

PETROLEUM DEVELOPMENT CORP Weld County CO

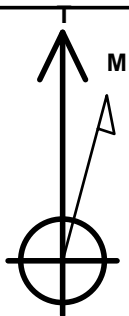
Well Name: **Bolton 7X-214**

Surface Location: Bolton 3N68W7TY Pad Sec.7-T3N-R68W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 5149.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1328379.40	3128791.06	40.233880	-105.038700	
RKB - 15' WELL @ 5164.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 340'FSL & 631'FEL	1.0	0.0	0.0	Point
BHL 1866'FSL & 500'FWL	6908.0	1472.1	-4039.9	Point



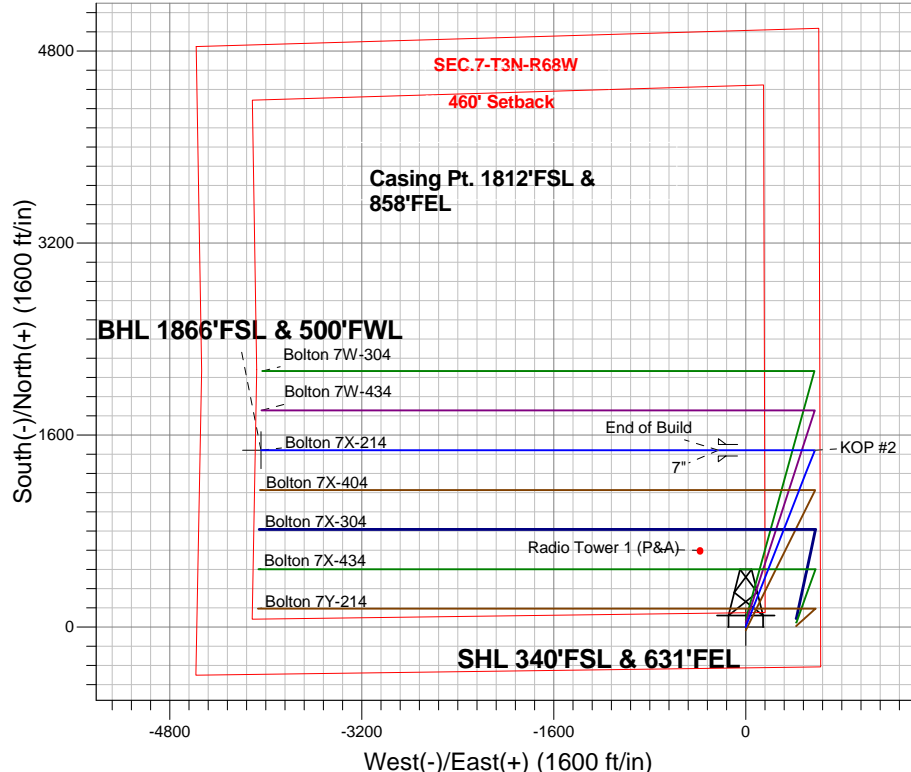
Azimuths to True North
Magnetic North: 8.56°

Magnetic Field
Strength: 52668.9srT
Dip Angle: 66.76°
Date: 9/19/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
600.0	600.0	KOP #1
6336.2	6580.4	KOP #2
7099.2	7818.6	End of Build

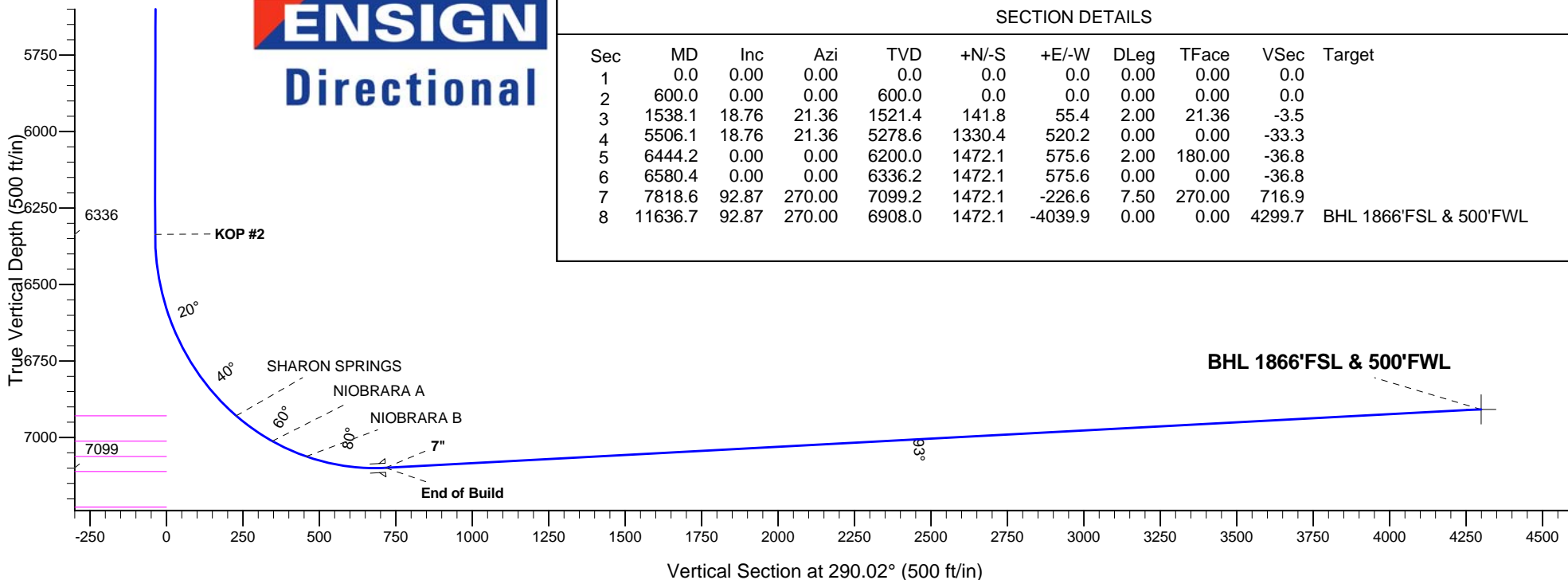
Bolton 3N68W7TY Pad Sec.7-T3N-R68W
Bolton 7X-214
Plan #1 (9-19-14)



ENSIGN
Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1538.1	18.76	21.36	1521.4	141.8	55.4	2.00	21.36	-3.5	
4	5506.1	18.76	21.36	5278.6	1330.4	520.2	0.00	0.00	-33.3	
5	6444.2	0.00	0.00	6200.0	1472.1	575.6	2.00	180.00	-36.8	
6	6580.4	0.00	0.00	6336.2	1472.1	575.6	0.00	0.00	-36.8	
7	7818.6	92.87	270.00	7099.2	1472.1	-226.6	7.50	270.00	716.9	
8	11636.7	92.87	270.00	6908.0	1472.1	-4039.9	0.00	0.00	4299.7	BHL 1866'FSL & 500'FWL





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T3N-R68W

Bolton 3N68W7TY Pad Sec.7-T3N-R68W

Bolton 7X-214

Wellbore #1

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

Standard Planning Report

23 September, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7X-214
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7X-214	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 7X-214					
Well Position	+N-S	-61.9 ft	Northing:	1,328,379.40 ft	Latitude:	40.233880
	+E-W	0.0 ft	Easting:	3,128,791.06 ft	Longitude:	-105.038700
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,149.0 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	290.02

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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,538.1	18.76	21.36	1,521.4	141.8	55.4	2.00	2.00	0.00	21.36	
5,506.1	18.76	21.36	5,278.6	1,330.4	520.2	0.00	0.00	0.00	0.00	
6,444.2	0.00	0.00	6,200.0	1,472.1	575.6	2.00	-2.00	0.00	180.00	
6,580.4	0.00	0.00	6,336.2	1,472.1	575.6	0.00	0.00	0.00	0.00	
7,818.6	92.87	270.00	7,099.2	1,472.1	-226.6	7.50	7.50	0.00	270.00	
11,636.7	92.87	270.00	6,908.0	1,472.1	-4,039.9	0.00	0.00	0.00	0.00	BHL 1866'FSL & 5C

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7X-214
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7X-214	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
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
KOP #1									
700.0	2.00	21.36	700.0	1.6	0.6	0.0	2.00	2.00	0.00
800.0	4.00	21.36	799.8	6.5	2.5	-0.2	2.00	2.00	0.00
900.0	6.00	21.36	899.5	14.6	5.7	-0.4	2.00	2.00	0.00
1,000.0	8.00	21.36	998.7	26.0	10.2	-0.6	2.00	2.00	0.00
1,100.0	10.00	21.36	1,097.5	40.5	15.8	-1.0	2.00	2.00	0.00
1,200.0	12.00	21.36	1,195.6	58.3	22.8	-1.5	2.00	2.00	0.00
1,300.0	14.00	21.36	1,293.1	79.3	31.0	-2.0	2.00	2.00	0.00
1,400.0	16.00	21.36	1,389.6	103.4	40.4	-2.6	2.00	2.00	0.00
1,500.0	18.00	21.36	1,485.3	130.6	51.1	-3.3	2.00	2.00	0.00
1,538.1	18.76	21.36	1,521.4	141.8	55.4	-3.5	2.00	2.00	0.00
1,600.0	18.76	21.36	1,580.0	160.3	62.7	-4.0	0.00	0.00	0.00
1,700.0	18.76	21.36	1,674.7	190.3	74.4	-4.8	0.00	0.00	0.00
1,800.0	18.76	21.36	1,769.4	220.2	86.1	-5.5	0.00	0.00	0.00
1,900.0	18.76	21.36	1,864.1	250.2	97.8	-6.3	0.00	0.00	0.00
2,000.0	18.76	21.36	1,958.8	280.1	109.5	-7.0	0.00	0.00	0.00
2,100.0	18.76	21.36	2,053.5	310.1	121.2	-7.8	0.00	0.00	0.00
2,200.0	18.76	21.36	2,148.2	340.0	133.0	-8.5	0.00	0.00	0.00
2,300.0	18.76	21.36	2,242.8	370.0	144.7	-9.2	0.00	0.00	0.00
2,400.0	18.76	21.36	2,337.5	399.9	156.4	-10.0	0.00	0.00	0.00
2,500.0	18.76	21.36	2,432.2	429.9	168.1	-10.7	0.00	0.00	0.00
2,600.0	18.76	21.36	2,526.9	459.9	179.8	-11.5	0.00	0.00	0.00
2,700.0	18.76	21.36	2,621.6	489.8	191.5	-12.2	0.00	0.00	0.00
2,800.0	18.76	21.36	2,716.3	519.8	203.2	-13.0	0.00	0.00	0.00
2,900.0	18.76	21.36	2,811.0	549.7	214.9	-13.7	0.00	0.00	0.00
3,000.0	18.76	21.36	2,905.7	579.7	226.7	-14.5	0.00	0.00	0.00
3,100.0	18.76	21.36	3,000.3	609.6	238.4	-15.2	0.00	0.00	0.00
3,200.0	18.76	21.36	3,095.0	639.6	250.1	-16.0	0.00	0.00	0.00
3,300.0	18.76	21.36	3,189.7	669.5	261.8	-16.7	0.00	0.00	0.00
3,400.0	18.76	21.36	3,284.4	699.5	273.5	-17.5	0.00	0.00	0.00
3,500.0	18.76	21.36	3,379.1	729.4	285.2	-18.2	0.00	0.00	0.00
3,554.8	18.76	21.36	3,431.0	745.9	291.6	-18.6	0.00	0.00	0.00
PARKMAN									
3,600.0	18.76	21.36	3,473.8	759.4	296.9	-19.0	0.00	0.00	0.00
3,700.0	18.76	21.36	3,568.5	789.3	308.6	-19.7	0.00	0.00	0.00
3,800.0	18.76	21.36	3,663.1	819.3	320.3	-20.5	0.00	0.00	0.00
3,900.0	18.76	21.36	3,757.8	849.3	332.1	-21.2	0.00	0.00	0.00
3,997.3	18.76	21.36	3,850.0	878.4	343.5	-22.0	0.00	0.00	0.00
SUSSEX									
4,000.0	18.76	21.36	3,852.5	879.2	343.8	-22.0	0.00	0.00	0.00
4,100.0	18.76	21.36	3,947.2	909.2	355.5	-22.7	0.00	0.00	0.00
4,200.0	18.76	21.36	4,041.9	939.1	367.2	-23.5	0.00	0.00	0.00
4,300.0	18.76	21.36	4,136.6	969.1	378.9	-24.2	0.00	0.00	0.00
4,400.0	18.76	21.36	4,231.3	999.0	390.6	-25.0	0.00	0.00	0.00
4,500.0	18.76	21.36	4,326.0	1,029.0	402.3	-25.7	0.00	0.00	0.00
4,600.0	18.76	21.36	4,420.6	1,058.9	414.0	-26.5	0.00	0.00	0.00

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Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7X-214	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)
4,604.6	18.76	21.36	4,425.0	1,060.3	414.6	-26.5	0.00	0.00	0.00
SHANNON									
4,700.0	18.76	21.36	4,515.3	1,088.9	425.8	-27.2	0.00	0.00	0.00
4,800.0	18.76	21.36	4,610.0	1,118.8	437.5	-28.0	0.00	0.00	0.00
4,900.0	18.76	21.36	4,704.7	1,148.8	449.2	-28.7	0.00	0.00	0.00
5,000.0	18.76	21.36	4,799.4	1,178.8	460.9	-29.5	0.00	0.00	0.00
5,100.0	18.76	21.36	4,894.1	1,208.7	472.6	-30.2	0.00	0.00	0.00
5,200.0	18.76	21.36	4,988.8	1,238.7	484.3	-31.0	0.00	0.00	0.00
5,300.0	18.76	21.36	5,083.4	1,268.6	496.0	-31.7	0.00	0.00	0.00
5,400.0	18.76	21.36	5,178.1	1,298.6	507.7	-32.5	0.00	0.00	0.00
5,500.0	18.76	21.36	5,272.8	1,328.5	519.5	-33.2	0.00	0.00	0.00
5,506.1	18.76	21.36	5,278.6	1,330.4	520.2	-33.3	0.00	0.00	0.00
5,600.0	16.88	21.36	5,368.0	1,357.1	530.6	-33.9	2.00	-2.00	0.00
5,700.0	14.88	21.36	5,464.2	1,382.6	540.6	-34.6	2.00	-2.00	0.00
5,800.0	12.88	21.36	5,561.2	1,404.9	549.3	-35.1	2.00	-2.00	0.00
5,900.0	10.88	21.36	5,659.1	1,424.1	556.8	-35.6	2.00	-2.00	0.00
6,000.0	8.88	21.36	5,757.6	1,440.1	563.1	-36.0	2.00	-2.00	0.00
6,100.0	6.88	21.36	5,856.6	1,452.9	568.1	-36.3	2.00	-2.00	0.00
6,200.0	4.88	21.36	5,956.1	1,462.4	571.8	-36.6	2.00	-2.00	0.00
6,300.0	2.88	21.36	6,055.9	1,468.7	574.3	-36.7	2.00	-2.00	0.00
6,400.0	0.88	21.36	6,155.8	1,471.8	575.5	-36.8	2.00	-2.00	0.00
6,444.2	0.00	0.00	6,200.0	1,472.1	575.6	-36.8	2.00	-2.00	0.00
6,500.0	0.00	0.00	6,255.8	1,472.1	575.6	-36.8	0.00	0.00	0.00
6,580.4	0.00	0.00	6,336.2	1,472.1	575.6	-36.8	0.00	0.00	0.00
KOP #2									
6,600.0	1.47	270.00	6,355.8	1,472.1	575.3	-36.6	7.51	7.51	0.00
6,700.0	8.97	270.00	6,455.3	1,472.1	566.3	-28.0	7.50	7.50	0.00
6,800.0	16.47	270.00	6,552.8	1,472.1	544.2	-7.3	7.50	7.50	0.00
6,900.0	23.97	270.00	6,646.6	1,472.1	509.7	25.1	7.50	7.50	0.00
7,000.0	31.47	270.00	6,735.0	1,472.1	463.2	68.8	7.50	7.50	0.00
7,100.0	38.97	270.00	6,816.7	1,472.1	405.6	122.9	7.50	7.50	0.00
7,200.0	46.47	270.00	6,890.1	1,472.1	337.8	186.6	7.50	7.50	0.00
7,259.0	50.90	270.00	6,929.0	1,472.1	293.5	228.2	7.50	7.50	0.00
SHARON SPRINGS									
7,300.0	53.97	270.00	6,954.0	1,472.1	261.0	258.8	7.50	7.50	0.00
7,400.0	61.47	270.00	7,007.4	1,472.1	176.5	338.2	7.50	7.50	0.00
7,409.8	62.21	270.00	7,012.0	1,472.1	167.9	346.3	7.50	7.50	0.00
NIOBRARA A									
7,500.0	68.97	270.00	7,049.3	1,472.1	85.8	423.4	7.50	7.50	0.00
7,538.0	71.82	270.00	7,062.0	1,472.1	50.0	457.1	7.50	7.50	0.00
NIOBRARA B									
7,600.0	76.47	270.00	7,078.9	1,472.1	-9.7	513.1	7.50	7.50	0.00
7,700.0	83.97	270.00	7,095.9	1,472.1	-108.1	605.6	7.50	7.50	0.00
7,800.0	91.47	270.00	7,099.9	1,472.1	-208.0	699.4	7.50	7.50	0.00
7,818.6	92.87	270.00	7,099.2	1,472.1	-226.6	716.9	7.50	7.50	0.00
End of Build - 7"									
7,900.0	92.87	270.00	7,095.1	1,472.1	-307.9	793.3	0.00	0.00	0.00
8,000.0	92.87	270.00	7,090.1	1,472.1	-407.7	887.1	0.00	0.00	0.00
8,100.0	92.87	270.00	7,085.1	1,472.1	-507.6	980.9	0.00	0.00	0.00
8,200.0	92.87	270.00	7,080.1	1,472.1	-607.5	1,074.8	0.00	0.00	0.00
8,300.0	92.87	270.00	7,075.1	1,472.1	-707.4	1,168.6	0.00	0.00	0.00
8,400.0	92.87	270.00	7,070.1	1,472.1	-807.2	1,262.5	0.00	0.00	0.00

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Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7X-214	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)
8,500.0	92.87	270.00	7,065.1	1,472.1	-907.1	1,356.3	0.00	0.00	0.00
8,600.0	92.87	270.00	7,060.0	1,472.1	-1,007.0	1,450.1	0.00	0.00	0.00
8,700.0	92.87	270.00	7,055.0	1,472.1	-1,106.9	1,544.0	0.00	0.00	0.00
8,800.0	92.87	270.00	7,050.0	1,472.1	-1,206.7	1,637.8	0.00	0.00	0.00
8,900.0	92.87	270.00	7,045.0	1,472.1	-1,306.6	1,731.7	0.00	0.00	0.00
9,000.0	92.87	270.00	7,040.0	1,472.1	-1,406.5	1,825.5	0.00	0.00	0.00
9,100.0	92.87	270.00	7,035.0	1,472.1	-1,506.4	1,919.3	0.00	0.00	0.00
9,200.0	92.87	270.00	7,030.0	1,472.1	-1,606.2	2,013.2	0.00	0.00	0.00
9,300.0	92.87	270.00	7,025.0	1,472.1	-1,706.1	2,107.0	0.00	0.00	0.00
9,400.0	92.87	270.00	7,020.0	1,472.1	-1,806.0	2,200.9	0.00	0.00	0.00
9,500.0	92.87	270.00	7,015.0	1,472.1	-1,905.9	2,294.7	0.00	0.00	0.00
9,600.0	92.87	270.00	7,010.0	1,472.1	-2,005.7	2,388.5	0.00	0.00	0.00
9,700.0	92.87	270.00	7,005.0	1,472.1	-2,105.6	2,482.4	0.00	0.00	0.00
9,800.0	92.87	270.00	7,000.0	1,472.1	-2,205.5	2,576.2	0.00	0.00	0.00
9,900.0	92.87	270.00	6,995.0	1,472.1	-2,305.4	2,670.0	0.00	0.00	0.00
10,000.0	92.87	270.00	6,989.9	1,472.1	-2,405.2	2,763.9	0.00	0.00	0.00
10,100.0	92.87	270.00	6,984.9	1,472.1	-2,505.1	2,857.7	0.00	0.00	0.00
10,200.0	92.87	270.00	6,979.9	1,472.1	-2,605.0	2,951.6	0.00	0.00	0.00
10,300.0	92.87	270.00	6,974.9	1,472.1	-2,704.9	3,045.4	0.00	0.00	0.00
10,400.0	92.87	270.00	6,969.9	1,472.1	-2,804.7	3,139.2	0.00	0.00	0.00
10,500.0	92.87	270.00	6,964.9	1,472.1	-2,904.6	3,233.1	0.00	0.00	0.00
10,600.0	92.87	270.00	6,959.9	1,472.1	-3,004.5	3,326.9	0.00	0.00	0.00
10,700.0	92.87	270.00	6,954.9	1,472.1	-3,104.4	3,420.8	0.00	0.00	0.00
10,800.0	92.87	270.00	6,949.9	1,472.1	-3,204.2	3,514.6	0.00	0.00	0.00
10,900.0	92.87	270.00	6,944.9	1,472.1	-3,304.1	3,608.4	0.00	0.00	0.00
11,000.0	92.87	270.00	6,939.9	1,472.1	-3,404.0	3,702.3	0.00	0.00	0.00
11,100.0	92.87	270.00	6,934.9	1,472.1	-3,503.8	3,796.1	0.00	0.00	0.00
11,200.0	92.87	270.00	6,929.9	1,472.1	-3,603.7	3,889.9	0.00	0.00	0.00
11,300.0	92.87	270.00	6,924.9	1,472.1	-3,703.6	3,983.8	0.00	0.00	0.00
11,400.0	92.87	270.00	6,919.9	1,472.1	-3,803.5	4,077.6	0.00	0.00	0.00
11,500.0	92.87	270.00	6,914.8	1,472.1	-3,903.3	4,171.5	0.00	0.00	0.00
11,600.0	92.87	270.00	6,909.8	1,472.1	-4,003.2	4,265.3	0.00	0.00	0.00
11,636.7	92.87	270.00	6,908.0	1,472.1	-4,039.9	4,299.7	0.00	0.00	0.00

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 1866'FSL & 500'I - plan hits target - Point	0.00	0.00	6,908.0	1,472.1	-4,039.9	1,329,830.41	3,124,743.78	40.237920	-105.053170
SHL 340'FSL & 631'F - plan hits target - Point	0.00	0.00	1.0	0.0	0.0	1,328,379.40	3,128,791.06	40.233880	-105.038700

Database:	landmark	Local Co-ordinate Reference:	Well Bolton 7X-214
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Project:	SEC.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	North Reference:	True
Well:	Bolton 7X-214	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 (")
7,818.6	7,099.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,554.8	3,431.0	PARKMAN		0.00	
3,997.3	3,850.0	SUSSEX		0.00	
4,604.6	4,425.0	SHANNON		0.00	
7,259.0	6,929.0	SHARON SPRINGS		0.00	
7,409.8	7,012.0	NIOBRARA A		0.00	
7,538.0	7,062.0	NIOBRARA B		0.00	
	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)	
600.0	600.0	0.0	0.0	KOP #1
6,580.4	6,336.2	1,472.1	575.6	KOP #2
7,818.6	7,099.2	1,472.1	-226.6	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T3N-R68W

Bolton 3N68W7TY Pad Sec.7-T3N-R68W

Bolton 7X-214

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	9/23/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,636.7	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)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bolton 3N68W7TY Pad Sec.7-T3N-R68W						
Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)	166.0	168.0	61.9	61.4	117.757	CC
Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)	200.0	202.0	61.9	61.2	91.239	ES
Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)	11,636.7	11,843.4	664.2	421.6	2.738	SF
Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)	366.3	367.3	32.8	31.4	23.021	CC
Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)	400.0	401.0	32.8	31.2	20.810	ES
Bolton 7W-434 - Wellbore #1 - Plan #1 (9-19-14)	11,636.7	11,838.3	403.0	201.6	2.001	SF
Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)	600.0	599.0	29.1	26.7	11.800	CC, ES
Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)	11,636.7	11,705.9	404.1	193.9	1.922	SF
Existings Sec.7-T3N-R68W						
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	2,481.0	2,404.2	585.8	527.7	10.087	CC
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	2,600.0	2,516.9	587.0	526.0	9.616	ES
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	8,000.0	7,080.1	835.1	665.5	4.926	SF
PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	2,982.6	2,930.7	311.7	289.5	14.040	CC
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	3,100.0	3,046.2	312.5	289.3	13.495	ES
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	11,636.7	11,498.4	664.1	415.8	2.675	SF
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	1,851.7	1,826.1	378.0	367.7	36.968	CC
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	1,900.0	1,873.5	378.1	367.4	35.524	ES
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	7,900.0	7,831.6	999.9	946.8	18.821	SF
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	1,564.2	1,548.2	390.0	382.2	49.831	CC
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	1,600.0	1,582.0	390.2	382.1	48.168	ES
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	4,300.0	4,203.0	856.3	831.1	33.932	SF

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)										Offset Site Error:	0.0ft
Survey Program: 0-MWD										Offset Well Error:	0.0ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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)	Separation Factor
0.0	0.0	2.0	2.0	0.0	0.0	0.00	61.9	0.0	61.9	61.9	0.00
100.0	100.0	102.0	102.0	0.1	0.1	0.00	61.9	0.0	61.9	61.7	0.23
166.0	166.0	168.0	168.0	0.3	0.3	0.00	61.9	0.0	61.9	61.4	0.53
200.0	200.0	202.0	202.0	0.3	0.3	0.00	61.9	0.0	61.9	61.2	0.68
											117.757 CC
											91.239 ES

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-304 - 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	
300.0	300.0	300.0	300.0	0.6	0.6	0.42	63.6	0.5	63.6	62.5	1.13	56.553		
400.0	400.0	397.6	397.4	0.8	0.8	1.52	68.5	1.8	68.7	67.1	1.58	43.477		
500.0	500.0	494.8	494.3	1.0	1.0	3.02	76.5	4.0	77.0	75.0	2.04	37.739		
600.0	600.0	591.3	590.1	1.2	1.3	4.64	87.6	7.1	88.7	86.2	2.51	35.327		
700.0	700.0	687.3	684.9	1.5	1.6	-15.35	101.8	11.0	102.1	99.2	2.95	34.564		
800.0	799.8	782.8	778.8	1.7	2.0	-14.48	118.9	15.8	115.5	112.1	3.41	33.833		
900.0	899.5	877.9	871.6	1.9	2.3	-13.94	138.9	21.3	128.7	124.9	3.88	33.183		
1,000.0	998.7	972.6	963.2	2.2	2.8	-13.64	161.7	27.6	141.9	137.5	4.36	32.564		
1,100.0	1,097.5	1,066.9	1,053.7	2.5	3.3	-13.51	187.4	34.7	155.0	150.1	4.85	31.948		
1,200.0	1,195.6	1,160.8	1,142.9	2.8	3.8	-13.52	215.8	42.6	167.9	162.5	5.36	31.316		
1,300.0	1,293.1	1,254.3	1,230.7	3.2	4.4	-13.63	246.8	51.2	180.6	174.7	5.89	30.644		
1,400.0	1,389.6	1,347.5	1,317.1	3.6	5.1	-13.82	280.5	60.5	193.2	186.8	6.43	30.031		
1,500.0	1,485.3	1,442.4	1,403.9	4.1	5.8	-14.10	317.4	70.7	205.5	198.5	7.03	29.229		
1,600.0	1,580.0	1,541.8	1,494.5	4.7	6.5	-14.54	356.7	81.6	215.8	208.2	7.68	28.096		
1,700.0	1,674.7	1,641.3	1,585.3	5.2	7.3	-14.98	396.1	92.5	225.9	217.6	8.37	27.008		
1,800.0	1,769.4	1,740.8	1,676.0	5.8	8.1	-15.38	435.4	103.4	236.1	227.0	9.06	26.044		
1,900.0	1,864.1	1,840.2	1,766.7	6.4	8.9	-15.75	474.8	114.3	246.2	236.4	9.77	25.187		
2,000.0	1,958.8	1,939.7	1,857.4	7.0	9.6	-16.09	514.1	125.2	256.3	245.8	10.50	24.422		
2,100.0	2,053.5	2,039.2	1,948.1	7.6	10.4	-16.40	553.5	136.1	266.5	255.2	11.23	23.737		
2,200.0	2,148.2	2,138.7	2,038.8	8.2	11.2	-16.69	592.9	146.9	276.6	264.7	11.96	23.121		
2,300.0	2,242.8	2,238.1	2,129.5	8.9	12.0	-16.96	632.2	157.8	286.8	274.1	12.71	22.565		
2,400.0	2,337.5	2,337.6	2,220.2	9.5	12.8	-17.21	671.6	168.7	296.9	283.5	13.46	22.061		
2,500.0	2,432.2	2,437.1	2,310.9	10.1	13.6	-17.45	710.9	179.6	307.1	292.9	14.22	21.603		
2,600.0	2,526.9	2,536.6	2,401.6	10.7	14.4	-17.67	750.3	190.5	317.3	302.3	14.98	21.184		
2,700.0	2,621.6	2,636.0	2,492.3	11.4	15.1	-17.87	789.6	201.4	327.5	311.7	15.74	20.801		
2,800.0	2,716.3	2,735.5	2,583.0	12.0	15.9	-18.06	829.0	212.3	337.7	321.1	16.51	20.448		
2,900.0	2,811.0	2,835.0	2,673.7	12.6	16.7	-18.25	868.4	223.2	347.8	330.6	17.29	20.123		
3,000.0	2,905.7	2,934.5	2,764.4	13.3	17.5	-18.42	907.7	234.1	358.0	340.0	18.06	19.823		
3,100.0	3,000.3	3,033.9	2,855.1	13.9	18.3	-18.58	947.1	245.0	368.2	349.4	18.84	19.545		
3,200.0	3,095.0	3,133.4	2,945.8	14.5	19.1	-18.73	986.4	255.9	378.4	358.8	19.62	19.286		
3,300.0	3,189.7	3,232.9	3,036.5	15.1	19.9	-18.88	1,025.8	266.8	388.6	368.2	20.40	19.045		
3,400.0	3,284.4	3,332.4	3,127.2	15.8	20.7	-19.02	1,065.1	277.7	398.8	377.6	21.19	18.820		
3,500.0	3,379.1	3,431.8	3,217.9	16.4	21.5	-19.15	1,104.5	288.6	409.0	387.0	21.98	18.610		
3,600.0	3,473.8	3,531.3	3,308.7	17.0	22.2	-19.27	1,143.9	299.4	419.2	396.5	22.77	18.413		
3,700.0	3,568.5	3,630.8	3,399.4	17.7	23.0	-19.39	1,183.2	310.3	429.4	405.9	23.56	18.227		
3,800.0	3,663.1	3,730.2	3,490.1	18.3	23.8	-19.51	1,222.6	321.2	439.6	415.3	24.35	18.053		
3,900.0	3,757.8	3,829.7	3,580.8	19.0	24.6	-19.61	1,261.9	332.1	449.8	424.7	25.15	17.889		
4,000.0	3,852.5	3,929.2	3,671.5	19.6	25.4	-19.72	1,301.3	343.0	460.1	434.1	25.94	17.733		
4,100.0	3,947.2	4,028.7	3,762.2	20.2	26.2	-19.82	1,340.6	353.9	470.3	443.5	26.74	17.587		
4,200.0	4,041.9	4,128.1	3,852.9	20.9	27.0	-19.91	1,380.0	364.8	480.5	452.9	27.54	17.448		
4,300.0	4,136.6	4,227.6	3,943.6	21.5	27.8	-20.00	1,419.4	375.7	490.7	462.4	28.34	17.316		
4,400.0	4,231.3	4,327.1	4,034.3	22.1	28.6	-20.09	1,458.7	386.6	500.9	471.8	29.14	17.191		
4,500.0	4,326.0	4,426.6	4,125.0	22.8	29.4	-20.17	1,498.1	397.5	511.1	481.2	29.94	17.072		
4,600.0	4,420.6	4,526.0	4,215.7	23.4	30.2	-20.25	1,537.4	408.4	521.4	490.6	30.74	16.959		
4,700.0	4,515.3	4,625.5	4,306.4	24.0	31.0	-20.33	1,576.8	419.3	531.6	500.0	31.55	16.851		
4,800.0	4,610.0	4,725.0	4,397.1	24.7	31.8	-20.40	1,616.1	430.2	541.8	509.4	32.35	16.748		
4,900.0	4,704.7	4,824.5	4,487.8	25.3	32.5	-20.48	1,655.5	441.1	552.0	518.9	33.15	16.650		
5,000.0	4,799.4	4,923.9	4,578.5	26.0	33.3	-20.54	1,694.9	451.9	562.2	528.3	33.96	16.556		
5,100.0	4,894.1	5,023.4	4,669.2	26.6	34.1	-20.61	1,734.2	462.8	572.5	537.7	34.77	16.466		
5,200.0	4,988.8	5,122.9	4,759.9	27.2	34.9	-20.67	1,773.6	473.7	582.7	547.1	35.57	16.380		
5,300.0	5,083.4	5,222.4	4,850.6	27.9	35.7	-20.74	1,812.9	484.6	592.9	556.5	36.38	16.298		

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-304 - 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
5,400.0	5,178.1	5,321.8	4,941.3	28.5	36.5	-20.80		1,852.3	495.5	603.1	565.9	37.19	16.219	
5,500.0	5,272.8	5,423.6	5,034.2	29.2	37.3	-20.86		1,892.5	506.7	613.3	575.3	38.00	16.140	
5,600.0	5,368.0	5,549.3	5,150.1	29.7	38.1	-21.00		1,939.4	519.6	622.5	583.7	38.81	16.040	
5,700.0	5,464.2	5,675.6	5,268.6	30.1	38.8	-21.14		1,981.5	531.3	630.7	591.2	39.48	15.975	
5,800.0	5,561.2	5,802.4	5,389.3	30.5	39.4	-21.25		2,018.7	541.6	637.9	597.8	40.07	15.920	
5,900.0	5,659.1	5,929.6	5,512.1	30.9	39.9	-21.35		2,050.7	550.4	644.1	603.5	40.57	15.877	
6,000.0	5,757.6	6,057.3	5,636.7	31.2	40.4	-21.43		2,077.6	557.9	649.2	608.3	40.98	15.844	
6,100.0	5,856.6	6,185.2	5,762.6	31.5	40.8	-21.50		2,099.1	563.8	653.4	612.1	41.30	15.821	
6,200.0	5,956.1	6,313.3	5,889.7	31.7	41.1	-21.55		2,115.3	568.3	656.4	614.9	41.52	15.808	
6,300.0	6,055.9	6,441.7	6,017.5	31.8	41.3	-21.58		2,125.9	571.2	658.4	616.7	41.66	15.805	
6,400.0	6,155.8	6,570.1	6,145.8	32.0	41.5	-21.60		2,131.0	572.7	659.3	617.6	41.70	15.811	
6,500.0	6,255.8	6,682.1	6,257.8	32.1	41.6	-0.24		2,131.5	572.8	659.4	588.6	70.77	9.317	
6,600.0	6,355.8	6,782.1	6,357.8	32.1	41.6	89.78		2,131.5	572.8	659.4	617.3	42.09	15.666	
6,653.5	6,409.2	6,835.5	6,411.2	32.2	41.7	90.00		2,131.5	572.1	659.4	617.3	42.07	15.673	
6,700.0	6,455.3	6,882.0	6,457.6	32.2	41.7	90.21		2,131.5	568.7	659.4	617.4	42.02	15.691	
6,800.0	6,552.8	6,982.6	6,556.6	32.2	41.7	90.67		2,131.5	551.8	659.4	617.7	41.77	15.789	
6,900.0	6,646.6	7,083.8	6,653.2	32.1	41.6	91.12		2,131.5	521.7	659.5	618.1	41.39	15.935	
7,000.0	6,735.0	7,185.7	6,745.6	32.0	41.6	91.55		2,131.5	478.9	659.6	618.7	40.96	16.103	
7,100.0	6,816.7	7,288.3	6,832.0	31.8	41.4	91.95		2,131.5	423.7	659.8	619.2	40.60	16.252	
7,200.0	6,890.1	7,391.6	6,910.7	31.6	41.3	92.32		2,131.5	357.0	659.9	619.5	40.42	16.328	
7,300.0	6,954.0	7,495.4	6,980.1	31.4	41.1	92.65		2,131.5	279.8	660.1	619.5	40.57	16.272	
7,400.0	7,007.4	7,599.7	7,038.6	31.3	41.0	92.93		2,131.5	193.5	660.3	619.1	41.18	16.032	
7,500.0	7,049.3	7,704.5	7,085.0	31.1	40.9	93.17		2,131.5	99.7	660.4	618.0	42.38	15.583	
7,600.0	7,078.9	7,809.7	7,118.2	31.0	40.8	93.34		2,131.5	0.0	660.5	616.3	44.19	14.948	
7,700.0	7,095.9	7,915.1	7,137.5	30.9	40.8	93.46		2,131.5	-103.6	660.6	614.0	46.57	14.185	
7,800.0	7,099.9	8,020.6	7,142.3	31.0	40.8	93.51		2,131.5	-208.9	660.6	611.2	49.43	13.366	
7,900.0	7,095.1	8,121.3	7,138.4	31.2	41.0	93.58		2,131.5	-309.5	660.7	608.0	52.64	12.552	
8,000.0	7,090.1	8,221.3	7,134.4	31.8	41.3	93.67		2,131.5	-409.4	660.7	604.5	56.20	11.758	
8,100.0	7,085.1	8,321.3	7,130.3	32.9	41.7	93.76		2,131.5	-509.4	660.8	600.7	60.06	11.002	
8,200.0	7,080.1	8,421.3	7,126.3	34.5	42.4	93.84		2,131.5	-609.3	660.9	596.7	64.18	10.297	
8,300.0	7,075.1	8,521.3	7,122.3	36.4	43.3	93.93		2,131.5	-709.2	660.9	592.4	68.50	9.649	
8,400.0	7,070.1	8,621.3	7,118.3	38.5	44.4	94.02		2,131.5	-809.1	661.0	588.0	72.99	9.056	
8,500.0	7,065.1	8,721.3	7,114.3	40.7	45.9	94.10		2,131.5	-909.0	661.1	583.5	77.62	8.516	
8,600.0	7,060.0	8,821.3	7,110.3	43.0	47.5	94.19		2,131.5	-1,008.9	661.1	578.8	82.37	8.027	
8,700.0	7,055.0	8,921.3	7,106.3	45.4	49.4	94.27		2,131.5	-1,108.8	661.2	574.0	87.21	7.582	
8,800.0	7,050.0	9,021.3	7,102.3	47.8	51.4	94.36		2,131.5	-1,208.8	661.3	569.2	92.14	7.177	
8,900.0	7,045.0	9,121.3	7,098.2	50.3	53.6	94.44		2,131.5	-1,308.7	661.4	564.2	97.13	6.809	
9,000.0	7,040.0	9,221.3	7,094.2	52.8	55.8	94.53		2,131.5	-1,408.6	661.5	559.3	102.18	6.473	
9,100.0	7,035.0	9,321.3	7,090.2	55.3	58.1	94.62		2,131.5	-1,508.5	661.5	554.2	107.28	6.166	
9,200.0	7,030.0	9,421.3	7,086.2	57.9	60.5	94.70		2,131.5	-1,608.4	661.6	549.2	112.42	5.885	
9,300.0	7,025.0	9,521.3	7,082.2	60.5	62.9	94.79		2,131.5	-1,708.3	661.7	544.1	117.60	5.626	
9,400.0	7,020.0	9,621.2	7,078.2	63.1	65.4	94.87		2,131.5	-1,808.2	661.8	539.0	122.82	5.388	
9,500.0	7,015.0	9,721.2	7,074.2	65.7	67.9	94.96		2,131.5	-1,908.2	661.9	533.8	128.06	5.169	
9,600.0	7,010.0	9,821.2	7,070.2	68.3	70.4	95.05		2,131.5	-2,008.1	662.0	528.6	133.32	4.965	
9,700.0	7,005.0	9,921.2	7,066.1	70.9	72.9	95.13		2,131.5	-2,108.0	662.0	523.4	138.60	4.776	
9,800.0	7,000.0	10,021.2	7,062.1	73.6	75.5	95.22		2,131.5	-2,207.9	662.1	518.2	143.91	4.601	
9,900.0	6,995.0	10,121.2	7,058.1	76.3	78.1	95.30		2,131.5	-2,307.8	662.2	513.0	149.23	4.438	
10,000.0	6,989.9	10,221.2	7,054.1	78.9	80.7	95.39		2,131.5	-2,407.7	662.3	507.7	154.56	4.285	
10,100.0	6,984.9	10,321.2	7,050.1	81.6	83.3	95.47		2,131.5	-2,507.6	662.4	502.5	159.91	4.142	
10,200.0	6,979.9	10,421.2	7,046.1	84.3	85.9	95.56		2,131.5	-2,607.6	662.5	497.2	165.27	4.009	
10,300.0	6,974.9	10,521.2	7,042.1	87.0	88.6	95.65		2,131.5	-2,707.5	662.6	492.0	170.64	3.883	

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7W-304 - 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)			
10,400.0	6,969.9	10,621.2	7,038.0	89.7	91.2	95.73	2,131.5	-2,807.4	662.7	486.7	176.02	3.765	
10,500.0	6,964.9	10,721.2	7,034.0	92.4	93.9	95.82	2,131.5	-2,907.3	662.8	481.4	181.41	3.654	
10,600.0	6,959.9	10,821.2	7,030.0	95.1	96.5	95.90	2,131.5	-3,007.2	662.9	476.1	186.80	3.549	
10,700.0	6,954.9	10,921.2	7,026.0	97.8	99.2	95.99	2,131.5	-3,107.1	663.0	470.8	192.20	3.450	
10,800.0	6,949.9	11,021.2	7,022.0	100.6	101.9	96.07	2,131.5	-3,207.0	663.1	465.5	197.61	3.356	
10,900.0	6,944.9	11,121.2	7,018.0	103.3	104.6	96.16	2,131.5	-3,307.0	663.2	460.2	203.02	3.267	
11,000.0	6,939.9	11,221.2	7,014.0	106.0	107.3	96.24	2,131.5	-3,406.9	663.3	454.9	208.43	3.182	
11,100.0	6,934.9	11,321.2	7,010.0	108.8	110.0	96.33	2,131.5	-3,506.8	663.4	449.6	213.85	3.102	
11,200.0	6,929.9	11,421.2	7,005.9	111.5	112.7	96.41	2,131.5	-3,606.7	663.5	444.3	219.27	3.026	
11,300.0	6,924.9	11,521.2	7,001.9	114.2	115.4	96.50	2,131.5	-3,706.6	663.7	439.0	224.70	2.954	
11,400.0	6,919.9	11,621.1	6,997.9	117.0	118.1	96.59	2,131.5	-3,806.5	663.8	433.6	230.12	2.884	
11,500.0	6,914.8	11,721.1	6,993.9	119.7	120.8	96.67	2,131.5	-3,906.4	663.9	428.3	235.55	2.818	
11,600.0	6,909.8	11,821.1	6,989.9	122.5	123.6	96.76	2,131.5	-4,006.4	664.0	423.0	240.98	2.755	
11,608.0	6,909.4	11,829.2	6,989.6	122.7	123.8	96.76	2,131.5	-4,014.4	664.0	422.6	241.42	2.750	
11,636.7	6,908.0	11,843.4	6,989.0	123.5	124.2	96.78	2,131.5	-4,028.6	664.2	421.6	242.59	2.738 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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 (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	1.0	1.0	0.0	0.0	0.00	32.8	0.0	32.8	32.8	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	0.00	32.8	0.0	32.8	32.6	0.23	144.428		
200.0	200.0	201.0	201.0	0.3	0.3	0.00	32.8	0.0	32.8	32.1	0.68	48.463		
300.0	300.0	301.0	301.0	0.6	0.6	0.00	32.8	0.0	32.8	31.7	1.13	29.116		
366.3	366.3	367.3	367.3	0.7	0.7	0.00	32.8	0.0	32.8	31.4	1.42	23.021 CC		
400.0	400.0	401.0	401.0	0.8	0.8	0.00	32.8	0.0	32.8	31.2	1.58	20.810 ES		
500.0	500.0	500.0	500.0	1.0	1.0	0.90	34.4	0.5	34.5	32.4	2.02	17.035		
600.0	600.0	598.5	598.4	1.2	1.2	3.09	39.3	2.1	39.5	37.0	2.48	15.947		
700.0	700.0	696.9	696.3	1.5	1.5	-16.17	47.4	4.8	46.2	43.3	2.93	15.791		
800.0	799.8	795.0	793.7	1.7	1.7	-14.84	58.6	8.4	52.9	49.6	3.38	15.685		
900.0	899.5	892.8	890.4	1.9	2.0	-14.00	73.0	13.1	59.7	55.9	3.83	15.585		
1,000.0	998.7	990.5	986.3	2.2	2.4	-13.51	90.5	18.7	66.4	62.1	4.29	15.473		
1,100.0	1,097.5	1,087.9	1,081.3	2.5	2.7	-13.27	111.0	25.4	73.1	68.3	4.77	15.338		
1,200.0	1,195.6	1,185.2	1,175.4	2.8	3.2	-13.21	134.5	33.1	79.7	74.5	5.26	15.174		
1,300.0	1,293.1	1,282.2	1,268.3	3.2	3.7	-13.30	160.9	41.7	86.3	80.6	5.76	14.977		
1,400.0	1,389.6	1,379.0	1,360.0	3.6	4.2	-13.50	190.3	51.2	92.8	86.5	6.30	14.745		
1,500.0	1,485.3	1,476.4	1,451.2	4.1	4.8	-13.79	222.8	61.7	99.2	92.3	6.85	14.476		
1,600.0	1,580.0	1,576.2	1,544.5	4.7	5.5	-14.36	256.9	72.8	103.8	96.3	7.47	13.883		
1,700.0	1,674.7	1,676.1	1,637.7	5.2	6.2	-14.91	291.0	83.9	108.1	100.0	8.13	13.293		
1,800.0	1,769.4	1,776.0	1,730.9	5.8	6.8	-15.43	325.2	95.0	112.5	103.7	8.81	12.769		
1,900.0	1,864.1	1,875.9	1,824.1	6.4	7.5	-15.90	359.3	106.1	116.9	107.4	9.50	12.302		
2,000.0	1,958.8	1,975.8	1,917.4	7.0	8.2	-16.35	393.5	117.2	121.3	111.1	10.20	11.884		
2,100.0	2,053.5	2,075.7	2,010.6	7.6	8.9	-16.76	427.6	128.3	125.7	114.7	10.92	11.509		
2,200.0	2,148.2	2,175.6	2,103.8	8.2	9.6	-17.14	461.8	139.4	130.1	118.4	11.64	11.171		
2,300.0	2,242.8	2,275.5	2,197.0	8.9	10.3	-17.50	495.9	150.5	134.5	122.1	12.38	10.866		
2,400.0	2,337.5	2,375.4	2,290.3	9.5	11.0	-17.83	530.1	161.6	138.9	125.8	13.12	10.588		
2,500.0	2,432.2	2,475.3	2,383.5	10.1	11.7	-18.15	564.2	172.7	143.3	129.4	13.86	10.336		
2,600.0	2,526.9	2,575.2	2,476.7	10.7	12.4	-18.44	598.3	183.8	147.7	133.1	14.62	10.106		
2,700.0	2,621.6	2,675.1	2,569.9	11.4	13.0	-18.72	632.5	194.9	152.1	136.8	15.38	9.894		
2,800.0	2,716.3	2,775.0	2,663.1	12.0	13.7	-18.98	666.6	206.0	156.6	140.4	16.14	9.700		
2,900.0	2,811.0	2,874.9	2,756.4	12.6	14.4	-19.23	700.8	217.1	161.0	144.1	16.91	9.521		
3,000.0	2,905.7	2,974.8	2,849.6	13.3	15.1	-19.47	734.9	228.2	165.4	147.7	17.68	9.355		
3,100.0	3,000.3	3,074.7	2,942.8	13.9	15.8	-19.69	769.1	239.3	169.8	151.4	18.46	9.202		
3,200.0	3,095.0	3,174.6	3,036.0	14.5	16.5	-19.90	803.2	250.4	174.3	155.0	19.24	9.059		
3,300.0	3,189.7	3,274.5	3,129.3	15.1	17.2	-20.10	837.4	261.5	178.7	158.7	20.02	8.926		
3,400.0	3,284.4	3,374.4	3,222.5	15.8	17.9	-20.29	871.5	272.6	183.2	162.4	20.81	8.802		
3,500.0	3,379.1	3,474.3	3,315.7	16.4	18.7	-20.48	905.7	283.7	187.6	166.0	21.60	8.686		
3,600.0	3,473.8	3,574.2	3,408.9	17.0	19.4	-20.65	939.8	294.8	192.0	169.7	22.39	8.578		
3,700.0	3,568.5	3,674.1	3,502.2	17.7	20.1	-20.81	973.9	305.9	196.5	173.3	23.18	8.476		
3,800.0	3,663.1	3,774.0	3,595.4	18.3	20.8	-20.97	1,008.1	317.0	200.9	177.0	23.98	8.380		
3,900.0	3,757.8	3,873.9	3,688.6	19.0	21.5	-21.12	1,042.2	328.1	205.4	180.6	24.78	8.289		
4,000.0	3,852.5	3,973.8	3,781.8	19.6	22.2	-21.27	1,076.4	339.2	209.8	184.3	25.58	8.204		
4,100.0	3,947.2	4,073.7	3,875.1	20.2	22.9	-21.41	1,110.5	350.3	214.3	187.9	26.38	8.123		
4,200.0	4,041.9	4,173.6	3,968.3	20.9	23.6	-21.54	1,144.7	361.4	218.7	191.6	27.19	8.046		
4,300.0	4,136.6	4,273.5	4,061.5	21.5	24.3	-21.67	1,178.8	372.5	223.2	195.2	27.99	7.974		
4,400.0	4,231.3	4,373.4	4,154.7	22.1	25.0	-21.79	1,213.0	383.6	227.7	198.9	28.80	7.905		
4,500.0	4,326.0	4,473.3	4,248.0	22.8	25.7	-21.91	1,247.1	394.7	232.1	202.5	29.61	7.840		
4,600.0	4,420.6	4,573.2	4,341.2	23.4	26.4	-22.03	1,281.3	405.8	236.6	206.2	30.42	7.778		
4,700.0	4,515.3	4,673.1	4,434.4	24.0	27.1	-22.14	1,315.4	416.9	241.0	209.8	31.23	7.719		
4,800.0	4,610.0	4,773.0	4,527.6	24.7	27.8	-22.24	1,349.5	428.0	245.5	213.4	32.04	7.662		
4,900.0	4,704.7	4,872.9	4,620.9	25.3	28.5	-22.34	1,383.7	439.1	249.9	217.1	32.85	7.608		

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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
5,000.0	4,799.4	4,972.8	4,714.1	26.0	29.2	-22.44		1,417.8	450.2	254.4	220.7	33.67	7.557	
5,100.0	4,894.1	5,072.7	4,807.3	26.6	29.9	-22.54		1,452.0	461.3	258.9	224.4	34.48	7.507	
5,200.0	4,988.8	5,172.6	4,900.5	27.2	30.6	-22.63		1,486.1	472.4	263.3	228.0	35.30	7.460	
5,300.0	5,083.4	5,272.5	4,993.8	27.9	31.3	-22.72		1,520.3	483.5	267.8	231.7	36.12	7.415	
5,400.0	5,178.1	5,372.4	5,087.0	28.5	32.0	-22.80		1,554.4	494.6	272.3	235.3	36.93	7.371	
5,500.0	5,272.8	5,472.3	5,180.2	29.2	32.7	-22.89		1,588.6	505.7	276.7	239.0	37.75	7.330	
5,600.0	5,368.0	5,572.5	5,273.7	29.7	33.4	-22.89		1,622.8	516.8	282.6	244.1	38.49	7.343	
5,700.0	5,464.2	5,682.6	5,377.2	30.1	34.0	-22.75		1,658.4	528.4	289.8	250.7	39.04	7.422	
5,800.0	5,561.2	5,793.0	5,482.4	30.5	34.5	-22.61		1,690.3	538.8	296.5	257.0	39.51	7.504	
5,900.0	5,659.1	5,903.7	5,589.1	30.9	35.0	-22.46		1,718.4	547.9	302.9	263.0	39.91	7.589	
6,000.0	5,757.6	6,014.7	5,697.2	31.2	35.4	-22.30		1,742.6	555.8	308.8	268.6	40.22	7.677	
6,100.0	5,856.6	6,126.0	5,806.4	31.5	35.8	-22.13		1,762.9	562.4	314.3	273.8	40.46	7.768	
6,200.0	5,956.1	6,237.6	5,916.6	31.7	36.1	-21.95		1,779.1	567.6	319.3	278.7	40.61	7.862	
6,300.0	6,055.9	6,349.4	6,027.7	31.8	36.4	-21.76		1,791.3	571.6	323.9	283.2	40.69	7.961	
6,400.0	6,155.8	6,461.4	6,139.3	32.0	36.6	-21.56		1,799.3	574.2	328.0	287.3	40.68	8.064	
6,500.0	6,255.8	6,573.6	6,251.5	32.1	36.7	-0.02		1,803.2	575.5	331.2	285.4	40.68	8.167	
6,600.0	6,355.8	6,678.9	6,356.8	32.1	36.8	90.04		1,803.6	575.6	331.5	290.5	41.00	8.085	
6,610.3	6,366.1	6,689.2	6,367.1	32.1	36.8	90.10		1,803.6	575.6	331.5	290.5	41.00	8.087	
6,700.0	6,455.3	6,778.5	6,456.3	32.2	36.9	91.60		1,803.6	575.6	331.6	291.2	40.48	8.194	
6,800.0	6,552.8	6,879.2	6,556.8	32.2	36.9	94.50		1,803.6	570.6	332.6	293.3	39.28	8.467	
6,900.0	6,646.6	6,982.5	6,658.3	32.1	36.9	97.36		1,803.6	551.8	334.4	296.2	38.12	8.772	
7,000.0	6,735.0	7,088.3	6,758.7	32.0	36.9	100.10		1,803.6	518.6	336.9	299.8	37.09	9.083	
7,100.0	6,816.7	7,196.7	6,855.8	31.8	36.8	102.66		1,803.6	470.5	340.0	303.7	36.25	9.379	
7,200.0	6,890.1	7,307.7	6,947.1	31.6	36.6	104.98		1,803.6	407.6	343.4	307.7	35.65	9.633	
7,300.0	6,954.0	7,421.1	7,030.0	31.4	36.4	107.02		1,803.6	330.3	346.9	311.5	35.38	9.805	
7,400.0	7,007.4	7,536.8	7,101.9	31.3	36.2	108.72		1,803.6	239.8	350.2	314.7	35.56	9.849	
7,500.0	7,049.3	7,654.6	7,160.1	31.1	36.1	110.07		1,803.6	137.6	353.1	316.7	36.31	9.722	
7,600.0	7,078.9	7,773.8	7,202.4	31.0	35.9	111.02		1,803.6	26.2	355.2	317.4	37.77	9.404	
7,700.0	7,095.9	7,894.2	7,226.9	30.9	35.9	111.57		1,803.6	-91.5	356.5	316.6	39.93	8.927	
7,800.0	7,099.9	8,014.2	7,232.8	31.0	35.9	111.70		1,803.6	-211.2	356.8	314.1	42.73	8.350	
7,900.0	7,095.1	8,114.2	7,230.3	31.2	36.1	112.04		1,803.6	-311.2	357.7	312.1	45.61	7.842	
8,000.0	7,090.1	8,214.1	7,227.8	31.8	36.5	112.41		1,803.6	-411.1	358.6	309.8	48.82	7.346	
8,100.0	7,085.1	8,314.1	7,225.3	32.9	37.1	112.78		1,803.6	-511.1	359.6	307.3	52.32	6.873	
8,200.0	7,080.1	8,414.1	7,222.9	34.5	38.1	113.16		1,803.6	-611.0	360.6	304.5	56.03	6.435	
8,300.0	7,075.1	8,514.0	7,220.4	36.4	39.4	113.52		1,803.6	-710.9	361.6	301.7	59.93	6.034	
8,400.0	7,070.1	8,614.0	7,217.9	38.5	41.1	113.89		1,803.6	-810.9	362.6	298.6	63.95	5.670	
8,500.0	7,065.1	8,714.0	7,215.4	40.7	42.9	114.25		1,803.6	-910.8	363.6	295.5	68.08	5.341	
8,600.0	7,060.0	8,813.9	7,212.9	43.0	45.0	114.62		1,803.6	-1,010.8	364.7	292.4	72.30	5.044	
8,700.0	7,055.0	8,913.9	7,210.5	45.4	47.2	114.98		1,803.6	-1,110.7	365.7	289.2	76.57	4.776	
8,800.0	7,050.0	9,013.9	7,208.0	47.8	49.5	115.34		1,803.6	-1,210.6	366.8	285.9	80.89	4.535	
8,900.0	7,045.0	9,113.8	7,205.5	50.3	51.8	115.69		1,803.6	-1,310.6	367.9	282.7	85.25	4.316	
9,000.0	7,040.0	9,213.8	7,203.0	52.8	54.2	116.05		1,803.6	-1,410.5	369.0	279.4	89.63	4.117	
9,100.0	7,035.0	9,313.8	7,200.6	55.3	56.7	116.40		1,803.6	-1,510.4	370.1	276.1	94.03	3.936	
9,200.0	7,030.0	9,413.7	7,198.1	57.9	59.2	116.75		1,803.6	-1,610.4	371.3	272.8	98.43	3.772	
9,300.0	7,025.0	9,513.7	7,195.6	60.5	61.7	117.09		1,803.6	-1,710.3	372.4	269.6	102.85	3.621	
9,400.0	7,020.0	9,613.7	7,193.1	63.1	64.2	117.44		1,803.6	-1,810.2	373.6	266.3	107.26	3.483	
9,500.0	7,015.0	9,713.6	7,190.7	65.7	66.8	117.78		1,803.6	-1,910.2	374.7	263.1	111.67	3.356	
9,600.0	7,010.0	9,813.6	7,188.2	68.3	69.4	118.12		1,803.6	-2,010.1	375.9	259.9	116.07	3.239	
9,700.0	7,005.0	9,913.6	7,185.7	70.9	72.0	118.46		1,803.6	-2,110.1	377.1	256.7	120.46	3.131	
9,800.0	7,000.0	10,013.6	7,183.2	73.6	74.6	118.80		1,803.6	-2,210.0	378.3	253.5	124.83	3.031	
9,900.0	6,995.0	10,113.5	7,180.7	76.3	77.2	119.14		1,803.6	-2,309.9	379.6	250.4	129.20	2.938	

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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 (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	6,989.9	10,213.5	7,178.3	78.9	79.9	119.47	1,803.6	-2,409.9	380.8	247.3	133.55	2.851		
10,100.0	6,984.9	10,313.5	7,175.8	81.6	82.5	119.80	1,803.6	-2,509.8	382.1	244.2	137.88	2.771		
10,200.0	6,979.9	10,413.4	7,173.3	84.3	85.2	120.13	1,803.6	-2,609.7	383.3	241.1	142.19	2.696		
10,300.0	6,974.9	10,513.4	7,170.8	87.0	87.9	120.45	1,803.6	-2,709.7	384.6	238.1	146.48	2.626		
10,400.0	6,969.9	10,613.4	7,168.4	89.7	90.6	120.78	1,803.6	-2,809.6	385.9	235.1	150.75	2.560		
10,500.0	6,964.9	10,713.3	7,165.9	92.4	93.2	121.10	1,803.6	-2,909.6	387.2	232.2	155.00	2.498		
10,600.0	6,959.9	10,813.3	7,163.4	95.1	95.9	121.42	1,803.6	-3,009.5	388.5	229.3	159.22	2.440		
10,700.0	6,954.9	10,913.3	7,160.9	97.8	98.6	121.73	1,803.6	-3,109.4	389.8	226.4	163.42	2.385		
10,800.0	6,949.9	11,013.2	7,158.4	100.6	101.3	122.05	1,803.6	-3,209.4	391.2	223.6	167.60	2.334		
10,900.0	6,944.9	11,113.2	7,156.0	103.3	104.1	122.36	1,803.6	-3,309.3	392.5	220.8	171.75	2.285		
11,000.0	6,939.9	11,213.2	7,153.5	106.0	106.8	122.67	1,803.6	-3,409.2	393.9	218.0	175.88	2.239		
11,100.0	6,934.9	11,313.1	7,151.0	108.8	109.5	122.98	1,803.6	-3,509.2	395.2	215.3	179.99	2.196		
11,200.0	6,929.9	11,413.1	7,148.5	111.5	112.2	123.29	1,803.6	-3,609.1	396.6	212.6	184.06	2.155		
11,300.0	6,924.9	11,513.1	7,146.1	114.2	114.9	123.59	1,803.6	-3,709.1	398.0	209.9	188.12	2.116		
11,400.0	6,919.9	11,613.0	7,143.6	117.0	117.7	123.90	1,803.6	-3,809.0	399.4	207.3	192.14	2.079		
11,500.0	6,914.8	11,713.0	7,141.1	119.7	120.4	124.20	1,803.6	-3,908.9	400.8	204.7	196.14	2.044		
11,600.0	6,909.8	11,813.0	7,138.6	122.5	123.2	124.49	1,803.6	-4,008.9	402.3	202.2	200.11	2.010		
11,636.7	6,908.0	11,838.3	7,138.0	123.5	123.8	124.57	1,803.6	-4,034.2	403.0	201.6	201.38	2.001 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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	-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	130.333		
200.0	200.0	199.0	199.0	0.3	0.3	-180.00	-29.1	0.0	29.1	28.5	0.67	43.372		
300.0	300.0	299.0	299.0	0.6	0.6	-180.00	-29.1	0.0	29.1	28.0	1.12	25.989		
400.0	400.0	399.0	399.0	0.8	0.8	-180.00	-29.1	0.0	29.1	27.6	1.57	18.553		
500.0	500.0	499.0	499.0	1.0	1.0	-180.00	-29.1	0.0	29.1	27.1	2.02	14.425		
600.0	600.0	599.0	599.0	1.2	1.2	-180.00	-29.1	0.0	29.1	26.7	2.47	11.800 CC, ES		
700.0	700.0	699.0	699.0	1.5	1.5	159.82	-29.1	0.0	30.8	27.9	2.92	10.540		
800.0	799.8	798.8	798.8	1.7	1.7	162.68	-29.1	0.0	35.7	32.4	3.37	10.603		
900.0	899.5	898.5	898.5	1.9	1.9	166.01	-29.1	0.0	44.1	40.3	3.82	11.555		
1,000.0	998.7	997.7	997.7	2.2	2.1	168.98	-29.1	0.0	56.0	51.8	4.27	13.135		
1,100.0	1,097.5	1,098.8	1,098.8	2.5	2.4	171.05	-27.6	0.8	69.8	65.1	4.71	14.829		
1,200.0	1,195.6	1,200.5	1,200.3	2.8	2.6	172.22	-22.9	3.1	83.7	78.6	5.15	16.259		
1,300.0	1,293.1	1,302.7	1,302.1	3.2	2.8	172.87	-14.8	7.1	97.6	92.0	5.59	17.450		
1,400.0	1,389.6	1,405.4	1,404.0	3.6	3.1	173.19	-3.5	12.7	111.4	105.4	6.04	18.438		
1,500.0	1,485.3	1,508.6	1,505.9	4.1	3.4	173.29	11.2	20.0	125.2	118.7	6.51	19.248		
1,600.0	1,580.0	1,612.4	1,607.8	4.7	3.7	173.21	29.3	28.9	138.3	131.3	7.01	19.720		
1,700.0	1,674.7	1,717.1	1,709.6	5.2	4.0	172.87	50.9	39.6	148.1	140.5	7.56	19.582		
1,800.0	1,769.4	1,821.7	1,810.5	5.8	4.5	172.27	75.8	51.9	154.3	146.2	8.14	18.967		
1,900.0	1,864.1	1,921.6	1,906.4	6.4	4.9	171.63	100.8	64.2	159.1	150.4	8.72	18.257		
2,000.0	1,958.8	2,021.5	2,002.3	7.0	5.4	171.03	125.8	76.6	164.0	154.6	9.32	17.595		
2,100.0	2,053.5	2,121.3	2,098.2	7.6	5.9	170.46	150.8	89.0	168.8	158.9	9.93	16.996		
2,200.0	2,148.2	2,221.2	2,194.1	8.2	6.4	169.92	175.8	101.4	173.7	163.1	10.56	16.451		
2,300.0	2,242.8	2,321.1	2,290.0	8.9	6.9	169.41	200.9	113.7	178.5	167.4	11.19	15.952		
2,400.0	2,337.5	2,421.0	2,385.9	9.5	7.4	168.93	225.9	126.1	183.4	171.6	11.84	15.494		
2,500.0	2,432.2	2,520.8	2,481.7	10.1	7.9	168.47	250.9	138.5	188.3	175.8	12.49	15.074		
2,600.0	2,526.9	2,620.7	2,577.6	10.7	8.5	168.04	275.9	150.8	193.3	180.1	13.16	14.687		
2,700.0	2,621.6	2,720.6	2,673.5	11.4	9.0	167.62	300.9	163.2	198.2	184.4	13.83	14.330		
2,800.0	2,716.3	2,820.4	2,769.4	12.0	9.5	167.23	326.0	175.6	203.1	188.6	14.51	14.000		
2,900.0	2,811.0	2,920.3	2,865.3	12.6	10.1	166.86	351.0	188.0	208.1	192.9	15.19	13.694		
3,000.0	2,905.7	3,020.2	2,961.2	13.3	10.6	166.50	376.0	200.3	213.0	197.1	15.88	13.409		
3,100.0	3,000.3	3,120.0	3,057.1	13.9	11.2	166.16	401.0	212.7	218.0	201.4	16.58	13.145		
3,200.0	3,095.0	3,219.9	3,153.0	14.5	11.7	165.84	426.0	225.1	222.9	205.6	17.28	12.898		
3,300.0	3,189.7	3,319.8	3,248.9	15.1	12.3	165.53	451.1	237.4	227.9	209.9	17.99	12.667		
3,400.0	3,284.4	3,419.6	3,344.7	15.8	12.8	165.23	476.1	249.8	232.9	214.2	18.70	12.451		
3,500.0	3,379.1	3,519.5	3,440.6	16.4	13.4	164.95	501.1	262.2	237.9	218.5	19.42	12.248		
3,600.0	3,473.8	3,619.4	3,536.5	17.0	13.9	164.67	526.1	274.6	242.9	222.7	20.14	12.058		
3,700.0	3,568.5	3,719.2	3,632.4	17.7	14.5	164.41	551.1	286.9	247.9	227.0	20.87	11.878		
3,800.0	3,663.1	3,819.1	3,728.3	18.3	15.0	164.16	576.2	299.3	252.9	231.3	21.59	11.709		
3,900.0	3,757.8	3,919.0	3,824.2	19.0	15.6	163.92	601.2	311.7	257.9	235.5	22.33	11.550		
4,000.0	3,852.5	4,018.9	3,920.1	19.6	16.2	163.68	626.2	324.0	262.9	239.8	23.06	11.399		
4,100.0	3,947.2	4,118.7	4,016.0	20.2	16.7	163.46	651.2	336.4	267.9	244.1	23.80	11.256		
4,200.0	4,041.9	4,218.6	4,111.9	20.9	17.3	163.24	676.2	348.8	272.9	248.4	24.54	11.121		
4,300.0	4,136.6	4,318.5	4,207.7	21.5	17.8	163.04	701.3	361.2	277.9	252.7	25.28	10.993		
4,400.0	4,231.3	4,418.3	4,303.6	22.1	18.4	162.83	726.3	373.5	283.0	256.9	26.03	10.871		
4,500.0	4,326.0	4,518.2	4,399.5	22.8	19.0	162.64	751.3	385.9	288.0	261.2	26.78	10.755		
4,600.0	4,420.6	4,618.1	4,495.4	23.4	19.5	162.45	776.3	398.3	293.0	265.5	27.53	10.644		
4,700.0	4,515.3	4,717.9	4,591.3	24.0	20.1	162.27	801.3	410.6	298.1	269.8	28.28	10.539		
4,800.0	4,610.0	4,817.8	4,687.2	24.7	20.6	162.10	826.4	423.0	303.1	274.1	29.04	10.438		
4,900.0	4,704.7	4,917.7	4,783.1	25.3	21.2	161.93	851.4	435.4	308.1	278.3	29.79	10.342		
5,000.0	4,799.4	5,017.5	4,879.0	26.0	21.8	161.77	876.4	447.8	313.2	282.6	30.55	10.250		

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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	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	4,894.1	5,117.4	4,974.9	26.6	22.3	161.61		901.4	460.1	318.2	286.9	31.31	10.162	
5,200.0	4,988.8	5,217.3	5,070.8	27.2	22.9	161.45		926.4	472.5	323.3	291.2	32.08	10.078	
5,300.0	5,083.4	5,317.1	5,166.6	27.9	23.4	161.31		951.5	484.9	328.3	295.5	32.84	9.997	
5,400.0	5,178.1	5,417.0	5,262.5	28.5	24.0	161.16		976.5	497.2	333.4	299.8	33.61	9.920	
5,500.0	5,272.8	5,516.9	5,358.4	29.2	24.6	161.02		1,001.5	509.6	338.4	304.1	34.37	9.846	
5,600.0	5,368.0	5,616.8	5,454.4	29.7	25.1	160.82		1,026.5	522.0	342.0	306.9	35.17	9.724	
5,700.0	5,464.2	5,711.5	5,545.4	30.1	25.6	160.47		1,049.9	533.6	342.8	306.9	35.91	9.544	
5,774.4	5,536.3	5,778.6	5,610.3	30.4	25.9	160.21		1,065.1	541.1	342.8	306.4	36.38	9.422	
5,800.0	5,561.2	5,800.0	5,631.1	30.5	26.0	160.13		1,069.6	543.3	342.8	306.3	36.53	9.383	
5,900.0	5,659.1	5,891.9	5,720.8	30.9	26.3	159.80		1,087.6	552.2	342.4	305.3	37.10	9.228	
6,000.0	5,757.6	5,982.1	5,809.4	31.2	26.6	159.49		1,102.7	559.6	341.6	304.0	37.59	9.086	
6,100.0	5,856.6	6,072.4	5,898.6	31.5	26.9	159.19		1,115.3	565.9	340.3	302.3	38.02	8.951	
6,200.0	5,956.1	6,162.7	5,988.2	31.7	27.1	158.91		1,125.4	570.9	338.7	300.3	38.38	8.825	
6,300.0	6,055.9	6,253.1	6,078.2	31.8	27.3	158.64		1,132.9	574.6	336.7	298.0	38.67	8.705	
6,400.0	6,155.8	6,343.6	6,168.5	32.0	27.4	158.38		1,137.9	577.1	334.2	295.3	38.90	8.592	
6,500.0	6,255.8	6,434.2	6,259.1	32.1	27.6	179.54		1,140.3	578.3	331.8	275.8	56.02	5.923	
6,560.7	6,316.5	6,490.7	6,315.5	32.1	27.6	-90.57		1,140.6	578.4	331.5	292.2	39.36	8.423	
6,600.0	6,355.8	6,529.9	6,354.8	32.1	27.7	-90.53		1,140.6	578.4	331.5	292.1	39.46	8.402	
6,700.0	6,455.3	6,629.5	6,454.3	32.2	27.8	-92.07		1,140.6	578.4	331.7	291.4	40.32	8.227	
6,800.0	6,552.8	6,730.4	6,555.1	32.2	27.9	-95.01		1,140.6	573.6	332.8	291.2	41.61	7.999	
6,900.0	6,646.6	6,834.1	6,657.1	32.1	27.9	-97.91		1,140.6	555.0	334.8	292.2	42.58	7.863	
7,000.0	6,735.0	6,940.4	6,757.9	32.0	27.8	-100.68		1,140.6	521.9	337.5	294.4	43.12	7.827	
7,100.0	6,816.7	7,049.3	6,855.6	31.8	27.6	-103.25		1,140.6	473.7	340.8	297.6	43.22	7.886	
7,200.0	6,890.1	7,160.9	6,947.4	31.6	27.5	-105.57		1,140.6	410.5	344.4	301.4	42.96	8.016	
7,300.0	6,954.0	7,275.0	7,030.8	31.4	27.2	-107.59		1,140.6	332.8	348.0	305.4	42.56	8.176	
7,400.0	7,007.4	7,391.4	7,102.9	31.3	27.0	-109.27		1,140.6	241.6	351.4	309.0	42.33	8.300	
7,500.0	7,049.3	7,509.8	7,161.3	31.1	26.8	-110.58		1,140.6	138.8	354.2	311.6	42.63	8.310	
7,600.0	7,078.9	7,629.7	7,203.5	31.0	26.6	-111.49		1,140.6	26.6	356.3	312.6	43.76	8.143	
7,700.0	7,095.9	7,750.6	7,227.7	30.9	26.4	-111.98		1,140.6	-91.7	357.5	311.6	45.88	7.793	
7,800.0	7,099.9	7,870.5	7,233.1	31.0	26.5	-112.05		1,140.6	-211.3	357.7	308.7	48.93	7.310	
7,900.0	7,095.1	7,970.4	7,230.6	31.2	27.1	-112.39		1,140.6	-311.2	358.5	306.4	52.12	6.880	
8,000.0	7,090.1	8,070.4	7,228.2	31.8	28.7	-112.76		1,140.6	-411.2	359.5	304.0	55.55	6.472	
8,100.0	7,085.1	8,170.4	7,225.7	32.9	30.7	-113.13		1,140.6	-511.1	360.5	301.3	59.21	6.088	
8,200.0	7,080.1	8,270.3	7,223.2	34.5	32.8	-113.50		1,140.6	-611.1	361.5	298.4	63.06	5.732	
8,300.0	7,075.1	8,370.3	7,220.7	36.4	35.0	-113.86		1,140.6	-711.0	362.5	295.5	67.06	5.406	
8,400.0	7,070.1	8,470.3	7,218.3	38.5	37.3	-114.23		1,140.6	-810.9	363.6	292.4	71.18	5.108	
8,500.0	7,065.1	8,570.2	7,215.8	40.7	39.7	-114.59		1,140.6	-910.9	364.6	289.2	75.38	4.837	
8,600.0	7,060.0	8,670.2	7,213.3	43.0	42.1	-114.95		1,140.6	-1,010.8	365.7	286.0	79.66	4.590	
8,700.0	7,055.0	8,770.2	7,210.8	45.4	44.6	-115.31		1,140.6	-1,110.7	366.7	282.7	83.99	4.366	
8,800.0	7,050.0	8,870.1	7,208.3	47.8	47.1	-115.67		1,140.6	-1,210.7	367.8	279.5	88.36	4.163	
8,900.0	7,045.0	8,970.1	7,205.9	50.3	49.6	-116.02		1,140.6	-1,310.6	368.9	276.2	92.77	3.977	
9,000.0	7,040.0	9,070.1	7,203.4	52.8	52.2	-116.37		1,140.6	-1,410.6	370.0	272.8	97.20	3.807	
9,100.0	7,035.0	9,170.1	7,200.9	55.3	54.8	-116.72		1,140.6	-1,510.5	371.2	269.5	101.64	3.652	
9,200.0	7,030.0	9,270.0	7,198.4	57.9	57.4	-117.07		1,140.6	-1,610.4	372.3	266.2	106.09	3.509	
9,300.0	7,025.0	9,370.0	7,196.0	60.5	60.0	-117.42		1,140.6	-1,710.4	373.5	262.9	110.55	3.379	
9,400.0	7,020.0	9,470.0	7,193.5	63.1	62.6	-117.76		1,140.6	-1,810.3	374.7	259.7	115.00	3.258	
9,500.0	7,015.0	9,569.9	7,191.0	65.7	65.3	-118.10		1,140.6	-1,910.2	375.8	256.4	119.45	3.146	
9,600.0	7,010.0	9,669.9	7,188.5	68.3	68.0	-118.44		1,140.6	-2,010.2	377.0	253.1	123.89	3.043	
9,700.0	7,005.0	9,769.9	7,186.0	70.9	70.6	-118.78		1,140.6	-2,110.1	378.2	249.9	128.32	2.948	
9,800.0	7,000.0	9,869.8	7,183.6	73.6	73.3	-119.11		1,140.6	-2,210.1	379.5	246.7	132.74	2.859	
9,900.0	6,995.0	9,969.8	7,181.1	76.3	76.0	-119.44		1,140.6	-2,310.0	380.7	243.6	137.15	2.776	

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,989.9	10,069.8	7,178.6	78.9	78.7	-119.77	1,140.6	-2,409.9	382.0	240.4	141.54	2.699	
10,100.0	6,984.9	10,169.7	7,176.1	81.6	81.4	-120.10	1,140.6	-2,509.9	383.2	237.3	145.91	2.626	
10,200.0	6,979.9	10,269.7	7,173.7	84.3	84.1	-120.43	1,140.6	-2,609.8	384.5	234.2	150.26	2.559	
10,300.0	6,974.9	10,369.7	7,171.2	87.0	86.8	-120.75	1,140.6	-2,709.7	385.8	231.2	154.59	2.495	
10,400.0	6,969.9	10,469.6	7,168.7	89.7	89.5	-121.07	1,140.6	-2,809.7	387.1	228.2	158.91	2.436	
10,500.0	6,964.9	10,569.6	7,166.2	92.4	92.3	-121.39	1,140.6	-2,909.6	388.4	225.2	163.20	2.380	
10,600.0	6,959.9	10,669.6	7,163.7	95.1	95.0	-121.71	1,140.6	-3,009.6	389.7	222.3	167.46	2.327	
10,700.0	6,954.9	10,769.5	7,161.3	97.8	97.7	-122.03	1,140.6	-3,109.5	391.1	219.4	171.70	2.278	
10,800.0	6,949.9	10,869.5	7,158.8	100.6	100.5	-122.34	1,140.6	-3,209.4	392.4	216.5	175.92	2.231	
10,900.0	6,944.9	10,969.5	7,156.3	103.3	103.2	-122.65	1,140.6	-3,309.4	393.8	213.7	180.12	2.186	
11,000.0	6,939.9	11,069.4	7,153.8	106.0	105.9	-122.96	1,140.6	-3,409.3	395.1	210.9	184.29	2.144	
11,100.0	6,934.9	11,169.4	7,151.4	108.8	108.7	-123.27	1,140.6	-3,509.2	396.5	208.1	188.43	2.104	
11,200.0	6,929.9	11,269.4	7,148.9	111.5	111.4	-123.57	1,140.6	-3,609.2	397.9	205.4	192.55	2.067	
11,300.0	6,924.9	11,369.3	7,146.4	114.2	114.2	-123.87	1,140.6	-3,709.1	399.3	202.7	196.64	2.031	
11,400.0	6,919.9	11,469.3	7,143.9	117.0	116.9	-124.17	1,140.6	-3,809.1	400.7	200.0	200.71	1.997	
11,500.0	6,914.8	11,569.3	7,141.5	119.7	119.7	-124.47	1,140.6	-3,909.0	402.2	197.4	204.75	1.964	
11,600.0	6,909.8	11,669.2	7,139.0	122.5	122.5	-124.77	1,140.6	-4,008.9	403.6	194.8	208.76	1.933	
11,636.7	6,908.0	11,705.9	7,138.1	123.5	123.5	-124.88	1,140.6	-4,045.6	404.1	193.9	210.23	1.922 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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
Existings Sec.7-T3N-R68W - Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-30.78	637.5	-379.7	742.1				
100.0	100.0	90.0	90.0	0.1	1.8	-30.78	637.5	-379.7	742.0	740.1	1.91	387.979	
200.0	200.0	190.0	190.0	0.3	3.8	-30.78	637.5	-379.7	742.0	737.9	4.14	179.352	
300.0	300.0	290.0	290.0	0.6	5.8	-30.78	637.5	-379.7	742.0	735.7	6.36	116.634	
400.0	400.0	390.0	390.0	0.8	7.8	-30.78	637.5	-379.7	742.0	733.5	8.59	86.416	
500.0	500.0	490.0	490.0	1.0	9.8	-30.78	637.5	-379.7	742.0	731.2	10.81	68.634	
600.0	600.0	590.0	590.0	1.2	11.8	-30.78	637.5	-379.7	742.0	729.0	13.04	56.921	
700.0	700.0	690.0	690.0	1.5	13.8	-52.26	637.5	-379.7	741.0	725.7	15.26	48.567	
800.0	799.8	789.8	789.8	1.7	15.8	-52.63	637.5	-379.7	737.8	720.3	17.47	42.237	
900.0	899.5	889.5	889.5	1.9	17.8	-53.25	637.5	-379.7	732.5	712.8	19.67	37.238	
1,000.0	998.7	988.7	988.7	2.2	19.8	-54.14	637.5	-379.7	725.3	703.4	21.87	33.159	
1,100.0	1,097.5	1,087.5	1,087.5	2.5	21.7	-55.29	637.5	-379.7	716.2	692.1	24.08	29.743	
1,200.0	1,195.6	1,185.6	1,185.6	2.8	23.7	-56.73	637.5	-379.7	705.3	679.0	26.30	26.821	
1,300.0	1,293.1	1,283.1	1,283.1	3.2	25.7	-58.47	637.5	-379.7	693.1	664.5	28.54	24.280	
1,400.0	1,389.6	1,379.6	1,379.6	3.6	27.6	-60.52	637.5	-379.7	679.6	648.8	30.83	22.041	
1,500.0	1,485.3	1,475.3	1,475.3	4.1	29.5	-62.89	637.5	-379.7	665.2	632.1	33.18	20.052	
1,600.0	1,580.0	1,570.0	1,570.0	4.7	31.4	-65.39	637.5	-379.7	650.7	615.1	35.62	18.269	
1,700.0	1,674.7	1,664.7	1,664.7	5.2	33.3	-67.90	637.5	-379.7	637.4	599.3	38.12	16.720	
1,800.0	1,769.4	1,759.4	1,759.4	5.8	35.2	-70.50	637.5	-379.7	625.4	584.8	40.65	15.384	
1,900.0	1,864.1	1,854.1	1,854.1	6.4	37.1	-73.19	637.5	-379.7	614.9	571.7	43.21	14.231	
2,000.0	1,958.8	1,948.8	1,948.8	7.0	39.0	-75.96	637.5	-379.7	605.9	560.1	45.77	13.236	
2,100.0	2,053.5	2,043.5	2,043.5	7.6	40.9	-78.80	637.5	-379.7	598.5	550.1	48.35	12.379	
2,200.0	2,148.2	2,138.2	2,138.2	8.2	42.8	-81.69	637.5	-379.7	592.7	541.8	50.92	11.641	
2,300.0	2,242.8	2,232.8	2,232.8	8.9	44.7	-84.62	637.5	-379.7	588.7	535.2	53.48	11.007	
2,400.0	2,337.5	2,327.5	2,327.5	9.5	46.6	-87.59	637.5	-379.7	586.4	530.3	56.03	10.466	
2,481.0	2,414.2	2,404.2	2,404.2	10.0	48.1	-90.00	637.5	-379.7	585.8	527.7	58.07	10.087 CC	
2,500.0	2,432.2	2,422.2	2,422.2	10.1	48.4	-90.57	637.5	-379.7	585.8	527.3	58.55	10.005	
2,600.0	2,526.9	2,516.9	2,516.9	10.7	50.3	-93.54	637.5	-379.7	587.0	526.0	61.05	9.616 ES	
2,700.0	2,621.6	2,611.6	2,611.6	11.4	52.2	-96.50	637.5	-379.7	590.0	526.5	63.51	9.291	
2,800.0	2,716.3	2,706.3	2,706.3	12.0	54.1	-99.42	637.5	-379.7	594.7	528.8	65.93	9.021	
2,900.0	2,811.0	2,801.0	2,801.0	12.6	56.0	-102.29	637.5	-379.7	601.1	532.8	68.31	8.800	
3,000.0	2,905.7	2,895.7	2,895.7	13.3	57.9	-105.10	637.5	-379.7	609.1	538.5	70.65	8.622	
3,100.0	3,000.3	2,990.3	2,990.3	13.9	59.8	-107.84	637.5	-379.7	618.7	545.8	72.94	8.482	
3,200.0	3,095.0	3,085.0	3,085.0	14.5	61.7	-110.49	637.5	-379.7	629.8	554.6	75.20	8.375	
3,300.0	3,189.7	3,179.7	3,179.7	15.1	63.6	-113.06	637.5	-379.7	642.3	564.9	77.41	8.297	
3,400.0	3,284.4	3,274.4	3,274.4	15.8	65.5	-115.54	637.5	-379.7	656.1	576.6	79.59	8.244	
3,500.0	3,379.1	3,369.1	3,369.1	16.4	67.4	-117.91	637.5	-379.7	671.2	589.5	81.74	8.212	
3,600.0	3,473.8	3,463.8	3,463.8	17.0	69.3	-120.19	637.5	-379.7	687.5	603.7	83.85	8.199	
3,700.0	3,568.5	3,558.5	3,558.5	17.7	71.2	-122.36	637.5	-379.7	704.9	619.0	85.94	8.202	
3,800.0	3,663.1	3,653.1	3,653.1	18.3	73.1	-124.44	637.5	-379.7	723.3	635.3	88.00	8.219	
3,900.0	3,757.8	3,747.8	3,747.8	19.0	75.0	-126.42	637.5	-379.7	742.6	652.5	90.04	8.247	
4,000.0	3,852.5	3,842.5	3,842.5	19.6	76.9	-128.30	637.5	-379.7	762.8	670.7	92.07	8.285	
4,100.0	3,947.2	3,937.2	3,937.2	20.2	78.7	-130.09	637.5	-379.7	783.8	689.7	94.08	8.331	
4,200.0	4,041.9	4,031.9	4,031.9	20.9	80.6	-131.79	637.5	-379.7	805.5	709.4	96.08	8.383	
4,300.0	4,136.6	4,126.6	4,126.6	21.5	82.5	-133.40	637.5	-379.7	827.9	729.8	98.07	8.442	
4,400.0	4,231.3	4,221.3	4,221.3	22.1	84.4	-134.93	637.5	-379.7	850.9	750.9	100.06	8.504	
4,500.0	4,326.0	4,316.0	4,316.0	22.8	86.3	-136.39	637.5	-379.7	874.5	772.5	102.04	8.571	
4,600.0	4,420.6	4,410.6	4,410.6	23.4	88.2	-137.77	637.5	-379.7	898.7	794.7	104.01	8.640	
4,700.0	4,515.3	4,505.3	4,505.3	24.0	90.1	-139.08	637.5	-379.7	923.3	817.3	105.98	8.712	
4,800.0	4,610.0	4,600.0	4,600.0	24.7	92.0	-140.32	637.5	-379.7	948.4	840.4	107.95	8.785	
4,900.0	4,704.7	4,694.7	4,694.7	25.3	93.9	-141.51	637.5	-379.7	973.9	864.0	109.92	8.860	

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	Offset TVD Reference:	Offset Datum

Offset Design Existing Sec.7-T3N-R68W - Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7850-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						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	
5,000.0	4,799.4	4,789.4	4,789.4	26.0	95.8	-142.63	637.5	-379.7	999.8	887.9	111.89	8.935	
7,500.0	7,049.3	7,039.3	7,039.3	31.1	140.8	-78.68	637.5	-379.7	955.6	797.8	157.78	6.057	
7,600.0	7,078.9	7,068.9	7,068.9	31.0	141.4	-84.08	637.5	-379.7	912.9	751.2	161.75	5.644	
7,700.0	7,095.9	7,085.9	7,085.9	30.9	141.7	-88.04	637.5	-379.7	877.7	713.3	164.39	5.339	
7,800.0	7,099.9	7,089.9	7,089.9	31.0	141.8	-90.30	637.5	-379.7	852.1	685.8	166.23	5.126	
7,900.0	7,095.1	7,085.1	7,085.1	31.2	141.7	-90.25	637.5	-379.7	837.7	669.9	167.79	4.992	
7,971.9	7,091.5	7,081.5	7,081.5	31.6	141.6	-90.00	637.5	-379.7	834.6	665.6	169.03	4.938	
8,000.0	7,090.1	7,080.1	7,080.1	31.8	141.6	-89.90	637.5	-379.7	835.1	665.5	169.51	4.926 SF	
8,100.0	7,085.1	7,075.1	7,075.1	32.9	141.5	-89.56	637.5	-379.7	844.3	673.0	171.37	4.927	
8,200.0	7,080.1	7,070.1	7,070.1	34.5	141.4	-89.22	637.5	-379.7	865.1	691.8	173.35	4.991	
8,300.0	7,075.1	7,065.1	7,065.1	36.4	141.3	-88.87	637.5	-379.7	896.6	721.2	175.41	5.111	
8,400.0	7,070.1	7,060.1	7,060.1	38.5	141.2	-88.53	637.5	-379.7	937.7	760.2	177.56	5.281	
8,500.0	7,065.1	7,055.1	7,055.1	40.7	141.1	-88.19	637.5	-379.7	987.3	807.5	179.76	5.492	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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
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	3.0	3.0	0.0	0.0	80.68	69.2	421.6	427.2				
100.0	100.0	103.0	103.0	0.1	0.1	80.68	69.2	421.6	427.2	427.0	0.23	1,845.474	
165.6	165.6	168.6	168.6	0.3	0.3	80.68	69.2	421.6	427.2	426.7	0.53	811.382	
200.0	200.0	202.8	202.8	0.3	0.3	80.68	69.2	421.6	427.2	426.6	0.68	627.654	
300.0	300.0	300.0	300.0	0.6	0.6	80.46	70.9	422.0	427.9	426.8	1.12	380.481	
400.0	400.0	392.2	392.0	0.8	0.8	79.88	75.5	423.0	429.8	428.2	1.56	274.732	
500.0	500.0	486.3	485.8	1.0	1.0	78.91	83.2	424.6	433.0	431.0	2.02	214.495	
600.0	600.0	579.8	578.7	1.2	1.3	77.61	93.8	426.9	437.8	435.3	2.49	176.059	
700.0	700.0	676.6	674.5	1.5	1.6	54.73	107.3	429.8	442.9	439.9	3.00	147.637	
800.0	799.8	776.1	773.0	1.7	1.9	53.54	121.4	432.9	446.4	442.9	3.52	126.729	
900.0	899.5	875.9	871.7	1.9	2.2	52.76	135.6	436.0	448.0	443.9	4.06	110.376	
1,000.0	998.7	975.9	970.6	2.2	2.5	52.37	149.8	439.0	447.5	442.9	4.61	97.003	
1,100.0	1,097.5	1,075.8	1,069.5	2.5	2.9	52.36	164.0	442.1	444.9	439.7	5.19	85.674	
1,200.0	1,195.6	1,175.7	1,168.3	2.8	3.2	52.75	178.2	445.2	440.1	434.3	5.81	75.809	
1,300.0	1,293.1	1,275.3	1,266.9	3.2	3.6	53.55	192.3	448.2	433.3	426.8	6.46	67.063	
1,400.0	1,389.6	1,374.6	1,365.1	3.6	3.9	54.78	206.4	451.3	424.5	417.3	7.17	59.191	
1,500.0	1,485.3	1,473.4	1,462.8	4.1	4.2	56.48	220.4	454.3	413.9	406.0	7.95	52.078	
1,600.0	1,580.0	1,571.7	1,560.1	4.7	4.6	58.49	234.4	457.4	402.2	393.4	8.80	45.710	
1,700.0	1,674.7	1,670.0	1,657.4	5.2	4.9	60.57	248.3	460.4	390.9	381.2	9.69	40.318	
1,800.0	1,769.4	1,768.3	1,754.6	5.8	5.3	62.77	262.3	463.4	380.1	369.4	10.62	35.773	
1,900.0	1,864.1	1,866.6	1,851.9	6.4	5.6	65.09	276.3	466.4	369.8	358.3	11.58	31.931	
2,000.0	1,958.8	1,964.9	1,949.2	7.0	5.9	67.54	290.2	469.4	360.3	347.7	12.57	28.671	
2,100.0	2,053.5	2,063.2	2,046.4	7.6	6.3	70.11	304.2	472.5	351.4	337.9	13.57	25.899	
2,200.0	2,148.2	2,161.5	2,143.7	8.2	6.6	72.80	318.1	475.5	343.3	328.7	14.59	23.537	
2,300.0	2,242.8	2,259.8	2,240.9	8.9	7.0	75.62	332.1	478.5	336.0	320.4	15.61	21.524	
2,400.0	2,337.5	2,358.1	2,338.2	9.5	7.3	78.55	346.0	481.5	329.6	313.0	16.64	19.811	
2,500.0	2,432.2	2,456.4	2,435.4	10.1	7.6	81.58	360.0	484.6	324.1	306.4	17.66	18.356	
2,600.0	2,526.9	2,554.7	2,532.7	10.7	8.0	84.70	373.9	487.6	319.6	300.9	18.66	17.125	
2,700.0	2,621.6	2,653.0	2,629.9	11.4	8.3	87.91	387.9	490.6	316.0	296.4	19.64	16.092	
2,800.0	2,716.3	2,751.3	2,727.2	12.0	8.7	91.17	401.9	493.6	313.5	292.9	20.58	15.231	
2,900.0	2,811.0	2,849.6	2,824.4	12.6	9.0	94.47	415.8	496.6	312.1	290.6	21.49	14.522	
2,982.6	2,889.1	2,930.7	2,904.7	13.1	9.3	97.21	427.3	499.1	311.7	289.5	22.20	14.040	CC
3,000.0	2,905.7	2,947.9	2,921.7	13.3	9.3	97.79	429.8	499.7	311.7	289.4	22.35	13.949	
3,100.0	3,000.3	3,046.2	3,018.9	13.9	9.7	101.10	443.7	502.7	312.5	289.3	23.15	13.495	ES
3,200.0	3,095.0	3,144.5	3,116.2	14.5	10.0	104.39	457.7	505.7	314.3	290.4	23.90	13.148	
3,300.0	3,189.7	3,242.8	3,213.4	15.1	10.4	107.64	471.6	508.7	317.1	292.5	24.59	12.894	
3,400.0	3,284.4	3,341.1	3,310.7	15.8	10.7	110.81	485.6	511.8	321.0	295.8	25.23	12.724	
3,500.0	3,379.1	3,439.4	3,407.9	16.4	11.0	113.91	499.6	514.8	325.9	300.1	25.81	12.628	
3,600.0	3,473.8	3,537.6	3,505.2	17.0	11.4	116.90	513.5	517.8	331.7	305.4	26.34	12.596	
3,700.0	3,568.5	3,635.9	3,602.4	17.7	11.7	119.79	527.5	520.8	338.5	311.7	26.82	12.621	
3,800.0	3,663.1	3,734.2	3,699.7	18.3	12.1	122.57	541.4	523.8	346.1	318.8	27.26	12.695	
3,900.0	3,757.8	3,832.5	3,797.0	19.0	12.4	125.22	555.4	526.9	354.4	326.8	27.67	12.811	
4,000.0	3,852.5	3,930.8	3,894.2	19.6	12.7	127.74	569.3	529.9	363.5	335.5	28.04	12.964	
4,100.0	3,947.2	4,029.1	3,991.5	20.2	13.1	130.15	583.3	532.9	373.3	344.9	28.40	13.147	
4,200.0	4,041.9	4,127.4	4,088.7	20.9	13.4	132.42	597.2	535.9	383.8	355.0	28.73	13.357	
4,300.0	4,136.6	4,225.7	4,186.0	21.5	13.8	134.58	611.2	538.9	394.8	365.7	29.05	13.587	
4,400.0	4,231.3	4,324.0	4,283.2	22.1	14.1	136.62	625.2	542.0	406.3	376.9	29.37	13.835	
4,500.0	4,326.0	4,422.3	4,380.5	22.8	14.4	138.55	639.1	545.0	418.3	388.7	29.67	14.097	
4,600.0	4,420.6	4,520.6	4,477.7	23.4	14.8	140.37	653.1	548.0	430.8	400.8	29.98	14.370	
4,700.0	4,515.3	4,618.9	4,575.0	24.0	15.1	142.09	667.0	551.0	443.7	413.4	30.29	14.650	
4,800.0	4,610.0	4,717.2	4,672.2	24.7	15.5	143.71	681.0	554.1	457.0	426.4	30.60	14.936	

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	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							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,704.7	4,815.5	4,769.5	25.3	15.8	145.24	694.9	557.1	470.6	439.7	30.91	15.225	
5,000.0	4,799.4	4,913.8	4,866.7	26.0	16.1	146.68	708.9	560.1	484.5	453.3	31.23	15.515	
5,100.0	4,894.1	5,012.1	4,964.0	26.6	16.5	148.04	722.9	563.1	498.7	467.2	31.55	15.806	
5,200.0	4,988.8	5,110.4	5,061.2	27.2	16.8	149.33	736.8	566.1	513.2	481.3	31.89	16.095	
5,300.0	5,083.4	5,208.7	5,158.5	27.9	17.2	150.55	750.8	569.2	527.9	495.7	32.23	16.382	
5,400.0	5,178.1	5,307.0	5,255.7	28.5	17.5	151.70	764.7	572.2	542.9	510.3	32.57	16.666	
5,500.0	5,272.8	5,405.3	5,353.0	29.2	17.9	152.79	778.7	575.2	558.0	525.1	32.93	16.945	
5,600.0	5,368.0	5,493.0	5,439.9	29.7	18.1	153.80	790.6	577.8	572.6	539.4	33.26	17.215	
5,700.0	5,464.2	5,575.6	5,521.9	30.1	18.3	154.65	799.6	579.7	586.9	553.4	33.51	17.513	
5,800.0	5,561.2	5,657.8	5,603.9	30.5	18.5	155.41	806.2	581.2	600.9	567.1	33.73	17.812	
5,900.0	5,659.1	5,739.8	5,685.8	30.9	18.7	156.07	810.6	582.1	614.5	580.6	33.93	18.112	
6,000.0	5,757.6	5,821.6	5,767.5	31.2	18.8	156.65	812.6	582.6	627.8	593.7	34.10	18.414	
6,100.0	5,856.6	5,913.7	5,859.6	31.5	18.9	157.20	812.8	582.6	640.2	606.0	34.25	18.692	
6,200.0	5,956.1	6,013.2	5,959.1	31.7	19.0	157.62	812.8	582.6	649.7	615.3	34.44	18.868	
6,300.0	6,055.9	6,113.0	6,058.9	31.8	19.2	157.89	812.8	582.6	656.0	621.4	34.61	18.952	
6,400.0	6,155.8	6,212.9	6,158.8	32.0	19.3	158.02	812.8	582.6	659.0	624.3	34.78	18.947	
6,500.0	6,255.8	6,312.9	6,258.8	32.1	19.5	179.39	812.8	582.6	659.3	609.7	49.66	13.277	
6,558.7	6,314.5	6,371.6	6,317.5	32.1	19.6	-90.65	812.8	582.6	659.4	624.1	35.26	18.702	
6,600.0	6,355.8	6,412.9	6,358.8	32.1	19.6	-90.63	812.8	582.6	659.4	624.0	35.39	18.629	
6,700.0	6,455.3	6,513.8	6,459.6	32.2	19.8	-91.06	812.8	578.4	659.4	623.7	35.75	18.446	
6,800.0	6,552.8	6,615.7	6,559.9	32.2	19.9	-91.50	812.8	561.0	659.5	623.6	35.97	18.336	
6,900.0	6,646.6	6,718.2	6,657.6	32.1	20.0	-91.91	812.8	530.2	659.7	623.6	36.08	18.284	
7,000.0	6,735.0	6,821.4	6,750.9	32.0	20.0	-92.29	812.8	486.3	659.8	623.7	36.14	18.258	
7,100.0	6,816.7	6,925.2	6,837.9	31.8	20.1	-92.64	812.8	429.9	660.0	623.8	36.25	18.206	
7,200.0	6,890.1	7,029.5	6,916.8	31.6	20.2	-92.93	812.8	361.8	660.2	623.6	36.57	18.054	
7,300.0	6,954.0	7,134.3	6,986.1	31.4	20.4	-93.18	812.8	283.2	660.3	623.1	37.25	17.728	
7,400.0	7,007.4	7,239.5	7,044.1	31.3	20.7	-93.36	812.8	195.6	660.5	622.0	38.45	17.176	
7,500.0	7,049.3	7,344.9	7,089.6	31.1	21.4	-93.49	812.8	100.6	660.5	620.2	40.29	16.396	
7,600.0	7,078.9	7,450.5	7,121.7	31.0	22.5	-93.56	812.8	0.1	660.6	617.8	42.78	15.441	
7,700.0	7,095.9	7,556.2	7,139.7	30.9	24.0	-93.55	812.8	-104.0	660.6	614.7	45.87	14.401	
7,800.0	7,099.9	7,661.8	7,143.1	31.0	25.9	-93.49	812.8	-209.5	660.5	611.1	49.41	13.368	
7,822.6	7,099.2	7,684.5	7,142.2	31.0	26.3	-93.47	812.8	-232.1	660.5	610.3	50.25	13.145	
7,900.0	7,095.1	7,761.9	7,139.1	31.2	27.9	-93.56	812.8	-309.5	660.6	607.4	53.19	12.419	
8,000.0	7,090.1	7,861.9	7,135.1	31.8	30.0	-93.65	812.8	-409.4	660.7	603.4	57.24	11.542	
8,100.0	7,085.1	7,961.9	7,131.1	32.9	32.2	-93.74	812.8	-509.3	660.7	599.2	61.53	10.738	
8,200.0	7,080.1	8,061.9	7,127.1	34.5	34.5	-93.83	812.8	-609.2	660.8	594.8	66.02	10.009	
8,300.0	7,075.1	8,161.9	7,123.2	36.4	36.9	-93.92	812.8	-709.2	660.9	590.2	70.66	9.352	
8,400.0	7,070.1	8,261.9	7,119.2	38.5	39.3	-94.01	812.8	-809.1	660.9	585.5	75.43	8.762	
8,500.0	7,065.1	8,361.9	7,115.2	40.7	41.8	-94.09	812.8	-909.0	661.0	580.7	80.31	8.230	
8,600.0	7,060.0	8,461.9	7,111.2	43.0	44.3	-94.18	812.8	-1,008.9	661.1	575.8	85.28	7.752	
8,700.0	7,055.0	8,561.9	7,107.3	45.4	46.9	-94.27	812.8	-1,108.8	661.1	570.8	90.31	7.320	
8,800.0	7,050.0	8,661.9	7,103.3	47.8	49.4	-94.36	812.8	-1,208.7	661.2	565.8	95.41	6.930	
8,900.0	7,045.0	8,761.9	7,099.3	50.3	52.0	-94.45	812.8	-1,308.7	661.3	560.7	100.56	6.576	
9,000.0	7,040.0	8,861.9	7,095.3	52.8	54.7	-94.54	812.8	-1,408.6	661.4	555.6	105.76	6.254	
9,100.0	7,035.0	8,961.9	7,091.3	55.3	57.3	-94.63	812.8	-1,508.5	661.5	550.5	110.99	5.960	
9,200.0	7,030.0	9,061.9	7,087.4	57.9	60.0	-94.72	812.8	-1,608.4	661.6	545.3	116.25	5.691	
9,300.0	7,025.0	9,161.9	7,083.4	60.5	62.6	-94.81	812.8	-1,708.3	661.6	540.1	121.54	5.444	
9,400.0	7,020.0	9,261.9	7,079.4	63.1	65.3	-94.89	812.8	-1,808.2	661.7	534.9	126.85	5.217	
9,500.0	7,015.0	9,361.9	7,075.4	65.7	68.0	-94.98	812.8	-1,908.1	661.8	529.6	132.18	5.007	
9,600.0	7,010.0	9,461.9	7,071.5	68.3	70.7	-95.07	812.8	-2,008.1	661.9	524.4	137.54	4.813	
9,700.0	7,005.0	9,561.9	7,067.5	70.9	73.4	-95.16	812.8	-2,108.0	662.0	519.1	142.90	4.632	

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,800.0	7,000.0	9,661.8	7,063.5	73.6	76.1	-95.25	812.8	-2,207.9	662.1	513.8	148.29	4.465	
9,900.0	6,995.0	9,761.8	7,059.5	76.3	78.8	-95.34	812.8	-2,307.8	662.2	508.5	153.68	4.309	
10,000.0	6,989.9	9,861.8	7,055.5	78.9	81.6	-95.43	812.8	-2,407.7	662.3	503.2	159.08	4.163	
10,100.0	6,984.9	9,961.8	7,051.6	81.6	84.3	-95.52	812.8	-2,507.6	662.4	497.9	164.50	4.027	
10,200.0	6,979.9	10,061.8	7,047.6	84.3	87.0	-95.60	812.8	-2,607.6	662.5	492.6	169.92	3.899	
10,300.0	6,974.9	10,161.8	7,043.6	87.0	89.8	-95.69	812.8	-2,707.5	662.6	487.2	175.35	3.779	
10,400.0	6,969.9	10,261.8	7,039.6	89.7	92.5	-95.78	812.8	-2,807.4	662.7	481.9	180.78	3.666	
10,500.0	6,964.9	10,361.8	7,035.7	92.4	95.3	-95.87	812.8	-2,907.3	662.8	476.6	186.22	3.559	
10,600.0	6,959.9	10,461.8	7,031.7	95.1	98.0	-95.96	812.8	-3,007.2	662.9	471.2	191.67	3.459	
10,700.0	6,954.9	10,561.8	7,027.7	97.8	100.8	-96.05	812.8	-3,107.1	663.0	465.9	197.12	3.363	
10,800.0	6,949.9	10,661.8	7,023.7	100.6	103.5	-96.14	812.8	-3,207.0	663.1	460.5	202.57	3.273	
10,900.0	6,944.9	10,761.8	7,019.7	103.3	106.3	-96.22	812.8	-3,307.0	663.2	455.2	208.03	3.188	
11,000.0	6,939.9	10,861.8	7,015.8	106.0	109.0	-96.31	812.8	-3,406.9	663.3	449.8	213.49	3.107	
11,100.0	6,934.9	10,961.8	7,011.8	108.8	111.8	-96.40	812.8	-3,506.8	663.4	444.5	218.96	3.030	
11,200.0	6,929.9	11,061.8	7,007.8	111.5	114.6	-96.49	812.8	-3,606.7	663.6	439.1	224.42	2.957	
11,300.0	6,924.9	11,161.8	7,003.8	114.2	117.3	-96.58	812.8	-3,706.6	663.7	433.8	229.89	2.887	
11,400.0	6,919.9	11,261.8	6,999.8	117.0	120.1	-96.67	812.8	-3,806.5	663.8	428.4	235.35	2.820	
11,500.0	6,914.8	11,361.8	6,995.9	119.7	122.9	-96.75	812.8	-3,906.5	663.9	423.1	240.82	2.757	
11,600.0	6,909.8	11,461.7	6,991.9	122.5	125.6	-96.84	812.8	-4,006.4	664.0	417.7	246.29	2.696	
11,636.7	6,908.0	11,498.4	6,990.4	123.5	126.6	-96.87	812.8	-4,043.0	664.1	415.8	248.30	2.675 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)						
0.0	0.0	2.0	2.0	0.0	0.0	85.06	36.4	421.6	423.2							
100.0	100.0	102.0	102.0	0.1	0.1	85.06	36.4	421.6	423.2	422.9	0.23	1,845.797				
200.0	200.0	202.0	202.0	0.3	0.3	85.06	36.4	421.6	423.2	422.5	0.68	623.415				
300.0	300.0	302.0	302.0	0.6	0.6	85.06	36.4	421.6	423.2	422.0	1.13	375.042				
400.0	400.0	402.0	402.0	0.8	0.8	85.06	36.4	421.6	423.2	421.6	1.58	268.193				
500.0	500.0	502.0	502.0	1.0	1.0	85.06	36.4	421.6	423.2	421.1	2.03	208.726				
600.0	600.0	602.0	602.0	1.2	1.2	85.06	36.4	421.6	423.2	420.7	2.48	170.845				
700.0	700.0	702.0	702.0	1.5	1.5	63.93	36.4	421.6	422.4	419.5	2.92	144.412				
800.0	799.8	801.8	801.8	1.7	1.7	64.61	36.4	421.6	420.1	416.8	3.37	124.538				
900.0	899.5	901.5	901.5	1.9	1.9	65.76	36.4	421.6	416.5	412.6	3.83	108.741				
1,000.0	998.7	1,000.7	1,000.7	2.2	2.1	67.39	36.4	421.6	411.6	407.3	4.30	95.639				
1,100.0	1,097.5	1,099.5	1,099.5	2.5	2.4	69.51	36.4	421.6	405.8	401.0	4.81	84.434				
1,200.0	1,195.6	1,197.6	1,197.6	2.8	2.6	72.16	36.4	421.6	399.4	394.1	5.35	74.669				
1,300.0	1,293.1	1,292.0	1,292.0	3.2	2.8	75.02	37.8	422.1	393.3	387.4	5.93	66.275				
1,400.0	1,389.6	1,387.0	1,386.9	3.6	3.0	77.99	42.2	423.7	388.1	381.6	6.58	58.977				
1,500.0	1,485.3	1,482.6	1,482.2	4.1	3.2	81.04	49.5	426.3	384.0	376.7	7.30	52.600				
1,600.0	1,580.0	1,579.1	1,578.0	4.7	3.5	84.04	60.0	430.1	380.9	372.8	8.09	47.089				
1,700.0	1,674.7	1,677.1	1,675.1	5.2	3.7	86.82	72.6	434.7	379.0	370.1	8.92	42.491				
1,800.0	1,769.4	1,775.3	1,772.3	5.8	4.0	89.62	85.3	439.3	378.1	368.3	9.77	38.678				
1,851.7	1,818.4	1,826.1	1,822.7	6.1	4.1	91.07	91.9	441.7	378.0	367.7	10.22	36.968 CC				
1,900.0	1,864.1	1,873.5	1,869.6	6.4	4.2	92.42	98.0	443.9	378.1	367.4	10.64	35.524 ES				
2,000.0	1,958.8	1,971.7	1,966.9	7.0	4.5	95.22	110.8	448.5	379.0	367.5	11.51	32.914				
2,100.0	2,053.5	2,069.9	2,064.2	7.6	4.8	97.99	123.5	453.1	380.8	368.4	12.38	30.754				
2,200.0	2,148.2	2,168.1	2,161.4	8.2	5.1	100.74	136.2	457.7	383.6	370.4	13.24	28.965				
2,300.0	2,242.8	2,266.4	2,258.7	8.9	5.4	103.44	148.9	462.3	387.3	373.2	14.09	27.486				
2,400.0	2,337.5	2,364.6	2,356.0	9.5	5.7	106.08	161.6	466.9	391.8	376.9	14.92	26.263				
2,500.0	2,432.2	2,462.8	2,453.3	10.1	6.0	108.66	174.3	471.5	397.2	381.4	15.73	25.256				
2,600.0	2,526.9	2,561.0	2,550.5	10.7	6.3	111.17	187.0	476.1	403.4	386.8	16.51	24.430				
2,700.0	2,621.6	2,659.2	2,647.8	11.4	6.6	113.61	199.8	480.7	410.3	393.0	17.27	23.756				
2,800.0	2,716.3	2,757.4	2,745.1	12.0	6.9	115.96	212.5	485.3	418.0	400.0	18.01	23.211				
2,900.0	2,811.0	2,855.6	2,842.4	12.6	7.2	118.22	225.2	489.9	426.4	407.7	18.72	22.775				
3,000.0	2,905.7	2,953.8	2,939.7	13.3	7.5	120.39	237.9	494.5	435.4	416.0	19.41	22.432				
3,100.0	3,000.3	3,052.1	3,036.9	13.9	7.8	122.48	250.6	499.1	445.1	425.0	20.08	22.168				
3,200.0	3,095.0	3,150.3	3,134.2	14.5	8.2	124.48	263.3	503.7	455.3	434.6	20.72	21.971				
3,300.0	3,189.7	3,248.5	3,231.5	15.1	8.5	126.39	276.0	508.3	466.0	444.7	21.35	21.831				
3,400.0	3,284.4	3,346.7	3,328.8	15.8	8.8	128.21	288.8	512.9	477.3	455.4	21.95	21.741				
3,500.0	3,379.1	3,444.9	3,426.0	16.4	9.1	129.95	301.5	517.5	489.0	466.5	22.55	21.691				
3,600.0	3,473.8	3,543.1	3,523.3	17.0	9.4	131.61	314.2	522.1	501.2	478.1	23.12	21.677				
3,700.0	3,568.5	3,641.3	3,620.6	17.7	9.8	133.19	326.9	526.7	513.8	490.1	23.68	21.693				
3,800.0	3,663.1	3,739.5	3,717.9	18.3	10.1	134.69	339.6	531.3	526.7	502.5	24.23	21.734				
3,900.0	3,757.8	3,837.7	3,815.1	19.0	10.4	136.13	352.3	535.9	540.0	515.2	24.77	21.796				
4,000.0	3,852.5	3,936.0	3,912.4	19.6	10.7	137.49	365.0	540.5	553.6	528.3	25.30	21.877				
4,100.0	3,947.2	4,034.2	4,009.7	20.2	11.0	138.79	377.7	545.1	567.5	541.6	25.83	21.972				
4,200.0	4,041.9	4,132.4	4,107.0	20.9	11.4	140.03	390.5	549.7	581.7	555.3	26.34	22.080				
4,300.0	4,136.6	4,230.6	4,204.2	21.5	11.7	141.21	403.2	554.3	596.1	569.2	26.85	22.199				
4,400.0	4,231.3	4,328.8	4,301.5	22.1	12.0	142.33	415.9	558.9	610.8	583.4	27.36	22.325				
4,500.0	4,326.0	4,427.0	4,398.8	22.8	12.3	143.41	428.6	563.5	625.7	597.8	27.86	22.459				
4,600.0	4,420.6	4,525.2	4,496.1	23.4	12.7	144.43	441.3	568.1	640.8	612.4	28.36	22.597				
4,700.0	4,515.3	4,623.4	4,593.3	24.0	13.0	145.40	454.0	572.7	656.1	627.2	28.85	22.740				
4,800.0	4,610.0	4,700.0	4,669.3	24.7	13.2	146.17	463.3	576.1	672.5	643.2	29.30	22.950				
4,900.0	4,704.7	4,788.3	4,757.1	25.3	13.4	147.12	471.6	579.1	691.4	661.7	29.69	23.290				

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,799.4	4,868.1	4,836.7	26.0	13.6	148.04		476.9	581.0	712.9	682.9	30.04	23.729	
5,100.0	4,894.1	4,946.7	4,915.2	26.6	13.7	148.98		480.1	582.2	737.0	706.7	30.38	24.264	
5,200.0	4,988.8	5,024.0	4,992.5	27.2	13.8	149.94		481.3	582.6	763.7	733.0	30.69	24.887	
5,300.0	5,083.4	5,116.9	5,085.4	27.9	14.0	151.06		481.3	582.6	792.1	761.1	30.99	25.563	
5,400.0	5,178.1	5,211.6	5,180.1	28.5	14.2	152.14		481.3	582.6	820.7	789.4	31.31	26.212	
5,500.0	5,272.8	5,306.3	5,274.8	29.2	14.3	153.14		481.3	582.6	849.6	817.9	31.65	26.845	
5,600.0	5,368.0	5,401.4	5,370.0	29.7	14.5	154.28		481.3	582.6	877.4	845.4	31.97	27.448	
5,700.0	5,464.2	5,497.6	5,466.2	30.1	14.7	155.24		481.3	582.6	902.3	870.0	32.25	27.975	
5,800.0	5,561.2	5,594.7	5,563.2	30.5	14.8	156.04		481.3	582.6	924.3	891.7	32.55	28.398	
5,900.0	5,659.1	5,692.5	5,661.1	30.9	15.0	156.70		481.3	582.6	943.2	910.4	32.84	28.724	
6,000.0	5,757.6	5,791.1	5,759.6	31.2	15.2	157.23		481.3	582.6	959.0	925.9	33.12	28.959	
6,100.0	5,856.6	5,890.1	5,858.6	31.5	15.4	157.64		481.3	582.6	971.7	938.3	33.38	29.107	
6,200.0	5,956.1	5,989.6	5,958.1	31.7	15.6	157.94		481.3	582.6	981.2	947.6	33.63	29.173	
6,300.0	6,055.9	6,089.3	6,057.9	31.8	15.7	158.14		481.3	582.6	987.5	953.6	33.87	29.159	
6,400.0	6,155.8	6,189.3	6,157.8	32.0	15.9	158.23		481.3	582.6	990.5	956.5	34.08	29.067	
6,500.0	6,255.8	6,289.3	6,257.8	32.1	16.1	179.60		481.3	582.6	990.9	944.6	46.27	21.416	
6,558.7	6,314.5	6,348.0	6,316.5	32.1	16.2	-90.43		481.3	582.6	990.9	956.3	34.57	28.661	
6,600.0	6,355.8	6,389.3	6,357.8	32.1	16.3	-90.42		481.3	582.6	990.9	956.1	34.72	28.541	
6,700.0	6,455.3	6,488.8	6,457.3	32.2	16.5	-90.93		481.3	582.6	991.0	955.8	35.12	28.216	
6,800.0	6,552.8	6,590.3	6,558.7	32.2	16.7	-91.91		481.3	577.5	991.4	955.9	35.51	27.915	
6,900.0	6,646.6	6,694.6	6,661.1	32.1	16.8	-92.86		481.3	558.4	992.1	956.3	35.77	27.736	
7,000.0	6,735.0	6,801.5	6,762.4	32.0	16.9	-93.79		481.3	524.5	993.1	957.1	35.92	27.644	
7,100.0	6,816.7	6,911.0	6,860.2	31.8	17.0	-94.65		481.3	475.6	994.2	958.1	36.05	27.574	
7,200.0	6,890.1	7,023.0	6,952.0	31.6	17.1	-95.44		481.3	411.6	995.4	959.1	36.30	27.422	
7,300.0	6,954.0	7,137.4	7,035.1	31.4	17.2	-96.13		481.3	333.0	996.6	959.7	36.85	27.042	
7,400.0	7,007.4	7,254.1	7,106.8	31.3	17.7	-96.70		481.3	241.1	997.7	959.8	37.93	26.307	
7,500.0	7,049.3	7,372.5	7,164.4	31.1	18.8	-97.15		481.3	137.8	998.6	958.9	39.71	25.149	
7,600.0	7,078.9	7,492.4	7,205.7	31.0	20.4	-97.45		481.3	25.4	999.3	957.0	42.26	23.645	
7,700.0	7,095.9	7,613.0	7,229.1	30.9	22.5	-97.59		481.3	-92.8	999.6	954.0	45.55	21.946	
7,799.2	7,099.9	7,730.8	7,233.7	31.0	24.8	-97.58		481.3	-210.4	999.6	950.2	49.33	20.265	
7,800.0	7,099.9	7,731.6	7,233.7	31.0	24.8	-97.58		481.3	-211.2	999.6	950.2	49.35	20.253	
7,900.0	7,095.1	7,831.6	7,231.3	31.2	26.9	-97.71		481.3	-311.2	999.9	946.8	53.13	18.821 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Bolton 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (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	2.0	2.0	0.0	0.0	89.01	7.3	421.6	421.7					
100.0	100.0	102.0	102.0	0.1	0.1	89.01	7.3	421.6	421.7	421.4	0.23	1,839.224		
200.0	200.0	202.0	202.0	0.3	0.3	89.01	7.3	421.6	421.7	421.0	0.68	621.195		
300.0	300.0	302.0	302.0	0.6	0.6	89.01	7.3	421.6	421.7	420.5	1.13	373.707		
400.0	400.0	402.0	402.0	0.8	0.8	89.01	7.3	421.6	421.7	420.1	1.58	267.238		
500.0	500.0	502.0	502.0	1.0	1.0	89.01	7.3	421.6	421.7	419.6	2.03	207.983		
600.0	600.0	602.0	602.0	1.2	1.2	89.01	7.3	421.6	421.7	419.2	2.48	170.237		
700.0	700.0	702.0	702.0	1.5	1.5	67.89	7.3	421.6	421.0	418.1	2.92	143.939		
800.0	799.8	801.8	801.8	1.7	1.7	68.58	7.3	421.6	419.1	415.7	3.37	124.224		
900.0	899.5	901.5	901.5	1.9	1.9	69.76	7.3	421.6	415.9	412.1	3.83	108.590		
1,000.0	998.7	1,000.7	1,000.7	2.2	2.1	71.41	7.3	421.6	411.9	407.6	4.31	95.654		
1,100.0	1,097.5	1,099.5	1,099.5	2.5	2.4	73.57	7.3	421.6	407.1	402.3	4.81	84.620		
1,200.0	1,195.6	1,197.6	1,197.6	2.8	2.6	76.23	7.3	421.6	402.1	396.7	5.36	75.040		
1,300.0	1,293.1	1,295.1	1,295.1	3.2	2.8	79.40	7.3	421.6	397.2	391.2	5.96	66.679		
1,400.0	1,389.6	1,391.6	1,391.6	3.6	3.0	83.07	7.3	421.6	393.1	386.5	6.61	59.431		
1,500.0	1,485.3	1,487.3	1,487.3	4.1	3.2	87.19	7.3	421.6	390.5	383.2	7.33	53.254		
1,564.2	1,546.2	1,548.2	1,548.2	4.5	3.4	90.00	7.3	421.6	390.0	382.2	7.83	49.831 CC		
1,600.0	1,580.0	1,582.0	1,582.0	4.7	3.4	91.64	7.3	421.6	390.2	382.1	8.10	48.168 ES		
1,700.0	1,674.7	1,676.7	1,676.7	5.2	3.7	96.09	7.3	421.6	392.5	383.6	8.88	44.219		
1,800.0	1,769.4	1,771.4	1,771.4	5.8	3.9	100.47	7.3	421.6	397.4	387.7	9.64	41.211		
1,900.0	1,864.1	1,866.1	1,866.1	6.4	4.1	104.73	7.3	421.6	404.8	394.4	10.39	38.957		
2,000.0	1,958.8	1,960.8	1,960.8	7.0	4.3	108.83	7.3	421.6	414.5	403.4	11.11	37.305		
2,100.0	2,053.5	2,055.5	2,055.5	7.6	4.5	112.74	7.3	421.6	426.5	414.7	11.80	36.131		
2,200.0	2,148.2	2,150.2	2,150.2	8.2	4.7	116.44	7.3	421.6	440.5	428.0	12.47	35.337		
2,300.0	2,242.8	2,244.8	2,244.8	8.9	4.9	119.91	7.3	421.6	456.3	443.2	13.10	34.844		
2,400.0	2,337.5	2,339.5	2,339.5	9.5	5.1	123.16	7.3	421.6	473.8	460.1	13.70	34.588		
2,500.0	2,432.2	2,434.2	2,434.2	10.1	5.4	126.18	7.3	421.6	492.8	478.5	14.28	34.517		
2,600.0	2,526.9	2,530.2	2,530.2	10.7	5.6	129.01	7.4	421.7	513.1	498.2	14.83	34.590		
2,700.0	2,621.6	2,630.5	2,630.5	11.4	5.8	131.47	9.3	423.8	533.8	518.4	15.39	34.690		
2,800.0	2,716.3	2,732.6	2,732.4	12.0	6.0	133.43	13.6	428.6	554.2	538.3	15.96	34.735		
2,900.0	2,811.0	2,836.4	2,835.6	12.6	6.3	134.92	20.5	436.2	574.0	557.5	16.55	34.678		
3,000.0	2,905.7	2,935.2	2,933.6	13.3	6.5	136.02	28.7	445.2	593.3	576.1	17.17	34.554		
3,100.0	3,000.3	3,032.7	3,030.4	13.9	6.7	137.04	36.8	454.1	612.7	594.9	17.79	34.448		
3,200.0	3,095.0	3,130.2	3,127.2	14.5	7.0	137.99	44.9	463.1	632.4	614.0	18.41	34.355		
3,300.0	3,189.7	3,227.7	3,224.0	15.1	7.2	138.89	53.0	472.0	652.1	633.1	19.03	34.276		
3,400.0	3,284.4	3,325.3	3,320.7	15.8	7.4	139.73	61.1	480.9	672.1	652.4	19.65	34.208		
3,500.0	3,379.1	3,422.8	3,417.5	16.4	7.7	140.53	69.3	489.9	692.1	671.9	20.27	34.150		
3,600.0	3,473.8	3,520.3	3,514.3	17.0	8.0	141.28	77.4	498.8	712.3	691.4	20.89	34.101		
3,700.0	3,568.5	3,617.8	3,611.1	17.7	8.2	141.99	85.5	507.7	732.6	711.1	21.51	34.060		
3,800.0	3,663.1	3,715.3	3,707.8	18.3	8.5	142.66	93.6	516.7	753.0	730.9	22.13	34.026		
3,900.0	3,757.8	3,812.9	3,804.6	19.0	8.8	143.29	101.7	525.6	773.5	750.8	22.75	33.998		
4,000.0	3,852.5	3,910.4	3,901.4	19.6	9.0	143.90	109.8	534.5	794.1	770.7	23.37	33.975		
4,100.0	3,947.2	4,007.9	3,998.1	20.2	9.3	144.47	117.9	543.5	814.8	790.8	23.99	33.957		
4,200.0	4,041.9	4,105.4	4,094.9	20.9	9.6	145.02	126.0	552.4	835.5	810.9	24.61	33.943		
4,300.0	4,136.6	4,203.0	4,191.7	21.5	9.9	145.53	134.1	561.3	856.3	831.1	25.24	33.932 SF		
4,400.0	4,231.3	4,294.7	4,282.7	22.1	10.1	146.01	141.6	569.6	877.3	851.5	25.83	33.964		
4,500.0	4,326.0	4,378.3	4,366.0	22.8	10.3	146.55	147.0	575.5	899.6	873.3	26.34	34.151		
4,600.0	4,420.6	4,461.0	4,448.5	23.4	10.5	147.19	150.7	579.6	923.5	896.7	26.82	34.438		
4,700.0	4,515.3	4,542.5	4,529.9	24.0	10.6	147.91	152.8	582.0	949.1	921.8	27.26	34.818		
4,800.0	4,610.0	4,624.6	4,612.0	24.7	10.8	148.73	153.4	582.6	976.3	948.6	27.67	35.284		

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5164.0ft (RKB - 15')

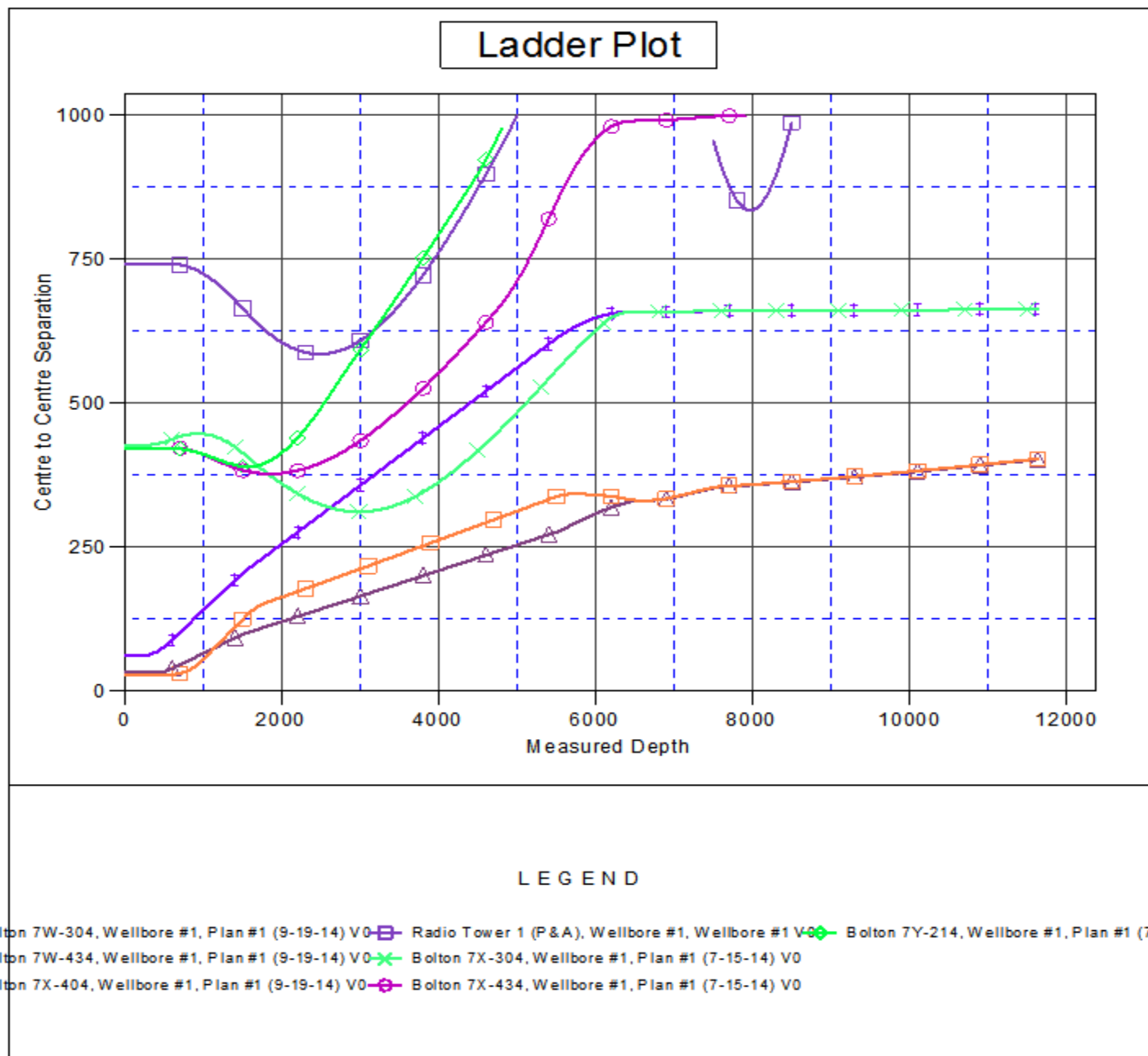
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bolton 7X-214

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 7X-214
Project:	SEC.7-T3N-R68W	TVD Reference:	WELL @ 5164.0ft (RKB - 15')
Reference Site:	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	MD Reference:	WELL @ 5164.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Bolton 7X-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 (9-19-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5164.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bolton 7X-214

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.30°

