

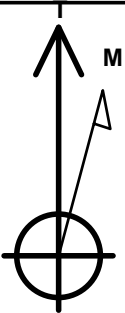
PETROLEUM DEVELOPMENT CORP
 Weld County CO

Well Name: Bolton 7Y-214

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 1328388.88 3129212.60 40.233900 -105.037190
 Original Well Elev WELL @ 5166.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 340'FSL & 211'FEL	1.0	0.0	0.0	Point
BHL 546'FSL & 500'FWL	6910.0	146.1	-4486.8	Point

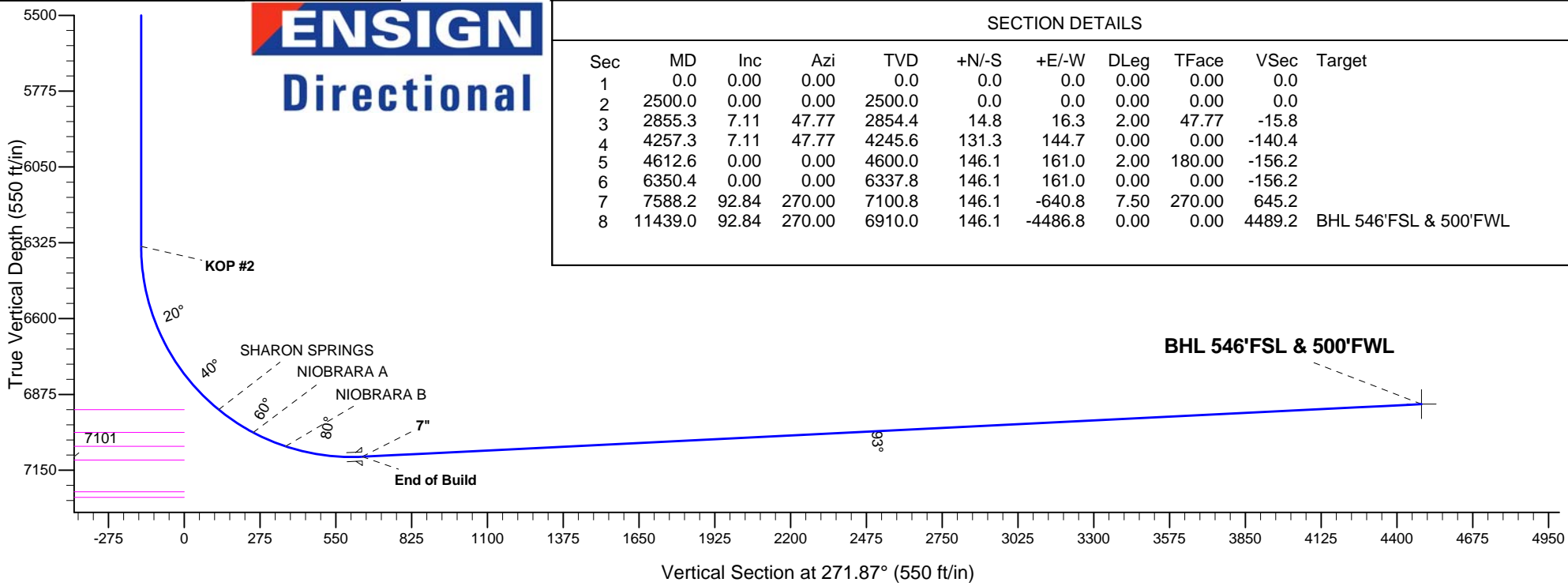
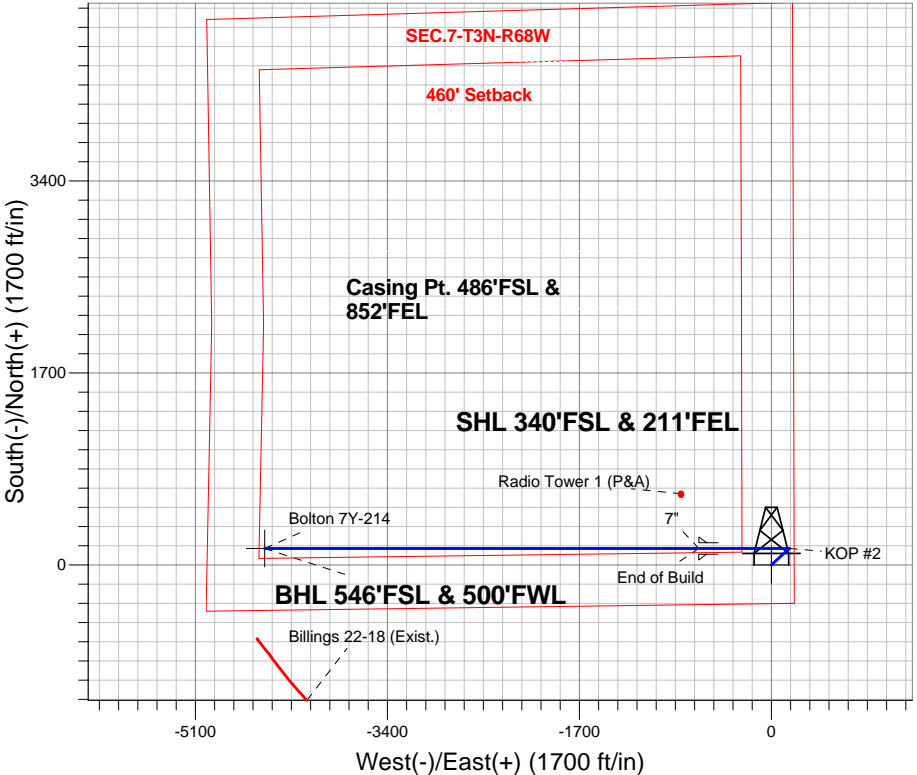


Azimuths to True North
 Magnetic North: 8.58°
 Magnetic Field
 Strength: 52688.0srT
 Dip Angle: 66.77°
 Date: 7/15/2014
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
2500.0	2500.0	KOP #1
6337.8	6350.4	KOP #2
7100.8	7588.2	End of Build

PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W
 Bolton 7Y-214
 Plan #1 (7-16-14)





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T3N-68W

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

Bolton 7Y-214

Wellbore #1

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

Standard Planning Report

18 July, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7Y-214
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Project:	SEC.7-T3N-68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-16-14)		

Project	SEC.7-T3N-68W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						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-214					
Well Position	+N-S	-61.9 ft	Northing:	1,328,388.88 ft	Latitude:	40.233900
	+E-W	0.0 ft	Easting:	3,129,212.60 ft	Longitude:	-105.037190
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,151.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/15/2014	8.58	66.77	52,688

Design	Plan #1 (7-16-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	271.87

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,855.3	7.11	47.77	2,854.4	14.8	16.3	2.00	2.00	0.00	47.77	
4,257.3	7.11	47.77	4,245.6	131.3	144.7	0.00	0.00	0.00	0.00	
4,612.6	0.00	0.00	4,600.0	146.1	161.0	2.00	-2.00	0.00	180.00	
6,350.4	0.00	0.00	6,337.8	146.1	161.0	0.00	0.00	0.00	0.00	
7,588.2	92.84	270.00	7,100.8	146.1	-640.8	7.50	7.50	0.00	270.00	
11,439.0	92.84	270.00	6,910.0	146.1	-4,486.8	0.00	0.00	0.00	0.00	BHL 546'FSL & 50C

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7Y-214
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Project:	SEC.7-T3N-68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,600.0	2.00	47.77	2,600.0	1.2	1.3	-1.3	2.00	2.00	0.00
2,700.0	4.00	47.77	2,699.8	4.7	5.2	-5.0	2.00	2.00	0.00
2,800.0	6.00	47.77	2,799.5	10.5	11.6	-11.3	2.00	2.00	0.00
2,855.3	7.11	47.77	2,854.4	14.8	16.3	-15.8	2.00	2.00	0.00
2,900.0	7.11	47.77	2,898.7	18.5	20.4	-19.8	0.00	0.00	0.00
3,000.0	7.11	47.77	2,998.0	26.8	29.5	-28.7	0.00	0.00	0.00
3,100.0	7.11	47.77	3,097.2	35.1	38.7	-37.5	0.00	0.00	0.00
3,200.0	7.11	47.77	3,196.4	43.4	47.9	-46.4	0.00	0.00	0.00
3,300.0	7.11	47.77	3,295.7	51.8	57.0	-55.3	0.00	0.00	0.00
3,400.0	7.11	47.77	3,394.9	60.1	66.2	-64.2	0.00	0.00	0.00
3,436.4	7.11	47.77	3,431.0	63.1	69.5	-67.4	0.00	0.00	0.00
PARKMAN									
3,500.0	7.11	47.77	3,494.1	68.4	75.3	-73.1	0.00	0.00	0.00
3,600.0	7.11	47.77	3,593.4	76.7	84.5	-82.0	0.00	0.00	0.00
3,700.0	7.11	47.77	3,692.6	85.0	93.7	-90.8	0.00	0.00	0.00
3,800.0	7.11	47.77	3,791.8	93.3	102.8	-99.7	0.00	0.00	0.00
3,858.6	7.11	47.77	3,850.0	98.2	108.2	-104.9	0.00	0.00	0.00
SUSSEX									
3,900.0	7.11	47.77	3,891.1	101.6	112.0	-108.6	0.00	0.00	0.00
4,000.0	7.11	47.77	3,990.3	110.0	121.1	-117.5	0.00	0.00	0.00
4,100.0	7.11	47.77	4,089.5	118.3	130.3	-126.4	0.00	0.00	0.00
4,200.0	7.11	47.77	4,188.8	126.6	139.5	-135.3	0.00	0.00	0.00
4,257.3	7.11	47.77	4,245.6	131.3	144.7	-140.4	0.00	0.00	0.00
4,300.0	6.25	47.77	4,288.0	134.7	148.4	-143.9	2.00	-2.00	0.00
4,400.0	4.25	47.77	4,387.6	140.8	155.2	-150.5	2.00	-2.00	0.00

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Project:	SEC.7-T3N-68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
4,437.5	3.50	47.77	4,425.0	142.5	157.0	-152.3	2.00	-2.00	0.00
SHANNON									
4,500.0	2.25	47.77	4,487.4	144.6	159.4	-154.6	2.00	-2.00	0.00
4,600.0	0.25	47.77	4,587.4	146.1	161.0	-156.1	2.00	-2.00	0.00
4,612.6	0.00	0.00	4,600.0	146.1	161.0	-156.2	2.00	-2.00	0.00
4,700.0	0.00	0.00	4,687.4	146.1	161.0	-156.2	0.00	0.00	0.00
4,800.0	0.00	0.00	4,787.4	146.1	161.0	-156.2	0.00	0.00	0.00
4,900.0	0.00	0.00	4,887.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,000.0	0.00	0.00	4,987.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,100.0	0.00	0.00	5,087.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,200.0	0.00	0.00	5,187.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,300.0	0.00	0.00	5,287.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,400.0	0.00	0.00	5,387.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,500.0	0.00	0.00	5,487.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,600.0	0.00	0.00	5,587.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,700.0	0.00	0.00	5,687.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,800.0	0.00	0.00	5,787.4	146.1	161.0	-156.2	0.00	0.00	0.00
5,900.0	0.00	0.00	5,887.4	146.1	161.0	-156.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,987.4	146.1	161.0	-156.2	0.00	0.00	0.00
6,100.0	0.00	0.00	6,087.4	146.1	161.0	-156.2	0.00	0.00	0.00
6,200.0	0.00	0.00	6,187.4	146.1	161.0	-156.2	0.00	0.00	0.00
6,300.0	0.00	0.00	6,287.4	146.1	161.0	-156.2	0.00	0.00	0.00
6,350.4	0.00	0.00	6,337.8	146.1	161.0	-156.2	0.00	0.00	0.00
KOP #2									
6,400.0	3.72	270.00	6,387.4	146.1	159.4	-154.5	7.50	7.50	0.00
6,500.0	11.22	270.00	6,486.5	146.1	146.4	-141.6	7.50	7.50	0.00
6,600.0	18.72	270.00	6,583.0	146.1	120.6	-115.8	7.50	7.50	0.00
6,700.0	26.22	270.00	6,675.3	146.1	82.4	-77.6	7.50	7.50	0.00
6,800.0	33.72	270.00	6,761.9	146.1	32.5	-27.7	7.50	7.50	0.00
6,900.0	41.22	270.00	6,841.2	146.1	-28.3	33.1	7.50	7.50	0.00
7,000.0	48.72	270.00	6,911.9	146.1	-99.0	103.7	7.50	7.50	0.00
7,028.0	50.82	270.00	6,930.0	146.1	-120.4	125.0	7.50	7.50	0.00
SHARON SPRINGS									
7,100.0	56.22	270.00	6,972.8	146.1	-178.2	182.9	7.50	7.50	0.00
7,178.5	62.11	270.00	7,013.0	146.1	-245.6	250.2	7.50	7.50	0.00
NIOBRARA A									
7,200.0	63.72	270.00	7,022.8	146.1	-264.7	269.3	7.50	7.50	0.00
7,300.0	71.22	270.00	7,061.1	146.1	-357.0	361.6	7.50	7.50	0.00
7,306.1	71.68	270.00	7,063.0	146.1	-362.8	367.4	7.50	7.50	0.00
NIOBRARA B									
7,400.0	78.72	270.00	7,087.0	146.1	-453.5	458.1	7.50	7.50	0.00
7,500.0	86.22	270.00	7,100.1	146.1	-552.6	557.1	7.50	7.50	0.00
7,588.2	92.84	270.00	7,100.8	146.1	-640.8	645.2	7.50	7.50	0.00
End of Build - 7"									
7,600.0	92.84	270.00	7,100.2	146.1	-652.5	657.0	0.03	0.03	0.00
7,700.0	92.84	270.00	7,095.3	146.1	-752.4	756.8	0.00	0.00	0.00
7,800.0	92.84	270.00	7,090.3	146.1	-852.3	856.6	0.00	0.00	0.00
7,900.0	92.84	270.00	7,085.3	146.1	-952.2	956.4	0.00	0.00	0.00
8,000.0	92.84	270.00	7,080.4	146.1	-1,052.0	1,056.2	0.00	0.00	0.00
8,100.0	92.84	270.00	7,075.4	146.1	-1,151.9	1,156.1	0.00	0.00	0.00
8,200.0	92.84	270.00	7,070.5	146.1	-1,251.8	1,255.9	0.00	0.00	0.00

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Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
8,300.0	92.84	270.00	7,065.5	146.1	-1,351.7	1,355.7	0.00	0.00	0.00
8,400.0	92.84	270.00	7,060.6	146.1	-1,451.6	1,455.5	0.00	0.00	0.00
8,500.0	92.84	270.00	7,055.6	146.1	-1,551.4	1,555.4	0.00	0.00	0.00
8,600.0	92.84	270.00	7,050.7	146.1	-1,651.3	1,655.2	0.00	0.00	0.00
8,700.0	92.84	270.00	7,045.7	146.1	-1,751.2	1,755.0	0.00	0.00	0.00
8,800.0	92.84	270.00	7,040.8	146.1	-1,851.1	1,854.8	0.00	0.00	0.00
8,900.0	92.84	270.00	7,035.8	146.1	-1,950.9	1,954.7	0.00	0.00	0.00
9,000.0	92.84	270.00	7,030.8	146.1	-2,050.8	2,054.5	0.00	0.00	0.00
9,100.0	92.84	270.00	7,025.9	146.1	-2,150.7	2,154.3	0.00	0.00	0.00
9,200.0	92.84	270.00	7,020.9	146.1	-2,250.6	2,254.1	0.00	0.00	0.00
9,300.0	92.84	270.00	7,016.0	146.1	-2,350.5	2,354.0	0.00	0.00	0.00
9,400.0	92.84	270.00	7,011.0	146.1	-2,450.3	2,453.8	0.00	0.00	0.00
9,500.0	92.84	270.00	7,006.1	146.1	-2,550.2	2,553.6	0.00	0.00	0.00
9,600.0	92.84	270.00	7,001.1	146.1	-2,650.1	2,653.4	0.00	0.00	0.00
9,700.0	92.84	270.00	6,996.2	146.1	-2,750.0	2,753.3	0.00	0.00	0.00
9,800.0	92.84	270.00	6,991.2	146.1	-2,849.8	2,853.1	0.00	0.00	0.00
9,900.0	92.84	270.00	6,986.3	146.1	-2,949.7	2,952.9	0.00	0.00	0.00
10,000.0	92.84	270.00	6,981.3	146.1	-3,049.6	3,052.7	0.00	0.00	0.00
10,100.0	92.84	270.00	6,976.3	146.1	-3,149.5	3,152.6	0.00	0.00	0.00
10,200.0	92.84	270.00	6,971.4	146.1	-3,249.3	3,252.4	0.00	0.00	0.00
10,300.0	92.84	270.00	6,966.4	146.1	-3,349.2	3,352.2	0.00	0.00	0.00
10,400.0	92.84	270.00	6,961.5	146.1	-3,449.1	3,452.0	0.00	0.00	0.00
10,500.0	92.84	270.00	6,956.5	146.1	-3,549.0	3,551.9	0.00	0.00	0.00
10,600.0	92.84	270.00	6,951.6	146.1	-3,648.9	3,651.7	0.00	0.00	0.00
10,700.0	92.84	270.00	6,946.6	146.1	-3,748.7	3,751.5	0.00	0.00	0.00
10,800.0	92.84	270.00	6,941.7	146.1	-3,848.6	3,851.3	0.00	0.00	0.00
10,900.0	92.84	270.00	6,936.7	146.1	-3,948.5	3,951.2	0.00	0.00	0.00
11,000.0	92.84	270.00	6,931.8	146.1	-4,048.4	4,051.0	0.00	0.00	0.00
11,100.0	92.84	270.00	6,926.8	146.1	-4,148.2	4,150.8	0.00	0.00	0.00
11,200.0	92.84	270.00	6,921.8	146.1	-4,248.1	4,250.6	0.00	0.00	0.00
11,300.0	92.84	270.00	6,916.9	146.1	-4,348.0	4,350.4	0.00	0.00	0.00
11,400.0	92.84	270.00	6,911.9	146.1	-4,447.9	4,450.3	0.00	0.00	0.00
11,439.0	92.84	270.00	6,910.0	146.1	-4,486.8	4,489.2	0.00	0.00	0.00

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,588.2	7,100.8	7"	7	7-1/2	

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7Y-214
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Project:	SEC.7-T3N-68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-16-14)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,436.4	3,431.0	PARKMAN		0.00		
3,858.6	3,850.0	SUSSEX		0.00		
4,437.5	4,425.0	SHANNON		0.00		
7,028.0	6,930.0	SHARON SPRINGS		0.00		
7,178.5	7,013.0	NIOBRARA A		0.00		
7,306.1	7,063.0	NIOBRARA B		0.00		
	7,113.0	NIOBRARA C		0.00		
	7,228.0	FT HAYS		0.00		
	7,248.0	CODELL		0.00		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP #1
6,350.4	6,337.8	146.1	161.0	KOP #2
7,588.2	7,100.8	146.1	-640.8	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T3N-68W

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

Bolton 7Y-214

Wellbore #1

Plan #1 (7-16-14)

Anticollision Report

18 July, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (7-16-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	7/18/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,439.0	Plan #1 (7-16-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
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	7,748.9	7,080.8	484.1	314.7	2.857 CC, ES	
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	7,800.0	7,078.3	486.8	316.2	2.854 SF	
PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	166.3	167.3	61.9	61.4	117.922 CC	
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	200.0	200.0	61.9	61.3	91.858 ES	
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	11,439.0	11,509.3	664.2	412.5	2.639 SF	
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	1,200.0	1,200.0	29.1	24.0	5.635 CC, ES	
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	11,439.0	11,581.1	400.0	189.9	1.904 SF	
Bolton 7Y-404 - Wellbore #1 - Plan #1 (7-16-14)	1,600.0	1,600.0	29.1	22.2	4.183 CC, ES	
Bolton 7Y-404 - Wellbore #1 - Plan #1 (7-16-14)	11,439.0	11,572.0	403.0	190.1	1.893 SF	

Offset Design	Existings Sec.7-T3N-R68W - Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0ft
Survey Program:	7850-UNKNOWN												Offset Well Error:	0.0ft
Reference	Offset	Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,800.0	6,761.9	6,749.9	6,749.9	15.0	135.0	34.92	630.3	-801.3	964.1	830.2	133.94	7.198		
6,900.0	6,841.2	6,829.2	6,829.2	15.3	136.6	39.78	630.3	-801.3	912.1	780.6	131.43	6.939		
7,000.0	6,911.9	6,899.9	6,899.9	15.8	138.0	46.26	630.3	-801.3	853.0	721.2	131.87	6.469		
7,100.0	6,972.8	6,960.8	6,960.8	16.6	139.2	54.41	630.3	-801.3	789.1	652.3	136.74	5.770		
7,200.0	7,022.8	7,010.8	7,010.8	17.7	140.2	63.86	630.3	-801.3	722.7	577.4	145.30	4.974		
7,300.0	7,061.1	7,049.1	7,049.1	19.0	141.0	73.54	630.3	-801.3	657.1	502.8	154.30	4.259		
7,400.0	7,087.0	7,075.0	7,075.0	20.7	141.5	82.00	630.3	-801.3	596.1	435.4	160.72	3.709		
7,500.0	7,100.1	7,088.1	7,088.1	22.6	141.8	88.06	630.3	-801.3	544.3	380.0	164.22	3.314		
7,600.0	7,100.2	7,088.2	7,088.2	24.6	141.8	90.87	630.3	-801.3	506.5	340.1	166.31	3.045		
7,700.0	7,095.3	7,083.3	7,083.3	26.8	141.7	90.29	630.3	-801.3	486.6	318.2	168.40	2.889		
7,748.9	7,092.8	7,080.8	7,080.8	27.9	141.6	90.00	630.3	-801.3	484.1	314.7	169.46	2.857 CC, ES		
7,800.0	7,090.3	7,078.3	7,078.3	29.0	141.6	89.70	630.3	-801.3	486.8	316.2	170.57	2.854 SF		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design													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 Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,900.0	7,085.3	7,073.3	7,073.3	31.4	141.5	89.12	630.3	-801.3	507.1	334.3	172.82	2.934		
8,000.0	7,080.4	7,068.4	7,068.4	33.8	141.4	88.53	630.3	-801.3	545.2	370.1	175.12	3.113		
8,100.0	7,075.4	7,063.4	7,063.4	36.3	141.3	87.94	630.3	-801.3	597.8	420.3	177.45	3.369		
8,200.0	7,070.5	7,058.5	7,058.5	38.8	141.2	87.36	630.3	-801.3	661.3	481.5	179.80	3.678		
8,300.0	7,065.5	7,053.5	7,053.5	41.4	141.1	86.78	630.3	-801.3	733.0	550.8	182.17	4.024		
8,400.0	7,060.6	7,048.6	7,048.6	44.0	141.0	86.19	630.3	-801.3	810.7	626.1	184.55	4.393		
8,500.0	7,055.6	7,043.6	7,043.6	46.6	140.9	85.61	630.3	-801.3	892.8	705.9	186.93	4.776		
8,600.0	7,050.7	7,038.7	7,038.7	49.2	140.8	85.03	630.3	-801.3	978.2	788.9	189.31	5.167		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	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	61.9	0.0	61.9	61.9	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	0.00	61.9	0.0	61.9	61.7	0.23	272.809		
166.3	166.3	167.3	167.3	0.3	0.3	0.00	61.9	0.0	61.9	61.4	0.53	117.922 CC		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	61.9	0.0	61.9	61.3	0.67	91.858 ES		
300.0	300.0	298.9	298.9	0.6	0.6	0.33	63.6	0.4	63.6	62.5	1.12	56.733		
400.0	400.0	396.5	396.4	0.8	0.8	1.19	68.5	1.4	68.7	67.1	1.57	43.653		
500.0	500.0	493.7	493.2	1.0	1.0	2.38	76.6	3.2	77.1	75.1	2.04	37.822		
600.0	600.0	590.3	589.1	1.2	1.3	3.66	87.9	5.6	88.9	86.3	2.52	35.226		
700.0	700.0	688.4	686.1	1.5	1.6	4.84	101.7	8.6	103.1	100.1	3.03	34.034		
800.0	800.0	787.3	784.0	1.7	1.9	5.75	115.7	11.6	117.5	114.0	3.54	33.164		
900.0	900.0	886.2	881.9	1.9	2.2	6.46	129.8	14.7	132.0	127.9	4.06	32.487		
1,000.0	1,000.0	985.2	979.8	2.1	2.6	7.03	143.8	17.7	146.4	141.9	4.58	31.948		
1,100.0	1,100.0	1,084.1	1,077.7	2.4	2.9	7.50	157.9	20.8	160.9	155.8	5.11	31.512		
1,200.0	1,200.0	1,183.1	1,175.6	2.6	3.2	7.89	171.9	23.8	175.4	169.8	5.63	31.152		
1,300.0	1,300.0	1,282.0	1,273.5	2.8	3.6	8.22	186.0	26.9	189.9	183.7	6.16	30.851		
1,400.0	1,400.0	1,380.9	1,371.4	3.0	3.9	8.50	200.0	29.9	204.4	197.7	6.68	30.596		
1,500.0	1,500.0	1,479.9	1,469.3	3.3	4.3	8.75	214.1	32.9	218.9	211.7	7.21	30.377		
1,600.0	1,600.0	1,578.8	1,567.1	3.5	4.6	8.96	228.1	36.0	233.4	225.7	7.73	30.187		
1,700.0	1,700.0	1,677.8	1,665.0	3.7	4.9	9.15	242.2	39.0	247.9	239.6	8.26	30.020		
1,800.0	1,800.0	1,776.7	1,762.9	3.9	5.3	9.32	256.2	42.1	262.4	253.6	8.78	29.874		
1,900.0	1,900.0	1,875.6	1,860.8	4.2	5.6	9.48	270.2	45.1	276.9	267.6	9.31	29.743		
2,000.0	2,000.0	1,974.6	1,958.7	4.4	6.0	9.61	284.3	48.1	291.4	281.6	9.84	29.627		
2,100.0	2,100.0	2,073.5	2,056.6	4.6	6.3	9.74	298.3	51.2	305.9	295.6	10.36	29.522		
2,200.0	2,200.0	2,172.5	2,154.5	4.8	6.6	9.85	312.4	54.2	320.5	309.6	10.89	29.427		
2,300.0	2,300.0	2,271.4	2,252.4	5.1	7.0	9.95	326.4	57.3	335.0	323.6	11.42	29.341		
2,400.0	2,400.0	2,370.3	2,350.3	5.3	7.3	10.04	340.5	60.3	349.5	337.5	11.94	29.262		
2,500.0	2,500.0	2,469.3	2,448.2	5.5	7.7	10.13	354.5	63.4	364.0	351.5	12.47	29.191		
2,600.0	2,600.0	2,568.4	2,546.2	5.7	8.0	-37.56	368.6	66.4	377.2	365.4	11.78	32.011		
2,700.0	2,699.8	2,667.8	2,644.6	5.9	8.4	-37.83	382.7	69.5	387.6	375.3	12.25	31.636		
2,800.0	2,799.5	2,767.4	2,743.1	6.2	8.7	-38.42	396.9	72.5	395.3	382.5	12.72	31.078		
2,900.0	2,898.7	2,867.0	2,841.7	6.4	9.1	-39.32	411.0	75.6	400.6	387.4	13.19	30.366		
3,000.0	2,998.0	2,966.7	2,940.3	6.6	9.4	-40.29	425.2	78.6	405.6	391.9	13.68	29.657		
3,100.0	3,097.2	3,066.3	3,038.9	6.9	9.7	-41.23	439.3	81.7	410.8	396.6	14.17	28.992		
3,200.0	3,196.4	3,166.0	3,137.5	7.1	10.1	-42.15	453.4	84.8	416.0	401.3	14.67	28.367		
3,300.0	3,295.7	3,265.6	3,236.0	7.4	10.4	-43.05	467.6	87.8	421.4	406.2	15.17	27.778		
3,400.0	3,394.9	3,365.3	3,334.6	7.6	10.8	-43.92	481.7	90.9	426.8	411.1	15.68	27.224		
3,500.0	3,494.1	3,464.9	3,433.2	7.9	11.1	-44.77	495.9	94.0	432.4	416.2	16.19	26.701		
3,600.0	3,593.4	3,564.5	3,531.8	8.2	11.5	-45.60	510.0	97.0	438.0	421.3	16.71	26.208		
3,700.0	3,692.6	3,664.2	3,630.4	8.4	11.8	-46.41	524.2	100.1	443.7	426.5	17.24	25.741		
3,800.0	3,791.8	3,763.8	3,729.0	8.7	12.2	-47.20	538.3	103.1	449.6	431.8	17.77	25.299		
3,900.0	3,891.1	3,863.5	3,827.5	9.0	12.5	-47.97	552.5	106.2	455.5	437.2	18.31	24.881		
4,000.0	3,990.3	3,963.1	3,926.1	9.3	12.9	-48.72	566.6	109.3	461.5	442.6	18.85	24.485		
4,100.0	4,089.5	4,062.7	4,024.7	9.6	13.2	-49.44	580.8	112.3	467.5	448.1	19.39	24.109		
4,200.0	4,188.8	4,162.4	4,123.3	9.8	13.5	-50.15	594.9	115.4	473.6	453.7	19.94	23.751		
4,300.0	4,288.0	4,262.0	4,221.9	10.1	13.9	-50.86	609.1	118.5	480.0	459.6	20.48	23.440		
4,400.0	4,387.6	4,361.6	4,320.4	10.3	14.2	-51.37	623.2	121.5	488.3	467.4	20.95	23.315		
4,500.0	4,487.4	4,461.1	4,418.8	10.5	14.6	-51.58	637.3	124.6	498.8	477.4	21.38	23.330		
4,600.0	4,587.4	4,560.2	4,516.9	10.7	14.9	-51.52	651.4	127.6	511.4	489.6	21.78	23.481		
4,700.0	4,687.4	4,659.2	4,614.8	10.9	15.3	-3.34	665.5	130.7	525.4	499.9	25.46	20.632		
4,800.0	4,787.4	4,758.1	4,712.7	11.1	15.6	-2.93	679.5	133.7	539.4	513.4	26.03	20.719		
4,900.0	4,887.4	4,857.1	4,810.6	11.3	16.0	-2.54	693.6	136.8	553.5	526.8	26.60	20.803		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design		PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7X-304 - 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)									
5,000.0	4,987.4	4,956.0	4,908.5	11.5	16.3	-2.16	707.6	139.8	567.5	540.3	27.17	20.885					
5,100.0	5,087.4	5,054.9	5,006.4	11.7	16.6	-1.81	721.6	142.8	581.6	553.9	27.74	20.965					
5,200.0	5,187.4	5,153.9	5,104.3	11.9	17.0	-1.47	735.7	145.9	595.7	567.4	28.31	21.042					
5,300.0	5,287.4	5,252.8	5,202.2	12.2	17.3	-1.15	749.7	148.9	609.9	581.0	28.88	21.117					
5,400.0	5,387.4	5,351.8	5,300.1	12.4	17.7	-0.84	763.8	152.0	624.0	594.6	29.45	21.190					
5,500.0	5,487.4	5,454.7	5,401.9	12.6	18.0	-0.53	778.3	155.1	638.1	608.1	30.02	21.256					
5,600.0	5,587.4	5,581.9	5,528.2	12.8	18.3	-0.24	792.9	158.3	649.6	619.0	30.58	21.244					
5,700.0	5,687.4	5,710.2	5,656.2	13.0	18.6	-0.07	802.0	160.2	656.6	625.6	31.06	21.144					
5,800.0	5,787.4	5,839.1	5,785.0	13.2	18.8	0.00	805.5	161.0	659.4	627.9	31.47	20.950					
5,900.0	5,887.4	5,942.5	5,888.4	13.4	18.9	0.00	805.5	161.0	659.4	627.5	31.83	20.712					
6,000.0	5,987.4	6,042.5	5,988.4	13.6	19.1	0.00	805.5	161.0	659.4	627.2	32.20	20.476					
6,100.0	6,087.4	6,142.5	6,088.4	13.9	19.2	0.00	805.5	161.0	659.4	626.8	32.57	20.245					
6,200.0	6,187.4	6,242.5	6,188.4	14.1	19.4	0.00	805.5	161.0	659.4	626.4	32.94	20.017					
6,300.0	6,287.4	6,342.5	6,288.4	14.3	19.5	0.00	805.5	161.0	659.4	626.1	33.31	19.794					
6,347.4	6,334.8	6,389.9	6,335.8	14.4	19.6	90.06	805.5	161.0	659.4	630.0	29.35	22.464					
6,400.0	6,387.4	6,442.5	6,388.4	14.5	19.7	90.14	805.5	160.9	659.4	629.8	29.56	22.303					
6,500.0	6,486.5	6,542.9	6,488.4	14.6	19.8	90.60	805.5	153.2	659.4	629.6	29.86	22.083					
6,600.0	6,583.0	6,644.0	6,587.3	14.8	19.9	91.05	805.5	132.2	659.5	629.4	30.12	21.898					
6,700.0	6,675.3	6,745.8	6,683.1	14.9	20.0	91.49	805.5	98.1	659.6	629.2	30.38	21.710					
6,800.0	6,761.9	6,848.3	6,774.2	15.0	20.1	91.90	805.5	51.2	659.7	629.0	30.75	21.458					
6,900.0	6,841.2	6,951.5	6,858.7	15.3	20.1	92.28	805.5	-7.9	659.9	628.6	31.32	21.068					
7,000.0	6,911.9	7,055.3	6,934.9	15.8	20.3	92.62	805.5	-78.2	660.1	627.8	32.26	20.462					
7,100.0	6,972.8	7,159.6	7,001.1	16.6	20.5	92.92	805.5	-158.7	660.2	626.5	33.69	19.595					
7,200.0	7,022.8	7,264.3	7,056.0	17.7	20.9	93.16	805.5	-247.8	660.4	624.7	35.73	18.484					
7,300.0	7,061.1	7,369.5	7,098.3	19.0	21.6	93.35	805.5	-344.0	660.5	622.1	38.39	17.204					
7,400.0	7,087.0	7,474.9	7,127.1	20.7	22.8	93.47	805.5	-445.3	660.6	618.9	41.65	15.862					
7,500.0	7,100.1	7,580.5	7,141.7	22.6	24.4	93.54	805.5	-549.8	660.6	615.3	45.37	14.560					
7,600.0	7,100.2	7,685.0	7,142.1	24.6	26.3	93.56	805.5	-654.2	660.7	611.2	49.42	13.369					
7,700.0	7,095.3	7,785.0	7,138.2	26.8	28.3	93.64	805.5	-754.1	660.7	607.0	53.68	12.308					
7,800.0	7,090.3	7,884.9	7,134.2	29.0	30.5	93.72	805.5	-854.0	660.8	602.6	58.16	11.361					
7,900.0	7,085.3	7,984.9	7,130.2	31.4	32.7	93.81	805.5	-953.9	660.8	598.0	62.82	10.519					
8,000.0	7,080.4	8,084.9	7,126.2	33.8	35.0	93.89	805.5	-1,053.8	660.9	593.3	67.62	9.774					
8,100.0	7,075.4	8,184.9	7,122.3	36.3	37.4	93.98	805.5	-1,153.7	661.0	588.4	72.53	9.113					
8,200.0	7,070.5	8,284.9	7,118.3	38.8	39.9	94.06	805.5	-1,253.7	661.0	583.5	77.53	8.526					
8,300.0	7,065.5	8,384.9	7,114.3	41.4	42.4	94.15	805.5	-1,353.6	661.1	578.5	82.60	8.004					
8,400.0	7,060.6	8,484.9	7,110.3	44.0	44.9	94.23	805.5	-1,453.5	661.2	573.4	87.73	7.536					
8,500.0	7,055.6	8,584.9	7,106.3	46.6	47.5	94.32	805.5	-1,553.4	661.3	568.3	92.92	7.117					
8,600.0	7,050.7	8,684.9	7,102.4	49.2	50.0	94.40	805.5	-1,653.3	661.3	563.2	98.14	6.738					
8,700.0	7,045.7	8,784.9	7,098.4	51.9	52.6	94.48	805.5	-1,753.2	661.4	558.0	103.40	6.396					
8,800.0	7,040.8	8,884.9	7,094.4	54.5	55.3	94.57	805.5	-1,853.2	661.5	552.8	108.69	6.086					
8,900.0	7,035.8	8,984.9	7,090.4	57.2	57.9	94.65	805.5	-1,953.1	661.6	547.6	114.01	5.803					
9,000.0	7,030.8	9,084.9	7,086.5	59.9	60.6	94.74	805.5	-2,053.0	661.6	542.3	119.35	5.544					
9,100.0	7,025.9	9,184.9	7,082.5	62.6	63.2	94.82	805.5	-2,152.9	661.7	537.0	124.71	5.306					
9,200.0	7,020.9	9,284.9	7,078.5	65.3	65.9	94.91	805.5	-2,252.8	661.8	531.7	130.08	5.088					
9,300.0	7,016.0	9,384.9	7,074.5	68.0	68.6	94.99	805.5	-2,352.7	661.9	526.4	135.47	4.886					
9,400.0	7,011.0	9,484.9	7,070.5	70.7	71.3	95.07	805.5	-2,452.7	662.0	521.1	140.87	4.699					
9,500.0	7,006.1	9,584.9	7,066.6	73.5	74.0	95.16	805.5	-2,552.6	662.1	515.8	146.28	4.526					
9,600.0	7,001.1	9,684.9	7,062.6	76.2	76.7	95.24	805.5	-2,652.5	662.2	510.5	151.70	4.365					
9,700.0	6,996.2	9,784.9	7,058.6	78.9	79.5	95.33	805.5	-2,752.4	662.2	505.1	157.12	4.215					
9,800.0	6,991.2	9,884.9	7,054.6	81.7	82.2	95.41	805.5	-2,852.3	662.3	499.8	162.56	4.074					

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7X-304 - 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							
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	6,986.3	9,984.8	7,050.6	84.4	84.9	95.50	805.5	-2,952.2	662.4	494.4	168.00	3.943		
10,000.0	6,981.3	10,084.8	7,046.7	87.2	87.7	95.58	805.5	-3,052.2	662.5	489.1	173.45	3.820		
10,100.0	6,976.3	10,184.8	7,042.7	89.9	90.4	95.66	805.5	-3,152.1	662.6	483.7	178.90	3.704		
10,200.0	6,971.4	10,284.8	7,038.7	92.7	93.1	95.75	805.5	-3,252.0	662.7	478.4	184.35	3.595		
10,300.0	6,966.4	10,384.8	7,034.7	95.5	95.9	95.83	805.5	-3,351.9	662.8	473.0	189.81	3.492		
10,400.0	6,961.5	10,484.8	7,030.8	98.2	98.6	95.92	805.5	-3,451.8	662.9	467.6	195.27	3.395		
10,500.0	6,956.5	10,584.8	7,026.8	101.0	101.4	96.00	805.5	-3,551.7	663.0	462.3	200.74	3.303		
10,600.0	6,951.6	10,684.8	7,022.8	103.7	104.1	96.08	805.5	-3,651.7	663.1	456.9	206.21	3.216		
10,700.0	6,946.6	10,784.8	7,018.8	106.5	106.9	96.17	805.5	-3,751.6	663.2	451.5	211.67	3.133		
10,800.0	6,941.7	10,884.8	7,014.8	109.3	109.7	96.25	805.5	-3,851.5	663.3	446.2	217.14	3.055		
10,900.0	6,936.7	10,984.8	7,010.9	112.1	112.4	96.34	805.5	-3,951.4	663.4	440.8	222.62	2.980		
11,000.0	6,931.8	11,084.8	7,006.9	114.8	115.2	96.42	805.5	-4,051.3	663.5	435.5	228.09	2.909		
11,100.0	6,926.8	11,184.8	7,002.9	117.6	118.0	96.50	805.5	-4,151.2	663.7	430.1	233.56	2.841		
11,200.0	6,921.8	11,284.8	6,998.9	120.4	120.7	96.59	805.5	-4,251.1	663.8	424.7	239.04	2.777		
11,300.0	6,916.9	11,384.8	6,995.0	123.2	123.5	96.67	805.5	-4,351.1	663.9	419.4	244.51	2.715		
11,400.0	6,911.9	11,484.8	6,991.0	125.9	126.3	96.76	805.5	-4,451.0	664.0	414.0	249.98	2.656		
11,410.1	6,911.4	11,494.9	6,990.6	126.2	126.5	96.76	805.5	-4,461.0	664.0	413.5	250.54	2.650		
11,439.0	6,910.0	11,509.3	6,990.0	127.0	126.9	96.78	805.5	-4,475.5	664.2	412.5	251.73	2.639 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
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	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	129.609		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.203		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.922		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.516		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.401		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.783		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.970		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.641		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.624		
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	6.822		
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	6.172		
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	5.635 CC, ES		
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	1.09	30.7	0.6	30.8	25.1	5.62	5.478		
1,400.0	1,400.0	1,397.8	1,397.6	3.0	3.0	3.74	35.5	2.3	35.7	29.6	6.06	5.890		
1,500.0	1,500.0	1,496.1	1,495.6	3.3	3.3	6.82	43.5	5.2	44.0	37.5	6.51	6.763		
1,600.0	1,600.0	1,593.7	1,592.5	3.5	3.5	9.57	54.5	9.2	55.8	48.8	6.97	8.007		
1,700.0	1,700.0	1,692.7	1,690.5	3.7	3.7	11.61	67.3	13.8	69.4	62.0	7.44	9.327		
1,800.0	1,800.0	1,791.8	1,788.6	3.9	4.0	12.97	80.2	18.5	83.1	75.1	7.92	10.488		
1,900.0	1,900.0	1,890.8	1,886.8	4.2	4.3	13.96	93.0	23.1	96.7	88.3	8.40	11.513		
2,000.0	2,000.0	1,989.9	1,984.9	4.4	4.6	14.70	105.8	27.8	110.4	101.5	8.89	12.422		
2,100.0	2,100.0	2,088.9	2,083.0	4.6	4.8	15.27	118.6	32.4	124.2	114.8	9.38	13.233		
2,200.0	2,200.0	2,188.0	2,181.1	4.8	5.1	15.73	131.5	37.0	137.9	128.0	9.88	13.959		
2,300.0	2,300.0	2,287.0	2,279.2	5.1	5.4	16.11	144.3	41.7	151.6	141.2	10.38	14.613		
2,400.0	2,400.0	2,386.1	2,377.3	5.3	5.7	16.43	157.1	46.3	165.4	154.5	10.88	15.204		
2,500.0	2,500.0	2,485.1	2,475.4	5.5	6.1	16.69	169.9	51.0	179.1	167.7	11.38	15.741		
2,600.0	2,600.0	2,584.3	2,573.7	5.7	6.4	-30.99	182.8	55.6	191.4	179.9	11.51	16.624		
2,700.0	2,699.8	2,683.9	2,672.3	5.9	6.7	-31.45	195.7	60.3	200.7	188.7	11.96	16.775		
2,800.0	2,799.5	2,783.6	2,771.0	6.2	7.0	-32.40	208.6	64.9	207.0	194.6	12.41	16.682		
2,900.0	2,898.7	2,883.4	2,869.9	6.4	7.3	-33.80	221.5	69.6	210.9	198.0	12.87	16.382		
3,000.0	2,998.0	2,983.2	2,968.7	6.6	7.6	-35.25	234.4	74.3	214.4	201.0	13.35	16.058		
3,100.0	3,097.2	3,083.0	3,067.6	6.9	7.9	-36.66	247.3	79.0	218.0	204.2	13.83	15.759		
3,200.0	3,196.4	3,182.8	3,166.4	7.1	8.3	-38.02	260.2	83.6	221.8	207.4	14.33	15.481		
3,300.0	3,295.7	3,282.6	3,265.3	7.4	8.6	-39.33	273.2	88.3	225.7	210.8	14.82	15.223		
3,400.0	3,394.9	3,382.4	3,364.1	7.6	8.9	-40.60	286.1	93.0	229.7	214.3	15.33	14.983		
3,500.0	3,494.1	3,482.2	3,462.9	7.9	9.2	-41.82	299.0	97.7	233.8	217.9	15.84	14.759		
3,600.0	3,593.4	3,582.0	3,561.8	8.2	9.6	-43.00	311.9	102.3	238.0	221.6	16.36	14.550		
3,700.0	3,692.6	3,681.7	3,660.6	8.4	9.9	-44.14	324.8	107.0	242.3	225.4	16.88	14.354		
3,800.0	3,791.8	3,781.5	3,759.5	8.7	10.2	-45.24	337.8	111.7	246.7	229.3	17.41	14.170		
3,900.0	3,891.1	3,881.3	3,858.3	9.0	10.5	-46.31	350.7	116.4	251.2	233.3	17.95	13.997		
4,000.0	3,990.3	3,981.1	3,957.2	9.3	10.9	-47.33	363.6	121.0	255.8	237.3	18.49	13.835		
4,100.0	4,089.5	4,080.9	4,056.0	9.6	11.2	-48.32	376.5	125.7	260.4	241.4	19.04	13.682		
4,200.0	4,188.8	4,180.7	4,154.8	9.8	11.5	-49.27	389.4	130.4	265.2	245.6	19.59	13.538		
4,300.0	4,288.0	4,280.5	4,253.7	10.1	11.9	-50.17	402.3	135.1	270.2	250.1	20.13	13.421		
4,400.0	4,387.6	4,380.2	4,352.5	10.3	12.2	-50.64	415.3	139.7	277.1	256.5	20.60	13.449		
4,500.0	4,487.4	4,479.8	4,451.1	10.5	12.5	-50.59	428.1	144.4	286.2	265.2	21.04	13.606		
4,600.0	4,587.4	4,579.1	4,549.4	10.7	12.8	-50.06	441.0	149.1	297.6	276.1	21.43	13.886		
4,700.0	4,687.4	4,682.9	4,652.3	10.9	13.2	-1.34	454.1	153.8	310.0	286.7	23.34	13.281		
4,800.0	4,787.4	4,793.8	4,762.6	11.1	13.4	-0.60	464.7	157.6	319.6	295.7	23.84	13.403		
4,900.0	4,887.4	4,905.4	4,874.0	11.3	13.7	-0.17	471.4	160.1	325.5	301.2	24.29	13.399		
5,000.0	4,987.4	5,017.4	4,985.9	11.5	13.8	0.00	474.0	161.0	327.8	303.1	24.70	13.273		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	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-MWDD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor				
5,100.0	5,087.4	5,118.9	5,087.4	11.7	14.0	0.00	474.0	161.0	327.9	302.8	25.08	13.073				
5,200.0	5,187.4	5,218.9	5,187.4	11.9	14.2	0.00	474.0	161.0	327.9	302.4	25.47	12.872				
5,300.0	5,287.4	5,318.9	5,287.4	12.2	14.3	0.00	474.0	161.0	327.9	302.0	25.87	12.675				
5,400.0	5,387.4	5,418.9	5,387.4	12.4	14.5	0.00	474.0	161.0	327.9	301.6	26.26	12.484				
5,500.0	5,487.4	5,518.9	5,487.4	12.6	14.7	0.00	474.0	161.0	327.9	301.2	26.66	12.298				
5,600.0	5,587.4	5,618.9	5,587.4	12.8	14.9	0.00	474.0	161.0	327.9	300.8	27.06	12.117				
5,700.0	5,687.4	5,718.9	5,687.4	13.0	15.1	0.00	474.0	161.0	327.9	300.4	27.46	11.940				
5,800.0	5,787.4	5,818.9	5,787.4	13.2	15.2	0.00	474.0	161.0	327.9	300.0	27.86	11.768				
5,900.0	5,887.4	5,918.9	5,887.4	13.4	15.4	0.00	474.0	161.0	327.9	299.6	28.26	11.600				
6,000.0	5,987.4	6,018.9	5,987.4	13.6	15.6	0.00	474.0	161.0	327.9	299.2	28.67	11.437				
6,100.0	6,087.4	6,118.9	6,087.4	13.9	15.8	0.00	474.0	161.0	327.9	298.8	29.07	11.277				
6,200.0	6,187.4	6,218.9	6,187.4	14.1	16.0	0.00	474.0	161.0	327.9	298.4	29.48	11.121				
6,300.0	6,287.4	6,318.9	6,287.4	14.3	16.2	0.00	474.0	161.0	327.9	298.0	29.89	10.970				
6,350.1	6,337.5	6,369.0	6,337.5	14.4	16.3	90.14	474.0	161.0	327.9	299.1	28.75	11.406				
6,400.0	6,387.4	6,418.8	6,387.4	14.5	16.4	90.28	474.0	161.0	327.9	298.9	28.95	11.325				
6,500.0	6,486.5	6,518.2	6,486.8	14.6	16.5	92.48	474.0	160.8	328.2	298.9	29.24	11.223				
6,600.0	6,583.0	6,619.8	6,587.9	14.8	16.7	95.44	474.0	151.9	329.4	299.9	29.45	11.183				
6,700.0	6,675.3	6,723.8	6,689.3	14.9	16.8	98.32	474.0	128.9	331.4	301.8	29.65	11.179				
6,800.0	6,761.9	6,830.4	6,788.9	15.0	16.9	101.05	474.0	91.4	334.2	304.3	29.89	11.182				
6,900.0	6,841.2	6,939.7	6,884.6	15.3	17.0	103.57	474.0	38.9	337.5	307.2	30.26	11.154				
7,000.0	6,911.9	7,051.4	6,973.8	15.8	17.1	105.84	474.0	-28.4	341.0	310.2	30.87	11.048				
7,100.0	6,972.8	7,165.7	7,053.7	16.6	17.3	107.81	474.0	-109.8	344.6	312.7	31.88	10.809				
7,200.0	7,022.8	7,282.1	7,121.8	17.7	17.9	109.43	474.0	-204.1	347.8	314.4	33.42	10.407				
7,300.0	7,061.1	7,400.4	7,175.6	19.0	19.1	110.68	474.0	-309.4	350.5	314.9	35.59	9.849				
7,400.0	7,087.0	7,520.2	7,212.7	20.7	20.9	111.52	474.0	-423.1	352.5	314.0	38.43	9.171				
7,500.0	7,100.1	7,640.8	7,231.8	22.6	23.0	111.95	474.0	-542.1	353.5	311.6	41.87	8.442				
7,600.0	7,100.2	7,754.6	7,233.2	24.6	25.3	112.07	474.0	-655.8	353.8	308.1	45.66	7.749				
7,700.0	7,095.3	7,854.6	7,230.7	26.8	27.4	112.45	474.0	-755.7	354.8	305.2	49.52	7.164				
7,800.0	7,090.3	7,954.6	7,228.2	29.0	29.6	112.82	474.0	-855.7	355.7	302.1	53.57	6.641				
7,900.0	7,085.3	8,054.5	7,225.8	31.4	32.0	113.19	474.0	-955.6	356.7	298.9	57.75	6.176				
8,000.0	7,080.4	8,154.5	7,223.3	33.8	34.3	113.55	474.0	-1,055.6	357.7	295.6	62.05	5.765				
8,100.0	7,075.4	8,254.5	7,220.9	36.3	36.8	113.92	474.0	-1,155.5	358.7	292.3	66.42	5.400				
8,200.0	7,070.5	8,354.4	7,218.4	38.8	39.3	114.28	474.0	-1,255.4	359.7	288.8	70.85	5.077				
8,300.0	7,065.5	8,454.4	7,215.9	41.4	41.8	114.64	474.0	-1,355.4	360.7	285.4	75.33	4.789				
8,400.0	7,060.6	8,554.4	7,213.5	44.0	44.4	115.00	474.0	-1,455.3	361.8	282.0	79.83	4.532				
8,500.0	7,055.6	8,654.3	7,211.0	46.6	47.0	115.36	474.0	-1,555.3	362.8	278.5	84.35	4.301				
8,600.0	7,050.7	8,754.3	7,208.6	49.2	49.6	115.71	474.0	-1,655.2	363.9	275.0	88.89	4.094				
8,700.0	7,045.7	8,854.3	7,206.1	51.9	52.2	116.07	474.0	-1,755.1	365.0	271.6	93.43	3.907				
8,800.0	7,040.8	8,954.3	7,203.6	54.5	54.9	116.42	474.0	-1,855.1	366.1	268.1	97.97	3.737				
8,900.0	7,035.8	9,054.2	7,201.2	57.2	57.6	116.77	474.0	-1,955.0	367.2	264.7	102.50	3.583				
9,000.0	7,030.8	9,154.2	7,198.7	59.9	60.2	117.11	474.0	-2,055.0	368.4	261.3	107.03	3.442				
9,100.0	7,025.9	9,254.2	7,196.3	62.6	62.9	117.46	474.0	-2,154.9	369.5	258.0	111.55	3.313				
9,200.0	7,020.9	9,354.1	7,193.8	65.3	65.6	117.80	474.0	-2,254.8	370.7	254.6	116.05	3.194				
9,300.0	7,016.0	9,454.1	7,191.3	68.0	68.3	118.14	474.0	-2,354.8	371.8	251.3	120.54	3.085				
9,400.0	7,011.0	9,554.1	7,188.9	70.7	71.1	118.48	474.0	-2,454.7	373.0	248.0	125.01	2.984				
9,500.0	7,006.1	9,654.0	7,186.4	73.5	73.8	118.81	474.0	-2,554.6	374.2	244.8	129.46	2.891				
9,600.0	7,001.1	9,754.0	7,184.0	76.2	76.5	119.15	474.0	-2,654.6	375.4	241.5	133.89	2.804				
9,700.0	6,996.2	9,854.0	7,181.5	78.9	79.2	119.48	474.0	-2,754.5	376.7	238.4	138.30	2.723				
9,800.0	6,991.2	9,953.9	7,179.0	81.7	82.0	119.81	474.0	-2,854.5	377.9	235.2	142.68	2.648				
9,900.0	6,986.3	10,053.9	7,176.6	84.4	84.7	120.14	474.0	-2,954.4	379.1	232.1	147.05	2.578				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	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	6,981.3	10,153.9	7,174.1	87.2	87.5	120.46	474.0	-3,054.3	380.4	229.0	151.39	2.513			
10,100.0	6,976.3	10,253.8	7,171.7	89.9	90.2	120.78	474.0	-3,154.3	381.7	226.0	155.70	2.451			
10,200.0	6,971.4	10,353.8	7,169.2	92.7	93.0	121.10	474.0	-3,254.2	382.9	223.0	159.99	2.394			
10,300.0	6,966.4	10,453.8	7,166.7	95.5	95.7	121.42	474.0	-3,354.2	384.2	220.0	164.26	2.339			
10,400.0	6,961.5	10,553.8	7,164.3	98.2	98.5	121.74	474.0	-3,454.1	385.6	217.1	168.49	2.288			
10,500.0	6,956.5	10,653.7	7,161.8	101.0	101.2	122.05	474.0	-3,554.0	386.9	214.2	172.71	2.240			
10,600.0	6,951.6	10,753.7	7,159.4	103.7	104.0	122.36	474.0	-3,654.0	388.2	211.3	176.89	2.195			
10,700.0	6,946.6	10,853.7	7,156.9	106.5	106.8	122.67	474.0	-3,753.9	389.5	208.5	181.05	2.152			
10,800.0	6,941.7	10,953.6	7,154.4	109.3	109.5	122.98	474.0	-3,853.8	390.9	205.7	185.18	2.111			
10,900.0	6,936.7	11,053.6	7,152.0	112.1	112.3	123.29	474.0	-3,953.8	392.3	203.0	189.28	2.072			
11,000.0	6,931.8	11,153.6	7,149.5	114.8	115.1	123.59	474.0	-4,053.7	393.6	200.3	193.36	2.036			
11,100.0	6,926.8	11,253.5	7,147.1	117.6	117.9	123.89	474.0	-4,153.7	395.0	197.6	197.41	2.001			
11,200.0	6,921.8	11,353.5	7,144.6	120.4	120.6	124.19	474.0	-4,253.6	396.4	195.0	201.43	1.968			
11,300.0	6,916.9	11,453.5	7,142.1	123.2	123.4	124.49	474.0	-4,353.5	397.8	192.4	205.42	1.937			
11,400.0	6,911.9	11,553.4	7,139.7	125.9	125.7	124.78	474.0	-4,453.5	399.2	190.3	208.94	1.911			
11,439.0	6,910.0	11,581.1	7,139.0	127.0	126.2	124.87	474.0	-4,481.2	400.0	189.9	210.06	1.904 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design		PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7Y-404 - 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				
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.1							
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.22	129.664				
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67	43.221				
300.0	300.0	300.0	300.0	0.6	0.6	180.00	-29.1	0.0	29.1	28.0	1.12	25.933				
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-29.1	0.0	29.1	27.6	1.57	18.523				
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-29.1	0.0	29.1	27.1	2.02	14.407				
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-29.1	0.0	29.1	26.7	2.47	11.788				
700.0	700.0	700.0	700.0	1.5	1.5	180.00	-29.1	0.0	29.1	26.2	2.92	9.974				
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-29.1	0.0	29.1	25.8	3.37	8.644				
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-29.1	0.0	29.1	22.2	6.97	4.183 CC, ES				
1,700.0	1,700.0	1,699.3	1,699.2	3.7	3.7	177.67	-30.3	1.2	30.4	23.0	7.39	4.110				
1,800.0	1,800.0	1,798.3	1,798.1	3.9	3.9	171.74	-33.9	4.9	34.3	26.5	7.80	4.403				
1,900.0	1,900.0	1,896.8	1,896.3	4.2	4.1	164.53	-39.8	11.0	41.5	33.3	8.21	5.059				
2,000.0	2,000.0	1,996.1	1,995.0	4.4	4.3	158.48	-47.2	18.6	51.0	42.4	8.62	5.914				
2,100.0	2,100.0	2,095.6	2,093.9	4.6	4.5	154.35	-54.6	26.2	60.9	51.8	9.04	6.730				
2,200.0	2,200.0	2,195.0	2,192.8	4.8	4.7	151.38	-62.0	33.8	70.9	61.5	9.47	7.491				
2,300.0	2,300.0	2,294.4	2,291.6	5.1	4.9	149.15	-69.3	41.4	81.2	71.3	9.91	8.195				
2,400.0	2,400.0	2,393.9	2,390.5	5.3	5.2	147.42	-76.7	49.0	91.5	81.2	10.35	8.843				
2,500.0	2,500.0	2,493.3	2,489.4	5.5	5.4	146.05	-84.1	56.6	101.9	91.1	10.80	9.439				
2,600.0	2,600.0	2,592.7	2,588.2	5.7	5.7	97.83	-91.5	64.2	112.6	101.4	11.18	10.072				
2,700.0	2,699.8	2,692.0	2,687.0	5.9	5.9	99.02	-98.8	71.8	123.8	112.2	11.61	10.662				
2,800.0	2,799.5	2,791.2	2,785.5	6.2	6.2	101.42	-106.2	79.4	135.7	123.6	12.05	11.262				
2,900.0	2,898.7	2,890.0	2,883.8	6.4	6.5	104.67	-113.5	86.9	148.6	136.1	12.50	11.885				
3,000.0	2,998.0	2,988.7	2,982.0	6.6	6.7	107.68	-120.8	94.5	162.1	149.1	12.97	12.497				
3,100.0	3,097.2	3,087.5	3,080.2	6.9	7.0	110.23	-128.2	102.0	176.0	162.5	13.45	13.086				
3,200.0	3,196.4	3,186.2	3,178.3	7.1	7.3	112.41	-135.5	109.6	190.1	176.2	13.93	13.647				
3,300.0	3,295.7	3,285.0	3,276.5	7.4	7.6	114.28	-142.8	117.1	204.5	190.1	14.43	14.179				
3,400.0	3,394.9	3,383.7	3,374.7	7.6	7.8	115.91	-150.1	124.7	219.1	204.2	14.92	14.684				
3,500.0	3,494.1	3,482.5	3,472.9	7.9	8.1	117.33	-157.5	132.2	233.9	218.5	15.43	15.161				
3,600.0	3,593.4	3,581.2	3,571.1	8.2	8.4	118.59	-164.8	139.8	248.7	232.8	15.93	15.611				
3,700.0	3,692.6	3,680.0	3,669.3	8.4	8.7	119.70	-172.1	147.3	263.7	247.3	16.44	16.037				
3,800.0	3,791.8	3,785.0	3,773.9	8.7	9.0	120.88	-179.2	154.6	277.9	261.0	16.96	16.386				
3,900.0	3,891.1	3,892.8	3,881.4	9.0	9.2	122.42	-183.7	159.2	289.4	271.9	17.47	16.567				
4,000.0	3,990.3	4,000.8	3,989.4	9.3	9.4	124.32	-185.4	161.0	298.0	280.0	17.96	16.591				
4,100.0	4,089.5	4,100.9	4,089.5	9.6	9.6	126.25	-185.4	161.0	305.2	286.8	18.44	16.552				
4,200.0	4,188.8	4,200.2	4,188.8	9.8	9.8	128.06	-185.4	161.0	312.7	293.8	18.92	16.531				
4,300.0	4,288.0	4,299.4	4,288.0	10.1	10.0	129.80	-185.4	161.0	320.3	300.9	19.39	16.519				
4,400.0	4,387.6	4,399.0	4,387.6	10.3	10.1	131.13	-185.4	161.0	326.3	306.4	19.82	16.464				
4,500.0	4,487.4	4,498.8	4,487.4	10.5	10.3	131.92	-185.4	161.0	330.0	309.8	20.22	16.319				
4,600.0	4,587.4	4,598.8	4,587.4	10.7	10.5	132.23	-185.4	161.0	331.5	310.9	20.61	16.084				
4,700.0	4,687.4	4,698.8	4,687.4	10.9	10.7	180.00	-185.4	161.0	331.5	310.7	20.81	15.932				
4,800.0	4,787.4	4,798.8	4,787.4	11.1	10.9	180.00	-185.4	161.0	331.5	310.3	21.22	15.620				
4,900.0	4,887.4	4,898.8	4,887.4	11.3	11.1	180.00	-185.4	161.0	331.5	309.9	21.64	15.318				
5,000.0	4,987.4	4,998.8	4,987.4	11.5	11.3	180.00	-185.4	161.0	331.5	309.5	22.06	15.027				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design		PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7Y-404 - 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		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
							+N/-S (ft)	+E/-W (ft)								
5,100.0	5,087.4	5,098.8	5,087.4	11.7	11.5	180.00	-185.4	161.0	331.5	309.0	22.48	14.747				
5,200.0	5,187.4	5,198.8	5,187.4	11.9	11.7	180.00	-185.4	161.0	331.5	308.6	22.90	14.475				
5,300.0	5,287.4	5,298.8	5,287.4	12.2	11.9	180.00	-185.4	161.0	331.5	308.2	23.32	14.213				
5,400.0	5,387.4	5,398.8	5,387.4	12.4	12.1	180.00	-185.4	161.0	331.5	307.8	23.75	13.960				
5,500.0	5,487.4	5,498.8	5,487.4	12.6	12.3	180.00	-185.4	161.0	331.5	307.3	24.17	13.715				
5,600.0	5,587.4	5,598.8	5,587.4	12.8	12.5	180.00	-185.4	161.0	331.5	306.9	24.60	13.478				
5,700.0	5,687.4	5,698.8	5,687.4	13.0	12.7	180.00	-185.4	161.0	331.5	306.5	25.02	13.249				
5,800.0	5,787.4	5,798.8	5,787.4	13.2	12.9	180.00	-185.4	161.0	331.5	306.1	25.45	13.027				
5,900.0	5,887.4	5,898.8	5,887.4	13.4	13.1	180.00	-185.4	161.0	331.5	305.6	25.88	12.811				
6,000.0	5,987.4	5,998.8	5,987.4	13.6	13.3	180.00	-185.4	161.0	331.5	305.2	26.30	12.603				
6,100.0	6,087.4	6,098.8	6,087.4	13.9	13.6	180.00	-185.4	161.0	331.5	304.8	26.73	12.401				
6,200.0	6,187.4	6,198.8	6,187.4	14.1	13.8	180.00	-185.4	161.0	331.5	304.3	27.16	12.204				
6,300.0	6,287.4	6,298.8	6,287.4	14.3	14.0	180.00	-185.4	161.0	331.5	303.9	27.59	12.014				
6,350.1	6,337.5	6,348.9	6,337.5	14.4	14.1	-90.14	-185.4	161.0	331.5	303.5	28.02	11.832				
6,400.0	6,387.4	6,398.8	6,387.4	14.5	14.2	-90.28	-185.4	161.0	331.5	303.3	28.23	11.745				
6,500.0	6,486.5	6,498.2	6,486.8	14.6	14.4	-92.45	-185.4	160.8	331.8	303.2	28.59	11.607				
6,600.0	6,583.0	6,599.8	6,587.9	14.8	14.6	-95.37	-185.4	151.8	333.0	304.1	28.88	11.531				
6,700.0	6,675.3	6,703.8	6,689.3	14.9	14.7	-98.21	-185.4	128.8	335.0	305.9	29.13	11.502				
6,800.0	6,761.9	6,810.4	6,788.9	15.0	14.8	-100.91	-185.4	91.2	337.8	308.4	29.39	11.491				
6,900.0	6,841.2	6,919.6	6,884.5	15.3	15.0	-103.40	-185.4	38.7	341.0	311.2	29.77	11.455				
7,000.0	6,911.9	7,031.3	6,973.6	15.8	15.2	-105.64	-185.4	-28.6	344.5	314.1	30.39	11.334				
7,100.0	6,972.8	7,145.5	7,053.6	16.6	15.8	-107.59	-185.4	-110.0	348.0	316.5	31.44	11.067				
7,200.0	7,022.8	7,261.9	7,121.6	17.7	16.7	-109.19	-185.4	-204.3	351.2	318.1	33.09	10.613				
7,300.0	7,061.1	7,380.2	7,175.3	19.0	18.2	-110.42	-185.4	-309.5	353.8	318.4	35.43	9.987				
7,400.0	7,087.0	7,499.9	7,212.4	20.7	20.0	-111.26	-185.4	-423.2	355.8	317.3	38.48	9.246				
7,500.0	7,100.1	7,620.5	7,231.5	22.6	22.2	-111.68	-185.4	-542.1	356.8	314.6	42.17	8.461				
7,600.0	7,100.2	7,734.2	7,232.8	24.6	24.6	-111.80	-185.4	-655.8	357.1	310.9	46.18	7.732				
7,700.0	7,095.3	7,834.2	7,230.4	26.8	26.7	-112.18	-185.4	-755.7	358.0	307.9	50.09	7.147				
7,800.0	7,090.3	7,934.1	7,227.9	29.0	29.0	-112.55	-185.4	-855.7	359.0	304.8	54.19	6.624				
7,900.0	7,085.3	8,034.1	7,225.5	31.4	31.4	-112.92	-185.4	-955.6	359.9	301.5	58.43	6.160				
8,000.0	7,080.4	8,134.1	7,223.1	33.8	33.8	-113.29	-185.4	-1,055.5	360.9	298.2	62.77	5.750				
8,100.0	7,075.4	8,234.0	7,220.6	36.3	36.3	-113.65	-185.4	-1,155.5	361.9	294.7	67.18	5.387				
8,200.0	7,070.5	8,334.0	7,218.2	38.8	38.8	-114.01	-185.4	-1,255.4	362.9	291.3	71.66	5.065				
8,300.0	7,065.5	8,434.0	7,215.7	41.4	41.4	-114.38	-185.4	-1,355.4	364.0	287.8	76.17	4.778				
8,400.0	7,060.6	8,534.0	7,213.3	44.0	44.0	-114.73	-185.4	-1,455.3	365.0	284.3	80.71	4.523				
8,500.0	7,055.6	8,633.9	7,210.9	46.6	46.6	-115.09	-185.4	-1,555.2	366.1	280.8	85.27	4.293				
8,600.0	7,050.7	8,733.9	7,208.4	49.2	49.3	-115.45	-185.4	-1,655.2	367.2	277.3	89.84	4.087				
8,700.0	7,045.7	8,833.9	7,206.0	51.9	51.9	-115.80	-185.4	-1,755.1	368.2	273.8	94.42	3.900				
8,800.0	7,040.8	8,933.8	7,203.5	54.5	54.6	-116.15	-185.4	-1,855.0	369.3	270.3	98.99	3.731				
8,900.0	7,035.8	9,033.8	7,201.1	57.2	57.3	-116.50	-185.4	-1,955.0	370.5	266.9	103.57	3.577				
9,000.0	7,030.8	9,133.8	7,198.6	59.9	60.0	-116.85	-185.4	-2,054.9	371.6	263.5	108.13	3.437				
9,100.0	7,025.9	9,233.7	7,196.2	62.6	62.7	-117.19	-185.4	-2,154.9	372.7	260.0	112.68	3.308				
9,200.0	7,020.9	9,333.7	7,193.8	65.3	65.4	-117.53	-185.4	-2,254.8	373.9	256.7	117.22	3.190				
9,300.0	7,016.0	9,433.7	7,191.3	68.0	68.1	-117.87	-185.4	-2,354.7	375.0	253.3	121.74	3.081				
9,400.0	7,011.0	9,533.6	7,188.9	70.7	70.8	-118.21	-185.4	-2,454.7	376.2	250.0	126.25	2.980				
9,500.0	7,006.1	9,633.6	7,186.4	73.5	73.6	-118.55	-185.4	-2,554.6	377.4	246.7	130.73	2.887				
9,600.0	7,001.1	9,733.6	7,184.0	76.2	76.3	-118.88	-185.4	-2,654.6	378.6	243.4	135.20	2.801				
9,700.0	6,996.2	9,833.5	7,181.5	78.9	79.1	-119.21	-185.4	-2,754.5	379.9	240.2	139.64	2.720				
9,800.0	6,991.2	9,933.5	7,179.1	81.7	81.8	-119.54	-185.4	-2,854.4	381.1	237.0	144.07	2.645				
9,900.0	6,986.3	10,033.5	7,176.7	84.4	84.5	-119.87	-185.4	-2,954.4	382.3	233.9	148.46	2.575				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Offset Design										PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7Y-404 - 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			
10,000.0	6,981.3	10,133.4	7,174.2	87.2	87.3	-120.20	-185.4	-3,054.3	383.6	230.7	152.84	2.510			
10,100.0	6,976.3	10,233.4	7,171.8	89.9	90.1	-120.52	-185.4	-3,154.2	384.9	227.7	157.19	2.448			
10,200.0	6,971.4	10,333.4	7,169.3	92.7	92.8	-120.84	-185.4	-3,254.2	386.1	224.6	161.52	2.391			
10,300.0	6,966.4	10,433.4	7,166.9	95.5	95.6	-121.16	-185.4	-3,354.1	387.4	221.6	165.82	2.337			
10,400.0	6,961.5	10,533.3	7,164.4	98.2	98.3	-121.48	-185.4	-3,454.1	388.7	218.7	170.09	2.286			
10,500.0	6,956.5	10,633.3	7,162.0	101.0	101.1	-121.79	-185.4	-3,554.0	390.1	215.7	174.34	2.237			
10,600.0	6,951.6	10,733.3	7,159.6	103.7	103.9	-122.10	-185.4	-3,653.9	391.4	212.8	178.56	2.192			
10,700.0	6,946.6	10,833.2	7,157.1	106.5	106.7	-122.41	-185.4	-3,753.9	392.7	210.0	182.75	2.149			
10,800.0	6,941.7	10,933.2	7,154.7	109.3	109.4	-122.72	-185.4	-3,853.8	394.1	207.2	186.92	2.108			
10,900.0	6,936.7	11,033.2	7,152.2	112.1	112.2	-123.03	-185.4	-3,953.8	395.5	204.4	191.06	2.070			
11,000.0	6,931.8	11,133.1	7,149.8	114.8	115.0	-123.33	-185.4	-4,053.7	396.8	201.7	195.17	2.033			
11,100.0	6,926.8	11,233.1	7,147.3	117.6	117.8	-123.64	-185.4	-4,153.6	398.2	199.0	199.26	1.998			
11,200.0	6,921.8	11,333.1	7,144.9	120.4	120.5	-123.94	-185.4	-4,253.6	399.6	196.3	203.31	1.965			
11,300.0	6,916.9	11,433.0	7,142.5	123.2	123.3	-124.23	-185.4	-4,353.5	401.0	193.7	207.34	1.934			
11,400.0	6,911.9	11,533.0	7,140.0	125.9	126.1	-124.53	-185.4	-4,453.4	402.4	191.1	211.34	1.904			
11,439.0	6,910.0	11,572.0	7,139.1	127.0	127.2	-124.64	-185.4	-4,492.4	403.0	190.1	212.90	1.893 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5166.0ft (Original Well Elev) Coordinates are relative to: Bolton 7Y-214
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°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7Y-214
Project:	SEC.7-T3N-68W	TVD Reference:	WELL @ 5166.0ft (Original Well Elev)
Reference Site:	PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7Y-214	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (7-16-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5166.0ft (Original Well Elev) Coordinates are relative to: Bolton 7Y-214

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°

