0	6.5	6.4	-161.32	46.8	19.5	148.6	136.1	12.48	11.911	
3,000.0	2,993.2	2,988.9	2,987.0	6.8	6.6	-158.30	55.0	28.5	162.1	149.2	12.95	12.519	
3,100.0	3,092.6	3,087.7	3,085.0	7.0	6.8	-155.75	63.3	37.6	176.0	162.6	13.43	13.103	
3,200.0	3,192.1	3,186.4	3,183.0	7.3	7.1	-153.58	71.5	46.6	190.2	176.2	13.92	13.660	
3,300.0	3,291.5	3,285.2	3,281.0	7.6	7.3	-151.70	79.7	55.7	204.6	190.1	14.42	14.190	
3,400.0	3,390.9	3,383.9	3,379.0	7.9	7.6	-150.08	87.9	64.7	219.2	204.2	14.92	14.692	
3,500.0	3,490.3	3,482.7	3,477.0	8.2	7.9	-148.66	96.1	73.8	233.9	218.5	15.42	15.166	
3,600.0	3,589.8	3,581.4	3,575.0	8.5	8.1	-147.40	104.3	82.8	248.8	232.8	15.93	15.615	
3,700.0	3,689.2	3,680.2	3,672.9	8.7	8.4	-146.29	112.5	91.8	263.7	247.3	16.44	16.038	
3,800.0	3,788.8	3,779.1	3,771.1	9.0	8.7	-145.26	120.7	100.9	277.5	260.6	16.97	16.356	
3,900.0	3,888.6	3,878.2	3,869.4	9.2	8.9	-143.92	129.0	110.0	288.6	271.2	17.47	16.525	
4,000.0	3,988.6	3,977.4	3,967.9	9.4	9.2	-142.26	137.2	119.1	297.1	279.2	17.95	16.557	
4,100.0	4,088.6	4,076.6	4,066.4	9.6	9.5	-6.21	145.5	128.2	304.3	286.0	18.35	16.584	
4,200.0	4,188.6	4,175.9	4,164.8	9.8	9.8	-4.38	153.7	137.2	311.8	293.0	18.77	16.606	
4,300.0	4,288.6	4,276.5	4,264.7	10.0	10.1	-2.62	162.0	146.4	319.5	300.3	19.21	16.636	
4,400.0	4,388.6	4,383.8	4,371.5	10.1	10.3	-1.19	169.1	154.2	325.9	306.3	19.62	16.612	
4,500.0	4,488.6	4,491.9	4,479.3	10.3	10.5	-0.33	173.6	159.1	329.9	309.9	20.02	16.479	
4,600.0	4,588.6	4,600.2	4,587.6	10.5	10.7	0.00	175.3	161.0	331.5	311.1	20.42	16.235	
4,700.0	4,688.6	4,701.2	4,688.6	10.7	10.9	0.00	175.3	161.0	331.5	310.7	20.81	15.928	
4,800.0	4,788.6	4,801.2	4,788.6	10.9	11.1	0.00	175.3	161.0	331.5	310.3	21.23	15.616	
4,900.0	4,888.6	4,901.2	4,888.6	11.1	11.3	0.00	175.3	161.0	331.5	309.9	21.65	15.315	
5,000.0	4,988.6	5,001.2	4,988.6	11.3	11.5	0.00	175.3	161.0	331.5	309.4	22.07	15.024	

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 Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,088.6	5,101.2	5,088.6	11.5	11.7	0.00	175.3	161.0	331.5	309.0	22.49	14.743		
5,200.0	5,188.6	5,201.2	5,188.6	11.7	11.9	0.00	175.3	161.0	331.5	308.6	22.91	14.472		
5,300.0	5,288.6	5,301.2	5,288.6	11.9	12.2	0.00	175.3	161.0	331.5	308.2	23.33	14.210		
5,400.0	5,388.6	5,401.2	5,388.6	12.1	12.4	0.00	175.3	161.0	331.5	307.8	23.75	13.957		
5,500.0	5,488.6	5,501.2	5,488.6	12.3	12.6	0.00	175.3	161.0	331.5	307.3	24.18	13.712		
5,600.0	5,588.6	5,601.2	5,588.6	12.5	12.8	0.00	175.3	161.0	331.5	306.9	24.60	13.475		
5,700.0	5,688.6	5,701.2	5,688.6	12.7	13.0	0.00	175.3	161.0	331.5	306.5	25.03	13.246		
5,800.0	5,788.6	5,801.2	5,788.6	12.9	13.2	0.00	175.3	161.0	331.5	306.1	25.45	13.024		
5,900.0	5,888.6	5,901.2	5,888.6	13.1	13.4	0.00	175.3	161.0	331.5	305.6	25.88	12.809		
6,000.0	5,988.6	6,001.2	5,988.6	13.4	13.6	0.00	175.3	161.0	331.5	305.2	26.31	12.600		
6,100.0	6,088.6	6,101.2	6,088.6	13.6	13.9	0.00	175.3	161.0	331.5	304.8	26.74	12.398		
6,200.0	6,188.6	6,201.2	6,188.6	13.8	14.1	0.00	175.3	161.0	331.5	304.3	27.17	12.202		
6,300.0	6,288.6	6,301.2	6,288.6	14.0	14.3	0.00	175.3	161.0	331.5	303.9	27.60	12.012		
6,349.7	6,338.3	6,350.9	6,338.3	14.1	14.4	0.00	175.3	161.0	331.5	303.7	27.81	11.919		
6,400.0	6,388.6	6,401.1	6,388.5	14.2	14.5	-0.29	175.3	159.3	331.5	303.5	28.02	11.831		
6,500.0	6,488.6	6,499.3	6,485.8	14.4	14.6	87.53	175.3	146.5	331.8	303.2	28.59	11.606		
6,600.0	6,588.1	6,595.0	6,578.3	14.6	14.8	84.69	175.3	122.2	333.0	304.1	28.88	11.530		
6,700.0	6,685.6	6,688.9	6,665.4	14.7	14.9	81.98	175.3	87.2	334.9	305.7	29.13	11.494		
6,800.0	6,779.4	6,781.1	6,746.1	14.8	15.0	79.45	175.3	42.7	337.3	307.9	29.40	11.476		
6,900.0	6,868.0	6,871.9	6,819.7	14.9	15.2	77.13	175.3	-10.2	340.2	310.5	29.73	11.444		
7,000.0	6,949.7	6,961.3	6,885.7	15.1	15.6	75.04	175.3	-70.6	343.3	313.1	30.23	11.358		
7,100.0	7,023.2	7,050.0	6,943.6	15.5	16.2	73.21	175.3	-137.6	346.4	315.4	30.99	11.179		
7,200.0	7,087.2	7,137.2	6,992.7	16.2	17.0	71.67	175.3	-209.6	349.4	317.2	32.14	10.871		
7,300.0	7,140.7	7,223.9	7,033.0	17.1	18.0	70.41	175.3	-286.3	352.0	318.3	33.74	10.433		
7,400.0	7,182.7	7,309.9	7,064.2	18.4	19.2	69.43	175.3	-366.5	354.1	318.3	35.84	9.882		
7,500.0	7,212.5	7,395.6	7,086.1	20.0	20.6	68.75	175.3	-449.2	355.7	317.3	38.43	9.256		
7,600.0	7,229.6	7,481.0	7,098.6	21.8	22.2	68.36	175.3	-533.7	356.7	315.2	41.47	8.600		
7,700.0	7,233.7	7,566.3	7,101.6	23.8	23.9	68.27	175.3	-618.9	356.9	312.0	44.87	7.953		
7,703.2	7,233.6	7,569.0	7,101.5	23.9	24.0	68.27	175.3	-621.6	356.9	311.9	44.99	7.933		
7,800.0	7,231.2	7,662.4	7,097.1	26.0	26.0	67.96	175.3	-714.9	357.7	309.0	48.67	7.350		
7,900.0	7,228.8	7,762.4	7,092.2	28.2	28.2	67.58	175.3	-814.7	358.6	305.9	52.71	6.804		
8,000.0	7,226.3	7,862.4	7,087.2	30.6	30.5	67.21	175.3	-914.6	359.6	302.7	56.90	6.320		
8,100.0	7,223.9	7,962.3	7,082.3	33.0	32.9	66.85	175.3	-1,014.4	360.6	299.4	61.20	5.891		
8,200.0	7,221.5	8,062.3	7,077.3	35.5	35.4	66.48	175.3	-1,114.3	361.6	296.0	65.59	5.512		
8,300.0	7,219.0	8,162.3	7,072.4	38.0	37.9	66.12	175.3	-1,214.1	362.6	292.5	70.05	5.176		
8,400.0	7,216.6	8,262.3	7,067.4	40.5	40.4	65.75	175.3	-1,314.0	363.6	289.1	74.55	4.877		
8,500.0	7,214.1	8,362.2	7,062.4	43.1	43.0	65.39	175.3	-1,413.8	364.6	285.6	79.08	4.611		
8,600.0	7,211.7	8,462.2	7,057.5	45.7	45.6	65.04	175.3	-1,513.7	365.7	282.1	83.64	4.372		
8,700.0	7,209.2	8,562.2	7,052.5	48.4	48.2	64.68	175.3	-1,613.5	366.8	278.6	88.20	4.158		
8,800.0	7,206.8	8,662.1	7,047.6	51.0	50.9	64.33	175.3	-1,713.4	367.8	275.1	92.78	3.965		
8,900.0	7,204.4	8,762.1	7,042.6	53.7	53.5	63.98	175.3	-1,813.2	368.9	271.6	97.36	3.790		
9,000.0	7,201.9	8,862.1	7,037.7	56.4	56.2	63.63	175.3	-1,913.1	370.1	268.1	101.93	3.631		
9,100.0	7,199.5	8,962.0	7,032.7	59.1	58.9	63.28	175.3	-2,012.9	371.2	264.7	106.49	3.485		
9,200.0	7,197.0	9,062.0	7,027.8	61.8	61.6	62.93	175.3	-2,112.7	372.3	261.3	111.05	3.353		
9,300.0	7,194.6	9,162.0	7,022.8	64.5	64.3	62.59	175.3	-2,212.6	373.5	257.9	115.59	3.231		
9,400.0	7,192.1	9,261.9	7,017.9	67.2	67.0	62.25	175.3	-2,312.4	374.6	254.5	120.12	3.119		
9,500.0	7,189.7	9,361.9	7,012.9	69.9	69.7	61.91	175.3	-2,412.3	375.8	251.2	124.63	3.015		
9,600.0	7,187.2	9,461.9	7,008.0	72.7	72.4	61.57	175.3	-2,512.1	377.0	247.9	129.13	2.920		
9,700.0	7,184.8	9,561.8	7,003.0	75.4	75.2	61.24	175.3	-2,612.0	378.2	244.6	133.60	2.831		
9,800.0	7,182.4	9,661.8	6,998.1	78.1	77.9	60.91	175.3	-2,711.8	379.4	241.4	138.05	2.748		

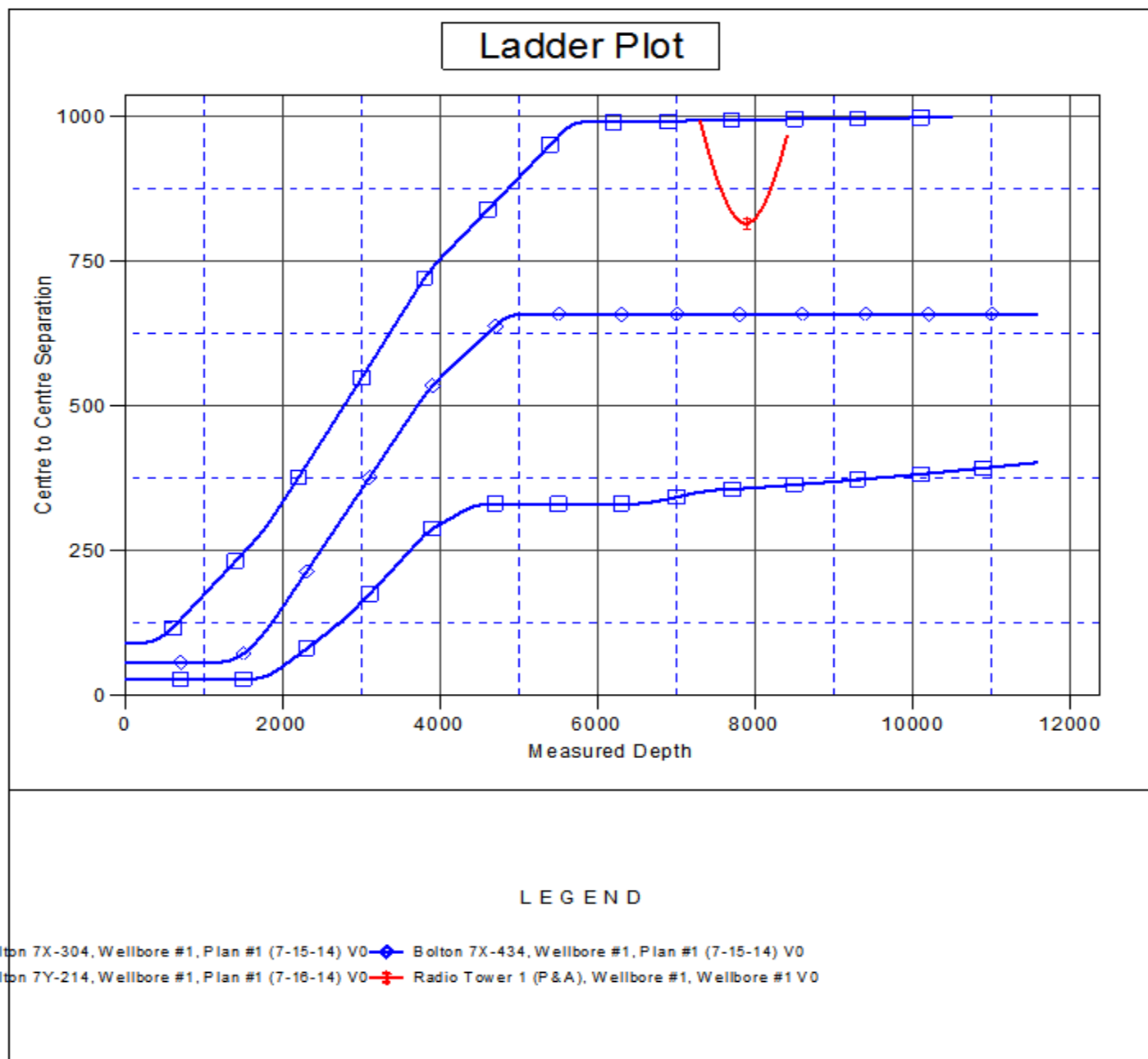
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design      PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W -    Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,900.0	7,179.9	9,761.8	6,993.1	80.9	80.6	60.57	175.3	-2,811.7	380.6	238.2	142.48	2.671		
10,000.0	7,177.5	9,861.7	6,988.1	83.6	83.4	60.25	175.3	-2,911.5	381.9	235.0	146.89	2.600		
10,100.0	7,175.0	9,961.7	6,983.2	86.4	86.1	59.92	175.3	-3,011.4	383.1	231.9	151.28	2.533		
10,200.0	7,172.6	10,061.7	6,978.2	89.1	88.9	59.60	175.3	-3,111.2	384.4	228.8	155.64	2.470		
10,300.0	7,170.1	10,161.7	6,973.3	91.9	91.6	59.27	175.3	-3,211.0	385.7	225.7	159.97	2.411		
10,400.0	7,167.7	10,261.6	6,968.3	94.7	94.4	58.95	175.3	-3,310.9	387.0	222.7	164.28	2.356		
10,500.0	7,165.3	10,361.6	6,963.4	97.4	97.2	58.64	175.3	-3,410.7	388.3	219.7	168.56	2.303		
10,600.0	7,162.8	10,461.6	6,958.4	100.2	99.9	58.32	175.3	-3,510.6	389.6	216.8	172.82	2.254		
10,700.0	7,160.4	10,561.5	6,953.5	103.0	102.7	58.01	175.3	-3,610.4	390.9	213.9	177.05	2.208		
10,800.0	7,157.9	10,661.5	6,948.5	105.7	105.4	57.70	175.3	-3,710.3	392.3	211.0	181.26	2.164		
10,900.0	7,155.5	10,761.5	6,943.6	108.5	108.2	57.39	175.3	-3,810.1	393.6	208.2	185.43	2.123		
11,000.0	7,153.0	10,861.4	6,938.6	111.3	111.0	57.08	175.3	-3,910.0	395.0	205.4	189.58	2.083		
11,100.0	7,150.6	10,961.4	6,933.7	114.1	113.8	56.78	175.3	-4,009.8	396.3	202.6	193.71	2.046		
11,200.0	7,148.2	11,061.4	6,928.7	116.8	116.5	56.47	175.3	-4,109.7	397.7	199.9	197.80	2.011		
11,300.0	7,145.7	11,161.3	6,923.8	119.6	119.3	56.17	175.3	-4,209.5	399.1	197.2	201.87	1.977		
11,400.0	7,143.3	11,261.3	6,918.8	122.4	122.1	55.87	175.3	-4,309.3	400.5	194.6	205.91	1.945		
11,500.0	7,140.8	11,361.3	6,913.9	125.2	124.9	55.58	175.3	-4,409.2	401.9	192.0	209.92	1.915		
11,574.8	7,139.0	11,436.1	6,910.1	127.3	126.9	55.36	175.3	-4,483.9	403.0	190.1	212.90	1.893 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5166.0ft (Original Well Elev) Coordinates are relative to: Bolton 7Y-404  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.30°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7Y-404
<b>Project:</b>	SEC.7-T3N-68W	<b>TVD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Reference Site:</b>	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5166.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7Y-404	<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 (7-16-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5166.0ft (Original Well Elev)Coordinates are relative to: Bolton 7Y-404

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

Central Meridian is -105.500000 °

Grid Convergence at Surface is: 0.30°

