

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Bolton 7W-434**

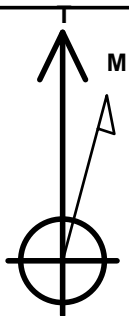
Surface Location: Bolton 3N68W7TY Pad Sec.7-T3N-R68W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5150.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1328412.18	3128790.89	40.233970	-105.038700	
RKB - 15' WELL @ 5165.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 370'FSL & 631'FEL	1.0	0.0	0.0	Point
BHL 2196'FSL & 500'FWL	7138.0	1770.8	-4034.2	Point



Azimuths to True North  
Magnetic North: 8.56°

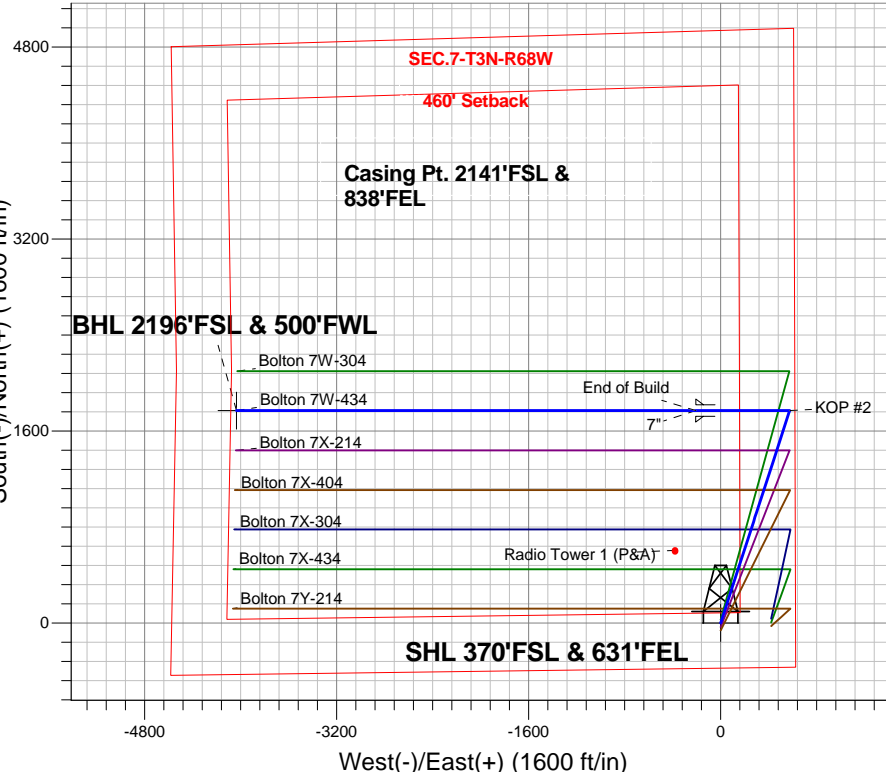
Magnetic Field  
Strength: 52668.9srT  
Dip Angle: 66.76°  
Date: 9/19/2014  
Model: IGRF2010

## ANNOTATIONS

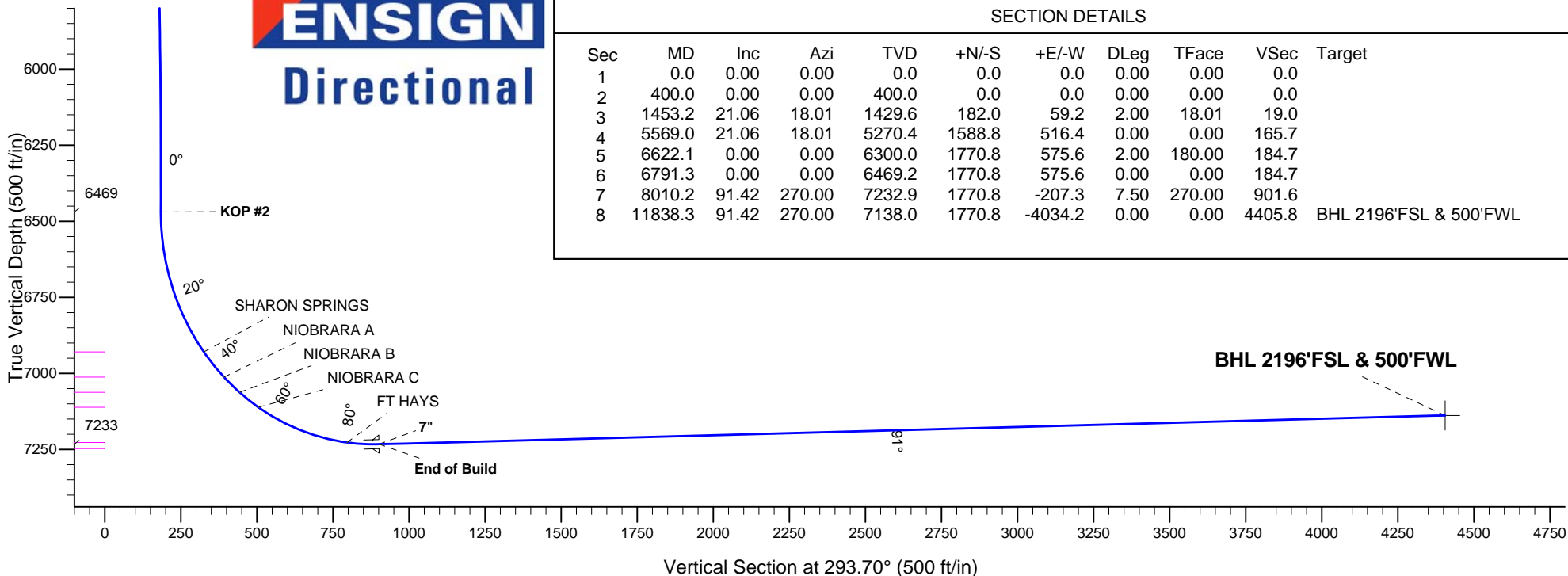
TVD	MD	Annotation
400.0	400.0	KOP #1
6469.2	6791.3	KOP #2
7232.9	8010.2	End of Build

Bolton 3N68W7TY Pad Sec.7-T3N-R68W  
Bolton 7W-434  
Plan #1 (9-19-14)

South(-)/North(+) (1600 ft/in)



**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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1453.2	21.06	18.01	1429.6	182.0	59.2	2.00	18.01	19.0	
4	5569.0	21.06	18.01	5270.4	1588.8	516.4	0.00	0.00	165.7	
5	6622.1	0.00	0.00	6300.0	1770.8	575.6	2.00	180.00	184.7	
6	6791.3	0.00	0.00	6469.2	1770.8	575.6	0.00	0.00	184.7	
7	8010.2	91.42	270.00	7232.9	1770.8	-207.3	7.50	270.00	901.6	
8	11838.3	91.42	270.00	7138.0	1770.8	-4034.2	0.00	0.00	4405.8	BHL 2196'FSL & 500'FWL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T3N-R68W**

**Bolton 3N68W7TY Pad Sec.7-T3N-R68W**

**Bolton 7W-434**

**Wellbore #1**

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

## **Standard Planning Report**

**23 September, 2014**

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Project:</b>	SEC.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-19-14)		

<b>Project</b>	SEC.7-T3N-R68W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

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

Well	Bolton 7W-434					
Well Position	+N-S	-29.2 ft	Northing:	1,328,412.18 ft	Latitude:	40.233970
	+E-W	0.0 ft	Easting:	3,128,790.89 ft	Longitude:	-105.038700
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,150.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/19/2014	8.56	66.76	52,669

<b>Design</b>	Plan #1 (9-19-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	293.70

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,453.2	21.06	18.01	1,429.6	182.0	59.2	2.00	2.00	0.00	18.01	
5,569.0	21.06	18.01	5,270.4	1,588.8	516.4	0.00	0.00	0.00	0.00	
6,622.1	0.00	0.00	6,300.0	1,770.8	575.6	2.00	-2.00	0.00	180.00	
6,791.3	0.00	0.00	6,469.2	1,770.8	575.6	0.00	0.00	0.00	0.00	
8,010.2	91.42	270.00	7,232.9	1,770.8	-207.3	7.50	7.50	0.00	270.00	
11,838.3	91.42	270.00	7,138.0	1,770.8	-4,034.2	0.00	0.00	0.00	0.00	BHL 2196'FSL & 5C

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Project:</b>	SEC.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
<b>KOP #1</b>									
500.0	2.00	18.01	500.0	1.7	0.5	0.2	2.00	2.00	0.00
600.0	4.00	18.01	599.8	6.6	2.2	0.7	2.00	2.00	0.00
700.0	6.00	18.01	699.5	14.9	4.9	1.6	2.00	2.00	0.00
800.0	8.00	18.01	798.7	26.5	8.6	2.8	2.00	2.00	0.00
900.0	10.00	18.01	897.5	41.4	13.5	4.3	2.00	2.00	0.00
1,000.0	12.00	18.01	995.6	59.5	19.4	6.2	2.00	2.00	0.00
1,100.0	14.00	18.01	1,093.1	80.9	26.3	8.4	2.00	2.00	0.00
1,200.0	16.00	18.01	1,189.6	105.5	34.3	11.0	2.00	2.00	0.00
1,300.0	18.00	18.01	1,285.3	133.3	43.3	13.9	2.00	2.00	0.00
1,400.0	20.00	18.01	1,379.8	164.3	53.4	17.1	2.00	2.00	0.00
1,453.2	21.06	18.01	1,429.6	182.0	59.2	19.0	2.00	2.00	0.00
1,500.0	21.06	18.01	1,473.3	198.0	64.4	20.7	0.00	0.00	0.00
1,600.0	21.06	18.01	1,566.6	232.2	75.5	24.2	0.00	0.00	0.00
1,700.0	21.06	18.01	1,659.9	266.4	86.6	27.8	0.00	0.00	0.00
1,800.0	21.06	18.01	1,753.3	300.6	97.7	31.4	0.00	0.00	0.00
1,900.0	21.06	18.01	1,846.6	334.8	108.8	34.9	0.00	0.00	0.00
2,000.0	21.06	18.01	1,939.9	368.9	119.9	38.5	0.00	0.00	0.00
2,100.0	21.06	18.01	2,033.2	403.1	131.0	42.0	0.00	0.00	0.00
2,200.0	21.06	18.01	2,126.5	437.3	142.1	45.6	0.00	0.00	0.00
2,300.0	21.06	18.01	2,219.9	471.5	153.3	49.2	0.00	0.00	0.00
2,400.0	21.06	18.01	2,313.2	505.7	164.4	52.7	0.00	0.00	0.00
2,500.0	21.06	18.01	2,406.5	539.8	175.5	56.3	0.00	0.00	0.00
2,600.0	21.06	18.01	2,499.8	574.0	186.6	59.9	0.00	0.00	0.00
2,700.0	21.06	18.01	2,593.1	608.2	197.7	63.4	0.00	0.00	0.00
2,800.0	21.06	18.01	2,686.4	642.4	208.8	67.0	0.00	0.00	0.00
2,900.0	21.06	18.01	2,779.8	676.6	219.9	70.6	0.00	0.00	0.00
3,000.0	21.06	18.01	2,873.1	710.7	231.0	74.1	0.00	0.00	0.00
3,100.0	21.06	18.01	2,966.4	744.9	242.1	77.7	0.00	0.00	0.00
3,200.0	21.06	18.01	3,059.7	779.1	253.2	81.3	0.00	0.00	0.00
3,300.0	21.06	18.01	3,153.0	813.3	264.4	84.8	0.00	0.00	0.00
3,400.0	21.06	18.01	3,246.4	847.5	275.5	88.4	0.00	0.00	0.00
3,500.0	21.06	18.01	3,339.7	881.6	286.6	92.0	0.00	0.00	0.00
3,597.9	21.06	18.01	3,431.0	915.1	297.4	95.4	0.00	0.00	0.00
<b>PARKMAN</b>									
3,600.0	21.06	18.01	3,433.0	915.8	297.7	95.5	0.00	0.00	0.00
3,700.0	21.06	18.01	3,526.3	950.0	308.8	99.1	0.00	0.00	0.00
3,800.0	21.06	18.01	3,619.6	984.2	319.9	102.7	0.00	0.00	0.00
3,900.0	21.06	18.01	3,712.9	1,018.4	331.0	106.2	0.00	0.00	0.00
4,000.0	21.06	18.01	3,806.3	1,052.5	342.1	109.8	0.00	0.00	0.00
4,046.9	21.06	18.01	3,850.0	1,068.6	347.3	111.5	0.00	0.00	0.00
<b>SUSSEX</b>									
4,100.0	21.06	18.01	3,899.6	1,086.7	353.2	113.4	0.00	0.00	0.00
4,200.0	21.06	18.01	3,992.9	1,120.9	364.3	116.9	0.00	0.00	0.00
4,300.0	21.06	18.01	4,086.2	1,155.1	375.4	120.5	0.00	0.00	0.00
4,400.0	21.06	18.01	4,179.5	1,189.3	386.6	124.0	0.00	0.00	0.00
4,500.0	21.06	18.01	4,272.9	1,223.4	397.7	127.6	0.00	0.00	0.00
4,600.0	21.06	18.01	4,366.2	1,257.6	408.8	131.2	0.00	0.00	0.00

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<b>Project:</b>	SEC.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
4,663.0	21.06	18.01	4,425.0	1,279.2	415.8	133.4	0.00	0.00	0.00
<b>SHANNON</b>									
4,700.0	21.06	18.01	4,459.5	1,291.8	419.9	134.7	0.00	0.00	0.00
4,800.0	21.06	18.01	4,552.8	1,326.0	431.0	138.3	0.00	0.00	0.00
4,900.0	21.06	18.01	4,646.1	1,360.2	442.1	141.9	0.00	0.00	0.00
5,000.0	21.06	18.01	4,739.5	1,394.3	453.2	145.4	0.00	0.00	0.00
5,100.0	21.06	18.01	4,832.8	1,428.5	464.3	149.0	0.00	0.00	0.00
5,200.0	21.06	18.01	4,926.1	1,462.7	475.4	152.6	0.00	0.00	0.00
5,300.0	21.06	18.01	5,019.4	1,496.9	486.5	156.1	0.00	0.00	0.00
5,400.0	21.06	18.01	5,112.7	1,531.1	497.7	159.7	0.00	0.00	0.00
5,500.0	21.06	18.01	5,206.0	1,565.2	508.8	163.3	0.00	0.00	0.00
5,569.0	21.06	18.01	5,270.4	1,588.8	516.4	165.7	0.00	0.00	0.00
5,600.0	20.44	18.01	5,299.4	1,599.3	519.8	166.8	2.00	-2.00	0.00
5,700.0	18.44	18.01	5,393.7	1,630.9	530.1	170.1	2.00	-2.00	0.00
5,800.0	16.44	18.01	5,489.1	1,659.4	539.4	173.1	2.00	-2.00	0.00
5,900.0	14.44	18.01	5,585.5	1,684.7	547.6	175.7	2.00	-2.00	0.00
6,000.0	12.44	18.01	5,682.8	1,706.9	554.8	178.0	2.00	-2.00	0.00
6,100.0	10.44	18.01	5,780.8	1,725.7	560.9	180.0	2.00	-2.00	0.00
6,200.0	8.44	18.01	5,879.4	1,741.3	566.0	181.6	2.00	-2.00	0.00
6,300.0	6.44	18.01	5,978.6	1,753.6	570.0	182.9	2.00	-2.00	0.00
6,400.0	4.44	18.01	6,078.1	1,762.7	572.9	183.9	2.00	-2.00	0.00
6,500.0	2.44	18.01	6,177.9	1,768.4	574.8	184.5	2.00	-2.00	0.00
6,600.0	0.44	18.01	6,277.9	1,770.8	575.6	184.7	2.00	-2.00	0.00
6,622.1	0.00	0.00	6,300.0	1,770.8	575.6	184.7	2.00	-2.00	0.00
6,700.0	0.00	0.00	6,377.9	1,770.8	575.6	184.7	0.00	0.00	0.00
6,791.3	0.00	0.00	6,469.2	1,770.8	575.6	184.7	0.00	0.00	0.00
<b>KOP #2</b>									
6,800.0	0.65	270.00	6,477.9	1,770.8	575.6	184.8	7.52	7.52	0.00
6,900.0	8.15	270.00	6,577.5	1,770.8	567.9	191.8	7.50	7.50	0.00
7,000.0	15.65	270.00	6,675.3	1,770.8	547.3	210.7	7.50	7.50	0.00
7,100.0	23.15	270.00	6,769.5	1,770.8	514.1	241.1	7.50	7.50	0.00
7,200.0	30.65	270.00	6,858.7	1,770.8	468.8	282.5	7.50	7.50	0.00
7,284.7	37.01	270.00	6,929.0	1,770.8	421.7	325.6	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
7,300.0	38.15	270.00	6,941.1	1,770.8	412.4	334.2	7.50	7.50	0.00
7,395.0	45.28	270.00	7,012.0	1,770.8	349.2	392.0	7.50	7.50	0.00
<b>NIOBRARA A</b>									
7,400.0	45.65	270.00	7,015.5	1,770.8	345.6	395.3	7.50	7.50	0.00
7,469.9	50.90	270.00	7,062.0	1,770.8	293.5	443.0	7.50	7.50	0.00
<b>NIOBRARA B</b>									
7,500.0	53.15	270.00	7,080.5	1,770.8	269.8	464.7	7.50	7.50	0.00
7,553.4	57.16	270.00	7,111.0	1,770.8	226.0	504.9	7.50	7.50	0.00
<b>NIOBRARA C</b>									
7,600.0	60.65	270.00	7,135.1	1,770.8	186.1	541.4	7.50	7.50	0.00
7,700.0	68.15	270.00	7,178.2	1,770.8	95.9	623.9	7.50	7.50	0.00
7,800.0	75.65	270.00	7,209.3	1,770.8	0.9	710.9	7.50	7.50	0.00
7,894.7	82.75	270.00	7,227.0	1,770.8	-92.0	796.0	7.50	7.50	0.00
<b>FT HAYS</b>									
7,900.0	83.15	270.00	7,227.7	1,770.8	-97.3	800.8	7.50	7.50	0.00
8,000.0	90.65	270.00	7,233.1	1,770.8	-197.1	892.2	7.50	7.50	0.00
8,010.2	91.42	270.00	7,232.9	1,770.8	-207.3	901.5	7.50	7.50	0.00
<b>End of Build - 7"</b>									

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Project:</b>	SEC.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
8,100.0	91.42	270.00	7,230.6	1,770.8	-297.0	983.8	0.00	0.00	0.00
8,200.0	91.42	270.00	7,228.2	1,770.8	-397.0	1,075.3	0.00	0.00	0.00
8,300.0	91.42	270.00	7,225.7	1,770.8	-497.0	1,166.8	0.00	0.00	0.00
8,400.0	91.42	270.00	7,223.2	1,770.8	-596.9	1,258.4	0.00	0.00	0.00
8,500.0	91.42	270.00	7,220.7	1,770.8	-696.9	1,349.9	0.00	0.00	0.00
8,600.0	91.42	270.00	7,218.2	1,770.8	-796.9	1,441.4	0.00	0.00	0.00
8,700.0	91.42	270.00	7,215.8	1,770.8	-896.8	1,533.0	0.00	0.00	0.00
8,800.0	91.42	270.00	7,213.3	1,770.8	-996.8	1,624.5	0.00	0.00	0.00
8,900.0	91.42	270.00	7,210.8	1,770.8	-1,096.8	1,716.1	0.00	0.00	0.00
9,000.0	91.42	270.00	7,208.3	1,770.8	-1,196.8	1,807.6	0.00	0.00	0.00
9,100.0	91.42	270.00	7,205.9	1,770.8	-1,296.7	1,899.1	0.00	0.00	0.00
9,200.0	91.42	270.00	7,203.4	1,770.8	-1,396.7	1,990.7	0.00	0.00	0.00
9,300.0	91.42	270.00	7,200.9	1,770.8	-1,496.7	2,082.2	0.00	0.00	0.00
9,400.0	91.42	270.00	7,198.4	1,770.8	-1,596.6	2,173.8	0.00	0.00	0.00
9,500.0	91.42	270.00	7,195.9	1,770.8	-1,696.6	2,265.3	0.00	0.00	0.00
9,600.0	91.42	270.00	7,193.5	1,770.8	-1,796.6	2,356.8	0.00	0.00	0.00
9,700.0	91.42	270.00	7,191.0	1,770.8	-1,896.5	2,448.4	0.00	0.00	0.00
9,800.0	91.42	270.00	7,188.5	1,770.8	-1,996.5	2,539.9	0.00	0.00	0.00
9,900.0	91.42	270.00	7,186.0	1,770.8	-2,096.5	2,631.4	0.00	0.00	0.00
10,000.0	91.42	270.00	7,183.6	1,770.8	-2,196.4	2,723.0	0.00	0.00	0.00
10,100.0	91.42	270.00	7,181.1	1,770.8	-2,296.4	2,814.5	0.00	0.00	0.00
10,200.0	91.42	270.00	7,178.6	1,770.8	-2,396.4	2,906.1	0.00	0.00	0.00
10,300.0	91.42	270.00	7,176.1	1,770.8	-2,496.4	2,997.6	0.00	0.00	0.00
10,400.0	91.42	270.00	7,173.6	1,770.8	-2,596.3	3,089.1	0.00	0.00	0.00
10,500.0	91.42	270.00	7,171.2	1,770.8	-2,696.3	3,180.7	0.00	0.00	0.00
10,600.0	91.42	270.00	7,168.7	1,770.8	-2,796.3	3,272.2	0.00	0.00	0.00
10,700.0	91.42	270.00	7,166.2	1,770.8	-2,896.2	3,363.8	0.00	0.00	0.00
10,800.0	91.42	270.00	7,163.7	1,770.8	-2,996.2	3,455.3	0.00	0.00	0.00
10,900.0	91.42	270.00	7,161.3	1,770.8	-3,096.2	3,546.8	0.00	0.00	0.00
11,000.0	91.42	270.00	7,158.8	1,770.8	-3,196.1	3,638.4	0.00	0.00	0.00
11,100.0	91.42	270.00	7,156.3	1,770.8	-3,296.1	3,729.9	0.00	0.00	0.00
11,200.0	91.42	270.00	7,153.8	1,770.8	-3,396.1	3,821.4	0.00	0.00	0.00
11,300.0	91.42	270.00	7,151.3	1,770.8	-3,496.0	3,913.0	0.00	0.00	0.00
11,400.0	91.42	270.00	7,148.9	1,770.8	-3,596.0	4,004.5	0.00	0.00	0.00
11,500.0	91.42	270.00	7,146.4	1,770.8	-3,696.0	4,096.1	0.00	0.00	0.00
11,600.0	91.42	270.00	7,143.9	1,770.8	-3,796.0	4,187.6	0.00	0.00	0.00
11,700.0	91.42	270.00	7,141.4	1,770.8	-3,895.9	4,279.1	0.00	0.00	0.00
11,800.0	91.42	270.00	7,139.0	1,770.8	-3,995.9	4,370.7	0.00	0.00	0.00
11,838.3	91.42	270.00	7,138.0	1,770.8	-4,034.2	4,405.8	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N-S (ft)	+E-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL 370'FSL & 631'F	0.00	0.00	1.0	0.0	0.0	1,328,412.19	3,128,790.89	40.233970	-105.038700
- plan hits target									
- Point									
BHL 2196'FSL & 500'I	0.00	0.00	7,138.0	1,770.8	-4,034.2	1,330,161.94	3,124,747.69	40.238830	-105.053150
- plan hits target									
- Point									

<b>Database:</b>	landmark	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Project:</b>	SEC.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-19-14)		

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,010.2	7,232.9	7"	7	7-1/2

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,597.9	3,431.0	PARKMAN		0.00	
4,046.9	3,850.0	SUSSEX		0.00	
4,663.0	4,425.0	SHANNON		0.00	
7,284.7	6,929.0	SHARON SPRINGS		0.00	
7,395.0	7,012.0	NIOBRARA A		0.00	
7,469.9	7,062.0	NIOBRARA B		0.00	
7,553.4	7,111.0	NIOBRARA C		0.00	
7,894.7	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)	
400.0	400.0	0.0	0.0	KOP #1
6,791.3	6,469.2	1,770.8	575.6	KOP #2
8,010.2	7,232.9	1,770.8	-207.3	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T3N-R68W**

**Bolton 3N68W7TY Pad Sec.7-T3N-R68W**

**Bolton 7W-434**

**Wellbore #1**

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

## **Anticollision Report**

**23 September, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (9-19-14)
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria
<b>Interpolation Method:</b>	MD Interval 100.0ft
<b>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	9/23/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,838.3	Plan #1 (9-19-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bolton 3N68W7TY Pad Sec.7-T3N-R68W						
Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)	166.3	167.3	29.1	28.6	55.485	CC
Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)	200.0	201.0	29.1	28.5	43.072	ES
Bolton 7W-304 - Wellbore #1 - Plan #1 (9-19-14)	11,838.3	11,843.0	360.6	131.0	1.570	SF
Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)	400.0	399.0	32.8	31.2	20.869	CC, ES
Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)	11,838.3	11,619.6	402.6	201.2	1.999	SF
Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)	400.0	398.0	61.9	60.4	39.478	CC, ES
Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)	11,838.3	11,694.6	663.0	417.5	2.700	SF
Existings Sec.7-T3N-R68W						
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	2,194.2	2,110.1	548.1	496.1	10.559	CC
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	2,300.0	2,208.9	549.4	494.8	10.065	ES
Radio Tower 1 (P&A) - Wellbore #1 - Wellbore #1	3,100.0	2,955.4	637.4	564.6	8.755	SF
PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W						
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	2,111.3	2,071.4	366.1	350.7	23.797	CC
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	2,200.0	2,157.9	366.6	350.4	22.578	ES
Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)	10,900.0	10,545.5	1,000.0	805.6	5.145	SF
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	1,278.0	1,265.0	399.9	393.5	62.599	CC
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	1,300.0	1,286.0	399.9	393.4	61.065	ES
Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)	3,200.0	3,136.8	607.4	586.6	29.297	SF
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	1,182.0	1,173.4	408.8	403.1	71.775	CC
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	1,200.0	1,190.6	408.9	403.0	70.281	ES
Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)	2,200.0	2,127.5	540.6	527.6	41.616	SF

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			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	1.0	1.0	0.0	0.0	0.00	29.1	0.0	29.1	29.1	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.23	128.362		
166.3	166.3	167.3	167.3	0.3	0.3	0.00	29.1	0.0	29.1	28.6	0.53	55.485	CC	
200.0	200.0	201.0	201.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.68	43.072	ES	
300.0	300.0	300.0	300.0	0.6	0.6	0.87	30.8	0.5	30.8	29.7	1.13	27.402		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	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
400.0	400.0	398.7	398.6	0.8	0.8	2.94		35.8	1.8	35.9	34.3	1.58	22.688	
500.0	500.0	497.2	496.6	1.0	1.0	-13.15		44.0	4.1	42.7	40.7	2.04	20.976	
600.0	599.8	595.4	594.1	1.2	1.3	-11.94		55.4	7.3	49.5	47.0	2.49	19.868	
700.0	699.5	693.4	690.9	1.5	1.6	-11.18		70.0	11.3	56.2	53.3	2.95	19.055	
800.0	798.7	791.1	786.9	1.7	2.0	-10.73		87.7	16.2	63.0	59.5	3.42	18.398	
900.0	897.5	888.7	882.0	2.0	2.4	-10.49		108.5	22.0	69.6	65.7	3.91	17.826	
1,000.0	995.6	986.0	976.2	2.4	2.9	-10.41		132.4	28.6	76.2	71.8	4.41	17.301	
1,100.0	1,093.1	1,083.1	1,069.2	2.8	3.4	-10.45		159.3	36.0	82.8	77.9	4.93	16.800	
1,200.0	1,189.6	1,180.0	1,161.0	3.3	3.9	-10.58		189.1	44.3	89.2	83.8	5.47	16.311	
1,300.0	1,285.3	1,276.7	1,251.6	3.8	4.6	-10.79		221.9	53.3	95.6	89.6	6.04	15.820	
1,400.0	1,379.8	1,373.2	1,340.7	4.4	5.3	-11.05		257.5	63.2	101.9	95.3	6.63	15.372	
1,500.0	1,473.3	1,471.7	1,430.6	5.0	6.0	-11.39		296.2	73.9	107.9	100.6	7.29	14.795	
1,600.0	1,566.6	1,571.5	1,521.6	5.6	6.8	-11.74		335.7	84.8	113.6	105.6	7.99	14.221	
1,700.0	1,659.9	1,671.3	1,612.6	6.3	7.5	-12.06		375.2	95.8	119.4	110.7	8.70	13.719	
1,800.0	1,753.3	1,771.2	1,703.7	7.0	8.3	-12.34		414.7	106.7	125.1	115.7	9.42	13.278	
1,900.0	1,846.6	1,871.0	1,794.7	7.7	9.1	-12.61		454.2	117.6	130.9	120.7	10.16	12.888	
2,000.0	1,939.9	1,970.8	1,885.7	8.4	9.9	-12.85		493.7	128.6	136.7	125.8	10.90	12.542	
2,100.0	2,033.2	2,070.7	1,976.8	9.1	10.7	-13.07		533.2	139.5	142.4	130.8	11.64	12.233	
2,200.0	2,126.5	2,170.5	2,067.8	9.7	11.5	-13.27		572.7	150.4	148.2	135.8	12.39	11.957	
2,300.0	2,219.9	2,270.3	2,158.8	10.4	12.2	-13.46		612.2	161.4	154.0	140.8	13.15	11.707	
2,400.0	2,313.2	2,370.2	2,249.9	11.1	13.0	-13.63		651.7	172.3	159.7	145.8	13.91	11.482	
2,500.0	2,406.5	2,470.0	2,340.9	11.8	13.8	-13.80		691.2	183.2	165.5	150.8	14.68	11.277	
2,600.0	2,499.8	2,569.8	2,431.9	12.5	14.6	-13.95		730.7	194.2	171.3	155.8	15.45	11.090	
2,700.0	2,593.1	2,669.7	2,523.0	13.2	15.4	-14.09		770.2	205.1	177.1	160.8	16.22	10.919	
2,800.0	2,686.4	2,769.5	2,614.0	13.9	16.2	-14.22		809.7	216.0	182.8	165.8	16.99	10.762	
2,900.0	2,779.8	2,869.3	2,705.0	14.6	17.0	-14.34		849.2	227.0	188.6	170.8	17.77	10.617	
3,000.0	2,873.1	2,969.2	2,796.1	15.3	17.8	-14.46		888.7	237.9	194.4	175.8	18.54	10.483	
3,100.0	2,966.4	3,069.0	2,887.1	16.0	18.6	-14.57		928.2	248.8	200.2	180.8	19.32	10.359	
3,200.0	3,059.7	3,168.8	2,978.1	16.7	19.4	-14.68		967.7	259.8	206.0	185.8	20.11	10.244	
3,300.0	3,153.0	3,268.7	3,069.2	17.4	20.2	-14.77		1,007.2	270.7	211.7	190.8	20.89	10.136	
3,400.0	3,246.4	3,368.5	3,160.2	18.1	21.0	-14.87		1,046.7	281.6	217.5	195.8	21.67	10.036	
3,500.0	3,339.7	3,468.3	3,251.2	18.8	21.7	-14.96		1,086.2	292.6	223.3	200.8	22.46	9.942	
3,600.0	3,433.0	3,568.2	3,342.3	19.5	22.5	-15.04		1,125.7	303.5	229.1	205.8	23.25	9.854	
3,700.0	3,526.3	3,668.0	3,433.3	20.2	23.3	-15.12		1,165.1	314.4	234.9	210.8	24.03	9.772	
3,800.0	3,619.6	3,767.8	3,524.3	20.9	24.1	-15.20		1,204.6	325.3	240.7	215.8	24.82	9.694	
3,900.0	3,712.9	3,867.6	3,615.3	21.6	24.9	-15.27		1,244.1	336.3	246.4	220.8	25.61	9.621	
4,000.0	3,806.3	3,967.5	3,706.4	22.3	25.7	-15.34		1,283.6	347.2	252.2	225.8	26.41	9.552	
4,100.0	3,899.6	4,067.3	3,797.4	23.0	26.5	-15.40		1,323.1	358.1	258.0	230.8	27.20	9.486	
4,200.0	3,992.9	4,167.1	3,888.4	23.8	27.3	-15.47		1,362.6	369.1	263.8	235.8	27.99	9.424	
4,300.0	4,086.2	4,267.0	3,979.5	24.5	28.1	-15.53		1,402.1	380.0	269.6	240.8	28.78	9.366	
4,400.0	4,179.5	4,366.8	4,070.5	25.2	28.9	-15.58		1,441.6	390.9	275.4	245.8	29.58	9.310	
4,500.0	4,272.9	4,466.6	4,161.5	25.9	29.7	-15.64		1,481.1	401.9	281.1	250.8	30.37	9.257	
4,600.0	4,366.2	4,566.5	4,252.6	26.6	30.5	-15.69		1,520.6	412.8	286.9	255.8	31.17	9.206	
4,700.0	4,459.5	4,666.3	4,343.6	27.3	31.3	-15.74		1,560.1	423.7	292.7	260.8	31.96	9.158	
4,800.0	4,552.8	4,766.1	4,434.6	28.0	32.1	-15.79		1,599.6	434.7	298.5	265.7	32.76	9.112	
4,900.0	4,646.1	4,866.0	4,525.7	28.7	32.9	-15.84		1,639.1	445.6	304.3	270.7	33.56	9.068	
5,000.0	4,739.5	4,965.8	4,616.7	29.4	33.7	-15.89		1,678.6	456.5	310.1	275.7	34.35	9.026	
5,100.0	4,832.8	5,065.6	4,707.7	30.1	34.5	-15.93		1,718.1	467.5	315.9	280.7	35.15	8.986	
5,200.0	4,926.1	5,165.5	4,798.8	30.8	35.3	-15.97		1,757.6	478.4	321.7	285.7	35.95	8.948	
5,300.0	5,019.4	5,265.3	4,889.8	31.5	36.1	-16.01		1,797.1	489.3	327.4	290.7	36.75	8.911	
5,400.0	5,112.7	5,365.1	4,980.8	32.2	36.9	-16.05		1,836.6	500.3	333.2	295.7	37.55	8.875	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	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
5,500.0	5,206.0	5,471.8	5,078.3	32.9	37.6	-16.12		1,878.3	511.8	338.5	300.1	38.36	8.823	
5,600.0	5,299.4	5,584.8	5,183.1	33.6	38.3	-16.33		1,918.9	523.0	340.5	301.3	39.21	8.685	
5,700.0	5,393.7	5,697.8	5,289.6	34.1	38.9	-16.59		1,955.6	533.2	341.3	301.3	39.96	8.541	
5,800.0	5,489.1	5,810.8	5,397.4	34.6	39.4	-16.84		1,988.2	542.2	341.6	300.9	40.63	8.407	
5,900.0	5,585.5	5,923.9	5,506.5	35.0	39.9	-17.08		2,016.6	550.1	341.4	300.1	41.22	8.282	
6,000.0	5,682.8	6,036.9	5,616.7	35.4	40.3	-17.31		2,040.9	556.8	340.7	299.0	41.73	8.164	
6,100.0	5,780.8	6,149.8	5,727.7	35.7	40.7	-17.53		2,060.9	562.3	339.5	297.4	42.16	8.054	
6,200.0	5,879.4	6,262.7	5,839.4	36.0	41.0	-17.75		2,076.7	566.7	337.9	295.4	42.51	7.950	
6,300.0	5,978.6	6,375.4	5,951.5	36.3	41.2	-17.96		2,088.3	569.9	335.8	293.1	42.78	7.851	
6,400.0	6,078.1	6,488.1	6,063.8	36.5	41.4	-18.17		2,095.6	571.9	333.3	290.3	42.97	7.757	
6,500.0	6,177.9	6,600.6	6,176.3	36.6	41.5	-18.37		2,098.6	572.8	330.3	287.2	43.07	7.668	
6,600.0	6,277.9	6,703.2	6,278.9	36.7	41.6	-18.49		2,098.7	572.8	328.0	284.9	43.07	7.615	
6,647.8	6,325.7	6,751.0	6,326.7	36.8	41.6	-18.51		2,098.7	572.8	327.7	284.5	43.16	7.592	
6,700.0	6,377.9	6,803.2	6,378.9	36.8	41.6	-0.49		2,098.7	572.8	327.9	252.1	75.76	4.328	
6,800.0	6,477.9	6,902.2	6,477.7	36.9	41.7	88.39		2,098.7	566.3	328.0	283.9	44.07	7.443	
6,900.0	6,577.5	7,000.0	6,573.5	36.9	41.7	86.36		2,098.7	547.5	328.5	283.2	45.31	7.251	
7,000.0	6,675.3	7,095.6	6,664.2	36.9	41.6	84.42		2,098.7	517.4	329.5	283.1	46.32	7.112	
7,100.0	6,769.5	7,190.4	6,749.7	36.9	41.5	82.59		2,098.7	476.6	330.7	283.6	47.03	7.031	
7,200.0	6,858.7	7,284.1	6,828.6	36.8	41.4	80.90		2,098.7	426.2	332.1	284.7	47.39	7.008	
7,300.0	6,941.1	7,376.7	6,899.9	36.6	41.3	79.37		2,098.7	367.2	333.6	286.2	47.44	7.033	
7,400.0	7,015.5	7,468.5	6,963.1	36.5	41.2	78.02		2,098.7	300.7	335.2	287.9	47.29	7.088	
7,500.0	7,080.5	7,559.5	7,017.4	36.3	41.1	76.87		2,098.7	227.8	336.7	289.6	47.12	7.146	
7,600.0	7,135.1	7,650.0	7,062.5	36.2	40.9	75.93		2,098.7	149.3	338.0	290.9	47.15	7.169	
7,700.0	7,178.2	7,739.9	7,097.7	36.0	40.9	75.21		2,098.7	66.7	339.1	291.5	47.63	7.120	
7,800.0	7,209.3	7,829.5	7,122.9	35.9	40.8	74.71		2,098.7	-19.2	339.9	291.2	48.73	6.975	
7,900.0	7,227.7	7,918.9	7,137.9	35.9	40.8	74.44		2,098.7	-107.3	340.3	289.8	50.56	6.732	
8,000.0	7,233.1	8,008.1	7,142.5	35.9	40.8	74.40		2,098.7	-196.4	340.4	287.4	53.06	6.416	
8,004.3	7,233.0	8,012.0	7,142.5	35.9	40.8	74.40		2,098.7	-200.3	340.4	287.2	53.18	6.401	
8,100.0	7,230.6	8,105.1	7,139.0	36.1	41.0	74.22		2,098.7	-293.3	340.7	284.7	56.06	6.078	
8,200.0	7,228.2	8,205.1	7,135.0	36.4	41.2	73.97		2,098.7	-393.2	341.1	281.7	59.42	5.741	
8,300.0	7,225.7	8,305.1	7,131.0	37.0	41.6	73.72		2,098.7	-493.1	341.6	278.5	63.06	5.417	
8,400.0	7,223.2	8,405.1	7,127.0	37.9	42.2	73.47		2,098.7	-593.0	342.0	275.1	66.92	5.110	
8,500.0	7,220.7	8,505.1	7,123.0	39.2	43.1	73.23		2,098.7	-692.9	342.4	271.5	70.98	4.825	
8,600.0	7,218.2	8,605.0	7,119.0	40.8	44.2	72.98		2,098.7	-792.9	342.9	267.7	75.18	4.561	
8,700.0	7,215.8	8,705.0	7,114.9	42.7	45.6	72.74		2,098.7	-892.8	343.3	263.8	79.52	4.318	
8,800.0	7,213.3	8,805.0	7,110.9	44.7	47.2	72.49		2,098.7	-992.7	343.8	259.8	83.96	4.095	
8,900.0	7,210.8	8,905.0	7,106.9	46.9	49.1	72.25		2,098.7	-1,092.6	344.3	255.8	88.48	3.891	
9,000.0	7,208.3	9,005.0	7,102.9	49.1	51.1	72.00		2,098.7	-1,192.5	344.7	251.7	93.08	3.704	
9,100.0	7,205.9	9,105.0	7,098.9	51.5	53.2	71.76		2,098.7	-1,292.4	345.2	247.5	97.74	3.532	
9,200.0	7,203.4	9,205.0	7,094.9	53.9	55.4	71.52		2,098.7	-1,392.3	345.7	243.3	102.44	3.375	
9,300.0	7,200.9	9,305.0	7,090.9	56.3	57.7	71.28		2,098.7	-1,492.2	346.2	239.0	107.18	3.230	
9,400.0	7,198.4	9,404.9	7,086.9	58.8	60.1	71.04		2,098.7	-1,592.1	346.7	234.7	111.96	3.097	
9,500.0	7,195.9	9,504.9	7,082.8	61.3	62.5	70.80		2,098.7	-1,692.0	347.2	230.4	116.76	2.974	
9,600.0	7,193.5	9,604.9	7,078.8	63.9	65.0	70.56		2,098.7	-1,791.9	347.7	226.1	121.58	2.860	
9,700.0	7,191.0	9,704.9	7,074.8	66.4	67.5	70.32		2,098.7	-1,891.8	348.2	221.8	126.42	2.754	
9,800.0	7,188.5	9,804.9	7,070.8	69.0	70.0	70.08		2,098.7	-1,991.7	348.7	217.5	131.27	2.657	
9,900.0	7,186.0	9,904.9	7,066.8	71.6	72.5	69.85		2,098.7	-2,091.7	349.3	213.1	136.13	2.566	
10,000.0	7,183.6	10,004.9	7,062.8	74.3	75.1	69.61		2,098.7	-2,191.6	349.8	208.8	140.99	2.481	
10,100.0	7,181.1	10,104.9	7,058.8	76.9	77.7	69.38		2,098.7	-2,291.5	350.3	204.5	145.86	2.402	
10,200.0	7,178.6	10,204.9	7,054.8	79.5	80.3	69.14		2,098.7	-2,391.4	350.9	200.1	150.73	2.328	
10,300.0	7,176.1	10,304.8	7,050.7	82.2	82.9	68.91		2,098.7	-2,491.3	351.4	195.8	155.60	2.258	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	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			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,400.0	7,173.6	10,404.8	7,046.7	84.8	85.5	68.67	2,098.7	-2,591.2	352.0	191.5	160.47	2.193		
10,500.0	7,171.2	10,504.8	7,042.7	87.5	88.1	68.44	2,098.7	-2,691.1	352.5	187.2	165.34	2.132		
10,600.0	7,168.7	10,604.8	7,038.7	90.2	90.8	68.21	2,098.7	-2,791.0	353.1	182.9	170.20	2.075		
10,700.0	7,166.2	10,704.8	7,034.7	92.9	93.4	67.98	2,098.7	-2,890.9	353.7	178.6	175.05	2.020		
10,800.0	7,163.7	10,804.8	7,030.7	95.6	96.1	67.75	2,098.7	-2,990.8	354.3	174.4	179.90	1.969		
10,900.0	7,161.3	10,904.8	7,026.7	98.3	98.8	67.52	2,098.7	-3,090.7	354.8	170.1	184.74	1.921		
11,000.0	7,158.8	11,004.8	7,022.7	101.0	101.5	67.29	2,098.7	-3,190.6	355.4	165.9	189.57	1.875		
11,100.0	7,156.3	11,104.7	7,018.6	103.7	104.1	67.06	2,098.7	-3,290.5	356.0	161.6	194.39	1.832		
11,200.0	7,153.8	11,204.7	7,014.6	106.4	106.8	66.84	2,098.7	-3,390.4	356.6	157.4	199.20	1.790		
11,300.0	7,151.3	11,304.7	7,010.6	109.1	109.5	66.61	2,098.7	-3,490.4	357.2	153.2	204.00	1.751		
11,400.0	7,148.9	11,404.7	7,006.6	111.9	112.2	66.38	2,098.7	-3,590.3	357.8	149.1	208.78	1.714		
11,500.0	7,146.4	11,504.7	7,002.6	114.6	115.0	66.16	2,098.7	-3,690.2	358.5	144.9	213.56	1.679		
11,600.0	7,143.9	11,604.7	6,998.6	117.3	117.7	65.93	2,098.7	-3,790.1	359.1	140.8	218.32	1.645		
11,700.0	7,141.4	11,704.7	6,994.6	120.1	120.4	65.71	2,098.7	-3,890.0	359.7	136.6	223.07	1.613		
11,800.0	7,139.0	11,804.7	6,990.6	122.8	123.1	65.49	2,098.7	-3,989.9	360.4	132.5	227.81	1.582		
11,838.3	7,138.0	11,843.0	6,989.0	123.8	124.1	65.40	2,098.7	-4,028.2	360.6	131.0	229.62	1.570 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-32.8	0.0	32.8					
100.0	100.0	99.0	99.0	0.1	0.1	180.00	-32.8	0.0	32.8	32.6	0.22	146.604		
200.0	200.0	199.0	199.0	0.3	0.3	180.00	-32.8	0.0	32.8	32.1	0.67	48.787		
300.0	300.0	299.0	299.0	0.6	0.6	180.00	-32.8	0.0	32.8	31.7	1.12	29.233		
400.0	400.0	399.0	399.0	0.8	0.8	180.00	-32.8	0.0	32.8	31.2	1.57	20.869 CC, ES		
500.0	500.0	499.0	499.0	1.0	1.0	162.88	-32.8	0.0	34.5	32.4	2.02	17.026		
600.0	599.8	598.8	598.8	1.2	1.2	165.09	-32.8	0.0	39.5	37.0	2.48	15.933		
700.0	699.5	700.0	700.0	1.5	1.5	167.20	-31.2	0.6	46.3	43.4	2.93	15.799		
800.0	798.7	801.5	801.3	1.7	1.7	168.53	-26.2	2.6	53.2	49.8	3.38	15.727		
900.0	897.5	903.2	902.6	2.0	1.9	169.35	-17.9	5.8	60.1	56.2	3.84	15.655		
1,000.0	995.6	1,005.1	1,003.8	2.4	2.2	169.81	-6.2	10.4	66.9	62.6	4.30	15.564		
1,100.0	1,093.1	1,107.4	1,104.7	2.8	2.5	170.02	8.9	16.3	73.8	69.0	4.78	15.445		
1,200.0	1,189.6	1,209.8	1,205.2	3.3	2.8	170.03	27.4	23.5	80.6	75.3	5.27	15.290		
1,300.0	1,285.3	1,312.5	1,305.2	3.8	3.2	169.90	49.3	32.1	87.3	81.5	5.78	15.098		
1,400.0	1,379.8	1,415.5	1,404.5	4.4	3.7	169.64	74.6	42.0	94.0	87.7	6.33	14.865		
1,500.0	1,473.3	1,518.7	1,503.0	5.0	4.2	169.26	103.2	53.2	100.3	93.4	6.92	14.500		
1,600.0	1,566.6	1,619.2	1,598.2	5.6	4.8	168.67	133.3	64.9	104.7	97.2	7.56	13.856		
1,700.0	1,659.9	1,719.1	1,692.8	6.3	5.3	168.12	163.2	76.6	109.1	100.8	8.22	13.263		
1,800.0	1,753.3	1,819.0	1,787.4	7.0	5.9	167.62	193.1	88.3	113.4	104.5	8.90	12.741		
1,900.0	1,846.6	1,918.9	1,882.0	7.7	6.5	167.15	223.1	100.0	117.8	108.2	9.60	12.276		
2,000.0	1,939.9	2,018.8	1,976.6	8.4	7.1	166.71	253.0	111.7	122.2	111.9	10.30	11.860		
2,100.0	2,033.2	2,118.7	2,071.2	9.1	7.7	166.31	282.9	123.4	126.6	115.6	11.02	11.487		
2,200.0	2,126.5	2,218.6	2,165.8	9.7	8.4	165.93	312.8	135.1	131.0	119.3	11.75	11.151		
2,300.0	2,219.9	2,318.5	2,260.4	10.4	9.0	165.58	342.8	146.8	135.4	122.9	12.48	10.847		
2,400.0	2,313.2	2,418.4	2,355.0	11.1	9.6	165.25	372.7	158.5	139.8	126.6	13.23	10.572		
2,500.0	2,406.5	2,518.3	2,449.6	11.8	10.2	164.94	402.6	170.2	144.2	130.3	13.98	10.321		
2,600.0	2,499.8	2,618.2	2,544.1	12.5	10.8	164.65	432.5	181.9	148.7	133.9	14.73	10.092		
2,700.0	2,593.1	2,718.1	2,638.7	13.2	11.5	164.37	462.4	193.6	153.1	137.6	15.49	9.882		
2,800.0	2,686.4	2,818.0	2,733.3	13.9	12.1	164.11	492.4	205.3	157.5	141.2	16.26	9.688		
2,900.0	2,779.8	2,917.9	2,827.9	14.6	12.7	163.87	522.3	217.0	161.9	144.9	17.03	9.510		
3,000.0	2,873.1	3,017.8	2,922.5	15.3	13.4	163.63	552.2	228.7	166.4	148.6	17.80	9.346		
3,100.0	2,966.4	3,117.7	3,017.1	16.0	14.0	163.41	582.1	240.4	170.8	152.2	18.58	9.193		
3,200.0	3,059.7	3,217.6	3,111.7	16.7	14.6	163.20	612.1	252.1	175.2	155.9	19.36	9.051		
3,300.0	3,153.0	3,317.5	3,206.3	17.4	15.3	163.01	642.0	263.8	179.7	159.5	20.15	8.919		
3,400.0	3,246.4	3,417.4	3,300.9	18.1	15.9	162.82	671.9	275.5	184.1	163.2	20.93	8.796		
3,500.0	3,339.7	3,517.3	3,395.5	18.8	16.5	162.64	701.8	287.2	188.6	166.8	21.72	8.680		
3,600.0	3,433.0	3,617.2	3,490.1	19.5	17.2	162.46	731.8	298.9	193.0	170.5	22.52	8.572		
3,700.0	3,526.3	3,717.1	3,584.7	20.2	17.8	162.30	761.7	310.6	197.5	174.1	23.31	8.470		
3,800.0	3,619.6	3,817.0	3,679.2	20.9	18.4	162.14	791.6	322.3	201.9	177.8	24.11	8.375		
3,900.0	3,712.9	3,916.9	3,773.8	21.6	19.1	161.99	821.5	334.0	206.3	181.4	24.91	8.285		
4,000.0	3,806.3	4,016.8	3,868.4	22.3	19.7	161.85	851.5	345.7	210.8	185.1	25.71	8.200		
4,100.0	3,899.6	4,116.7	3,963.0	23.0	20.3	161.71	881.4	357.4	215.3	188.7	26.51	8.119		
4,200.0	3,992.9	4,216.6	4,057.6	23.8	21.0	161.58	911.3	369.1	219.7	192.4	27.32	8.043		
4,300.0	4,086.2	4,316.5	4,152.2	24.5	21.6	161.45	941.2	380.8	224.2	196.0	28.12	7.971		
4,400.0	4,179.5	4,416.4	4,246.8	25.2	22.2	161.33	971.2	392.5	228.6	199.7	28.93	7.902		
4,500.0	4,272.9	4,516.3	4,341.4	25.9	22.9	161.21	1,001.1	404.2	233.1	203.3	29.74	7.837		
4,600.0	4,366.2	4,616.2	4,436.0	26.6	23.5	161.10	1,031.0	415.9	237.5	207.0	30.55	7.775		
4,700.0	4,459.5	4,716.1	4,530.6	27.3	24.2	160.99	1,060.9	427.6	242.0	210.6	31.36	7.716		
4,800.0	4,552.8	4,816.0	4,625.2	28.0	24.8	160.89	1,090.8	439.3	246.4	214.3	32.17	7.660		
4,900.0	4,646.1	4,915.9	4,719.8	28.7	25.4	160.78	1,120.8	451.0	250.9	217.9	32.99	7.606		
5,000.0	4,739.5	5,015.8	4,814.3	29.4	26.1	160.69	1,150.7	462.7	255.4	221.6	33.80	7.555		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,832.8	5,115.7	4,908.9	30.1	26.7	160.59		1,180.6	474.4	259.8	225.2	34.62	7.506	
5,200.0	4,926.1	5,215.6	5,003.5	30.8	27.3	160.50		1,210.5	486.1	264.3	228.9	35.43	7.459	
5,300.0	5,019.4	5,315.5	5,098.1	31.5	28.0	160.41		1,240.5	497.8	268.7	232.5	36.25	7.414	
5,400.0	5,112.7	5,415.4	5,192.7	32.2	28.6	160.33		1,270.4	509.5	273.2	236.1	37.07	7.370	
5,500.0	5,206.0	5,514.5	5,286.6	32.9	29.2	160.25		1,300.1	521.2	277.7	239.8	37.88	7.331	
5,600.0	5,299.4	5,606.1	5,373.8	33.6	29.7	160.31		1,326.0	531.3	283.7	245.2	38.56	7.357	
5,700.0	5,393.7	5,700.0	5,464.2	34.1	30.1	160.47		1,349.8	540.6	290.2	251.1	39.12	7.419	
5,800.0	5,489.1	5,788.6	5,550.2	34.6	30.5	160.63		1,369.8	548.4	296.4	256.8	39.59	7.486	
5,900.0	5,585.5	5,879.7	5,639.2	35.0	30.8	160.79		1,387.7	555.4	302.1	262.1	40.00	7.554	
6,000.0	5,682.8	5,970.6	5,728.6	35.4	31.1	160.96		1,403.0	561.4	307.6	267.2	40.33	7.626	
6,100.0	5,780.8	6,061.4	5,818.3	35.7	31.3	161.13		1,415.5	566.3	312.6	272.0	40.59	7.701	
6,200.0	5,879.4	6,152.0	5,908.3	36.0	31.6	161.30		1,425.5	570.2	317.3	276.5	40.79	7.780	
6,300.0	5,978.6	6,242.6	5,998.5	36.3	31.7	161.48		1,432.7	573.0	321.6	280.7	40.90	7.863	
6,400.0	6,078.1	6,333.0	6,088.8	36.5	31.9	161.66		1,437.3	574.8	325.6	284.6	40.95	7.950	
6,500.0	6,177.9	6,423.3	6,179.1	36.6	32.0	161.85		1,439.3	575.6	329.1	288.2	40.92	8.043	
6,600.0	6,277.9	6,521.1	6,276.9	36.7	32.1	161.99		1,439.3	575.6	331.4	290.6	40.87	8.109	
6,700.0	6,377.9	6,621.0	6,376.8	36.8	32.1	-179.81		1,439.3	574.5	331.5	265.4	66.08	5.017	
6,800.0	6,477.9	6,719.5	6,474.6	36.9	32.2	-87.82		1,439.3	563.0	331.8	291.5	40.28	8.237	
6,900.0	6,577.5	6,815.4	6,567.6	36.9	32.1	-84.98		1,439.3	539.7	332.8	293.7	39.13	8.506	
7,000.0	6,675.3	6,909.5	6,655.2	36.9	32.1	-82.26		1,439.3	505.8	334.6	296.6	38.06	8.793	
7,100.0	6,769.5	7,001.9	6,736.6	36.9	32.0	-79.71		1,439.3	462.2	337.1	299.9	37.15	9.074	
7,200.0	6,858.7	7,092.8	6,811.0	36.8	31.8	-77.37		1,439.3	410.1	339.9	303.5	36.43	9.329	
7,300.0	6,941.1	7,182.4	6,877.8	36.6	31.7	-75.26		1,439.3	350.4	343.0	307.0	35.94	9.543	
7,400.0	7,015.5	7,270.9	6,936.4	36.5	31.5	-73.41		1,439.3	284.2	346.1	310.4	35.68	9.700	
7,500.0	7,080.5	7,358.4	6,986.5	36.3	31.3	-71.84		1,439.3	212.5	349.0	313.3	35.70	9.777	
7,600.0	7,135.1	7,445.2	7,027.8	36.2	31.2	-70.55		1,439.3	136.2	351.7	315.6	36.08	9.747	
7,700.0	7,178.2	7,531.4	7,059.9	36.0	31.1	-69.54		1,439.3	56.3	353.9	317.0	36.91	9.588	
7,800.0	7,209.3	7,617.1	7,082.7	35.9	31.0	-68.83		1,439.3	-26.3	355.5	317.3	38.23	9.300	
7,900.0	7,227.7	7,700.0	7,095.9	35.9	30.9	-68.42		1,439.3	-108.1	356.5	316.5	40.02	8.909	
8,000.0	7,233.1	7,787.8	7,100.1	35.9	31.0	-68.29		1,439.3	-195.8	356.8	314.4	42.36	8.423	
8,001.7	7,233.0	7,789.3	7,100.1	35.9	31.0	-68.29		1,439.3	-197.2	356.8	314.4	42.41	8.413	
8,100.0	7,230.6	7,882.4	7,096.0	36.1	31.2	-68.02		1,439.3	-290.3	357.5	312.3	45.17	7.916	
8,200.0	7,228.2	7,982.4	7,091.0	36.4	31.7	-67.65		1,439.3	-390.2	358.5	310.1	48.36	7.412	
8,300.0	7,225.7	8,082.4	7,086.0	37.0	32.7	-67.27		1,439.3	-490.0	359.4	307.6	51.84	6.933	
8,400.0	7,223.2	8,182.4	7,081.0	37.9	34.2	-66.90		1,439.3	-589.9	360.4	304.9	55.55	6.488	
8,500.0	7,220.7	8,282.3	7,076.0	39.2	36.0	-66.53		1,439.3	-689.7	361.4	302.0	59.44	6.080	
8,600.0	7,218.2	8,382.3	7,070.9	40.8	38.1	-66.17		1,439.3	-789.5	362.4	299.0	63.47	5.711	
8,700.0	7,215.8	8,482.3	7,065.9	42.7	40.3	-65.80		1,439.3	-889.4	363.5	295.9	67.60	5.377	
8,800.0	7,213.3	8,582.2	7,060.9	44.7	42.6	-65.44		1,439.3	-989.2	364.5	292.7	71.81	5.076	
8,900.0	7,210.8	8,682.2	7,055.9	46.9	45.0	-65.08		1,439.3	-1,089.1	365.6	289.5	76.09	4.804	
9,000.0	7,208.3	8,782.2	7,050.9	49.1	47.4	-64.72		1,439.3	-1,188.9	366.6	286.2	80.42	4.559	
9,100.0	7,205.9	8,882.1	7,045.9	51.5	49.8	-64.36		1,439.3	-1,288.8	367.7	282.9	84.78	4.337	
9,200.0	7,203.4	8,982.1	7,040.9	53.9	52.3	-64.01		1,439.3	-1,388.6	368.8	279.7	89.17	4.136	
9,300.0	7,200.9	9,082.1	7,035.9	56.3	54.9	-63.66		1,439.3	-1,488.4	369.9	276.4	93.57	3.954	
9,400.0	7,198.4	9,182.0	7,030.9	58.8	57.4	-63.31		1,439.3	-1,588.3	371.1	273.1	97.99	3.787	
9,500.0	7,195.9	9,282.0	7,025.9	61.3	60.0	-62.96		1,439.3	-1,688.1	372.2	269.8	102.41	3.635	
9,600.0	7,193.5	9,382.0	7,020.9	63.9	62.6	-62.61		1,439.3	-1,788.0	373.4	266.6	106.83	3.495	
9,700.0	7,191.0	9,481.9	7,015.9	66.4	65.2	-62.27		1,439.3	-1,887.8	374.6	263.3	111.25	3.367	
9,800.0	7,188.5	9,581.9	7,010.9	69.0	67.8	-61.93		1,439.3	-1,987.7	375.7	260.1	115.66	3.249	
9,900.0	7,186.0	9,681.9	7,005.9	71.6	70.5	-61.59		1,439.3	-2,087.5	376.9	256.9	120.05	3.140	
10,000.0	7,183.6	9,781.8	7,000.9	74.3	73.1	-61.25		1,439.3	-2,187.3	378.1	253.7	124.44	3.039	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-214 - Wellbore #1 - Plan #1 (9-19-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	7,181.1	9,881.8	6,995.9	76.9	75.8	-60.92	1,439.3	-2,287.2	379.4	250.6	128.81	2.945	
10,200.0	7,178.6	9,981.8	6,990.9	79.5	78.5	-60.58	1,439.3	-2,387.0	380.6	247.4	133.17	2.858	
10,300.0	7,176.1	10,081.7	6,985.9	82.2	81.1	-60.25	1,439.3	-2,486.9	381.9	244.3	137.51	2.777	
10,400.0	7,173.6	10,181.7	6,980.9	84.8	83.8	-59.93	1,439.3	-2,586.7	383.1	241.3	141.83	2.701	
10,500.0	7,171.2	10,281.7	6,975.8	87.5	86.5	-59.60	1,439.3	-2,686.6	384.4	238.3	146.13	2.630	
10,600.0	7,168.7	10,381.6	6,970.8	90.2	89.2	-59.28	1,439.3	-2,786.4	385.7	235.3	150.41	2.564	
10,700.0	7,166.2	10,481.6	6,965.8	92.9	91.9	-58.95	1,439.3	-2,886.2	387.0	232.3	154.66	2.502	
10,800.0	7,163.7	10,581.6	6,960.8	95.6	94.6	-58.63	1,439.3	-2,986.1	388.3	229.4	158.90	2.444	
10,900.0	7,161.3	10,681.5	6,955.8	98.3	97.3	-58.32	1,439.3	-3,085.9	389.6	226.5	163.11	2.389	
11,000.0	7,158.8	10,781.5	6,950.8	101.0	100.1	-58.00	1,439.3	-3,185.8	390.9	223.7	167.30	2.337	
11,100.0	7,156.3	10,881.5	6,945.8	103.7	102.8	-57.69	1,439.3	-3,285.6	392.3	220.8	171.46	2.288	
11,200.0	7,153.8	10,981.5	6,940.8	106.4	105.5	-57.38	1,439.3	-3,385.5	393.7	218.1	175.59	2.242	
11,300.0	7,151.3	11,081.4	6,935.8	109.1	108.3	-57.07	1,439.3	-3,485.3	395.0	215.3	179.71	2.198	
11,400.0	7,148.9	11,181.4	6,930.8	111.9	111.0	-56.76	1,439.3	-3,585.1	396.4	212.6	183.79	2.157	
11,500.0	7,146.4	11,281.4	6,925.8	114.6	113.7	-56.46	1,439.3	-3,685.0	397.8	209.9	187.85	2.118	
11,600.0	7,143.9	11,381.3	6,920.8	117.3	116.5	-56.15	1,439.3	-3,784.8	399.2	207.3	191.89	2.080	
11,700.0	7,141.4	11,481.3	6,915.8	120.1	119.2	-55.85	1,439.3	-3,884.7	400.6	204.7	195.89	2.045	
11,800.0	7,139.0	11,581.3	6,910.8	122.8	122.0	-55.55	1,439.3	-3,984.5	402.0	202.2	199.88	2.011	
11,838.3	7,138.0	11,619.6	6,908.9	123.8	123.0	-55.44	1,439.3	-4,022.8	402.6	201.2	201.40	1.999 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	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	-61.9	0.0	62.0					
100.0	100.0	98.0	98.0	0.1	0.1	180.00	-61.9	0.0	61.9	61.7	0.22	278.333		
200.0	200.0	198.0	198.0	0.3	0.3	180.00	-61.9	0.0	61.9	61.3	0.67	92.468		
300.0	300.0	298.0	298.0	0.6	0.6	180.00	-61.9	0.0	61.9	60.8	1.12	55.332		
400.0	400.0	398.0	398.0	0.8	0.8	180.00	-61.9	0.0	61.9	60.4	1.57	39.478 CC, ES		
500.0	500.0	498.0	498.0	1.0	1.0	162.47	-61.9	0.0	63.6	61.6	2.02	31.466		
600.0	599.8	597.8	597.8	1.2	1.2	163.76	-61.9	0.0	68.6	66.1	2.48	27.710		
700.0	699.5	697.5	697.5	1.5	1.5	165.53	-61.9	0.0	77.0	74.1	2.93	26.276		
800.0	798.7	796.7	796.7	1.7	1.7	167.44	-61.9	0.0	88.9	85.5	3.39	26.246		
900.0	897.5	895.5	895.5	2.0	1.9	169.25	-61.9	0.0	104.2	100.4	3.84	27.131		
1,000.0	995.6	993.6	993.6	2.4	2.1	170.85	-61.9	0.0	123.0	118.7	4.29	28.641		
1,100.0	1,093.1	1,095.7	1,095.7	2.8	2.3	172.08	-60.5	0.7	143.8	139.1	4.75	30.271		
1,200.0	1,189.6	1,198.8	1,198.7	3.3	2.6	172.82	-55.8	3.1	164.7	159.5	5.20	31.641		
1,300.0	1,285.3	1,302.7	1,302.2	3.8	2.8	173.21	-47.6	7.1	185.5	179.9	5.67	32.733		
1,400.0	1,379.8	1,407.5	1,406.1	4.4	3.1	173.36	-36.0	12.8	206.3	200.2	6.14	33.582		
1,500.0	1,473.3	1,513.1	1,510.4	5.0	3.4	173.35	-20.9	20.3	226.7	220.0	6.66	34.049		
1,600.0	1,566.6	1,620.1	1,615.3	5.6	3.7	173.14	-2.0	29.6	244.0	236.8	7.22	33.795		
1,700.0	1,659.9	1,728.3	1,720.5	6.3	4.1	172.72	20.6	40.8	257.7	249.9	7.81	32.994		
1,800.0	1,753.3	1,835.1	1,823.3	7.0	4.5	172.12	46.3	53.5	268.0	259.5	8.43	31.790		
1,900.0	1,846.6	1,934.6	1,918.9	7.7	5.0	171.54	71.2	65.9	277.1	268.1	9.04	30.656		
2,000.0	1,939.9	2,034.1	2,014.5	8.4	5.5	171.00	96.2	78.2	286.4	276.7	9.68	29.573		
2,100.0	2,033.2	2,133.7	2,110.0	9.1	5.9	170.49	121.1	90.5	295.6	285.3	10.33	28.607		
2,200.0	2,126.5	2,233.2	2,205.6	9.7	6.4	170.01	146.1	102.8	304.9	293.9	11.00	27.727		
2,300.0	2,219.9	2,332.8	2,301.2	10.4	7.0	169.56	171.0	115.2	314.1	302.5	11.67	26.925		
2,400.0	2,313.2	2,432.3	2,396.7	11.1	7.5	169.14	195.9	127.5	323.4	311.1	12.35	26.191		
2,500.0	2,406.5	2,531.8	2,492.3	11.8	8.0	168.74	220.9	139.8	332.8	319.7	13.04	25.519		
2,600.0	2,499.8	2,631.4	2,587.9	12.5	8.5	168.36	245.8	152.2	342.1	328.3	13.74	24.901		
2,700.0	2,593.1	2,730.9	2,683.5	13.2	9.1	168.00	270.7	164.5	351.4	337.0	14.44	24.331		
2,800.0	2,686.4	2,830.4	2,779.0	13.9	9.6	167.66	295.7	176.8	360.8	345.6	15.16	23.805		
2,900.0	2,779.8	2,930.0	2,874.6	14.6	10.1	167.34	320.6	189.2	370.2	354.3	15.87	23.318		
3,000.0	2,873.1	3,029.5	2,970.2	15.3	10.7	167.03	345.6	201.5	379.5	362.9	16.60	22.866		
3,100.0	2,966.4	3,129.1	3,065.8	16.0	11.2	166.74	370.5	213.8	388.9	371.6	17.33	22.446		
3,200.0	3,059.7	3,228.6	3,161.3	16.7	11.8	166.46	395.4	226.2	398.3	380.3	18.06	22.054		
3,300.0	3,153.0	3,328.1	3,256.9	17.4	12.3	166.20	420.4	238.5	407.7	388.9	18.80	21.688		
3,400.0	3,246.4	3,427.7	3,352.5	18.1	12.9	165.94	445.3	250.8	417.2	397.6	19.54	21.346		
3,500.0	3,339.7	3,527.2	3,448.0	18.8	13.4	165.70	470.2	263.1	426.6	406.3	20.29	21.026		
3,600.0	3,433.0	3,626.8	3,543.6	19.5	14.0	165.47	495.2	275.5	436.0	415.0	21.04	20.724		
3,700.0	3,526.3	3,726.3	3,639.2	20.2	14.5	165.25	520.1	287.8	445.5	423.7	21.79	20.441		
3,800.0	3,619.6	3,825.8	3,734.8	20.9	15.1	165.03	545.1	300.1	454.9	432.4	22.55	20.174		
3,900.0	3,712.9	3,925.4	3,830.3	21.6	15.6	164.83	570.0	312.5	464.4	441.0	23.31	19.923		
4,000.0	3,806.3	4,024.9	3,925.9	22.3	16.2	164.64	594.9	324.8	473.8	449.7	24.07	19.685		
4,100.0	3,899.6	4,124.5	4,021.5	23.0	16.7	164.45	619.9	337.1	483.3	458.4	24.83	19.460		
4,200.0	3,992.9	4,224.0	4,117.0	23.8	17.3	164.27	644.8	349.5	492.7	467.1	25.60	19.246		
4,300.0	4,086.2	4,323.5	4,212.6	24.5	17.9	164.09	669.7	361.8	502.2	475.8	26.37	19.044		
4,400.0	4,179.5	4,423.1	4,308.2	25.2	18.4	163.92	694.7	374.1	511.7	484.6	27.14	18.852		
4,500.0	4,272.9	4,522.6	4,403.8	25.9	19.0	163.76	719.6	386.5	521.2	493.3	27.92	18.669		
4,600.0	4,366.2	4,622.2	4,499.3	26.6	19.5	163.61	744.6	398.8	530.7	502.0	28.69	18.495		
4,700.0	4,459.5	4,721.7	4,594.9	27.3	20.1	163.46	769.5	411.1	540.1	510.7	29.47	18.329		
4,800.0	4,552.8	4,821.2	4,690.5	28.0	20.7	163.31	794.4	423.4	549.6	519.4	30.25	18.171		
4,900.0	4,646.1	4,920.8	4,786.1	28.7	21.2	163.17	819.4	435.8	559.1	528.1	31.03	18.020		
5,000.0	4,739.5	5,020.3	4,881.6	29.4	21.8	163.04	844.3	448.1	568.6	536.8	31.81	17.875		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Bolton 3N68W7TY Pad Sec.7-T3N-R68W - Bolton 7X-404 - Wellbore #1 - Plan #1 (9-19-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		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		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	4,832.8	5,119.8	4,977.2	30.1	22.3	162.90	869.2	460.4	578.1	545.5	32.60	17.737			
5,200.0	4,926.1	5,219.4	5,072.8	30.8	22.9	162.78	894.2	472.8	587.6	554.3	33.38	17.604			
5,300.0	5,019.4	5,318.9	5,168.3	31.5	23.5	162.66	919.1	485.1	597.1	563.0	34.17	17.477			
5,400.0	5,112.7	5,418.5	5,263.9	32.2	24.0	162.54	944.1	497.4	606.7	571.7	34.95	17.355			
5,500.0	5,206.0	5,518.0	5,359.5	32.9	24.6	162.42	969.0	509.8	616.2	580.4	35.74	17.239			
5,600.0	5,299.4	5,617.6	5,455.1	33.6	25.1	162.32	993.9	522.1	625.5	589.0	36.54	17.117			
5,700.0	5,393.7	5,708.4	5,542.4	34.1	25.6	162.21	1,016.4	533.2	632.7	595.5	37.27	16.976			
5,800.0	5,489.1	5,791.6	5,622.9	34.6	25.9	162.11	1,035.1	542.4	639.0	601.1	37.87	16.873			
5,900.0	5,585.5	5,874.7	5,703.9	35.0	26.3	162.03	1,051.6	550.6	644.5	606.1	38.40	16.784			
6,000.0	5,682.8	5,957.7	5,785.4	35.4	26.5	161.96	1,066.0	557.7	649.3	610.4	38.86	16.709			
6,100.0	5,780.8	6,040.7	5,867.2	35.7	26.8	161.90	1,078.3	563.8	653.4	614.1	39.25	16.646			
6,200.0	5,879.4	6,123.6	5,949.4	36.0	27.0	161.85	1,088.5	568.9	656.8	617.2	39.57	16.596			
6,300.0	5,978.6	6,200.0	6,025.3	36.3	27.2	161.81	1,096.0	572.5	659.5	619.7	39.81	16.564			
6,400.0	6,078.1	6,289.4	6,114.4	36.5	27.4	161.78	1,102.4	575.7	661.4	621.3	40.01	16.532			
6,500.0	6,177.9	6,372.3	6,197.2	36.6	27.5	161.76	1,106.2	577.6	662.6	622.4	40.11	16.517			
6,600.0	6,277.9	6,455.1	6,280.0	36.7	27.6	161.75	1,107.8	578.4	663.0	622.9	40.15	16.513			
6,700.0	6,377.9	6,551.0	6,375.9	36.8	27.7	179.76	1,107.8	578.4	663.0	601.8	61.19	10.835			
6,760.8	6,438.6	6,611.8	6,436.6	36.9	27.8	-90.26	1,107.8	578.4	663.0	622.5	40.55	16.349			
6,800.0	6,477.9	6,651.0	6,475.9	36.9	27.8	-90.24	1,107.8	578.4	663.0	622.4	40.66	16.306			
6,900.0	6,577.5	6,751.4	6,575.9	36.9	27.9	-90.27	1,107.8	571.0	663.0	622.2	40.83	16.241			
7,000.0	6,675.3	6,851.8	6,674.2	36.9	27.8	-90.29	1,107.8	550.5	663.0	622.2	40.79	16.253			
7,100.0	6,769.5	6,952.3	6,768.9	36.9	27.8	-90.30	1,107.8	517.3	663.0	622.4	40.61	16.326			
7,200.0	6,858.7	7,052.8	6,858.5	36.8	27.6	-90.31	1,107.8	472.0	663.0	622.7	40.34	16.435			
7,300.0	6,941.1	7,153.2	6,941.4	36.6	27.5	-90.32	1,107.8	415.3	663.0	623.0	40.09	16.541			
7,400.0	7,015.5	7,253.7	7,016.1	36.5	27.3	-90.32	1,107.8	348.2	663.0	623.1	39.97	16.587			
7,500.0	7,080.5	7,354.2	7,081.4	36.3	27.1	-90.31	1,107.8	271.9	663.0	622.9	40.16	16.510			
7,600.0	7,135.1	7,454.7	7,136.1	36.2	26.9	-90.30	1,107.8	187.8	663.0	622.2	40.79	16.255			
7,700.0	7,178.2	7,555.1	7,179.3	36.0	26.7	-90.28	1,107.8	97.1	663.0	621.1	41.98	15.793			
7,800.0	7,209.3	7,655.5	7,210.2	35.9	26.5	-90.26	1,107.8	1.7	663.0	619.3	43.78	15.144			
7,900.0	7,227.7	7,755.9	7,228.4	35.9	26.4	-90.24	1,107.8	-97.0	663.0	616.9	46.16	14.363			
8,000.0	7,233.1	7,856.3	7,233.4	35.9	26.4	-90.21	1,107.8	-197.1	663.0	614.0	49.03	13.524			
8,045.4	7,232.4	7,901.7	7,232.3	36.0	26.6	-90.17	1,107.8	-242.5	663.0	612.5	50.48	13.134			
8,100.0	7,230.6	7,956.3	7,231.0	36.1	27.0	-90.20	1,107.8	-297.1	663.0	610.7	52.32	12.672			
8,200.0	7,228.2	8,056.3	7,228.5	36.4	28.5	-90.20	1,107.8	-397.1	663.0	607.1	55.96	11.847			
8,300.0	7,225.7	8,156.3	7,226.0	37.0	30.4	-90.20	1,107.8	-497.0	663.0	603.1	59.91	11.067			
8,400.0	7,223.2	8,256.3	7,223.6	37.9	32.5	-90.20	1,107.8	-597.0	663.0	598.9	64.11	10.343			
8,500.0	7,220.7	8,356.3	7,221.1	39.2	34.7	-90.20	1,107.8	-697.0	663.0	594.5	68.50	9.679			
8,600.0	7,218.2	8,456.3	7,218.6	40.8	37.0	-90.20	1,107.8	-796.9	663.0	590.0	73.07	9.074			
8,700.0	7,215.8	8,556.3	7,216.1	42.7	39.4	-90.20	1,107.8	-896.9	663.0	585.3	77.77	8.526			
8,800.0	7,213.3	8,656.3	7,213.6	44.7	41.8	-90.20	1,107.8	-996.9	663.0	580.4	82.58	8.029			
8,900.0	7,210.8	8,756.3	7,211.2	46.9	44.3	-90.20	1,107.8	-1,096.8	663.0	575.5	87.49	7.578			
9,000.0	7,208.3	8,856.3	7,208.7	49.1	46.8	-90.20	1,107.8	-1,196.8	663.0	570.5	92.48	7.169			
9,100.0	7,205.9	8,956.3	7,206.2	51.5	49.3	-90.20	1,107.8	-1,296.8	663.0	565.5	97.54	6.798			
9,200.0	7,203.4	9,056.3	7,203.7	53.9	51.9	-90.20	1,107.8	-1,396.8	663.0	560.4	102.65	6.459			
9,300.0	7,200.9	9,156.3	7,201.3	56.3	54.4	-90.20	1,107.8	-1,496.7	663.0	555.2	107.82	6.150			
9,400.0	7,198.4	9,256.3	7,198.8	58.8	57.0	-90.20	1,107.8	-1,596.7	663.0	550.0	113.02	5.866			
9,500.0	7,195.9	9,356.3	7,196.3	61.3	59.7	-90.20	1,107.8	-1,696.7	663.0	544.8	118.27	5.606			
9,600.0	7,193.5	9,456.3	7,193.8	63.9	62.3	-90.20	1,107.8	-1,796.6	663.0	539.5	123.54	5.367			
9,700.0	7,191.0	9,556.3	7,191.3	66.4	64.9	-90.20	1,107.8	-1,896.6	663.0	534.2	128.85	5.146			
9,800.0	7,188.5	9,656.3	7,188.9	69.0	67.6	-90.20	1,107.8	-1,996.6	663.0	528.9	134.17	4.942			
9,900.0	7,186.0	9,756.3	7,186.4	71.6	70.3	-90.20	1,107.8	-2,096.5	663.0	523.5	139.53	4.752			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	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	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	7,183.6	9,856.3	7,183.9	74.3	72.9	-90.20	1,107.8	-2,196.5	663.0	518.1	144.90	4.576		
10,100.0	7,181.1	9,956.3	7,181.4	76.9	75.6	-90.20	1,107.8	-2,296.5	663.0	512.7	150.28	4.412		
10,200.0	7,178.6	10,056.3	7,178.9	79.5	78.3	-90.20	1,107.8	-2,396.4	663.0	507.3	155.69	4.259		
10,300.0	7,176.1	10,156.3	7,176.5	82.2	81.0	-90.20	1,107.8	-2,496.4	663.0	501.9	161.11	4.116		
10,400.0	7,173.6	10,256.3	7,174.0	84.8	83.7	-90.20	1,107.8	-2,596.4	663.0	496.5	166.54	3.981		
10,500.0	7,171.2	10,356.3	7,171.5	87.5	86.5	-90.20	1,107.8	-2,696.4	663.0	491.1	171.98	3.855		
10,600.0	7,168.7	10,456.3	7,169.0	90.2	89.2	-90.20	1,107.8	-2,796.3	663.0	485.6	177.43	3.737		
10,700.0	7,166.2	10,556.3	7,166.6	92.9	91.9	-90.20	1,107.8	-2,896.3	663.0	480.1	182.89	3.625		
10,800.0	7,163.7	10,656.3	7,164.1	95.6	94.6	-90.20	1,107.8	-2,996.3	663.0	474.7	188.36	3.520		
10,900.0	7,161.3	10,756.3	7,161.6	98.3	97.4	-90.20	1,107.8	-3,096.2	663.0	469.2	193.84	3.420		
11,000.0	7,158.8	10,856.3	7,159.1	101.0	100.1	-90.20	1,107.8	-3,196.2	663.0	463.7	199.33	3.326		
11,100.0	7,156.3	10,956.3	7,156.6	103.7	102.8	-90.20	1,107.8	-3,296.2	663.0	458.2	204.82	3.237		
11,200.0	7,153.8	11,056.3	7,154.2	106.4	105.6	-90.20	1,107.8	-3,396.1	663.0	452.7	210.32	3.152		
11,300.0	7,151.3	11,156.3	7,151.7	109.1	108.3	-90.20	1,107.8	-3,496.1	663.0	447.2	215.82	3.072		
11,400.0	7,148.9	11,256.3	7,149.2	111.9	111.1	-90.20	1,107.8	-3,596.1	663.0	441.7	221.33	2.996		
11,500.0	7,146.4	11,356.3	7,146.7	114.6	113.8	-90.20	1,107.8	-3,696.0	663.0	436.2	226.85	2.923		
11,600.0	7,143.9	11,456.3	7,144.3	117.3	116.6	-90.20	1,107.8	-3,796.0	663.0	430.7	232.37	2.853		
11,700.0	7,141.4	11,556.3	7,141.8	120.1	119.3	-90.20	1,107.8	-3,896.0	663.0	425.1	237.89	2.787		
11,800.0	7,139.0	11,656.3	7,139.3	122.8	122.1	-90.20	1,107.8	-3,996.0	663.0	419.6	243.42	2.724		
11,838.3	7,138.0	11,694.6	7,138.3	123.8	123.2	-90.20	1,107.8	-4,034.3	663.0	417.5	245.54	2.700 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 7850-UNKNOWN													Offset Well Error:	0.0 ft
Reference														
Offset				Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-32.12	604.7	-379.7	714.2					
100.0	100.0	89.0	89.0	0.1	1.8	-32.12	604.7	-379.7	714.1	712.2	1.89	377.299		
200.0	200.0	189.0	189.0	0.3	3.8	-32.12	604.7	-379.7	714.1	710.0	4.12	173.429		
300.0	300.0	289.0	289.0	0.6	5.8	-32.12	604.7	-379.7	714.1	707.7	6.34	112.592		
400.0	400.0	389.0	389.0	0.8	7.8	-32.12	604.7	-379.7	714.1	705.5	8.57	83.352		
500.0	500.0	489.0	489.0	1.0	9.8	-50.26	604.7	-379.7	713.0	702.2	10.79	66.084		
600.0	599.8	588.8	588.8	1.2	11.8	-50.63	604.7	-379.7	709.6	696.6	13.00	54.572		
700.0	699.5	688.5	688.5	1.5	13.8	-51.26	604.7	-379.7	704.1	688.9	15.21	46.283		
800.0	798.7	787.7	787.7	1.7	15.8	-52.16	604.7	-379.7	696.5	679.1	17.42	39.977		
900.0	897.5	886.5	886.5	2.0	17.7	-53.34	604.7	-379.7	687.0	667.3	19.64	34.978		
1,000.0	995.6	984.6	984.6	2.4	19.7	-54.81	604.7	-379.7	675.6	653.8	21.87	30.888		
1,100.0	1,093.1	1,082.1	1,082.1	2.8	21.6	-56.58	604.7	-379.7	662.7	638.6	24.14	27.459		
1,200.0	1,189.6	1,178.6	1,178.6	3.3	23.6	-58.69	604.7	-379.7	648.5	622.1	26.44	24.530		
1,300.0	1,285.3	1,274.3	1,274.3	3.8	25.5	-61.14	604.7	-379.7	633.4	604.6	28.80	21.994		
1,400.0	1,379.8	1,368.8	1,368.8	4.4	27.4	-63.96	604.7	-379.7	617.7	586.5	31.23	19.782		
1,500.0	1,473.3	1,462.3	1,462.3	5.0	29.2	-66.98	604.7	-379.7	602.2	568.4	33.75	17.841		
1,600.0	1,566.6	1,555.6	1,555.6	5.6	31.1	-70.02	604.7	-379.7	588.2	551.8	36.35	16.182		
1,700.0	1,659.9	1,648.9	1,648.9	6.3	33.0	-73.17	604.7	-379.7	576.1	537.1	38.97	14.784		
1,800.0	1,753.3	1,742.3	1,742.3	7.0	34.8	-76.44	604.7	-379.7	566.1	524.5	41.61	13.606		
1,900.0	1,846.6	1,835.6	1,835.6	7.7	36.7	-79.79	604.7	-379.7	558.2	513.9	44.24	12.616		
2,000.0	1,939.9	1,928.9	1,928.9	8.4	38.6	-83.22	604.7	-379.7	552.5	505.6	46.87	11.787		
2,100.0	2,033.2	2,022.2	2,022.2	9.1	40.4	-86.70	604.7	-379.7	549.1	499.6	49.48	11.098		
2,194.2	2,121.1	2,110.1	2,110.1	9.7	42.2	-90.00	604.7	-379.7	548.1	496.1	51.90	10.559 CC		
2,200.0	2,126.5	2,115.5	2,115.5	9.7	42.3	-90.20	604.7	-379.7	548.1	496.0	52.05	10.529		
2,300.0	2,219.9	2,208.9	2,208.9	10.4	44.2	-93.70	604.7	-379.7	549.4	494.8	54.58	10.065 ES		
2,400.0	2,313.2	2,302.2	2,302.2	11.1	46.0	-97.18	604.7	-379.7	553.0	496.0	57.06	9.691		
2,500.0	2,406.5	2,395.5	2,395.5	11.8	47.9	-100.60	604.7	-379.7	559.0	499.5	59.49	9.396		
2,600.0	2,499.8	2,488.8	2,488.8	12.5	49.8	-103.95	604.7	-379.7	567.1	505.3	61.85	9.169		
2,700.0	2,593.1	2,582.1	2,582.1	13.2	51.6	-107.20	604.7	-379.7	577.4	513.3	64.15	9.001		
2,800.0	2,686.4	2,675.4	2,675.4	13.9	53.5	-110.34	604.7	-379.7	589.7	523.3	66.40	8.882		
2,900.0	2,779.8	2,768.8	2,768.8	14.6	55.4	-113.36	604.7	-379.7	603.9	535.3	68.58	8.805		
3,000.0	2,873.1	2,862.1	2,862.1	15.3	57.2	-116.25	604.7	-379.7	619.9	549.1	70.72	8.765		
3,100.0	2,966.4	2,955.4	2,955.4	16.0	59.1	-119.00	604.7	-379.7	637.4	564.6	72.81	8.755 SF		
3,200.0	3,059.7	3,048.7	3,048.7	16.7	61.0	-121.61	604.7	-379.7	656.5	581.7	74.86	8.770		
3,300.0	3,153.0	3,142.0	3,142.0	17.4	62.8	-124.09	604.7	-379.7	677.0	600.1	76.88	8.806		
3,400.0	3,246.4	3,235.4	3,235.4	18.1	64.7	-126.42	604.7	-379.7	698.7	619.8	78.87	8.859		
3,500.0	3,339.7	3,328.7	3,328.7	18.8	66.6	-128.63	604.7	-379.7	721.5	640.7	80.83	8.927		
3,600.0	3,433.0	3,422.0	3,422.0	19.5	68.4	-130.70	604.7	-379.7	745.4	662.6	82.77	9.005		
3,700.0	3,526.3	3,515.3	3,515.3	20.2	70.3	-132.66	604.7	-379.7	770.2	685.5	84.71	9.093		
3,800.0	3,619.6	3,608.6	3,608.6	20.9	72.2	-134.50	604.7	-379.7	795.9	709.3	86.63	9.188		
3,900.0	3,712.9	3,701.9	3,701.9	21.6	74.0	-136.23	604.7	-379.7	822.3	733.8	88.54	9.288		
4,000.0	3,806.3	3,795.3	3,795.3	22.3	75.9	-137.86	604.7	-379.7	849.4	759.0	90.44	9.392		
4,100.0	3,899.6	3,888.6	3,888.6	23.0	77.8	-139.39	604.7	-379.7	877.2	784.9	92.35	9.499		
4,200.0	3,992.9	3,981.9	3,981.9	23.8	79.6	-140.83	604.7	-379.7	905.6	811.3	94.25	9.608		
4,300.0	4,086.2	4,075.2	4,075.2	24.5	81.5	-142.19	604.7	-379.7	934.4	838.3	96.16	9.718		
4,400.0	4,179.5	4,168.5	4,168.5	25.2	83.4	-143.47	604.7	-379.7	963.8	865.7	98.06	9.828		
4,500.0	4,272.9	4,261.9	4,261.9	25.9	85.2	-144.68	604.7	-379.7	993.5	893.6	99.97	9.939		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	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	1,845.799	
166.0	166.0	168.0	168.0	0.3	0.3	85.06	36.4	421.6	423.2	422.6	0.53	804.673	
200.0	200.0	200.0	200.0	0.3	0.3	85.06	36.4	421.6	423.2	422.5	0.67	627.579	
300.0	300.0	297.7	297.7	0.6	0.6	84.85	38.1	422.0	423.7	422.6	1.12	378.616	
400.0	400.0	393.3	393.1	0.8	0.8	84.22	42.8	423.0	425.2	423.7	1.57	271.568	
500.0	500.0	488.6	488.1	1.0	1.0	65.36	50.6	424.7	427.2	425.2	2.02	211.285	
600.0	599.8	583.6	582.5	1.2	1.3	64.53	61.5	427.0	428.8	426.3	2.51	171.115	
700.0	699.5	681.7	679.6	1.5	1.6	63.77	75.2	430.0	430.0	426.9	3.03	141.677	
800.0	798.7	781.7	778.5	1.7	1.9	63.42	89.4	433.1	429.7	426.1	3.60	119.234	
900.0	897.5	881.7	877.4	2.0	2.2	63.50	103.6	436.1	427.8	423.6	4.21	101.608	
1,000.0	995.6	981.6	976.2	2.4	2.6	64.04	117.8	439.2	424.4	419.6	4.86	87.270	
1,100.0	1,093.1	1,081.2	1,074.8	2.8	2.9	65.05	132.0	442.3	419.6	414.0	5.57	75.319	
1,200.0	1,189.6	1,180.5	1,173.1	3.3	3.2	66.53	146.1	445.3	413.4	407.1	6.34	65.198	
1,300.0	1,285.3	1,279.3	1,270.8	3.8	3.6	68.52	160.1	448.4	406.2	399.1	7.18	56.560	
1,400.0	1,379.8	1,377.6	1,368.1	4.4	3.9	71.04	174.0	451.4	398.3	390.2	8.10	49.167	
1,500.0	1,473.3	1,475.2	1,464.6	5.0	4.2	73.99	187.9	454.4	390.3	381.2	9.10	42.909	
1,600.0	1,566.6	1,572.7	1,561.1	5.6	4.6	77.03	201.7	457.4	383.2	373.1	10.12	37.854	
1,700.0	1,659.9	1,670.3	1,657.6	6.3	4.9	80.18	215.6	460.4	377.3	366.1	11.16	33.789	
1,800.0	1,753.3	1,767.8	1,754.1	7.0	5.3	83.40	229.4	463.4	372.5	360.3	12.21	30.509	
1,900.0	1,846.6	1,865.3	1,850.6	7.7	5.6	86.70	243.3	466.4	369.1	355.8	13.25	27.854	
2,000.0	1,939.9	1,962.8	1,947.1	8.4	5.9	90.05	257.1	469.4	367.0	352.7	14.27	25.706	
2,100.0	2,033.2	2,060.4	2,043.6	9.1	6.3	93.42	271.0	472.4	366.1	350.9	15.27	23.971	
2,111.3	2,043.8	2,071.4	2,054.5	9.1	6.3	93.80	272.5	472.7	366.1	350.7	15.39	23.797 CC	
2,200.0	2,126.5	2,157.9	2,140.1	9.7	6.6	96.79	284.8	475.4	366.6	350.4	16.24	22.578 ES	
2,300.0	2,219.9	2,255.4	2,236.6	10.4	6.9	100.14	298.7	478.4	368.5	351.3	17.16	21.468	
2,400.0	2,313.2	2,352.9	2,333.0	11.1	7.3	103.45	312.5	481.4	371.6	353.6	18.05	20.595	
2,500.0	2,406.5	2,450.5	2,429.5	11.8	7.6	106.70	326.4	484.4	376.1	357.2	18.88	19.922	
2,600.0	2,499.8	2,548.0	2,526.0	12.5	7.9	109.86	340.2	487.4	381.7	362.1	19.66	19.417	
2,700.0	2,593.1	2,645.5	2,622.5	13.2	8.3	112.93	354.1	490.4	388.6	368.2	20.39	19.054	
2,800.0	2,686.4	2,743.0	2,719.0	13.9	8.6	115.88	367.9	493.4	396.5	375.5	21.08	18.811	
2,900.0	2,779.8	2,840.5	2,815.5	14.6	9.0	118.72	381.7	496.4	405.6	383.8	21.72	18.671	
3,000.0	2,873.1	2,938.1	2,912.0	15.3	9.3	121.44	395.6	499.4	415.6	393.2	22.32	18.617	
3,100.0	2,966.4	3,035.6	3,008.5	16.0	9.6	124.02	409.4	502.4	426.5	403.6	22.89	18.635	
3,200.0	3,059.7	3,133.1	3,104.9	16.7	10.0	126.48	423.3	505.4	438.2	414.8	23.42	18.713	
3,300.0	3,153.0	3,230.6	3,201.4	17.4	10.3	128.80	437.1	508.4	450.8	426.8	23.92	18.843	
3,400.0	3,246.4	3,328.2	3,297.9	18.1	10.7	131.01	451.0	511.4	464.0	439.6	24.40	19.015	
3,500.0	3,339.7	3,425.7	3,394.4	18.8	11.0	133.09	464.8	514.4	477.9	453.0	24.86	19.221	
3,600.0	3,433.0	3,523.2	3,490.9	19.5	11.3	135.05	478.7	517.4	492.4	467.1	25.31	19.455	
3,700.0	3,526.3	3,620.7	3,587.4	20.2	11.7	136.91	492.5	520.4	507.5	481.7	25.75	19.711	
3,800.0	3,619.6	3,718.2	3,683.9	20.9	12.0	138.65	506.4	523.3	523.0	496.9	26.17	19.985	
3,900.0	3,712.9	3,815.8	3,780.4	21.6	12.3	140.30	520.2	526.3	539.1	512.5	26.59	20.273	
4,000.0	3,806.3	3,913.3	3,876.9	22.3	12.7	141.85	534.1	529.3	555.5	528.5	27.00	20.571	
4,100.0	3,899.6	4,010.8	3,973.3	23.0	13.0	143.32	547.9	532.3	572.3	544.9	27.42	20.875	
4,200.0	3,992.9	4,108.3	4,069.8	23.8	13.4	144.70	561.8	535.3	589.5	561.7	27.83	21.184	
4,300.0	4,086.2	4,205.9	4,166.3	24.5	13.7	146.01	575.6	538.3	607.0	578.7	28.24	21.495	
4,400.0	4,179.5	4,303.4	4,262.8	25.2	14.0	147.24	589.4	541.3	624.8	596.1	28.65	21.807	
4,500.0	4,272.9	4,400.9	4,359.3	25.9	14.4	148.40	603.3	544.3	642.8	613.8	29.06	22.118	
4,600.0	4,366.2	4,498.4	4,455.8	26.6	14.7	149.51	617.1	547.3	661.1	631.6	29.48	22.426	
4,700.0	4,459.5	4,596.0	4,552.3	27.3	15.0	150.55	631.0	550.3	679.7	649.8	29.90	22.730	
4,800.0	4,552.8	4,693.5	4,648.8	28.0	15.4	151.54	644.8	553.3	698.4	668.1	30.32	23.031	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis					Distance					
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
4,900.0	4,646.1	4,791.0	4,745.2	28.7	15.7	152.47	658.7	556.3	717.3	686.6	30.75	23.327		
5,000.0	4,739.5	4,888.5	4,841.7	29.4	16.1	153.36	672.5	559.3	736.4	705.2	31.18	23.617		
5,100.0	4,832.8	4,986.0	4,938.2	30.1	16.4	154.21	686.4	562.3	755.7	724.1	31.62	23.901		
5,200.0	4,926.1	5,083.6	5,034.7	30.8	16.7	155.01	700.2	565.3	775.1	743.1	32.06	24.179		
5,300.0	5,019.4	5,181.1	5,131.2	31.5	17.1	155.77	714.1	568.3	794.7	762.2	32.50	24.451		
5,400.0	5,112.7	5,278.6	5,227.7	32.2	17.4	156.50	727.9	571.3	814.4	781.4	32.95	24.716		
5,500.0	5,206.0	5,376.1	5,324.2	32.9	17.8	157.19	741.8	574.3	834.2	800.8	33.40	24.974		
5,600.0	5,299.4	5,465.4	5,412.5	33.6	18.1	157.85	754.3	577.0	854.2	820.3	33.84	25.238		
5,700.0	5,393.7	5,541.1	5,487.6	34.1	18.3	158.47	763.3	579.0	873.8	839.6	34.20	25.552		
5,800.0	5,489.1	5,616.4	5,562.6	34.6	18.4	159.03	770.4	580.5	892.9	858.3	34.51	25.872		
5,900.0	5,585.5	5,700.0	5,646.0	35.0	18.6	159.57	776.0	581.7	911.3	876.5	34.79	26.195		
6,000.0	5,682.8	5,766.4	5,712.3	35.4	18.7	159.99	778.7	582.3	929.0	893.9	35.02	26.526		
6,100.0	5,780.8	5,841.0	5,786.9	35.7	18.8	160.40	780.0	582.6	946.0	910.8	35.22	26.861		
6,200.0	5,879.4	5,935.5	5,881.4	36.0	18.9	160.81	780.0	582.6	961.4	926.0	35.42	27.147		
6,300.0	5,978.6	6,034.6	5,980.6	36.3	19.1	161.14	780.0	582.6	973.7	938.1	35.62	27.339		
6,400.0	6,078.1	6,134.2	6,080.1	36.5	19.2	161.38	780.0	582.6	982.7	946.9	35.80	27.452		
6,500.0	6,177.9	6,234.0	6,179.9	36.6	19.4	161.53	780.0	582.6	988.4	952.4	35.95	27.489		
6,600.0	6,277.9	6,333.9	6,279.9	36.7	19.5	161.59	780.0	582.6	990.8	954.7	36.09	27.452		
6,700.0	6,377.9	6,434.0	6,379.9	36.8	19.7	179.60	780.0	582.6	990.9	936.0	54.87	18.059		
6,800.0	6,477.9	6,534.3	6,479.9	36.9	19.8	-90.03	780.0	576.0	990.8	954.3	36.57	27.098		
6,803.7	6,481.6	6,537.9	6,483.6	36.9	19.8	-90.00	780.0	575.5	990.8	954.3	36.57	27.097		
6,900.0	6,577.5	6,632.9	6,576.5	36.9	19.9	-89.34	780.0	556.8	990.9	954.3	36.57	27.094		
7,000.0	6,675.3	6,730.0	6,668.5	36.9	20.0	-88.67	780.0	525.9	991.1	954.6	36.50	27.156		
7,100.0	6,769.5	6,825.8	6,754.7	36.9	20.0	-88.03	780.0	484.2	991.4	955.0	36.40	27.235		
7,200.0	6,858.7	6,920.3	6,834.0	36.8	20.1	-87.42	780.0	432.8	991.8	955.5	36.37	27.267		
7,300.0	6,941.1	7,013.7	6,905.5	36.6	20.2	-86.86	780.0	372.8	992.3	955.8	36.51	27.182		
7,400.0	7,015.5	7,106.2	6,968.6	36.5	20.4	-86.35	780.0	305.2	992.9	955.9	36.91	26.901		
7,500.0	7,080.5	7,197.8	7,022.6	36.3	20.6	-85.90	780.0	231.3	993.4	955.7	37.68	26.364		
7,600.0	7,135.1	7,288.7	7,067.0	36.2	21.0	-85.51	780.0	152.1	993.9	955.0	38.91	25.543		
7,700.0	7,178.2	7,379.0	7,101.5	36.0	21.7	-85.20	780.0	68.7	994.3	953.7	40.63	24.470		
7,800.0	7,209.3	7,468.9	7,125.9	35.9	22.7	-84.96	780.0	-17.8	994.7	951.8	42.85	23.215		
7,900.0	7,227.7	7,558.4	7,139.9	35.9	24.1	-84.80	780.0	-106.2	994.9	949.4	45.50	21.867		
8,000.0	7,233.1	7,650.0	7,143.4	35.9	25.7	-84.72	780.0	-197.6	995.1	946.5	48.55	20.495		
8,011.0	7,232.9	7,657.6	7,143.2	35.9	25.8	-84.71	780.0	-205.2	995.1	946.2	48.87	20.360		
8,100.0	7,230.6	7,745.8	7,139.7	36.1	27.5	-84.64	780.0	-293.3	995.2	943.1	52.09	19.106		
8,200.0	7,228.2	7,845.8	7,135.7	36.4	29.6	-84.55	780.0	-393.2	995.3	939.3	56.01	17.770		
8,300.0	7,225.7	7,945.7	7,131.8	37.0	31.8	-84.47	780.0	-493.2	995.5	935.3	60.19	16.538		
8,400.0	7,223.2	8,045.7	7,127.8	37.9	34.1	-84.38	780.0	-593.1	995.6	931.0	64.58	15.416		
8,500.0	7,220.7	8,145.7	7,123.8	39.2	36.5	-84.30	780.0	-693.0	995.8	926.6	69.14	14.402		
8,600.0	7,218.2	8,245.7	7,119.8	40.8	38.9	-84.21	780.0	-792.9	995.9	922.1	73.84	13.488		
8,700.0	7,215.8	8,345.7	7,115.9	42.7	41.4	-84.12	780.0	-892.8	996.1	917.4	78.64	12.666		
8,800.0	7,213.3	8,445.7	7,111.9	44.7	43.9	-84.04	780.0	-992.7	996.2	912.7	83.54	11.925		
8,900.0	7,210.8	8,545.7	7,107.9	46.9	46.4	-83.95	780.0	-1,092.6	996.4	907.9	88.52	11.256		
9,000.0	7,208.3	8,645.7	7,103.9	49.1	49.0	-83.87	780.0	-1,192.5	996.5	903.0	93.56	10.651		
9,100.0	7,205.9	8,745.7	7,099.9	51.5	51.6	-83.78	780.0	-1,292.4	996.7	898.0	98.65	10.103		
9,200.0	7,203.4	8,845.6	7,096.0	53.9	54.2	-83.69	780.0	-1,392.3	996.9	893.1	103.79	9.604		
9,300.0	7,200.9	8,945.6	7,092.0	56.3	56.9	-83.61	780.0	-1,492.2	997.0	888.0	108.97	9.149		
9,400.0	7,198.4	9,045.6	7,088.0	58.8	59.5	-83.52	780.0	-1,592.2	997.2	883.0	114.19	8.733		
9,500.0	7,195.9	9,145.6	7,084.0	61.3	62.2	-83.44	780.0	-1,692.1	997.4	877.9	119.43	8.351		
9,600.0	7,193.5	9,245.6	7,080.1	63.9	64.9	-83.35	780.0	-1,792.0	997.5	872.8	124.69	8.000		
9,700.0	7,191.0	9,345.6	7,076.1	66.4	67.6	-83.27	780.0	-1,891.9	997.7	867.7	129.98	7.676		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7X-304 - Wellbore #1 - Plan #1 (7-15-14)													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Reference	Offset	Reference	Offset	(ft)	(ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,800.0	7,188.5	9,445.6	7,072.1	69.0	70.3	-83.18	780.0	-1,991.8	997.9	862.6	135.28	7.376		
9,900.0	7,186.0	9,545.6	7,068.1	71.6	73.0	-83.09	780.0	-2,091.7	998.1	857.5	140.61	7.098		
10,000.0	7,183.6	9,645.6	7,064.1	74.3	75.7	-83.01	780.0	-2,191.6	998.2	852.3	145.94	6.840		
10,100.0	7,181.1	9,745.5	7,060.2	76.9	78.4	-82.92	780.0	-2,291.5	998.4	847.1	151.29	6.599		
10,200.0	7,178.6	9,845.5	7,056.2	79.5	81.1	-82.84	780.0	-2,391.4	998.6	842.0	156.65	6.375		
10,300.0	7,176.1	9,945.5	7,052.2	82.2	83.8	-82.75	780.0	-2,491.3	998.8	836.8	162.02	6.165		
10,400.0	7,173.6	10,045.5	7,048.2	84.8	86.6	-82.67	780.0	-2,591.3	999.0	831.6	167.40	5.968		
10,500.0	7,171.2	10,145.5	7,044.3	87.5	89.3	-82.58	780.0	-2,691.2	999.2	826.4	172.78	5.783		
10,600.0	7,168.7	10,245.5	7,040.3	90.2	92.1	-82.50	780.0	-2,791.1	999.4	821.2	178.17	5.609		
10,700.0	7,166.2	10,345.5	7,036.3	92.9	94.8	-82.41	780.0	-2,891.0	999.6	816.0	183.57	5.445		
10,800.0	7,163.7	10,445.5	7,032.3	95.6	97.6	-82.33	780.0	-2,990.9	999.8	810.8	188.97	5.291		
10,900.0	7,161.3	10,545.5	7,028.3	98.3	100.3	-82.24	780.0	-3,090.8	1,000.0	805.6	194.37	5.145 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
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
0.0	0.0	1.0	1.0	0.0	0.0	89.51	3.6	421.6	421.6				
100.0	100.0	101.0	101.0	0.1	0.1	89.51	3.6	421.6	421.6	421.4	0.23	1,857.224	
200.0	200.0	201.0	201.0	0.3	0.3	89.51	3.6	421.6	421.6	420.9	0.68	623.188	
300.0	300.0	301.0	301.0	0.6	0.6	89.51	3.6	421.6	421.6	420.5	1.13	374.410	
400.0	400.0	401.0	401.0	0.8	0.8	89.51	3.6	421.6	421.6	420.0	1.58	267.589	
500.0	500.0	501.0	501.0	1.0	1.0	71.74	3.6	421.6	421.1	419.0	2.02	208.025	
600.0	599.8	600.8	600.8	1.2	1.2	72.44	3.6	421.6	419.5	417.0	2.48	169.466	
700.0	699.5	700.5	700.5	1.5	1.5	73.63	3.6	421.6	416.9	414.0	2.94	141.885	
800.0	798.7	799.7	799.7	1.7	1.7	75.30	3.6	421.6	413.6	410.2	3.42	120.768	
900.0	897.5	898.5	898.5	2.0	1.9	77.47	3.6	421.6	409.9	405.9	3.95	103.860	
1,000.0	995.6	996.6	996.6	2.4	2.1	80.12	3.6	421.6	406.1	401.6	4.51	89.967	
1,100.0	1,093.1	1,094.1	1,094.1	2.8	2.3	83.26	3.6	421.6	402.8	397.6	5.14	78.431	
1,200.0	1,189.6	1,190.6	1,190.6	3.3	2.6	86.86	3.6	421.6	400.5	394.7	5.81	68.872	
1,278.0	1,264.3	1,265.0	1,265.0	3.7	2.7	89.85	4.3	421.9	399.9	393.5	6.39	62.599 CC	
1,300.0	1,285.3	1,286.0	1,286.0	3.8	2.8	90.69	4.8	422.0	399.9	393.4	6.55	61.065 ES	
1,400.0	1,379.8	1,382.2	1,382.1	4.4	3.0	94.52	9.1	423.6	401.4	394.1	7.34	54.702	
1,500.0	1,473.3	1,479.4	1,479.0	5.0	3.2	98.31	16.4	426.2	404.9	396.7	8.18	49.526	
1,600.0	1,566.6	1,578.3	1,577.2	5.6	3.4	101.73	27.1	430.1	409.8	400.7	9.03	45.379	
1,700.0	1,659.9	1,676.1	1,674.1	6.3	3.7	104.74	39.7	434.7	415.6	405.7	9.89	42.025	
1,800.0	1,753.3	1,773.5	1,770.6	7.0	4.0	107.64	52.3	439.2	422.5	411.8	10.74	39.333	
1,900.0	1,846.6	1,870.9	1,867.0	7.7	4.2	110.44	64.9	443.8	430.6	419.0	11.58	37.169	
2,000.0	1,939.9	1,968.3	1,963.5	8.4	4.5	113.14	77.5	448.3	439.7	427.2	12.41	35.431	
2,100.0	2,033.2	2,065.6	2,059.9	9.1	4.8	115.73	90.1	452.9	449.7	436.5	13.21	34.031	
2,200.0	2,126.5	2,163.0	2,156.4	9.7	5.1	118.21	102.7	457.5	460.6	446.7	14.00	32.909	
2,300.0	2,219.9	2,260.4	2,252.8	10.4	5.4	120.57	115.3	462.0	472.4	457.7	14.76	32.010	
2,400.0	2,313.2	2,357.8	2,349.2	11.1	5.7	122.82	127.9	466.6	485.0	469.5	15.50	31.296	
2,500.0	2,406.5	2,455.1	2,445.7	11.8	6.0	124.95	140.5	471.2	498.3	482.1	16.21	30.733	
2,600.0	2,499.8	2,552.5	2,542.1	12.5	6.3	126.97	153.2	475.7	512.3	495.4	16.91	30.293	
2,700.0	2,593.1	2,649.9	2,638.6	13.2	6.6	128.89	165.8	480.3	526.9	509.3	17.59	29.957	
2,800.0	2,686.4	2,747.3	2,735.0	13.9	6.9	130.71	178.4	484.8	542.0	523.8	18.25	29.705	
2,900.0	2,779.8	2,844.6	2,831.5	14.6	7.2	132.43	191.0	489.4	557.7	538.8	18.89	29.524	
3,000.0	2,873.1	2,942.0	2,927.9	15.3	7.5	134.05	203.6	494.0	573.8	554.3	19.52	29.402	
3,100.0	2,966.4	3,039.4	3,024.4	16.0	7.8	135.59	216.2	498.5	590.4	570.3	20.13	29.329	
3,200.0	3,059.7	3,136.8	3,120.8	16.7	8.1	137.05	228.8	503.1	607.4	586.6	20.73	29.297 SF	
3,300.0	3,153.0	3,234.1	3,217.3	17.4	8.4	138.42	241.4	507.6	624.7	603.4	21.32	29.298	
3,400.0	3,246.4	3,331.5	3,313.7	18.1	8.7	139.73	254.0	512.2	642.4	620.5	21.90	29.327	
3,500.0	3,339.7	3,428.9	3,410.2	18.8	9.1	140.96	266.6	516.8	660.4	637.9	22.48	29.379	
3,600.0	3,433.0	3,526.3	3,506.6	19.5	9.4	142.13	279.2	521.3	678.7	655.6	23.04	29.451	
3,700.0	3,526.3	3,623.6	3,603.1	20.2	9.7	143.24	291.8	525.9	697.2	673.6	23.60	29.538	
3,800.0	3,619.6	3,721.0	3,699.5	20.9	10.0	144.29	304.4	530.5	716.0	691.8	24.16	29.637	
3,900.0	3,712.9	3,818.4	3,796.0	21.6	10.3	145.29	317.0	535.0	735.0	710.3	24.71	29.747	
4,000.0	3,806.3	3,915.8	3,892.4	22.3	10.7	146.24	329.6	539.6	754.2	729.0	25.25	29.865	
4,100.0	3,899.6	4,013.1	3,988.9	23.0	11.0	147.14	342.2	544.1	773.6	747.8	25.80	29.989	
4,200.0	3,992.9	4,110.5	4,085.3	23.8	11.3	148.00	354.8	548.7	793.2	766.9	26.34	30.118	
4,300.0	4,086.2	4,207.9	4,181.8	24.5	11.6	148.82	367.4	553.3	813.0	786.1	26.87	30.251	
4,400.0	4,179.5	4,305.3	4,278.2	25.2	11.9	149.59	380.1	557.8	832.9	805.5	27.41	30.386	
4,500.0	4,272.9	4,402.6	4,374.6	25.9	12.3	150.34	392.7	562.4	852.9	825.0	27.94	30.523	
4,600.0	4,366.2	4,500.0	4,471.1	26.6	12.6	151.05	405.3	567.0	873.1	844.6	28.48	30.661	
4,700.0	4,459.5	4,597.4	4,567.5	27.3	12.9	151.72	417.9	571.5	893.4	864.4	29.01	30.799	
4,800.0	4,552.8	4,681.9	4,651.3	28.0	13.2	152.30	428.5	575.4	914.3	884.7	29.51	30.982	
4,900.0	4,646.1	4,757.2	4,726.1	28.7	13.4	152.85	436.2	578.1	937.3	907.3	29.95	31.291	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7X-434 - Wellbore #1 - Plan #1 (7-15-14)													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	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	4,739.5	4,831.4	4,800.1	29.4	13.5	153.43	441.9	580.2	962.7	932.3	30.37	31.696		
5,100.0	4,832.8	4,900.0	4,868.6	30.1	13.6	153.98	445.7	581.6	990.4	959.7	30.77	32.183		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design PDC Bolton 3N68W7Y-MLVT Pad Sec.7-T3N-R68W - Bolton 7Y-214 - Wellbore #1 - Plan #1 (7-16-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
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	1.0	1.0	0.0	0.0	93.46	-25.5	421.6	422.4					
100.0	100.0	101.0	101.0	0.1	0.1	93.46	-25.5	421.6	422.4	422.1	0.23	1,860.550		
200.0	200.0	201.0	201.0	0.3	0.3	93.46	-25.5	421.6	422.4	421.7	0.68	624.304		
300.0	300.0	301.0	301.0	0.6	0.6	93.46	-25.5	421.6	422.4	421.2	1.13	375.081		
400.0	400.0	401.0	401.0	0.8	0.8	93.46	-25.5	421.6	422.4	420.8	1.58	268.068		
500.0	500.0	501.0	501.0	1.0	1.0	75.69	-25.5	421.6	421.9	419.9	2.02	208.468		
600.0	599.8	600.8	600.8	1.2	1.2	76.41	-25.5	421.6	420.7	418.2	2.47	169.970		
700.0	699.5	700.5	700.5	1.5	1.5	77.60	-25.5	421.6	418.7	415.8	2.94	142.483		
800.0	798.7	799.7	799.7	1.7	1.7	79.27	-25.5	421.6	416.2	412.8	3.43	121.482		
900.0	897.5	898.5	898.5	2.0	1.9	81.43	-25.5	421.6	413.6	409.6	3.95	104.712		
1,000.0	895.6	896.6	896.6	2.4	2.1	84.06	-25.5	421.6	411.1	406.6	4.52	90.982		
1,100.0	1,093.1	1,094.1	1,094.1	2.8	2.3	87.15	-25.5	421.6	409.4	404.2	5.14	79.635		
1,182.0	1,172.4	1,173.4	1,173.4	3.2	2.5	90.00	-25.5	421.6	408.8	403.1	5.70	71.775 CC		
1,200.0	1,189.6	1,190.6	1,190.6	3.3	2.6	90.66	-25.5	421.6	408.9	403.0	5.82	70.281 ES		
1,300.0	1,285.3	1,286.3	1,286.3	3.8	2.8	94.54	-25.5	421.6	410.3	403.7	6.55	62.662		
1,400.0	1,379.8	1,380.8	1,380.8	4.4	3.0	98.71	-25.5	421.6	414.2	406.9	7.32	56.576		
1,500.0	1,473.3	1,474.3	1,474.3	5.0	3.2	103.13	-25.5	421.6	421.4	413.3	8.12	51.867		
1,600.0	1,566.6	1,567.6	1,567.6	5.6	3.4	107.50	-25.5	421.6	431.5	422.6	8.91	48.409		
1,700.0	1,659.9	1,660.9	1,660.9	6.3	3.6	111.67	-25.5	421.6	444.3	434.7	9.68	45.924		
1,800.0	1,753.3	1,754.3	1,754.3	7.0	3.8	115.61	-25.5	421.6	459.6	449.2	10.40	44.176		
1,900.0	1,846.6	1,847.6	1,847.6	7.7	4.0	119.31	-25.5	421.6	477.1	466.0	11.10	42.990		
2,000.0	1,939.9	1,940.9	1,940.9	8.4	4.3	122.76	-25.5	421.6	496.6	484.8	11.76	42.231		
2,100.0	2,033.2	2,034.2	2,034.2	9.1	4.5	125.96	-25.5	421.6	517.8	505.4	12.39	41.799		
2,200.0	2,126.5	2,127.5	2,127.5	9.7	4.7	128.92	-25.5	421.6	540.6	527.6	12.99	41.616 SF		
2,300.0	2,219.9	2,220.9	2,220.9	10.4	4.9	131.65	-25.5	421.6	564.8	551.2	13.57	41.624		
2,400.0	2,313.2	2,314.2	2,314.2	11.1	5.1	134.17	-25.5	421.6	590.2	576.0	14.13	41.775		
2,500.0	2,406.5	2,407.5	2,407.5	11.8	5.3	136.49	-25.5	421.6	616.6	601.9	14.67	42.035		
2,600.0	2,499.8	2,500.9	2,500.9	12.5	5.5	138.63	-25.5	421.6	643.9	628.7	15.20	42.376		
2,700.0	2,593.1	2,603.5	2,603.5	13.2	5.7	140.64	-24.2	423.0	671.4	655.7	15.72	42.706		
2,800.0	2,686.4	2,708.3	2,708.1	13.9	6.0	142.24	-20.4	427.2	698.2	681.9	16.27	42.907		
2,900.0	2,779.8	2,815.1	2,814.5	14.6	6.2	143.44	-13.9	434.4	723.8	706.9	16.86	42.937		
3,000.0	2,873.1	2,915.9	2,914.5	15.3	6.4	144.29	-5.7	443.4	748.3	730.9	17.47	42.838		
3,100.0	2,966.4	3,012.3	3,010.2	16.0	6.7	145.02	2.3	452.3	772.9	754.8	18.08	42.740		
3,200.0	3,059.7	3,108.8	3,105.9	16.7	6.9	145.72	10.4	461.1	797.6	778.9	18.70	42.651		
3,300.0	3,153.0	3,205.3	3,201.7	17.4	7.1	146.37	18.4	469.9	822.4	803.1	19.32	42.567		
3,400.0	3,246.4	3,301.7	3,297.4	18.1	7.4	146.98	26.4	478.8	847.3	827.4	19.94	42.490		
3,500.0	3,339.7	3,398.2	3,393.1	18.8	7.6	147.56	34.4	487.6	872.3	851.8	20.56	42.418		
3,600.0	3,433.0	3,494.6	3,488.8	19.5	7.9	148.10	42.4	496.5	897.4	876.2	21.19	42.352		
3,700.0	3,526.3	3,591.1	3,584.5	20.2	8.1	148.62	50.5	505.3	922.5	900.7	21.81	42.290		
3,800.0	3,619.6	3,687.6	3,680.3	20.9	8.4	149.11	58.5	514.1	947.7	925.3	22.44	42.233		
3,900.0	3,712.9	3,784.0	3,776.0	21.6	8.7	149.57	66.5	523.0	973.0	949.9	23.07	42.181		
4,000.0	3,806.3	3,880.5	3,871.7	22.3	8.9	150.01	74.5	531.8	998.3	974.6	23.70	42.132		

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<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5165.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Bolton 7W-434

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.30°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Bolton 7W-434
<b>Project:</b>	SEC.7-T3N-R68W	<b>TVD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Reference Site:</b>	Bolton 3N68W7TY Pad Sec.7-T3N-R68W	<b>MD Reference:</b>	WELL @ 5165.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Bolton 7W-434	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	landmark
<b>Reference Design:</b>	Plan #1 (9-19-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 5165.0ft (RKB - 15')

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