

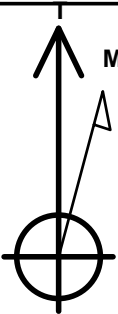
PETROLEUM DEVELOPMENT CORP
 Weld County CO

Well Name: **Bolton 7W-304**

Surface Location: Bolton 3N68W7TY 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 1328441.32 3128790.74 40.234050 -105.038700
 RKB - 15' WELL @ 5166.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 400'FSL & 631'FEL	1.0	0.0	0.0	Point
BHL 2526'FSL & 500'FWL	6989.0	2069.6	-4028.6	Point

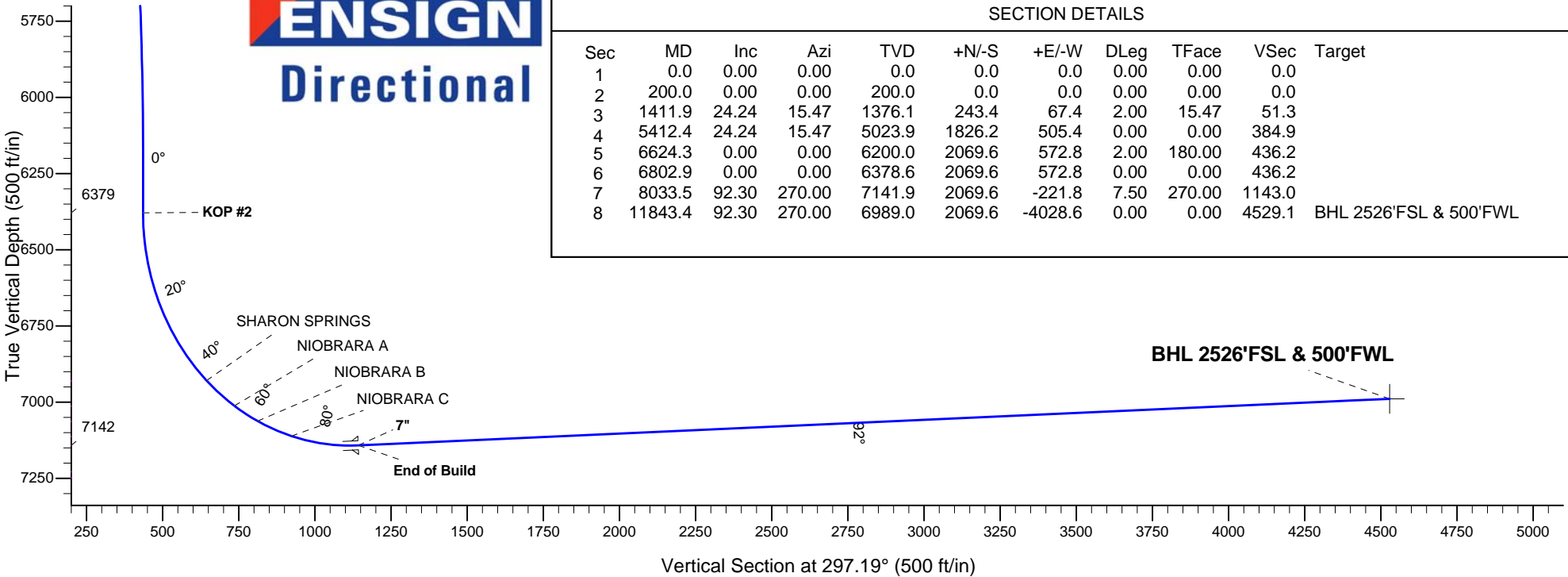
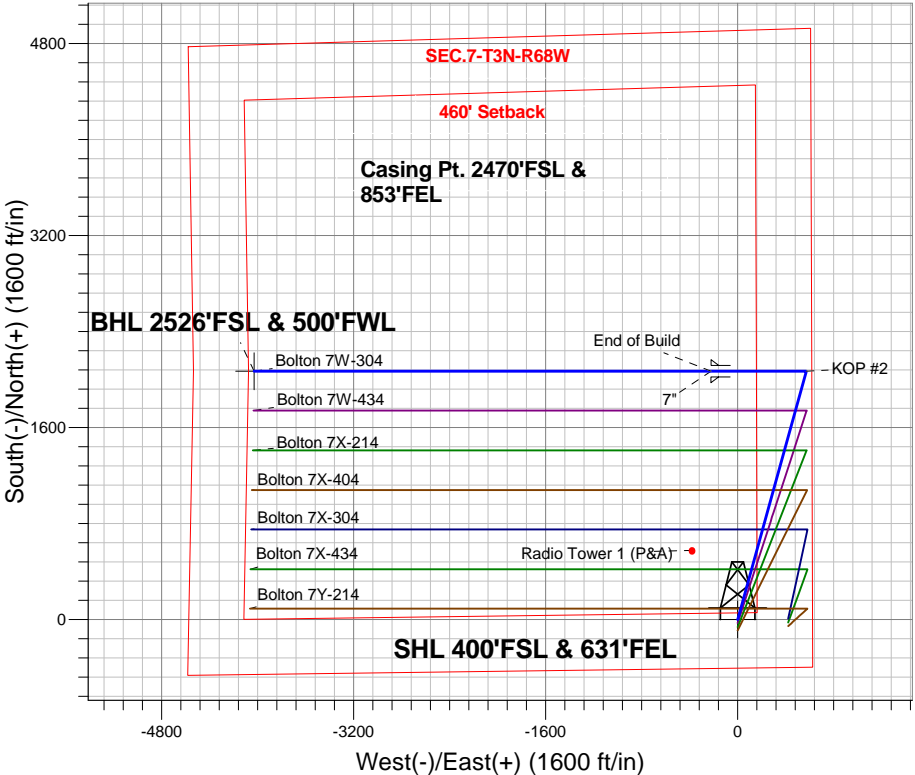


Azimuths to True North
 Magnetic North: 8.56°
 Magnetic Field
 Strength: 52668.9srT
 Dip Angle: 66.76°
 Date: 9/19/2014
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP #1
6378.6	6802.9	KOP #2
7141.9	8033.5	End of Build

Bolton 3N68W7TY Pad Sec.7-T3N-R68W
 Bolton 7W-304
 Plan #1 (9-19-14)



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1411.9	24.24	15.47	1376.1	243.4	67.4	2.00	15.47	51.3	
4	5412.4	24.24	15.47	5023.9	1826.2	505.4	0.00	0.00	384.9	
5	6624.3	0.00	0.00	6200.0	2069.6	572.8	2.00	180.00	436.2	
6	6802.9	0.00	0.00	6378.6	2069.6	572.8	0.00	0.00	436.2	
7	8033.5	92.30	270.00	7141.9	2069.6	-221.8	7.50	270.00	1143.0	
8	11843.4	92.30	270.00	6989.0	2069.6	-4028.6	0.00	0.00	4529.1	BHL 2526'FSL & 500'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T3N-R68W

Bolton 3N68W7TY Pad Sec.7-T3N-R68W

Bolton 7W-304

Wellbore #1

Plan: Plan #1 (9-19-14)

Standard Planning Report

23 September, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-19-14)		

Project	SEC.7-T3N-R68W, 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 Bolton 3N68W7TY Pad Sec.7-T3N-R68W					
Site Position:		Northing:	1,328,441.33ft	Latitude:	40.234050
From:	Lat/Long	Easting:	3,128,790.74ft	Longitude:	-105.038700
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.30 °

Well	Bolton 7W-304					
Well Position	+N-S	0.0 ft	Northing:	1,328,441.32 ft	Latitude:	40.234050
	+E-W	0.0 ft	Easting:	3,128,790.74 ft	Longitude:	-105.038700
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	9/19/2014	8.56	66.76	52,669

Design	Plan #1 (9-19-14)			
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	297.19

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,411.9	24.24	15.47	1,376.1	243.4	67.4	2.00	2.00	0.00	15.47	
5,412.4	24.24	15.47	5,023.9	1,826.2	505.4	0.00	0.00	0.00	0.00	
6,624.3	0.00	0.00	6,200.0	2,069.6	572.8	2.00	-2.00	0.00	180.00	
6,802.9	0.00	0.00	6,378.6	2,069.6	572.8	0.00	0.00	0.00	0.00	
8,033.5	92.30	270.00	7,141.9	2,069.6	-221.8	7.50	7.50	0.00	270.00	
11,843.4	92.30	270.00	6,989.0	2,069.6	-4,028.6	0.00	0.00	0.00	0.00	BHL 2526'FSL & 5C

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-19-14)		

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
KOP #1									
300.0	2.00	15.47	300.0	1.7	0.5	0.4	2.00	2.00	0.00
400.0	4.00	15.47	399.8	6.7	1.9	1.4	2.00	2.00	0.00
500.0	6.00	15.47	499.5	15.1	4.2	3.2	2.00	2.00	0.00
600.0	8.00	15.47	598.7	26.9	7.4	5.7	2.00	2.00	0.00
700.0	10.00	15.47	697.5	41.9	11.6	8.8	2.00	2.00	0.00
800.0	12.00	15.47	795.6	60.3	16.7	12.7	2.00	2.00	0.00
900.0	14.00	15.47	893.1	82.0	22.7	17.3	2.00	2.00	0.00
1,000.0	16.00	15.47	989.6	107.0	29.6	22.5	2.00	2.00	0.00
1,100.0	18.00	15.47	1,085.3	135.1	37.4	28.5	2.00	2.00	0.00
1,200.0	20.00	15.47	1,179.8	166.5	46.1	35.1	2.00	2.00	0.00
1,300.0	22.00	15.47	1,273.2	201.0	55.6	42.4	2.00	2.00	0.00
1,400.0	24.00	15.47	1,365.2	238.7	66.1	50.3	2.00	2.00	0.00
1,411.9	24.24	15.47	1,376.1	243.4	67.4	51.3	2.00	2.00	0.00
1,500.0	24.24	15.47	1,456.4	278.2	77.0	58.6	0.00	0.00	0.00
1,600.0	24.24	15.47	1,547.6	317.8	88.0	67.0	0.00	0.00	0.00
1,700.0	24.24	15.47	1,638.8	357.4	98.9	75.3	0.00	0.00	0.00
1,800.0	24.24	15.47	1,730.0	396.9	109.9	83.7	0.00	0.00	0.00
1,900.0	24.24	15.47	1,821.1	436.5	120.8	92.0	0.00	0.00	0.00
2,000.0	24.24	15.47	1,912.3	476.1	131.8	100.3	0.00	0.00	0.00
2,100.0	24.24	15.47	2,003.5	515.6	142.7	108.7	0.00	0.00	0.00
2,200.0	24.24	15.47	2,094.7	555.2	153.7	117.0	0.00	0.00	0.00
2,300.0	24.24	15.47	2,185.9	594.8	164.6	125.4	0.00	0.00	0.00
2,400.0	24.24	15.47	2,277.1	634.3	175.6	133.7	0.00	0.00	0.00
2,500.0	24.24	15.47	2,368.3	673.9	186.5	142.0	0.00	0.00	0.00
2,600.0	24.24	15.47	2,459.4	713.5	197.5	150.4	0.00	0.00	0.00
2,700.0	24.24	15.47	2,550.6	753.0	208.4	158.7	0.00	0.00	0.00
2,800.0	24.24	15.47	2,641.8	792.6	219.4	167.1	0.00	0.00	0.00
2,900.0	24.24	15.47	2,733.0	832.2	230.3	175.4	0.00	0.00	0.00
3,000.0	24.24	15.47	2,824.2	871.7	241.3	183.7	0.00	0.00	0.00
3,100.0	24.24	15.47	2,915.4	911.3	252.2	192.1	0.00	0.00	0.00
3,200.0	24.24	15.47	3,006.6	950.9	263.2	200.4	0.00	0.00	0.00
3,300.0	24.24	15.47	3,097.7	990.4	274.1	208.7	0.00	0.00	0.00
3,400.0	24.24	15.47	3,188.9	1,030.0	285.1	217.1	0.00	0.00	0.00
3,500.0	24.24	15.47	3,280.1	1,069.5	296.0	225.4	0.00	0.00	0.00
3,600.0	24.24	15.47	3,371.3	1,109.1	307.0	233.8	0.00	0.00	0.00
3,665.5	24.24	15.47	3,431.0	1,135.0	314.1	239.2	0.00	0.00	0.00
PARKMAN									
3,700.0	24.24	15.47	3,462.5	1,148.7	317.9	242.1	0.00	0.00	0.00
3,800.0	24.24	15.47	3,553.7	1,188.2	328.9	250.4	0.00	0.00	0.00
3,900.0	24.24	15.47	3,644.8	1,227.8	339.8	258.8	0.00	0.00	0.00
4,000.0	24.24	15.47	3,736.0	1,267.4	350.8	267.1	0.00	0.00	0.00
4,100.0	24.24	15.47	3,827.2	1,306.9	361.7	275.5	0.00	0.00	0.00
4,125.0	24.24	15.47	3,850.0	1,316.8	364.5	277.5	0.00	0.00	0.00
SUSSEX									
4,200.0	24.24	15.47	3,918.4	1,346.5	372.7	283.8	0.00	0.00	0.00
4,300.0	24.24	15.47	4,009.6	1,386.1	383.6	292.1	0.00	0.00	0.00
4,400.0	24.24	15.47	4,100.8	1,425.6	394.6	300.5	0.00	0.00	0.00
4,500.0	24.24	15.47	4,192.0	1,465.2	405.5	308.8	0.00	0.00	0.00
4,600.0	24.24	15.47	4,283.1	1,504.8	416.5	317.2	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-19-14)		

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)
4,700.0	24.24	15.47	4,374.3	1,544.3	427.4	325.5	0.00	0.00	0.00
4,755.6	24.24	15.47	4,425.0	1,566.3	433.5	330.1	0.00	0.00	0.00
SHANNON									
4,800.0	24.24	15.47	4,465.5	1,583.9	438.4	333.8	0.00	0.00	0.00
4,900.0	24.24	15.47	4,556.7	1,623.5	449.3	342.2	0.00	0.00	0.00
5,000.0	24.24	15.47	4,647.9	1,663.0	460.3	350.5	0.00	0.00	0.00
5,100.0	24.24	15.47	4,739.1	1,702.6	471.2	358.8	0.00	0.00	0.00
5,200.0	24.24	15.47	4,830.3	1,742.2	482.2	367.2	0.00	0.00	0.00
5,300.0	24.24	15.47	4,921.4	1,781.7	493.1	375.5	0.00	0.00	0.00
5,400.0	24.24	15.47	5,012.6	1,821.3	504.1	383.9	0.00	0.00	0.00
5,412.4	24.24	15.47	5,023.9	1,826.2	505.4	384.9	0.00	0.00	0.00
5,500.0	22.49	15.47	5,104.3	1,859.7	514.7	392.0	2.00	-2.00	0.00
5,600.0	20.49	15.47	5,197.4	1,895.0	524.5	399.4	2.00	-2.00	0.00
5,700.0	18.49	15.47	5,291.7	1,927.1	533.4	406.2	2.00	-2.00	0.00
5,800.0	16.49	15.47	5,387.0	1,956.1	541.4	412.3	2.00	-2.00	0.00
5,900.0	14.49	15.47	5,483.4	1,981.8	548.5	417.7	2.00	-2.00	0.00
6,000.0	12.49	15.47	5,580.6	2,004.3	554.7	422.4	2.00	-2.00	0.00
6,100.0	10.49	15.47	5,678.6	2,023.5	560.0	426.5	2.00	-2.00	0.00
6,200.0	8.49	15.47	5,777.3	2,039.3	564.4	429.8	2.00	-2.00	0.00
6,300.0	6.49	15.47	5,876.4	2,051.9	567.9	432.5	2.00	-2.00	0.00
6,400.0	4.49	15.47	5,975.9	2,061.1	570.5	434.4	2.00	-2.00	0.00
6,500.0	2.49	15.47	6,075.7	2,067.0	572.1	435.6	2.00	-2.00	0.00
6,600.0	0.49	15.47	6,175.7	2,069.5	572.8	436.2	2.00	-2.00	0.00
6,624.3	0.00	0.00	6,200.0	2,069.6	572.8	436.2	2.00	-2.00	0.00
6,700.0	0.00	0.00	6,275.7	2,069.6	572.8	436.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,375.7	2,069.6	572.8	436.2	0.00	0.00	0.00
6,802.9	0.00	0.00	6,378.6	2,069.6	572.8	436.2	0.00	0.00	0.00
KOP #2									
6,900.0	7.29	270.00	6,475.4	2,069.6	566.6	441.7	7.50	7.50	0.00
7,000.0	14.79	270.00	6,573.5	2,069.6	547.5	458.7	7.50	7.50	0.00
7,100.0	22.29	270.00	6,668.3	2,069.6	515.7	486.9	7.50	7.50	0.00
7,200.0	29.79	270.00	6,758.1	2,069.6	471.9	526.0	7.50	7.50	0.00
7,300.0	37.29	270.00	6,841.4	2,069.6	416.7	575.1	7.50	7.50	0.00
7,400.0	44.79	270.00	6,916.7	2,069.6	351.1	633.4	7.50	7.50	0.00
7,417.5	46.10	270.00	6,929.0	2,069.6	338.6	644.5	7.50	7.50	0.00
SHARON SPRINGS									
7,500.0	52.29	270.00	6,982.9	2,069.6	276.2	700.0	7.50	7.50	0.00
7,549.7	56.01	270.00	7,012.0	2,069.6	235.9	735.9	7.50	7.50	0.00
NIOBRARA A									
7,600.0	59.79	270.00	7,038.7	2,069.6	193.3	773.8	7.50	7.50	0.00
7,649.0	63.46	270.00	7,062.0	2,069.6	150.2	812.1	7.50	7.50	0.00
NIOBRARA B									
7,700.0	67.29	270.00	7,083.3	2,069.6	103.8	853.3	7.50	7.50	0.00
7,782.7	73.49	270.00	7,111.0	2,069.6	26.0	922.6	7.50	7.50	0.00
NIOBRARA C									
7,800.0	74.79	270.00	7,115.7	2,069.6	9.3	937.4	7.50	7.50	0.00
7,900.0	82.29	270.00	7,135.6	2,069.6	-88.6	1,024.5	7.50	7.50	0.00
8,000.0	89.79	270.00	7,142.5	2,069.6	-188.3	1,113.2	7.50	7.50	0.00
8,033.5	92.30	270.00	7,141.9	2,069.6	-221.8	1,143.0	7.50	7.50	0.00
End of Build - 7"									
8,100.0	92.30	270.00	7,139.2	2,069.6	-288.2	1,202.1	0.00	0.00	0.00
8,200.0	92.30	270.00	7,135.2	2,069.6	-388.1	1,290.9	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-19-14)		

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	92.30	270.00	7,131.2	2,069.6	-488.1	1,379.8	0.00	0.00	0.00
8,400.0	92.30	270.00	7,127.2	2,069.6	-588.0	1,468.7	0.00	0.00	0.00
8,500.0	92.30	270.00	7,123.2	2,069.6	-687.9	1,557.6	0.00	0.00	0.00
8,600.0	92.30	270.00	7,119.2	2,069.6	-787.8	1,646.5	0.00	0.00	0.00
8,700.0	92.30	270.00	7,115.1	2,069.6	-887.7	1,735.3	0.00	0.00	0.00
8,800.0	92.30	270.00	7,111.1	2,069.6	-987.7	1,824.2	0.00	0.00	0.00
8,900.0	92.30	270.00	7,107.1	2,069.6	-1,087.6	1,913.1	0.00	0.00	0.00
9,000.0	92.30	270.00	7,103.1	2,069.6	-1,187.5	2,002.0	0.00	0.00	0.00
9,100.0	92.30	270.00	7,099.1	2,069.6	-1,287.4	2,090.8	0.00	0.00	0.00
9,200.0	92.30	270.00	7,095.1	2,069.6	-1,387.3	2,179.7	0.00	0.00	0.00
9,300.0	92.30	270.00	7,091.1	2,069.6	-1,487.3	2,268.6	0.00	0.00	0.00
9,400.0	92.30	270.00	7,087.1	2,069.6	-1,587.2	2,357.5	0.00	0.00	0.00
9,500.0	92.30	270.00	7,083.0	2,069.6	-1,687.1	2,446.3	0.00	0.00	0.00
9,600.0	92.30	270.00	7,079.0	2,069.6	-1,787.0	2,535.2	0.00	0.00	0.00
9,700.0	92.30	270.00	7,075.0	2,069.6	-1,886.9	2,624.1	0.00	0.00	0.00
9,800.0	92.30	270.00	7,071.0	2,069.6	-1,986.8	2,713.0	0.00	0.00	0.00
9,900.0	92.30	270.00	7,067.0	2,069.6	-2,086.8	2,801.9	0.00	0.00	0.00
10,000.0	92.30	270.00	7,063.0	2,069.6	-2,186.7	2,890.7	0.00	0.00	0.00
10,100.0	92.30	270.00	7,059.0	2,069.6	-2,286.6	2,979.6	0.00	0.00	0.00
10,200.0	92.30	270.00	7,055.0	2,069.6	-2,386.5	3,068.5	0.00	0.00	0.00
10,300.0	92.30	270.00	7,050.9	2,069.6	-2,486.4	3,157.4	0.00	0.00	0.00
10,400.0	92.30	270.00	7,046.9	2,069.6	-2,586.4	3,246.2	0.00	0.00	0.00
10,500.0	92.30	270.00	7,042.9	2,069.6	-2,686.3	3,335.1	0.00	0.00	0.00
10,600.0	92.30	270.00	7,038.9	2,069.6	-2,786.2	3,424.0	0.00	0.00	0.00
10,700.0	92.30	270.00	7,034.9	2,069.6	-2,886.1	3,512.9	0.00	0.00	0.00
10,800.0	92.30	270.00	7,030.9	2,069.6	-2,986.0	3,601.8	0.00	0.00	0.00
10,900.0	92.30	270.00	7,026.9	2,069.6	-3,086.0	3,690.6	0.00	0.00	0.00
11,000.0	92.30	270.00	7,022.8	2,069.6	-3,185.9	3,779.5	0.00	0.00	0.00
11,100.0	92.30	270.00	7,018.8	2,069.6	-3,285.8	3,868.4	0.00	0.00	0.00
11,200.0	92.30	270.00	7,014.8	2,069.6	-3,385.7	3,957.3	0.00	0.00	0.00
11,300.0	92.30	270.00	7,010.8	2,069.6	-3,485.6	4,046.1	0.00	0.00	0.00
11,400.0	92.30	270.00	7,006.8	2,069.6	-3,585.6	4,135.0	0.00	0.00	0.00
11,500.0	92.30	270.00	7,002.8	2,069.6	-3,685.5	4,223.9	0.00	0.00	0.00
11,600.0	92.30	270.00	6,998.8	2,069.6	-3,785.4	4,312.8	0.00	0.00	0.00
11,700.0	92.30	270.00	6,994.8	2,069.6	-3,885.3	4,401.7	0.00	0.00	0.00
11,800.0	92.30	270.00	6,990.7	2,069.6	-3,985.2	4,490.5	0.00	0.00	0.00
11,843.4	92.30	270.00	6,989.0	2,069.6	-4,028.6	4,529.1	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 2526'FSL & 500'I	0.00	0.00	6,989.0	2,069.6	-4,028.6	1,330,489.82	3,124,751.62	40.239730	-105.053130
- plan hits target									
- Point									
SHL 400'FSL & 631'F	0.00	0.00	1.0	0.0	0.0	1,328,441.33	3,128,790.74	40.234050	-105.038700
- plan hits target									
- Point									

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7W-304
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7W-304	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-19-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,033.5	7,141.9	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,665.5	3,431.0	PARKMAN		0.00	
4,125.0	3,850.0	SUSSEX		0.00	
4,755.6	4,425.0	SHANNON		0.00	
7,417.5	6,929.0	SHARON SPRINGS		0.00	
7,549.7	7,012.0	NIOBRARA A		0.00	
7,649.0	7,062.0	NIOBRARA B		0.00	
7,782.7	7,111.0	NIOBRARA C		0.00	
	7,227.0	FT HAYS		0.00	
	7,247.0	CODELL		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP #1
6,802.9	6,378.6	2,069.6	572.8	KOP #2
8,033.5	7,141.9	2,069.6	-221.8	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T3N-R68W

Bolton 3N68W7TY Pad Sec.7-T3N-R68W

Bolton 7W-304

Wellbore #1

Plan #1 (9-19-14)

Anticollision Report

23 September, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (9-19-14)		
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 9/23/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,843.4	Plan #1 (9-19-14) (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						
Bolton 3N68W7TY Pad Sec.7-T3N-R68W						
Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)	200.0	199.0	29.1	28.5	43.360	CC, ES
Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)	11,843.4	11,836.4	360.6	130.8	1.569	SF
Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)	200.0	198.0	61.9	61.3	92.456	CC, ES
Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)	11,843.4	11,621.5	664.0	421.8	2.742	SF
Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)	200.0	197.0	91.1	90.4	136.431	CC, ES
Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)	10,600.0	10,449.5	999.8	823.0	5.654	SF
Existings Sec.7-T3N-R68W						
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	1,901.3	1,810.4	519.5	473.9	11.406	CC
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	2,000.0	1,900.3	521.1	473.0	10.837	ES
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	2,600.0	2,447.4	593.4	531.6	9.602	SF
PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	1,486.4	1,460.3	395.9	385.6	38.434	CC
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	1,500.0	1,473.4	395.9	385.5	37.897	ES
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	2,500.0	2,435.1	483.7	464.7	25.388	SF
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	911.4	904.1	413.1	408.7	93.547	CC, ES
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	2,900.0	2,821.7	725.0	705.9	37.961	SF
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	786.4	782.3	420.9	417.3	116.538	CC
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	800.0	795.6	420.9	417.2	113.994	ES
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	2,000.0	1,912.3	604.7	592.3	48.913	SF

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)											
Survey Program: 0-MWD											
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)
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.2		
100.0	100.0	99.0	99.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.22
200.0	200.0	199.0	199.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.67
300.0	300.0	299.0	299.0	0.6	0.6	165.39	-29.1	0.0	30.8	29.7	1.13
400.0	399.8	398.8	398.8	0.8	0.8	167.47	-29.1	0.0	35.9	34.3	1.59
500.0	499.5	499.9	499.9	1.0	1.0	169.40	-27.5	0.5	42.8	40.7	2.05
											20.896

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design		Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
600.0	598.7	601.3	601.1	1.3	1.2	170.61	-22.4	2.2	49.7	47.2	2.50	19.850		
700.0	697.5	702.9	702.3	1.6	1.5	171.36	-13.9	4.9	56.6	53.6	2.97	19.075		
800.0	795.6	804.7	803.4	2.0	1.8	171.79	-2.0	8.8	63.4	60.0	3.44	18.444		
900.0	893.1	906.9	904.2	2.4	2.1	172.00	13.4	13.8	70.3	66.3	3.93	17.890		
1,000.0	989.6	1,009.2	1,004.6	2.9	2.4	172.05	32.2	19.9	77.0	72.6	4.43	17.375		
1,100.0	1,085.3	1,111.8	1,104.5	3.5	2.8	171.97	54.5	27.2	83.7	78.8	4.96	16.878		
1,200.0	1,179.8	1,214.7	1,203.7	4.1	3.3	171.80	80.3	35.6	90.4	84.9	5.51	16.387		
1,300.0	1,273.2	1,317.8	1,302.1	4.7	3.9	171.55	109.5	45.1	96.9	90.8	6.10	15.895		
1,400.0	1,365.2	1,421.1	1,399.6	5.5	4.5	171.23	142.1	55.7	103.4	96.7	6.71	15.405		
1,500.0	1,456.4	1,522.1	1,493.9	6.2	5.1	170.86	176.5	66.8	109.3	101.9	7.39	14.792		
1,600.0	1,547.6	1,621.9	1,587.1	7.0	5.8	170.52	210.6	77.9	115.1	107.0	8.09	14.215		
1,700.0	1,638.8	1,721.7	1,680.2	7.8	6.5	170.21	244.7	89.0	120.8	112.0	8.81	13.714		
1,800.0	1,730.0	1,821.6	1,773.4	8.5	7.1	169.93	278.8	100.1	126.6	117.0	9.54	13.273		
1,900.0	1,821.1	1,921.4	1,866.6	9.3	7.8	169.67	312.9	111.2	132.3	122.1	10.27	12.884		
2,000.0	1,912.3	2,021.2	1,959.7	10.1	8.5	169.44	347.1	122.3	138.1	127.1	11.01	12.539		
2,100.0	2,003.5	2,121.1	2,052.9	10.9	9.2	169.22	381.2	133.4	143.9	132.1	11.76	12.231		
2,200.0	2,094.7	2,220.9	2,146.0	11.7	9.9	169.02	415.3	144.5	149.6	137.1	12.52	11.956		
2,300.0	2,185.9	2,320.7	2,239.2	12.5	10.6	168.84	449.4	155.6	155.4	142.1	13.28	11.707		
2,400.0	2,277.1	2,420.6	2,332.4	13.3	11.3	168.67	483.6	166.6	161.2	147.2	14.04	11.482		
2,500.0	2,368.3	2,520.4	2,425.5	14.1	12.0	168.51	517.7	177.7	167.0	152.2	14.80	11.278		
2,600.0	2,459.4	2,620.2	2,518.7	14.9	12.7	168.36	551.8	188.8	172.7	157.2	15.57	11.091		
2,700.0	2,550.6	2,720.1	2,611.8	15.6	13.4	168.22	585.9	199.9	178.5	162.2	16.35	10.921		
2,800.0	2,641.8	2,819.9	2,705.0	16.4	14.1	168.09	620.0	211.0	184.3	167.2	17.12	10.764		
2,900.0	2,733.0	2,919.7	2,798.2	17.2	14.8	167.97	654.2	222.1	190.1	172.2	17.90	10.620		
3,000.0	2,824.2	3,019.6	2,891.3	18.0	15.5	167.85	688.3	233.2	195.9	177.2	18.68	10.486		
3,100.0	2,915.4	3,119.4	2,984.5	18.8	16.2	167.74	722.4	244.3	201.6	182.2	19.46	10.362		
3,200.0	3,006.6	3,219.2	3,077.7	19.6	16.9	167.64	756.5	255.4	207.4	187.2	20.24	10.247		
3,300.0	3,097.7	3,319.0	3,170.8	20.4	17.6	167.54	790.7	266.5	213.2	192.2	21.02	10.140		
3,400.0	3,188.9	3,418.9	3,264.0	21.2	18.3	167.45	824.8	277.6	219.0	197.2	21.81	10.040		
3,500.0	3,280.1	3,518.7	3,357.1	22.0	19.0	167.36	858.9	288.6	224.8	202.2	22.60	9.946		
3,600.0	3,371.3	3,618.5	3,450.3	22.8	19.7	167.28	893.0	299.7	230.5	207.2	23.38	9.859		
3,700.0	3,462.5	3,718.4	3,543.5	23.6	20.4	167.20	927.1	310.8	236.3	212.2	24.17	9.776		
3,800.0	3,553.7	3,818.2	3,636.6	24.4	21.1	167.13	961.3	321.9	242.1	217.1	24.96	9.699		
3,900.0	3,644.8	3,918.0	3,729.8	25.2	21.8	167.06	995.4	333.0	247.9	222.1	25.75	9.625		
4,000.0	3,736.0	4,017.9	3,822.9	26.0	22.5	166.99	1,029.5	344.1	253.7	227.1	26.55	9.556		
4,100.0	3,827.2	4,117.7	3,916.1	26.8	23.2	166.92	1,063.6	355.2	259.5	232.1	27.34	9.491		
4,200.0	3,918.4	4,217.5	4,009.3	27.6	23.9	166.86	1,097.8	366.3	265.2	237.1	28.13	9.429		
4,300.0	4,009.6	4,317.4	4,102.4	28.4	24.6	166.80	1,131.9	377.4	271.0	242.1	28.93	9.370		
4,400.0	4,100.8	4,417.2	4,195.6	29.2	25.3	166.74	1,166.0	388.5	276.8	247.1	29.72	9.314		
4,500.0	4,192.0	4,517.0	4,288.8	30.0	26.0	166.69	1,200.1	399.6	282.6	252.1	30.51	9.261		
4,600.0	4,283.1	4,616.9	4,381.9	30.8	26.7	166.64	1,234.2	410.7	288.4	257.1	31.31	9.211		
4,700.0	4,374.3	4,716.7	4,475.1	31.6	27.4	166.59	1,268.4	421.7	294.2	262.1	32.11	9.163		
4,800.0	4,465.5	4,816.5	4,568.2	32.3	28.1	166.54	1,302.5	432.8	300.0	267.1	32.90	9.117		
4,900.0	4,556.7	4,916.4	4,661.4	33.1	28.8	166.49	1,336.6	443.9	305.8	272.1	33.70	9.073		
5,000.0	4,647.9	5,016.2	4,754.6	33.9	29.5	166.44	1,370.7	455.0	311.5	277.0	34.50	9.031		
5,100.0	4,739.1	5,116.0	4,847.7	34.7	30.2	166.40	1,404.9	466.1	317.3	282.0	35.30	8.991		
5,200.0	4,830.3	5,215.9	4,940.9	35.5	30.9	166.36	1,439.0	477.2	323.1	287.0	36.09	8.952		
5,300.0	4,921.4	5,315.7	5,034.1	36.3	31.6	166.32	1,473.1	488.3	328.9	292.0	36.89	8.915		
5,400.0	5,012.6	5,415.5	5,127.2	37.1	32.3	166.28	1,507.2	499.4	334.7	297.0	37.69	8.880		
5,500.0	5,104.3	5,515.4	5,220.4	37.8	33.0	166.21	1,541.4	510.5	339.2	300.7	38.52	8.804		
5,600.0	5,197.4	5,610.6	5,309.4	38.4	33.6	166.01	1,573.6	521.0	340.6	301.3	39.31	8.666		

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,700.0	5,291.7	5,700.0	5,393.7	38.9	34.1	165.81		1,601.8	530.1	341.3	301.3	39.97	8.538	
5,800.0	5,387.0	5,790.1	5,479.7	39.4	34.5	165.62		1,627.6	538.5	341.6	301.0	40.57	8.419	
5,900.0	5,483.4	5,879.9	5,566.0	39.8	34.9	165.42		1,650.8	546.0	341.4	300.3	41.09	8.309	
6,000.0	5,580.6	5,969.7	5,653.2	40.2	35.3	165.24		1,671.3	552.7	341.0	299.4	41.55	8.206	
6,100.0	5,678.6	6,059.5	5,740.9	40.5	35.6	165.05		1,689.3	558.6	340.1	298.2	41.93	8.111	
6,200.0	5,777.3	6,149.3	5,829.3	40.8	35.9	164.87		1,704.7	563.6	338.8	296.6	42.24	8.021	
6,300.0	5,876.4	6,239.2	5,918.2	41.1	36.1	164.69		1,717.4	567.7	337.2	294.7	42.48	7.938	
6,400.0	5,975.9	6,329.1	6,007.5	41.3	36.3	164.51		1,727.5	571.0	335.2	292.6	42.65	7.860	
6,500.0	6,075.7	6,419.1	6,097.1	41.4	36.5	164.34		1,734.9	573.4	332.9	290.1	42.75	7.786	
6,600.0	6,175.7	6,509.2	6,187.1	41.5	36.6	164.16		1,739.6	574.9	330.1	287.3	42.78	7.717	
6,700.0	6,275.7	6,600.0	6,277.9	41.6	36.7	179.52		1,741.6	575.6	328.0	252.4	75.62	4.337	
6,741.6	6,317.3	6,638.5	6,316.3	41.6	36.8	179.51		1,741.7	575.6	327.9	252.2	75.67	4.333	
6,800.0	6,375.7	6,696.8	6,374.7	41.6	36.8	179.51		1,741.7	575.6	327.9	252.1	75.76	4.328	
6,900.0	6,475.4	6,796.6	6,474.5	41.7	36.9	-91.55		1,741.7	575.6	328.0	283.9	44.06	7.445	
7,000.0	6,573.5	6,897.9	6,575.4	41.7	36.9	-93.62		1,741.7	568.2	328.5	283.2	45.31	7.250	
7,100.0	6,668.3	7,000.8	6,676.1	41.6	36.9	-95.63		1,741.7	547.0	329.5	283.2	46.31	7.115	
7,200.0	6,758.1	7,105.4	6,774.5	41.5	36.8	-97.54		1,741.7	511.9	330.8	283.8	46.95	7.045	
7,300.0	6,841.4	7,211.7	6,868.7	41.4	36.7	-99.33		1,741.7	462.8	332.3	285.1	47.20	7.040	
7,400.0	6,916.7	7,319.6	6,956.3	41.3	36.6	-100.95		1,741.7	400.1	334.0	286.8	47.15	7.084	
7,500.0	6,982.9	7,428.9	7,035.3	41.1	36.4	-102.36		1,741.7	324.6	335.7	288.8	46.95	7.150	
7,600.0	7,038.7	7,539.7	7,103.5	41.0	36.2	-103.55		1,741.7	237.4	337.3	290.4	46.86	7.198	
7,700.0	7,083.3	7,651.5	7,158.8	40.9	36.1	-104.48		1,741.7	140.3	338.7	291.5	47.18	7.178	
7,800.0	7,115.7	7,764.3	7,199.6	40.8	36.0	-105.14		1,741.7	35.3	339.7	291.5	48.21	7.046	
7,900.0	7,135.6	7,877.6	7,224.7	40.8	35.9	-105.52		1,741.7	-75.1	340.3	290.2	50.08	6.795	
8,000.0	7,142.5	7,991.2	7,233.1	40.8	35.9	-105.61		1,741.7	-188.3	340.4	287.6	52.81	6.447	
8,013.7	7,142.5	8,006.7	7,232.9	40.8	35.9	-105.58		1,741.7	-203.8	340.4	287.2	53.23	6.395	
8,100.0	7,139.2	8,093.5	7,230.8	41.0	36.1	-105.77		1,741.7	-290.5	340.7	284.8	55.91	6.094	
8,200.0	7,135.2	8,193.5	7,228.3	41.2	36.4	-106.02		1,741.7	-390.5	341.1	281.9	59.26	5.756	
8,300.0	7,131.2	8,293.5	7,225.8	41.6	37.0	-106.27		1,741.7	-490.4	341.5	278.6	62.90	5.430	
8,400.0	7,127.2	8,393.4	7,223.4	42.2	37.9	-106.51		1,741.7	-590.4	342.0	275.2	66.76	5.122	
8,500.0	7,123.2	8,493.4	7,220.9	43.0	39.1	-106.76		1,741.7	-690.3	342.4	271.6	70.81	4.835	
8,600.0	7,119.2	8,593.4	7,218.4	44.1	40.7	-107.00		1,741.7	-790.3	342.9	267.8	75.02	4.570	
8,700.0	7,115.1	8,693.4	7,215.9	45.5	42.5	-107.25		1,741.7	-890.3	343.3	264.0	79.36	4.326	
8,800.0	7,111.1	8,793.4	7,213.5	47.2	44.6	-107.49		1,741.7	-990.2	343.8	260.0	83.80	4.102	
8,900.0	7,107.1	8,893.4	7,211.0	49.0	46.7	-107.74		1,741.7	-1,090.2	344.2	255.9	88.33	3.897	
9,000.0	7,103.1	8,993.4	7,208.5	51.0	49.0	-107.98		1,741.7	-1,190.1	344.7	251.8	92.93	3.709	
9,100.0	7,099.1	9,093.4	7,206.0	53.1	51.3	-108.22		1,741.7	-1,290.1	345.2	247.6	97.59	3.537	
9,200.0	7,095.1	9,193.3	7,203.5	55.3	53.7	-108.47		1,741.7	-1,390.0	345.7	243.4	102.29	3.379	
9,300.0	7,091.1	9,293.3	7,201.1	57.6	56.2	-108.71		1,741.7	-1,490.0	346.2	239.1	107.04	3.234	
9,400.0	7,087.1	9,393.3	7,198.6	60.0	58.7	-108.95		1,741.7	-1,590.0	346.7	234.8	111.82	3.100	
9,500.0	7,083.0	9,493.3	7,196.1	62.4	61.2	-109.19		1,741.7	-1,689.9	347.2	230.5	116.62	2.977	
9,600.0	7,079.0	9,593.3	7,193.6	64.8	63.7	-109.43		1,741.7	-1,789.9	347.7	226.2	121.44	2.863	
9,700.0	7,075.0	9,693.3	7,191.2	67.3	66.3	-109.66		1,741.7	-1,889.8	348.2	221.9	126.29	2.757	
9,800.0	7,071.0	9,793.3	7,188.7	69.8	68.9	-109.90		1,741.7	-1,989.8	348.7	217.6	131.14	2.659	
9,900.0	7,067.0	9,893.3	7,186.2	72.4	71.5	-110.14		1,741.7	-2,089.7	349.2	213.2	136.00	2.568	
10,000.0	7,063.0	9,993.3	7,183.7	75.0	74.1	-110.37		1,741.7	-2,189.7	349.8	208.9	140.87	2.483	
10,100.0	7,059.0	10,093.2	7,181.2	77.5	76.7	-110.61		1,741.7	-2,289.7	350.3	204.6	145.74	2.403	
10,200.0	7,055.0	10,193.2	7,178.8	80.1	79.3	-110.84		1,741.7	-2,389.6	350.8	200.2	150.62	2.329	
10,300.0	7,050.9	10,293.2	7,176.3	82.7	82.0	-111.08		1,741.7	-2,489.6	351.4	195.9	155.49	2.260	
10,400.0	7,046.9	10,393.2	7,173.8	85.4	84.7	-111.31		1,741.7	-2,589.5	351.9	191.6	160.36	2.195	
10,500.0	7,042.9	10,493.2	7,171.3	88.0	87.3	-111.54		1,741.7	-2,689.5	352.5	187.3	165.23	2.133	

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)												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	
10,600.0	7,038.9	10,593.2	7,168.9	90.7	90.0	-111.78	1,741.7	-2,789.5	353.1	183.0	170.10	2.076	
10,700.0	7,034.9	10,693.2	7,166.4	93.3	92.7	-112.01	1,741.7	-2,889.4	353.6	178.7	174.96	2.021	
10,800.0	7,030.9	10,793.2	7,163.9	96.0	95.4	-112.24	1,741.7	-2,989.4	354.2	174.4	179.81	1.970	
10,900.0	7,026.9	10,893.1	7,161.4	98.6	98.1	-112.47	1,741.7	-3,089.3	354.8	170.2	184.65	1.922	
11,000.0	7,022.8	10,993.1	7,158.9	101.3	100.8	-112.70	1,741.7	-3,189.3	355.4	165.9	189.48	1.876	
11,100.0	7,018.8	11,093.1	7,156.5	104.0	103.5	-112.92	1,741.7	-3,289.2	356.0	161.7	194.31	1.832	
11,200.0	7,014.8	11,193.1	7,154.0	106.7	106.2	-113.15	1,741.7	-3,389.2	356.6	157.5	199.12	1.791	
11,300.0	7,010.8	11,293.1	7,151.5	109.4	108.9	-113.38	1,741.7	-3,489.2	357.2	153.3	203.92	1.752	
11,400.0	7,006.8	11,393.1	7,149.0	112.1	111.7	-113.60	1,741.7	-3,589.1	357.8	149.1	208.71	1.714	
11,500.0	7,002.8	11,493.1	7,146.6	114.8	114.4	-113.83	1,741.7	-3,689.1	358.4	144.9	213.49	1.679	
11,600.0	6,998.8	11,593.1	7,144.1	117.5	117.1	-114.05	1,741.7	-3,789.0	359.1	140.8	218.26	1.645	
11,700.0	6,994.8	11,693.1	7,141.6	120.3	119.9	-114.28	1,741.7	-3,889.0	359.7	136.7	223.01	1.613	
11,800.0	6,990.7	11,793.0	7,139.1	123.0	122.6	-114.50	1,741.7	-3,988.9	360.3	132.6	227.75	1.582	
11,843.4	6,989.0	11,836.4	7,138.0	124.2	123.8	-114.59	1,741.7	-4,032.3	360.6	130.8	229.80	1.569 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-61.9	0.0	62.0					
100.0	100.0	98.0	98.0	0.1	0.1	180.00	-61.9	0.0	61.9	61.7	0.22	278.296		
200.0	200.0	198.0	198.0	0.3	0.3	180.00	-61.9	0.0	61.9	61.3	0.67	92.456 CC, ES		
300.0	300.0	298.0	298.0	0.6	0.6	164.94	-61.9	0.0	63.6	62.5	1.13	56.468		
400.0	399.8	397.8	397.8	0.8	0.8	166.05	-61.9	0.0	68.7	67.1	1.59	43.254		
500.0	499.5	497.5	497.5	1.0	1.0	167.57	-61.9	0.0	77.2	75.1	2.05	37.641		
600.0	598.7	596.7	596.7	1.3	1.2	169.21	-61.9	0.0	89.1	86.6	2.51	35.454		
700.0	697.5	698.9	698.9	1.6	1.5	170.57	-60.3	0.6	102.9	100.0	2.98	34.585		
800.0	795.6	801.8	801.6	2.0	1.7	171.42	-55.3	2.6	116.8	113.3	3.44	33.977		
900.0	893.1	905.1	904.5	2.4	1.9	171.92	-46.8	5.9	130.6	126.7	3.91	33.418		
1,000.0	989.6	1,009.0	1,007.6	2.9	2.2	172.16	-34.8	10.6	144.4	140.0	4.39	32.864		
1,100.0	1,085.3	1,113.4	1,110.7	3.5	2.5	172.21	-19.2	16.7	158.1	153.2	4.90	32.290		
1,200.0	1,179.8	1,218.4	1,213.6	4.1	2.9	172.12	0.0	24.2	171.7	166.3	5.42	31.678		
1,300.0	1,273.2	1,323.8	1,316.1	4.7	3.3	171.91	22.8	33.1	185.2	179.3	5.97	31.021		
1,400.0	1,365.2	1,429.8	1,418.3	5.5	3.8	171.60	49.2	43.5	198.6	192.0	6.55	30.313		
1,500.0	1,456.4	1,536.5	1,519.9	6.2	4.3	171.19	79.4	55.2	210.5	203.3	7.20	29.219		
1,600.0	1,547.6	1,636.1	1,614.2	7.0	4.9	170.73	109.2	66.9	220.6	212.7	7.87	28.032		
1,700.0	1,638.8	1,735.5	1,708.4	7.8	5.4	170.31	139.0	78.6	230.7	222.1	8.57	26.915		
1,800.0	1,730.0	1,835.0	1,802.6	8.5	6.0	169.92	168.8	90.2	240.8	231.6	9.28	25.956		
1,900.0	1,821.1	1,934.5	1,896.8	9.3	6.6	169.57	198.6	101.9	251.0	241.0	10.00	25.105		
2,000.0	1,912.3	2,034.0	1,990.9	10.1	7.2	169.24	228.4	113.5	261.1	250.4	10.72	24.348		
2,100.0	2,003.5	2,133.4	2,085.1	10.9	7.8	168.94	258.2	125.2	271.3	259.8	11.46	23.670		
2,200.0	2,094.7	2,232.9	2,179.3	11.7	8.4	168.66	288.0	136.8	281.4	269.2	12.20	23.061		
2,300.0	2,185.9	2,332.4	2,273.5	12.5	9.1	168.40	317.8	148.5	291.6	278.6	12.95	22.511		
2,400.0	2,277.1	2,431.9	2,367.7	13.3	9.7	168.16	347.6	160.1	301.7	288.0	13.71	22.012		
2,500.0	2,368.3	2,531.3	2,461.9	14.1	10.3	167.93	377.4	171.8	311.9	297.5	14.47	21.559		
2,600.0	2,459.4	2,630.8	2,556.1	14.9	10.9	167.72	407.2	183.4	322.1	306.9	15.23	21.144		
2,700.0	2,550.6	2,730.3	2,650.3	15.6	11.6	167.52	437.0	195.1	332.3	316.3	16.00	20.765		
2,800.0	2,641.8	2,829.8	2,744.5	16.4	12.2	167.33	466.8	206.7	342.5	325.7	16.77	20.416		
2,900.0	2,733.0	2,929.2	2,838.6	17.2	12.8	167.15	496.5	218.4	352.7	335.1	17.55	20.094		
3,000.0	2,824.2	3,028.7	2,932.8	18.0	13.4	166.99	526.3	230.0	362.8	344.5	18.33	19.797		
3,100.0	2,915.4	3,128.2	3,027.0	18.8	14.1	166.83	556.1	241.7	373.0	353.9	19.11	19.521		
3,200.0	3,006.6	3,227.7	3,121.2	19.6	14.7	166.68	585.9	253.3	383.2	363.3	19.89	19.265		
3,300.0	3,097.7	3,327.1	3,215.4	20.4	15.3	166.54	615.7	265.0	393.4	372.8	20.68	19.026		
3,400.0	3,188.9	3,426.6	3,309.6	21.2	15.9	166.40	645.5	276.6	403.6	382.2	21.47	18.803		
3,500.0	3,280.1	3,526.1	3,403.8	22.0	16.6	166.27	675.3	288.3	413.8	391.6	22.26	18.594		
3,600.0	3,371.3	3,625.6	3,498.0	22.8	17.2	166.15	705.1	299.9	424.0	401.0	23.05	18.398		
3,700.0	3,462.5	3,725.0	3,592.2	23.6	17.8	166.04	734.9	311.6	434.3	410.4	23.84	18.214		
3,800.0	3,553.7	3,824.5	3,686.3	24.4	18.5	165.92	764.7	323.2	444.5	419.8	24.64	18.041		
3,900.0	3,644.8	3,924.0	3,780.5	25.2	19.1	165.82	794.5	334.9	454.7	429.2	25.43	17.878		
4,000.0	3,736.0	4,023.4	3,874.7	26.0	19.7	165.72	824.3	346.5	464.9	438.7	26.23	17.724		
4,100.0	3,827.2	4,122.9	3,968.9	26.8	20.4	165.62	854.1	358.2	475.1	448.1	27.03	17.578		
4,200.0	3,918.4	4,222.4	4,063.1	27.6	21.0	165.53	883.9	369.8	485.3	457.5	27.83	17.440		
4,300.0	4,009.6	4,321.9	4,157.3	28.4	21.6	165.44	913.7	381.5	495.5	466.9	28.63	17.309		
4,400.0	4,100.8	4,421.3	4,251.5	29.2	22.3	165.35	943.5	393.1	505.7	476.3	29.43	17.185		
4,500.0	4,192.0	4,520.8	4,345.7	30.0	22.9	165.27	973.3	404.8	516.0	485.7	30.23	17.066		
4,600.0	4,283.1	4,620.3	4,439.9	30.8	23.5	165.19	1,003.1	416.4	526.2	495.1	31.04	16.954		
4,700.0	4,374.3	4,719.8	4,534.0	31.6	24.2	165.12	1,032.9	428.1	536.4	504.6	31.84	16.846		
4,800.0	4,465.5	4,819.2	4,628.2	32.3	24.8	165.04	1,062.7	439.7	546.6	514.0	32.65	16.744		
4,900.0	4,556.7	4,918.7	4,722.4	33.1	25.4	164.97	1,092.5	451.4	556.8	523.4	33.45	16.646		
5,000.0	4,647.9	5,018.2	4,816.6	33.9	26.1	164.91	1,122.3	463.0	567.1	532.8	34.26	16.553		

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,739.1	5,117.7	4,910.8	34.7	26.7	164.84		1,152.1	474.7	577.3	542.2	35.07	16.463	
5,200.0	4,830.3	5,217.1	5,005.0	35.5	27.3	164.78		1,181.9	486.3	587.5	551.6	35.87	16.378	
5,300.0	4,921.4	5,316.6	5,099.2	36.3	28.0	164.72		1,211.7	498.0	597.7	561.1	36.68	16.295	
5,400.0	5,012.6	5,416.1	5,193.4	37.1	28.6	164.66		1,241.5	509.6	608.0	570.5	37.49	16.217	
5,500.0	5,104.3	5,514.1	5,286.1	37.8	29.2	164.61		1,270.8	521.1	616.9	578.6	38.32	16.097	
5,600.0	5,197.4	5,600.0	5,368.0	38.4	29.7	164.55		1,295.2	530.6	624.1	585.1	39.02	15.996	
5,700.0	5,291.7	5,679.9	5,444.7	38.9	30.0	164.50		1,315.8	538.7	630.7	591.1	39.60	15.928	
5,800.0	5,387.0	5,762.6	5,524.9	39.4	30.4	164.46		1,335.0	546.2	636.6	596.5	40.12	15.869	
5,900.0	5,483.4	5,845.3	5,605.5	39.8	30.7	164.42		1,352.1	552.9	641.8	601.3	40.57	15.822	
6,000.0	5,580.6	5,927.9	5,686.5	40.2	31.0	164.39		1,367.0	558.7	646.4	605.4	40.95	15.786	
6,100.0	5,678.6	6,010.4	5,767.9	40.5	31.2	164.36		1,379.7	563.7	650.2	609.0	41.25	15.762	
6,200.0	5,777.3	6,100.0	5,856.6	40.8	31.5	164.33		1,391.0	568.1	653.5	612.0	41.50	15.745	
6,300.0	5,876.4	6,175.4	5,931.6	41.1	31.6	164.32		1,398.5	571.0	656.0	614.3	41.65	15.749	
6,400.0	5,975.9	6,257.8	6,013.7	41.3	31.8	164.30		1,404.5	573.4	657.8	616.0	41.74	15.759	
6,500.0	6,075.7	6,340.1	6,096.0	41.4	31.9	164.29		1,408.4	574.9	658.9	617.2	41.76	15.779	
6,600.0	6,175.7	6,422.5	6,178.3	41.5	32.0	164.29		1,410.1	575.6	659.4	617.7	41.71	15.809	
6,700.0	6,275.7	6,517.9	6,273.7	41.6	32.1	179.76		1,410.2	575.6	659.4	588.6	70.80	9.313	
6,800.0	6,375.7	6,618.0	6,373.8	41.6	32.1	179.84		1,410.2	574.7	659.4	588.4	70.98	9.289	
6,837.6	6,413.2	6,655.5	6,411.2	41.7	32.2	-90.00		1,410.2	571.9	659.4	617.3	42.08	15.671	
6,900.0	6,475.4	6,717.8	6,472.8	41.7	32.2	-89.70		1,410.2	563.3	659.4	617.4	41.99	15.704	
7,000.0	6,573.5	6,816.8	6,568.9	41.7	32.1	-89.25		1,410.2	539.3	659.4	617.7	41.71	15.810	
7,100.0	6,668.3	6,915.3	6,660.5	41.6	32.1	-88.81		1,410.2	503.4	659.5	618.2	41.32	15.961	
7,200.0	6,758.1	7,013.1	6,746.1	41.5	31.9	-88.40		1,410.2	456.3	659.6	618.7	40.90	16.126	
7,300.0	6,841.4	7,110.3	6,824.7	41.4	31.8	-88.01		1,410.2	399.0	659.8	619.2	40.56	16.267	
7,400.0	6,916.7	7,207.1	6,894.9	41.3	31.6	-87.65		1,410.2	332.6	659.9	619.5	40.41	16.332	
7,500.0	6,982.9	7,303.4	6,956.0	41.1	31.4	-87.34		1,410.2	258.2	660.1	619.5	40.57	16.269	
7,600.0	7,038.7	7,400.0	7,007.4	41.0	31.3	-87.06		1,410.2	176.5	660.3	619.1	41.18	16.033	
7,700.0	7,083.3	7,494.9	7,047.4	40.9	31.1	-86.84		1,410.2	90.6	660.4	618.1	42.31	15.609	
7,800.0	7,115.7	7,590.2	7,076.6	40.8	31.0	-86.67		1,410.2	-0.1	660.5	616.5	43.99	15.015	
7,900.0	7,135.6	7,685.3	7,094.2	40.8	30.9	-86.56		1,410.2	-93.5	660.6	614.4	46.19	14.300	
8,000.0	7,142.5	7,780.3	7,100.1	40.8	31.0	-86.50		1,410.2	-188.3	660.6	611.8	48.84	13.527	
8,100.0	7,139.2	7,878.3	7,096.2	41.0	31.2	-86.43		1,410.2	-286.2	660.7	608.7	51.92	12.725	
8,200.0	7,135.2	7,978.3	7,091.2	41.2	31.7	-86.35		1,410.2	-386.0	660.7	605.3	55.41	11.925	
8,300.0	7,131.2	8,078.3	7,086.2	41.6	32.6	-86.26		1,410.2	-485.9	660.8	601.6	59.21	11.159	
8,400.0	7,127.2	8,178.3	7,081.2	42.2	34.1	-86.18		1,410.2	-585.8	660.9	597.6	63.28	10.443	
8,500.0	7,123.2	8,278.3	7,076.2	43.0	36.0	-86.09		1,410.2	-685.6	660.9	593.4	67.57	9.782	
8,600.0	7,119.2	8,378.2	7,071.2	44.1	38.0	-86.00		1,410.2	-785.5	661.0	589.0	72.02	9.177	
8,700.0	7,115.1	8,478.2	7,066.1	45.5	40.2	-85.92		1,410.2	-885.4	661.1	584.4	76.63	8.627	
8,800.0	7,111.1	8,578.2	7,061.1	47.2	42.5	-85.83		1,410.2	-985.2	661.1	579.8	81.35	8.127	
8,900.0	7,107.1	8,678.2	7,056.1	49.0	44.9	-85.75		1,410.2	-1,085.1	661.2	575.0	86.18	7.672	
9,000.0	7,103.1	8,778.2	7,051.1	51.0	47.3	-85.66		1,410.2	-1,185.0	661.3	570.2	91.09	7.260	
9,100.0	7,099.1	8,878.2	7,046.1	53.1	49.7	-85.57		1,410.2	-1,284.9	661.4	565.3	96.07	6.884	
9,200.0	7,095.1	8,978.2	7,041.1	55.3	52.2	-85.49		1,410.2	-1,384.7	661.4	560.3	101.11	6.542	
9,300.0	7,091.1	9,078.2	7,036.1	57.6	54.8	-85.40		1,410.2	-1,484.6	661.5	555.3	106.20	6.229	
9,400.0	7,087.1	9,178.2	7,031.1	60.0	57.3	-85.32		1,410.2	-1,584.5	661.6	550.3	111.33	5.942	
9,500.0	7,083.0	9,278.2	7,026.1	62.4	59.9	-85.23		1,410.2	-1,684.3	661.7	545.2	116.51	5.679	
9,600.0	7,079.0	9,378.2	7,021.1	64.8	62.5	-85.14		1,410.2	-1,784.2	661.8	540.0	121.71	5.437	
9,700.0	7,075.0	9,478.2	7,016.1	67.3	65.1	-85.06		1,410.2	-1,884.1	661.8	534.9	126.95	5.213	
9,800.0	7,071.0	9,578.2	7,011.1	69.8	67.7	-84.97		1,410.2	-1,983.9	661.9	529.7	132.21	5.007	
9,900.0	7,067.0	9,678.2	7,006.1	72.4	70.4	-84.89		1,410.2	-2,083.8	662.0	524.5	137.49	4.815	
10,000.0	7,063.0	9,778.2	7,001.1	75.0	73.0	-84.80		1,410.2	-2,183.7	662.1	519.3	142.79	4.637	

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,100.0	7,059.0	9,878.2	6,996.0	77.5	75.7	-84.72	1,410.2	-2,283.6	662.2	514.1	148.11	4.471		
10,200.0	7,055.0	9,978.2	6,991.0	80.1	78.4	-84.63	1,410.2	-2,383.4	662.3	508.9	153.44	4.316		
10,300.0	7,050.9	10,078.2	6,986.0	82.7	81.0	-84.54	1,410.2	-2,483.3	662.4	503.6	158.79	4.172		
10,400.0	7,046.9	10,178.2	6,981.0	85.4	83.7	-84.46	1,410.2	-2,583.2	662.5	498.3	164.14	4.036		
10,500.0	7,042.9	10,278.2	6,976.0	88.0	86.4	-84.37	1,410.2	-2,683.0	662.6	493.1	169.51	3.909		
10,600.0	7,038.9	10,378.1	6,971.0	90.7	89.1	-84.29	1,410.2	-2,782.9	662.7	487.8	174.89	3.789		
10,700.0	7,034.9	10,478.1	6,966.0	93.3	91.8	-84.20	1,410.2	-2,882.8	662.8	482.5	180.28	3.676		
10,800.0	7,030.9	10,578.1	6,961.0	96.0	94.5	-84.12	1,410.2	-2,982.6	662.9	477.2	185.67	3.570		
10,900.0	7,026.9	10,678.1	6,956.0	98.6	97.3	-84.03	1,410.2	-3,082.5	663.0	471.9	191.07	3.470		
11,000.0	7,022.8	10,778.1	6,951.0	101.3	100.0	-83.95	1,410.2	-3,182.4	663.1	466.6	196.47	3.375		
11,100.0	7,018.8	10,878.1	6,946.0	104.0	102.7	-83.86	1,410.2	-3,282.2	663.2	461.3	201.88	3.285		
11,200.0	7,014.8	10,978.1	6,941.0	106.7	105.4	-83.77	1,410.2	-3,382.1	663.3	456.0	207.30	3.200		
11,300.0	7,010.8	11,078.1	6,936.0	109.4	108.2	-83.69	1,410.2	-3,482.0	663.4	450.7	212.72	3.119		
11,400.0	7,006.8	11,178.1	6,931.0	112.1	110.9	-83.60	1,410.2	-3,581.9	663.5	445.4	218.14	3.042		
11,500.0	7,002.8	11,278.1	6,926.0	114.8	113.6	-83.52	1,410.2	-3,681.7	663.6	440.1	223.56	2.968		
11,600.0	6,998.8	11,378.1	6,920.9	117.5	116.4	-83.43	1,410.2	-3,781.6	663.7	434.7	228.99	2.899		
11,700.0	6,994.8	11,478.1	6,915.9	120.3	119.1	-83.35	1,410.2	-3,881.5	663.9	429.4	234.42	2.832		
11,800.0	6,990.7	11,578.1	6,910.9	123.0	121.9	-83.26	1,410.2	-3,981.3	664.0	424.1	239.85	2.768		
11,843.4	6,989.0	11,621.5	6,908.8	124.2	123.1	-83.23	1,410.2	-4,024.7	664.0	421.8	242.21	2.742 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-91.1	0.0	91.1					
100.0	100.0	97.0	97.0	0.1	0.1	180.00	-91.1	0.0	91.1	90.9	0.22	411.360		
200.0	200.0	197.0	197.0	0.3	0.3	180.00	-91.1	0.0	91.1	90.4	0.67	136.431 CC, ES		
300.0	300.0	297.0	297.0	0.6	0.6	164.81	-91.1	0.0	92.8	91.6	1.12	82.506		
400.0	399.8	396.8	396.8	0.8	0.8	165.59	-91.1	0.0	97.8	96.2	1.59	61.694		
500.0	499.5	496.5	496.5	1.0	1.0	166.72	-91.1	0.0	106.3	104.2	2.05	51.899		
600.0	598.7	595.7	595.7	1.3	1.2	168.02	-91.1	0.0	118.2	115.7	2.51	47.053		
700.0	697.5	694.5	694.5	1.6	1.4	169.36	-91.1	0.0	133.5	130.5	2.98	44.855		
800.0	795.6	792.6	792.6	2.0	1.7	170.62	-91.1	0.0	152.3	148.9	3.44	44.236		
900.0	893.1	890.1	890.1	2.4	1.9	171.76	-91.1	0.0	174.6	170.7	3.91	44.627		
1,000.0	989.6	986.6	986.6	2.9	2.1	172.75	-91.1	0.0	200.2	195.9	4.38	45.699		
1,100.0	1,085.3	1,089.1	1,089.0	3.5	2.3	173.56	-89.8	0.6	228.1	223.2	4.86	46.938		
1,200.0	1,179.8	1,193.5	1,193.4	4.1	2.6	174.04	-85.2	2.9	255.9	250.6	5.33	47.974		
1,300.0	1,273.2	1,299.1	1,298.6	4.7	2.8	174.27	-77.1	6.9	283.8	278.0	5.82	48.729		
1,400.0	1,365.2	1,405.8	1,404.5	5.5	3.1	174.31	-65.4	12.7	311.6	305.2	6.33	49.223		
1,500.0	1,456.4	1,514.1	1,511.3	6.2	3.4	174.23	-49.8	20.4	337.9	331.0	6.90	49.005		
1,600.0	1,547.6	1,624.3	1,619.4	7.0	3.7	173.97	-30.3	30.0	360.8	353.3	7.50	48.124		
1,700.0	1,638.8	1,736.3	1,728.2	7.8	4.1	173.56	-6.7	41.7	380.0	371.8	8.13	46.737		
1,800.0	1,730.0	1,844.7	1,832.5	8.5	4.6	173.03	19.6	54.7	395.7	386.9	8.79	45.037		
1,900.0	1,821.1	1,943.5	1,927.4	9.3	5.0	172.54	44.3	67.0	410.7	401.2	9.43	43.561		
2,000.0	1,912.3	2,042.3	2,022.3	10.1	5.5	172.09	69.1	79.2	425.6	415.5	10.10	42.128		
2,100.0	2,003.5	2,141.1	2,117.2	10.9	6.0	171.67	93.8	91.4	440.6	429.8	10.78	40.861		
2,200.0	2,094.7	2,240.0	2,212.1	11.7	6.5	171.28	118.6	103.7	455.6	444.2	11.47	39.710		
2,300.0	2,185.9	2,338.8	2,307.0	12.5	7.0	170.91	143.4	115.9	470.7	458.5	12.17	38.662		
2,400.0	2,277.1	2,437.6	2,401.8	13.3	7.5	170.57	168.1	128.2	485.7	472.8	12.88	37.705		
2,500.0	2,368.3	2,536.4	2,496.7	14.1	8.0	170.25	192.9	140.4	500.8	487.2	13.60	36.829		
2,600.0	2,459.4	2,635.2	2,591.6	14.9	8.5	169.94	217.6	152.6	515.9	501.5	14.32	36.024		
2,700.0	2,550.6	2,734.1	2,686.5	15.6	9.1	169.65	242.4	164.9	531.0	515.9	15.05	35.284		
2,800.0	2,641.8	2,832.9	2,781.4	16.4	9.6	169.38	267.2	177.1	546.1	530.3	15.78	34.600		
2,900.0	2,733.0	2,931.7	2,876.2	17.2	10.1	169.13	291.9	189.4	561.2	544.7	16.52	33.968		
3,000.0	2,824.2	3,030.5	2,971.1	18.0	10.7	168.88	316.7	201.6	576.3	559.1	17.26	33.381		
3,100.0	2,915.4	3,129.3	3,066.0	18.8	11.2	168.65	341.4	213.9	591.5	573.4	18.01	32.835		
3,200.0	3,006.6	3,228.2	3,160.9	19.6	11.8	168.43	366.2	226.1	606.6	587.8	18.76	32.327		
3,300.0	3,097.7	3,327.0	3,255.8	20.4	12.3	168.22	390.9	238.3	621.8	602.2	19.52	31.853		
3,400.0	3,188.9	3,425.8	3,350.7	21.2	12.9	168.03	415.7	250.6	636.9	616.6	20.28	31.409		
3,500.0	3,280.1	3,524.6	3,445.5	22.0	13.4	167.84	440.5	262.8	652.1	631.1	21.04	30.993		
3,600.0	3,371.3	3,623.4	3,540.4	22.8	14.0	167.66	465.2	275.1	667.3	645.5	21.80	30.602		
3,700.0	3,462.5	3,722.3	3,635.3	23.6	14.5	167.48	490.0	287.3	682.5	659.9	22.57	30.235		
3,800.0	3,553.7	3,821.1	3,730.2	24.4	15.1	167.32	514.7	299.5	697.6	674.3	23.34	29.889		
3,900.0	3,644.8	3,919.9	3,825.1	25.2	15.6	167.16	539.5	311.8	712.8	688.7	24.11	29.562		
4,000.0	3,736.0	4,018.7	3,919.9	26.0	16.2	167.01	564.2	324.0	728.0	703.2	24.89	29.253		
4,100.0	3,827.2	4,117.5	4,014.8	26.8	16.7	166.86	589.0	336.3	743.3	717.6	25.66	28.961		
4,200.0	3,918.4	4,216.4	4,109.7	27.6	17.3	166.72	613.8	348.5	758.5	732.0	26.44	28.684		
4,300.0	4,009.6	4,315.2	4,204.6	28.4	17.8	166.59	638.5	360.8	773.7	746.5	27.22	28.421		
4,400.0	4,100.8	4,414.0	4,299.5	29.2	18.4	166.46	663.3	373.0	788.9	760.9	28.00	28.172		
4,500.0	4,192.0	4,512.8	4,394.4	30.0	18.9	166.34	688.0	385.2	804.1	775.3	28.79	27.934		
4,600.0	4,283.1	4,611.6	4,489.2	30.8	19.5	166.22	712.8	397.5	819.3	789.8	29.57	27.708		
4,700.0	4,374.3	4,710.5	4,584.1	31.6	20.0	166.10	737.5	409.7	834.6	804.2	30.36	27.492		
4,800.0	4,465.5	4,809.3	4,679.0	32.3	20.6	165.99	762.3	422.0	849.8	818.7	31.14	27.287		
4,900.0	4,556.7	4,908.1	4,773.9	33.1	21.1	165.88	787.1	434.2	865.0	833.1	31.93	27.090		
5,000.0	4,647.9	5,006.9	4,868.8	33.9	21.7	165.78	811.8	446.4	880.3	847.6	32.72	26.902		

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	4,739.1	5,105.7	4,963.7	34.7	22.3	165.68	836.6	458.7	895.5	862.0	33.51	26.722		
5,200.0	4,830.3	5,204.6	5,058.5	35.5	22.8	165.58	861.3	470.9	910.8	876.5	34.30	26.549		
5,300.0	4,921.4	5,303.4	5,153.4	36.3	23.4	165.49	886.1	483.2	926.0	890.9	35.10	26.384		
5,400.0	5,012.6	5,402.2	5,248.3	37.1	23.9	165.40	910.8	495.4	941.2	905.4	35.89	26.225		
5,500.0	5,104.3	5,501.2	5,343.4	37.8	24.5	165.35	935.6	507.7	955.2	918.5	36.73	26.006		
5,600.0	5,197.4	5,600.6	5,438.8	38.4	25.0	165.25	960.5	520.0	965.9	928.3	37.53	25.734		
5,700.0	5,291.7	5,691.7	5,526.3	38.9	25.5	165.10	983.2	531.2	973.3	935.1	38.26	25.437		
5,800.0	5,387.0	5,767.9	5,600.0	39.4	25.9	164.98	1,000.8	539.9	979.3	940.5	38.83	25.221		
5,900.0	5,483.4	5,844.2	5,674.2	39.8	26.1	164.87	1,016.6	547.7	984.4	945.1	39.33	25.029		
6,000.0	5,580.6	5,920.4	5,748.8	40.2	26.4	164.76	1,030.7	554.7	988.5	948.7	39.76	24.859		
6,100.0	5,678.6	6,000.0	5,827.1	40.5	26.7	164.66	1,043.4	561.0	991.7	951.5	40.14	24.705		
6,200.0	5,777.3	6,072.9	5,899.1	40.8	26.9	164.57	1,053.4	565.9	993.8	953.4	40.42	24.585		
6,300.0	5,876.4	6,149.1	5,974.7	41.1	27.1	164.48	1,062.1	570.2	995.0	954.4	40.65	24.477		
6,400.0	5,975.9	6,225.4	6,050.6	41.3	27.2	164.40	1,068.9	573.6	995.2	954.4	40.81	24.388		
6,500.0	6,075.7	6,300.0	6,125.0	41.4	27.4	164.32	1,073.9	576.0	994.5	953.6	40.90	24.317		
6,600.0	6,175.7	6,377.9	6,202.8	41.5	27.5	164.25	1,077.2	577.7	992.7	951.8	40.92	24.262		
6,700.0	6,275.7	6,454.3	6,279.2	41.6	27.6	179.68	1,078.6	578.4	991.0	925.0	66.00	15.014		
6,745.8	6,321.6	6,493.7	6,318.6	41.6	27.6	179.68	1,078.7	578.4	990.9	924.8	66.08	14.996		
6,800.0	6,375.7	6,547.8	6,372.7	41.6	27.7	179.68	1,078.7	578.4	990.9	924.7	66.17	14.974		
6,900.0	6,475.4	6,647.6	6,472.5	41.7	27.8	-90.67	1,078.7	578.4	991.0	949.2	41.76	23.728		
7,000.0	6,573.5	6,749.2	6,573.8	41.7	27.9	-91.38	1,078.7	571.3	991.2	949.0	42.17	23.506		
7,100.0	6,668.3	6,852.6	6,674.9	41.6	27.8	-92.06	1,078.7	550.3	991.5	949.2	42.36	23.407		
7,200.0	6,758.1	6,957.7	6,773.9	41.5	27.8	-92.71	1,078.7	515.2	992.0	949.7	42.37	23.416		
7,300.0	6,841.4	7,064.5	6,868.5	41.4	27.6	-93.32	1,078.7	466.0	992.6	950.3	42.24	23.499		
7,400.0	6,916.7	7,172.9	6,956.7	41.3	27.4	-93.87	1,078.7	403.0	993.2	951.1	42.10	23.593		
7,500.0	6,982.9	7,282.9	7,036.1	41.1	27.2	-94.36	1,078.7	327.0	993.8	951.7	42.10	23.604		
7,600.0	7,038.7	7,394.2	7,104.5	41.0	27.0	-94.76	1,078.7	239.3	994.3	951.9	42.46	23.419		
7,700.0	7,083.3	7,506.6	7,159.9	40.9	26.8	-95.08	1,078.7	141.6	994.8	951.4	43.37	22.938		
7,800.0	7,115.7	7,619.9	7,200.7	40.8	26.6	-95.30	1,078.7	36.0	995.2	950.2	44.97	22.127		
7,900.0	7,135.6	7,733.8	7,225.5	40.8	26.4	-95.41	1,078.7	-75.0	995.3	948.0	47.29	21.046		
8,000.0	7,142.5	7,847.8	7,233.5	40.8	26.4	-95.42	1,078.7	-188.7	995.3	945.1	50.24	19.811		
8,020.0	7,142.5	7,869.8	7,233.1	40.8	26.5	-95.40	1,078.7	-210.6	995.3	944.4	50.89	19.557		
8,100.0	7,139.2	7,949.8	7,231.1	41.0	26.9	-95.47	1,078.7	-290.6	995.4	941.9	53.50	18.606		
8,200.0	7,135.2	8,049.7	7,228.7	41.2	28.3	-95.56	1,078.7	-390.5	995.6	938.5	57.06	17.447		
8,300.0	7,131.2	8,149.7	7,226.2	41.6	30.2	-95.65	1,078.7	-490.5	995.7	934.8	60.93	16.343		
8,400.0	7,127.2	8,249.7	7,223.7	42.2	32.3	-95.74	1,078.7	-590.4	995.9	930.8	65.04	15.311		
8,500.0	7,123.2	8,349.7	7,221.2	43.0	34.6	-95.82	1,078.7	-690.4	996.0	926.7	69.36	14.360		
8,600.0	7,119.2	8,449.7	7,218.8	44.1	36.9	-95.91	1,078.7	-790.4	996.2	922.3	73.85	13.489		
8,700.0	7,115.1	8,549.7	7,216.3	45.5	39.2	-96.00	1,078.7	-890.3	996.4	917.9	78.48	12.695		
8,800.0	7,111.1	8,649.7	7,213.8	47.2	41.6	-96.09	1,078.7	-990.3	996.5	913.3	83.23	11.974		
8,900.0	7,107.1	8,749.7	7,211.3	49.0	44.1	-96.18	1,078.7	-1,090.2	996.7	908.6	88.07	11.317		
9,000.0	7,103.1	8,849.6	7,208.8	51.0	46.6	-96.26	1,078.7	-1,190.2	996.9	903.9	92.99	10.720		
9,100.0	7,099.1	8,949.6	7,206.4	53.1	49.1	-96.35	1,078.7	-1,290.1	997.0	899.0	97.98	10.176		
9,200.0	7,095.1	9,049.6	7,203.9	55.3	51.7	-96.44	1,078.7	-1,390.1	997.2	894.2	103.03	9.679		
9,300.0	7,091.1	9,149.6	7,201.4	57.6	54.3	-96.53	1,078.7	-1,490.1	997.4	889.2	108.13	9.224		
9,400.0	7,087.1	9,249.6	7,198.9	60.0	56.9	-96.61	1,078.7	-1,590.0	997.5	884.3	113.27	8.807		
9,500.0	7,083.0	9,349.6	7,196.5	62.4	59.5	-96.70	1,078.7	-1,690.0	997.7	879.3	118.44	8.423		
9,600.0	7,079.0	9,449.6	7,194.0	64.8	62.1	-96.79	1,078.7	-1,789.9	997.9	874.2	123.66	8.070		
9,700.0	7,075.0	9,549.6	7,191.5	67.3	64.8	-96.88	1,078.7	-1,889.9	998.1	869.2	128.89	7.743		
9,800.0	7,071.0	9,649.6	7,189.0	69.8	67.4	-96.96	1,078.7	-1,989.8	998.3	864.1	134.15	7.441		
9,900.0	7,067.0	9,749.5	7,186.5	72.4	70.1	-97.05	1,078.7	-2,089.8	998.5	859.0	139.44	7.161		

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,000.0	7,063.0	9,849.5	7,184.1	75.0	72.8	-97.14	1,078.7	-2,189.8	998.6	853.9	144.74	6.900		
10,100.0	7,059.0	9,949.5	7,181.6	77.5	75.4	-97.23	1,078.7	-2,289.7	998.8	848.8	150.06	6.656		
10,200.0	7,055.0	10,049.5	7,179.1	80.1	78.1	-97.31	1,078.7	-2,389.7	999.0	843.6	155.39	6.429		
10,300.0	7,050.9	10,149.5	7,176.6	82.7	80.8	-97.40	1,078.7	-2,489.6	999.2	838.5	160.74	6.217		
10,400.0	7,046.9	10,249.5	7,174.2	85.4	83.6	-97.49	1,078.7	-2,589.6	999.4	833.3	166.09	6.017		
10,500.0	7,042.9	10,349.5	7,171.7	88.0	86.3	-97.58	1,078.7	-2,689.6	999.6	828.2	171.46	5.830		
10,600.0	7,038.9	10,449.5	7,169.2	90.7	89.0	-97.66	1,078.7	-2,789.5	999.8	823.0	176.83	5.654 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-33.41	575.6	-379.7	689.7					
100.0	100.0	88.0	88.0	0.1	1.8	-33.41	575.6	-379.7	689.6	687.7	1.87	368.243		
200.0	200.0	188.0	188.0	0.3	3.8	-33.41	575.6	-379.7	689.6	685.5	4.10	168.295		
300.0	300.0	288.0	288.0	0.6	5.8	-49.01	575.6	-379.7	688.4	682.1	6.32	108.910		
400.0	399.8	387.8	387.8	0.8	7.8	-49.39	575.6	-379.7	685.0	676.5	8.54	80.196		
500.0	499.5	487.5	487.5	1.0	9.7	-50.03	575.6	-379.7	679.3	668.6	10.76	63.127		
600.0	598.7	586.7	586.7	1.3	11.7	-50.95	575.6	-379.7	671.6	658.6	12.99	51.713		
700.0	697.5	685.5	685.5	1.6	13.7	-52.15	575.6	-379.7	661.8	646.5	15.22	43.473		
800.0	795.6	783.6	783.6	2.0	15.7	-53.65	575.6	-379.7	650.1	632.6	17.48	37.196		
900.0	893.1	881.1	881.1	2.4	17.6	-55.47	575.6	-379.7	636.8	617.1	19.76	32.223		
1,000.0	989.6	977.6	977.6	2.9	19.6	-57.64	575.6	-379.7	622.2	600.1	22.09	28.168		
1,100.0	1,085.3	1,073.3	1,073.3	3.5	21.5	-60.17	575.6	-379.7	606.6	582.2	24.47	24.789		
1,200.0	1,179.8	1,167.8	1,167.8	4.1	23.4	-63.08	575.6	-379.7	590.5	563.6	26.92	21.933		
1,300.0	1,273.2	1,261.2	1,261.2	4.7	25.2	-66.39	575.6	-379.7	574.3	544.9	29.45	19.500		
1,400.0	1,365.2	1,353.2	1,353.2	5.5	27.1	-70.11	575.6	-379.7	558.8	526.7	32.07	17.426		
1,500.0	1,456.4	1,444.4	1,444.4	6.2	28.9	-73.87	575.6	-379.7	545.0	510.2	34.77	15.676		
1,600.0	1,547.6	1,535.6	1,535.6	7.0	30.7	-77.75	575.6	-379.7	534.0	496.5	37.48	14.247		
1,700.0	1,638.8	1,626.8	1,626.8	7.8	32.5	-81.75	575.6	-379.7	526.0	485.8	40.19	13.088		
1,800.0	1,730.0	1,718.0	1,718.0	8.5	34.4	-85.82	575.6	-379.7	521.2	478.3	42.87	12.155		
1,900.0	1,821.1	1,809.1	1,809.1	9.3	36.2	-89.94	575.6	-379.7	519.5	474.0	45.51	11.415		
1,901.3	1,822.4	1,810.4	1,810.4	9.3	36.2	-90.00	575.6	-379.7	519.5	473.9	45.55	11.406 CC		
2,000.0	1,912.3	1,900.3	1,900.3	10.1	38.0	-94.07	575.6	-379.7	521.1	473.0	48.08	10.837 ES		
2,100.0	2,003.5	1,991.5	1,991.5	10.9	39.8	-98.15	575.6	-379.7	525.9	475.3	50.58	10.396		
2,200.0	2,094.7	2,082.7	2,082.7	11.7	41.7	-102.15	575.6	-379.7	533.8	480.8	52.99	10.072		
2,300.0	2,185.9	2,173.9	2,173.9	12.5	43.5	-106.03	575.6	-379.7	544.7	489.3	55.32	9.846		
2,400.0	2,277.1	2,265.1	2,265.1	13.3	45.3	-109.76	575.6	-379.7	558.4	500.8	57.56	9.701		
2,500.0	2,368.3	2,356.3	2,356.3	14.1	47.1	-113.33	575.6	-379.7	574.7	515.0	59.71	9.624		
2,600.0	2,459.4	2,447.4	2,447.4	14.9	48.9	-116.72	575.6	-379.7	593.4	531.6	61.80	9.602 SF		
2,700.0	2,550.6	2,538.6	2,538.6	15.6	50.8	-119.92	575.6	-379.7	614.3	550.5	63.82	9.626		
2,800.0	2,641.8	2,629.8	2,629.8	16.4	52.6	-122.93	575.6	-379.7	637.2	571.4	65.78	9.686		
2,900.0	2,733.0	2,721.0	2,721.0	17.2	54.4	-125.74	575.6	-379.7	661.8	594.1	67.70	9.775		
3,000.0	2,824.2	2,812.2	2,812.2	18.0	56.2	-128.37	575.6	-379.7	688.0	618.4	69.58	9.887		
3,100.0	2,915.4	2,903.4	2,903.4	18.8	58.1	-130.82	575.6	-379.7	715.6	644.1	71.44	10.016		
3,200.0	3,006.6	2,994.6	2,994.6	19.6	59.9	-133.10	575.6	-379.7	744.4	671.1	73.28	10.158		
3,300.0	3,097.7	3,085.7	3,085.7	20.4	61.7	-135.22	575.6	-379.7	774.3	699.2	75.10	10.310		
3,400.0	3,188.9	3,176.9	3,176.9	21.2	63.5	-137.20	575.6	-379.7	805.2	728.3	76.91	10.469		
3,500.0	3,280.1	3,268.1	3,268.1	22.0	65.4	-139.04	575.6	-379.7	837.0	758.3	78.72	10.632		
3,600.0	3,371.3	3,359.3	3,359.3	22.8	67.2	-140.75	575.6	-379.7	869.6	789.0	80.53	10.798		
3,700.0	3,462.5	3,450.5	3,450.5	23.6	69.0	-142.35	575.6	-379.7	902.8	820.5	82.34	10.965		
3,800.0	3,553.7	3,541.7	3,541.7	24.4	70.8	-143.84	575.6	-379.7	936.7	852.6	84.15	11.132		
3,900.0	3,644.8	3,632.8	3,632.8	25.2	72.7	-145.23	575.6	-379.7	971.1	885.2	85.96	11.297		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	1.0	1.0	0.0	0.0	89.01	7.3	421.6	421.7					
100.0	100.0	101.0	101.0	0.1	0.1	89.01	7.3	421.6	421.7	421.4	0.23	1,857.430		
166.3	166.3	167.3	167.3	0.3	0.3	89.01	7.3	421.6	421.7	421.1	0.53	802.878		
200.0	200.0	200.0	200.0	0.3	0.3	89.01	7.3	421.6	421.7	421.0	0.67	625.337		
300.0	300.0	297.7	297.7	0.6	0.6	73.54	8.9	422.0	421.6	420.4	1.12	377.125		
400.0	399.8	394.5	394.3	0.8	0.8	73.55	13.7	423.0	421.2	419.7	1.57	268.176		
500.0	499.5	491.2	490.7	1.0	1.0	73.58	21.7	424.7	420.7	418.6	2.06	204.411		
600.0	598.7	588.0	586.8	1.3	1.3	73.62	32.9	427.1	420.0	417.4	2.60	161.411		
700.0	697.5	687.0	684.8	1.6	1.6	73.78	46.8	430.2	418.8	415.6	3.22	130.100		
800.0	795.6	786.9	783.6	2.0	1.9	74.40	61.0	433.2	416.7	412.8	3.90	106.803		
900.0	893.1	886.5	882.2	2.4	2.2	75.51	75.2	436.3	413.8	409.2	4.65	89.047		
1,000.0	989.6	985.8	980.4	2.9	2.6	77.10	89.3	439.3	410.3	404.8	5.46	75.161		
1,100.0	1,085.3	1,084.7	1,078.3	3.5	2.9	79.20	103.3	442.4	406.3	400.0	6.34	64.114		
1,200.0	1,179.8	1,183.0	1,175.5	4.1	3.2	81.80	117.3	445.4	402.4	395.1	7.28	55.240		
1,300.0	1,273.2	1,280.5	1,272.0	4.7	3.6	84.90	131.1	448.4	398.9	390.7	8.30	48.095		
1,400.0	1,365.2	1,377.2	1,367.7	5.5	3.9	88.46	144.8	451.4	396.6	387.2	9.36	42.369		
1,486.4	1,444.0	1,460.3	1,449.9	6.1	4.2	91.73	156.6	453.9	395.9	385.6	10.30	38.434	CC	
1,500.0	1,456.4	1,473.4	1,462.9	6.2	4.2	92.27	158.5	454.3	395.9	385.5	10.45	37.897	ES	
1,600.0	1,547.6	1,569.6	1,558.0	7.0	4.6	96.08	172.2	457.3	397.1	385.6	11.51	34.496		
1,700.0	1,638.8	1,665.8	1,653.2	7.8	4.9	99.85	185.8	460.3	400.2	387.7	12.54	31.905		
1,800.0	1,730.0	1,761.9	1,748.3	8.5	5.2	103.54	199.5	463.2	405.2	391.6	13.53	29.938		
1,900.0	1,821.1	1,858.1	1,843.5	9.3	5.6	107.15	213.1	466.2	411.9	397.4	14.47	28.456		
2,000.0	1,912.3	1,954.3	1,938.6	10.1	5.9	110.63	226.8	469.1	420.2	404.9	15.36	27.357		
2,100.0	2,003.5	2,050.5	2,033.8	10.9	6.2	113.97	240.4	472.1	430.2	414.0	16.20	26.562		
2,200.0	2,094.7	2,146.6	2,128.9	11.7	6.6	117.16	254.1	475.0	441.6	424.7	16.98	26.010		
2,300.0	2,185.9	2,242.8	2,224.1	12.5	6.9	120.19	267.7	478.0	454.5	436.7	17.71	25.655		
2,400.0	2,277.1	2,339.0	2,319.2	13.3	7.2	123.05	281.4	480.9	468.5	450.1	18.40	25.458		
2,500.0	2,368.3	2,435.1	2,414.4	14.1	7.6	125.75	295.0	483.9	483.7	464.7	19.05	25.388	SF	
2,600.0	2,459.4	2,531.3	2,509.5	14.9	7.9	128.29	308.7	486.9	500.0	480.3	19.67	25.421		
2,700.0	2,550.6	2,627.5	2,604.7	15.6	8.2	130.68	322.4	489.8	517.2	496.9	20.25	25.536		
2,800.0	2,641.8	2,723.7	2,699.8	16.4	8.6	132.91	336.0	492.8	535.2	514.4	20.81	25.717		
2,900.0	2,733.0	2,819.8	2,795.0	17.2	8.9	135.00	349.7	495.7	554.0	532.7	21.35	25.951		
3,000.0	2,824.2	2,916.0	2,890.1	18.0	9.2	136.96	363.3	498.7	573.5	551.7	21.87	26.225		
3,100.0	2,915.4	3,012.2	2,985.3	18.8	9.6	138.79	377.0	501.6	593.7	571.3	22.38	26.531		
3,200.0	3,006.6	3,108.3	3,080.4	19.6	9.9	140.50	390.6	504.6	614.4	591.5	22.87	26.861		
3,300.0	3,097.7	3,204.5	3,175.6	20.4	10.2	142.10	404.3	507.6	635.6	612.2	23.36	27.208		
3,400.0	3,188.9	3,300.7	3,270.7	21.2	10.6	143.60	417.9	510.5	657.2	633.4	23.84	27.567		
3,500.0	3,280.1	3,396.9	3,365.9	22.0	10.9	145.01	431.6	513.5	679.3	655.0	24.32	27.934		
3,600.0	3,371.3	3,493.0	3,461.1	22.8	11.2	146.33	445.2	516.4	701.8	677.0	24.79	28.305		
3,700.0	3,462.5	3,589.2	3,556.2	23.6	11.6	147.57	458.9	519.4	724.5	699.3	25.27	28.677		
3,800.0	3,553.7	3,685.4	3,651.4	24.4	11.9	148.74	472.6	522.3	747.7	721.9	25.74	29.048		
3,900.0	3,644.8	3,781.5	3,746.5	25.2	12.2	149.84	486.2	525.3	771.0	744.8	26.21	29.416		
4,000.0	3,736.0	3,877.7	3,841.7	26.0	12.6	150.87	499.9	528.3	794.7	768.0	26.69	29.779		
4,100.0	3,827.2	3,973.9	3,936.8	26.8	12.9	151.84	513.5	531.2	818.5	791.4	27.16	30.137		
4,200.0	3,918.4	4,070.1	4,032.0	27.6	13.2	152.76	527.2	534.2	842.6	815.0	27.64	30.487		
4,300.0	4,009.6	4,166.2	4,127.1	28.4	13.6	153.63	540.8	537.1	866.9	838.8	28.12	30.830		
4,400.0	4,100.8	4,262.4	4,222.3	29.2	13.9	154.46	554.5	540.1	891.4	862.8	28.60	31.166		
4,500.0	4,192.0	4,358.6	4,317.4	30.0	14.2	155.24	568.1	543.0	916.0	886.9	29.09	31.492		
4,600.0	4,283.1	4,454.8	4,412.6	30.8	14.6	155.97	581.8	546.0	940.8	911.2	29.58	31.811		
4,700.0	4,374.3	4,550.9	4,507.7	31.6	14.9	156.68	595.5	548.9	965.7	935.7	30.07	32.120		
4,800.0	4,465.5	4,647.1	4,602.9	32.3	15.2	157.34	609.1	551.9	990.8	960.2	30.56	32.420		

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 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	Offset Datum

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	93.46	-25.5	421.6	422.4					
100.0	100.0	100.0	100.0	0.1	0.1	93.46	-25.5	421.6	422.4	422.1	0.22	1,879.156		
200.0	200.0	200.0	200.0	0.3	0.3	93.46	-25.5	421.6	422.4	421.7	0.67	626.385		
300.0	300.0	300.0	300.0	0.6	0.6	78.23	-25.5	421.6	422.0	420.9	1.12	375.657		
400.0	399.8	399.8	399.8	0.8	0.8	78.95	-25.5	421.6	421.0	419.4	1.58	266.701		
500.0	499.5	499.5	499.5	1.0	1.0	80.14	-25.5	421.6	419.4	417.3	2.05	204.421		
600.0	598.7	598.7	598.7	1.3	1.2	81.82	-25.5	421.6	417.5	414.9	2.55	163.401		
700.0	697.5	697.5	697.5	1.6	1.5	83.96	-25.5	421.6	415.5	412.4	3.10	134.089		
800.0	795.6	795.6	795.6	2.0	1.7	86.58	-25.5	421.6	413.9	410.2	3.69	112.135		
900.0	893.1	893.1	893.1	2.4	1.9	89.63	-25.5	421.6	413.1	408.8	4.34	95.272		
911.4	904.1	904.1	904.1	2.5	1.9	90.00	-25.5	421.6	413.1	408.7	4.42	93.547 CC, ES		
1,000.0	989.6	989.6	989.6	2.9	2.1	93.08	-25.5	421.6	413.8	408.7	5.03	82.182		
1,100.0	1,085.3	1,085.3	1,085.3	3.5	2.3	96.87	-25.5	421.6	416.4	410.6	5.78	72.018		
1,200.0	1,179.8	1,179.8	1,179.8	4.1	2.5	100.93	-25.5	421.6	421.8	415.2	6.57	64.195		
1,300.0	1,273.2	1,275.5	1,275.5	4.7	2.8	105.15	-24.6	421.9	430.2	422.8	7.39	58.216		
1,400.0	1,365.2	1,372.7	1,372.6	5.5	3.0	109.23	-20.6	423.4	441.5	433.3	8.23	53.633		
1,500.0	1,456.4	1,471.6	1,471.2	6.2	3.2	113.20	-13.4	426.0	455.0	446.0	9.08	50.121		
1,600.0	1,547.6	1,572.9	1,571.8	7.0	3.4	116.67	-2.7	429.8	469.3	459.4	9.91	47.339		
1,700.0	1,638.8	1,670.3	1,668.3	7.8	3.7	119.56	9.8	434.4	484.0	473.2	10.73	45.084		
1,800.0	1,730.0	1,766.3	1,763.4	8.5	3.9	122.24	22.2	438.9	499.8	488.2	11.54	43.317		
1,900.0	1,821.1	1,862.2	1,858.4	9.3	4.2	124.75	34.7	443.4	516.6	504.3	12.32	41.939		
2,000.0	1,912.3	1,958.2	1,953.5	10.1	4.5	127.10	47.1	447.9	534.5	521.4	13.08	40.872		
2,100.0	2,003.5	2,054.1	2,048.5	10.9	4.7	129.31	59.5	452.4	553.1	539.3	13.81	40.041		
2,200.0	2,094.7	2,150.1	2,143.5	11.7	5.0	131.38	71.9	456.9	572.6	558.1	14.53	39.406		
2,300.0	2,185.9	2,246.0	2,238.6	12.5	5.3	133.32	84.3	461.4	592.8	577.5	15.23	38.926		
2,400.0	2,277.1	2,342.0	2,333.6	13.3	5.6	135.13	96.8	465.8	613.5	597.6	15.91	38.570		
2,500.0	2,368.3	2,437.9	2,428.6	14.1	5.9	136.82	109.2	470.3	634.9	618.3	16.57	38.314		
2,600.0	2,459.4	2,533.9	2,523.7	14.9	6.2	138.41	121.6	474.8	656.8	639.6	17.22	38.139		
2,700.0	2,550.6	2,629.8	2,618.7	15.6	6.5	139.89	134.0	479.3	679.1	661.3	17.86	38.030		
2,800.0	2,641.8	2,725.8	2,713.8	16.4	6.8	141.29	146.4	483.8	701.9	683.4	18.48	37.974		
2,900.0	2,733.0	2,821.7	2,808.8	17.2	7.1	142.60	158.9	488.3	725.0	705.9	19.10	37.961 SF		
3,000.0	2,824.2	2,917.7	2,903.8	18.0	7.4	143.82	171.3	492.8	748.5	728.8	19.71	37.983		
3,100.0	2,915.4	3,013.6	2,998.9	18.8	7.7	144.98	183.7	497.3	772.3	752.0	20.31	38.032		
3,200.0	3,006.6	3,109.6	3,093.9	19.6	8.0	146.07	196.1	501.8	796.4	775.5	20.90	38.104		
3,300.0	3,097.7	3,205.5	3,188.9	20.4	8.3	147.09	208.6	506.3	820.7	799.2	21.49	38.194		
3,400.0	3,188.9	3,301.5	3,284.0	21.2	8.7	148.06	221.0	510.8	845.3	823.2	22.07	38.297		
3,500.0	3,280.1	3,397.4	3,379.0	22.0	9.0	148.97	233.4	515.3	870.1	847.4	22.65	38.412		
3,600.0	3,371.3	3,493.4	3,474.1	22.8	9.3	149.83	245.8	519.8	895.1	871.8	23.23	38.535		
3,700.0	3,462.5	3,589.3	3,569.1	23.6	9.6	150.65	258.2	524.3	920.2	896.4	23.80	38.664		
3,800.0	3,553.7	3,685.3	3,664.1	24.4	9.9	151.42	270.7	528.8	945.6	921.2	24.37	38.798		
3,900.0	3,644.8	3,781.2	3,759.2	25.2	10.2	152.16	283.1	533.3	971.1	946.1	24.94	38.935		
4,000.0	3,736.0	3,877.2	3,854.2	26.0	10.5	152.85	295.5	537.8	996.7	971.2	25.51	39.074		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5166.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5166.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7W-304	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 (9-19-14)	Offset TVD Reference:	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	97.38	-54.6	421.6	425.1					
100.0	100.0	100.0	100.0	0.1	0.1	97.38	-54.6	421.6	425.1	424.9	0.22	1,891.414		
200.0	200.0	200.0	200.0	0.3	0.3	97.38	-54.6	421.6	425.1	424.5	0.67	630.471		
300.0	300.0	300.0	300.0	0.6	0.6	82.15	-54.6	421.6	424.9	423.8	1.12	378.270		
400.0	399.8	399.8	399.8	0.8	0.8	82.86	-54.6	421.6	424.2	422.6	1.58	268.784		
500.0	499.5	499.5	499.5	1.0	1.0	84.05	-54.6	421.6	423.2	421.2	2.05	206.270		
600.0	598.7	598.7	598.7	1.3	1.2	85.70	-54.6	421.6	422.1	419.6	2.56	165.167		
700.0	697.5	697.5	697.5	1.6	1.5	87.82	-54.6	421.6	421.2	418.1	3.10	135.868		
786.4	782.3	782.3	782.3	2.0	1.6	90.00	-54.6	421.6	420.9	417.3	3.61	116.538 CC		
800.0	795.6	795.6	795.6	2.0	1.7	90.37	-54.6	421.6	420.9	417.2	3.69	113.994 ES		
900.0	893.1	893.1	893.1	2.4	1.9	93.34	-54.6	421.6	421.7	417.3	4.34	97.254		
1,000.0	989.6	989.6	989.6	2.9	2.1	96.67	-54.6	421.6	424.0	419.0	5.03	84.306		
1,100.0	1,085.3	1,085.3	1,085.3	3.5	2.3	100.30	-54.6	421.6	428.5	422.7	5.77	74.286		
1,200.0	1,179.8	1,179.8	1,179.8	4.1	2.5	104.16	-54.6	421.6	435.8	429.3	6.54	66.591		
1,300.0	1,273.2	1,273.2	1,273.2	4.7	2.7	108.15	-54.6	421.6	446.4	439.1	7.35	60.775		
1,400.0	1,365.2	1,365.2	1,365.2	5.5	3.0	112.18	-54.6	421.6	460.9	452.8	8.16	56.490		
1,500.0	1,456.4	1,456.4	1,456.4	6.2	3.2	116.38	-54.6	421.6	479.1	470.2	8.96	53.491		
1,600.0	1,547.6	1,547.6	1,547.6	7.0	3.4	120.32	-54.6	421.6	500.0	490.3	9.71	51.480		
1,700.0	1,638.8	1,638.8	1,638.8	7.8	3.6	123.97	-54.6	421.6	523.3	512.9	10.43	50.184		
1,800.0	1,730.0	1,730.0	1,730.0	8.5	3.8	127.33	-54.6	421.6	548.7	537.6	11.11	49.410		
1,900.0	1,821.1	1,821.1	1,821.1	9.3	4.0	130.42	-54.6	421.6	575.9	564.2	11.75	49.020		
2,000.0	1,912.3	1,912.3	1,912.3	10.1	4.2	133.25	-54.6	421.6	604.7	592.3	12.36	48.913 SF		
2,100.0	2,003.5	2,003.5	2,003.5	10.9	4.4	135.83	-54.6	421.6	634.8	621.9	12.95	49.013		
2,200.0	2,094.7	2,094.7	2,094.7	11.7	4.6	138.20	-54.6	421.6	666.1	652.6	13.52	49.265		
2,300.0	2,185.9	2,185.9	2,185.9	12.5	4.8	140.37	-54.6	421.6	698.4	684.3	14.07	49.626		
2,400.0	2,277.1	2,277.1	2,277.1	13.3	5.0	142.35	-54.6	421.6	731.6	717.0	14.61	50.067		
2,500.0	2,368.3	2,368.3	2,368.3	14.1	5.2	144.18	-54.6	421.6	765.5	750.4	15.14	50.561		
2,600.0	2,459.4	2,459.4	2,459.4	14.9	5.4	145.85	-54.6	421.6	800.1	784.5	15.66	51.091		
2,700.0	2,550.6	2,550.6	2,550.6	15.6	5.6	147.48	-54.2	422.0	835.1	818.9	16.18	51.623		
2,800.0	2,641.8	2,641.8	2,641.8	16.4	5.9	148.88	-51.4	425.2	869.1	852.3	16.71	51.996		
2,900.0	2,733.0	2,733.0	2,733.0	17.2	6.1	149.96	-45.7	431.4	901.6	884.3	17.29	52.147		
3,000.0	2,824.2	2,824.2	2,824.2	18.0	6.4	150.70	-37.5	440.4	932.6	914.7	17.90	52.087		
3,100.0	2,915.4	2,915.4	2,915.4	18.8	6.6	151.27	-29.7	449.1	963.2	944.7	18.53	51.995		
3,200.0	3,006.6	3,006.6	3,006.6	19.6	6.8	151.79	-21.8	457.8	993.9	974.8	19.15	51.909		

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Reference Wellbore	Wellbore #1	Database:	landmark
Reference Design:	Plan #1 (9-19-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5166.0ft (RKB - 15')

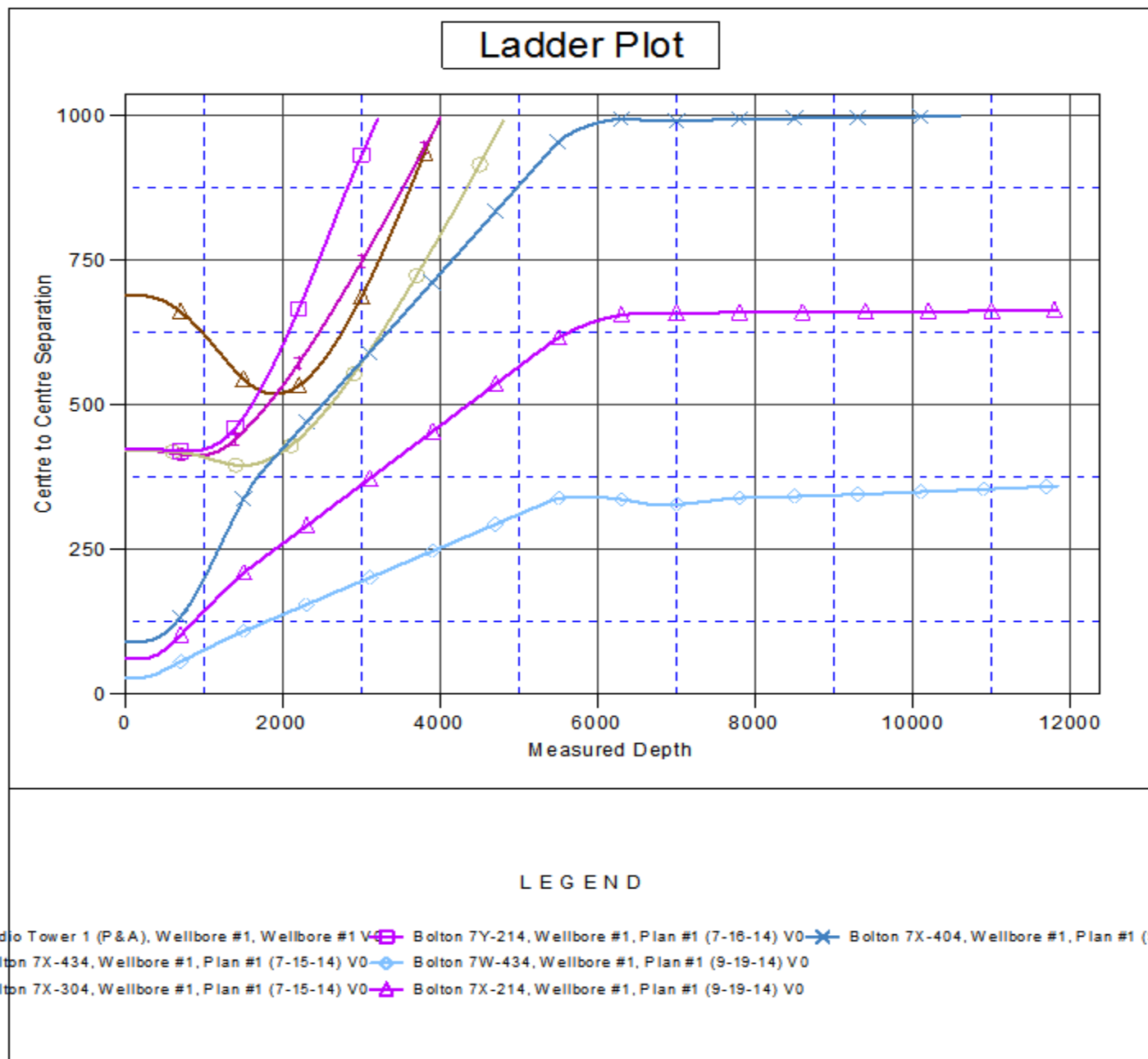
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bolton 7W-304

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.30°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7W-304
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